



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
230 PEACHTREE STREET, N.W. SUITE 818  
ATLANTA, GEORGIA 30303

IE Inspection Report Nos. 50-269/77-1, 50-270/77-1, and 50-287/77-1

Licensee: Duke Power Company  
Power Building  
422 South Church Street  
Charlotte, North Carolina 28201

Facility Name: Oconee Units 1, 2 and 3  
Docket Nos.: 50-269, 50-270 and 50-287  
License Nos.: DPR-38, DPR-47 and DPR-55

Location: Seneca, South Carolina

Type of License: B&W, PWR, 2560 Mwt

Type of Inspection: Routine, Unannounced

Dates of Inspection: December 20-23, 1976, January 18-21, 25-28  
and February 11, 1977

Dates of Previous Inspection: November 16-19 and November 30 - December 3, 1976

Principal Inspector: Carl E. Alderson, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch

Accompanying Inspectors: A. L. Cunningham, Environmental Specialist  
Environmental and Special Projects Section  
Fuel Facility and Material Safety Branch  
(December 20-23, 1976)

T. N. Epps, Reactor Inspector  
Reactor Projects Section No. 1  
Reactor Operations and Nuclear Support Branch  
(January 18-21, 1977)

P. T. Burnett, Reactor Inspector  
Nuclear Support Section  
Reactor Operations and Nuclear Support Branch  
(January 18-21, 1977)

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IE Rpt. Nos. 50-269/77-1,  
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-2-

A. D. Kowalczyk, Radiation Specialist  
Fuel Facility and Materials Safety Branch  
(January 25-28, 1977)

Principal Inspector:

C. E. Alderson

C. E. Alderson, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch

2/15/77  
Date

Reviewed by:

R. C. Lewis

R. C. Lewis, Chief  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch

3/23/77  
Date

SUMMARY OF FINDINGS

I. Enforcement Items

A. Infractions

1. 10 CFR 20.201, "Surveys," requires that each licensee make or cause to be made such surveys as may be necessary to comply with the regulatory requirements specified in 10 CFR Part 20.

Contrary to the above, on January 17, 1977, no adequate measurement or other evaluation was made to account for radioactive effluent released from the Oconee oil collection basin to the Keowee River until about 8:50 a.m. on January 18. (Details V, Paragraph 2.a)

2. Technical Specification 3.9.3 requires that the rate of release of radioactive materials in liquid from the station shall be controlled such that the instantaneous concentration of radioactivity in liquid waste upon release from the Restricted Area, does not exceed the values listed in 10 CFR, Appendix B, Table II, Column 2.

Contrary to the above:

- a. Radioactivity released in oil collection basin effluents on January 18-20, 1977, caused the instantaneous concentration of radioactivity released from the Restricted Area via the Keowee River to exceed the values of 10 CFR 20, Appendix B, Table II, Column 2 by up to a factor of nineteen. (Details V, paragraph 2.b)
- b. Calculation errors associated with routine liquid waste releases resulted in these instantaneous limits being exceeded by up to a factor of two during January through March, 1976. (Details V, paragraph 2.b)
3. Technical Specification 3.9.5 requires that as far as practicable, the releases of liquid waste shall be coordinated with the operation of the Keowee hydro unit.

Contrary to the above, although the Keowee hydro plant was available for use, it was not operated in coordination with liquid waste releases on January 18, 19 and 20, 1977. (Details V, paragraph 2.b)

4. Technical Specification 3.9.4 requires that the equipment installed in the liquid radioactive waste system shall be maintained and operated for the purpose of keeping released quantities within the objectives of these specifications and shall process all liquids prior to their discharge in order to limit the activity, excluding tritium and dissolved noble gases, released during any calendar quarter to 1.25 curies or less per unit.

Contrary to the above, more than three curies of radioactivity, predominantly iodine-131, was released from the plant in liquid effluents during the period of January 17 through January 28, 1977, without processing by the liquid radioactive waste system. (Details V, paragraph 2.c)

5. Technical Specification 6.4.1 requires that detailed written emergency procedures involving potential or actual release of radioactivity, with appropriate check-off lists and instructions, shall be provided.

Contrary to the above, emergency procedures for controlling radioactivity released to the turbine building sump had not been provided. (Details V, paragraph 3)

6. Technical Specification 6.4.1 requires that the station shall be operated and maintained in accordance with approved procedures.

Contrary to the above, (a) the procedures for identifying steam generator tube leaks were not adhered to in that Unit 1 steam generator "B" was leak tested on January 17, 1977, using radioactively contaminated water, whereas the procedure requires that such water be drained and the steam generator refilled from the hotwell, (Details I, paragraph 2.c), (b) operational steps within OP/3A/1101/2, used for trip recovery of Unit 3 on November 14, 1976, had not been initialed to confirm that the unit had been raised to full power in the manner specified by the procedure. (Details III, paragraph 2)

B. Deficiency

Technical Specification 6.6.2.1 requires that abnormal degradation discovered in the reactor coolant pressure boundary shall be reported within 24 hours of discovery to the Director, Office of Inspection and Enforcement, Region II or his designate.

Contrary to the above, the primary to secondary system leak discovered in the Unit 1, "B" steam generator on January 15, 1977, was not reported to the NRC until the morning of January 17, 1977. (Details I, paragraph 2.a)

## II. Licensee Action on Previously Identified Enforcement Matters

The licensee's actions on enforcement items identified in the following inspection reports were reviewed. The status of these items are as indicated.

### 1. IE Inspection Report Nos. 50-269, 270, 287/76-6

#### 1.A.1 Failure to Provide Approved Operating and Maintenance Procedures

This item is closed. (Details II, Paragraph 2)

#### 1.A.2 Failure to Properly Control Maintenance Activities at Keowee Hydro and Oconee

This item remains open. (Details II, Paragraph 2)

#### 1.B.1 Refueling Procedure Not Followed

This item is closed. (Details III, Paragraph 4)

#### 1.B.2 Operating Records Not Available

This item is closed. (Details II, Paragraph 2)

### 2. IE Inspection Report Nos. 50-269, -270, -287/76-10

#### 1.A.1 Radiation Source Not Leak Tested

Not inspected. This item remains open.

