



OLIVER D. KINGSLEY, JR.  
Vice President  
Nuclear Operations

February 4, 1987

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Confirmatory Measurements  
Evaluation  
AECM-87/0013

On April 10, 1986, the Nuclear Regulatory Commission (NRC) requested that the Grand Gulf Nuclear Station (GGNS) Chemistry staff analyze spiked liquid samples as part of the Confirmatory Measurements Program. The results of the GGNS analysis were provided to the NRC in a letter dated July 8, 1986 (AECM-86/0199).

During an August 25, 1986 telephone conference, the NRC stated that the GGNS tritium analysis result was in disagreement with the NRC's tritium measurement. Consequently, the tritium analysis was reperformed using a portion of the original NRC sample and the result submitted to the NRC in a letter dated October 1, 1986 (AECM-86/0296). This result was also said by the NRC, in a telephone conference, to be in disagreement with the NRC's tritium measurement.

Subsequent to the above activities, the NRC issued a letter dated October 16, 1986 directing attention to the need to determine the underlying cause for the tritium measurement disagreement. Attached is the System Energy Resources, Inc. (SERI) response to the NRC's suggestion. SERI considers that these actions and their positive results verify the reliability of the GGNS tritium measurement methodology.

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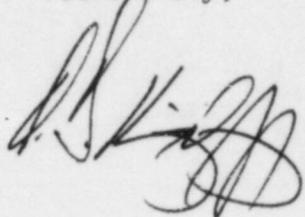
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Please advise if further information is required.

Yours truly,

A handwritten signature in dark ink, appearing to be 'D. S. Reynolds', written over the words 'Yours truly,'.

ODK:bms  
Attachment

cc: Mr. T. H. Cloninger (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. N. S. Reynolds (w/a)  
Mr. H. L. Thomas (w/o)  
Mr. R. C. Butcher (w/a)

Dr. J. Nelson Grace, Regional Administrator (w/a)  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 2900  
Atlanta, Georgia 30323

Resolution of Disagreement on Tritium Cross Check Sample Analysis

A. Background

The initial GGNS analysis of the NRC Cross Check Sample resulted in a tritium measurement of  $1.16E-4$  microcuries/ml. This result was reported to the NRC in a letter dated July 8, 1986. During an August 25, 1986 teleconference the NRC representative indicated that there was disagreement between the NRC and the GGNS tritium measurement. At that time, the original GGNS calculations were reviewed and no errors were found. Therefore, the tritium analysis was reperformed using a portion of the original NRC sample by the GGNS Chemistry staff obtaining a result of  $6.42E-4$  microcuries/ml. This result was communicated to the NRC via teleconference and in a letter dated October 1, 1986. The NRC representative responded that this result was also in disagreement.

B. GGNS Actions

After the second result was found to be in disagreement with the NRC, the GGNS Chemistry staff prepared three tritium samples from a National Bureau of Standards (NBS) tritium standard. GGNS analyzed these samples and also contracted Teledyne Isotopes Midwest Laboratory to analyze the samples. In addition, a portion of the sample originally provided by the NRC was sent to Teledyne for a tritium measurement. GGNS also purchased six tritium samples, three each from Teledyne and Analytics Incorporated, to analyze in-house. The prepared and purchased samples were in the activity ranges of  $1E-3$ ,  $1E-4$  and  $1E-5$  microcuries/ml. The analysis results of both the contracted laboratory and GGNS are summarized in Table 1.

TABLE 1  
SUMMARY OF RESULTS

	<u>Contracted Laboratory Result*</u>	<u>GGNS Laboratory Result*</u>	<u>% Difference (1)</u>
GGNS prepared samples/ analyzed by Teledyne	1.08E-3	1.02E-3	-5.6%
	8.54E-5	8.76E-5	+2.6%
	2.20E-5	2.31E-5	+5.0%
Teledyne prepared samples/ analyzed by GGNS	9.6E-6	1.07E-5	+11.5%
	1.20E-4	1.20E-4	0%
	1.05E-3	1.04E-3	-1%
Analytics prepared samples/ analyzed by GGNS	2.22E-3	2.07E-3	-6.8%
	1.95E-4	1.84E-4	-5.6%
	2.94E-5	2.97E-5	+1%
NRC Sample (NRC measurement = 1.69E-5 microcuries/ml)	6.12E-4	6.42E-4	+4.9%

\*all values in microcuries/ml

$$(1) \frac{(GGNS-LAB)}{(LAB)} \times 100$$

C. Conclusions and Actions to Prevent Reoccurrence

The original GGNS tritium measurement of  $1.16E-4$  microcuries/ml was low due to inadequate mixing during the analysis.

SERI considers the second GGNS tritium measurement of  $6.42E-4$  microcuries/ml as an accurate, valid measurement supported by duplicate GGNS/vendor analysis, analysis by an outside vendor, and by extensive internal investigation of the GGNS tritium measurement program. However, precautionary statements will be added to the GGNS tritium analysis instruction to ensure adequate mixing of samples.

SERI believes that the actions discussed above verify the adequacy of the GGNS tritium measurement program and resolve the disagreement between the GGNS analysis results and the NRC's measurement.