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Department of Energy
Albuquerque Operations
Los Alamos Area Office
Los Alamos, New Mexico 87544

Jack

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Ms. Denise Fort, Director
New Mexico Environmental Improvement Division
P.O. Box 968
Santa Fe, NM 87504

GROUND WATER/HAZARDOUS WASTE
BUREAU

Dear Ms. Fort:

This letter responds to the Environmental Improvement Division's (EID) letter dated November 24, 1986. The information requested is presented below according to the numerical sequence contained in Mr. Lambert's letter.

1) Technical Area TA-16-300 Line (Outfall 058)

As previously discussed in the Department of Energy (DOE) letter of November 7, 1986, this dry well went into service in 1981. The dry well was installed to replace National Pollutant Discharge Elimination System (NPDES) permit (NM0028355) Outfall 058. The 60 foot shaft filled with discharged water and began overflowing at the surface within a month of operation. Therefore, the discharge to the dry well was discontinued and the dry well was abandoned. The dry well is covered with a heavy gauge metal manhole cover, but has not been plugged. The average quantity and quality of the effluent discharged into the dry well (in gallons per minute and mg/l) was:

<u>Flow</u>	<u>pH</u>	<u>TSS</u>	<u>COD</u>
10.17	8.0	3.3	339.5

Should this dry well be permanently plugged, EID will be provided information on the method and specifications for comment.

TA 22-91 (Outfall 008/077)

The dry wells were abandoned by diverting the influent to a surface discharge. A mounded earthen cap, approximately 1 foot in thickness, compacted to 85% modified Proctor density overlays the gravel-packed shaft. The average quantity and quality (in gallons per day and mg/l) of the effluent discharged to the dry wells was:

<u>Flow</u>	<u>COD</u>	<u>TDS</u>	<u>Cd</u>	<u>Cu</u>	<u>Cr</u>	<u>Fe</u>	<u>Pb</u>	<u>Ni</u>	<u>P</u>
1800	114	302	0.001	4.2	0.001	18.3	0.01	0.04	0.71

TA-16

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The pH varied between 2.8 and 10.5. Should these dry wells be more permanently plugged, EID will be provided information on the method and specifications for comment.

2) No reply required.

3) AREA C

The DOE's Los Alamos Area Office (LAAO) June 5, 1981 response to Randy Hicks, New Mexico EID request to DOE for an inventory of injection wells stated the following with regard to Area C:

"Area C is no longer an operational waste disposal site. It has not been abandoned, but should be considered inactive. While at times in the past, subsurface emplacement of small quantities of liquid waste occurred, it is exempted by the Atomic Energy Act (AEA) of 1954."

The June 5, 1981 response did not describe the period of operation for Area C, nor define the "inactive status." The following information elaborates on the June 5, 1981 letter and addresses your questions.

The 11.8 acre material disposal Area C is located on the north side of Pajarito Road adjacent to TA-50. It is composed of 7 disposal pits and 107 disposal shafts. The history of Area C extends from May 7, 1948, the date the first pit was started, through April 8, 1974, the date the last shaft was filled and plugged with concrete. The plugging of the last Area C shaft (Shaft 89) on April 8, 1974 marked the formal closing of the area. However, studies in the late 1970s indicated animal intrusion into the waste. The surface was improved in 1984 by adding soil cover (depths 6 inches with average cover approximately 2 feet), recontouring, and seeding with native grasses.

The Area C shafts varied in size and depth, with diameters ranging from 1 to 2 feet and depths ranging from 10 to 25 feet. Many of the shafts are concrete lined to reduce personnel exposure to external radiation and achieve better containment. Shafts are typically filled to within 5 feet of the ground surface. Then 2 feet of crushed tuff is placed in them followed by a 3 foot thick cement cap.

The types of radioactively contaminated waste buried at Area C include building debris from the demolition of TA-1 and TA-0, routine contaminated trash, sludge from radioactive waste treatment plants, classified materials, tuballoy chips, and hazardous chemicals in containers. There is no indication that liquid effluents were freely discharged into the shafts.

A brief description of the geology and hydrology of the area may be of interest. At Area C the soil covering is approximately 3 to 5 feet thick above the Tshirege Member of the Bandelier Tuff. Beneath the soil, the Bandelier Tuff is approximately 850 feet thick, consisting of a series of ash fall and ash flows of a friable to welded rhyolite tuff. This tuff is underlaid by about 575 feet of volcanic debris of the Puye Conglomerate. The main zone of saturation occurs in the Puye at a depth of about 1300 feet.

Area C was closed prior to the adoption of underground injection control regulations by the New Mexico Water Quality Control Commission (WQCC). Presently, Area C is being evaluated by Los Alamos National Laboratory (LANL) under the Comprehensive Environmental Assessment and Response Program (CEARP). This program is studying inactive waste disposal sites for possible remedial actions pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

AREA L

Area L is a 2 acre site within TA-54 that was the principal waste disposal area for the Laboratory from 1964 to November 1985. From 1964 through May 1975, all wastes were put in one pit. This pit was covered in 1975. Disposal from then until November 1985 was in shafts that range from 2 to 8 feet in diameter and are up to 65 feet deep. The shafts have now all been filled and capped with concrete. Different shafts were used for different categories of waste chemicals (organics, inorganics, oils, acids, bases, reactive metals) to assure that incompatible chemicals did not mix and react. Containers of these wastes were lowered into the appropriate shafts. Fill dirt was periodically applied to each of the shafts receiving wastes as a precautionary measure against fire or dispersal.

