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

SEP 2 6 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 23, 1988

Mr. Mike Saladen
Water Resource Specialist
New Mexico Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87503

SUBJECT: REPLY TO SEPTEMBER 8, 1988 INQUIRY

Dear Mr. Saladen:

The following text and attachments respond to your September 8, 1988 request for information regarding the spill control facility located near Technical Area (TA) 35, Building 125. Historically, experimental work was conducted in Building 125 utilizing high-voltage equipment and dielectric oil. Because of the volume of oil utilized in and around the building, spill prevention and control facilities were constructed to capture oil spills that could occur inside and outside the building and divert them to a gunite-lined surface impoundment located south of the building on the canyon rim. The impoundment was constructed for total retention of spills, however, a low point along the southeast bank could serve as an overflow point (a spillway was not constructed, per se) and liquids could spill over into the adjacent ephemeral canyon if over-filling occurred.

Although a major oil spill has never occurred, filling the impoundment with oil, small spills of oil have occurred that resulted in several inches of oil being impounded in the facility. Because this impoundment is located outdoors, rain and snow melt accumulated in the impoundment and any oil contents floated on top of the water. The impoundment was maintained in such a manner, that accumulated precipitation was pumped out of the pond into a "honey wagon" and was disposed in a sanitary wastewater treatment facility and the oil and oil-emulsion was drummed and disposed of by the Waste Management Group (HSE-7). Thus the impoundment was normally maintained in a ready-state for spill control purposes. However, on occasion, due to emergencies or excessive precipitation, oil

floating on the water has accidentally been siphoned or spilled over the impoundment berm and discharged into the ephemeral canyon below. On such occasions, spill reports have been written (see attachments 1 and 2) and spill clean-up operations have been conducted.

Because of the extensive maintenance that the TA 35-125 outdoor spill control impoundment required, and because of the need to prevent over-topping of the impoundment, the Los Alamos National Laboratory's (LANL) Spill Prevention, Control, and Countermeasure (SPCC) Plan requires the removal of the outdoor impoundment and the plugging of drains (see attachment 3). Dependent on the nature of future experimental work to be conducted in Building 125, the outdoor impoundment could eventually be replaced by a totally enclosed secondary containment tank, above ground, to provide spill control. The existing gunite-lined impoundment and any future installations provide emergency spill control, and are not intended to discharge to the environment.

The TA 35-125 impoundment was never suspected to contain anything other than precipitation, dielectric oil, and natural water-borne or wind-blown debris, and thus was never sampled for environmental contaminants. However, the Laboratory has an active program for managing polychlorinated biphenyls (PCBs) and testing oil for their presence or absence. Historically, whenever the oil and water was removed from the TA 35-125 impoundment, the liquid was sampled for PCB analysis, so as to ascertain that PCB contamination was not present in concentrations that would require special disposal methods or reporting. Attachments 1 and 2 further indicate that oil spills are routinely sampled for PCB analysis. To date, PCB concentrations in oil spilled or in the impoundment at TA 35-125 have been of de minimus values (below the Environmental Protection Agency's clean-up criteria and reportable quantity levels) and have not required special reporting or clean-up. For example, the following PCB concentrations were reported for oil samples collected from the impoundment:

9-8-86	< 2.0 parts per million PCB
7-29-87	< 1.3 parts per million PCB

When engineering design was started this summer to remove the gunite-lined impoundment, water and oil samples were collected to perform a more complete analysis to augment the disposal of the impoundment contents. The data reported on June 21, 1988 for samples collected June 9, 1988 indicated the following results.

