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

Gentlemen:

SUBJECT: DOCKET NOS. 50-325 AND 50-324, CONFIRMATORY MEASUREMENT RESULTS SUPPLEMENT TO INSPECTION REPORT NOS. 50-325/86-26 AND 50-324/86-27

As part of the NRC Confirmatory Measurements Program, spiked liquid samples were sent on September 22, 1986, to your Brunswick facility for selected radiochemical analyses. We are in receipt of your analytical results transmitted to us by your letter dated November 20, 1986. Results were verified based on a telephone conversation on January 5, 1987. 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 the data, comparative results were in agreement for H-3, Sr-90, and Fe-55 analyses and disagreement for the Sr-89 analysis. This disagreement may be indicative of a programmatic weakness and therefore your attention is directed to determining the underlying cause for this disagreement. Furthermore, all data should be reviewed in greater detail by cognizant staff members for significant trends in the data among successive analyses.

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

Sincerely,

Original Signed by Luis A. Reyes

Luis A. Reyes, Acting Director Division of Reactor Projects

Enclosures:

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

cc w/encls: (See page 2)

Carolina Power and Light Company

- 1.1

cc w/encls: LP. W. Howe, Vice President Brunswick Nuclear Project LC. R. Dietz, Plant General Manager LA. G. Cheatham, Manager, E&RC

bcc w/encls: WRC Resident Inspector Document Control Desk State of North Carolina

RII WGloersen 1/7/87 RII JPH Bor JKahle 1/7/87



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RII DVerrelli 1/26/87

#### ENCLOSURE 1

### CONFIRMATORY MEASUREMENT COMPARISONS OF H-3, FE-55, SR-89, AND SR-90 ANALYSE8 FOR BRUNSWICK NUCLEAR PLANT ON NOVEMBER 20, 1986

Isotope	Ligensee (uÇi/ml)	NRC (LCi/ml)	Resolution	Ratio (Licensee/NRC)	Comparison
<b>H-</b> 3	3.41 E-5	3.50 ± 0.07 E-5	50	0.97	Agreement
Fe-55	2.59 E-5	2.60 ± 0.05 E-5	52	1.00	Agreement
Sr-89	8.42 E-5	4.41 ± 0.13 E-5	34	1.91	Disagreement
\$r-90	3.32 E-6	4.17 ± 0.17 E-6	24	0.80	Agreement

## 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 these 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, referred to in this program as "Resolution"<sup>1</sup> 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 ratio<sup>2</sup> 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 nuclide are considered in disagreement.

# <sup>1</sup>Resolution = <u>NRC Reference Value for a Particular Nuclide</u> Associated Uncertainty for the Value

<sup>2</sup>Comparison Ratio = <u>Licensee Value</u> NRC Reference Value

### TABLE 1

Confirmatory Measurements Acceptance Criteria Resolutions vs. Comparison Ratio

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2.5 2.0 1.66

0.80 - 1.250.85 - 1.18

1									
H.	0	C.	0	11	•	ъ	0	n	
1.8	C.	2	v	 U.	Ψ.		~		

<	4						
	4	-		7			
	8	-		1	5		
	16		-		5	0	
	51		-		2	0	C
>	20	0					