

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: August 23, 2001
In Reply Refer To: ESH-18/WQ&H:01-276
Mail Stop: K497
Telephone: (505) 665-1859

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

**SUBJECT: NOTICE OF INTENT TO DISCHARGE (NOI) FOR WELL DEVELOPMENT
WATER AND PURGE WATER FROM MONITORING WELL CDV-R37-2**

Dear Mr. Kieling:

Los Alamos National Laboratory is submitting the enclosed Notice of Intent to Discharge (NOI) to the New Mexico Environment Department for the discharge of water from the CdV-R37-2 Well. This well is part of the TA-16-260 outfall Corrective Measure Study (CMS) activities. The CdV-R37-2 Well is located on the mesa top at Technical Area (TA) -37 (Enclosure 1). The depth for the CdV-R37-2 Well is 1664 ft.

The total estimated discharge will consist of 150,000 gallons of drilling, purge and development water. The proposed methods of discharge may include: (1) land application to the site of drilling operations after work is completed for re-vegetation purposes; (2) land application to the surrounding grass covered plain; or (3) water may be used as dust suppression at the site. The discharge will be by means a water sprinkler system for the land application(s) in order to disperse the water and prevent any runoff.

The proposed discharge area has been reviewed by Laboratory's Environmental Restoration staff familiar with the area and determined to have no SWMU's or PRS's that could be impacted by this discharge. All discharges will be performed in a manner that will eliminate any impact to a stream course. Best Management Practices (BMPs) will be utilized to control runoff where appropriate.

On August 3, 2001 approximately 30,000 gallons of drilling water had been containerized at the site and container capacity was close to being exceeded. In order to alleviate this problem, Mr. John Young of your staff was contacted by telephone and was provided High Explosive (HE) data on the collected water. Based on the provided data (Enclosure 2), Mr. Young provided verbal approval to discharge this water by the sprinkler method discussed in previous NOIs submitted for the R-series wells.

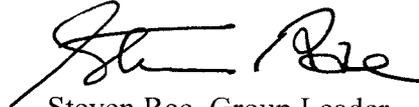


6312

HSWA LANL 3/1082/16-021(c)-99
7/7/16

Please call Harvey Decker (505) 665-2014 or Steve Veenis (505) 665-9735 of the Laboratory's Water Quality and Hydrology Group (ESH-18) if you need any additional information.

Sincerely,



Steven Rae, Group Leader
Water Quality and Hydrology Group

SR:HD/tml

Enclosures: a/s

Cy: J. Davis, NMED/SWQB, Santa Fe, New Mexico, w/enc.
M. Leavitt, NMED/GWQB, Santa Fe, New Mexico, w/enc.
B. Hoditschek, NMED/DOE/OB, Santa Fe, New Mexico, w/enc.
S. Yanicak, NMED/DOE/OB, w/enc., MS J993
J. Young, NMED/HRMB, Santa Fe, New Mexico, w/enc.
D. Erickson, ESH-DO-DD, w/o enc., MS K491
M. Saladen, ESH-18, w/o enc., MS K497
H. Decker, ESH-18, w/enc., MS K497
A. Crowder, MK, w/o enc., MS M327
P. Longmire, EES-5, w/o enc., MS J534
D. Hickmott, EES-1, w/o enc., MS D462
R. Bohn, E-ER, w/enc., MS M992
S. Veenis, ESH-18, w/o enc., MS K497
WQ&H File, w/enc., MS K497
IM-5, w/enc., MS A150

METHOD OF LAND APPLICATION AND DUST SUPPRESSION USE OF WATER FROM THE TA-37, CdV-R37-2 WELL

1. Name and address of facility making the discharge.

Los Alamos National Laboratory
P.O. Box 1663
Los Alamos, New Mexico 87545

2. Location of the discharge.

The CdV-R37-2 Well is located at Technical Area (TA)-37. This is a flat, grassy plain with a less than 10% slope at the discharge area. A map of the location is enclosed with this plan. This well is being drilled as part of the TA-16-260 Outfall corrective measures study (CMS) activities to better define the nature and extent of ground water contamination previously discovered at the R-25 Well. All water developed and purged from the well will be containerized pending analytical results from collected samples. Analytical data will be provided to the NMED for review before any land application or dust suppression activities take place.

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

The sprinkled land application water will be applied to the surface of the ground in the vicinity of the well site. An alternate method for land application of the water is to the well site after drilling is completed to facilitate re-vegetation or for dust suppression on the site access road and drill pad. The method of land application(s) and dust suppression is described below:

1. For land application and re-vegetation activities, aluminum piping with sprinkler heads will serve as the conduit for the land application of the approximately 150,000 gallons of drilling, purge and development water to be generated from the CdV-R37-2 Well.
2. For land application there will be two aluminum-piping runs 250 feet in length with 5 sprinkler heads on each. The two lines will run parallel to each other and placed 50 feet apart. Spacing of the sprinkler heads is to be approximately 50 feet apart. Each sprinkler head will have a discharge radius of approximately 20 feet. This will allow an approximately 10 foot buffer area of no water impact between each sprinkler head on each 250-foot line. The piping runs and sprinkler head arrangement will be adjusted as necessary if the water is to be used for re-vegetation activities at the well drilling site.

