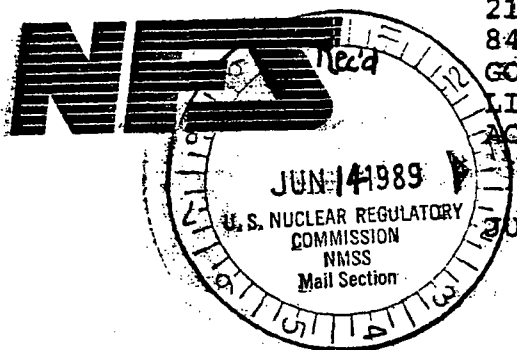
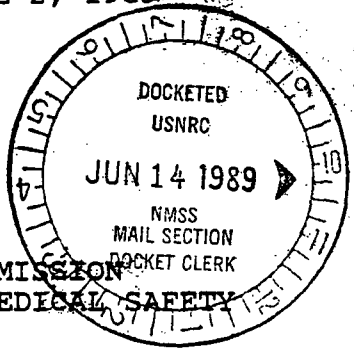


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84N-88-0390
GOV-01-55-10
LIC-01-02
ACF1445

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



JUNE 2, 1989



File No. _____
Copies To: _____

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

U. S. NUCLEAR REGULATORY COMMISSION
DIVISION OF INDUSTRIAL AND MEDICAL SAFETY
WASHINGTON, DC 20555

Attention: Merril Horn
Uranium Fuel Section
Fuel Cycle Safety Branch

- Reference:
- 1) Docket No. 70-143, SNM-124
 - 2) Letter from M. Horn to B. E. Knight dated 2/15/89
 - 3) Letter from B. E. Knight to M. Horn dated 03/06/89

Dear Ms. Horn:

Enclosed are the NFS responses to the environmental questions in reference 2), provided in accordance with our commitment in reference 3).

If you have further questions, please call me. In any correspondence concerning this letter, please use our unique identification number (21G-89-0038)

Sincerely,

B. E. Knight
Bruce E. Knight
Director of Safety

BEK/WRJ:njt

Enclosure

Information in this record was deleted in
accordance with the Freedom of Information Act
Exemptions 4
FOIA/PA 2012-0003

D/1

ENCLOSURE

ENVIRONMENTAL INFORMATION UPDATE FOR NFS LICENSE RENEWAL ACTION

NRC Question #1:

Provide the 1985-1988 data for releases from the stack and building vents.

NFS Response:

The 1985-1988 data for releases from the stacks are reported on Table 5.6a, attached. This table updates Table 5.6 in the July, 1984 Environmental Report, and may be inserted behind the old table for convenience. There are not any data for building vent releases during this time period because all vents were taken out of service prior to 1985.

NRC Question #2:

Provide the 1984-1988 data for liquid discharges from the WWTF.

NFS Response:

The 1984-1988 data for liquid discharges from the WWTF are reported on Tables 5.14a, 5.15a, and 5.22a, attached. These tables update Tables 5.14, 5.15 and 5.22 in the July 1984 Environmental Report, and may be inserted behind the old tables for convenience.

NRC Question #3:

What is the status of the closed cooling - tower system?

NFS Response:

The project to provide a closed loop non-contact cooling water system for building 233 has been tabled as a results of NFS' intention to build a new high enriched uranium recovery facility.

NRC Question #4:

Provide the 1984-1988 data from Banner Spring Branch.

NFS Response:

The 1984-1988 data from Banner Spring Branch are reported in Tables 5.9a, 5.18a and 5.20a, attached. These tables update Tables 5.9, 5.18 and 5.20 in the July, 1984 Environmental Report, and may be inserted behind the old tables for convenience.

NRC Question #5:

Provide the 1985-1988 data for the ambient air monitors.

NFS Response:

The 1985-1988 data for the ambient air monitors are reported in Table 5.4a, attached. This table updates Table 5.4 in the July, 1984 Environmental Report, and may be inserted behind the old table for convenience.

NRC Question #6:

Provide the 1984-1988 data for the environmental monitoring program for soil, vegetation, surface water, silt and sediment.

NFS Response:

The 1984-1988 data for the environmental monitoring program for soil, vegetation, surface water, silt and sediment are reported on Tables 5.9a, 5.18a and 5.20a, attached. These tables update Tables 5.9, 5.18 and 5.20 in the July 1984 Environmental Report, and may be inserted behind the old tables for convenience.

NRC Question #7:

Confirm the location of the nearest resident. If any of the factors pertinent to the dose assessment have changes, please discuss the changes (except for the change in stack height), i.e. significant changes in particle size or solubility.

