NUCLEAR FUEL SERVICES, INC.

WEST VALLEY REPROCESSING PLANT

QUARTERLY REPORT

FOR

JULY 1, 1981 THROUGH SEPTEMBER 30, 1981

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ENVIRONMENTAL MONITORING

As a result of changes in Technical Specifications, sampling milk for ^{131}I was discontinued on September 21, 1973.

Thirty-nine (39) samples were obtained during the third quarter from the perimeter monitoring stations and were analyzed for alpha and beta activity. The alpha activity ranged from 1.38 (10^{-16}) to 7.28 (10^{-15}) µCi/ml for an average of 2.95 (10^{-16}) µCi/ml. The beta activity ranged from 6.96 (10^{-15}) to 9.85 (10^{-14}) µCi/ml with an average of 3.73 (10^{-14}) µCi/ml.

LOW LEVEL LIQUID EFFLUENTS

The amounts of radioactivity in liquid discharged from the plant during this period and their relationship to the maximum permissible concentration (MPC) in the Cattaraugus Creek are shown in Table 1.

GASEOUS EFFLUENTS

The amount of particulate radioactivity discharged via the plant stack and the relationship to the release limit in the Technical Specifications is shown in Table 2. Change 20 to the Technical Specifications discontinued the requirements of Krypton-85 and Iodine-131 monitoring while plant operations are suspended.

SURVEILLANCE TESTS

During this period, tests were performed in accordance with Section 6 of the Technical Specifications. The completion dates are shown in Tables 3 and 4.

LOW LEVEL LIQUID WASTE TREATMENT PLANT PERFORMANCE

During this period, the LLWT was in operation a total of 18 days and treated 1,708,000 gallons of water. Fifty-five drums of concentrated sludge were removed each having a radiation level of <10 mr/hr. Decontamination of waste water continues to be good. All water discharged has been below 2.0×10^{-5} µCi Cs^{137}/ml. Average removal factors for this period are shown below.

AVERAGE REMOVAL FACTOR

Isotope	Previous Quarter	This Quarter
Cs-137	96.8	97.9
Sr-90	99.9	Not Yet Available
Ru-Rh-106	Below Detection Limits	Below Detection Limits
Gross Beta	90.8	91.7

A 150-gallon sulfuric acid day tank was installed on the first floor of the low level waste treatment facility.

Table 1

LIQUID EFFLUENTS--1981
(Curies)

Month	Gross α	Gross β	Tritium	Sr^{90}	I^{129}	% MPC[a] Measured In Cattaraugus Creek
Jan	0.00004	0.178	681	0.0008	0.0006	1.66
Feb	0.00011	0.244	834	0.0015	0.0005	0.78
Mar	0.000001	0.00003	0.0006	0.00001	NR[c]	1.68
Apr	0.00009	0.057	325	0.0006	0.0001	0.60
May	0.00017	0.123	1300	0.0009	0.0004	2.31
Jun	0.00007	0.033	295	0.0003	0.0001	0.97
Jul	0.000001	0.00003	0.0008	0.00001	NR[c]	0.49
Aug	0.000001	0.00003	0.0007	NA[b]	NR[c]	NA[b]
Sep	0.000001	0.00003	0.0010	NA[b]	NR[c]	NA[b]
1981	0.00048	0.635	3435	0.0041[d]	0.0017	1.22[e]

[a] MPC (β) = 3.0 (10^{-7}) μCi/ml when Sr^{90} analyses are not available
MPC (β) = 1.0 (10^{-5}) μCi/ml when Sr^{90} analyses are included separately
MPC (α) = 5.0 (10^{-6}) μCi/ml

[b] Not yet available

[c] Not required; there were no lagoon 3 effluent releases for the month

[d] Release through July, 1981

[e] MPC through July, 1981

Table 2

PARTICULATE GASEOUS EFFLUENTS - 1981

Month	Curies	% Monthly Limit
January	.00016	0.05
February	.00005	0.02
March	.00019	0.08
April	.00006	0.02
May	.00007	0.02
June	.00006	0.02
July	.00003	0.01
August	.00008	0.03
September	.00032	0.13
1981	.00102	0.043