#### 1.A.2 Water Discharged Exceeded pH Limits

This item remains open. (Details IV, Paragraph 6)

## III. New Unresolved Items

### 77-1/1 Magnitude of Power Coefficient of Reactivity

The licensee's procedure for measuring the coefficient contains only minimum coefficient acceptance criteria. Maximum value acceptance criteria is not established. (Details III, Paragraph 3)

77-1/2 Sampling Radioactive Materials in Gases

The inspector identified potential problems related to gas resident time in radioiodine sampling media, particulate sampling and radioiodine effluent records. (Details V, Paragraph 5)

IV. Status of Previously Reported Unresolved Items

73-12/1 Calibration of Effluent Monitors

The inspector reviewed data collected to establish correlations with laboratory analyses for the liquid waste monitor. The licensee is continuing studies to resolve monitor problems and this item remains open.

74-14/2 Ventilation Control Between Auxiliary and Turbine Buildings

The system has been modified and the licensee is presently accumulating operating data. This item remains open pending review of the data. (Details II, Paragraph 3)

76-1/1 Instrument Calibration

The licensee's program for safety-related instrumentation not addressed by Technical Specification has not been fully implemented. This item remains open. (Details II, Paragraph 3)

76-1/2 Electrical Equipment Calibration

The licensee's program for calibration and preventive maintenance for safety-related protective relaying and circuit breakers had not been fully implemented. (Details II, Paragraph 3)

76-2/1 Process and Effluent Monitor Calibration

The licensee is revising procedures. This item remains open pending review of these revisions by NRC health physics personnel.

76-7/1 Temporary Jumpers and Bypasses

The licensee has issued the necessary administrative controls. This item is closed. (Details II, Paragraph 3)

76-7/2 Safety Review Committee

The QA Topical Report has been revised and this item is closed. (Details II, Paragraph 3)

76-7/3 Test Equipment Storage

The licensee has not completed action to upgrade these storage areas. This item remains open. (Details II, Paragraph 3)

76-7/4 Delineation of Duties and Authorities

The licensee has not yet delineated the duties and responsibilities of Utility Operators in writing. This item remains open. (Details II, Paragraph 3)

76-12/1 NDE Acceptance Criteria

The licensee revised completion date for defining dates of issue of fabrication codes for acceptance criteria to June 1, 1977. This item remains open. (Details II, Paragraph 3)

76-13/1 Verification of Redundant Equipment Operability

This item remains open pending further discussions between licensee and NRC Region II personnel concerning the intent of Technical Specification 3.3.7.

V. Unusual Occurrences

A primary to secondary system leak due to a tube failure in the Unit 1, "B" steam generator on January 15, 1977, and subsequent operational errors on January 17, 1977, led to offsite releases in excess of Technical Specification limits. (Summary Sections I, VII and Details I, paragraph 2 and Details V)

VI. Other Significant Findings

None

## VII. Management Interview and Corporate Meeting

### A. Management Interviews

A meeting was held by A. L. Cunningham on December 23, 1976, with J. E. Smith and members of the Oconee staff. The findings presented in Details IV of this report were discussed.

A meeting was held by T. N. Epps, C. E. Alderson and P. T. Burnett on January 21, 1977, with J. E. Smith and members of the Oconee staff. The inspection findings presented in Details I, II and III of this report were discussed.

A meeting was held by A. D. Kowalczyk on January 28, 1977, with J. E. Smith and members of the Oconee staff to discuss preliminary findings of the special inspection regarding the offsite releases. The specific inspection findings presented in Details V of this report were discussed by telephone conversation between J. E. Smith and A. D. Kowalczyk on February 9, 1977.

### B. Corporate Management Meeting

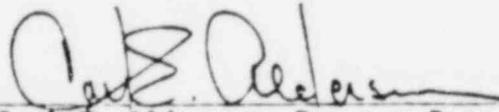
A meeting was held at NRC Region II offices with corporate management level personnel on February 11, 1977. The purpose of the meeting was to discuss NRC concern about the release of radioactively contaminated secondary coolant to the Keowee River following the steam generator tube leak on January 15, 1977, and the subsequent main generator hydrogen cooler leak on January 17, 1977. The meeting was conducted by N. C. Moseley and A. F. Gibson. A complete list of attendees is presented in Details V, Paragraph 6 of this report.

Mr. Moseley pointed out that the NRC was concerned about the sequence of events which started with failure to follow procedures that lead to the release, the failure of the plant staff to recognize the significance of the various events as they occurred, and after realizing that the release was occurring, the failure to take prompt, effective, and coordinated action to terminate and/or control the release to prevent further noncompliance with Technical Specifications and regulatory requirements.

This was followed by an indepth discussion of each of the items of noncompliance listed in Section I.A above, and the actions taken or to be taken by the licensee to prevent recurrence.

DETAILS I

Prepared by

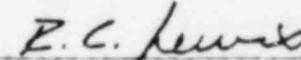


Carl E. Alderson, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear  
Support Branch

2/15/77  
Date

Dates of Inspection: January 18-21, 1977

Reviewed by



R. C. Lewis, Chief  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear  
Support Branch

3/23/77  
Date

1. Individuals Contacted

Duke Power Company

J. E. Smith - Manager, Oconee Nuclear Station  
L. Schmid - Superintendent of Operations  
O. Bradham - Superintendent of Maintenance  
R. Bond - Technical Services Engineer  
D. Smith - Chemist  
C. Yongue - Health Physics Supervisor  
T. Barr - Performance Engineer  
T. Cribbe - Junior Engineer  
W. McLain - Assistant Operating Engineer  
W. Knight - Shift Supervisor  
E. Hite - Assistant Engineer

2. Steam Generator Tube Leak and Contamination of Turbine Building

- a. On the morning of January 17, 1977, the licensee notified NRC Region II that a steam generator tube leak of about 12 gpm had occurred on the Unit 1, B Steam Generator at approximately 1900 hours on January 15, 1977. Technical Specification 6.6.2.1 requires that such events be reported to this office within twenty-four hours of discovery. Contrary to this requirement, licensee notification to the NRC was not effected until approximately thirty-eight hours after discovery. This is a deficiency.
- b. On January 18, 1977, three Region II inspectors arrived onsite to conduct a routine, unannounced inspection. During the course of the inspection the inspectors were notified, on the morning of January 19, 1977, that a possible violation of

Technical Specification 3.9.3 had occurred, in that it appeared that liquid effluents had been released with activity greater than the maximum permissible concentration specified in Appendix B to 10 CFR 20.

c. Based on subsequent discussions with licensee personnel and review of available documents, the inspectors determined the following:

- (1) Unit 1 shutdown was initiated at 1920 hours on January 15, 1977, due to the failed steam generator tube.
- (2) The 1B steam generator was isolated at 2115 hours and at 2130 hours the steam generator level was approximately twenty inches.
- (3) During subsequent cooldown and depressurization of the reactor coolant system the secondary side of the 1B steam generator filled with primary water reaching at least 98% indicated level.
- (4) On January 17, 1977, a Hotwell pump was used to pump condensate from the hotwell into the 1B steam generator until the associated steam lines were full of water and the steam generator pressurized to 100 psig to identify the failed steam generator tube(s).

