

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-313/85-28
50-368/85-29

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: December 16-19, 1985 and February 3-7, 1986

Inspector: Blaine Murray 3/24/86
for D. Blair Spitzberg, Radiation Specialist Date

Approved: Blaine Murray 3/24/86
Blaine Murray, Chief, Facilities Radiological Protection Section Date

Inspection Summary

Inspection Conducted December 16-19, 1985 and February 3-7, 1986
(Reports 50-313/85-28; 50-368/85-29)

Areas Inspected: Routine, unannounced inspection of licensee's radioactive waste systems including: management organizations; training and qualifications; radioactive liquid and gaseous effluent release; records and reports of radioactive effluents; procedures for controlling effluent releases; testing of air cleaning systems; instrumentation; radiochemistry and plant quality controls; and licensee audits. The inspection involved 59 inspector-hours onsite by one NRC inspector.

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

B604070290 B60401
PDR ADOCK 05000313
Q PDR

DETAILS1. Persons ContactedArkansas Power and Light Company (AP&L)

*T. G. Campbell, Vice President, Nuclear Operations
 *J. M. Levine, General Manager
 *B. A. Baker, Operations Manager
 *E. C. Ewing, Manager, Engineering and Technical Support
 *E. L. Sanders, Maintenance Manager
 *R. P. Wewers, Work Control Center Manager
 *L. W. Humphrey, Administrative Manager
 L. J. Dugger, Special Projects Manager
 J. McWilliams, Operations Superintendent, Unit 1
 *T. C. Baker, Technical Analysis Superintendent
 *G. L. Fiser, Radiochemistry Supervisor
 *G. D. Provencher, Quality Engineering Supervisor
 *D. Lomax, Plant Licensing Supervisor
 D. Akins, Radwaste Supervisor
 D. Wagner, Assistant Health Physics (HP) Superintendent
 C. Halbert, Mechanical Engineering Supervisor
 *W. C. McKelvy, Assistant Radiochemistry Supervisor
 *P. Campbell, Plant Licensing Engineer
 B. L. Bata, Quality Assurance (QA) Engineer
 J. Johnson, Licensing Engineer
 T. Rolniak, Health Physics Training Instructor
 J. Hatt, QA Engineer
 B. Copp, QA Engineer
 C. Taylor, Operations Technician
 M. Goad, Operations Trainer II
 R. Lacy, Waste Control Operator
 L. Norris, Shift Administrative Assistant
 D. Russell, Plant Engineer (Electrical)

Others

*W. D. Johnson, NRC Senior Resident Inspector
 C. C. Harbuck, NRC Resident Inspector

*Denotes those present during the exit interview on February 7, 1986.

2. Licensee Action on Previously Identified Open Items

(Closed) Open Item (313/8214-12; 368/8211-12): Isokinetic Sampling Capabilities of Gaseous Effluent Monitors - This item was discussed in NRC Inspection Report 50-313/82-14; 50-368/82-14, and involved the licensee's documentation of the SPING-4A's (System Level Particulate, Iodine, and Noble Gas Air Monitor) capability to maintain isokinetic sampling of plant

gaseous effluents with variations of duct flow velocity of ± 20 percent as specified in NUREG 0737, Item II.F.1, Attachment 2. In response to this item, the licensee had performed an engineering evaluation (undated) which concluded that: (1) No credible event has been identified which could result in duct flow variations of ± 20 percent; (2) SPING-4A sampling under conditions of duct flow variations would not be isokinetic; and (3) given the anisokinetic sampling, the accuracy of the sampling method would remain within the ± 20 percent instrument error specified in ANSI 13.10 - 1974. The NRC inspector reviewed this information and determined that it was adequate to resolve the concerns related to this item. This item is considered closed.

3. Inspector Observations

The following are observations the NRC inspector discussed with the licensee during the inspection and at the exit interview on February 7, 1986. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for program improvement, but they have no specific regulatory requirement. The licensee indicated that these items would be reviewed.

- a. Waste Gas Decay System's Capability to Maintain Airborne Concentrations ALARA - Use of the Unit 2 vacuum degasifier and waste gas decay system has been limited due to the low levels of noncondensable gases in the reactor coolant system (RCS), and leaks in the system when it has been used that resulted in elevated airborne concentrations of noble gases in the auxiliary building. Although the system can be operated if called upon, the leaks in the system could increase personnel exposures in the event that RCS noble gas concentrations mandated use of the system (see paragraph 6.b.).
- b. Safety Analysis Report Update - A description of the SPING-4A effluent monitors installed in 1981 has not been added to the Updated Safety Analysis Report (USAR) for Units 1 and 2. These monitors are being used routinely to demonstrate compliance with the licensee's radiological effluent technical specifications (RETS).
- c. QA Audit Findings Followup - The licensee has been slow to resolve several deficiencies identified by site QA in March 1985 related to calibration and performance of process and area radiation monitors. Agreement upon a course of action had not been reached between the responsible parties for several of these issues as of February 6, 1986 (see paragraph 11).

