Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: April 16, 1998
In Reply Refer To: ESH-18/WQ&H:98-0127
Mail Stop: K497
Telephone: (505) 665-1859

ENTERED

APR

HSWA LANL 5/1154/57

Mr. Roger Anderson
Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
2040 South Pacheco Street
Santa Fe, New Mexico 87505

SUBJECT: LOS ALAMOS NATIONAL LABORATORY, MILAGRO PROJECT AT FENTON HILL, REVISED NOTICE OF INTENT TO DISCHARGE

Dear Mr. Anderson:

Per your April 14, 1998, recommendation (personal communication with Bob Beers, Water Quality and Hydrology Group), Los Alamos National Laboratory (Laboratory) is submitting for your approval a revised Milagro Project Notice of Intent to Discharge (NOI) which contains a new land application site. The new land application site is approximately seven acres of undisturbed Forest Service land. As you know, the water to be applied is treated water from the facility's water supply well. Please see the enclosed site map and revised NOI.

At the request of Ms. Barbara Hoditschek, New Mexico Environment Department, Surface Water Quality Bureau, the Laboratory conducted a surface water site assessment of the new land application site on April 15, 1998 (See the enclosed LANL-ER-AP-4.5). The assessor, Mr. Terrill Lempke, Merrick & Company, determined that the potential for soil erosion is very low due to the extensive vegetative cover, low slopes, and the presence of natural BMPs. The matrix score assigned to the site was 8.8 out of 100. Sites with scores below 40 are considered to have low potential for erosion and surface water quality concerns.

Due to programmatic deadlines, the Milagro Project needs to begin draining the treated water from five-million gallon pond as soon as possible. Please notify the Laboratory at your earliest convenience if this NOI meets with your approval.

Please call Bob Beers at 667-7969 if you need additional information regarding this NOI.

Sincerely,

Steven Rae
Group Leader
Water Quality and Hydrology Group

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TC

NOTICE OF INTENT TO DISCHARGE
(Revised: April 16, 1998)

1. Name and address of the facility making the discharge.

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

2. Location of discharge.

Milagro Project at Fenton Hill
Sandoval County, New Mexico
NE 1/4 Section 13, T19N, R2E (New Mexico Principal Meridian)
1,776,000 N, 374,000 E (New Mexico State Plane Grid)

3. Project description.

Since 1995, Los Alamos National Laboratory and a number of academic institutions have operated an astrophysical observatory, called the Milagro Project, at Fenton Hill. Using light sensitive detectors submerged in a five-million gallon pond (lined and covered), the observatory records signals from high-energy cosmic emissions. In order to minimize interference, the water in the pond has been filtered (carbon and media filters), and softened through ion exchange. Fill and make-up water for the Milagro Project is provided by the facility's water supply well. Currently, the pond contains approximately 2.5 million gallons of purified water.

In April 1998, it will be necessary for the Milagro Project to drain the pond. The Laboratory proposes to drain the pond by applying the water to approximately 7 acres of Forest Service land adjacent to the facility. A map has been attached showing the location of the proposed application area. The U.S. Forest Service, Jemez Ranger District, has approved the discharge, contingent upon NMED approval (See attached letter from Mr. John F. Peterson, Jemez Ranger District, to Mr. Steven Rae, Los Alamos National Laboratory, April 6, 1998).

4. The means of discharge (to lagoon, flowing stream, water course, arroyo, septic tank, other).

The discharge will be applied to the surface of approximately 7 acres of land within the boundaries of the Santa Fe National Forest. The method of land application is described below.

1. PVC pipes will serve as headers to deliver water from the pond throughout the application area.
2. Along each header, standard garden hoses will be attached.
3. At the end of each garden hose an impact-type (Rain Bird) sprayer will be installed. The sprayer will be set to maximum fog (to maximize evaporation) with a discharge rate of approximately 2-4 gallons per minute (gpm).
4. Sprayer locations and application rates will be chosen so as to minimize ponding and to prevent runoff from entering a water course.
5. The rate of application will be 100 gpm. Land application will be conducted 24 hours per day. The estimated duration of land application will be 18 days.
6. The land application site will be monitored during working hours. If ponding or runoff occurs, the offending sprayers will be turned off or moved.