NFS Response:

There has not been any change in the location of the nearest resident. Pertinent factors to the dose assessment have not changed significantly during the past five years. The population distribution near NFS, radioactive effluents (source term), meteorological conditions, radioactive particle size distribution, and lung solubility class distribution have not changed significantly during this time period. A summary listing the maximum off-site dose equivalent commitment for the period 1984-1988 is provided in Chapter 13 of our SNM-124 license renewal application.

NRC Question #8:

Provide copies of your current NPDES permit and your pre-treatment permit.

NFS Response:

The requested permits are attached. The NPDES permit is under "timely renewal."

NRC Question #9:

Provide an updated site plan.

NFS Response:

An updated site plan is attached. This figure is labeled as page 3-2 and can replace page 3-2 in the July, 1984 Environmental Report for convenience.

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NRC Question #10:

Provide a copy of the State Water Certification as required by Section 401(a)(1) of the Clean Water Act.

NFS Response:

According to the representatives of the state of Tennessee Division of Water Pollution Control, the State is an "approved state" with the U.S.E.P.A. concerning NPDES permitting and therefore has primacy in issuing an NPDES permit to NFS. Therefore the State does not issue a State Water Certification to NFS.

NRC Question #11:

What is the status of your application with Tennessee for burying non-radioactive, non-hazardous waste onsite?

NFS Response:

NFS has no pending application to the State of Tennessee for burying non-radioactive, non-hazardous waste onsite.

TABLE 5.6 a

SUMMARY OF STACK EFFLUENT CONCENTRATIONS
(All units in uCi/ml E-12)

PROCESS MATERIAL	STACK NO.	BLDG. NO.	DESCRIPTION	1984		1985		1986		1987		1988	
				MAX.	AVG.	MAX.	AVG.	MAX.	AVG.	MAX.	AVG.	MAX.	AVG.
Plutonium	27	234A	Prod. Glove Box Line	1.80	0.13	2.25	0.06	0.65	0.05	2.14	0.06	0.17	0.02
	28	234A	Room Air Cell	0.78	0.07	2.69	0.05	4.77	0.12	0.28	0.05	1.04	0.06
	29	234A	Wet Cell Scrubber	0.69	0.13	0.66	0.04	0.41	0.06	3.00	0.13	0.21	0.03
	224	234A	Dissolution Glove Boxes	0.51	0.04	0.46	0.02	1.59	0.07	0.90	0.04	0.15	0.02
	(1) 554	110	Room Air from CWB Lab	---	---	---	---	---	---	---	---	0.06	0.01
H. E. Uranium	(2) 185	131	Prod. Dry Boxes	3.74	0.24	1.06	0.10	---	---	---	---	5.13	0.06
	332	120	Maintenance Welding Hood	0.76	0.12	7.18	0.11	1.91	0.14	0.82	0.09	0.17	0.05
	333	110	Spec Lab Arc Stand	0.82	0.10	2.70	0.07	0.71	0.07	0.22	0.02	0.10	0.02
	416		Main Process Ventilation	450.80	15.3	107.07	3.02	54.08	5.55	153.70	3.22	36.88	1.94
	(3) 376	301	Ventilation	---	---	23.53	1.17	9.82	1.22	14.83	0.56	5.10	0.34
	(4) 573	302, 303	Finishing Offgases	---	---	---	---	---	---	---	---	95.87	3.86
	421	100	Laundry Exhausts	0.38	0.18	0.61	0.17	0.53	0.22	0.24	0.08	0.14	0.04
	(5) 547	100	Laundry Exhausts	---	---	---	---	---	---	---	---	0.28	0.04
L. E. Uranium	103	110	Dry Boxes	1.56	0.06	0.78	0.04	0.68	0.04	0.70	0.15	0.24	0.04
	104	110	Dry Boxes	0.41	0.03	0.62	0.04	0.32	0.04	0.19	0.05	0.40	0.04
	(6) 278	111	Calciner Furnace	48.93	3.61	70.74	2.43	58.81	9.44	---	---	---	---
	(6) 287	111	Main Vent Scrubber	130.23	9.09	136.46	8.17	79.78	3.62	---	---	---	---
	320	130	Cylinder Wash Operation	145.84	5.01	113.25	5.95	22.77	3.19	31.67	3.70	171.19	4.30
	354	110	Trash Compactor	6.10	0.20	1.80	0.10	3.01	0.12	0.26	0.04	0.14	0.02

- (1) Stack No. 554 began operation during the second half of 1988.
(2) Stack No. 185 was not in operation in 1986 and 1987.
(3) Stack No. 376 began operation during the first half of 1985.
(4) Stack No. 573 began operation during the second half of 1988.

