

Permit

LANL (TA-50 NPDES)

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: December 23, 1999
In Reply Refer To: ESH-18/WQ&H:99-0484
Mail Stop: K497
Telephone: (505) 665-1859

Mr. Steve Yanicak
New Mexico Environment Department
DOE-Oversight Bureau
P.O. Box 1663, MS J993
Los Alamos, New Mexico 87545

SUBJECT: Radioactive Effluent Quality at NPDES Outfall 051, Building 1, October 1999

Dear Mr. Yanicak:

On December 22, 1999, the Los Alamos National Laboratory's Water Quality and Hydrology Group (ESH-18) received a letter from you with concerns regarding the "Radioactive Effluent Quality At NPDES Outfall 051, TA-50, Building 1, October 1999" Report (See Enclosure 1). Specifically, you were concerned with the following statement in the report: "There were no exceedances of DCGs during the monitoring period".

DOE Order 5400.5 requires that to meet the Derived Concentration Guidelines (DCGs) for discharges containing multiple radionuclides, the sum of their respective fractional DCG values must equal less than one. The effluent from NPDES Outfall 051 met the DCGs for the individual isotopes in October 1999, however, the sum of their respective fractional DCG values was greater than one. I have enclosed a revised "Radioactive Effluent Quality At NPDES Outfall 051, TA-50, Building 1, October 1999" Report for your files (Enclosure 2).

Please call me at 665-1859 or Mike Saladen at 665-6085 if you have questions or need additional information.

Sincerely,

for 
Steven Rae
Group Leader
Water Quality and Hydrology Group

LA 7-100-1663-MS J993



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State of New Mexico
ENVIRONMENT DEPARTMENT
DOE OVERSIGHT BUREAU
P.O. Box 1663, MS/J-993
Los Alamos, New Mexico 87545



GARY JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

Steve Rae
Water Quality and Hydrology Group Leader
ESH-18/WQ&H
MS: K497
Los Alamos, NM 87545

December 22, 1999

Re: **Radioactive Effluent Quality at NPDES Outfall 051, TA-50, Building 1, October, 1999; (ESH-18/WQ&H:99-0467)**

Dear Mr. Rae:

On December 15, 1999, the New Mexico Environment Department, Department of Energy Oversight Bureau received the letter, dated December 9, 1999, referenced above. The letter reported the TA-50 radioactive effluent quality data as monthly average concentrations of nine radioisotopes and compared them with the corresponding DOE Derived Concentration Guideline (DCG) value.

We are pleased to see that the recent modifications to the TA-50 treatment system has enabled the facility to reduce the average concentration of the isotopes discharged to levels below their individual DCGs. However, we question the statement "There were no exceedances of DCGs during the monitoring period". It is our understanding that DOE Order 5400.5 requires that to meet the DCG for discharges containing multiple radionuclides, the sum of their respective fractional DCG values must equal less than one.

While monthly average concentrations of individual isotopes were indeed less than their individual DCGs, the sum of their fractional DCG values was 2.16 (see Table 1). The majority of this was due to the fractional DCG values for Pu-238 (0.70), Pu-239 (0.77), and Am-241 (0.57) which total 2.04.

Please let me know if you agree or disagree with our interpretation of DOE Order 5400.5 as it applies to waste streams containing multiple radionuclides and the appropriate DCG. Contact me at 667-0448 or Ralph Ford-Schmid at 827-1536 if you have any questions on this issue. We will look forward to your response.

Sincerely,

Steve Yanicak,
Point of Contact/LANL,
NMED, DOE OB

SY: rfs

cc: w/enclosures

John Parker, Chief, NMED, DOE OB
Jim Davis, Chief, NMED, SWQB
Marcy Leavitt, Chief, NMED, GWQB
Carl Sykes, DOE/AIP/POC, MS: A316

Table 1 (Modified from ESH-18/WQ&H:99-0467, December 9, 1999)

