

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

Region I

Report No. 78-26

Docket No. 50-213

License No. DPR-61 Priority -- Category C

Licensee: Connecticut Yankee Atomic Power Company

P. O. Box 270

Hartford, Connecticut 06101

Facility Name: Haddam Neck Plant

Inspection at: Haddam Neck, Connecticut

Inspection conducted: October 11, 1978

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

10/23/78
date signed

date signed

date signed

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

10/23/78
date signed

Inspection Summary

Inspection on October 11, 1978 (Report No. 50-213/78-26)

Areas Inspected: This report contains the results of an effluent sample split between the licensee and NRC:I during a previous inspection which was conducted on March 13-16, 1978 and which was documented in Inspection Report 50-213/78-08. The comparison of these results involved no onsite time.

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

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DETAILS

1. Persons Contacted

J. Kangley, Chemistry Supervisor

2. Confirmatory Measurements

In a previous inspection conducted on March 13-16, 1978, Inspection Report 50-213/78-08, 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 analyses were performed by the Department of Energy's Radiological and Environmental Services Laboratory (RESL). The comparison of the analytical results indicated that all the measurements were in agreement or possible agreement under the criteria for comparing results (see Attachment 1) with the exception of the Sr-89 results which were not compared. Due to a delay by the licensee in sending the sample to his contracting laboratory for analysis, the contracting laboratory could not achieve a lower minimum detectable activity (MDA) because of half life considerations. The sample was taken on March 14, 1978 and analyzed by the contracting laboratory on September 25, 1978. The inspector noted that in previous sample splits the licensee's contracting laboratory was able to achieve the Technical Specification MDA of $5E-8$ $\mu\text{Ci}/\text{ml}$ for Sr-89. The inspector determined that the licensee's routine liquid effluents were analyzed for Sr-89 on a monthly basis (for composite samples), and the licensee's contracting laboratory was able to achieve the Technical Specification MDA. The inspector stated that a sample would be split for Sr-89 during a subsequent inspection in this area (78-26-01). The inspector had no further questions in this area at this time. 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 October 11, 1978 with the licensee representatives denoted in Paragraph 1.

TABLE 1

HADDAM NECK PLANT VERIFICATION TEST RESULTS

| <u>SAMPLE</u> | <u>ISOTOPE</u> | <u>NRC VALUE</u> | <u>LICENSEE VALUE</u> | <u>COMPARISON</u> |
|--|----------------|-----------------------|-----------------------|--------------------|
| <u>RESULTS IN MICROCURIES PER MILLILITER</u> | | | | |
| Test Tank "A" | H-3 | $(3.40 \pm 0.01) E-1$ | $(4.17 \pm 0.20) E-1$ | Possible Agreement |
| 1000 hrs | Sr-90 | $(6 \pm 1) E-8$ | $(7.4 \pm 0.7) E-8$ | Agreement |
| 3/14/78 | Sr-89 | $(7 \pm 4) E-8$ | Less than $2E-7$ | No Comparison |

Attachment 1

Criteria for Comparing Analytical Measurements

This attachment provided 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 the ratio, referred 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= <u>NRC REFERENCE VALUE</u> | |
| | | <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.

"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.