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 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H.R. Office of Nuclear Reactor Regulation
 REID, R.W. Operating Reactors Branch 4

SUBJECT: Forwards fuel cycle dose calculations for compliance w/code requirements.

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DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

May 9, 1980

TELEPHONE: AREA 704
373-4083

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

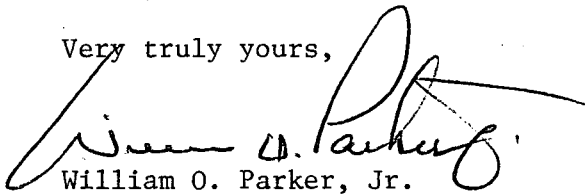
Attention: Mr. R. W. Reid, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

With regard to your letter of March 28, 1980, attached is an assessment of radiation doses to the likely most real individual from reactor releases and other nearby uranium fuel cycle sources for calendar year 1979.

Very truly yours,



William O. Parker, Jr.

RLG:scs

Attachment

AP09
S/I

FUEL CYCLE DOSE CALCULATIONS
FOR COMPLIANCE WITH 40CFR190

In accordance with the requirements of 40CFR190, the annual dose commitment to any member of the general public shall be calculated to assure that doses are limited to 25 millirems to the total body or any organ with the exception of the thyroid which is limited to 75 millirems.

The "Uranium fuel cycle" is defined in 40CFR Par 190.02(b) as:

"Uranium fuel cycle means the operations of milling or uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity by a light-water-cooled nuclear power plant using uranium fuel, and reprocessing of spent uranium fuel, to the extent that these directly support the production of electrical power for public use utilizing nuclear energy, but excludes mining operations, operations at waste disposal sites, transportation of any radioactive material in support of these operations, and the reuse of recovered non-uranium special nuclear and by-product materials from the cycle."

Based on this definition of the fuel cycle and the information in 10CFR51 Table S-3 and WASH-1248, the radiological impact of the following operations has been assessed for Duke Nuclear Stations:

Milling

No milling operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from milling operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

Conversion

No uranium hexafluoride production occurs within fifty miles of any Duke Nuclear Station. The increment of dose from UF_6 production to any individual within fifty miles of any Duke Nuclear Station is negligible.

Enrichment

No uranium enrichment operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from enrichment operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

Fuel Fabrication

No fuel fabrication operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from fabrication operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

Fuel Reprocessing

No fuel reprocessing operations occur within fifty miles of any Duke Nuclear Station. The increment of dose from reprocessing operations to any individual within fifty miles of any Duke Nuclear Station is negligible.

Nuclear Power Production

The production of electricity for public use using light-water-cooled nuclear power stations results in increments of dose to individuals within fifty miles of any station due to liquid and gaseous effluent releases and direct radiation or skyshine. The increments of dose resulting from liquid and gaseous effluent releases have been calculated using the methodology of Regulatory Guide 1.109. The dose from direct radiation, skyshine, and radiation from the station storage facilities has been estimated using conservative assumptions to be much less than 1 mrem/yr. and, therefore, negligible contributions to individual doses.

To summarize, only dose increments from nuclear power production operations need be considered in calculations to demonstrate compliance with 40CFR190.

<u>Organ</u>	<u>Calculated Dose in mrem</u>	<u>Maximum Allowable Dose in mrem</u>
Total body	13	25
Skin	<< 1	25
Bone	15	25
Liver	18	25
Thyroid	19	75
Kidney	6	25
Lung	2	25
GI Tract	1	25