Table 3

SURVEILLANCE TESTS

Spec. #	Subject	Completed This Quarter	Comments
6.1	Raschig Ring Tanks		Tanks are to be scheduled prior to next processing use
6.2	Sump Alarms and Eductors		
	XC-2	7-21, 8-11, 9-1, 9-22	Satisfactory
	XC-3	7-21, 8-11, 9-1, 9-22	Satisfactory
	PPC	7-21, 8-11, 9-1, 9-22	Satisfactory
6.3	Waste Storage Tank Pan Instrumentation		
	8D-1, 8D-2	7-13, 8-3, 8-25, 9-15	Satisfactory
	8D-3, 8D-4	7-13, 8-3, 8-25, 9-15	Satisfactory
6.4	Emergency Utility Equipment		
	30T-1	7-7	Satisfactory
	31K-1	7-7	Satisfactory
	32G-4	7-7	Satisfactory
	31G-2, 2A	8-12	Satisfactory
	31K-2, 2A	8-12	Satisfactory
	32G-2A, 2B	8-12	Satisfactory
	Diesel Fuel	7-6, 7-13, 7-20, 7-27, 8-3, 8-10, 8-17, 8-24, 8-31, 9-7, 9-14, 9-21, 9-28	Satisfactory
	Propane Fuel	7-6, 7-13, 7-20, 7-30, 8-3, 8-10, 8-17, 8-24, 8-31, 9-8, 9-14, 9-21, 9-28	Satisfactory
	15K-10A	7-7, 9-4	Satisfactory
	15F-21	7-7	Satisfactory
6.5	Filters	7-10, 7-17, 7-22, 7-27, 8-5, 8-13, 8-18, 8-26, 9-4, 9-15, 9-25	Satisfactory
6.6	Dilution Air	Not required this period	
6.7	Boric Acid	Not required this period	
6.8	Locking Out	Not required this period	
6.9	Water Activity Alarms	9-30	Satisfactory
6.10	Poisoned Dissolver Baskets	Not required this period	
6.11	Solvent Analysis	Not required this period	

Table 4

FILTER REPLACEMENT

There were no filter replacements during this reporting period.

PROCESSING SUMMARY

During this period there was no processing of fuel.

NUCLEAR FUEL SUMMARY

The following information is based upon nuclear material accountability records and indicates the disposition of nuclear material in fuel at the reprocessing plant.

A. INVENTORY

The total on-site inventory on September 30, 1981 was 166,759 kilograms of uranium and 1,033,065 grams of plutonium. An inventory description by source and material type is presented in Table 5.

B. RECEIPTS AND SHIPMENTS

During the quarter, there were no shipments or receipts of spent fuel assemblies at the West Valley site.

C. MEASURED WASTE AND ADJUSTMENTS

There were no losses of uranium or plutonium during the reporting period as measured waste.

No adjustments for uranium and plutonium to NFS Lot 27A were required.

D. LOSS ON DECAY

During the prior period, there was a decrease of 1,767 grams of plutonium due to loss on decay of the Pu-241 isotope. A correction due to an earlier computational error reduced inventory an additional 1,266 grams, resulting in a total decrease of 3,033 grams to the plutonium inventory.

Table 5

NUCLEAR FUEL STATUS AS OF SEPTEMBER 30, 1981

	Kilograms			Grams
	Total U	U-235	U-233	Total Pu
I. INVENTORY (7/1/81)				
NFS	3,271	8.01	--	306
Dresden-1	20,429	144.03	0.30	116,434
RG&E	46,156	722.48	--	284,769
Consumers	11,130	238.68	--	63,962
WEPCO	43,017	462.61	--	336,928
Jersey Central	42,756	463.42	--	233,699
TOTAL	166,759	2,039.23	0.30	1,036,098
II. RECEIPTS (7/1/81-9/30/81)	No receipts during this period.			
III. REMOVALS (7/1/81-9/30/81)				
A. Measured Waste Lot 27A	0	0	0	0
B. Adjustments Lot 27A	(0)	(0)	0	(0)
C. Loss on Decay	0	0	0	3,033
TOTAL	0	0	0	3,033
IV. INVENTORY (9/30/81)				
NFS	3,271	8.01	--	306
Dresden-1	20,429	144.03	0.30	116,216
RG&E	46,156	722.48	--	283,042
Consumers	11,130	238.68	--	63,887
WEPCO	43,017	462.61	--	336,221
Jersey Central	42,756	463.42	--	233,393
TOTAL	166,759	2,039.23	0.30	1,033,065

RADIOACTIVE WASTE

A. Solid Waste

The radioactive plant waste buried during this quarter consisted of 906.27 cu. ft. containing 17.258 curies. This material was buried in the NRC-licensed burial area.

B. High Level Liquid Waste

As of June 30, 1981, the high level storage tank 8D-2 contained 581,800 gallons of neutralized waste with an activity of 3,732 μCi Cs-137/ml and 28 μCi Cs-134/ml.

FACILITY PERFORMANCE AND MODIFICATIONS

This section describes:

1.0 Major Modifications

1.1 Installed a pH meter and probe in the FRS storage pool area to monitor the pH of the water in the storage pool. The probe is located in the northwest corner of the storage pool. The meter is located on the control panel board in the East Mechanical Operating Aisle.

1.2 Installed a 150-gallon sulfuric acid day tank on the first floor of the low level waste treatment plant.