UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No. 50-269/79-8, 50-270/79-8 and 50-287/79-8

Licensee: Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Facility Name: Oconee 1, 2 and 3

License Nos. DPR-38, DPR-47 and DPR-55

Inspection at Oconee Site near Seneca, South Carolina

Inspectors: _____ 4-23-79
D. M. Montgomery Date Signed

_____ 4-23-79
G. T. Gibson Date Signed

Approved by: _____ 4/24/79
J. W. Hufham, Section Chief, FFMS Branch Date Signed

SUMMARY

Inspection on March 14-15, 1979

Areas Inspected

This routine unannounced inspection involved 36 inspector-hours onsite in the areas of confirmatory measurements including: examination of laboratory radiochemical equipment and instrumentation; review of quality control in analytical measurements; collection of plant effluent samples for future comparison of analytical results; and review of the chemistry and radiochemistry procedures.

Results

Of the 4 areas inspectoed, no apparent items of noncompliance or deviations were identified in 3 areas; 1 apparent item of noncompliance was found in 1 area (infraction - failure to follow calibration procedure, paragraph 8.b); 1 apparent deviation was found in 1 area (failure to use a proper calibration source, paragraph 8.c).

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DETAILS

1. Persons Contacted

Licensee Employees

*J. M. Davis, Acting Plant Manager
*R. T. Bond, Licensing and Projects Engineer
*D. J. Vito, Licensing Engineer
*R. Koehler, Superintendent Technical Services
*C. Yongue, Health Physics Supervisor
*J. Long, Counting Room Supervisor
J. Lochamy, Health Physicist (Corporate Office)

NRC Resident Inspector

*F. Jape

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on March 15, 1979, with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Items

No previous enforcement items were examined during this inspection.

4. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. Two unresolved items disclosed during this inspection are discussed in paragraph 8.d and 8.e of this report.

5. Instrumentation

The inspectors examined the chemistry and radiochemistry laboratories and instrumentation. The inspectors reviewed records for the daily energy calibration of the GeLi gamma spectroscopy systems. The inspectors verified that the counting equipment had been tagged according to the procedures.

6. Review of Quality Control

The inspectors reviewed selected quality control records for instrumentation including the beta-gamma detector, the liquid scintillation counter, and GeLi detectors. The record review included background counts, daily performance checks, efficiency checks, and control charts.

7. Confirmatory Measurements

The inspectors arranged for the collection of following samples: waste gas, particulate filter, charcoal cartridge, and a 1-L liquid waste sample.

These samples were forwarded to the NRC reference laboratory, in Idaho Falls, Idaho for analysis. The results will be compared with the licensee's results during a subsequent inspection (269/79-08-01, 270/79-08-01, 287/79-08-01).

8. Review of Chemistry and Radiochemistry Procedures

a. The inspectors reviewed procedures for reactor coolant stable chemistry including fluoride, chloride, boron, and dissolved oxygen. The inspectors noted that the procedures had been reviewed and approved as per Technical Specification 6.4.1.

b. Technical Specification 6.4.1 requires the station to be operated and maintained in accordance with approved procedures. The approved Oconee procedure HP/0/B/1003/09, "Calibration Procedure for GeLi Detectors on the ND 6620 Multichannel Analyzer", specifies that standard radionuclide sources shall be used in normal sample geometries for efficiency calibrations. The inspectors were informed on March 14, 1979, that contrary to the above, from March 1978 through March 1979, the GeLi efficiency calibrations were obtained by using a procedure, other than HP/0/B/1003/09, which had not been approved by the appropriate authority. The inspector reviewed the calibration techniques utilized by the licensee in leiu of HP/0/B/1003/09. The inspectors determined the procedural techniques employed do not provide calibrations to NBS relatable standards. Discussions with USNRC Office of Inspection and Enforcement, U.S. Department of Energy Idaho Radiological Environmental Research Laboratory, and the licensee's contractor, SAI, disclosed the techniques employed have not been accepted by any reputable radiochemistry organization. Until such time as the technique has been examined and approved by a reputable scientific body, this technique is not considered in conformance with industry accepted standard methods (see paragraph 8.e.). This item constitutes an item of noncompliance with the referenced Technical Specification (269/79-08-02, 270/79-08-02 and 287/79-08-02).

c. The inspectors reviewed the procedure for the calibration of the beta-gamma detector which is used for counting smears associated with contamination control. Licensee representatives confirmed that a ^{90}Sr source on a platinum backing has been used for efficiency calibrations, and that the average beta energy is much higher than the beta energies from the most commonly encountered radionucludes such as ^{137}Cs and ^{60}Co. The inspectors informed the licensee that the ^{90}Sr efficiency may be as much as 3 to 4 times greater than that obtained with the typical radionuclides such as ^{137}Cs and ^{60}Co. The inspectors informed the licensee that this could result in the release of material and equipment with contamination levels exceeding the control limit. Licensee representatives indicated that a shipment of low-level solid waste barrels had been loaded on a truck and was to be released on March 15, 1979, and that they would resurvey the shipment to insure that applicable DOT regulations would not be violated. The inspectors informed the licensee that this item was a deviation from ANSI Standard N-323-1978, Section 4.3.2 which states "Calibrations shall be performed with a standard source providing radiation fields similar to those in which the instrument will be used. (269/79-08-03, 270/79-08-03 and 287/79-08-03).

d. The inspectors reviewed the procedure for operation of the liquid scintillation counter and the certification of the tritium standard. The inspectors informed the licensee that the certification was not sufficient to ensure to accuracy of the standard since it did not provide information regarding the measurement method, the chemical composition of the standard, radionuclide impurities, or the supplier's identification of the source. The licensee agreed to contact the supplier regarding the missing information. This item shall be considered an unresolved item (269/79-08-04, 270/79-08-04 and 287/79-08-04).

e. The inspectors examined the procedure, ER/0/B/8000/04, "GeLi Detector Efficiency Calibration". This method involves cross calibration with a reference detector located at the Duke Environmental Laboratory. The NRC Regulatory Guides 1.21 and 4.15, and ANSI Standard N42.14-1978 specify that efficiency calibrations for gamma spectroscopy systems should be made with NBS standard solutions or equivalent standard solutions in the same geometries as used for sample analysis. Contrary to the above, the licensee developed and implemented the procedure, ER/0/B/8000/04 which does not use standards sources prepared in the actual sample geometries. The new method was not demonstrated to be equivalent to existing standard methods or to provide calibrations with an accuracy equivalent to or better than the plant approved procedure, HP/0/B/1003/09. This item shall be considered an unresolved item (269/79-08-05, 270/79-08-05 and 287/79-08-05).

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