



CONNECTICUT YANKEE ATOMIC POWER COMPANY

BERLIN, CONNECTICUT

P. O. BOX 270 HARTFORD, CONNECTICUT 06101

TELEPHONE
203-666-6911

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DOCKET NO. 50-213

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U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attn: George H. Smith, Chief
Fuel Facility and Materials
Safety Branch

Reference: Letter, G. H. Smith to W. G. Council,
dated February 10, 1981
Inspection 50-213/80-22

Dear Mr. Smith:

Pursuant to Section 2.201 of the Nuclear Regulatory Commission's (NRC's) "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, the following information concerning items identified during inspection 50-213/80-22 is hereby submitted.

- A. Section 2.4.2.2 of the Environmental Technical Specifications states that prior to release of each batch of liquid waste a sample shall be taken from that batch and analyzed for the concentration of each significant gamma energy peak in accordance with Table 2.4-1...Table 2.4-1 requires that each batch of liquid waste be analyzed for principal gamma emitters to a minimum detectable concentration (MDC) of $5E-07$ microcuries per milliliter (uCi/ml).

Contrary to the above, approximately one half of the liquid radioactive waste samples analyzed during the period January 1, 1980 to November 17, 1980 did not meet the MDC requirement of $5E-7$ uCi/ml. In addition, Antimony-125 was present in seven of the liquid radwaste samples for the same period, but it was not identified and quantified.

This is a Severity Level V Violation.

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Response

Since the inception of Environmental Technical Specifications, a weekly composite of batch discharges had been analyzed by a contractor laboratory to meet the $5.0E-07$ MDC specifications for significant gamma emitters. The weekly batch composite sample was in addition to the individual batch discharge samples which were analyzed on site for the majority of the principal gamma emitters at the required MDC levels. Experience had shown that longer count times (> 2000 seconds) were needed in most cases and that on site laboratory background had interfered significantly with MDC determinations.

The addition and implementation of an on site low level counting facility has resulted in each batch discharge being analyzed (effective December 1, 1980) for all the required MDC levels. Use of the facility for MDC applications will prevent recurrence of this item.

Further, it was noted that Antimony-125 (Sb-125) was not detected by Connecticut Yankee in a batch tank comparison analysis. The Sb-125 isotope was not detected because one of the two gamma energy levels used to detect Sb-125 was being masked by a Cs-134 gamma energy level. The ID library was revised, (the two gamma line requirement was changed to a one line requirement for isotope ID) and all records on releases containing Sb-125 were corrected to include the Sb-125. These totals are included in the Semi-Annual Radioactive Effluent Report for July-December, 1980. A split sampling program initiated in October 1980 with the Millstone Point Chemistry Group should detect such library deficiencies in the future.

- B. Section 5.5.1 of the Environmental Technical Specifications requires procedures for assuring the quality of program results, including analytical measurements...Procedure CHDP 1.7, "Duplicate Sample Analysis Program", requires quarterly duplicate QC sample analyses to be performed. Procedure CHDP 2.0, "Chemical Analyses Quality Assurance Procedure", requires a weekly check of each Ge(Li) counting system using a known standard, with the provision that the results obtained from counting the standard are to be within ten percent of the known value of the standard or corrective action is to be taken.

Contrary to the above, the quarterly duplicate sample analyses required by Procedure CHDP 1.7 were not performed for the first three quarters of 1980. Also, a 500 ml standard which was counted weekly for Ge(Li) system number one had a CS-137 value which was different from the standard value by more than ten percent. The ten percent discrepancy first occurred on September 5, 1980 and the required corrective action was not taken through November 17, 1980.

This is a Severity Level V Violation.

