

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-313/84-30
50-368/84-30

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: October 22-26, 1984

Inspector: Wesley L. Holley 12/19/84
W. L. Holley, Radiation Specialist, Facilities
Radiological Protection Branch (FRPS) Date

Approved: Blaine Murray 12/19/84
B. Murray, Chief, FRPS Date

L. Martin 12/21/84
L. Martin, Project Section A
Reactor Project Branch 2 Date

Inspection Summary

Inspection Conducted October 22-26, 1984 (Report 50-313/84-30; 50-368/84-30)

Areas Inspected: Routine, unannounced inspection of the licensee's radiation protection activities during the Unit 1 refueling outage including: management controls and organization, audits, planning and preparation, training and qualifications, external exposure control, internal exposure control, control of radioactive materials and contamination, posting and control, and maintaining occupational exposure ALARA. The inspection involved 41 inspector-hours onsite by one NRC inspector.

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

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DETAILS

1. Persons Contacted

AP&L Personnel

- *E. C. Ewing, Manager, Engineering and Technical Support
- D. Akins, Supervisor, Health Physics (HP)
- *B. L. Bata, Engineer, Quality Assurance (QA)
- *M. J. Bolanis, Superintendent, HP
- *P. Campbell, Engineer, Licensing
- *T. H. Cogburn, Manager, Special Projects
- R. Greene, Supervisor/Temporary, HP Dosimetry
- W. Hada, Supervisor, HP
- D. Helm, HP Specialist
- *L. W. Humphrey, Manager, Administrative
- *D. B. Lomax, Supervisor, Plant Licensing
- T. Pugh, Lead Trainer, General Employee Training (GET)
- T. M. Rolniak, HP Trainer 2
- L. Schempp, Manager, Nuclear Quality Control (QC)
- D. Snelling, Corporate Health Physicist
- S. Strasner, Supervisor, QC
- D. Wagner, Assistant Superintendent, HP
- J. Waid, Supervisor, Administrative/Technical Support Training

The NRC inspector also interviewed several other licensee and contractor employees including HP and maintenance personnel.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (313/8409-02; 386/8409-02): Updated Safety Analysis Report (USAR) Organization Chart - Involved the licensee's failure to update the USAR organizational chart so that it adequately depicted the plant's functional organization. The NRC inspector reviewed the recently revised USAR Figure 12-3, "Functional Organization for Plant Operation," for Unit 1 and Figure 13.1-4, "Functional Organization for Plant Operation," for Unit 2. These changes adequately describe the present functional organization of ANO. This item is considered closed.

3. Organization and Management Controls

The NRC inspector reviewed the licensee's functional organization regarding the radiation protection program to determine compliance with the USAR commitments and Technical Specifications (TS) requirements.

During the period of this inspection, the HP staffing appeared to be sufficient to meet the requirements of the refueling outage. The licensee had hired 50 contract HP technicians to supplement the permanent plant staff. The licensee also had plans to hire 10 more contract HP technicians for a total of 60 for the outage. The licensee was utilizing one HP supervisor per shift as a roving HP observing the tasks being

performed for the outage. No contract HP technicians were being used to write radiation work permits (RWPs).

The licensee's HP organization had not filled the HP dosimetry supervisor position, but had plans to do so shortly. One of the HP supervisors was functioning as a temporary HP dosimetry supervisor.

No violations or deviations were identified.

4. HP Training and Qualifications of New Personnel

The NRC inspector reviewed the training and qualifications of new personnel related to the refueling outage activities to determine conformance to the TS and 10 CFR 19.12 requirements and to USAR commitments.

In conjunction with this refueling outage, the licensee instituted hiring criteria for contract HP technicians which are employed for refueling outages and other times when warranted. A portion of the hiring criteria was a screening examination, AT-20400-001, "Contract HP Screening Exam," which was given to each contract HP technician candidate. The candidates for junior and senior HP technician positions take the same basic examination, with the senior technician examination having an extension covering pressurized water reactor systems. The NRC inspector reviewed a selected sampling of the completed examinations. Six contract HP technician candidates were refused employment by the licensee upon failing this screening examination. The successful candidates were then given a newly developed training course, AT-20400-06, "Contractor HP Technician Orientation." This course consisted of plant layout, systems, and procedures. The NRC inspector reviewed the experience history and qualifications for the majority of the contract HP technicians. The NRC inspector did not identify any problems in this area of the inspection.

The NRC inspector reviewed a selected sampling of the GET examinations which were given to various contractor crafts that were hired for the refueling outage. No problems in this area were identified by the NRC inspector.

No violations or deviations were identified.

5. Audits

The NRC inspector reviewed the licensee's audit and surveillance program related to the activities of the refueling outage to determine compliance with the licensee's QA/QC program.

The NRC inspector reviewed a selected sampling of several surveillances performed by the site QC organization. The reviewed surveillances were:

- "QC Surveillance Checking," QCS-01
- "Surveillance of Maintenance," M-02
- General Area Housekeeping Inspection Checklist
- Surveillance Test Checklist
- QC Surveillance Findings Corrective Action Sheet

These QC surveillances were not developed specifically for outages but they contain segments that are appropriate for outage situations such as RWP requirements and housekeeping. Some of these surveillances are performed every day, or whenever an applicable job is performed.

The licensee had not performed, and does not have procedures to perform, an audit pertaining to refueling outage radiation protection activities. Various areas applicable to outage activities are covered in Audit QAP-3, "Operating Plant Surveillance Audit Health Physics"; and the last time this audit was performed was mid-1983. This audit is scheduled to be performed again in November 1984. No problems were identified in this area by the NRC inspector.