PARAMETER	RESULT	UNIT
Gross Alpha	5.0	pCi/l
Gross Beta	4.9	pCi/l
Gamma	500.0	pCi/l
Mercury	1.9	ug/l
Silver	3.0	ug/l
Arsenic	2.5	ug/l
Chromium	2.6	ug/l
Lead	65.0	ug/l
Barium	< 0.1	mg/l
Selenium	< 1.0	ug/l
Cadmium	1.7	ug/l

Attachment 4 includes the results from volatile organics that were analyzed. It is the Laboratory's belief that recent modifications to Building 125 and extensive cleaning operations were potentially responsible for contributing low-level organic solvent concentrations to the wastewater/oil that is in the spill control impoundment. As a result of this recent and more comprehensive sampling data, the construction project to remove this impoundment has been delayed pending the preparation and approval of a Resource Conservation and Recovery Act (RCRA) Closure Plan. Due to the presence of organic constituents at present, all contents in the impoundment are being managed as a hazardous waste, and any disposal of the liquids is being performed by off-site incineration. The impoundment is being carefully managed to prevent any discharge to the ephemeral canyon.

Prior to the June 9, 1988 sampling, the Laboratory had no analytical data or information indicating that the impoundment contained materials other than precipitation, soil, miscellaneous natural detritus entering the impoundment by runoff or wind, and dielectric oil. In each historical instance where liquids spilled into the ephemeral canyon, the extent of the spills was limited and clean-up operations were conducted to mitigate any impacts. Administrative notice was taken of federal and state regulations, and in particular, careful attention was given to New Mexico Water Quality Control Commission Regulation 1-203. Notification Of Discharge--Removal, which states in part:

"Any person in charge of a facility, as soon as he has notice or knowledge of a discharge from the facility, of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the

public welfare or the use of property, shall immediately: 1. notify ..."

In each spill instance, a determination was made that the limited quantities spilled did not have a reasonable probability of causing injury or detriment, and of course, active steps were taken to clean-up and/or otherwise mitigate any environmental impact.

In closing, I trust that this information addresses your concerns. The Laboratory maintains both a comprehensive SPCC and National Pollutant Discharge Elimination System (NPDES) program on behalf of the Department of Energy's (DOE) Los Alamos Area Office (LAAO). The SPCC program strives to prevent and control spills that might accidentally occur, while the NPDES program assures that all planned and anticipated point source discharges are properly permitted. As previously stated, the SPCC facility located at TA 35, Building 125 is being modified to preclude spills. I would encourage you to arrange a site visit to inspect this facility and the adjacent canyon, for your complete understanding and satisfaction. Please contact James Phoenix (667-5288) should you have further questions or desire a site visit.

Sincerely,

Frank Baca for
Acting Area Manager

FB:CN:bjh

Enclosures: a/s

Cy: Kathleen Sisneros, NMEID, Santa Fe, NM w/enc.
Court Voorhees, NMEID, District II, Santa Fe, NM w/enc.
Tracy Hughes, Office of General Counsel, HED, Santa Fe, NM, w/enc.
John Gould, Hazardous Waste Bureau, NMEID, Santa Fe, NM w/enc.
Bob Hiller, USEPA, (6W-ET), Dallas, Tx., w/enc.
James Highland, USEPA, Dallas, Tx., w/enc.

ATTACHMENT 1

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Distribution

DATE: October 24, 1986

THRU: Thomas C. Gunderson, HSE-8 Group Leader, MS K490

MAIL STOP/TELEPHONE: K490/5-0453

FROM: Roy Bohn, HSE-8 RB

SYMBOL: HSE8-86-1204

SUBJECT: OIL SPILL AT TA-35 TSL-125

At 1245 hours on October 9, 1986, Roy Bohn of Environmental Surveillance (HSE-8) was notified of an oil spill that had recently occurred south of TA-35-125 and had discharged into the canyon through a storm water drain. The spill was reported by John Warren of Waste Management (HSE-7) who noticed the spill during a noontime walk.

At 1300 hours Roy arrived at the scene and found that indeed there had been a recent oil spill. Oil was no longer discharging at this time. An oil sample was taken from the storm water drainage and later that day submitted to Health and Environmental Chemistry (HSE-9) for polychlorinated biphenyl (PCB) analysis. Roy Bohn notified Anthony Drypolcher of HSE-8 that an oil spill had occurred. Upon investigation it was determined the spill occurred sometime between 0900 and 1000 hours the same day, while Chemistry and Laser Science (CLS-7) personnel were draining a Marx generator inside TSL-125 into an underground storage tank (UST) outside.