BB:SR/mv

Enclosures: a/s

Cy: J. Peterson, Jemez Ranger District, Jemez Springs, New Mexico, w/enc.
W. Whatley, Jemez Pueblo, New Mexico, w/enc.
G. Suazo, CIO, w/enc., MS A117
P. Bustamante, NMED/GWQB, Santa Fe, New Mexico, w/enc.
B. Hoditschek, NMED/SWQB, Santa Fe, New Mexico, w/enc.
J. Keiling, NMED/HRMB, Santa Fe, New Mexico, w/enc.
B. Koch, DOE/LAAO, w/enc., MS A316
G. Sinnis, P-23, w/enc., MS H803
L. Rowton, P-FM, w/enc., MS D459
D. Thomas, P-FM, w/enc., MS D459
B. Beers, ESH-18, w/enc., MS K497
N. Williams, ESH-18, w/enc., MS K497
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

5. **The estimated concentration of contaminants in the discharge.**

Six (6) samples of Milagro Project pond water, MGRO-12, MGRO-13, MGRO-14, MGRO-15, MGRO-16, and MGRO-17, were collected on December 12, 1997, and submitted to Assaigai Analytical Laboratories, Inc. for analysis for total metals, cyanide, nitrate, general chemistry, semi-volatile organic compounds, and volatile organic compounds, respectively. The enclosed Table 1.0 summarizes the analytical results. In addition, a copy of Assaigai's analytical report has been enclosed.

The Milagro Project pond water does not exceed any of the NMWQCC 3101. Surface Water Standards (See Table 1.0).

Two contaminants, boron (B) and chloride (Cl), are present in Milagro Project pond water at concentrations exceeding NMWQCC Ground Water Standards (See Table 1.0). Boron concentrations in the pond water (1.4 mg/L) can be attributed to the facility's water supply well since none of the Milagro Project's treatment operations introduce boron.

Chloride concentrations in the pond water (266 mg/L) marginally exceed the NMWQCC 3103. Ground Water Standard of 250 mg/L (See Table 1.0). The source of the chloride is presumed to be the water softener since testing of the facility's water supply well in 1995 showed chloride (Cl) concentrations at 36 mg/L.

6. **The type of operation from which the discharge derived.**

Astrophysical observatory (See #3-Project Description).

7. **The estimated flow to be discharged per day.**

Approximately 144,000 gallons per day. The total volume of water to be discharged is approximately 2.5 million gallons.

The proposed discharge of approximately 2.5 million gallons of water is equal to approximately 7.67 acre-feet of water. Since water is being land applied to 7 acres of land, the Laboratory will be applying approximate 13.1 inches of water over an 18-day period (minus evaporation), or approximately 0.73 inches of water per day (minus evaporation).

8. **The estimated depth to ground water (if available).**

The depth to the top of the aquifer at the site is approximately 370 ft (113m). Water level measurements in observation wells in the immediate area of the site indicate that the water table is nearly flat.

Signed_____ **Date** April 16, 1998

Steven Rae
Group Leader
Water Quality and Hydrology Group

Table 1.0

Milagro Project at Fenton Hill
Water Quality Data
5 MG Pond Water
Sample Date: 12/12/97
Sample Type: total, unfiltered