The procedure being used, OP/OA/1106/30, "Identification of Failed Steam Generator Tubes," required that the secondary side of the steam generator be sampled and, based on analysis of this sample, that the steam generator be drained to the condenser hotwell, the Miscellaneous Waste Holdup or the Bleed Holdup Tank. The procedure further required that if secondary side contamination warranted, the secondary side of the steam generator be flushed until the contamination levels were reduced to low enough levels to permit draining to the hotwell.

Only after these steps have been accomplished, does the procedure address filling the steam generator from the hotwell and pressurizing to 100 psig.

The licensee failed to follow the procedure in that the sampling, draining and flushing steps specified to reduce the contamination levels were not performed.

Additionally, the licensee failed to evaluate and document approval of this major change to the procedure as specified in Section 4.2.1 of the Duke Power Company Administrative Policy Manual for Nuclear Stations.

Failure to follow a procedure or evaluate major procedure changes is contrary to the requirements of Technical Specifications 6.1.2.1 and 6.4.1 which require that the station be operated in accordance with approved procedures and that changes to procedures be approved by two members of the station staff, at least one of whom holds a Senior Reactor Operators License. This is an infraction.

- (5) At 2245 hours, with the steam generator pressurized, Operations personnel noticed water spraying from a steam generator level instrument tap. After attempts to isolate the leak failed, the Control Room Operator was instructed to depressurize the steam generator. In attempting to depressurize, the operator stopped the Hotwell Pump. Since this pump provides cooling water to the Condenser Air Ejectors they started to heat up and the operator restarted the Hotwell Pump.
- (6) The operator then opened the Turbine Bypass Valves to depressurize the steam generator. This allowed contaminated water in the steam lines to run into the hotwell, thereby contaminating the water in the hotwell.
- (7) At approximately 2300 hours the Main Generator Hydrogen Coolers were found leaking water. Cooling water to these coolers was being supplied by the Hotwell Pump (from the contaminated Hotwell) and the licensee stated that it appeared that when the pump was stopped and restarted, the operator failed to reposition control Valve C-10, prior to restarting the pump. This allowed a pressure surge on the entire system, and probably caused failure of the rubber gaskets on the Hydrogen Coolers.
- (8) The coolers were isolated to stop the leak and areas of the basement, third and fifth floors which had been contaminated were roped off to prevent further spread of contamination.

- (9) Based on before and after levels in the Hotwell, the Upper Surge Tank and the Condensate Storage Tank, the licensee estimated that approximately 8,000 gallons of water was released into the Turbine Building. Analysis of Hotwell samples indicated that the water released to the Turbine Building had a gross activity of  $1.87 \times 10^{-2}$  microcuries per milliliter and an Iodine-131 concentration of  $1.28 \times 10^{-2}$  microcuries per milliliter.
- (10) The water released to the Turbine Building eventually found its way into the Building Sump and was pumped into the Chemical Settling Pond.

The remaining sequence of events leading to the off-site discharge of this contaminated water are discussed in Details V of this report.

3. Emergency Power to Engineered Safeguards Equipment

The inspector held discussions with licensee personnel, and reviewed electrical drawings, operating procedures and periodic test procedures dealing with the actuation of engineered safeguards equipment. The purpose of the review was to determine (1) whether the system design and operating procedures allow manual reset of safeguards equipment following automatic actuation; (2) the conditions under which such a reset would be allowed; and (3) system response to a loss of offsite power after having been actuated automatically and then reset prior to the loss of power. This review was not completed and will continue during future inspections.

DETAILS II

Prepared by:

H. C. Dance - /fn  
T. N. Epps, Reactor Inspector  
Reactor Projects Section No. 1  
Reactor Operations and Nuclear  
Support Branch

4/10/77  
Date

Dates of Inspection: January 18-21, 1977

Reviewed by:

H. C. Dance  
H. C. Dance, Chief  
Reactor Projects Section No. 1  
Reactor Operations and Nuclear  
Support Branch

2/10/77  
Date

1. Individuals Contacted

Oconee Personnel

J. E. Smith - Manager, Oconee Nuclear Station  
J. W. Hampton - Director - Administrative Services  
L. E. Schmid - Superintendent of Operations  
O. S. Bradham - Superintendent of Maintenance  
R. M. Koehler - Superintendent of Technical Services  
R. T. Bond - Technical Services Engineer  
J. Cox - Senior QA Engineer  
C. J. Yongue - Health Physics Supervisor  
D. C. Smith - Plant Chemist  
Other Operations Personnel

2. Followup on Previous Items of Noncompliance

The inspector reviewed licensee corrective action on the four items of noncompliance from IE inspection Report 50-269, 270, 287/76-6.

Item I.A.1 involved inadequate procedural control over maintenance and operations activities as required by Technical Specification 6.4.1 and ANSI N18.7-1972. The inspector reviewed the licensee's generic operations and maintenance procedures that were written to correct this item. It was determined that the subject procedures appear to include controls described in ANSI N18.7-1972. This item is closed.

Item I.A.2 involved inadequate control over maintenance activities on safety-related electrical equipment at Keowee and Oconee. The licensee's corrective action includes review of the interfacing

problems involved with EM&C and RM&C and Keowee activities which have prevented Oconee management from exercising adequate control over some safety-related maintenance activities conducted by non Oconee personnel. This item of noncompliance remains open pending verification of corrective actions taken as a result of task force studies.

Item I.B.1 involved failure to follow part of the refueling procedure during the 1976 Unit 2 refueling. This item is closed. (See Details III, paragraph 4)

Item I.B.2 involved failure to retrieve a nuclear instrumentation strip chart. The licensee's corrective actions were verified and this item is closed.

3. Followup on Previous Unresolved Items

Following is a list of outstanding unresolved items and the status of each:

73-14/2 "Ventilation Control Between Auxiliary and Turbine Building"

The licensee will complete data collection for this program by February 1, 1977. This item remains open pending verification that ventilation is from the turbine building to the auxiliary building.

76-1/1 "Instrument Calibration"

The licensee has established a calibration program for safety-related instrumentation not required by Technical Specifications but the program has not been fully implemented. The licensee committed to fully implement this program by June 1, 1977.

