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① Docnet

Nuclear Fuel Services, Inc. ERWIN, TENNESSEE 37650

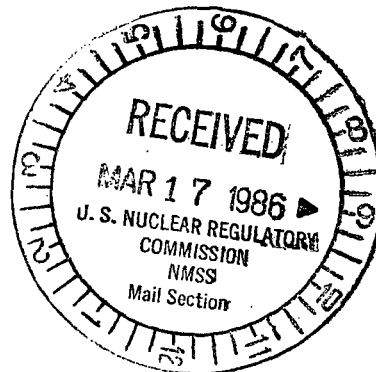
70-143

(615) 743-914

March 4, 1986

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W., Suite 2900
Atlanta, GA 30323



Attention: J. Philip Stohr, Director
Division of Radiation Safety and Safeguards

Reference: 1) Docket No. 70-143; SNM License 124
2) Letter dated January 22, 1986 from J. P. Stohr
To F. K. Guinn regarding NFS Stack Effluent Study

Dear Sir:

This will acknowledge receipt of your letter dated January 22, 1986 which transmitted the ORAU (Oak Ridge Associated Universities) report entitled "Radiological Monitoring of Stack Effluents - Nuclear Fuel Services, Incorporated, Erwin, Tennessee". It is noted that generally good agreement was indicated between ORAU and NFS on the major discharge stack.

As you requested, we have performed a review and evaluation of the overall impact of the possible under-reporting of effluent radioactivity discharged by stack 278 in the Low Enriched Uranium Scrap Plant. A copy of the evaluation report is attached as Appendix A. It should be noted that the measured concentrations are quite low and may have been near the minimum detectable level (MDL) of the measurement systems. The discharge volume from this stack is also relatively low (650 ft³/min.) as compared to a total plant discharge of 57,800 ft³/min. We therefore conclude that the impact of this situation is negligible.

We noted that the ORAU report indicates that a single sampling (with-drawal) point in stacks 287 and 416 would provide representative sampling. NFS also believes this to be the case since the flow at the sampling points is turbulent. The reduction from multiple with-drawal points to a single (or possibly two) points would result in a larger diameter orifice, involve less orifice clogging and provide

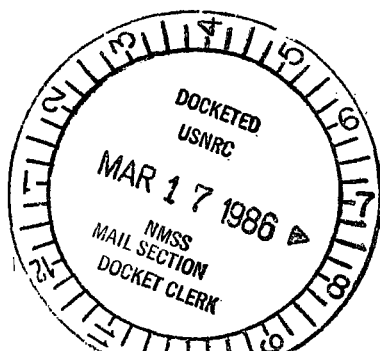
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INFORMATION CATEGORY

UNCLASSIFIED ☒

CLASSIFIED ☐

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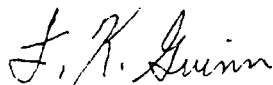
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USNRC
Page Two

improved measurements. We therefore intend to take this action as an improvement to our stack sampling efforts. This modification will be accomplished prior to reinitiating processing activities ventilated by stack No. 278.

Yours very truly,



F. K. Guinn
Plant Manager

FKG:bm

Attachment - Appendix A

cc: ✓ U. S. Nuclear Regulatory Commission
Uranium Fuel Licensing Branch
Division of Fuel & Material Safety, NMSS
Washington, D.C. 20555

APPENDIX AEVALUATION OF LOW MEASUREMENT BIAS - STACK #278I. Background Data (1984 used as a representative year)

- a. Stack discharge rate: 650 ft³/min.
- b. Total plant stack discharge rate: 57,800 ft³/min.
- c. Stack discharge height: Roof level (approximately 6 meters)
- d. Average 1st half, 1985 NFS reported activity (#278): 7.5 E-13 μ Ci/ml
- e. 2 Sample NFS average (2/8 and 2/9/85): 0.465E-12 μ Ci/ml
- f. 2 Sample ORAU average (2/8-2/9/85): 4.72E-12 μ Ci/ml
- g. Ratio ORAU/NFS results: 10.2:1
- h. Fraction of stack #278 contribution to Semi-Annual Effluent Monitoring Report (70.53): 0.002
- i. Maximum Off-Site (Residential) exposure (1983-85) 4.6 mrem (annual) (child lung)
- h. Fraction of dose (item g) contributed by stack #278: 0.002 mrem

II. Summary

Assuming that the average low bias indicated by the 2 sample measurement performed by ORAU (10.2:1) occurred during all of the first half of 1985 following would have resulted, and the error in reported values would have been as follows:

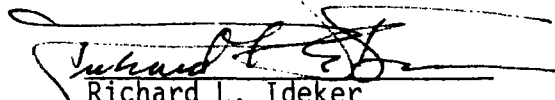
1. Fractional error in effluent reporting:

<u>Corrected Value (Ci)</u>	<u>Reported Value (Ci)</u>
1.8330E-3	1.79785E-3

Fractional Error: 0.01960

2. Maximum possible error in annual off-site dose calculation: 0.1 mrem

The possible error of 2% is less than 10% of the counting measurement error of the stack monitoring systems. The impact on reported effluent releases and estimated off-site doses is negligible for all prior periods because the relationship of stack #278 to total plant discharge is relatively constant.


 Richard L. Ideker
 February 18, 1986

FKG/RLI:bm

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