Species	DCG as (Ci/L)	Effluent as (Ci/L)	Fractional DCG Value
Sr-89	20.0 E-9	10.0 E-12	5.0 E-4
Sr-90	1.0 E-9	19.0 E-12	1.9 E-2
Tritium	2.0 E-6	7.4 E-9	3.7 E-3
U-234	500.0 E-12	25.0 E-12	5.0 E-2
U-235	5.0 E-9	0.1 E-12	2.0 E-5
Cs-137	3.0 E-9	150.0 E-12	5.0 E-2
Pu-238	40.0 E-12	28.0 E-12	7.0 E-1
Pu-239	30.0 E-12	23.0 E-12	7.7 E-1
Am-241	30.0 E-12	17.0 E-12	5.7 E-1
		Sum of Fractional DCGs for Pu-238, Pu-239 & Am-241	2.04
		Sum of Fractional DCGs for all Isotopes	2.16

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Mr. David Gurule
Area Manager
U.S. Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico 87544

Date: December 22, 1999
In Reply Refer To: ESH-18/WQ&H:99-0480
Mail Stop: K497
Telephone: (505) 665-1859

Mr. Joseph Vozella
Assistant Area Manager
Office of Environment
U.S. Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico 87544

**SUBJECT: RADIOACTIVE EFFLUENT QUALITY AT NPDES OUTFALL 051,
TA-50, BUILDING 1, OCTOBER, 1999 - REVISED REPORT**

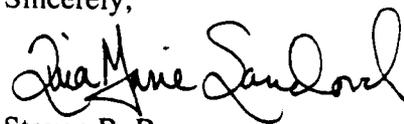
Dear Messrs. Gurule and Vozella:

Enclosed is the monthly monitoring report pertaining to NPDES Outfall 051 for radioactive effluent quality data. This report includes the monthly value (monthly average) compared with the DOE Derived Concentration Guidelines (DCG) value for each parameter analyzed. The monthly values are equal composites of all discharges that occurred during the month. Please note, this report also includes radioactive influent data for the TA-50 Treatment Facility and percent removal.

There were a total of 22 releases (1,739,283 Liters) to Mortandad Canyon during the monitoring period from the TA-50 Treatment Facility. There were no exceedances of DCGs for individual radionuclides during the monitoring period. However, the sum of the fractions for the radionuclides exceeded the DCG value of 1.

Please contact me at 665-1859 or Mike Saladen at 665-6085 if you have any questions or need additional information.

Sincerely,


for Steven R. Rae
Group Leader
Water Quality and Hydrology Group

SR:MS/em

Enclosures: a/s

Cy: J. Parker, NMED/DOE OB, Santa Fe, New Mexico, w/enc.
J. Davis, NMED/SWQB, Santa Fe, New Mexico, w/enc.
B. Hoditchek, NMED/SWQB, Santa Fe, New Mexico, w/enc.
T. Gunderson, DIR, w/enc., MS A100
A. Stanford, FWO-DO/DD, w/enc., MS K492
D. McLain, FWO-RLW, w/enc., MS J595
D. Moss, FWO-RLW, w/enc., MS E518
D. Hall, FWO-RLW, w/enc., MS E518
D. Erickson, ESH-DO/DD, w/enc., MS K491
M. Saladen, ESH-18, w/enc., MS K497
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

TA50 -1 EFFLUENT DISCHARGE & REMOVAL for OCTOBER, 1999

Issued 7 Dec 1999 3:58:13 p.m.

Species	Guideline as (uCi/ml)	Guideline as (Ci/L)	Effluent (Ci/L)	Exceeded	Influent (Ci/L)	% Removal
Sr-89	2.0e-5	20.0e-9	10.0e-12		0.4e-12	
Sr-90	1.0e-6	1.0e-9	19.0e-12		3.9e-12	
TRITIUM	0.002	2.0e-6	7.4e-9			
U-234	5.0e-7	500.0e-12	25.0e-12		290.0e-12	91.379
U-235	5.0e-6	5.0e-9	0.1e-12		15.0e-12	99.333
Cs-137	3.0e-6	3.0e-9	150.0e-12		140.0e-12	
Pu-238	4.0e-8	40.0e-12	28.0e-12		20.0e-9	99.86
Pu-239	3.0e-8	30.0e-12	23.0e-12		19.0e-9	99.879
Am-241	3.0e-8	30.0e-12	17.0e-12		9.6e-9	99.823

22 discharges in OCTOBER, 1999

1,739,283 liters (volume) discharged