76-1/2 "Electrical Equipment Calibration"

Responsibility for coordinating and scheduling periodic calibration and preventive maintenance on safety-related relays and breakers is assigned to the Oconee maintenance

organization. The program for this work is not fully implemented. This item remains open pending further review.

76-2/1 "Process and Effluent Monitor Calibration"

This item remains open pending further review by NRC health physics personnel.

76-7/1 "Temporary Jumpers and Bypasses"

The inspector reviewed station Directive 3.3.5 (revised September 17, 1976) which establishes the necessary controls. This item is closed.

76-7/2 "Safety Review Committee"

The Duke-1 QA report was revised December 2, 1976 to change references to the Safety Review Committee. This item is closed.

76-7/3 "Test Equipment Storage"

The licensee has not completed action to upgrade these storage areas. This item remains open.

76-7/4 "Delineation of Duties and Authorities"

The licensee has not delineated, in writing, the duties and responsibilities of utility operators. This item remains open.

76-12/1 "NDE Acceptance Criteria"

A licensee representative stated that corporate office personnel were working on this item to define specific dates of issue of fabrication codes for acceptance criteria. The licensee revised the completion date for this task to June 1, 1977. This item remains open.

4. Review and Audit

The inspector reviewed licensee onsite review activities to verify that the licensee was meeting requirements of Technical Specifications 6.1.2, 6.1.2.1.d, 6.1.2.1.e and 6.1.3.3.e.

The inspector also reviewed records of NSRB meetings for 1976 to verify that requirements of Technical Specifications 6.1.3.2.e, 6.1.3.2.f and 6.1.3.3.d were being met.

✓ No discrepancies were identified during the above review.

DETAILS III

Prepared by:

P. T. Burnett  
P. T. Burnett, Reactor Inspector  
Nuclear Support Section  
Reactor Operations and Nuclear  
Support Branch

1/20/77  
Date

Dates of Inspection: January 18-21, 1977

Reviewed by:

H. C. Dance  
H. C. Dance, Acting Chief  
Nuclear Support Section  
Reactor Operations and Nuclear  
Support Branch

2/16/77  
Date

1. Personnel Contact

J. E. Smith - Plant Manager  
L. E. Schmid - Operations Superintendent  
T. S. Barr - Technical Services Supervisor  
R. T. Bond - Technical Services Engineer  
W. R. McCollum - Assistant Plant Engineer  
Other Plant Operations Personnel

2. Review of Plant Operations

The inspector reviewed the plant operations associated with the recovery of Unit 3 from the recent refueling outage. The shift supervisor's and reactor operator's logs for the period October 29 to December 3, 1976 were reviewed, since this was the period of the approach to critical and power escalation testing. Also reviewed was OP/3/A/1102/01, "Controlling Procedure for Unit Startup." From these references it was confirmed that the following systems were properly returned to service: primary cooling system, incore monitors, control rod drive systems and other prerequisite systems as defined in the controlling procedure. The inspector also confirmed by a review of licensee records that monthly surveillance test of incore detectors, reactor protective system, high pressure injection, area radiation monitors and the penetration room ventilation systems, were performed as required by Technical Specifications 4.1 and 4.5 during the Unit 3 refueling outage.

Equipment problems prevented bringing the reactor critical during the first attempt. After interrupting the "Controlling Procedure" for maintenance a new "Controlling Procedure" was started with appropriate overlap. This procedure was in use up to the time the reactor was raised to about 13% power and then tripped. Licensee

personnel then properly changed to the use of OP/3/A/1102/2, "Reactor Trip Recovery." This latter procedure was never completed, and was filed in the completed procedure file without administrative review. This failure to follow procedure is identified as an infraction against Technical Specification 6.4.1.a.

### 3. Startup Testing

The first phase of the startup testing was controlled by procedure TT/3/A/710/01, "Zero Power Physics Test for Unit 3, Cycle 2." The inspector reviewed in detail the test method, data and results for the zero-power boron reactivity and end-point concentration, for the zero power temperature coefficient, the control rod group calibration and the shutdown boron concentration with one stuck rod.

The second part of the startup test was controlled by the procedure TT/3/A/811/1, "Unit 3, Cycle, 2 Power Escalation Test." Tests performed during this phase at the 40% power plateau included the nuclear steam system heat balance, incore detector checkout, measurement of core power distribution and the first checks on maximum linear heat rate and departure from nuclear boiling ratio. Similar tests were performed at the 75% power plateau. Power was held at the 90% plateau for the purposes of preconditioning the fuel and establishing the xenon equilibrium only. The balance of testing was performed at or near 100% power, including nuclear steam system heat balance, determination of core power distribution and determination of moderator and power coefficients of reactivity. Differential control rod worth against xenon was also performed. The inspector reviewed in detail the test method, data and results for the moderator coefficient measurement at power and for the power coefficient measurement.

The inspector noted and made known to the licensee personnel that their procedures for measuring moderator temperature coefficient either at zero power or near full power did not specifically address Technical Specification 3.1.7 requirement that the moderator coefficient not be positive at 95% power and above. Licensee personnel devised a method of extrapolating the near-full-power data to the 95% power level by normalization to a curve of calculated moderator coefficient vs boron concentration. They further committed to make this procedure a permanent addition to the startup testing procedures. Except for confirming compliance with the commitment at some future date, this item is closed.

The inspector also noted that the acceptance criterion for the power coefficient was only a minimum magnitude constraints. The inspector questioned licensee personnel on the need for a maximum

magnitude limit consistent with the FSAR assumed values for the steam-line-break accident. It was the licensee's position that this accident and any subsequent return to power that might be promoted by a power coefficient greater than that considered in the FSAR was not in itself a limit on the magnitude of the power coefficient. This item or subject will be an unresolved item pending further review.

4. Previous Noncompliance Item

In Inspection Report 76-6 (Item I.B.1) the licensee was cited for deficiency of failure to follow procedure. By observation of personnel performing similar activities during the fuel handling phase of the Unit 3 refueling outage and by review of procedures completed during that time and during the startup testing, the inspector concluded that the licensee's remedial action had been adequate and this item was closed.

DETAILS IV

Prepared by:

A. L. Cunningham  
A. L. Cunningham, Environmental Scientist  
Environmental and Special Projects Section  
Fuel Facility and Materials Safety Branch

12/17/77  
Date

Dates of Inspection: December 20-22, 1976

Reviewed by:

R. L. Bangart  
R. L. Bangart, Chief  
Environmental and Special Projects Section  
Fuel Facility and Materials Safety Branch

2/18/77  
Date

1. Scope

The following items were included in the inspection: (1) review and audit of detailed written procedures for the general aquatic surveillance and special study programs; (2) verification of implementation of thermal and chemical monitoring requirements of Appendix B Technical Specifications; (3) verification of implementation of aquatic surveillance and special studies including fish impingement, plankton entrainment, plume mapping and gas bubble disease.

