

DUKE POWER COMPANY  
POWER BUILDING  
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

*Central File*  
50-269  
270  
287

WILLIAM O. PARKER, JR.  
VICE PRESIDENT  
STEAM PRODUCTION

January 20, 1977

TELEPHONE: AREA 704  
373-4063

Mr. Norman C. Moseley, Director  
U. S. Nuclear Regulatory Commission  
Suite 818  
230 Peachtree Street, Northwest  
Atlanta, Georgia 30303

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

Dear Mr. Moseley:

Pursuant to the requirements of Oconee Nuclear Station Technical Specification 6.6.2.2 c and d, this report is submitted describing conditions in which measured levels of radioactivity and radiation levels exceeded the control levels by greater than ten times, and describing conditions in which measured levels of radioactivity and radiation levels exceeded the control level by greater than four times, but less than ten times.

On January 17, 1977, analytical results of aquatic vegetation samples collected on January 5, 1977 were reviewed. Summarized below are the pertinent results of the radioactive concentrations of these samples:

<u>Sample Location</u>	<u>Type of Sample</u>	<u>Radionuclide Concentrations</u> <u>pCi/g (dry)</u>	
000.5 1-mile radius of site in Lake Keowee (Control)	Aquatic Vegetation	Cs-134	< 8.88E-02
		Cs-137	< 8.02E-02
		Co-58	< 9.55E-02
		Co-60	< 7.27E-02
		Mn-54	< 8.46E-02
		Sb-122	< 8.80E-02
000.4 Near Liquid Effluent Release Point	Aquatic Vegetation	Cs-134	(3.30 ± 0.11)E0
		Cs-137	(7.30 ± 0.17)E0
		Co-58	(2.90 ± 0.11)E0
		CO-60	(1.70 ± 0.07)E0
		Mn-54	(7.66 ± 0.70)E-01
		SB-122	(4.03 ± 0.63)E0
005.2 Hwy. 27 Bridge near Newry	Aquatic Vegetation	Cs-134	(1.26 ± 0.07)E0
		Cs-137	(2.37 ± 0.09)E0
		Co-58	(6.75 ± 0.06)E-01



The expected buildup of activity in organisms living in station effluents is discussed on pp. 130-133 of the Final Environmental Statement for Oconee Nuclear Station. From the information provided in FES, it is possible to calculate the concentrations one would expect to see in aquatic vegetation samples collected from the vicinity of the liquid effluent release point. The specific information required is:

1. The tailrace concentrations of the radionuclide found in the aquatic vegetation samples, discharged as radioactive waste. These concentrations are based on effluent discharges for December, 1976.
2. The biological accumulation factors for the radionuclides found in the aquatic vegetation samples. The biological accumulation factors used in the calculation of expected concentrations in aquatic vegetation are those found in Table V-7 of the FES.

The following table summarizes this data and provides a comparison of expected and actual concentrations:

Isotope	H <sub>2</sub> O Conc. μCi/ml	Bioaccumulation Factor	Expected Vegetation Conc. pCi/g dry wt.	Actual Max. Vegetation Conc. pCi/g dry wt.
Cs-134	3.96E-10	25000	1.36E+01	(3.30 ± 0.11)EO
Cs-137	5.38E-10	25000	1.86E+01	(7.30 ± 0.17)EO
Co-58	6.37E-10	2500	2.21EO	(2.90 ± 0.11)EO
Cp-60	5.74E-11	2500	1.99E-01	(1.70 ± 0.07)EO
Mn-54	1.65E-09	35000	8.02E+01	(7.66 ± 0.70)E-01
Sb-122	<3.34E-12	1500	7.00E-03	(4.03 ± 0.63)EO

With these aquatic vegetation samples, the calculated or expected concentrations of radionuclides, based on effluent releases, are greater than those actually determined by laboratory analyses for all radionuclides except SB-122, Co-58 and Co-60.

On January 17, 1977 analytical results of thermoluminescent dosimeters in the field from September 21, 1976 to December 21, 1976 were received. Summarized below are the pertinent radiation levels:

<u>Sample Location</u>	<u>Total mR</u>	<u>mR/hr.</u>
008 Liberty, S. C. (Control)	23.3	0.011
000.17 West Fence of Restricted Area	123	0.056
000.18 West Fence of Restricted Area	597	0.273

Sample locations 000.17 and 000.18 are located well within the exclusion area on the west fence, which isolates the restricted area from the unrestricted area. Location 000.18 is 60 feet from a borated water storage tank (BWST) which, according to unit operation, causes varying radiation levels at location 000.18. During refueling operations associated with Oconee Unit 1, the area adjacent to the BWST was monitored, and roped off as necessary, with appropriate warning signs due to the increased level of radiation from the BWST. Location 000.17 is 100 feet from the guard station and exit from the restricted area. Trucks with radioactive shipments remain in the area of location 000.17 while the paperwork for the radioactive shipments is completed.

The radiation levels at locations 000.17 and 000.18 represent exposures for twenty-four hours per day continuing through the quarter. Consequently, even though the radiation levels at locations 000.17 and 000.18 exceed control levels, these radiation levels do not relate to the exposures of individuals since the area adjacent to the west restricted area is occupied for short time periods only as individuals pass the point going to and from a parking lot. Therefore, the actual exposures of individuals are well within the radiation levels permitted in unrestricted areas by 10CFR20.105.

Thus, it is concluded that the health and safety of the employees or public has not been adversely affected by these conditions.

Very truly yours,

*W. O. Parker, Jr.*

William O. Parker, Jr. *By [Signature]*

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