



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

AUG 28 1985

Report Nos.: 50-348/85-34 and 50-364/85-34

Licensee: Alabama Power Company
600 North 18th Street
Birmingham, AL 35291

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Facility Name: Farley 1 and 2

Inspection Conducted: August 5-9, 1985

Inspector:

R. E. Weddington
R. E. Weddington

8/20/85

Date Signed

Accompanying Personnel: M. Poston-Brown

Approved by:

C. M. Hosey
C. M. Hosey, Section Chief

Division of Radiation Safety and Safeguards

8/20/85

Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 40 inspector-hours onsite in the areas of follow-up on a transportation event, 10 CFR Part 61, transportation of radioactive material, control of radioactive material, external exposure control, internal exposure control, ALARA and IE Information Notices.

Results: Three violations were identified: (1) failure to adhere to the license conditions of a low level radioactive waste disposal site, (2) failure to adequately prepare a procedure for dewatering radioactive sludge lancing filters and (3) failure to adequately review a waste handling procedure.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

J. D. Woodard, Plant Manager
D. N. Morey, Assistant Plant Manager - Operations
C. D. Nesbitt, Technical Superintendent
W. B. Shipman, Assistant Plant Manager - Support
R. D. Hill, Operations Superintendent
W. G. Ware, SAER Supervisor
P. E. Farnsworth, Health Physics Sector Supervisor
J. M. Walden, Radwaste Supervisor
J. A. Morrow, Radwaste Technician
D. E. Grissette, Environmental and Emergency Preparedness Supervisor

Other licensee employees contacted included two foreman, four technicians, and two office personnel.

NRC Resident Inspectors

W. H. Bradford, Senior Resident Inspector

2. Exit Interview

The inspection scope and findings were summarized on August 9, 1985, with those persons indicated in paragraph 1 above. The following issues were discussed in detail: (1) an apparent violation for failure to adhere to the license conditions of a low level radioactive waste disposal site (paragraph 4.a), (2) an apparent violation for failure to adequately prepare and review a procedure for dewatering radioactive sludge lancing filters (paragraph 4.b) and (3) 10 CFR Part 61 scaling factors (paragraph 5). The licensee acknowledged the inspection findings and stated that they did not consider the apparent violation for failure to comply with disposal site requirements to be appropriate since they had already been cited for the violations by the State of South Carolina.

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved* (50-348/85-20-05) - Failure to post a contaminated area. This item concerned an entry by the resident inspector into an unposted contaminated area in the hallway adjacent to the boric acid

*An Unresolved Item is a matter about which more information is required to determine whether they are acceptable or may involve violations or deviations.

batching area on the 100' elevation of Unit 1 on May 2, 1985, which resulted in his shoes becoming contaminated. The item was left unresolved pending review of the licensee's posting practices by a regional health physics inspector.

By examination of selected records and interviews with licensee health physics personnel, the inspector determined that a portion of the area in question had been surveyed for release after decontamination the previous shift and health physics personnel were in the process of moving the contamination control barriers. Due to a shift change delay, one access to the area was not posted as a contaminated area at the time the resident inspector entered the area. Health physics personnel were at the other access to the area and promptly took necessary action to warn the resident inspector and provide assistance. Through review of selected licensee event reports and observations of licensee postings during facility tours, the inspector determined that there had been no other problems of this nature. Due to the isolated nature of this event, the short period of the time the one access was not posted and the fact that health physics personnel had returned to the area and would have likely effected the necessary controls shortly thereafter, it was determined that no violation of regulatory requirements had occurred and the item was closed.

4. Transportation Event (93702)

- a. During the first quarter of 1985, the licensee had a contractor onsite performing sludge lancing of the secondary side of the steam generators of both units. A byproduct of this work were bag-type filters containing the residue of the sludge lancing. The sludge lancing contractor had dewatered each bag filter using a vacuum drying technique and then placed them in poly bags inside of 55-gallon drums. Each poly bag contained approximately 20 filters and each drum contained approximately six poly bags. A total of 84 drums of these dewatered filters were generated by the contractor.

In May 1985, the licensee began preparations for shipping this waste to a disposal site. A licensee representative stated that prior to the shipment he had opened seven drums of waste (one from each of the six steam generators and one random drum) to perform a visual inspection for free standing water in selected bags and to obtain samples for 10 CFR Part 61 compliance determinations. The licensee representative stated that he had observed no free standing water in the bags he had examined. The drums were shipped from the licensee's site on May 30, 1985, under control number RWS 85-14.

