

FROM: Duke Power Company
 Charlotte, N. C. 28207
 A. C. Thies

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TO: R. C. DeYoung

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DESCRIPTION: (Must Be Unclassified)
 Ltr notarized 2-16-72 re their 2-11-72 ltr..furnishing comments on various Agencies on Draft Enviro Statement for Oconee Unit # 1...w/attached.....

REFERRED TO	DATE	RECEIVED BY	DATE
Keppler W/2 cys for ACTION	2-18-72		

ENCLOSURES:
 (1) Oconee Operational Enviro Radio-activity Program.
 (2) Ltr fm So.Car. Wildlife Resources Dept, dtd 2-8-72.
 (3) Fisheries Investigations in Lake & Streams, District #IV, Annual Progress Rpt for period 7-1-68 thru 6-30-69.

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REMARKS:(28 cys ea encl rec'd)
 1-Local PDR(Walhalla,S.C.) *(see rpt sec for encl)*

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ACKNOWLEDGED

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DUKE POWER COMPANY,
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28201

A. C. THIES
SENIOR VICE PRESIDENT
PRODUCTION AND TRANSMISSION

February 16, 1972

United States Atomic Energy Commission
Division of Reactor Licensing
7920 Norfolk Avenue
Bethesda, Maryland

Attention: Mr. R. C. DeYoung, Assistant Director
for Pressurized Water Reactors

Subject: Comments in Reply to Questions Raised by Various Agencies
on the AEC Draft Detailed Statement
Oconee Nuclear Station
AEC Docket Nos. 50-269, -270, and -287

Dear Sir:

This is to supplement our letter of February 11, 1972 in reply to your letter transmitting comments in connection with the Oconee Unit 1 Draft Environmental Statement issued December 13, 1971.

Our response to the comments listed in the letter from the Secretary of the Interior to Mr. Muntzing dated January 18, 1972 are as follows listed in the order of occurrence in the letter:

GENERAL

1. Impact of Possible Future Steam-Electric Plants

Duke's preliminary studies, based on the company's experience at existing steam-electric plants indicate that Lake Keowee can quite satisfactorily provide cooling for additional future plants; but the present considerations involve only one steam-electric plant, and any future plants would be the subject of separate investigations.

2. Analysis of Keowee River Water Sample

The 1965 USGS analysis appears to be in reasonable agreement with the analyses shown in Table 4 of the Supplement and with recent spot sampling as reported on Page 14 of the Supplement.



EXISTING ECOLOGY

1. Endangered Species

Duke agrees with the suggestion for substituting the statement that:
"The southern bald eagle is the only endangered species of biota
which may inhabit the area."

2. Effect on Hunting and Fishing

Appendix P of the Supplement discusses the effects of this project on
hunting.

Fishing in the area prior to the project has been estimated by Mr.
Donald L. Archer, Fisheries Biologist for the S. C. Wildlife Resources
Department to be approximately 2,241 and 2,723 fisherman days per year
for the cold water and warm water sections, respectively. The anti-
cipated amount of fishing after completion of the project is presented
on Pages 38 and 39 of the Supplement and shows approximately 180,000 and
74,000 fisherman days per year for Lakes Keowee and Jocassee, respectively.

CHEMICAL DISCHARGES

1. Concentrations in Keowee Discharge

The following additional information is applicable to Table III-6:

- a. It is expected that no LiOH will be discharged to the river.
- b. Floor cleaning chemicals will be recovered to maximum practicable
extent and processed through the sanitary waste treatment system
so that only a small portion of the listed quantity will be dis-
charged to the river.
- c. The laundry waste will be treated so that little, if any, of the
listed quantity of laundry detergent will be discharged to the
river.

2. Chemical Effects in Lake Hartwell

Duke believes that the existing and projected environmental study pro-
grams will adequately assess the chemical effects on aquatic life. This
conclusion seems justified, considering the very small quantities of
chemicals involved (see further comments in Item 1 above) and the fact
that no special chemical hazards are involved.

THERMAL EFFECTS, DISSOLVED OXYGEN, MECHANICAL DAMAGE TO AQUATIC ORGANISMS

1. The existing and planned programs for monitoring environmental effects are responsive to the general concerns listed in these sections.

MONITORING

1. Identification of Epilimnetic and Hypolimnetic Layers

This type of monitoring already is being done and will be a part of the continuing program.

2. Type and Frequency of Monitoring

Details of Duke's environmental monitoring program are listed on Page 6 of the Supplement.

3. Radiological Impact on Fish and Wildlife

Releases of radioactive liquid and gaseous wastes will be made in accordance with the Oconee Technical Specifications which are based on 10CFR20 and the proposed 10CFR Part 50, Appendix I. Releases at or below these levels are not expected to have any significant effects on fish or wildlife. Any reconcentration effects in the aquatic environment will be evaluated in the Environmental Radioactivity Monitoring Program.