2. Individuals Contacted

J. E. Smith - Station Manager  
R. M. Koehler - Superintendent of Technical Services  
D. C. Smith - Station Chemist  
J. J. Sevic - Station Biologist  
R. T. Bond - Technical Service Engineer  
J. W. Cox - Station Senior QA Engineer

3. Surveillance and Special Study Procedures

Inspection included a detailed review and audit of written procedures developed for the general aquatic surveillance requirements of Section 1.3 of Appendix B Technical Specifications and the special studies included under Sections 1.4 through 1.7. The subject specifications do not define administrative and management control requirements such as assignment of responsibilities, detailed written procedures, and review and audit functions. Detailed written procedures, however, have been developed for the above cited specifications. Procedures for aquatic surveillance and special study specifications define both the responsible organization and specialist assigned to assure their implementation. Procedures for the surveillance specifications which include water quality, fish population dynamics and reproduction, periphyton, plankton

receiving water study, ichthyoplankton entrainment and benthos, were audited to assess both procedural and program revisions. The special study specifications which include fish impingement and ichthyoplankton entrainment, plankton entrainment mortality, plume mapping (temperature and DO), and gas bubble disease were also audited to determine if procedural and program revisions were consistent with license amendments granted since the last annual environmental inspection. Inspection revealed that Procedures NE-O-B 1000/09 and NE-O-B 1000/11 for Appendix B Technical Specification 1.4.A - Fish Impingement on Intake Screens, were deleted following issuance of Amendment 22 to Operating License DPR-37, DPR-48, DPR-55. The subject amendment deleted weekly surface visual and quarterly underwater inspections of CCW intake screens. The amendment provided for quarterly inspection of six screens - i.e., two from each unit. The screens selected are required to be cleaned one week prior to removal for inspection so that the rate of impingement during the week can be determined. Procedure No. NE-O-B-1000/10 - Fish Impingement on Intake Screens was revised to include the quarterly inspection requirements of Specification 1.4. The remaining surveillance and special studies procedures for Specifications 1.3, 1.4, 1.5, 1.6, and 1.7 were considered acceptable. All procedures included check lists and field documentation requirements to assure implementation of each of the above specifications. There were no questions concerning this item.

4. Implementation of Environmental Monitoring Program

a. Chemical Wastes

Appendix B Technical Specification 1.2.B (Monitoring) requires monitoring of bulk chemicals listed in Table 1.2-1 via a combination of purchasing records and physical inventories. Quantities shown in the above cited table for boron, sodium hydroxide, sulfuric acid, solid laundry detergents, liquid cleaning detergents, hydrazine and lithium hydroxide represent the maximum annual consumption as pounds per year per three units. Usage in excess of the calculated maximum for each item delineated would result in exceeding the corresponding concentration limit for the respective item as shown in Table 1.2-1 of Appendix B. Monthly bulk chemical inventories for the period January 1, 1976 through November 30, 1976, were reviewed and audited. The review included the occurrence reported by the licensee to Region II, involving usage of solid laundry detergent in excess of Technical Specification limit as indicated by the May, 1976 inventory. The annual usage limit assigned in the above referenced table was 4760 pounds. The May inventory showed a total consumption of 5625

pounds. In the written report concerning this occurrence the licensee stated that the above limit was established prior to station operation; however, due to increased manpower requirements and resultant increased quantity of laundry, the assigned limit proved to be too conservative for current and future operation. The corrective action proposed by the licensee entailed a critical review of the limits assigned in Table 1.2-1, and revision of the chemical discharge limits to reflect more realistic values while complying with applicable federal and state regulations. The proposed revision of such limits was submitted to the Office of Nuclear Reactor Regulation in a letter dated September 1, 1976. New concentration limits, monitoring and nonroutine reporting requirements were proposed for pH, specific conductivity, suspended solids, hydrazine, boron, phosphorus, and lithium. The latter four wastes, generated from the low level rad waste system, are to be monitored prior to their release. The occurrence involving the sulfuric acid limit of 150,000 pounds as reported by the licensee in November, 1976 was also reviewed. At the time of inspection, the proposed revision of Technical Specification 1.2.A had not been approved by the NRC. Completion of the corrective action as submitted is contingent upon NRC's approval of the proposed revision or some related waste limits considered acceptable to the Commission. Review of the inventory also indicated that based on data compiled through November 30, 1976, floor cleaning compound usage was approaching its annual maximum limit of 10,000 pounds. The total shown was 9,906 pounds. Although this specific limit was not yet exceeded, it was discussed with the licensee representatives who stated it was apparent that this parameter based on the current specification would be exceeded; however, they hoped that the proposed revision of Technical Specification 1.2.A would be approved prior to such an occurrence. The inspector had no further questions concerning this item at that time.

b. pH Monitoring

Records of pH monitoring conducted during the period January 1, 1976 through November 30, 1976 were audited to determine the licensee's compliance with the daily monitoring condition defined in Appendix B Technical Specification 1.2.A (Monitoring). The audit also included a review of occurrences reported by the licensee during the above cited period. Two occurrences involving excursions above the pH limit of 8.5 were reported on February 12, and March 16, 1976, respectively. Appendix B Technical Specification assigns a pH range limit within 6.0 to 8.5 regime. A followup inspection (IE Inspection Report Nos.

50-269/76-10, 50-270/76-10, 50-287/76-10) was conducted to verify implementation of corrective actions proposed by the licensee in response to the two occurrences. The above inspection results revealed that the actions taken to prevent recurrence were inadequate, since the licensee neither described nor required implementation of an effective pH monitoring program to assure that waste water leaving the plant site would be maintained within the specified limits. During the subject inspection, the licensee's written response and recommended corrective action relative to the above findings were reviewed and discussed. In the licensee's letter of response to NRC (November 9, 1976), it was stated that an inline pH monitor was in service at the outlet of the lower settling basin which provided remote readout to the water treatment room. The letter further stated the following: (1) inline pH monitoring of the station yard drains would be installed by March 1, 1977; (2) station modification was being implemented to provide audible alarms in the Oconee control rooms in the event that inline monitors registered pH releases in excess of allowable Technical Specification limits. This action was assigned a completion date of April 1, 1977 (the letter stated April 1, 1976, in error). At the time of inspection the inspector observed that the pH monitors were in service at the upper and lower waste water collection basins; however the pH monitor at the lower settling basin weir was not yet in service. The corrective actions discussed are scheduled for completion by April 1, 1977. This item will be reviewed in a subsequent inspection to assess implementation of the proposed corrective actions.

