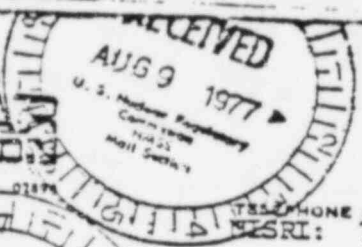


UNITED NUCLEAR CORPORATION



10-222

FUEL RECOVERY OPERATION/WOOD RIVER JUNCTION, R.I. 02878

August 3, 1977

TELEPHONE 401-354-770
NRSRI: 77-106

REGULATORY FILE CY

Director, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406



Gentlemen:

United Nuclear Corporation, Fuel Recovery Operation, Wood River Junction, Rhode Island, operating under Special Nuclear Materials License SNM-777, presents its' semi-annual report of the quantities of radioactive material released to unrestricted areas during the period of January 1, 1977 to July 1, 1977. The principal radionuclide released was highly enriched but unirradiated Uranium (greater than 90% enrichment in the U-235 isotope). This report is provided in compliance with Title 10, Code of Federal Regulations, Part 70, Paragraph 59.

Airborne effluents were measured by continuous sampling of each exhaust stack. Total exhaust flow rates, and an arithmetic average concentration were used to determine the total airborne release. No dilution factors were applied to gaseous effluents.

Liquid effluents were measured at the final collection point. A conservative flow rate of 200,000 liters per day was used to calculate the total flow. No dilution factors were applied.

Conversion of radioactivity counting data into grams of U-235 or microcuries used the conservative value of 143 alpha disintegrations per minute per microgram, and the standard value of 2.22×10^6 disintegrations per minute per microcurie.

All releases were below the limits specified by 10 CFR 20, or by license conditions.

The attached tables summarize the required data.

Very truly yours,
UNITED NUCLEAR CORPORATION

D. F. Cronin
D. F. Cronin
Manager, Nuclear &
Industrial Safety
Fuel Recovery Operation

DFC:rbw

Attachments

cc Director, MIPC
Director, Inspection & Enforcement
NRC, Region I
C. E. Bowers
R. A. Nelson

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Liquid Effluents for the Period January 1, 1977 to July 1, 1977

	<u>Unit</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
U-235 as Gross Alpha	Ci	1.05×10^{-4}	1.56×10^{-4}
Average Concentration	Ci/ml	5.86×10^{-15}	8.56×10^{-15}
Volume of Liquid Released	liters	18,000,000	18,200,000
Percent of Applicable Limit		0.019%	0.029%

*Cooling water before release to river; no dilution factor applied.

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TABLE II

Effluent Semi-Annual Report (January 1, 1977 to July 1, 1977)

Gaseous Effluents - Summation of All Releases

	<u>Unit</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
Total Release as U-235 Airborne Particulates	Microcuries	24.783 μ Ci	34.5 μ Ci
Average Release Rate for Period	Ci/ml/sec	4.96×10^{-26} Ci/ml/sec	6.80×10^{-26} Ci/ml/sec
Percent of Licensed Action Level		15.9%	21.9%
Percent of 10 CFR 20 (rate)		10.1%	13.8%

NOTE: Gaseous effluents are released from 6.2m height. The values listed are the summation of 13 stacks (closely grouped in a 75 x 75 foot square) each sampled continuously. Calculations are based on operations for 13-7 day weeks per quarter, maximum flow rates, and counting results. Values are believed good for two significant figures.

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