Analyte	Results (mg/L)	NM WQCC 3103 Ground Water Standards (mg/L)	NM WQCC 3101 Surface Water Standards (mg/L)
Al	<0.5	5.0	5.0
As	<0.06	0.1	0.2
Ba	<0.01	1.0	
Be	<0.004		0.1
B	**1.4**	**0.75**	**5.0**
Cd	<0.008	0.01	0.05
CN	<0.02	0.2	0.22
Cr	<0.04	0.05	1.0
Co	<0.01	0.05	1.0
Cu	<0.04	1.0	0.5
Fe	<0.2	1.0	
Total Hg	<0.0002	0.002	0.000012
Pb	<0.06	0.05	0.1
Mn	<0.01	0.2	
Mo	<0.02	1.0	
Ni	<0.04	0.2	
Total Recoverable Se	<0.005	0.05	0.002
Ag	<0.02	0.05	
Tl	<0.3		
U	0.0029	5.0	
Zn	0.7	10.0	25.0
Nitrate-N	<0.2	10.0	
pH (standard units)	7.8	between 6 and 9	between 6 and 9
TDS	770	1000.0	
TSS	<4.0		
Chloride	**266**	**250.0**	
Fluoride	<0.5	1.6	
Sulfate	14.7	600.0	
Semi-volatiles			
SW846-8270	Non-detect		
Volatiles			
SW846-8240	Non-detect		

Certificate of Analysis

Client: **LOS ALAMOS NATIONAL LABS**
Project: **9712126 FENTON HILL**

Client Sample ID **MGRO 11B** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			EPA-160 series						
12/12/97	9712126-14A	WTDS-435	Total Dissolved Solids	9930	mg / L	10		MT.1997.476 - 9	12/16/97

Client Sample ID **MGRO 11C** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			EPA-160 series						
12/12/97	9712126-15A	WTDS-435	Total Dissolved Solids	12550	mg / L	10		MT.1997.476 - 10	12/16/97

Client Sample ID **MGRO 12** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			ASTM V 11.01/02						
12/12/97	9712126-16A	MT.1998.91	Uranium, total	0.0029	mg/L	0.0001		MT.1998.91 - 3	01/09/98
			EPA-200 series AA-GF						
12/12/97	9712126-16A	M97914	Molybdenum	< 0.02	mg / L	0.02		MW.1997.1044 - 13	12/23/97
		M97914	Selenium	< 0.005	mg / L	0.005		MW.1998.6 - 16	01/05/98
			EPA-200.7 ICP						
12/12/97	9712126-16A	M97927	Aluminum	< 0.5	mg / L	0.5		MW.1998.1 - 26	12/31/97
		M97927	Arsenic	< 0.06	mg / L	0.06		MW.1998.1 - 26	
		M97927	Barium	< 0.01	mg / L	0.01		MW.1998.1 - 26	
		M97927	Beryllium	< 0.004	mg / L	0.004		MW.1998.1 - 26	
		M97927	Boron	1.4	mg / L	0.1		MW.1998.21 - 26	01/06/98
		M97927	Cadmium	< 0.008	mg / L	0.008		MW.1998.1 - 26	12/31/97
		M97927	Chromium	< 0.04	mg / L	0.04		MW.1998.1 - 26	
		M97927	Cobalt	< 0.01	mg / L	0.01		MW.1998.1 - 26	
		M97927	Copper	< 0.04	mg / L	0.04		MW.1998.1 - 26	
		M97927	Iron	< 0.2	mg / L	0.2		MW.1998.21 - 26	01/06/98
		M97927	Lead	< 0.06	mg / L	0.06		MW.1998.21 - 26	
		M97927	Manganese	< 0.010	mg / L	0.01		MW.1998.1 - 26	12/31/97
		M97927	Nickel	< 0.04	mg / L	0.04		MW.1998.1 - 26	
		M97927	Silver	< 0.02	mg / L	0.02		MW.1998.1 - 26	
		M97927	Thallium	< 0.3	mg / L	0.3		MW.1998.1 - 26	
		M97927	Zinc	0.7	mg / L	0.1	B	MW.1998.21 - 26	01/06/98
			SW846-7470 / EPA-245.1						
12/12/97	9712126-16A	M97925	Mercury	< 0.0002	mg / L	0.0002		MW.1997.1051 - 17	12/24/97

Client Sample ID **MGRO 13** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			EPA-335 / SM-4500						
12/12/97	9712126-17A	W97547	Cyanide	< 0.02	mg / L	0.02		MW.1997.1027 - 13	12/17/97

