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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 6.6.2.6.d, this report is submitted describing a condition in which a measured level of radioactivity exceeded the control level by greater than four times.

On December 5, 1975, analytical results of composite water samples collected over the quarter July 1, 1975 to September 30, 1975 and a milk sample collected from the Clemson dairy on October 7, 1975 were reviewed. Given below is a summary of the pertinent results of the radioactive concentrations of these samples.

Sample Location	Type Sample	Tritium Concentration
005.2 Hwy. 27 Bridge Newry	Surface Water	$(2.23 \pm 0.14) \times 10^{-6}$ µCi/ml
013 Hartwell Reservoir, 5.8 miles South of Keowee Dam	Surface Water	$(2.17 \pm 0.13) \times 10^{-6}$ µCi/ml*
000.3 Hwy. 183 bridge North of site (control)	Surface Water	$(5.5 \pm 0.7) \times 10^{-7}$ µCi/ml

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006.1	Clemson water supply	Raw Water	$(2.40 \pm 0.15) \times 10^{-6}$ µCi/ml
012	Anderson water supply (control)	Raw Water	$(3.6 \pm 0.7) \times 10^{-7}$ µCi/ml
006.1	Clemson water supply	Finished Water	$(2.50 \pm 0.15) \times 10^{-6}$ µCi/ml
012	Anderson water supply (control)	Finished Water	$(4.1 \pm 0.7) \times 10^{-7}$ µCi/ml
006.3	Clemson dairy	Milk	$(3.00 \pm 0.18) \times 10^{-6}$ µCi/ml
006.3	Clemson dairy (control) April 8, 1975	Milk	$(4.1 \pm 0.8) \times 10^{-7}$ µCi/ml

* The tritium value is less than four times the control value, but is elevated and included here for completeness.

Tritium concentrations in the water samples collected are dependent upon the tritium concentrations of liquid effluents released from the station. For the quarter July 1 to September 30, 1975, 986 Curies of tritium were released from the station in liquid effluents. The maximum tailrace concentration of tritium was 3×10^{-3} µCi/ml. The average tailrace concentration of tritium was 4.94×10^{-6} µCi/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 5×10^{-6} µCi/ml. Technical Specification 3.9.2 specifies that the quarterly average concentration of tritium released from the Restricted Area shall not exceed 1×10^{-5} µCi/ml. Therefore, it can be seen that the average tritium concentration for the quarter 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 654.0 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.

July	3.575×10^{-6} μCi/ml
August	5.060×10^{-6} μCi/ml
September	3.740×10^{-6} μCi/ml
Quarterly Average	4.125×10^{-6} μCi/ml

These calculated tritium concentrations are nearly a factor of two higher than those observed; with the water samples collected over the quarter at the Clemson water intake having an average tritium concentration of about 2.40×10^{-6} μCi/ml. Therefore, the observed concentrations are within the limits of conservative calculated values.

The milk sample collected at the Clemson dairy has approximately the same concentration of tritium as the Clemson raw and finished water. These dairy cows drink about 230 liters of water a day, at least half of which is Clemson treated water.

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%)." The dose estimate for any individual consuming Clemson water containing 2.40×10^{-6} μCi/ml of tritium is 0.24 mrem/year if these tritium concentrations were maintained over the year. Individuals would get no higher dose if they also drank milk from the Clemson dairy. This estimate of dose is less than 0.5% of the dose from natural background and less than 0.1% of the limits of 10 CFR 20. 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:mmb