

Letter to N. C. Moseley from Duke Power Company dated April 30, 1975.

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# DUKE POWER COMPANY

POWER BUILDING

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A. C. THIES  
SENIOR VICE PRESIDENT  
PRODUCTION AND TRANSMISSION

P. O. Box 2178

April 30, 1975

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 and -287

Dear Mr. Moseley:

Duke Power Company, through the Oconee Nuclear Station, has participated in the radioactive-effluent verification split-sampling program with the Nuclear Regulatory Commission and the State of South Carolina since October 24, 1973. The purpose of this program has been to verify capabilities to correctly analyze effluent samples prior to their release. In our experience with this program, several inconsistencies between NRC and Oconee Nuclear Station analysis results have been identified. It is considered that the apparent causes of these inconsistencies have been variations of sample volumes, geometry, activity and that the analyses have been performed at different times. Consequently, the following recommendations for improvement of the split-sampling program are submitted:

1. It is recommended that the sample volumes collected for the split-sampling program be of the same size as that normally used for routine station samples. The recommended volumes are:

<u>Type of Sample</u>	<u>Normal Station Sample</u>
Liquid	2 liters
Gas	100 cc

In the past, only a one liter sample was provided by the NRC. This has not been adequate for all analyses as the contractor that performs the strontium analysis requires a one liter sample. Also, the gas container provided has had a volume of 20 - 30 cc and this has varied from sample to sample.

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2. It is recommended that a cylindrical 100 cc container, similar to the Ocone container, be used for gas samples. The sample containers furnished in the past have been 20 - 30 cc spherical containers. This has resulted in inaccuracies because the sample geometry has been changed for each sample.
3. It is recommended that a particulate and iodine filter sample of the proper size and expected activity normally found in effluents be supplied by the NRC for use in split-sampling program, rather than the use of an actual sample collected at the station. Presently, only one sample is collected and it must be analyzed within 1 to 2 hours so that the NRC inspector can take the sample off site for analysis. This method is not adequate in that only one analysis is possible, and in addition, the samples are analyzed by the Ocone Station and the NRC at different times. This allows short lived isotopes and adsorbed gases to produce activity seen by the station analysis but not seen by the reference laboratory at the time it analyzes the sample. Also, it appears that daughter product ingrowth has not been considered in the analysis of the sample by the reference laboratory.
4. It is recommended that the effluent-verification sample be more representative of the waste being discharged from the station. In the past, all liquid samples have been collected from the low activity waste tank (LAWT). In reality, however, nearly all releases are from the condensate test tank (CTT). This results in much lower levels of effluent releases.
5. It is recommended that effluent capability standards which are submitted by the NRC for analysis have activity of the same order of magnitude and isotopic composition as that which is routinely expected in station analysis. The following is a listing of expected activities at the Ocone Nuclear Station.

<u>Type of Sample</u>	<u>Station Activity</u> <u>μ Ci/MI</u>
Liquid	$10^{-4}$ to $10^{-6}$
Gamma	$10^{-5}$ to $10^{-6}$
$^{89}\text{Sr}$ , $^{90}\text{Sr}$	$10^{-2}$
$^3\text{H}$	$10^{-10}$ to $10^{-12}$
Gas	$10^{-10}$ to $10^{-12}$
Particulate Filter	$10^{-10}$ to $10^{-12}$
Charcoal Absorber	$10^{-10}$ to $10^{-12}$

Mr. Norman C. Moseley  
Page 2  
April 30, 1975

When these recommendations are instituted, we are confident that the results achieved by our laboratory and yours will be more consistent and thus verification of our ability to correctly analyze effluent samples will be confirmed.

Very truly yours,

A handwritten signature in cursive script, appearing to read "A. C. Thies".

A. C. Thies

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