

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: June 2, 1999
In Reply Refer To: ESH-18/WQ&H:99-0188
Mail Stop: K497
Telephone: (505) 665-1859



Mr. John Young
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

**SUBJECT: LOADING CALCULATIONS FOR LAND APPLICATION OF R-25
DRILLING AND DEVELOPMENT WATER**

Dear Mr. Young:

Enclosed per your request are the loading calculations for the containerized water to be land applied at the R-25 well site. This information was provided to you by fax on May 21, 1999. Soil samples collected prior to land application indicate no High Explosives (HE) or Mercury (Hg) contamination at detectable levels.

Please call Harvey Decker at 665-2014 of the Laboratory's Water Quality and Hydrology Group (ESH-18) if additional information would be helpful.

Sincerely,

A handwritten signature in black ink that reads "Steven Rae".

Steven Rae
Group Leader
Water Quality and Hydrology Group

SR:HD/rj

Enclosures: a/s

Cy: B. Hoditschek, NMED/SWQB, w/enc., Santa Fe, New Mexico
P. Bustamante, NMED/GWPB, w/enc., Santa Fe, New Mexico
J. Kieling, NMED/HRMB, w/enc., Santa Fe, New Mexico
S. Yanicak, NMED DOE OB, w/enc., MS J993
D. Broxton, EES-1, w/enc., MS D462
R. Bohn, EM-ER, w/o enc., MS M992
C. Nylander, ESH-18, w/o enc., MS K497
S. Veenis, ESH-18, wo/enc., MS K497
M. Saladen, ESH-18, wo/enc., MS K497
H. Decker, ESH-18, wo/enc., MS K497
WQ&H File, w att., MS K497
CIC-10, w/enc., MS A150



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R-25 LAND APPLICATION LOADING CALCULATION
AVERAGE VALUE FOR WATER PREVIOUSLY APPLIED AND WATER TO BE APPLIED

GIVEN

100,000 ft² land application area

40.5 µg/l RDX as the average of the highest measured concentration in the storage tanks
(49 µg/l + 32 µg/l = 81 µg/l / 2 = **40.5 µg/l**)

ASSUMING

146,000 gallons total discharge

Currently there are 78,000 gallons in storage, 68,000 have been applied to date.

USING

1 GALLON = 3.785 LITERS

1 FOOT² = 929 CM²

1000 CM³ = 1 LITER

CALCULATE

146,000 gal/100,000 ft² = 1.46 gal/ft²

1.46 gal * 3.785 * 10³ cm³/gal = 5526.1 cm³

OR

5526.1 cm³/929 cm² = 5.94 cm³/cm²

5.94 cm³/cm² * 40.5 µg/1000cm³ = 0.24 µg/cm²

R-25 LAND APPLICATION LOADING CALCULATION
TOTAL VALUE FOR WATER PREVIOUSLY APPLIED AND WATER TO BE APPLIED

GIVEN

100,000 ft² land application area

81 µg/l RDX as the total of the highest measured concentration in the storage tanks
(49 µg/l + 32 µg/l = **81 µg/l**)

ASSUMING

146,000 gallons total discharge

Currently there are 78,000 gallons in storage, 68,000 gallons have been applied to date.

USING

1 GALLON = 3.785 LITERS

1 FOOT² = 929 CM²

1000 CM³ = 1 LITER

CALCULATE

146,000 gal/100,000 ft² = 1.46 gal/ft²

1.46 gal * 3.785 * 10³ cm³/gal = 5526.1 cm³

OR

5526.1 cm³/929 cm² = 5.94 cm³/cm²

5.94 cm³/cm² * 81 µg/1000cm³ = 0.48 µg/cm²

R-25 LAND APPLICATION LOADING CALCULATION
AVERAGE VALUE FOR WATER PREVIOUSLY APPLIED AND WATER TO BE APPLIED

GIVEN

100,000 ft² land application area

0.38 µg/l Hg as the average of the highest measured concentration in the storage tanks.
(.61 µg/l + .16 µg/l = .77 µg/l/2 = **0.38 µg/l**)

ASSUMING

146,000 gallons total discharge

Currently there are 78,000 gallons in storage, 68,000 gallons have been applied to date.

USING

1 GALLON = 3.785 LITERS

1 FOOT² = 929 CM²

1000 CM³ = 1 LITER

CALCULATE

146,000 gal/100,000 ft² = 1.46 gal/ft²

1.46 gal * 3.785 * 10³ cm³/gal = 5526.1 cm³

OR

5526.1 cm³/929 cm² = 5.94 cm³/cm²

5.94 cm³/cm² * 0.38 µg/1000cm³ = 0.0022 µg/cm² of Hg

R-25 LAND APPLICATION LOADING CALCULATION
TOTAL VALUE FOR WATER PREVIOUSLY APPLIED AND WATER TO BE APPLIED

GIVEN

100,000 ft² land application area

0.77 µg/l Hg as the total of the highest measured concentration in the storage tanks.
(.61 µg/l + .16 µg/l = **0.77 µg/l**)

ASSUMING

146,000 gallons total discharge

Currently there are 78,000 gallons in storage, 68,000 gallons have been applied to date.

USING

1 GALLON = 3.785 LITERS

1 FOOT² = 929 CM²

1000 CM³ = 1 LITER

CALCULATE

146,000 gal/100,000 ft² = 1.46 gal/ft²

1.46 gal * 3.785 * 10³ cm³/gal = 5526.1 cm³

OR

5526.1 cm³/929 cm² = 5.94 cm³/cm²

5.94 cm³/cm² * 0.77 µg/1000cm³ = 0.0046 µg/cm² of Hg