

DUKE POWER COMPANY

POWER BUILDING

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

*Central File*  
50-269  
50-270  
50-287

WILLIAM O. PARKER, JR.  
VICE PRESIDENT  
STEAM PRODUCTION

TELEPHONE: AREA 704  
373-4083

July 28, 1976

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 a condition in which a measured level of radioactivity exceeded the control level by greater than ten times and describing conditions in which measured levels of radioactivity exceeded the control level by greater than four times but less than ten times.

On July 23, 1976, analytical results of composite surface water samples collected in April and May, 1976 were reviewed. Given below is a summary of the pertinent results of the radioactivity concentrations of these samples:

<u>Sample Location</u>	<u>Type Sample</u>	<u>Tritium Concentration</u>
000.3 Bridge N. of Site on Hwy. 183 Connecting Canal (Control)	Surface Water	(2.4 ± 0.7) E-7 µCi/ml
000.7 Bridge S. of Site on Hwy. 183	Surface Water	(2.44 ± 0.15) E-5 µCi/ml
005.2 Hwy. 27 Bridge at Newry	Surface Water	(9.7 ± 0.9) E-7 µCi/ml
013 Hartwell Reservoir, 5.8 miles S. of Keowee Dam	Surface Water	(1.34 ± 0.10) E-6 µCi/ml

For April and May, 1976 a total of 231 curies of tritium was released from the station in liquid effluents. The maximum tailrace concentration of tritium

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was  $3 \times 10^{-3}$   $\mu\text{Ci/ml}$ . The average tailrace concentration of tritium was  $9.16 \times 10^{-7}$   $\mu\text{Ci/ml}$ . The station's objective (Technical Specification 3.9) in making effluent releases is to maintain the average concentration of tritium in liquid effluents upon release from the Restricted Area to not more than  $5 \times 10^{-6}$   $\mu\text{Ci/ml}$ . Technical Specification 3.9.2 specifies that the quarterly average concentration of tritium released from the Restricted Area shall not exceed  $1 \times 10^{-5}$   $\mu\text{Ci/ml}$ . Therefore, it can be seen for the two-month period that the average tritium concentration in liquid effluents is within the objective concentration and well below the specified quarterly average concentration.

Dilution and dispersion of tritium in liquid effluents between Oconee Nuclear Station and the Clemson water intake has been calculated using the equation for instantaneous release taken from the U. S. Geological Survey Paper No. 433-B, "Dispersion of Dissolved or Suspended Materials in Flowing Streams" by Robert E. Glover (1964), p. 5. This equation accounts for longitudinal dispersion only. Conservatism was used in selecting parameters for substitution in the instantaneous release equation to determine the concentration of effluents at the Clemson water intake. These assumptions were (1) the elevation of Lake Hartwell is 654.00 feet and (2) the flow of the Keowee River is 1100 cfs, the yearly average. Listed below are the resulting calculated concentrations of tritium at the Clemson water intake using the above method.

April	$1.78 \times 10^{-6}$ $\mu\text{Ci/ml}$
May	$1.25 \times 10^{-6}$ $\mu\text{Ci/ml}$
Average	$1.51 \times 10^{-6}$ $\mu\text{Ci/ml}$

These calculated tritium concentrations are nearly the same as those observed; with water samples collected over April and May, 1976 at the Clemson water intake having an average tritium concentration of about  $9.16 \times 10^{-7}$   $\mu\text{Ci/ml}$ . Therefore, the observed concentrations are within the limits of conservative calculated values.

The Final Environmental Statement for Oconee states that "the largest estimates of dose to individuals from liquid effluents are at Clemson and Pendleton where drinking water is withdrawn from the Keowee River. The radionuclide making the most important contribution to dose at these locations is tritium (more than 50 percent)." The dose estimate for any individual consuming Clemson water containing  $9.16 \times 10^{-7}$   $\mu\text{Ci/ml}$  of tritium is 0.09 mrem/year if these tritium concentrations were maintained over the year. This estimate of dose is less than 0.5 percent of the dose from natural background and less than 0.1 percent of the limits of 10CFR20. Therefore, it is concluded that the observed anomalous tritium concentrations do not adversely affect public health and safety.

Very truly yours,

  
William O. Parker, Jr.

EDB:vr