4. Sampling of Benthic Organisms

Benthic sampling is included in the monitoring program. See Appendix F, Page 6, of the Supplement. Also see attached Table 2-1a from the FSAR. This revised page was not available at the time Appendix F was issued; therefore benthic sampling is not shown in the table furnished, although it is stated in the text. This may account for the misunderstanding.

NEEDED STUDIES

1. Rainbow Trout in Lake Hartwell

Duke has been advised by a representative of the S. C. Wildlife Resources Department that no trout have been stocked, nor are there any plans for trout stocking in Lake Hartwell by this Department. This fact alone appears to preclude the existence of any significant trout population in the region of Lake Hartwell which could be affected by discharges from Lake Keowee or Oconee Nuclear Station.

The Fisheries Division of the State of Georgia apparently has stocked some trout into tributaries of the Tugaloo River arm of Lake Hartwell; but these stockings apparently have not contributed significantly toward a trout fishery in the Keowee River arm of Lake Hartwell.

OUTDOOR RECREATION

1. Information on Recreation Complex

A recreation map of the Lake Keowee area showing locations of public access areas and parks was attached to our letter of February 11, 1972 referred to in the first paragraph.

MAJOR NUCLEAR ACCIDENTS

1. Class 9 Accidents

Information pertinent to this subject has been furnished in the FSAR.

UNAVOIDABLE EFFECTS

Duke believes that the Supplement is responsive to Interior's comments on this subject. For example, wildlife habitats are discussed beginning on Page 24; Page 43 describes the cooperative arrangement between Duke Power, the S. C. Wildlife Resources Department, and the N. C. Wildlife Resources Commission concerning the wildlife management area; and Appendix P of the Supplement discusses results of the management program.

BENEFIT-COST ANALYSIS

1. Recreational Benefits

Duke's calculation of the dollar benefits assignable to recreation is described on Page 40 of the Supplement and this calculation uses unit values obtained from the "Supplement No. 1 to Senate Document 97."

2. Value of Fishery Resources

The "willingness to pay" basis was used in calculating the dollar-benefit of reservoir use. This calculation and the basis for considering \$1.50/fisherman day to be a conservative evaluation is described on Pages 38-39 of the Supplement. If a 2:1 ratio is used to evaluate stream fishing as compared to reservoir fishing, then the increase in

sport fishing value would be approximately \$340,000/year rather than \$362,000/year as shown in the Supplement.

Since many, and possibly all, species of fish are important to the ecosystem although they may not have direct value to the sport fishery; Duke believes that a monetary value should be placed on the fish, in addition to the "willingness-to-pay" value. Replacement cost was used as the basis for assigning the monetary value to these fish.

Our response to the letter from the Environmental Protection Agency with attached comments addressed to Mr. Muntzing dated January 20, 1972 are listed below following their outline:

INTRODUCTION AND CONCLUSIONS

No response required.

RADIOLOGICAL ASPECTS

1. Additional Sources of Gaseous Effluent

Both DRL's Statement and Duke's Supplement are specific in identifying all sources of gaseous waste. The "other sources" mentioned in EPA's letter are discussed on Page 57 of the Statement and their handling is shown schematically on Page 58, Figure III-11. The Supplement addresses reactor building gaseous discharges on Page 20 and Table 6, auxiliary building gaseous discharges on Page 60 and Table 18, and air ejector releases resulting from primary-to-secondary leaks on Page 63 and Table 18.

DRL's Statement includes industry-wide discharge results, and the information in Duke's Supplement considers all sources of gaseous discharges from Oconee.

2. Internals Between Alarms and Shutoff

Effluent monitors do not merely alarm. Releases from liquid and gaseous waste tanks and the reactor building purge are actually controlled by process radiation monitors which stop the release automatically if a preset high activity level is reached or exceeded. An exception to this is the auxiliary building ventilation which will be shut down from the control room by operator action upon receiving a high radioactivity level alarm from the monitors in the vent through which all ventilation air is released or from a high radioactivity alarm from the auxiliary building ventilation system itself.

3. Bypassing of Liquid Waste System

The Oconee Technical Specifications require that all liquid wastes containing activity at a concentration of 2×10^{-8} uCi/ml or higher be processed through the treatment system.

4. Leakage From Secondary System

Leakage from secondary pump seals is collected and re-used and is not released. Also, there is no steam generator blowdown in this plant. Any other secondary system leakage is collected via the turbine building floor drains. If this leakage water contains activity as a result of a steam generator tube leak, it is routed to the low activity waste tanks for monitoring and any necessary treatment in the liquid waste system before release.

