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Rockwell
International

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July 17, 1989

In reply refer to 89RC-08857

Mr. John B. Martin, Administrator
Region V Office
U. S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

Dear Mr. Martin:

Subject: Effluent Monitoring Report

As required in 10 CFR 70.59(a), we are submitting the Effluent Monitoring Report for activities conducted at the Rocketdyne Division of Rockwell International under Special Nuclear Materials License SNM-21 for the period from January 1 to June 30, 1989.

Two copies of the report are enclosed for your information and use.

Sincerely yours,

R. J. Tuttle, Manager
Radiation and Nuclear Safety

Enclosures as noted (2 copies)

cc: w/enclosure

Director, Inspection and Enforcement, U. S. Nuclear
Regulatory Commission, Washington, D. C. 20555

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ROCKETDYNE DIVISION EFFLUENT MONITORING REPORT
SPECIAL NUCLEAR MATERIAL LICENSE SNM-21

Effluents which may contain radioactive material are generated at Rocketdyne facilities as the result of operations performed under contract to the U. S. DOE, under U. S. NRC Special Nuclear Material License SNM-21, and under State of California Radioactive Material License 0015-70. The only facility operating under the SNM-21 license is identified as Building 020, the Rockwell International Hot Laboratory (RIHL), at the Santa Susana Field Laboratories site.

Monitoring of effluent for radioactive materials demonstrates that operations conform to NRC regulations and to license conditions regarding releases of such materials to the environment. For comparison with regulatory limits on discharges, we have chosen the most restrictive maximum permissible concentration (MPC) from 10 CFR 20 for radionuclides in use at the facility. All discharges reported for this period were below 1% of the applicable MPC.

A. FACILITY DESCRIPTION

1. Santa Susana Site, SSFL

a. Building 020-NRC and California State Licensed Activities Operations at Building 020 which may generate radioactive effluents consist of hot cell examination and decanning, dismantling, or decladding of irradiated nuclear fuels and examination of reactor components. Only atmospheric emissions are released from the facility to unrestricted areas. No radioactive liquid waste is released from the facility to unrestricted areas. The atmospheric emissions may contain particulate material, as well as radioactive gases, depending on the operations being performed and the history of the irradiated fuel or other material being processed. The chemical form of such materials may be metal, oxide, carbide, or other forms, and may contain mixed fission products and various activation products. Radioactive material handled in unencapsulated form in Building 020 during the first half of 1989 was limited to residual radioactive contamination from prototype demonstrations of Fermi fuel decladding processes, fines produced from the Fermi fuel shroud removal, and also residual contamination from the previous SEFOR and EBR II reactor fuel decladding operations. The major effort conducted at the RIHL during the first half of 1989 involved clean-up and decontamination of examination cells, removal of surplus equipment, and general facility maintenance. The distance from the point of atmospheric release to the nearest site boundary is about 302 meters and is approximately 1900 meters to the nearest offsite structure.

Nearest offsite boundary ground-level concentrations would be lowered by a factor of at least 20000 under the Pasquill Type B moderate instability category, which is representative of the SSFL site.

B. TREATMENT AND HANDLING

Waste streams discharged to unrestricted areas are limited, in all cases, to gaseous emissions.

The levels of radioactivity contained in all atmospheric emissions are reduced to the lowest reasonably achievable values by passing the emissions through certified high-efficiency particulate air (HEPA) filters prior to discharge. The emissions are sampled for entrained particulate radioactive materials by means of continuous stack emission samplers installed at the point of release. In addition, the continuous stack exhaust monitor installed at Building 020 has an automatic alarm capability in the event of a release of radioactivity. The HEPA filters used for filtering gaseous emissions are certified to be 99.97% efficient for removal of 0.3 um diameter particles. Filtration efficiency increases above and below this particle size. The result for the most recent in-place test of the Building 020 main exhaust system performed on November 17, 1988, (was 99.996% particulate removal efficiency.

The semiannual average concentration and total radioactivity in gaseous emissions from NRC licensed facilities discharged to unrestricted areas during the first half of 1989 are shown in the appended table. The value for "Total Radioactivity Discharged" is calculated as the product of discharge volume and average radioactivity concentration, which includes naturally occurring radioactivity in the ambient air.

Unfiltered ambient air is mixed with the HEPA filtered exhaust air as needed to control differential pressures within the various areas of the facility.

GASEOUS EMISSIONS DISCHARGED TO UNRESTRICTED AREAS
FIRST HALF, 1989

January 1 to June 30, 1989

Building	Release Point	Approximate Effluent Flowrate (m ³ /s)	Activity Monitored	Approximate Lower Limit of Detection (uCi/ml)	Release Point Average Concentration (uCi/ml)	+/- Error Estimate* (uCi/ml)	Sampling Period Maximum Observed Concentration (uCi/ml)	Total Radioactivity Discharged (Curies)
T/020	Stack Exit	13	Alpha	3.0×10^{-16}	0.3×10^{-15}	0.4×10^{-15}	0.9×10^{-15}	0.06×10^{-6}
			Beta	3.1×10^{-16}	7.0×10^{-15}	6.0×10^{-15}	1.4×10^{-14}	1.4×10^{-6}
Total:								1.5×10^{-6}

NOTE: Local ambient airborne radioactivity concentrations averaged for the reporting period were 1.3×10^{-15} uCi/ml alpha and 2.6×10^{-14} uCi/ml beta.

The lower limit of detection was calculated for single measurements, using the method of U. S. NRC Regulatory Guide 4.16. The average concentrations are based on arithmetic averages of 25 measurements each for alpha and beta activity, including values below the LLD and below the analytical background (negative values).

*-Calculated at the 95% uncertainty level.