

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

Region I

Report No. 50-289/79-09  
50-320/79-08  
Docket No. 50-289  
50-320  
License No. DPR-50 Priority -- Category C  
DPR-73 C

Licensee: Metropolitan Edison Company  
P. O. Box 542  
Reading, Pennsylvania 19640

Facility Name: Three Mile Island, Units 1 and 2

Inspection at: Middletown, Pennsylvania

Inspection conducted: March 15, 1979

Inspectors: J. J. Kottan  
J. J. Kottan, Radiation Specialist

6/20/79  
date signed

date signed

date signed

Approved by: J. P. Stohr  
J. P. Stohr, Chief, Environmental and Special  
Projects Section, FF&MS Branch

6/20/79  
date signed

Inspection Summary:

Inspection on March 15, 1979 (Report Nos. 50-289/79-09 and 50-320/79-08)

Areas Inspected: This report contains the results of an effluent sample split between the licensee and NRC:I during a previous inspection on July 19-21, 1978. The comparison of these results involved no onsite time.

Results: Within the area inspected, no items of noncompliance were observed.

7908150760

## DETAILS

### 1. Persons Contacted

R. Dubiel, Radiochemistry and Health Physics Supervisor  
G. Reed, Unit 1 Chemist

### 2. Confirmatory Measurements

In a previous inspection conducted on July 19-21, 1978, Inspection Reports 50-289/78-15 and 50-320/78-25, a liquid effluent sample was split with the licensee and NRC:I. Analyses were performed by the licensee using his normal methods and procedures, and the NRC:I Radiological and Environmental Services Laboratory (RESL). The comparison of the analyses results indicated that all of the measurements were in agreement or possible agreement under the criteria used for comparing results (see Attachment 1). The results of the comparisons are presented in Table I. No items of noncompliance were identified.

### 3. Exit Interview

The inspector discussed the results of this inspection in a telephone conversation on March 15, 1979, with the licensee representatives denoted in Paragraph 1.

TABLE 1  
THREE MILE ISLAND VERIFICATION TEST RESULTS  
RESULTS IN MICROCURIES PER MILLILITER

<u>SAMPLE</u>	<u>ISOTOPE</u>	<u>NRC VALUE</u>	<u>LICENSEE VALUE</u>	<u>COMPARISON</u>
WECST "B" 1535 hrs 7/19/78	H-3	(2.02 ± 0.02)E-2	(2.00 ± 0.01)E-2	Agreement
	*Gross Alpha	(1 ± 2)E-9	<6 E-9	No Comparison
	*Sr-89	(0 ± 2)E-8	(2.8 ± 1.5)E-8	No Comparison
	*Sr-90	(9 ± 3)E-9	<8 E-9	No Comparison
	Cs-134	(7.53 ± 0.27)E-6	(8.08 ± 0.18)E-6	Agreement
	Cs-137	(1.07 ± 0.04)E-5	(1.13 ± 0.02)E-5	Agreement
	Co-58	(1.26 ± 0.05)E-5	(1.47 ± 0.03)E-5	Agreement
	Co-60	(2.10 ± 0.40)E-7	(2.94 ± 1.48)E-7	Agreement
WASTE GAS DECAY TANK "C" 1650 hrs 7/19/78	Xe-133	(1.9 ± 0.3)E-2	(3.01 ± 0.01)E-2	Agreement

\*The licensee's Technical Specifications require a minimum detectable activity of  $5 \times 10^{-8}$   $\mu\text{Ci/ml}$  for Sr-89 and Sr-90, and  $1 \times 10^{-7}$   $\mu\text{Ci/ml}$  for gross alpha.

694 252

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 judgement limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated 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 must be considered acceptable as the resolution decreases.

<u>Resolution</u>	<u>Agreement</u>	<u>LICENSEE VALUE</u>	
		RATIO= NRC REFERENCE VALUE	
		<u>Possible Agreement A</u>	<u>Possible Agreement B</u>
<3	0.4 - 2.5	0.3 - 3.0	No Comparison
4 - 7	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
8 - 15	0.6 - 1.66	0.5 - 2.0	0.4 - 2.5
16 - 50	0.75 - 1.33	0.6 - 1.66	0.5 - 2.0
51 - 200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.66
>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.

Iodine on absorbers

"B" criteria are applied to the following analyses:

Gamma Spectrometry where principal gamma energy used for identification is less than 250 Kev.

89Sr and 90Sr Determinations.

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