Leakage into the secondary system and the amount of activity in this system is limited by the Technical Specifications. If somehow, leakage of activity in excess of limits or handling capability should occur, the plant would be shut down for repairs.

5. Leakage From Buried Liquid Waste Discharge Line

This effluent release line is type 304 stainless steel of all-welded construction. It was hydrostatically tested for zero leakage prior to being covered. Being of this material and construction and the fact that it is buried, inherently protects it against failure due to anticipated seismic loadings. The line is sloped for gravity drainage and there is negligible back pressure in the line. For all of these reasons, it should not be subject to significant erosion or corrosion during the life of the station and gross failure is not considered to be credible.

6. Direct Radiation From Borated Water Storage Tanks

Direct radiation from these tanks to the site boundary is expected to be trivial for several reasons:

- (1) The site boundary radius is one mile.
- (2) The only source is dilute reactor coolant.
- (3) The activity in the dilute reactor coolant is decayed for several days during the refueling operation.
- (4) The dilute reactor coolant is continuously purified by the purification demineralizers during shutdown.

7. Evaluation of Additional Radionuclides

The number of different radionuclides produced by the fission process

or by neutron activation at Oconee may be in excess of 200. Most of these radionuclides are of sufficiently short half life or of sufficiently small quantity to be ignored when evaluating the plant's predicted rad waste discharges.

The Oconee Technical Specifications provide for the isotopic identification of effluents in order to evaluate the various radionuclides.

THERMAL MODELING

Points of concern expressed on Page 9 regarding cooling water flows and temperatures are covered by enclosure "Oconee Cooling Water Uses."

Duke Power Company has developed a model for predicting the thermal effects of Oconee Nuclear Station on Lake Keowee and Lake Hartwell. The specific information requested on Pages 13 and 14 of the EPA comments is included in the attached report entitled, "Methods for Predicting the Thermal Effects of Oconee Nuclear Station on Lake Keowee." Using their paragraph designations, the information requested is found in the report as follows:

- Paragraph A - Table 1
- Paragraph B - Table 2 and Drawing Nos. EO-1100-7 through EO-1100-14, inclusive
- Paragraph C - Drawing Nos. EO-1100-15 through EO-1100-18, inclusive
- Paragraph D - Table 4
- Paragraph E and F - (Combined) Table 3 and Drawing Nos. EO-1100-19 through EO-1100-22, inclusive
- Paragraph G - See Pages 1 through 5

Un-marked paragraph at bottom of Page 14 - See Pages 4 and 5 of report.

BIOLOGICAL EFFECTS

In response to the concerns listed in this section, we are enclosing the following:

1. A letter dated February 8, 1972 from Mr. Donald L. Archer, Fisheries Biologist of the South Carolina Wildlife Resources Department, with attached list of fishes endemic to Lake Keowee.

The major sport fishes listed by Mr. Archer are typical of lakes in this area and we see no reason why Lake Keowee will not support populations of these fishes. It should be noted that by providing a suitable habitat for these "major sport fishes" we are also providing a suitable habitat for many, if not all, of the fish listed as "fishes of lesser direct importance to the sport fishery."

Fish sampling on Lake Keowee in 1968, 69, 70 and 71 by the South Carolina Wildlife Resources Department indicate that the lake will be composed of predominantly warm water species. The most important game species will probably be the largemouth bass, Micropterus salmoides (Lacepede). Crappies will probably also be important in terms of angler effort; although which species either black crappie, Pomoxis nigromaculatus (Lesueur), or white crappie, Pomoxis annularis (Rafinesque), will predominate is not yet apparent. It should also be noted that some of the species listed as "major sport fishes" were not collected in abundance during the sampling periods.

2. "Population Studies in Reservoirs" by S. C. Wildlife Resources Department and U. S. Fish and Wildlife Service.
3. "A Summary of Biological Studies on Lakes Keowee and Jocassee, October, 1971."

The information requested in connection with dissolved oxygen concentrations in Lake Keowee is being prepared and will be submitted on or about March 1, 1972.

NON-RADIOACTIVE WASTE AND OTHER TECHNICAL COMMENTS

1. Disposal of Sludges From Water Purification Systems

The plant's water filtration system and disposal of the waste material is discussed on Pages 14 and 15 of the Supplement. No chemical sludges are formed when using this type purification system and the earth type residue is collected in a sedimentation pond.

2. Treatment of Detergent Wastes

The information in Table III-6 should be supplemented with the following:

- (a) It is expected that no LiOH will be discharged to the river.
- (b) Floor cleaning chemicals will be recovered to the maximum practicable extent and processed through the sanitary waste treatment system so that only a small portion of the listed quantity will be discharged to the river.
- (c) The laundry waste will be treated so that little, if any, of the listed quantity of laundry detergent will be discharged to the river.