- (5) New sampler began operation during the first half of 1988.
(6) Building 111 was shut down during 1987 and 1988.

TABLE 5.14a

ANNUAL RADIOACTIVITY LEVELS
DISCHARGED TO MUNICIPAL SEWER
(Units of uCi/ml E-7)

	<u>Gross Alpha</u>	<u>Gross Beta</u>	<u>U-234</u>	<u>U-235</u>	<u>U-238</u>	<u>Pu Total</u>	<u>Th Total</u>
1984	2.40	0.47	4.02	0.22	0.16	0.03	0.01
1985	1.94	0.49	2.12	0.32	0.16	0.01	0.03
1986	2.39	0.50	3.01	0.23	0.11	0.01	0.01
1987	1.26	0.45	2.76	0.15	0.16	0.03	0.09
1988	1.03	0.21	1.06	0.06	0.05	0.00	0.04

TABLE 5.15 a

PROCESS WATER EFFLUENT AVERAGE RADIOACTIVITY LEVELS
WASTE WATER TREATMENT FACILITY
(All Values in Units of uCi/ml E-7)

	<u>Gross Alpha</u>	<u>Gross Beta</u>	<u>U-234</u>	<u>U-235</u>	<u>U-238</u>	<u>234 Th-Pa</u>	<u>99 Tc</u>
1984	48.96	104.56	68.06	2.52	1.86	10.34	87.21
1985	24.54	80.44	39.47	3.50	1.85	4.72	48.18
1986	22.36	64.54	43.19	3.97	1.56	0.59	133.98
1987	18.24	88.11	24.12	1.50	0.84	2.92	185.23
1988	13.80	30.13	26.68	0.79	0.74	1.78	68.61

TABLE 5.22a

SUMMARY OF NON-RADIOLOGICAL
MONITORING OF THE WASTE WATER TREATMENT FACILITY
(Discharged at Mile 94.6 - Nolichucky River)
(Maximum Values)

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Discharge Volume - M3/day	91.11	85.73	71.54	94.16	72.35
Total Suspended Solids - kg/day	2.24	1.50	2.00	1.92	1.65
Ammonia (as N) - kg/day (mg/l)	1.5(27.5)	1.45(23)	1.2(25.5)	1.07(27.5)	1.46(26.5)
Nitrates (as N) - kg/day	293.50	296.35	293.85	279.95	286.35
Fluoride - kg/day (mg/l)	1.35(23.5)	1.35(25.5)	1.35(25.5)	1.36(27)	1.30(26)
Settleable Solids - (ml/l)	0.25	0.20	0.10	0.20	0.15
Chlorine Residual - (mg/l)	1.60	1.30	0.33	1.12	1.38
pH - Standard Units (min. = 6.0)	8.55	8.60	8.65	8.75	8.50

TABLE 5.9a

ANNUAL SURFACE WATER ALPHA RADIOACTIVITY
(uCi/ml E-6)

<u>LOCATION</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Banner Spring Branch (Upstream)	0.001	0.0035	0.0265	0.0047	0.0040
Banner Spring Branch (Downstream)	0.01	0.0445	0.0155	0.0081	0.0085
Martin Creek (Upstream)	0.0035	0.007	0.0055	0.0058	0.0035
Martin Creek (Downstream)	0.004	0.021	0.0067	0.0071	0.0063
Nolichucky River (Upstream)	0.0015	0.003	0.0004	0.0067	0.0031
Nolichucky River (Downstream)	0.0009	0.003	0.0011	0.0068	0.0040

*The sampling of the settling ponds was discontinued before 1984.