Client Sample ID **MGRO 14** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			EPA-300 series						
12/12/97	9712126-18A	W97543	Nitrate, Nitrogen	< 0.2	mg N/ L	0.2		MW.1997.1025 - 18	12/16/97

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Client: **LOS ALAMOS NATIONAL LABS**
Project: **9712126 FENTON HILL**

Client Sample ID **MGRO 15** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			EPA-150.1						
12/12/97	9712126-19A	WPH-573	pH	7.8	units	0.1		MT.1997.446 - 3	12/13/97
			EPA-160 series						
12/12/97	9712126-19A	WTDS-435	Total Dissolved Solids	770	mg / L	10		MT.1997.476 - 11	12/16/97
		WTSS-494	Total Suspended Solids	< 4.0	mg / L	4		MT.1997.469 - 9	12/17/97
			EPA-300 series						
12/12/97	9712126-19A	W97543	Chloride	266	mg / L	0.5		MW.1997.1025 - 24	12/16/97
		W97543	Fluoride	< 0.5	mg / L	0.5		MW.1997.1025 - 15	
		W97543	Sulfate	14.7	mg / L	0.5		MW.1997.1025 - 15	

Client Sample ID **MGRO 16** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			SW846-8270 / EPA-625 Semi-Volatiles						
12/12/97	9712126-20A	X97468	1,2,4-Trichlorobenzene	< 2.0	ug / L	1		XG.1997.373 - 12	12/19/97
		X97468	1,2-Dichlorobenzene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	1,3-Dichlorobenzene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	1,4-Dichlorobenzene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	1-Methylnaphthalene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2,3,4,6-Tetrachlorophenol	< 100	ug / L	50		XG.1997.373 - 12	
		X97468	2,4,5-Trichlorophenol	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2,4,6-Trichlorophenol	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2,4-Dichlorophenol	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2,4-Dimethylphenol	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2,4-Dinitrophenol	< 100	ug / L	50		XG.1997.373 - 12	
		X97468	2,4-Dinitrotoluene	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2,6-Dinitrotoluene	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2-Chloronaphthalene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2-Chlorophenol	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2-Methylnaphthalene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2-Methylphenol	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	2-Nitroaniline	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	2-Nitrophenol ccc	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	3+4 Methylphenol	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	3,3'-Dichlorobenzidine	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	3-Nitroaniline	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	4,6-Dinitro-2-methylphenol	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	4-Bromophenyl-phenylether	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	4-Chloro-3-methylphenol	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	4-Chloroaniline	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	4-Chlorophenyl-phenylether	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	4-Nitroaniline	< 20	ug / L	10		XG.1997.373 - 12	
		X97468	4-Nitrophenol	< 41	ug / L	20		XG.1997.373 - 12	
		X97468	Acenaphthene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	Acenaphthylene	< 2.0	ug / L	1		XG.1997.373 - 12	
		X97468	Aniline	< 20	ug / L	10		XG.1997.373 - 12	

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Project: **9712126 FENTON HILL**