5. Nonradioactive Effluent Release Limits

Effluent release limits are defined in Technical Specification 1.1, and 1.2 and include thermal and chemical discharges respectively. Chemical limits and reported occurrences involving excursion beyond the assigned limits are discussed in preceding paragraph. The current method of control and assessment of station chemical effluents is based on a combination of purchasing records and physical inventories of the weight of reagents used. The bulk reagents involved include sulfuric acid, sodium hydroxide, boric acid, solid laundry and liquid cleaning detergents. The licensee however, has submitted a proposed amendment to Appendix B Technical Specifications requesting a review of the method of station chemical effluent control through use of a chemical effluent monitoring program in lieu of the current inventory program. Licensee representatives stated that the proposed amendment would implement more reasonable, updated guidelines for control of chemical effluents

released from the station. There was no further discussion of this item.

6. Special Studies

Special Study requirements of Appendix B are defined in Technical Specifications 1.4, 1.5, 1.6, 1.7, and include ichthyoplankton entrainment, plankton entrainment mortality, plume mapping for temperature and dissolved oxygen, and gas bubble disease respectively. Review and audit of procedure check lists and field data sheets confirmed that each of the above studies were implemented as required. Procedures for each specification listed were discussed in paragraph 3.

7. Environmental Surveillance

General aquatic environmental surveillance requirement of Appendix B are defined in Technical Specifications 1.3.1, 1.3.2, 1.3.3, 1.3.5, 1.4 and include water quality, fish population dynamics and reproduction, periphyton, benthos and fish impingement, respectively. Review and audit of procedures, check lists and field data sheets for each requirement confirmed that the surveillance program was implemented as defined in Appendix B Technical Specifications.

8. Reportable Occurrences

Reportable occurrences logged during the period Jan. 1 through December 22, 1976 were reviewed. Corrective actions implemented for each occurrence were assessed. Occurrences reported during the cited period are discussed in paragraphs 4.a and 4.b.

DETAILS V

Prepared by:

Alexander D. Kowalczyk  
Alexander D. Kowalczyk, Radiation  
Specialist  
Radiation Support Section  
Fuel Facility and Materials  
Safety Branch

2/15/77  
Date

Dates of Inspection: January 25-28, 1977

Reviewed by:

A. F. Gibson  
A. F. Gibson, Section Chief  
Radiation Support Section  
Fuel Facilities and Materials  
Safety Branch

2/15/77  
Date

1. Individuals Contacted

J. E. Smith - Plant Manager  
R. M. Koehler - Superintendent of Technical Services  
C. T. Yongue - Health Physics Supervisor  
R. T. Bond - Technical Services Engineer  
D. C. Smith - Station Chemist  
M. Burch - Health Physicist - Charlotte Office  
W. P. Deal - Assistant Health Physics Supervisor

2. Radioactive Effluent Releases

- a. At about 2330 hours on 1/17/77 water discharged from the common Unit 1 and 2 turbine building sumps was routed to the lower settling basin due to leakage of water containing approximately  $2 \times 10^2$  microcurie per milliliter gross radioactivity (principally iodine - 131) into one of the sumps from the contaminated secondary system on Unit 1. Prior to 2330 hours the sump was pumped to the oil pond which discharges over a weir to the Keowee River. Leakage to the turbine building sump was identified at about 2300 hours on 1/17/77. A review of plant radioactivity analysis records and discussions with management representatives did not reveal any analytical results for radioactive discharges from the oil pond to the Keowee River between 2300 hours 1/17/77 and 0800 hours on 1/18/77. Failure to make radioactivity analyses during this period is contrary to 10 CFR 10.201 which requires that surveys be made to provide an evaluation to show compliance with 10 CFR 20.106. Plant records reviewed by the inspector did not reveal that liquid waste release records were made to account for radioactive waste discharged between 2300 hours on 1/17/77

and 0830 on 1/18/77 as required by 10 CFR 20.401 to record disposal under 10 CFR 20.302. The above items were confirmed by the inspector with a management representative by telephone on 2/2/77.

- b. Management representatives estimated that the lower settling basin overflowed the discharge weir to the oil pond between 0500 and 0600 hours on 1/18/77 as a result of about one-half million gallons of water being added since diverting the turbine building sump to the lower settling basin. Water from the settling basin flowed to the oil pond and was discharged to the Keowee River after passing through the pond. At about 0845 hours on 1/18/77 the lower settling basin weir was opened to provide space for water from a make-up water system mixed bed demineralizer regeneration. The upper settling basin had space for this water but was not used because of concern for icing conditions in recirculation lines and pumps. The first sample for gamma isotopic analysis of water being discharged from the oil pond was taken at about 0850 hours on 1/18/77 and results were available at about 1330 hours the same day. Management representatives stated that during the period 0800 to 1245 hours on 1/18/77 the Keowee Hydro Plant was not in operation to provide dilution flow substantially greater than the normal 30 to 50 cubic foot per second leakage past the dam. Management representatives also stated that resulting concentrations in the Keowee River exceeded the values in 10 CFR 20, Appendix B, Table II, Column 2 by about a factor of three which is contrary to Technical Specification 3.9.3. From about 1245 hours on 1/18/77 until about 2230 hours on the same day the hydro plant was operated and the concentration of radioactivity in the river appeared to remain within Technical Specification limits. From about 2300 hours on 1/18/77 until about 0730 hours on 1/19/77 the representatives stated that the hydro plant was not operated and that limits specified by Technical Specification 3.9.3 were exceeded by factors of about 2 to 19. Records reviewed by the inspector indicated that the hydro plant was operated from about 0730 to 2145 hours on 1/19/77 and that releases were within established limits. The records further indicated that from 2145 hours on 1/19/77 to about 1050 hours on 1/20/77 the hydro plant was not in service. Management representatives stated that limits in Technical Specification 3.9.3 were exceeded during the above period. Failure to coordinate operation of the Keowee Hydro Unit with releases of liquid waste was contrary to Technical Specification 3.9.5.
- c. Based on records reviewed by the inspector the radioactivity concentration in the hotwell was about  $2 \times 10^{-2}$  microcurie per