3. As prescribed in the "SOP 2.01 Surface Water Assessment" the land application area will be located away from any stream course. Land application will be conducted for 8 to 10 hours a day. The land application will be monitored periodically during each application day by on-site staff to ensure that no ponding or run-off is occurring, to inspect any Best Management Practices (BMPs) and to determine when to rotate the land application area. **Ponding**, is defined as *a body of standing water, often artificially formed*. **Erosion**, is defined as *the process in which, by the actions of wind or water, soil particles are displaced and transported*.
4. Reciprocating type sprinkler heads are to be used in order to maximize evaporation.
5. The rate of application is expected to be approximately 100 gpm. The sprinkled land application will be occasionally interrupted in order to transfer pumping equipment from one container to the next. These interruptions will allow previously applied water to disperse and will serve as an additional BMP to help prevent ponding or run-off.
6. The land application site(s) will be monitored during application hours. This will allow site staff, as necessary, to stop application if a problem with the sprinkler system occurs. Additionally, if the application area shows signs of ponding or saturation, application operations will be immediately halted. The area will be evaluated for the need of any additional BMPs and the application will not start again until the area is suitable (i.e., no standing water or run-off visible).
7. The alternate method for application of the water is for dust suppression on the access road to the well. Water used for dust suppression will be applied by hand held hose. Amounts may vary for this type of application but is estimated to be 200 to 400 gallons per day along approximately 200 yards of access road and the 15,000 square foot drill pad.
8. A SOP 2.01 Surface Water Assessment/Erosion Matrix for the land application location has been performed. An assessment of "minimal" surface/ground water impact for the land application area has been determined for the application described (enclosure 3).

4. The estimated concentration of contaminants (if any) in the discharge.

The only contaminant expected to be found in the containerized water is High Explosives (HE) similar to contaminants found previously at the R-25 Well. As previously stated, all analytical data will be submitted to the NMED for review before any land application or dust suppression activities take place.

5. The type of operation from which the discharge is derived

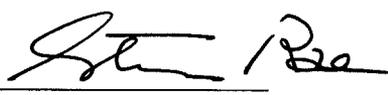
The CdV-R37-2 Well is being drilled in an attempt to define the nature and extent of ground water contamination previously discovered at the R-25 Well. The approximately 150,000 gallons of water to be land applied will be collected from drilling, purging, development and sampling operations.

6. The estimated flow to be discharged per day.

The land application amount from the initial development/purging and sampling is estimated to be up to 10,000 gallons per day until all water is expended or as needed at the site for re-vegetation activities. The application is not expected to begin until the spring of 2000. Additional sampling of the well is expected to occur at least four times a year. Each of the four sampling events is expected to generate an estimated 500 gallons of purge water per sampling event.

7. The estimated depth to ground water (if available)

Current information indicates that the regional aquifer is believed to exist at 1100 feet below ground level at the drilling site.

