

NUCLEAR FUEL SERVICES, INC.
WEST VALLEY REPROCESSING PLANT

QUARTERLY REPORT
FOR
JANUARY 1, 1981 THROUGH MARCH 31, 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 first quarter from the perimeter monitoring stations and were analyzed for alpha and beta activity. The alpha activity ranged from $1.36 (10^{-16})$ to $8.27 (10^{-16})$ $\mu\text{Ci/ml}$ for an average of $1.85 (10^{-16})$ $\mu\text{Ci/ml}$. The beta activity ranged from $2.66 (10^{-14})$ to $1.99 (10^{-13})$ $\mu\text{Ci/ml}$ with an average of $7.04 (10^{-14})$ $\mu\text{Ci/ml}$.

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 34 days and treated 2,725,400 gallons of water. Ninety-six (96) 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} $\mu\text{Ci Cs}^{137}/\text{ml}$. Average removal factors for this period are shown below.

<u>Isotope</u>	<u>AVERAGE REMOVAL FACTOR</u>	
	<u>Previous Quarter</u>	<u>This Quarter</u>
Cs-137	72.9	97.3
Sr-90	99.7	Not Yet Available
Ru-Rh-106	Below Detection Limits	Below Detection Limits
Gross Beta	84.1	92.2

During this quarter the Koroseal liner was removed from ion exchange bed 48092-1 because the liner had separated from the wall of the vessel. A 1/8 inch thick fiberglass (HETRON 197) liner, manufactured by Ashland Chemical Corporation, was applied on the vessel interior surfaces.

Table 1
LIQUID EFFLUENTS--1981
(Curies)

Month	Gross α	Gross β	Tritium	Sr ⁹⁰	I ¹²⁹	% MPC ^a Measured In Cattaraugus Creek
Nov	0.00011	0.013	1.22	0.0010	0.00004	0.40
Dec	0.000001	0.00003	0.0010	0.00001	NR ^c	0.42
1980	0.00032	0.050	7.47	0.0055	0.00030	0.50
Jan	0.00004	0.178	681	NA ^b	NA ^b	NA ^b
Feb	0.00011	0.244	834	NA ^b	NA ^b	NA ^b
Mar	0.000001	0.00003	0.0006	NA ^b	NR ^c	NA ^b
1981	0.00015	0.422	1515	NA ^b	NA ^b	NA ^b

^aMPC (β) = $3.0 (10^{-7}) \mu\text{Ci/ml}$ when Sr⁹⁰ analyses are not available
MPC (β) = $1.0 (10^{-5}) \mu\text{Ci/ml}$ when Sr⁹⁰ analyses are included separately
MPC (α) = $5.0 (10^{-6}) \mu\text{Ci/ml}$

^bNot yet available

^cNot required; there were no lagoon 3 effluent releases for the month

Table 2

PARTICULATE GASEOUS EFFLUENTS - 1981

<u>Month</u>	<u>Curies</u>	<u>% Monthly Limit</u>
January	.00016	0.05
February	.00005	0.02
March	.00019	0.08
1981	.00040	0.051

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	1-13, 2-5, 2-24, 3-18	Satisfactory
	XC-3	1-13, 2-5, 2-24, 3-18	Satisfactory
	PPC	1-13, 2-5, 2-24, 3-18	Satisfactory
6.3	Waste Storage Tank Pan Instrumentation		
	8D-1, 8D-2	1-26, 2-16, 3-11	Satisfactory
	8D-3, 8D-4	1-26, 2-16, 3-11	Satisfactory
6.4	Emergency Utility Equipment		
	30T-1	1-22	Satisfactory
	31K-1	1-22	Satisfactory
	32G-4B	1-22	Satisfactory
	31G-2, 2A	2-12	Satisfactory
	31K-2, 2A	2-12	Satisfactory
	32G-2A, 2B	2-12	Satisfactory
	Diesel Fuel	1-5, 1-12, 1-19, 1-26, 2-2, 2-9, 2-16, 2-23, 3-2, 3-9, 3-16, 3-23, 3-30	Satisfactory
	Propane Fuel	1-8, 1-12, 1-20, 1-26, 2-2, 2-9, 2-16, 2-23, 3-2, 3-9, 3-17, 3-24, 3-31	Satisfactory
	15K-10A	1-22	Satisfactory
	15F-21	1-22	Satisfactory
6.5	Filters	1-9, 1-14, 1-23, 1-28, 2-4, 2-11, 2-17, 2-26, 3-6, 3-12, 3-18, 3-23	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	3-31	Satisfactory
6.10	Poisoned Dissolver Baskets	Not required this period	
6.11	Solvent Analysis	Not required this period	

Table 4

FILTER REPLACEMENT

479-402 inlet (roughing) filters, Low Level Waste treatment plant, were replaced on March 26, 1981.

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 March 31, 1981 was 166,759 kilograms of uranium and 1,036,098 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 was no loss 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 period 9/30/80 - 3/31/81 there was a reduction of 1,842 grams of plutonium in stored fuel due to the radioactive decay of the Pu-241 isotope.

Table 5

NUCLEAR FUEL STATUS AS OF MARCH 31, 1981

	Kilograms			Grams
	<u>Total U</u>	<u>U-235</u>	<u>U-233</u>	<u>Total Pu</u>
I. <u>INVENTORY</u> <u>(1/1/81)</u>				
NFS	3,271	8.01	--	306
Dresden-1	20,429	144.03	0.30	116,658
RG&E	46,156	722.48	--	285,272
Consumers	11,130	238.68	--	64,039
WEPCO	43,017	462.61	--	337,652
Jersey Central	42,756	463.42	--	234,013
TOTAL	166,759	2,039.20	0.30	1,037,940
II. <u>RECEIPTS</u> <u>(1/1/81-3/31/81)</u>	No receipts during this period.			
III. <u>REMOVALS</u> <u>(1/1/81-3/31/81)</u>				
A. Measured Waste Lot 27A	0	0	0	0
B. Adjustments Lot 27A	0	0	0	0
C. Loss on Decay	0	0	0	1,842
TOTAL	0	0	0	1,842
IV. <u>INVENTORY</u> <u>(3/31/81)</u>				
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

RADIOACTIVE WASTE

A. Solid Waste

1. The radioactive plant waste buried during this quarter consisted of 1164.55 cu. ft. containing 58.529 curies. This material was buried in the NRC-licensed burial area.

B. High Level Liquid Waste

As of March 31, 1981, the high level storage tank 8D-2 contained 549,900 gallons of neutralized waste with an activity of 3,804 μCi Cs-137/ml and 43 μCi Cs-134/ml.

FACILITY PERFORMANCE AND MODIFICATIONS

This section describes:

1.0 Major modifications that were either initiated or completed at the reprocessing plant during the reporting period.

There were no modifications initiated or completed during this reporting period.

2.0 A description of malfunctions of any equipment listed in Appendices 5.2, 9.51, 9.53, and 9.56 of the final Safety Analysis Report which are important to safety.

There were no malfunctions during the reporting period.