3. Chemical Spillage

Fuel oil is stored in an underground tank with no danger of release

to surface water courses. Supplies of water treatment chemicals are stored inside the water treatment building where any spillage would be contained, and the drains from this building go to the waste water sedimentation pond.

4. Organic Pollution From Holding Pond Effluent

Regenerant waste water from the regeneration of ion exchanges is estimated to have a BOD of approximately 10-20 ppm entering the holding pond and be reduced essentially to zero before leaving.

5. Disposal of Fish From Intake Screens

If winter kills of threadfin shad should result in accumulations on the intake screens, it is expected that disposal would be by land burial.

6. Sanitary Waste Facilities For Construction Employees

Two separate waste treatment facilities, one of 7,500 gallons/day and one of 10,000 gallons/day, are provided at the site in order to serve the construction work force in addition to the permanent plant personnel.

7. Heating Boiler

This boiler and its operation are described on Page 21 of the Supplement. It will burn only No. 2 fuel oil and will be used only during periods when steam from the nuclear units is not available.

MONITORING AND SURVEILLANCE

Duke's existing and projected environmental monitoring program was established with very nearly the same objectives as outlined in EPA's comments. From reviewing EPA's specific suggestions for items to be considered in a comprehensive program, it appears that most of these items are already included in the existing program or are a part of the program now being established. For example, considering the specific EPA suggestions:

1. Municipal Water Supplies

Sampling of water from municipal water systems on Lakes Keowee and Hartwell already is included in the Environmental Radioactivity Monitoring Program (see Table II-1-a of the Supplement). These water supplies also are included in the Emergency Procedures for the Oconee Nuclear Station. They will be alerted in the event of an emergency and advised of any appropriate action to avoid taking in any water that might contain excessive levels of radioactivity.

2. Radioactive Effluent Monitoring

The sampling, analysis, and reporting program will comply with AEC Safety Guide 21, "Measuring and Reporting of Effluents from Nuclear Power Plants," and therefore will include analysis of all radionuclides which are dose contributors. The Environmental Radioactivity Monitoring Program also will monitor critical exposure pathways for the radionuclides released which are major dose contributors.

3. Water Temperature Monitoring

Provisions have been made for continuously recording the water temperatures at strategic points in Lake Keowee and in the discharge from the lake.

4. Dissolved Oxygen Monitoring

Dissolved oxygen is measured at strategic locations in Lake Keowee in accordance with a regular planned sequence, and provision has been made for the dissolved oxygen content of the water discharged from Lake Keowee to be continuously measured and recorded.

5. Biological Monitoring

Duke is coordinating its plans for biological monitoring with other monitoring programs on these lakes, such as the U. S. Fish and Wildlife research project. These coordinated programs include studies of fish, plankton, biological productivity, etc.

Duke already is working with EPA scientists in reviewing the provisions for monitoring the overall environmental effects of this project and expects to continue to work with this Agency and with others to review the monitoring program and revise it, where necessary, to accomplish its objectives.


COST/BENEFIT ANALYSIS

Duke does not take issue with EPA's contention that per acre value of a primitive stream fishery for trout is higher than that for a lake fishery, but no reliable estimate of the ratio of the two values is readily available. However, the creation of Jocassee and Keowee Lakes has increased the area available for fishing from about 1338 acres to 25,900 acres. The increase in fishery area by about 20 times far outweighs the reduction in the per acre value of the fishery.

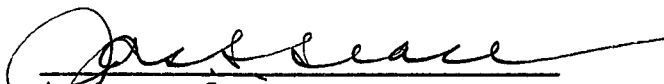
United States Atomic Energy Commission
Page 11
February 16, 1972

We trust that these comments will be considered in preparing the final detailed statement.

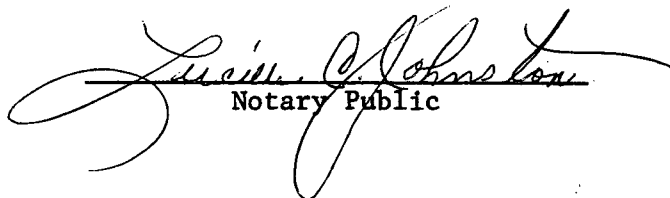
DUKE POWER COMPANY

By 
A. C. Thies
Senior Vice President
Production and Transmission

ATTEST:


Assistant Secretary

A. C. THIES has subscribed and sworn to the above statement before me,
a Notary Public in and for the State of North Carolina and County of
Mecklenburg, this 16 day of February, 1972.


Notary Public

My Commission Expires:

March 16, 1975