Signed: 
Group Leader, ESH-18

Date: Aug 23, 2001

Enclosure 1

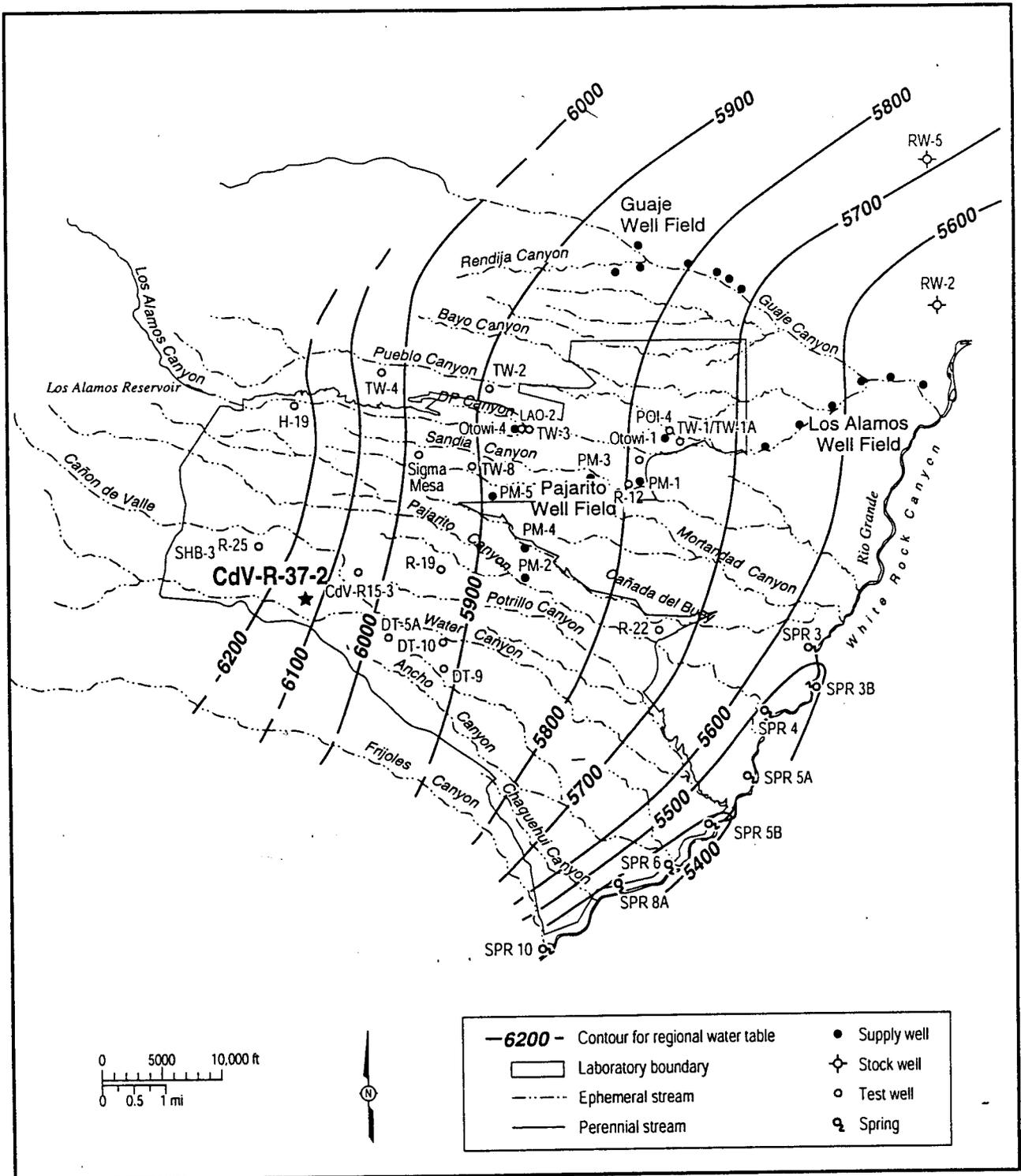


Figure 1. Map showing the location of well CdV-R37-2.

Enclosure 3

Los Alamos National Laboratory

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

Surface Water Assessment Erosion Matrix for PRS CdV-37-2

CRITERIA EVALUATED	Value	Erosion/Sediment Transport Potential			Calculated Score
		Low 0.1	Medium 0.5	High 1.0	
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%	13.0
Slope	13	0-10%	10-30%	>30%	1.3
Surface Water Factors-Run-off (46)					
Visible evidence of runoff discharging? (Yes/No)	5	If no, score of 0 for runoff section. If yes, score 5 and proceed with section.			5.0
Where does runoff terminate?	19	Other	Bench Setting	Drainage/Wetland	19.0
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
<i>*Select either structures or natural drainages.</i>					
MAX. POSSIBLE EROSION MATRIX SCORE:	100	Total Score			39.3

Los Alamos National Laboratory
SURFACE WATER
SITE ASSESSMENT

Part B: page 2 of 4

SITE INFORMATION

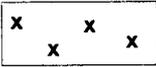
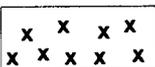
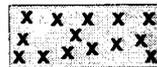
1a) PRS Number 1b) Structure Number 1c) FMU Number
2. Date/Time (M/D/Y H:M am/pm)

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: TA-37 area on mesa top. Entire area is flat with gentle slope towards the east.

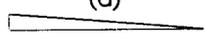
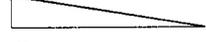
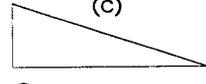
4. Estimated ground and/or canopy cover at site: (deciduous leaves, pine needles, rocks, vegetation, trees,

(Illustration) (a)  (b)  (c) 

Estimated % of ground/canopy cov 0% to 25% 25% to 75% 75% to 100%

Explanation: Very little vegetative cover. Area cleared for magazine.

5. Steepest slope at the area impacted:

(a)  (b)  (c) 
 Less than 10% 10% to 30% 30% and greater

Explanation: Area flat with little or no slope to the east.

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, describ Man-made channel. Natural channel.

Explanation: Sheet flow runoff into minor drainages within area.

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: Water Canyon is located nearby, runoff produces little erosive energy.

Y / N

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

Explanation: None observed.

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: No structural impact.

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

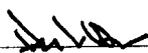
Explanation: No operational impact.

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

Explanation: No upslope 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.)**

Decker, Harvey 

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:

Minimal impacts will occur from the proposed discharges of development water.