12/12/97	9712126-20A	X97468	Anthracene	< 2.0	ug / L	1	XG 1997 373 - 12	12/19/97
		X97468	Azobenzene&1,2-Diphenylhydrazine	< 2.0	ug / L	1	XG 1997 373 - 12	
		X97468	Benzo (a) anthracene	< 2.0	ug / L	1	XG 1997 373 - 12	
		X97468	Benzo(a)pyrene	< 2.0	ug / L	1	XG 1997 373 - 12	
		X97468	Benzo(b & k)fluoranthene	< 2.0	ug / L	1	XG 1997 373 - 12	
		X97468	Benzo(g,h,i)perylene	< 20	ug / L	10	XG 1997 373 - 12	
		X97468	Benzoic acid	< 200	ug / L	100	XG 1997 373 - 12	
		X97468	Benzyl alcohol	< 100	ug / L	50	XG 1997 373 - 12	
		X97468	bis (2-Chloroethyl) ether	< 2.0	ug / L	1	XG.1997 373 - 12	
		X97468	bis(2-Chloroethoxy)methane	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	bis(2-Chloroisopropyl)ether	< 2.0	ug / L	1	XG.1997 373 - 12	
		X97468	bis(2-Ethylhexyl)phthalate	< 20	ug / L	10	XG.1997.373 - 12	
		X97468	Butylbenzylphthalate	< 2.0	ug / L	1	XG.1997 373 - 12	
		X97468	Chrysene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	di-n-Butylphthalate	< 20	ug / L	10	XG.1997 373 - 12	
		X97468	di-n-Octylpthalate	< 20	ug / L	10	XG.1997.373 - 12	
		X97468	Dibenz(a,h)anthracene	< 20	ug / L	10	XG.1997.373 - 12	
		X97468	Dibenzofuran	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Diethylphthalate	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Dimethylphthalate	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Fluoranthene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Fluorene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Hexachlorobenzene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Hexachlorobutadiene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Hexachlorocyclopentadiene	< 100	ug / L	50	XG.1997 373 - 12	
		X97468	Hexachloroethane	< 2.0	ug / L	1	XG.1997 373 - 12	
		X97468	Indeno(1,2,3-cd)pyrene	< 20	ug / L	10	XG.1997.373 - 12	
		X97468	Isophorone	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	n-Nitroso-di-n-propylamine	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	n-Nitroso-dimethyl-amine	< 20	ug / L	10	XG.1997 373 - 12	
		X97468	n-Nitrosodiphenylamine	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Naphthalene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Nitrobenzene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Pentachlorophenol	< 20	ug / L	10	XG.1997.373 - 12	
		X97468	Phenanthrene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Phenol	< 20	ug / L	10	XG 1997.373 - 12	
		X97468	Pyrene	< 2.0	ug / L	1	XG.1997.373 - 12	
		X97468	Pyridine	< 20	ug / L	10	XG.1997 373 - 12	

Client Sample ID **MGRO 17** Sample Matrix **WATER**

Collect	Fraction	QC Group	Analyte	Result	Units	Limit	*	Run Group - #	Run Date
			SW846-8240 Volatiles						
12/12/97	9712126-21A	X97483	1,1 Dichloroethane	< 1.0	ug / L	1		XG.1997.380 - 9	12/24/97
		X97483	1,1 Dichloroethene	< 1.0	ug / L	1		XG.1997.380 - 9	
		X97483	1,1,1 Trichloroethane	< 1.0	ug / L	1		XG.1997.380 - 9	
		X97483	1,1,1,2 Tetrachloroethane	< 1.0	ug / L	1		XG.1997.380 - 9	
		X97483	1,1,2 Trichloroethane	< 1.0	ug / L	1		XG.1997.380 - 9	
		X97483	1,1,2,2 Tetrachloroethane	< 1.0	ug / L	1		XG.1997.380 - 9	

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Client: **LOS ALAMOS NATIONAL LABS**

Project: **9712126 FENTON HILL**

12/12/97	9712126-21A	X97483	1,2 Dibromoethane (EDB)	< 1.0	ug / L	1	XG.1997.380 - 9	12/24/97
		X97483	1,2 Dichlorobenzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	1,2 Dichloroethane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	1,2 Dichloropropane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	1,2,3 Trichloropropane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	1,3 Dichlorobenzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	1,4 Dichloro-2-butene	< 10	ug / L	10	XG.1997.380 - 9	
		X97483	1,4 Dichlorobenzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	2-Butanone (MEK)	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	2-Chloroethylvinylether	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	2-Hexanone (MBK)	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	4-Methyl-2-pentanone (MIBK)	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Acetone	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Acrolein	< 20	ug / L	20	XG.1997.380 - 9	
		X97483	Acrylonitrile	< 20	ug / L	20	XG.1997.380 - 9	
		X97483	Benzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Bromodichloromethane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Bromoform	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Bromomethane	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Carbon disulfide	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Carbon tetrachloride	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Chlorobenzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Chlorodibromomethane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Chloroethane	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Chloroform	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Chloromethane	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	cis-1,2 dichloroethene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	cis-1,3 dichloropropene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Dibromomethane	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Ethyl methacrylate	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Ethylbenzene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Freon 113	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Freon 12	< 10	ug / L	10	XG.1997.380 - 9	
		X97483	Iodomethane	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Methyl t-butyl ether (MTBE)	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Methylene chloride	< 10	ug / L	10	XG.1997.380 - 9	
		X97483	o-Xylene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	p/m Xylenes	< 2.0	ug / L	2	XG.1997.380 - 9	
		X97483	Styrene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	t-1,2 Dichloroethene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	t-1,3 Dichloropropene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Tetrachloroethene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Toluene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Trichloroethene	< 1.0	ug / L	1	XG.1997.380 - 9	
		X97483	Trichlorofluoromethane	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Vinyl acetate	< 5.0	ug / L	5	XG.1997.380 - 9	
		X97483	Vinyl chloride	< 5.0	ug / L	5	XG.1997.380 - 9	

