

FROM: Duke Power Company Charlotte, North Carolina 28201 A. C. Thies		DATE OF DOCUMENT: 2-25-72	DATE RECEIVED 2-28-72	NO.: 3
TO: DeYoung		LTR. x	MEMO: notarized 2-25-72	REPORT: OTHER: 3
CLASSIF: U		ORIG.: 3 signed & 25 conf'd	CC:	OTHER:
POST OFFICE REG. NO:		FILE CODE: 50-269	CONCURRENCE COMMENT	DATE ANSWERED: BY:
DESCRIPTION: (Must Be Unclassified) Ltr notarized 2-25-72 re their 2-11 & 2-16-72 ltrs re comments in reply to questions raised by various agencies on draft detailed statement w/attached		REFERRED TO	DATE	RECEIVED BY
ENCLOSURES: Drawings EO-1100-23 & EO-1100-24.		Muller W/2 cys for ACTION	2-28-72	
		<u>DISTRIBUTION:</u>		
		Reg Files AEC PDR		
		Compliance (2) Paulus (ltr only)		
		M. Fitzpatrick (ltr only) DeYoung		
		N. Dube (ltr only) Morris/Schroeder		
REMARKS: 1 - Local PDR (Walhalla, S.C.)		Schwencer Karas		
		Kastner Wolfgang DiNunno, A-170		
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ACKNOWLEDGED

DUKE POWER COMPANY

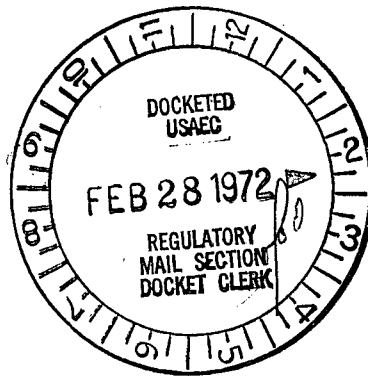
POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28201

A. C. THIES
SENIOR VICE PRESIDENT
PRODUCTION AND TRANSMISSION

P. O. Box 2178

February 25, 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 letters of February 11 and 16, 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 concerns of the Environmental Protection Agency relating to the effect of Oconee Nuclear Station on the dissolved oxygen concentrations in Lake Keowee as expressed on Pages 17, 18, and 19 of comments attached to their letter of January 20, 1972 addressed to Mr. Manning Muntzing are as follows:

Extreme Conditions - (Drawing EO-1100-23) (Attached)

Enclosed Drawing EO-1100-23 shows the predicted distribution of dissolved oxygen (DO) concentrations in Lake Keowee as projected from the extreme data of record on Lake Norman - Marshall Steam Station data. During summer, when Oconee is discharging water containing less than 0.5 mg/l, approximately 100 acres will have a concentration of less than 1 mg/l to an average depth of four feet and a maximum depth of 40 feet (immediately adjacent to the

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discharge structure). Seven hundred acres will have less than 2 mg/l DO and the average depth of the 2.0 mg/l boundary will be about one foot. Twelve hundred (1200) acres are expected to have concentrations less than 3 mg/l and the average depth will be two feet. Three thousand (3000) acres will have less than 4 mg/l and throughout most of the area the reduced concentrations will extend down into the region in which the naturally occurring concentrations are less than 4 mg/l. Fifty-one hundred (5100) acres will have less than 5 mg/l DO and again this influence extends down into the region of where naturally occurring concentrations are less than 5 mg/l.

Average Conditions - (Drawing EO-1100-24) (Attached)

This drawing presents isopleths of DO and areas which represent the average (expected) conditions during the worst month of the year in Lake Keowee due to the influence of Oconee Nuclear Station. The area with concentrations less than 1 mg/l is 100 acres with average depth of four feet; concentrations less than 2 mg/l will prevail over 700 acres to average depth of two feet; 3 mg/l, 1200 acres, four feet; 4 mg/l, 2100 acres, seven feet. Three thousand (3000) acres are expected to have less than 5 mg/l and this will extend down into the zone of the lake where natural concentrations are less than 5 mg/l.

The DO-Area values predicted for Oconee-Lake Keowee are based on actual surveys on Lake Norman in the areas affected by Marshall Steam Station. The Lake Norman data were then extrapolated to Oconee-Lake Keowee by a ratio of Oconee's cooling water flow rates to those existing at Marshall during tests to produce the predicted results shown on the enclosed drawings. Expenditure of considerable time and talent failed to produce better predictive methods. We do not feel that present predictive methods can distinguish between average and extreme meteorological and lake drawdown conditions. Our predictions, however, we believe are conservative since,

1. Oconee discharges into a more open lake than Marshall and mixing will be greater thus dilution by higher DO water will occur,
2. All predictions are based on plume center-line measurements and DO values would be higher in other parts of the plume, increasing to natural values at plume boundaries.

As you know, lakes naturally stratify in this area and the average depth of water in Lake Norman, outside the influence of Marshall Station, which contains 5 mg/l or more dissolved oxygen is about 25 feet.