Jerry Umphres, CLS-7, who was conducting the draining operation, said the spill was due to a failure of liquid level sensors designed to indicate the level of liquid in the UST and provide an automatic shutoff of the pumping system when the tanks are full (Attached Memorandum CLS-7:86-282). The underground storage tank overflowed onto the six-inch curbed area surrounding the storage tanks. This area is designed to drain any oil spill through a drain pipe into a catch basin located downslope and southwest of TSL-125. The drain located inside the curbed area was clogged with debris and therefore, the oil could not easily drain into the catch basin. The catch basin could have contained the entire volume of oil spilled. Because the drain was clogged, much of the oil overflowed the retaining curb and flowed downslope into a storm water drain

and eventually into the canyon bottom (Ten Site Canyon), flowing approximately 30 feet downstream. Jerry estimated that up to 1000 gallons of Shell Dela oil (transformer oil, non-PCB) could have been discharged into the canyon.

Upon inspection of the spill route it was found that much of the oil had collected in pools along the way, and much of the oil had been absorbed by the soil. There was no flow of water in the canyon bottom at this time.

At approximately 1350 hours two members of the Emergency Preparedness Office arrived at the scene and were given the above information by HSE-8 personnel. Charlie Nylander of HSE-8 arrived at the scene at 1405 hours and informed Roy that Pan Am spill clean up crews had been notified and would be responding immediately. At 1415 hours Pete Carlson of Pan Am arrived at the scene with spill clean up equipment, followed by a clean up crew from Pan Am. It was decided that sorbent pillows would be placed in the pools of oil along the spill route and allowed to stay overnight. A dam constructed of sorbent pillows was constructed downstream from the spill in an attempt to collect any run-off in case of rainfall overnight.

At 1630 hours HSE-9 determined there was less than minimum detection limit of PCB present in the oil sample collected by HSE-8 personnel.

Regulation 40 CFR 110 prohibits discharge of oil in harmful quantities on navigable waters, shore lines or the contiguous zone. Since a harmful quantity is defined as "causing a film or sheen on the water, this spill did not violate this regulation as there was no water and the spill was cleaned up before it could create a sheen on any runoff.

Under 40 CFR 112 the Laboratory's Spill Prevention Control and Countermeasure (SPCC) Plan, which has just been completed and is pending administrative review and approval, would have to be submitted to the U.S. Environmental Protection Agency (EPA) Region VI for their review and approval, had the oil spill exceeded 1,000 gallons. Additionally, at the present time there is no reportable quantity under 40 CFR 117 Determination of Reportable Quantities for Hazardous Substances and/or 40 CFR 302 Designation, Reportable Quantities and Notification.

RB:brm

Attachment: a/s

Cy: J. Aragon, HSE-DO, MS K491
W. Hansen, HSE-DO, MS K491
A. Stoker, HSE-8, MS K490
C. Nylander, HSE-8, MS K490
R. Vocke, HSE-8, MS K490
R. Garde, HSE-7, MS E518
M. Heineman, HSE-3, MS K489
D. Garvey, ADS-ECMO, MS A120
HSE-8 Incident File

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Charles Nylander, HSE-8/K490 DATE: October 15, 1986

THRU: G. R. Allen MAIL STOP/TELEPHONE: E525/7-2383

FROM: J. Umphres SYMBOL: CLS-7:86-282

SUBJECT: OIL SPILL, SOUTH SIDE OF TSL-125, TA-35

This is to inform you of the following incident, the cause, and the steps taken to prevent the reoccurrence.

