

Official

FEB 11 1986

Carolina Power and Light Company
ATTN: Mr. E. E. Utley
Senior Executive Vice President
Power Supply and Engineering
and Construction
P. O. Box 1551
Raleigh, NC 27602

Gentlemen:

SUBJECT: CONFIRMATORY MEASUREMENT RESULTS, DOCKET NOS. 50-325 AND 50-324

As part of the NRC Confirmatory Measurements Program, spiked liquid samples were sent on July 22, 1985, to your Brunswick facility for selected radiochemical analyses. We are in receipt of your analytical results transmitted to us by your letter dated September 11, 1985. 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 greater detail by cognizant staff members for any significant trends in the data among successive analyses. Any biases noted may be indicative of a programmatic weakness and attention should be given to determine reasons for such biases.

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

Sincerely,

Vincent W. Panciera, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosures:

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

cc w/encl:

✓ P. W. Howe, Vice President
Brunswick Nuclear Project
✓ R. Dietz, Plant General Manager

bcc w/encl:

✓ NRC Resident Inspector
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ENCLOSURE 1

CONFIRMATORY MEASUREMENT COMPARISONS OF H-3, FE-55, SR-89, AND SR-90 ANALYSIS
FOR THE BRUUNSWICK NUCLEAR PLANT ON SEPTEMBER 11, 1985

Isotope	*Licensee (uCi/unit)	NRC (uCi/unit)	Resolution	Ratio (Licensee/NRC)	Comparison
H-3	3.12 E-5	2.83±0.06 E-5	47	1.10	Agreement
Fe-55	9.05 E-6	9.90±0.20 E-6	50	0.91	Agreement
Sr-89	1.22 E-4	1.19±0.04 E-4	30	1.03	Agreement
Sr-90	1.31 E-5	1.31±0.05 E-5	26	1.00	Agreement

*Average of duplicate results

ENCLOSURE 2

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This enclosure provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In this criteria, the judgement limits denoting agreement or disagreement between licensee and NRC results are variable. This variability is a function of the NRC's value relative to its associated uncertainty. As the ratio of the NRC value to its associated uncertainty, referred to in this program as "Resolution"¹ increases, the range of acceptable differences between the NRC and licensee values should be more restrictive. Conversely, poorer agreement between NRC and licensee values must be considered acceptable as the resolution decreases.

For comparison purposes, a ratio² of the licensee value to the NRC value for each individual nuclide is computed. This ratio is then evaluated for agreement based on the calculated resolution. The corresponding resolution and calculated ratios which denote agreement are listed in Table 1 below. Values outside of the agreement ratios for a selected nuclides are considered in disagreement.

NRC Reference Value for a Particular Nuclide

¹ Resolution = Associated Uncertainty for the Value

Licensee Value

² Comparison Ratio = NRC Reference Value

TABLE 1 - Confirmatory Measurements Acceptance Criteria
Resolutions vs. Comparison Ratio

<u>Resolution</u>	<u>Comparison Ratio 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