

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Reports No. 50-315/78-39; 50-316/78-40

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service Corporation  
Indiana and Michigan Power Company  
2 Broadway  
New York, NY 10004

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, MI

Inspection Conducted: June 10, 1980

Inspector: *A. G. Januska*  
A. G. Januska

6/26/80

Approved By: *T. H. Essig*  
T. H. Essig, Chief  
Environmental and Special  
Projects Section

6/27/80

Inspection Summary

Inspection on June 10, 1980 (Reports No. 50-315/78-39; 50-316/78-40)

Areas Inspected: Confirmatory Measurements including: telephone discussion and closeout of results of a previous sample collection and submission of spiked samples. The inspection involved 0 inspector-hours on site by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted (Telephonically)
  - E. Smarella, Technical Superintendent
2. Results of Comparative Analyses

Results of comparative analyses performed on samples split onsite and a spiked sample submitted in October 1978 are shown in Table I. The criteria for comparing measurement results are given in Attachment 1. For six sample comparisons, the licensee's results yielded six agreements or partial agreements.

Attachments:

1. Table I, Confirmatory  
Measurements Program,  
D. C. Cook
2. Attachment 1, Criteria for  
Comparing Analytical  
Measurements

TABLE I

U S NUCLEAR REGULATORY COMMISSION  
 OFFICE OF INSPECTION AND ENFORCEMENT  
 CONFIRMATORY MEASUREMENTS PROGRAM  
 FACILITY: D C COOK  
 FOR THE 4 QUARTER OF 1978

SAMPLE	ISOTOPE	-----NRC-----		---LICENSEE---		---NRC:LICENSEE---		
		RESULT	ERROR	RESULT	ERROR	RATIO	RES	T
OFF GAS	XE 133	1.3E-03	5.0E-05	1.9E-03	0.0	1.5E+00	2.6E+01	P
	KR 85	9.0E-04	1.0E-04	1.3E-03	3.5E-05	1.4E+00	9.0E+00	A
F SPIKED	CO 57	2.7E-03	9.0E-05	3.2E-03	8.4E-05	1.2E+00	3.0E+01	A
	CS 134	8.5E-03	3.0E-04	8.4E-03	2.2E-04	9.9E-01	2.8E+01	A
	CS 137	6.5E-03	3.0E-04	7.4E-03	2.4E-04	1.1E+00	2.2E+01	A
	CO 60	7.4E-03	3.0E-04	8.2E-03	2.8E-04	1.1E+00	2.5E+01	A

T TEST RESULTS:  
 A=AGREEMENT  
 D=DISAGREEMENT  
 P=POSSIBLE AGREEMENT  
 N=NO COMPARISON



## ATTACHMENT 1

### CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment 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 judgment limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>		
	<u>Agreement</u>	<u>Possible Agreement "A"</u>	<u>Possible Agreeable "B"</u>
<3	No Comparison	No Comparison	No Comparison
>3 and <4	0.4 - 2.5	0.3 - 3.0	No Comparison
>4 and <8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
>8 and <16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
>16 and <51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
>51 and <200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
>200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is greater than 250 keV.

Tritium analyses of liquid samples.

"B" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determinations.

Gross beta, where samples are counted on the same date using the same reference nuclide.