On October 9, 1986, an oil spill occurred on the south side of Bldg. TSL-125, TA-35, at which time Roy Bond of HSE-8 was notified and arrangements were made to remove the oil from the roadway and from approximately 150 ft. of drainage in the canyon adjacent to the road.

The spill occurred when a holding tank located on the south side of Bldg. TSL-125 overflowed as oil was being transferred from a Marx generator in the building into the tank.

The holding tanks are equipped with liquid level sensors that are designed to indicate the level of liquid and provide an automatic shutoff of the pumping system when the tanks are full. This system had failed and did not indicate properly or shut the pump system off as designed. In addition to the holding tank overflow, the drain that is located within the spill containment area was obstructed, which prevented the oil from being diverted into a catchment basin provided for such emergencies.

The liquid level sensors have been repaired and checked for proper operation, and ENG-4 has been notified to clean out/repair the drain system to the catchment basin. In addition, all personnel that utilize the oil handling system hae been notifed of the potential problems and instructed to use caution when operating the system.

JU/mmb

cc: Brad Martin, CLS-DO/J563
B. Anderson, CLS-7
G. Allen, CLS-7
JU
file

ATTACHMENT 2

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: File

DATE: December 10, 1986

THRU: Thomas C. Gunderson, HSE-8 Group Leader, MS K490

MAIL STOP/TELEPHONE: K490/5-0454

FROM: Charlie Nylander, HSE-8

SYMBOL: HSE8-86-1354

SUBJECT: OIL SPILL AT TA-35 TSL-125

On December 3, 1986 at 1100 hours, Charlie Nylander and Anthony Drypolcher of the Environmental Surveillance Group (HSE-8) were at TA-35 TSL-125 discussing oil storage practices and oil spill prevention and control with the following persons: Larry Blair, Bill Martin, Bob Anderson, and Jerry Umphres. At approximately 1115 hours, this group began walking northeast behind building TSL 125 when they observed liquid running out an open doorway and draining into a curbed area surrounding an oil reclaimation trailer behind the building. The liquid was at first believed to be water, but upon touch was determined to be oil.

The group went into the building to determine the source of the oil spill and discovered a Marx generator overflowing from the top. Evidently, the tank was being filled with oil and the pump transfer was left unattended resulting in over-filling and spillage. While trying to shut off the transfer pump the group called out to locate anyone in the vicinity with no reply. Suddenly, the spilling oil came in contact with the heating element on the diffusion pump and a fire broke out. A nearby fire extinguisher was used while the fire alarm was pulled. However, the group quickly moved outside the building due to heavy smoke and concern for safety.

Once outside, the group dispatched several people to locate absorbents to direct the flow of oil flowing out the door into the curbed drainage area, from where it would flow into the concrete lined holding pond on the canyon edge. Absorbents were also spread across the entrance to a drainage culvert in order to prevent oil from discharging to the canyon. Telephone calls were placed to Michael Bailey and Pete Carlson, Pan American World Services, Inc. to request environmental sampling and spill control assistance.

After the fire response vehicles arrived, water from the building fire control sprinkling system and pump truck leakage caused the absorbents spread for spill control to breech and oil and water discharged to the canyon. However, an estimate was made that less than 100 gallons of oil discharged to the canyon. As the fire was being brought under control, the Environmental Surveillance Group personnel directed Pan Am to siphon the water out of the concrete holding pond to prevent the oil that was floating on the water surface and nearing the spillway from overflowing into the canyon. Therefore, Pan Am placed a submersible pump in the bottom of the pond and water was discharged to the canyon.

An oil sample was taken of the oil remaining in the Marx tank inside the building and delivered to the Health and Environmental Chemistry Group (HSE-9) at 1230 hours for polychlorinated biphenyl (PCB) analysis. By 1330 hours an additional sample was submitted to the laboratory for analysis. The results (in parts per million) are as follows:

Marx tank	4.1 ppm
Oil in concrete pond	Less than minimum detection limit

Samples collected in the canyon bottom on December 4, 1986 contained the following PCB concentrations in parts per million, prior to clean-up.