4. Organization and Management Controls

The NRC inspector reviewed the licensee's functional organization regarding radioactive waste management to determine compliance with Sections 6.1 - 6.3 of the Technical Specifications (TS) and Chapter 12 of the USAR. An organizational separation existed with responsibilities for in-plant processing systems falling under the operations group, and the radwaste group of the

HP organization/department assuming responsibility for waste (spent resins and filters) at the point at which they were transferred into shipping containers for storage or shipment.

The radwaste program's current organizational structure was defined in 1983 as an offshoot of the HP department. The program falls under HP management directives. Job descriptions for radwaste supervisor and assistant radwaste supervisor (packaging and labelling) were reviewed. The program has received support from a corporate health physicist.

No violations or deviations were identified.

5. Training

The NRC inspector reviewed the licensee's program for radwaste technician and waste control operator (WCO) training to determine compliance with the TS Section 6.4, Chapter 12.2 of the USAR, and facility procedures. Records indicated that all radwaste technicians had either received or were scheduled to receive the series of classroom training and written examinations specified by procedure 1063.26.

Waste control operators have been trained according to procedure 1063.08 which consist principally of on-the-job (OTJ) training. The operators' status of training has been tracked on the TF-195 HP qualification guide and TF-124 systems qualification guide. Since WCOs at ANO presently are, or are working to become licensed operators, requalification is mandatory under license requalifications procedures. Classroom training in radwaste systems has been a prerequisite for all licensed operators.

No violations or deviations were identified.

6. Radioactive Effluent Releases

The NRC inspector reviewed the liquid and gaseous radwaste processing systems, their operation, and procedures and records associated with liquid and gaseous release permits to determine compliance with the radiological effluent technical specifications (RETS), Offsite Dose Calculation Manual (ODCM), and the design objectives of 10 CFR 50, Appendix I.

a. Liquid

A representative number of liquid release permits dating back to the previous inspection (July 23-27, 1984) were examined and it was determined that preparation, sampling and analysis, performance and approval of the releases were conducted in accordance with procedures 1104.14, 1104.20, 2104.14, and 2104.20. Quantities of radioactive materials released in liquid effluents appeared to be within the limits specified by RETS. The NRC inspector held discussions with cognizant licensee staff members and determined that no design changes had been made to the liquid radwaste systems dating back to the previous inspection.

b. Gaseous

A review of gaseous release permits which included normal unit vent effluents was conducted by the NRC inspector and it was determined that gaseous releases were within the limits specified by RETS, and that projected offsite doses had been properly calculated according to the ODCM. The release records reviewed showed that the licensee had adhered to gaseous radwaste systems operating procedures 1104.22, 1104.33, 2104.22, and 2104.33. As noted in Section 3, gaseous releases from Unit 2 via the waste gas decay tanks were rarely made. From discussions with several operations personnel, it was learned that this system had experienced leaks due, in part, to its sporadic use. This observation was presented during the exit briefing for the licensee's consideration. The NRC inspector determined that no design changes had been implemented in the gaseous radwaste systems dating back to the previous inspection.

No violations or deviations were identified.

7. Records and Reports of Radioactive Effluents

The NRC inspector examined the licensee's records and reports concerning radwaste systems and effluent releases to determine compliance with 10 CFR 50.36(a)(2) and the TS (Sections 6.9 - 6.10). Reports of quarterly and semiannual effluent releases were reviewed and were found to be in agreement with established guidance for content and format. For the period dating back to the previous NRC inspection in this area, there were no Licensee Event Reports (LERs) issued that were connected with the radwaste area. An internal Report of Abnormal Condition was prepared following the May 10, 1985, draining of primary coolant from the Unit 2 letdown heat exchanger to the turbine building sump which was then passed into, and contained in the oily water separator. This nonreportable occurrence was the subject of APL letter 2CAN078504 dated July 11, 1985, transmitted to Region IV.

No violations or deviations were identified.

8. Procedures for Effluent Release Control

The NRC inspector examined current approved revisions of the facilities' operating procedures established for the liquid and gaseous radwaste activities and found them to be well written and comprehensive. In addition to procedures referenced elsewhere in this report, the following procedures for Unit 1 and or 2 were reviewed:

- Radioactive Waste Management Program Surveillance - 1603.15
- Spent Resin Transfer Operations - 1104.18
- Process Radiation Monitoring System Calibration - 2304.027
- Process Radiation Monitoring System Test - 2304.16
- Sampling Unit 1 Vents - 1607.010
- Basic Acid & Waste Concentrators - 2104.18

- Clean Resin Transfer - 2104.19
- Vacuum Degasifier Operations - 2104.16
- Chemical and Volume Control - 2104.02
- Liquid Waste Discharge Line High Radiation - 2203.07
- Waste Gas Discharge Line High Radiation - 2203.06
- Neutralization Tank Dump - 1106.27
- Area Radiation Monitor Calibration - 1304.028
- Gaseous Radwaste Instrumentation Calibration - 1304.132
- Interim H₂ Purge Radiation Monitor Calibration - 1304.81
- In Place Leak Testing of Ventilation Systems Containing HEPA & Carbon Filters - 1802.06

No violations or deviations were identified.