Response

The procedure CHDP 1.7, "Duplicate Sample Analysis" had been performed since a previous inspection in 1978, until 1980, when it was not performed during the first three quarters, while all other surveillances were met in a timely manner. Recognizing a need to better follow this and other surveillance requirements, a software tracking package was developed and implemented in October, 1980. The package is segmented into weekly, monthly, quarterly, semi-annual and annual surveillance intervals. The QA Department shall audit the Chemistry Department adherence to the new surveillance tracking program on at least an annual basis until confidence on preventing similar recurrences in the future is assured by favorable audit results for at least two consecutive audits.

It was noted that on one counting system, one peak in a set of five exceeded the ten percent deviation limit from the normal for several weeks on the 500 ml geometry. The procedure CHDP 2.0 stated that a recalibration be performed when deviations exceeded ten percent. A recalibration was performed, but errors still occurred. The geometry was deleted from use on that system until the problem was corrected. A review of records showed that the geometry was not used for radioactive effluent or stay time evaluations during the affected time period. Calibration checks on other geometries noted no problem areas. The problem with the 500 ml geometry was corrected in December 1980.

To prevent this procedural deficiency from recurring, the procedure CHDP 2.0 has been revised to state, "if values deviate by greater than ten percent, other geometries shall be checked to ensure compliance. All geometries not meeting the ten percent criteria shall be omitted from the user geometry listing until recalibrated." The new procedure change provides the same guidance that was used by the technicians when the geometry problem occurred during the recalibration process referenced in this item of non-compliance.

- C. Section 5.5.1 of the Environmental Technical Specifications requires detailed written procedures. Section 5.5.1 of the Environmental Technical Specifications also requires that the procedures be followed. Section 6.8.1 of the Technical Specifications requires that procedures be established, implemented and maintained. Procedure PM 9.4-3.2, "Radioactive Determination of Liquid, Gaseous, and Particulate Samples", requires that charcoal cartridges be counted on each side in determining the amount of radioactivity present in the charcoal cartridge. Procedure PM 9.4-2.3, "Chloride Determination by Mercuric Nitrate Method", requires the indicator solution used in the analysis to be labeled with the expiration date. Procedure CHDP 2.15, "Radiochemical Analyses Performed by Offsite Labs to Insure Compliance with Environmental Technical Specifications", requires that contractor laboratory data be used in radioactive effluent reports.

Contrary to the above, Procedures PM 9.4-3.3, PM 9.4-2.3 and CHDP 2.15 were not followed in that charcoal cartridges counted during this inspection were counted on only one side, the chloride indicator solution was not labeled with the expiration date, as of November 20, 1980, and the higher effluent data value (your value or your contractor's value) was used in the effluent reports since July, 1980, respectively.

This is a Severity Level V Violation.

Response

The chloride indicator solution incorrectly carried the preparation date on the bottle. The volume of chloride indicator stock solution typically prepared is expended over a three month period, much less than the six month shelf life of the indicator. However, a label has been prepared that will be affixed to laboratory reagent stock bottles, that bears the following data:

Reagent ID
Date Prepared
Preparer
Date Expires

This action should prevent recurrence of this deficiency.

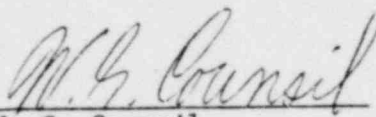
Experience had shown that counting both side of charcoal cartrides led to no significant change in the results, while analyzing for twice the collection time.

The procedure PM 9.4-2.3 is being revised from "should be counted on both sides" to "one side will be counted." As mentioned, this will not result in non-conservative values being reported. This revision will be completed by April 15, 1981.

Implementation of the low level counting facility and expanded capabilities enabled Connecticut Yankee to perform many analyses previously performed by a vendor laboratory. Since July 1980 comparison analyses were being performed, with the more conservative values (Connecticut Yankee's) to be used on the Semi Annual Effluent Report, July-December 1980. However, the procedure CHDP 2.15 had not been revised to reflect the manner of data handling. The procedure CHDP 2.15 has been revised to reflect the present data handling mechanism.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY


W. G. Council
Senior Vice President