TABLE 5.18 a

SUMMARY OF STREAM SEDIMENT, SOIL & VEGETATION RADIOACTIVITY

Location/Sample Type	Alpha (uCi/g E-6)					Beta (uCi/g E-6)				
	1984	1985	1986	1987	1988	1984	1985	1986	1987	1988
(1) Pond #3 (Upper Pond) Sediment	24804.45	21578.86	15400.00	---	---	3694.49	3658.38	4520.00	---	---
(1) Pond #2 Pond/Sediment	---	4248.35	310.00	---	---	---	1005.61	95.00	---	---
(1) Pond #1 (Lower Pond) Sediment	535.17	1020.94	350.00	---	---	111.00	2249.40	111.00	---	---
Banner Spring Branch Upstream/Sediment	5.84	11.66	13.89	4.53	1.37	0.64	4.50	12.75	3.90	1.71
Banner Spring Branch Downstream/Sediment	99.55	346.72	137.00	151.37	64.39	15.07	40.72	50.20	48.43	22.27
Martin Creek Upstream/Sediment (Carolina Avenue)	2.36	3.90	2.83	2.61	1.12	0.39	1.27	0.76	10.60	2.04
Martin Creek Downstream/Sediment	30.70	20.80	28.65	27.67	14.32	3.79	5.24	6.90	10.12	6.56
Holichucky River/Upstream Sediment	2.85	2.65	3.11	5.76	1.64	0.38	1.19	1.34	3.17	1.86
Holichucky River/Downstream Sediment	1.46	8.56	2.75	4.24	1.63	0.30	2.61	0.60	2.67	1.77
Asheville Hwy. (Approx. 8 km S)/Soil	1.76	4.62	2.79	5.29	2.64	0.31	2.17	1.05	5.02	2.20
Little Mtn. (Approx. 0.6 km N)/Soil	2.52	6.79	5.18	7.45	3.37	0.40	1.69	0.78	5.87	3.16
Carolina Ave. (Approx. 150 m E)/Soil	4.59	7.33	6.42	8.83	3.77	0.67	1.84	1.88	6.82	2.60
(2) Sewer Mound (Approx. 300 m N)/Soil	---	---	---	---	1.69	---	---	---	---	0.63
Asheville Hwy. (Approx. 8 km S)/Vegetation	0.48	2.22	1.51	1.65	0.58	0.27	0.84	0.37	3.04	1.69
Little Mtn. (Approx. 0.6 km N)/Vegetation	0.37	2.36	1.43	1.14	0.60	0.14	0.42	0.17	2.75	1.60
Carolina Ave. (Approx. 150 m E)/Vegetation	0.19	2.13	1.79	1.77	0.70	0.04	1.31	0.30	2.88	1.60

(1) Sampling of ponds #1, #2, and #3 was discontinued during 1986.

(2) New sample location added during the first half of 1988.

TABLE 5.20a

SUMMARY OF NON-RADIOLOGICAL MONITORING OF SURFACE WATER
(mg/l except pH)

<u>Barner Spring Branch</u>	<u>pH</u>	<u>Ammonia</u>	<u>Nitrate</u>	<u>Fluoride</u>	<u>Mercury</u>
1984	8.30	2.45	6.02	<1.6	<.001
1985	7.25	1.00	4.58	<1.0	<.001
1986	7.65	1.23	5.23	<1.0	<.001
1987	7.90	1.00	9.65	<1.0	<.001
1988	8.15	1.00	1.50	<1.0	<.001
<u>Martin Creek</u>					
1984	8.50	1.90	2.60	<1.8	<.001
1985	7.35	1.00	4.94	<1.0	<.001
1986	7.40	1.43	2.70	<1.0	<.001
1987	7.55	1.20	9.30	<1.0	<.001
1988	7.60	1.00	1.20	<1.0	<.001
<u>Nolichucky River</u>					
1984	7.50	2.30	1.85	<2.0	<.001
1985	7.05	1.00	1.70	<1.0	<.001
1986	7.35	1.32	1.57	<1.0	<.001
1987	7.05	1.00	3.05	<1.0	<.001
1988	7.00	1.00	0.95	<1.0	<.001

TABLE 5.4a

SUMMARY OF ENVIRONMENTAL AIR SAMPLING
Average Gross Alpha Radioactivity (uCi/ml E-14)

<u>LOCATION</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
<u>Background Station</u>				
Asheville Highway (8 km SW)	0.50	0.72	0.27	0.21
<u>Perimeter</u>				
Northeast	0.88	0.84	0.46	0.34
East	0.89	0.89	0.47	0.33
South	0.77	0.79	0.32	0.25
West	1.22	1.14	0.42	0.41
Northwest	0.88	0.94	0.32	0.32
East Northeast	--	--	--	0.32
<u>Offsite</u>				
Little Mtn. (800 m NE)	0.70	0.53	0.20	0.21
Carolina Ave. (300 m ESE)	0.47	0.94	0.26	0.25
Emergency Hse. (280 S) (Station B)	0.63	1.19	0.29	0.26
Carolina Ave./Stalling Lane (215 m SE)	0.58	0.87	0.28	0.27
Stalling Lane (315 m SE)	0.65	0.76	0.29	0.33
Highland Ave./1st St. (405 m S)	0.49	1.14	0.34	0.31
Meadowbrook Lane (540 m ENE)	0.45	0.51	0.30	0.26
Security Fence (210 m SSW)	0.76	0.79	0.28	0.28
(1) Sewer Mound (300 m N)	--	--	--	0.25

(1) New sampler began operation during the first half of 1988.

(b)(4)