Distal point of spill downstream	4.7
Mid-point of affected channel	11.7
Point below cement pond	9.1

The cement holding pond was pumped until the liquid level was well below the spillway and the pump disconnected. Unfortunately, Pan Am left the pump in the pond overnight and created a siphon that drained the pond entirely during the night. Therefore, oil and water were discharged accidently into the canyon for a distance of appoximately 400 yards.

On December 4th and 5th, Pan Am conducted clean-up operations in the canyon to remove the oil. Fortunately, snow melt in the channel bottom was frozen and the oil was spread on the ice. Absorbent pillows, towels, and shovels were used to pick up the oil. In many places, the frozen oil/water slush could be swept with a broom. Therefore, the canyon was cleaned up quite satisfactorily.

REGULATORY CONCERNS

The volume of oil spilled was estimated to be less than 1000 gallons and therefore the Laboratory will not be required to submit the Spill Prevention Control and Countermeasure (SPCC) Plan to the Environmental Protection Agency (EPA) for review and approval (40 CFR 112).

The low concentration of PCBs in the oil did not require reporting to EPA under 40 CFR 302 Designation, Reportable Quantities and Notification. Moreover, the low concentration of PCBs in the oil spilled falls below EPA's proposed clean-up criteria for limited access environmental sites. Therefore, especially given the oil clean-up, the spill was satisfactorily mitigated pursuant to 40 CFR 761.

CN:tms

Attachment: a/s

Cy: J. Aragon, HSE-DO, MS K491
W. Hansen, HSE-DO, MS K491
J. Jackson, HSE-5, MS K486
R. Garde, HSE-7, MS E518
A. Stoker, HSE-8, MS K490
A. Drypolcher, HSE-8, MS K490
R. Vocke, HSE-8, MS K490
D. Garvey, ADS-ECMO, MS A122
M. Heineman, HSE-3, MS K489
L. Blair, CLS-DO, MS E548
W. Cromeenes, SSMO, MS K306

7.6 TA 35-125 Antares Laser Building

A variety of high-voltage equipment that uses dielectric oil is located in this building for the laser research that is conducted here. Any oil spills that occur in the building are collected in a sump that drains to a gunite-lined surface impoundment south of the building on the canyon rim (Figure 7-6).

Outside, on the south side of the building, is a 24,000-gallon capacity underground tank. Above the tank is a curbed area with a 4,200-gallon volume. This area contains a 3,000-gallon horizontal tank and a dielectric oil reclamation trailer with a 1,000-gallon capacity. The curbed area receives storm runoff from the building roof and drains to the surface impoundment.

The surface impoundment will be removed and the building and curbed area drains plugged to prevent an overflow of oil out of the impoundment and into Mortandad Canyon.

New programs are anticipated for TA 35-125 and the exact nature of the spill control and secondary containment that is needed depends on the oil usage of the future equipment. If the above-ground and the underground tanks are still used in the new program, the roof drain will be rerouted to discharge outside the curbed area, a sump will be installed in the down-grade