During preparation and promulgation of the WQCC underground injection control regulations, Laboratory staff discussed with Randy Hicks and David Boyer, EID, the regulations' applicabilities to waste disposal methods used at the Laboratory. The understanding on the part of the Laboratory staff was that waste disposal shafts would not qualify as injection wells and therefore would be subject to other environmental regulations. Therefore, pursuant to regulatory requirements, the Laboratory has addressed Area L under the Resource Conservation and Recovery Act (RCRA) in several ways.

The RCRA and New Mexico Hazardous Waste Management Regulations (NMHWMR-3) require that owners of hazardous waste disposal facilities must either 1) perform ground water monitoring or 2) obtain a ground water monitoring waiver. To evaluate whether the Laboratory can obtain the ground water monitoring waiver for which it has applied, EID has defined a vadose zone characterization program that the Laboratory must complete. The tasks are defined in a compliance order/schedule (Docket Number 001007) issued by the EID under the NMHWMR-3. To receive the waiver, the Laboratory must submit a report to the EID by March 1987 proving there is no potential for ground water contamination.

The Laboratory has applied for a long-term permit to continue to treat and store waste at Area L through the RCRA Part B application submitted to EID. No further disposal is planned. A closure plan for Area L was submitted to EID on November 23, 1985. This closure plan contains an inventory of wastes disposed at Area L, as well as the stringent methods and specifications for shaft plugging and abandonment that are required by RCRA and NMHWMR-3 regulations. Your review of the closure plan, RCRA Part B application, and ground water monitoring waiver request on file with the EID Hazardous Waste Section should answer any remaining questions with respect to Area L.

4) INJECTION WELLS

The information submitted to EID in 1981 pursuant to a request for an inventory of injection wells at the Laboratory was deemed by the Laboratory to be comprehensive. A DOE July 2, 1986 response to the Environmental Protection Agency (EPA) and EID regarding the RCRA Notice to Deficiency included information describing six locations with seepage pits (dry wells). A detailed description of the locations follows.

TA 53-2

A shallow seepage pit was located east of Building 2. The pit was approximately 6 feet in diameter and 6 feet deep. Because of a lack of proximity to the sanitary sewer system, a 2-inch pipe from two wash sinks in the building drained into the pit. The sinks were used occasionally for rinsing metal parts with water. The pit became inactive June 1986, and was completely demolished September 1986 when the sinks were connected to the sanitary sewer. Water and sediment samples collected from the pit documented that the pit contained no hazardous or radioactive waste and the pit was backfilled with clean fill material.

TA 16-540

The steam plant at TA-16 presently discharges boiler blowdown into 2 seepage pits. The pits are approximately 6 feet in diameter and 60 feet deep. The average quantity and quality (in gallons per minute and mg/l) of the effluent is:

<u>Flow</u>	<u>pH</u>	<u>TSS</u>	<u>Fe</u>	<u>Cu</u>	<u>P</u>
3.0	11.0	75.0	2.0	0.13	35.95

TA 21-357

The old steam plant at TA-21-9 discharged boiler blowdown into a seepage pit until 1983. The pit was approximately 3 feet in diameter and 40 feet deep. The pit was abandoned by capping with a metal cap and paving over the top with asphalt. The quantity and quality (in gallons per minute and mg/l) of the effluent discharged was:

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<u>Flow</u>	<u>pH</u>	<u>TSS</u>	<u>Fe</u>	<u>Cu</u>	<u>P</u>
1.25	11.0	69.3	4.54	0.35	23.5

TA 22-52

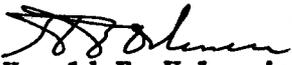
A printed circuit board processing facility was moved to Building 91 prior to installation of proposed seepage pits. Therefore, two proposed seepage pits were actually constructed adjacent to Building 91. They were constructed and received a discharge as previously described under answer 1.

TA 22-91

A seepage pit approximately 5 feet in diameter and 40 feet deep is located adjacent to Building 91. This pit receives discharge from a laundry washing machine and two wash sinks located in Building 93. The flow is intermittent and estimated to average 100 gallons per day. The effluent is comprised of "gray water" and the only waste constituent of concern would be polyphosphates in the laundry detergent. In the near future, this effluent will be combined with the printed circuit board effluent and discharged pursuant to NPDES permit NM0028355. At the time this occurs, EID will be notified regarding plugging and abandonment.

I trust that this letter answers your information request. Should you have further questions, please don't hesitate to call James Phoenix (667-5288) of my staff.

Sincerely,


Harold E. Valencia
Area Manager

cc:

R. Holland, Director's Office, EID, Santa Fe, NM
R. Mitzelfelt, Ground Water, EID, Santa Fe, NM