It is expected that Oconee's discharge temperature will normally be greater than Lake Keowee's surface temperature, so an interflow situation is not expected to occur.

United States Atomic Energy Commission
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February 25, 1972

We trust that this information is an adequate response to the comments submitted by the Environmental Protection Agency in connection with dissolved oxygen in Lake Keowee.

DUKE POWER COMPANY

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

ATTEST:

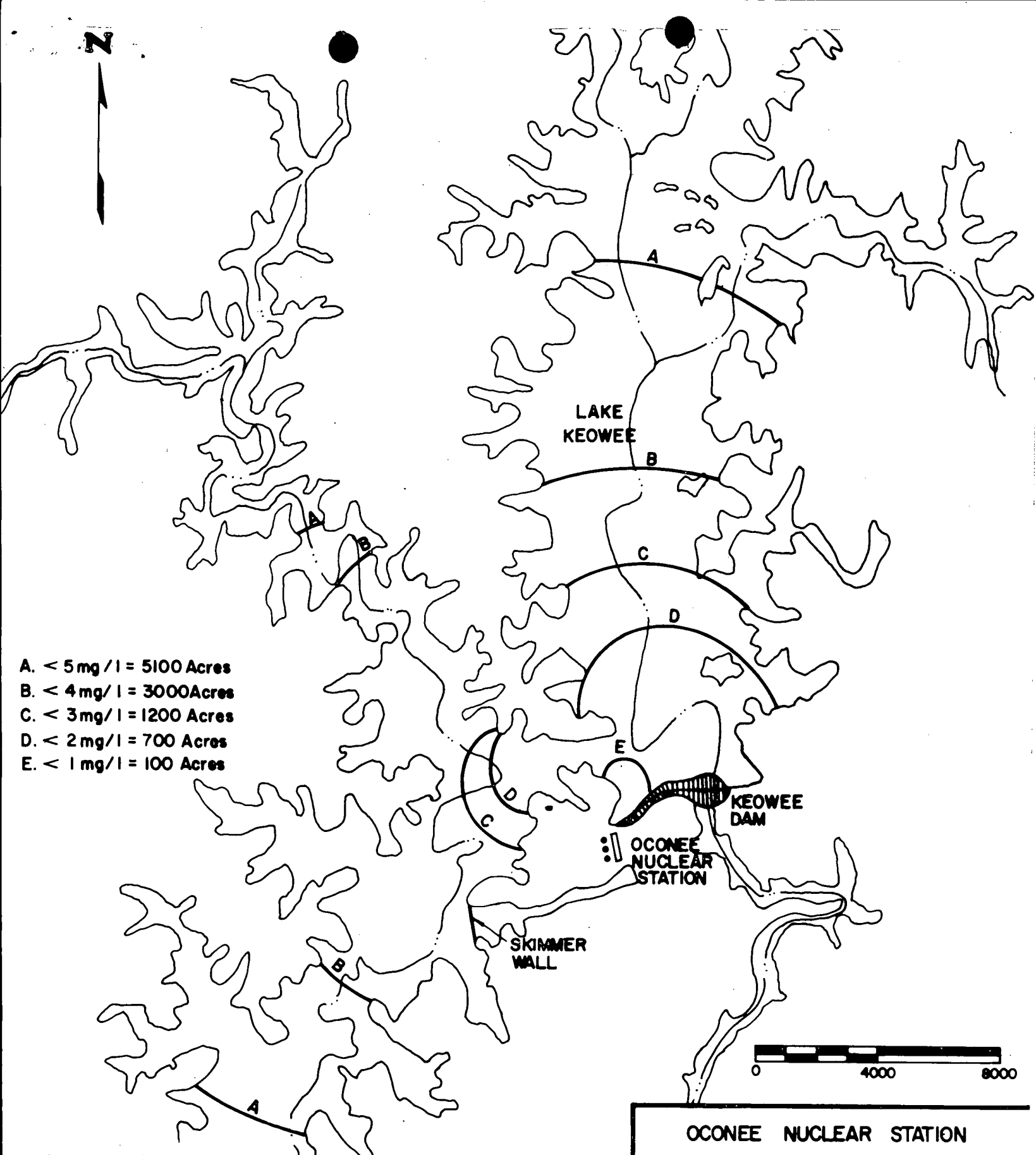
John C. Goodman, Jr.
Assistant Secretary

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 25th day of February, 1972.