On June 4, 1985, the licensee was informed by the Barnwell, South Carolina disposal site operator that one of the waste drums had been found to contain free standing water in excess of the 0.5% of waste volume limit permitted by the facilities' license. Licensee representatives traveled to the disposal site on June 6, 1985, to inspect the shipment. The disposal site operator agreed to inspect the entire shipment and determined that 33 of the 84 drums contained free

standing water, seven of which exceeded the disposal site criteria of 0.5% of the waste volume. A total of 7.3 gallons of liquid was collected, with the largest quantity of liquid in any one drum being 1.5 gallons (2.7% of the waste container volume). The liquid was solidified at the disposal site and the shipment was then accepted for burial.

By letter dated June 12, 1985, the Department of Health and Environmental Control, State of South Carolina, informed the licensee that they had determined that the problems encountered with the dewatered sludge lancing filters constituted two violations of License Number 097, Amendment Number 41, issued to Chem-Nuclear Systems, Inc., the disposal site operator. The first violation issued by the State of Carolina, was against License Condition 35, which required that sludges be solidified. The sludge in the bag filters had been dewatered by vacuum drying. A licensee representative stated that a representative of the disposal site operator had agreed prior to the shipment that the dewatering technique would be acceptable. However, there was no documentation of this agreement with the site operator and no coordination had been made with the State.

The second violation was against License Condition 32, which required that the waste have no detectable free standing liquids in excess of one-half percent by waste volume of non-corrosive liquids per container. Seven drums were found to contain free standing liquid in excess of the license limit. The State of South Carolina did not impose a civil penalty on the licensee or suspend their shipping privileges for these violations.

10 CFR 30.41(c) required that before transferring byproduct material to a specific licensee of an Agreement State, the licensee transferring the material shall verify that the transferee's license authorizes the receipt of the type, form, and quantity of byproduct material to be transferred. Failure of the licensee to verify their waste shipment met the disposal site requirements to solidify the sludge waste as required by License Condition 35 and to meet the free standing water limit of License Condition 32 was identified as an apparent violation of 10 CFR 30.41(c) (50-348, 364/85-34-01).

- b. Technical Specification 6.8.1 required that written procedures be established covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, 1978. Regulatory Guide 1.33, Revision 2, 1978, Appendix A, paragraph 7.b.(1) recommends procedures for filter sludge handling.

Technical Specification 6.5.3.1 required that procedures required by Technical Specification 6.8 shall be reviewed by an individual/group other than the individual/group which prepared the procedure.

The inspector reviewed licensee engineering technical procedure, FNP-1-ETP-4114, Steam Generator Sludge Lancing and Water Balance,

Revision 1, February 22, 1985, which was the procedure used to control the contractor's sludge lancing operation. The licensee procedure implemented a contractor procedure for the sludge lancing. A licensee representative stated that packaging of the waste sludge filters for disposal was within the scope of the procedure. The inspector observed that vacuum drying of the sludge filters and packaging of the filters in poly bags and drums was not addressed in the procedure. The procedure had been approved by the licensee's Systems Performance Supervisor and had not been reviewed by the Health Physics staff. Failure to adequately establish a procedure for handling the waste sludge filters was identified as an apparent violation of Technical Specification 6.8.1 (50-348, 364/85-34-02). Failure to adequately review the procedure for sludge lancing was identified as an apparent violation of Technical Specification 6.5.3.1 (50-348, 364/85-34-03).

5. 10 CFR Part 61 Scaling Factors (84722)

10 CFR 20.311(d)(1) required that licensees who transfer radioactive waste to a land disposal facility prepare all wastes so that the waste is classified according to 10 CFR 61.55 and meets the waste characteristic requirements of 10 CFR 61.56. 10 CFR 61.56 specified the waste characteristic and stability requirements for low level radioactive waste. Through discussions with licensee representatives and review of selected records, the inspector determined that waste stability, when required, was achieved by use of approved containers or by solidification in accordance with the licensee's Process Control Program. 10 CFR 61.55(a)(8) requires that the concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured if there is reasonable assurance that the indirect methods can be correlated with actual measurements.

The licensee had identified approximately twenty-four waste streams at their facility and had developed unique scaling factors for each. Through review of selected records, the inspector determined that scaling factors were being appropriately used to classify low level radioactive waste shipments. A licensee representative stated that they were considering implementing a contractor prepared Part 61 compliance program. The inspector reviewed a comparison study the licensee had performed of radionuclide concentration calculations using the proposed contractor scaling factors. The majority of the calculated radionuclide concentrations were less than the actual measured concentration, with several being nonconservative by as much as a factor of a thousand. The proposed scaling factors therefore were not consistent with the requirements of 10 CFR 61.55(a)(8) since the comparison study showed that there was not reasonable assurance that the indirect method correlated with actual measurements. This same discrepancy was noted in February 1984, (Inspection Report Nos. 50-348, 364/84-06), at which time the licensee committed to resolve the discrepancies prior to implementing their contractor's program. The licensee acknowledged the fact that discrepancies did exist and stated that they were pursuing means of implementing their contractors program consistent with regulatory

requirements. A licensee representative stated that their contractor's program appeared to be consistent with NUREG/CR-4101, Assay of Long-Lived Radionuclides in Low-Level Wastes From Power Reactors, April 1985. The inspector stated that the NRC Low-Level Waste Licensing Branch Technical Position Paper, May 11, 1983, would continue to be used by the NRC to determine compliance with 10 CFR Part 61 until rescinded or modified.

