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VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE AREA 704
373-4083

April 26, 1977

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

On April 19, 1977, analytical results of composite surface water samples collected early in January, February, and March, 1977 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>
000.5, Hwy. 183 Bridge N. of site (Control)	Surface	$(2.7 \pm 0.7)E-7$ μ Ci/ml
000.7, Hwy. 183 Bridge S. of site	Surface	$(2.3 \pm 0.1)E-5$ μ Ci/ml
005.2, Hwy. 27 Bridge at Newry	Surface	$(6.7 \pm 0.4)E-6$ μ Ci/ml
013 Hartwell Reservoir 5.8 mi. S. of Keowee Dam	Surface	$(1.1 \pm 0.1)E-6$ μ Ci/ml

Tritium concentrations in the water samples collected are dependent upon the tritium concentrations of liquid effluent released from the station

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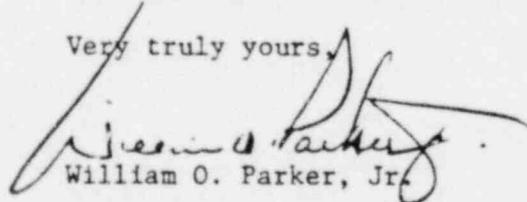
prior to sampling. For the months of December, 1976, January and February, 1977, a total of 504 curies of tritium were released from the station in liquid effluents.

The average tailrace concentration of tritium was $1.3E-5$ μ Ci/ml. This concentration compares favorably with the observed value at Location 000.7 near the effluent discharge point.

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. 443-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, (2) the flow of the Keowee River is 1100 cfs, the yearly average and, (3) an average of two waste releases per day. Using this method, the average concentration of tritium at the Clemson water intake should be approximately $1.4E-6$ μ Ci/ml. This calculated tritium concentration is approximately the same as that observed in Hartwell Reservoir just upstream of the Clemson water intake.

The Final Environmental Statement for Oconee states that "the largest estimates of dose to the 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 $1.4 E-6$ μ Ci/ml of tritium is 0.14 mrem/year if these tritium concentrations were maintained over the year. This estimate of dose is less than 0.1% of the dose from natural background and less than 0.05% 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.

LJB:vr