B. J. Taylor
Notary Public

My Commission Expires:

August 5, 1976



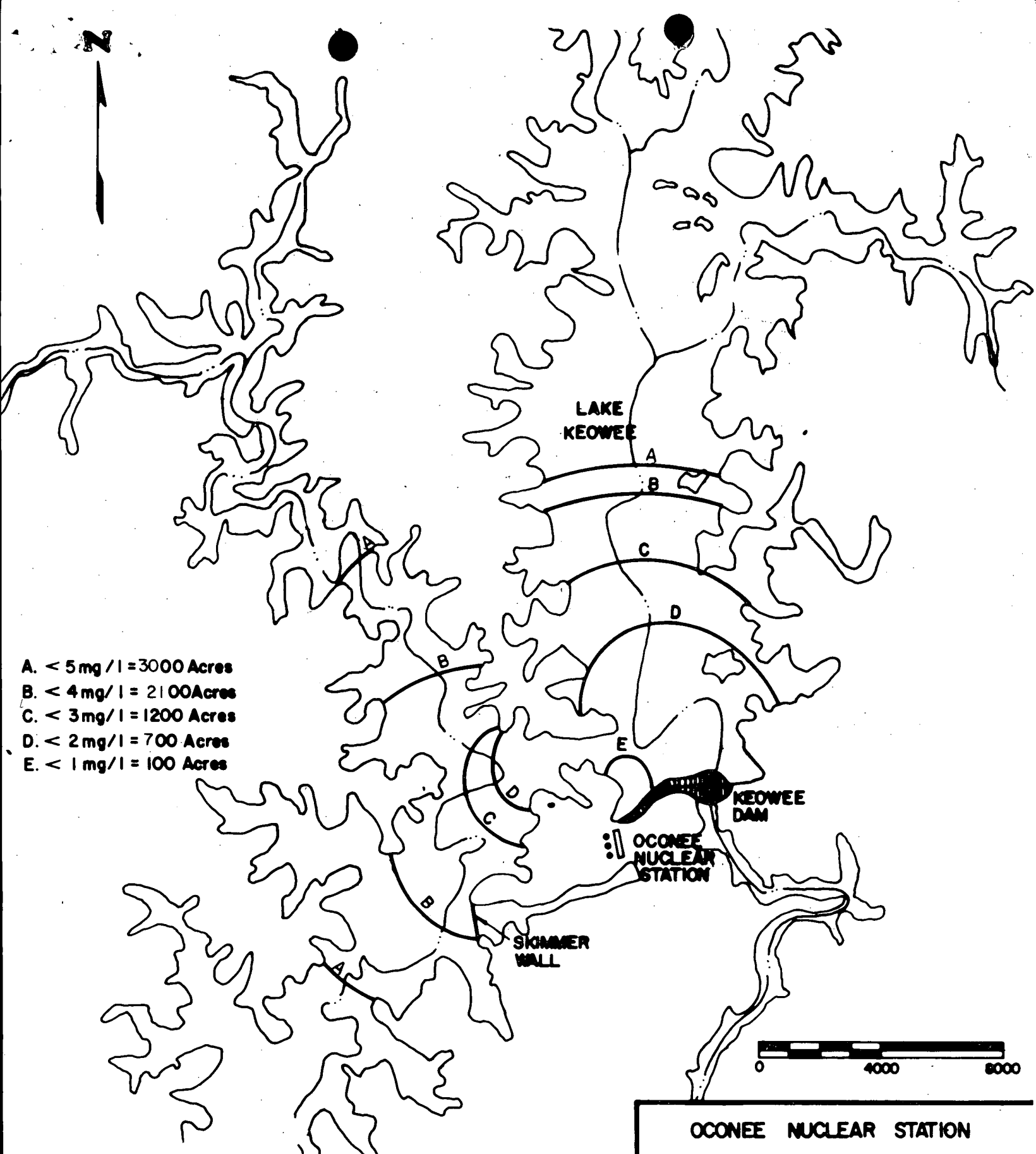
- A. < 5 mg/l = 5100 Acres
- B. < 4 mg/l = 3000 Acres
- C. < 3 mg/l = 1200 Acres
- D. < 2 mg/l = 700 Acres
- E. < 1 mg/l = 100 Acres

NOTE:
 BASED ON LARGEST AREA OF D.O. < 5mg/l OCCURRING
 SEPT. 1969 IN 1968-1971 INCL. PERIOD OF RECORD.

OCONEE NUCLEAR STATION
 EXPECTED EXTREME AREAS OF D.O. < 5mg/l
 PRODUCED IN LAKE KEOWEE BY OCONEE
 NUCLEAR STATION

2-23-72

EO-1100-23



- A. < 5 mg/l = 3000 Acres
- B. < 4 mg/l = 2100 Acres
- C. < 3 mg/l = 1200 Acres
- D. < 2 mg/l = 700 Acres
- E. < 1 mg/l = 100 Acres

NOTE:
 BASED ON AVERAGE AREA OF D.O. < 5 mg/l
 OBSERVED IN LAKE NORMAN AROUND MARSHALL
 STATION DURING SEPTEMBER 1968-1971 INCL.

OCONEE NUCLEAR STATION

EXPECTED NORMAL AREAS OF D.O. < 5 mg/l
 PRODUCED IN LAKE KEOWEE BY OCONEE
 NUCLEAR STATION

2-23-72 EO-1100-24