



Nuclear Fuel Services, Inc.  
205 Banner Hill Rd.  
Erwin, TN 37650  
(615) 743-9141

21G-93-0143  
GOV-01-60  
ACF-93-275

Mr. Stewart D. Ebnetter, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
101 Marietta Street, NW, Suite 2900  
Atlanta, GA 30323

August 27, 1993

**REFERENCE:** 1) **DOCKET 70-143/SNM-124**  
2) **ORIGINAL SEMI-ANNUAL EFFLUENT LOSS REPORT**  
**SUBMITTALS (21G-92-0131 AND 21G-93-0046)**

**SUBJECT: BI-ANNUAL EFFLUENT MONITORING REPORT**  
**(January-June, 1993)**

Dear Mr. Ebnetter:

In accordance with the requirements set forth in Title 10 CFR, Part 70.59, Nuclear Fuel Services, Inc., submits the attached report (Attachment A) of its effluent monitoring for the period January-June 1993. Isotopic data has not been received for some of the liquid effluent monitoring samples. Consequently, for these source terms, the isotopic ratios applied to determine the respective activity contributions were estimated by averaging the available appropriate isotopic ratios. Upon receipt of the missing isotopic data from our vendor laboratory, an amended report will be forthcoming.

Included as Attachment B are amended Effluent Monitoring Reports for the first and second halves of 1992. These constitute final effluent release reports based upon complete isotopic data sets.

If you have any questions or need further information, please contact Mr. M. J. Brennan, at (615) 743-9141, extension 1359, or me. Please reference our unique identification number (21G-93-0143) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

*K.D. Hensley*  
for **A. M. Maxim**  
Acting Vice President  
Safety and Regulatory

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cc: Director, Office of Nuclear Material  
Safety and Safeguards  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Mr. Stephen P. Burris  
Resident Inspector

Mr. Robert C. Pierson, Chief  
Licensing Branch  
Division of Fuel Cycle Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

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NUCLEAR FUEL SERVICES, INC.  
Erwin, Tennessee

REPORT OF EFFLUENT MONITORING AND  
RELEASE TO UNRESTRICTED AREAS

License No.: SNM-124  
Docket No.: 70-143

Period Covered: January 1, 1993  
June 30, 1993

I. Gaseous Effluents

Radionuclide	Quantity Released (Curies)		
Uranium-234	7.60E-04	±	1.31E-05
Uranium-235	1.27E-05	±	2.25E-07
Uranium-236	5.61E-08	±	1.33E-09
Uranium-238	3.22E-07	±	4.85E-08
Plutonium-238	1.51E-08	±	1.02E-09
Plutonium-239	8.10E-09	±	5.44E-10
Plutonium-240	7.31E-09	±	4.91E-10
Plutonium-241	9.99E-07	±	6.71E-08
Plutonium-242	1.04E-11	±	6.98E-13
Americium-241	9.34E-09	±	6.27E-10

II. Liquid Effluents

Radionuclide	Quantity Released (Curies)		
Uranium-234	1.33E-02	±	1.35E-03
Uranium-235	4.22E-04	±	5.19E-05
Uranium-238	8.57E-04	±	7.88E-05
Thorium-228	1.65E-04	±	2.27E-05
Thorium-230	6.46E-05	±	5.33E-06
Thorium-232	7.41E-05	±	7.43E-06
Thorium-234	3.66E-03	±	6.03E-04
Plutonium-238	1.28E-04	±	1.13E-05
Plutonium-239	1.46E-03	±	2.01E-04
Technetium-99	3.65E-02	±	5.00E-03

**ATTACHMENT B**  
**To Letter Dated August 27, 1993**  
**A. M. Maxin to Mr. Stewart Ebnetter**

**21G-92-0143**  
**GOV-01-60**  
**ACF-93-275**

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In accordance with the requirements set forth in Title 10 CFR, Part 70.59, Nuclear Fuel Services, Inc., (NFS) submits the amended reports of its effluent monitoring at the Erwin, Tennessee plant for the periods covering January through June, 1992, and July through December, 1992.

Some of the liquid effluent monitoring data were estimated for the original reports by averaging the available isotopic ratios per the given stream for the period. This was necessary because the specified isotopic data had not been received from our contract laboratory.

The present amended report fulfills our commitment to provide an update upon receipt of the outstanding isotopic results.

NUCLEAR FUEL SERVICES, INC.  
Erwin, Tennessee

REPORT OF EFFLUENT MONITORING AND  
RELEASE TO UNRESTRICTED AREAS

License No.: SNM-124  
Docket No.: 70-143

Period Covered: January 1, 1992  
June 30, 1992

I. Gaseous Effluents

Radionuclide	Quantity Released (Curies)		
Uranium-234	6.07E-04	±	1.14E-05
Uranium-235	1.08E-05	±	2.03E-07
Uranium-236	6.31E-08	±	1.18E-09
Uranium-238	2.12E-08	±	3.98E-10
Plutonium-238	3.09E-09	±	1.52E-09
Plutonium-239	1.65E-09	±	8.13E-10
Plutonium-240	1.49E-09	±	7.34E-10
Plutonium-241	2.04E-07	±	1.00E-07
Plutonium-242	2.12E-12	±	1.04E-12
Americium-241	1.91E-09	±	9.37E-10

II. Liquid Effluents

Radionuclide			
Uranium-234	1.97E-02	±	2.81E-03
Uranium-235	3.63E-04	±	5.01E-05
Uranium-238	6.27E-04	±	6.52E-05
Thorium-228	3.23E-05	±	4.35E-06
Thorium-230	2.65E-05	±	4.99E-06
Thorium-232	2.31E-05	±	3.56E-06
Thorium-234	4.48E-03	±	7.54E-04
Plutonium-238	4.08E-05	±	4.37E-06
Plutonium-239	4.72E-05	±	5.50E-06
Technetium-99	4.43E-04	±	6.51E-05

NUCLEAR FUEL SERVICES, INC.  
Erwin, Tennessee

REPORT OF EFFLUENT MONITORING AND  
RELEASE TO UNRESTRICTED AREAS

License No.: SNM-124  
Docket No.: 70-143

Period Covered: July 1, 1992  
December 31, 1992

I. Gaseous Effluents

Radionuclide	Quantity Released (Curies)		
Uranium-234	4.45E-04	±	1.24E-05
Uranium-235	7.76E-06	±	2.16E-07
Uranium-236	4.01E-08	±	1.12E-09
Uranium-238	2.08E-08	±	5.81E-10
Plutonium-238	3.36E-09	±	5.63E-10
Plutonium-239	1.80E-09	±	3.01E-10
Plutonium-240	1.63E-09	±	2.72E-10
Plutonium-241	2.22E-07	±	3.71E-08
Plutonium-242	2.31E-12	±	3.86E-13
Americium-241	2.08E-09	±	3.47E-10

II. Liquid Effluents

Radionuclide			
Uranium-234	1.09E-02	±	1.07E-03
Uranium-235	2.78E-04	±	2.94E-05
Uranium-238	1.58E-03	±	3.05E-04
Thorium-228	6.35E-04	±	1.26E-04
Thorium-230	4.28E-04	±	7.57E-05
Thorium-232	1.95E-04	±	2.63E-05
Thorium-234	1.38E-03	±	1.19E-04
Plutonium-238	1.47E-04	±	1.16E-05
Plutonium-239	1.02E-04	±	1.85E-05
Technetium-99	2.11E-02	±	3.96E-04