milliliter (principally iodine - 131) on 1/17/77 when the leak to the turbine building sump occurred. About 8000 gallons of leakage was estimated by management representatives. The above estimates indicate that about 0.6 Curies would have entered the lower settling basin as a result of the leak. Radioactivity concentrations and settling basin volumes obtained from management representatives indicate that on 1/20/77 the upper and lower settling basins contained about 3.8 Curies of I-131; also, 0.4 Curies of I-131 had been discharged to the River as of the morning of 1/19/77. These figures indicate that substantial quantities of contaminated secondary system water were transferred to the settling basins in addition to the approximately 8000 gallons due to the leak. Discussions with management representatives and the inspectors review of plant records did not indicate that transfer of the contaminated water to the radioactive waste disposal system was considered. The condensate system filter demineralizers were operable during the period 1/17 to 1/20 and were capable of removing substantial quantities of the radioactive contamination from the secondary system water for disposal as solid waste. As of the morning of 1/28/77 plant records indicate that about 3.1 Curies had been discharged to the Keowee River as a result of the Unit 1 steam generator tube leak and subsequent secondary system leakage to the turbing building sumps. Plant analytical records revealed that contaminated water was entering the turbine building sumps through 1/21 with resulting sump concentrations as high as about  $2 \times 10^{-4}$  microcuries per milliliter. Failure to operate equipment installed in the liquid radioactive waste system for the purpose of keeping releases within the objectives of the Technical Specifications and failure to process all liquids prior to their discharge in order to limit the activity, excluding tritium and dissolved noble gases, released during any calendar quarter to 1.25 Curies or less per unit is contrary to Technical Specification 3.9.4.

- d. In a report to Region II dated April 30, 1976, Duke Power Company stated that during the period January to March, 1976 liquid waste was released from Oconee Nuclear Station with concentrations of I-131 greater than the values given in 10 CFR 20 Appendix B, Table II, Column 2. This is contrary to Technical Specification 3.9.3. The report stated that the specified concentration was exceeded due to an error in the method used to calculate limiting concentrations. The inspector has confirmed that a corrected calculation is in use.

- e. In a report to Region II dated April 16, 1976 Duke Power Company stated that during February, 1976, liquid waste was released from Oconee Nuclear Station with concentrations of fission and corrosion products greater than the values given in the above (subparagraph 2d) reference which is contrary to Technical Specification 3.9.3. Causes and corrective action are as stated in subparagraph 2d.
- f. During a review of Oconee Nuclear Station records the inspector noted that numerous environmental radioactivity levels have exceeded control station levels by factors of 4 and 10. Reports were made to Region II pursuant to Technical Specification 6.6.2.2.(c). These reports also indicate that tailrace concentrations of radioactive material have exceeded Final Environmental Statement annual concentration estimates by a factor of ten.
- g. The inspector also noted that in the fourth quarter of 1976 Oconee Nuclear Station released gaseous waste, primarily from Unit 2, at a rate that would have exceeded the Technical Specification annual objective by a factor of 2 or more for the year if the release rate had continued. This licensee reported this release pursuant to Technical Specification 3-10.1.
- h. The inspector reviewed records of radioactivity releases to the settling basins and oil pond for the period September - December, 1976. These releases by way of turbine building sumps were caused by periodic steam generator tube leakage with some apparently continuous low level weepage. The records appeared to meet the requirements of 10 CFR 20.401.

3. Procedures for Controlling the Release of Effluents

Oconee Nuclear Station has experienced the following primary to secondary system leaks based on data obtained from management representatives.

<u>Unit</u>	<u>Steam Generator</u>	<u>Approximate Leak Rate</u>	<u>Date</u>
1	unidentified	1 gpd	Aug. '75
3	B	1.5 gpm	July '76
1	A	1 gpm	Oct. '76
1	B	15 gpd	Nov. '76
1	B	4 gpd	Dec. '76
2	B	2.5 gpm	Dec. '76
1	B	12 gpm	Jan. '77

Each of these leaks has resulted in radioactive contamination in a unit's secondary system due to the entry of reactor cooling water. Upon entering the secondary system, radioactive materials are likely to be leaked to the turbine building sumps by normal pathways such as pumps and valve packing glands and abnormal pathways such as the hydrogen cooler leak on 1/17/76. In reviewing the events and actions related to the hydrogen cooler leak that occurred on 1/17/76, the inspector determined by review of plant records and discussions with management personnel that adequate approved emergency procedures involving potential and actual release of radioactivity were not available and that the station was not operated and maintained in accordance with such procedures. This in contrary to Technical Specification 6.4.1d.

4. Solid Radioactive Waste

As a result of steam generator tube leaks, powdered ion exchange resin used in condensate cleanup applications has become contaminated with radioactive materials. A line for transferring contaminated resin to processing equipment that is part of the plant design does not function according to management representatives. A temporary line to transfer resin to a tank trailer for settling and subsequently to a shipping container for drainage of excess water was in use during the inspection. Disposal of this solid waste appeared to be in accord with plant Technical Specifications and Commission regulations.

5. Sampling Radioactive Materials in Gases

- a. The inspector observed that the charcoal cartridges used to sample the vents on Units 1, 2 and 3 were about 1 inch thick, had a collection diameter of about 1 3/4 inch, and that the sampling flowrate was about 3 cubic feet per minute.
- b. Discussions with management representatives revealed that in plant monitoring and effluent monitoring on the interim waste building vent for radioiodine was accomplished using charcoal impregnated filter papers which are a fraction of an inch thick with flowrates as high as 7 cubic feet per minute.
- c. The inspector observed that a tubing fitting having a right angle bend was immediately upstream of each particulate filter used for effluent accountability on the Unit 1, 2 and 3 vents.
- d. During discussions with management representatives the inspector determined that radioiodine detected on particulate filters

used to monitor the unit 1, 2 and 3 vents is not added to radioiodine effluent release quantities determined from analysis of the unit vent charcoal cartridge. The representatives stated that normally about 1% to 10% of the radioiodine is present on the particulate filter.

- e. The inspector stated that residence times of radioiodine in the sampling media appeared to be inadequate to assure an essentially 100% collection efficiency; and, that efficiency of collection determinations would be necessary to develop correction factors for effluent releases if residence times are not improved substantially.
- f. The inspector stated that sharp bends are known to cause particulates to be removed from the gas stream prior to reaching particulate sampling media and thus will cause effluent release results to be low in comparison to the actual quantities released and that such a condition needs to be evaluated or corrected.
- g. The inspector also stated that effluent records must be corrected to reflect all quantities detected and to reflect actual quantities released where correction factors have not been applied when appropriate.
- h. Management representatives stated that the above conditions would be reviewed and corrected as determined necessary. This is an unresolved item.