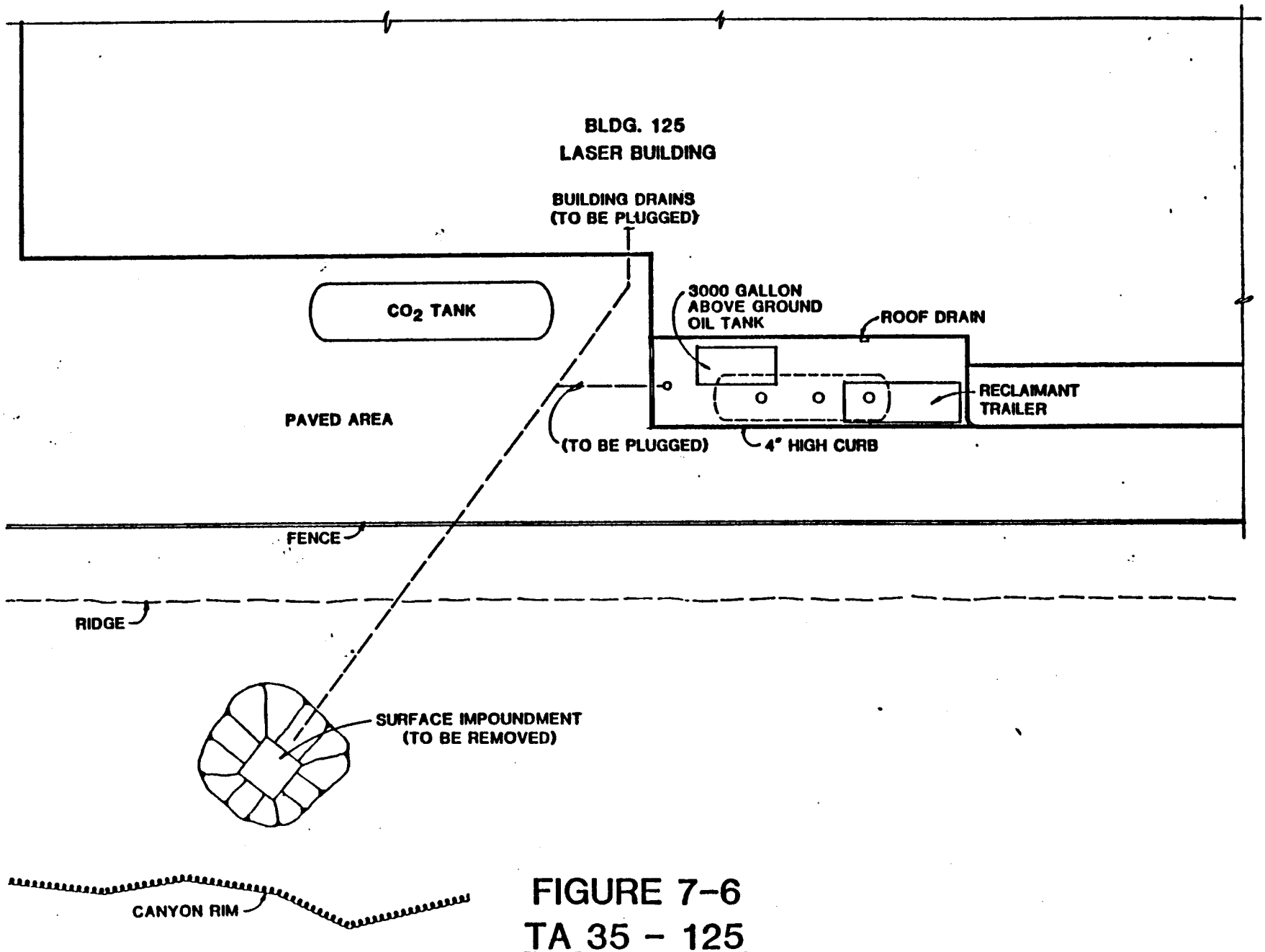

FIGURE 7-6

TA 35 - 125

EXISTING OIL STORAGE & COLLECTION

HSE-9 ORGANIC ANALYSIS SECTION
VOLATILE ORGANICS RESULT SHEET

35-125 water

SAMPLE NUMBER: 88-00330 REQUEST SHEET: 88.7061
NUMBER OF REPLICATE RUNS: 1

SURROGATE SPIKE RECOVERIES: (% RECOVERY)

COMPOUND		ACCEPTABLE RANGE (CLP)
1,2-DICHLOROETHANE d4	62.6	(76-114)
TOLUENE d8	95.7	(88-110)
p-BROMOFLUOROBENZENE	82.8	(86-115)

