

official

OCT 16 1989

Alabama Power Company
ATTN: Mr. W. G. Hairston, III
Senior Vice President
Nuclear Operations
40 Inverness Center Parkway
P. O. Box 1295
Birmingham, AL 35201

Gentlemen:

SUBJECT: DOCKET NOS. 50-348 AND 50-364, CONFIRMATORY MEASUREMENT RESULTS,
SUPPLEMENT TO NRC INSPECTION REPORT NO. 89-06

As part of the NRC Confirmatory Measurements Program, spiked liquid samples were sent on June 13, 1989, to your Farley facility for selected radiochemical analyses. We are in receipt of your analytical results transmitted to us by your letter dated August 23, 1989. The following comparison of your results to the known values are presented in Enclosure 1 for your information. The acceptance criteria for the comparisons are listed in Enclosure 2.

In our review of these data all comparative results were in agreement. These data should be reviewed in detail by cognizant staff members for any significant trends in the data among successive years in which samples have been analyzed by your facility.

These results and any results from previous years pertaining to these analyses will be discussed at future NRC inspections.

Sincerely,

ORIGINAL SIGNED BY
THOMAS R. DECKER

Douglas M. Collins, Chief
Emergency Preparedness and
Radiological Protection Branch
Division of Radiation Safety
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Enclosures:

- 1. Confirmatory Measurement Comparisons
- 2. Criteria for Comparing Analytical Measurements

cc w/encls: (See page 2)

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Alabama Power Company

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10/16/89

ENCLOSURE 1

CONFIRMATORY MEASUREMENT COMPARISONS OF H-3, FE-55, SR-89
AND SR-90 ANALYSES FOR FARLEY NUCLEAR PLANT
ON JUNE 13, 1989

<u>Isotope</u>	<u>NRC (uCi/ml)</u>	<u>Licensee (uCi/ml)</u>	<u>Resolution</u>	<u>Ratio (Licensee/NRC)</u>	<u>Comparison</u>
H-3	3.52±0.11 E-5	3.65 E-5	32	1.04	Agreement
Fe-55	3.80±0.11 E-5	3.7368 E-5	35	0.98	Agreement
Sr-89	1.50±0.05 E-4	1.299 E-4	30	0.87	Agreement
Sr-90	8.14±0.33 E-6	6.732 E-6	25	0.83	Agreement

ENCLOSURE 2

CRITERIA FOR COMPARISONS OF ANALYTICAL MEASUREMENTS

This enclosure provides criteria for the comparison of results of analytical radioactivity measurements. These criteria are based on empirical relationships which combine prior experience in comparing radioactivity analyses, the measurement of the statistically random process of radioactive emission, and the accuracy needs of this program.

In these criteria, the "Comparison Ratio Limits"¹ denoting agreement or disagreement between licensee and NRC results are variable. This variability is a function of the ratio of the NRC's analytical value relative to its associated statistical and analytical uncertainty, referred to in this program as "Resolution"².

For comparison purposes, a ratio between the licensee's analytical value and the NRC's analytical value is computed for each radionuclide present in a given sample. The computed ratios are then evaluated for agreement or disagreement based on "Resolution." The corresponding values for "Resolution" and the "Comparison Ratio Limits" are listed in the Table below. Ratio values which are either above or below the "Comparison Ratio Limits" are considered to be in disagreement, while ratio values within or encompassed by the "Comparison Ratio Limits" are considered to be in agreement.

TABLE

NRC Confirmatory Measurements Acceptance Criteria
Resolution vs. Comparison Ratio Limits

<u>Resolution</u>	<u>Comparison Ratio Limits for Agreement</u>
<4	0.4 - 2.5
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

$$^1\text{Comparison Ratio} = \frac{\text{Licensee Value}}{\text{NRC Reference Value}}$$

$$^2\text{Resolution} = \frac{\text{NRC Reference Value}}{\text{Associated Uncertainty}}$$