No violations or deviations were identified.

6. Planning and Preparation

The NRC inspector determined that the licensee had augmented the HP staff during the refueling outage with contractor HP personnel. A total of 50 contract HP technicians were onsite at the time of this inspection, and 10 more HP technicians had been requested as previously mentioned in paragraph 3.

The licensee had onsite a leased portable whole body counter (WBC) system to supplement the permanent plant WBC during the outage.

The licensee conducted training for site, vendor, and contractor personnel who performed various tasks in steam generator maintenance. During this refueling outage, the licensee performed eddy current testing, inspections, and HP surveys in the steam generator; and planned to do steam generator tube sleeving. The training was conducted using a full scale mockup of the ANO Unit 1 steam generators channel heads.

The NRC inspector made observations in the work areas and interviewed licensee representatives to verify that adequate quantities of instrumentation, equipment, and supplies were available to support the refueling outage. The licensee has a minimum/maximum reorder system for their expendable stock supply program. Some of the minimum levels were doubled and tripled for certain supplies.

The NRC inspector determined that the HP outage coordinator took part in the initial preplanning of the outage and subsequent outage planning.

No problems were identified in the preceding areas by the NRC inspector.

No violations or deviations were identified.

7. Exposure Control

The NRC inspector reviewed the licensee's external and internal exposure control programs.

a. External

The NRC inspector reviewed the licensee's external exposure program to determine compliance with 10 CFR 20.101, 20.102, 20.202, 20.401, and 20.402.

Each person entering the radiation controlled area (RCA) was routinely issued a TLD and self-reading dosimeter (SRD). Additional dosimetric devices, such as high range SRDs or extremity TLDs were issued when required in certain areas such as high radiation areas, steam generator work, or as specified on an RWP.

The licensee administratively limits radiation doses to 1,250 millirem (mrem) per calendar quarter. Authorization to exceed this limit is granted after the licensee has a current NRC Form-4 for the individual. The licensee limits radiation dose to 300 mrem per week; authorization by managerial personnel is required to exceed this limit. The NRC inspector examined NRC Form-4 and NRC Form-5 information for selected individuals. Several of those individuals had received authorization to receive exposures in excess of 300 mrem per week, but none had exceeded the 1,250 mrem per calendar quarter limit. The appropriate "Authorization for Increased Exposure," Form 1622.011A, had been completed for those individuals exceeding the weekly limits. The licensee updates the exposure records twice daily for personnel involved in outage activities. The TLD is read on a monthly basis for all personnel receiving an exposure greater than 100 mrem in the month as measured by a SRD, and a TLD can be read at any time when needed in the licensee's dosimetry facilities.

b. Internal

The NRC inspector reviewed the licensee's internal exposure program to determine compliance with the requirements of 10 CFR 20.103 and the recommendations of NUREG-0041.

The NRC inspector reviewed portions of the licensee's respiratory protection program. The program included requirements for medical certification and individual mask fit testing in a test booth. Individuals were allowed to use only those respirators for which they had passed the mask fit test.

The NRC inspector noted that the licensee routinely performs whole body counting on individuals prior to the issuance of a TLD and upon completion of the work assignment at the site.

The NRC inspector reviewed a portion of the maximum permissible concentration (MPC) - hours record in the MPC log.

No violations or deviations were identified.

8. Posting and Control

The NRC inspector examined posting and control for radiation areas, high radiation areas, contaminated areas, and radioactive material areas against the requirements of 10 CFR Parts 20.203 and 20.207, and station procedures developed in accordance with TS 6.11.

The NRC inspector performed several tours of the facility, including the RCA, and observed the RCA and Unit 1 access control, contamination control, and exit radiation monitoring controls. Independent radiation measurements were made by the NRC inspector to determine whether the designated areas afforded an adequate level of protection to workers. All areas observed appeared adequately posted and properly controlled.

No violations or deviations were identified.

9. Radioactive and Contaminated Material Control

Radioactive material labeling and identification were examined against the requirements of 10 CFR Part 20.203(f). The NRC inspector observed the licensee's control of contaminated tools and equipment during the refueling outage. The licensee required that tools and equipment be surveyed by HP personnel prior to release to uncontrolled areas. Within the RCA, several areas were dedicated to storage of radioactive tools, equipment, and components. Containers were marked with labels that identified the radioactive contents.

No violations or deviations were identified.

10. ALARA

The licensee's refueling outage ALARA program was reviewed to determine compliance with the requirements of 10 CFR Part 20.1 and the recommendations of Regulatory Guides 8.8 and 8.10.

The NRC inspector determined that the licensee had set a goal not to exceed 685 man-rem for this refueling outage. ALARA personnel are actively involved in planning and scheduling of maintenance activities during the outage. All jobs receive an initial evaluation, and jobs which are estimated to require the expenditure of greater than one man-rem require a separate ALARA review. The licensee tracks both man-rem and man-hours expended on each task on a daily basis by implementing the "ALARA Data Bank" computer program. This computer code is updated with RWP data. Each task is assigned a man-rem goal. The major tasks are studied for dose reduction by the ALARA committee and a prejob ALARA briefing is given by the ALARA committee to a member of the group performing the work.

No violations or deviations were identified.

11. Exit Interview

The NRC inspector met with licensee representatives at the conclusion of the inspection on September 26, 1984. The NRC inspector summarized the scope and findings of the inspection presented in this report.