UNITED STATES
DEPARTMENT OF
AGRICULTURE

FOREST
SERVICE

JEMEZ RANGER DISTRICT
P.O. BOX 150
JEMEZ SPRINGS, N.M. 87025
505-829-3535

Reply: 2720

Date: April 6, 1998

Steven Rae
Group Leader
Water Quality and Hydrology Group
ESH-18/WQ&H Mail Stop K497

Re: LANL Notice of Intent to Discharge, Milagro Project, Fenton Hill
Jemez Ranger District, Santa Fe National Forest

Dear Mr. Rae,

This letter is in reference to LANL's proposal for a one-time water discharge at Fenton Hill of approximately 2.5 million gallons of purified water from the Milagro Project's five million gallon pond. The water is to be land applied to National Forest System Land by a temporary sprinkler irrigation system. The State of New Mexico is delegated the authority to administer the Federal laws in regard to clean water. I therefore approve the proposed water discharge provided that the discharged water quality meets all applicable State and Federal laws, as indicated by an approved Notice of Intent by the New Mexico Environmental Department, Surface Water Quality Bureau.

I trust that this will meet your needs. Please call Diane Tafoya or Dennis Trujillo at (505) 829-3535, if you have any questions.

Sincerely,

Bonnie L. Herrera

FOR JOHN F. PETERSON
District Ranger

Los Alamos National Laboratory

Environment, Safety and Health Division
ESH-18 Water Quality and Hydrology Group

AP 4.5 Surface Water Assessment Erosion Matrix for [redacted].

Land application site for water from Milagro Facility (Fenton Hill)

CRITERIA EVALUATED	Value	Erosion/Sediment Transport Potential Low 0.1	Medium 0.5	High 1.0	Calculated Score
Site Setting (43)					
On mesa top	1	Defined based on topographic setting			1.0
Within bench of canyon	4				
Within the canyon floodplain but not watercourse	13				
Within bottom of canyon channel in watercourse	17				
Estimated % ground and canopy cover	13	>75%	25-75%	<25%	1.3
Slope	13	0-10%	10-30%	>30%	6.5
Surface Water Factors-Run-off (46)					
Visible evidence of runoff discharging? (Yes/No)	5	If no, score of 0 for runoff section.			0.0
		If yes, score 5 and proceed with section.			
Where does runoff terminate?	19	Other	Bench Setting	Drainage/Wetland	0.0
Has runoff caused visible erosion? (Yes/No)	22	Sheet	Rill	Gully	0.0
		If no, score as 0. If yes, calculate as appropriate.			
Surface Water Factors-Run-on (11)					
Structures adversely affecting run-on (Yes/No)	7*	If yes, score as 7. If no, score as 0.			0.0
Current operations adversely impacting (Yes/No)	4	If yes, score as 4. If no, score as 0.			0.0
Natural drainages onto site (Yes/No)	7*	If yes, score as 7. If no, score as 0.			0.0
**Select either structures or natural drainages.*					
MAX. POSSIBLE EROSION MATRIX SCORE:	**100**			**Total Score**	8.8

Report Printed 4/15/98 3:59:26 PM.