6. Management Meeting

a. Meeting Attendees

W. O. Parker, Jr - Duke Power Co.  
D. C. Holt - Duke Power Co.  
J. E. Smith - Oconee Nuclear Station  
L. E. Schmid - Oconee Nuclear Station  
H. B. Tucker - Duke Power Company  
R. M. Koehler - Oconee Nuclear Station  
N. C. Moseley - Region II  
F. J. Long - Region II  
J. T. Sutherland - Region II  
R. C. Lewis - Region II  
A. F. Gibson - Region II

C. E. Alderson - Region II  
A. D. Kowalczyk - Region II  
D. Neighbors - NRC/DOR  
L. Barrett - NRC/DOR

- b. On February 11, 1977 a management meeting was held in the Region II offices with members of the Duke Power Company corporate management and the management of Oconee Nuclear Station. Items of noncompliance identified in this report were discussed. The need for a thorough review of events associated with the radioactivity discharges from the secondary system which began on 1/17/77 and outstanding monitoring problems were emphasized. The possible scope of corrective actions to preclude similar occurrences was discussed and the representatives were reminded of the reporting requirements of Technical Specification 3.9.1.

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MAR 29 1977

Duke Power Company  
Attn: Mr. Carl Horn, Jr.  
President  
P.O. Box 2178  
Charlotte, North Carolina 28242

License Nos.: DPR 38  
DPR 47  
DPR 55  
Docket Nos.: 50-269  
50-270  
50-287

Gentlemen:

This refers to the inspection conducted on December 20-23, 1976 by Mr. A. L. Cunningham; January 18-21, 1977 by Messrs. T. Epps, P. Burnett and C. Alderson; and January 25-28, 1977 by Mr. A. Kowalczyk of our Region II office in Atlanta, Georgia, of activities authorized by NRC License Nos. DPR-38, DPR-47 and DPR-55; and to the meetings held on December 23, 1976, January 21, 1977, and January 28, 1977, with Mr. J. E. Smith and members of the Oconee staff to discuss the inspection findings. This also refers to the meeting held at the Region II office on February 11, 1977, attended by Mr. W. O. Parker, Jr. and other members of your staff with Mr. N. C. Moseley and other members of the Region II office.

This inspection concentrated on events associated with the release of more than three curies of radioactivity resulting from radioactive secondary system water leaking into a turbine building sump beginning January 17, 1977. Other activities including plant operations and testing, nonradiological environmental controls and followup on previously identified items of noncompliance and unresolved items were also examined.

Based on the results of this inspection, it appears that several of your activities were not conducted in full compliance with NRC requirements as set forth in the Notice of Violation, enclosed herewith as Appendix A.

Our concern for inadequate control systems related to the identified problem areas was expressed in the Region II meeting with Duke Power Company representatives on February 11, 1977. Concern was expressed that timely, effective corrective action had not been implemented to prevent recurrence and to minimize the consequences of identified problems. The need for immediate corrective action was emphasized in a letter from the Region II office to Duke Power Company dated February 1, 1977, confirming corrective actions to be taken regarding the leakage of

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

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Duke Power Company

- 2 -

radioactive water that began on January 17, 1977. Certain of the items in Appendix A illustrate that several days passed before a coordinated management effort to minimize, control and adequately monitor radioactive effluents was developed to prevent additional noncompliance with regulatory requirements, even though license conditions require prior planning to cope with such occurrences. In addition, Region II personnel met with senior Duke Power Company representatives on April 16, 1974, August 29, 1974, and June 9, 1976, to discuss our concerns regarding your implementation of radiological requirements and the need for improved management controls to correct identified problems.

The enforcement history of the Oconee Nuclear Station related to radiological controls, enclosed herewith as Appendix C, shows numerous as well as repetitive or similar items of noncompliance. Specifically, Appendix C shows 41 items of noncompliance involving 30 basic requirements over the past three years. Of the 30 basic requirements, it was found that in seven instances the items were repetitive or similar to items found during other inspections. Further, Item Nos. 1, 5 and 6 in Appendix A to this letter are repetitive or similar in nature to items found during previous inspections.

Based on our review of the enforcement history related to the Oconee Nuclear Station it appears that the history of repetitive and chronic noncompliance, when considered in conjunction with failure to institute effective corrective action and management controls, demonstrates that management is apparently not conducting licensed activities with adequate concern for the health, safety or interest of its employees or the public. Consequently, in your reply, you should describe those actions taken or planned to improve the effectiveness of your management systems to control plant effluents, effluent monitoring, radiation safety and to improve communications and performance among operating, health physics, chemistry and maintenance organizations involved with such activities.

As you are aware from the "Criteria for Determining Enforcement Action," which was provided to you by letter dated December 31, 1974, the enforcement actions available to the Commission in the exercise of its regulatory responsibilities include administrative actions in the form of written notices of violation, civil monetary penalties, and orders pertaining to the modification, suspension or revocation of a license. After careful evaluation of the items of noncompliance identified in Appendix A and the results of our inspection, this office proposes to impose civil penalties, pursuant to Section 234 of the Atomic Energy Act of 1954, as

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MAR 29 1977

Duke Power Company

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amended, (42 USC 2282) and 10 CFR 2.205, in the cumulative amount of Twenty One Thousand Five Hundred Dollars (\$21,500) as set forth in the "Notice of Proposed Imposition of Civil Penalties," enclosed herewith as Appendix B.

This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within twenty (20) days of your receipt of this notice a written statement or explanation in reply including: (1) corrective steps which have been taken by you and results achieved; (2) corrective steps which will be taken to avoid further items of noncompliance; and (3) the date when full compliance will be achieved.

Your written reply to this letter, combined with our findings from our continuing inspection program, will be considered in determining whether any further enforcement action such as license modification, suspension or revocation is appropriate.

Sincerely,

*Original signed  
by E. Volgenau*  
Ernst Volgenau,  
Director  
Office of Inspection and  
Enforcement

Enclosures:

1. Appendix A, Notice of Violation
2. Appendix B, Notice of Proposed Imposition of Civil Penalties
3. Appendix C, Enforcement History Related to Radiation Safety

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*3/24/77*

*hm for JPM*

OFFICE →	FOEB	FOEB, C	DFO	ELD	D:IE
SURNAME →	JRMetzger	GWRoy	DThompson	JPMurray	EVolgenau
DATE →	3/24/77	3/24/77	3/24/77	3/24/77	3/24/77