No violations or deviations were identified.

6. Transportation (86721)

10 CFR 71.5 required that licensees who transport licensed material outside the confines of its plant or other place of use, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.

The inspector reviewed selected records of radioactive waste and radioactive material shipments performed during 1985 and verified that the requirements of 49 CFR Parts 170 through 189 had been met for those shipments.

No violations or deviations were identified.

7. Control of Radioactive Material (83726)

10 CFR 20.201(b) required each licensee to make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

During tours of the facility, the inspector observed health physics technicians performing radiation and contamination surveys.

The inspector performed independent radiation surveys in the auxiliary building, in the low-level radioactive waste storage building and around outside areas of the plant site and verified that the areas were properly controlled.

The inspector discussed a recent event at another Region II facility where several skin of the whole body exposures resulted from high activity cobalt-60 (Co-60) particles remaining in laundered protective clothing. The licensee has had a similar problem in that their laundered protective clothing had been found in the past to contain residual metal filings. The activity of the particles discovered normally ranged from 3,000 to 30,000 disintegrations per minute (dpm), with the highest activity being approximately 100,000 dpm. These activities were much smaller than those encountered by the licensee that had the Co-60 particle problem. These filings also contained Co-58, Mn-54, Zr-95 and other radionuclides in addition to Co-60. Through review of selected records of skin contaminations, individual exposure records and discussions with licensee representatives, it was determined that none of the skin contamination

events had caused any individual to receive a significant skin exposure. Through observations and discussions the inspector determined that the licensee had taken appropriate action to correct the problem with residual contamination in laundered protective clothing.

No violations or deviations were identified.

8. External Exposure Control and Dosimetry (83724)

10 CFR 20.101 specified the applicable radiation dose standards. The inspector reviewed the computer printout dose summary (Form NRC-5 equivalent) for the inspection period and verified that the radiation doses recorded for plant personnel were well within the quarterly limits of 10 CFR 20.101(a).

10 CFR 20.202 required each licensee to supply appropriate personnel monitoring equipment to specific individuals and require the use of such equipment. By review of selected records and discussions with licensee representatives, the inspector determined that appropriate personnel monitoring equipment was being supplied. During tours of the facility, the inspector observed that personnel monitoring equipment was being properly worn.

No violations or deviations were identified.

9. Internal Exposure Control (83725)

10 CFR 20.103(a) established the limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. This section also required that appropriate bioassays be performed to detect and assess individual intakes of radioactivity.

The inspector reviewed selected results of bioassays (whole body counts) and the licensee's assessment of individual intakes of radioactive material performed during the period January - June 1985. During discussions with licensee representatives the inspector determined there was a general lack of familiarity on the part of the dosimetry staff on various technical aspects of internal dosimetry. The dosimetry function does not have direct oversight by a health physics professional since the licensee has elected to place the dosimetry staff under the control of the chemistry supervisor. Although the routine functioning of the dosimetry section appeared to meet regulatory requirements, the section would require outside assistance to perform technical assessments of nonroutine occurrences. A licensee representative stated that the need for specialized training or additional staffing would be evaluated.

No violations or deviations were identified.

10. ALARA Program (83728)

Licensee representatives provided the following ALARA statistics to the inspector:

- a. Total accumulated exposure for 1985 as of June 30 was 740 man-Rem compared to the annual goal of 892.5 man-Rem.
- b. Total volume of solid radioactive waste shipped to a disposal facility during 1985 as of July 31 was 13,291 cubic feet compared to the annual goal of 16,248 cubic feet.
- c. Twenty-two percent of the licensee's radiologically controlled area was controlled as contaminated areas (26,710 of 120,354 square feet). Licensee representatives stated that a contamination area reduction program was in place and expected the size of the contaminated areas to be down to approximately 20,000 square feet within several weeks.

11. IE Information Notices (IEN) (92717)

The inspector determined that the following information notices had been received by the licensee, reviewed for applicability, distributed to appropriate personnel and that action, as appropriate, was taken or scheduled.

IEN 85-06: Contamination of Breathing Air Systems

IEN 85-42: Loose Phosphor in Panasonic 800 Series Badge Thermoluminescent Dosimeter (TLD) Elements

IEN 85-46: Clarification of Several Aspects of Removable Radioactive Surface Contamination Limits for Transport Packages

IEN 85-48: Respirator Users Notice: Defective Self-Contained Breathing Apparatus Air Cylinders