CAS #	COMPOUND	RESULT +/- (ppb)	MDL (ppb)
74873	CHLOROMETHANE		5.0
73839	BROMOMETHANE		5.0
75014	VINYL CHLORIDE		5.0
75003	CHLOROETHANE		5.0
75092	METHYLENE CHLORIDE		5.0
75150	CARBON DISULFIDE		5.0
75354	1,1-DICHLOROETHENE		5.0
75343	1,1-DICHLOROETHANE		5.0
540590	1,2-DICHLOROETHENE	77.7 ± 7.8 TIC	5.0
67663	CHLOROFORM	(TOTAL)	5.0
107062	1,2-DICHLOROETHANE		5.0
78933	2-BUTANONE		5.0
71556	1,1,1-TRICHLOROETHANE		5.0
56235	CARBON TETRACHLORIDE	parts per million range	5.0
108054	VINYL ACETATE		5.0
75274	BROMODICHLOROMETHANE		5.0
78875	1,2-DICHLOROPROPANE		5.0
10061015	cis-1,3-DICHLOROPROPENE		5.0
79016	TRICHLOROETHENE		5.0
124481	DIBROMOCHLOROMETHANE		5.0
79005	1,1,2-TRICHLOROETHANE		5.0
71432	BENZENE		5.0
10061026	trans-1,3-DICHLOROPROPENE		5.0
75252	BROMOFORM		5.0
108101	4-METHYL-2-PENTANONE		5.0
591786	2-HEXANONE		5.0
27184	TETRACHLOROETHENE		5.0
79345	1,1,2,2-TETRACHLOROETHANE		5.0
08883	TOLUENE		5.0
08907	CHLOROBENZENE		5.0
00414	ETHYLBENZENE		5.0
00425	STYRENE		5.0
33027	XYLENES		5.0
5501	1,2-DICHLOROBENZENE	(TOTAL)	5.0
41731	1,3-DICHLOROBENZENE		5.0
			5.0

SURFACE IMPOUNDMENT

106467	1,4-DICHLOROBENZENE		5.0
91023	NAPHTHALENE		5.0
104518	n-BUTYLBENZENE		5.0
108861	BROMOBENZENE		5.0
95498	2-CHLOROTOLUENE		5.0
106434	4-CHLOROTOLUENE		5.0
142289	1,3-DICHLOROPROPANE		5.0
87683	HEXACHLOROBUTADIENE		5.0
630206	1,1,1,2-TETRACHLOROETHANE		5.0
120821	1,2,4-TRICHLOROBENZENE		5.0
96184	1,2,3-TRICHLOROPROPANE		5.0
95636	1,2,4-TRIMETHYLBENZENE		5.0
75694	TRICHLOROFLUOROMETHANE		5.0
106934	1,2-DIBROMOETHANE		5.0
98828	ISOPROPYLBENZENE		5.0
98066	t-BUTYLBENZENE		5.0
135988	s-BUTYLBENZENE		5.0
99876	p-ISOPROPYLTOLUENE		5.0
544105	1-CHLOROHEXANE		5.0
563586	1,1-DICHLOROPROPENE		5.0
108703	1,3,5-TRICHLOROBENZENE		5.0
96128	1,2-DIBROMO-3-CHLOROPROPANE		5.0
67641	ACETONE	109.6 ± 54.8	50.0
60297	DIETHYL ETHER		
76131	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		20.0

MDL: Estimated minimum detection limit. The minimum limit of quantitation for these samples was 20 ppb.

All results are reported with a corresponding uncertainty. Values close to the MDL have larger uncertainties associated with them. If a sample is run at least in triplicate, the reported uncertainty represents the standard deviation of these values.

SAMPLE NUMBER: 88-00330 REQUEST SHEET NUMBER: 88.7061

appeared to be primarily water. The extremely high concentration of the 1,1,1-Trichloroethane severly interferred with identification of some compounds. Since this was an identification scan, no additional dilutions were performed. "TIC" indicates a tentatively identified compound. Also detected 2 unknown peaks, apparently halogenated hydrocarbons

A blank next to a compound indicates a result of <MDL