

DUKE POWER COMPANY

POWER BUILDING

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

Central File

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WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

November 10, 1977

TELEPHONE: AREA 704
373-4083

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Suite 1217
230 Peachtree Street, Northwest
Atlanta, Georgia 30303

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

Dear Mr. O'Reilly:

Pursuant to the requirements of Oconee Nuclear Station Technical Specification 6.6.2.2.d, this report is submitted describing a condition in which a measured level of radioactivity exceeded the control level by greater than ten times.

On November 7, 1977 analytical results of composited raw water supply grab samples collected in mid-July, August, and September 1977 were reviewed. A summary of the pertinent results of the radioactivity concentrations in these samples is given below:

<u>Sample Location</u>	<u>Tritium Concentration</u>
004.1 Seneca (Control)	< 1.1E-7 μ Ci/ml
006.1 Clemson	(2.9 \pm 0.2)E-6 μ Ci/ml

Tritium concentrations in downstream water samples are dependent upon the tritium concentrations of liquid effluent released from the station. For the period July 1 - September, 1977 a total of 456 curies of tritium were released from the station in liquid effluents. The average release rate for the period was 5.0 Ci/day.

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 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

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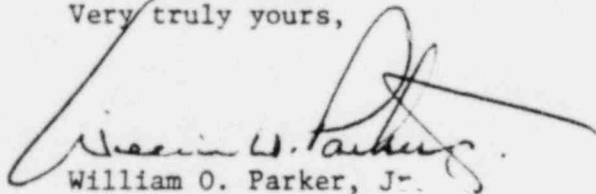
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(3) an instantaneous release of 5.0 Ci of tritium is made each day several days prior to sampling. The peak concentration which would result at the 006.1 sample point is approximately $2.4E-6$ $\mu\text{Ci/ml}$.

The calculated tritium concentration is comparable to the observed value of $2.9E-6$ $\mu\text{Ci/ml}$. Therefore, the observed concentration is within the limits of conservative calculated values.

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%)". The dose estimate for any individual consuming Clemson water containing 2.9×10^{-6} $\mu\text{Ci/ml}$ of tritium is 0.29 mrem/year if these tritium concentrations were maintained over the year. This estimate of dose is less than 0.3% of the dose from natural background and less than 0.06% of the limits of 10CFR20. Therefore, it is concluded that the observed anomalous tritium concentration does not adversely affect public health and safety.

Very truly yours,



William O. Parker, Jr.

RLG:ge