Los Alamos National Laboratory
SURFACE WATER
SITE ASSESSMENT

SITE INFORMATION Land application site for water from Milagro Facility (Fenton Hill)

1a) PRS Number **1b) Structure Number** **1c) FMU Number** 68

2. Date/Time (M/D/Y H:M am/pm) 4/15/98 10:00:00 AM

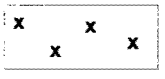
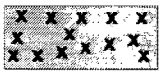
SITE SETTING (check all that apply)

3. • **On mesa top (a).** **In the canyon floor, but not in an established channel (c).**

Within a bench of a canyon (b). **Within established channel in the canyon floor (d).**

Explanation: The proposed application site is a small bowl on the mountain top on the north side of the TA-57 Fenton Hill facility. The area is relatively flat and there is no evidence of concentrated runoff other than sheetflow.

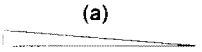
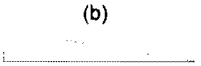
4. Estimated ground and/or canopy cover at site: (deciduous leaves, pine needles, rocks, vegetation, trees, structures, asphalt, etc.)

(illustration) (a)  (b) (c) 

Estimated % of ground/canopy cover: ○ 0% to 25% ○ 25% to 75% • 75% to 100%

Explanation: Significant ground and canopy cover. Canopy cover consists of pine trees and multiple thick stands of aspen trees. There is significant ground cover on site consisting of grasses, low growing shrubs, aspen leaves, and downed wood.

5. Steepest slope at the area impacted:

(a)  (b)  (c)

• Less than 10% ○ 10% to 30% ○ 30% and greater

Explanation: The slope around the perimeter of the bowl is approximately 10-15%. The area within the bowl that is to be used for the water application has a slope of no more than 10% across the entire area.

RUNOFF FACTORS

Y / N

☐ ☑ **6. Is there visible evidence of runoff discharging from site? If yes, answer a) - c) below:**

☐ ☑ 6a) Is runoff channelized? If yes, describe: ○ Man-made channel. ○ Natural channel.

Explanation: No visible evidence of runoff at the site.

RUNOFF FACTORS, CONT'D

6b) Where does evidence of runoff terminate?

Drainage or wetland (name)

Within bench of canyon setting (name)

Other (i.e., retention pond, meadow, mesa top)

Explanation:

Y / N

☐ ☑ 6c) Has runoff caused visible erosion at the site? If yes, explain below: Sheet Rill Gully

Explanation: No evidence of erosion.

RUN-ON FACTORS

Please rate the potential for storm water to run on to this site: (Check EITHER #7 or #9)

☐ ☑ **7.** Are structures (i.e., buildings, roof drains, parking lots, storm drains) creating run-on to the site?

Explanation: This site is not located near any man-made structures or outfalls.

☐ ☑ **8.** Are current operations (i.e., fire hydrants, NPDES outfalls) adversely impacting run-on to the site?

Explanation:

☐ ☑ **9.** Are natural drainage patterns directing stormwater onto site?

Explanation: No visible evidence of this area being a natural drainage.

ASSESSMENT FINDING:

☐ ☑ **10. Based on the above criteria and the assessment of this site, does soil erosion potential exist? (REFER TO EROSION POTENTIAL MATRIX.)**

Terrill Lemke

11. Signature of Water Quality/Hydrology Representative

_____ Initials of independent reviewer.

Check here when information is entered in database: ✔

This page is for ESH-18 notes, recommendations, and photos.

Y / N

12. a) • Is there visible trash/debris on the site?

b) • Is there visible trash/debris in a watercourse?

Description of existing BMPs:

Are BMPs being properly maintained? If no, describe in "Other Internal Notes."

Are BMPs effectively keeping sediment in place and reducing erosion potential?

OTHER INTERNAL NOTES:

The site has significant ground cover consisting of vegetation, forest litter, and downed wood. These item acct as natural BMPs. In the event of a concentrated flow of runoff, the large amount and extensive coverage of downed wood will dissipate energy in the flow and spread the flow over a larger area.