9. Testing of Air Cleaning Systems

The NRC inspector reviewed the licensee's procedures, surveillance, and test results for selected air cleaning systems containing HEPA filters and activated carbon adsorbers to determine compliance with the TS 3.13, 3.15, 3.22, 3.9, 4.11, 4.17, 4.25, 3/4.7.6, and 3.4.9.11.2. In-place filter testing had been performed by an outside contractor at the required frequency. Procedure 1802.06 was found to encompass most of the contractor's procedures including testing airflow capacity and distribution; duct, housing, and mounting frame leak test; aerosol mixing uniformity test; testing of HEPA filter and iodine adsorber; and laboratory testing of carbon for elemental iodine and methyl iodide removal efficiency. It was noted; however, that on two contractor laboratory tests of activated carbon adsorber material from the Unit 2 emergency air filtration train 2VSF-009 performed November 6, 1982 and July 12, 1984, the test temperature for radioiodine removal efficiency was 130°C instead of 80°C as specified by ANSI N509-1976, Table 5-1. Since the licensee had identified this discrepancy and completed a revision of the implementing test procedure 1802.06 in July 1984, and has restored and passed the filter train charcoal at the correct temperature, no further enforcement action is required.

No deviations were identified.

10. Effluent Control Instrumentation

The NRC inspector reviewed the licensee's liquid and gaseous effluent control instrumentation used in controlling effluent releases to determine compliance with the TS 4.29.1.3; 4.29.2.3; 3/4 3-45; and 3/4 3-54.

Selected records associated with instrument functional tests, calibration and alarm/trip setpoints for process, effluent and area radiation monitors and flow recorders were examined which showed that the frequency of calibration and channel checks met TS requirements. Radioactive sources used to calibrate TS monitors were determined to be NBS traceable and the tests were shown to have been performed according to applicable procedures. There were, however, some apparent deficiencies in the calibration and test

procedures which had been initially identified by the licensee's QA organization. These findings together with licensee actions taken, or proposed include:

- ° Determination of proper operating voltage for area radiation monitors (ARMS) - It was found that voltage plateaus had been properly determined, but that final operating voltages had been set at vendor specified settings independent of the plateau. To resolve this problem, documented discussions were held between Instrumentation & Control (I&C) personnel and the instruments' vendors with a procedure change initiated to provide a four point calibration in a known radiation field. This item is to be reviewed following approval of the revised procedure and verification of results after the next scheduled calibration.
- ° Unit 1 hydrogen purge monitor calibration may have been performed in a geometry such that actual radiation fields were not as stated in procedure 1304.81. This item is to be resolved with the fabrication of a calibration jig with the reference radiation fields to be determined by HP.
- ° Unit 2 area monitors had delivered spurious alarms. This item had initiated a design change procedure to change the instruments' response time in order to minimize spurious line pulses.

No violations or deviations were identified.

11. Quality Control

The NRC inspector reviewed the licensee's quality control (QC) program for the radwaste activities to determine compliance with Sections 3/4.11 and 3.25 of the TS. Quality control aspects of radwaste tank mixing, sampling, radiochemistry analysis and data handling were reviewed and found to be satisfactory. The NRC inspector accompanied technicians on a scheduled sample changeout of Unit 1 and 2 gaseous effluent monitors to determine conformance with applicable procedures.

No violations or deviations were identified.

12. Audits

The NRC inspector reviewed the licensee's audits of the radwaste activities associated with liquid and gaseous effluent releases to determine compliance with the Section 6.5 of the TS and the QA program. As noted in Section 10, the QA staff has been effective in identifying potential problems associated with the calibration and testing of process and area radiation monitors. Some of these areas of concern were first reported in Surveillance Finding Reports SFR1-636 (6/6/85), 1-633 (3/27/85), 021 (5/9/85), and Quality Assurance Report QAR-63 (6/27/85). Several of those issues had not been

satisfactorily resolved at the time of the NRC inspection. The length of time required for resolution of these cases was made an observation during the exit briefing.

No violations or deviations were identified.

13. Plant Inspections

The NRC inspector inspected the licensee's facilities on several occasions during the course of the inspection including the radwaste processing and control areas, effluent monitor locations, radwaste facility, and the control rooms.

No violations or deviations were identified.

14. Exit Interview

The NRC inspector met with licensee personnel and the senior NRC resident inspector listed in paragraph 1 at the conclusion of the inspection on February 7, 1986. The NRC inspector summarized the scope and findings of the inspection including the observations denoted in paragraph 3.