TA21

11/16/99

Vicki:

Pursuant to our meeting regarding the DP Tank Farm RSI on October 20, 1999 and our discussions of last week, we are providing a preliminary draft response to NMED-HRMB's Historical Knowledge comments in the RSI. This preliminary draft is being provided for your review and comment to determine if the information provided herein adequately meets your needs in verifying the history of the DP Tank Farm. We've also included numerous attachments that are referenced in the draft response. We still anticipate having a complete draft RSI Response for our next meeting scheduled for December 1, 1999 and look forward to your comments on the enclosed information. Please don't hesitate to contact me at 665-2198 if you have any questions or require any additional information.

Paula

HISTORICAL KNOWLEDGE: S9, S10, S17

Specific Comment 9:

§ 2.1.2 Operational History, Potential Release Site 21-029, DP Tank Farm Site, page 2-10

" From these reports (Bend 1980, 3688; LANL 1985, 37841) of the sampling and analyses of the tank contents, it may be concluded that..."

The conclusions stated only discuss tank contents from 1980 to 1985 even though DP Tank Farm operated from 1946 to 1985. Please provide information on the contents of the tanks for the period of 1946 to 1980. If it is unclear or unknown what the actual contents of all tanks located on the site prior to 1980, please revise the statement to include such a lack of knowledge.

Specific Comment 10:

§ 2.1.2 Operational History, Potential Release Site 21-029, DP Tank Farm Site, page 2-11 and § 2.1.3 Waste Characterization, page 2-17

" As discussed in Section 1.0 and Section 2.2.1.2 of the work plan, the results of the screening assessment for the 1994 RFI data indicated that all of the chemicals of potential concern (COPCs) present in the DP Tank Farm soils were associated with petroleum products. There was no evidence that hazardous wastes had been on the site.

All evidence from various maps, memorandums, and records of sampling and analysis at PRS 21-029, DP Tank Farm, and the results of all investigations conducted to date indicate that no solid wastes, and thus no hazardous wastes, were ever stored at the site. Records indicate that the 15 tanks contained only petroleum products including leaded and unleaded gasoline, diesel, kerosene, and No. 2 fuel oil.... And as noted in earlier sections, Francis (1993, 58986 and 58987) also recalls Stoddard solvent (mineral spirits or petroleum distillate) being distributed at the tank farm at times."

Please provide to HRMB the data and documentation or evidence (i.e. maps, memorandums, and records of sampling and analysis) used to support the above-referenced statements. Information regarding the exact contents of each of the tanks at the site for the period 1946 to 1980 is unknown. Please provide documentation to support hazardous wastes have not been stored on the site during the entire period of operation. The above-referenced statements contradict the statement in § 2.1.2 Operational History, page 2-10, which indicates that the contents of the tanks during the period of operation (1946-1985) cannot be determined.

LANL Response to Specific Comments 9 and 10:

LANL ER Project reports and plans including but not limited to the "Sampling and Analysis Plan for Subsurface Soil Sampling at DP Tank Farm" (LANL 1995, ER ID 59364); "RFI Report for Potential Release Site 21-029" (LANL 1996, ER ID 52270); "Voluntary Corrective Action Plan for Potential Release Site 21-029, DP Tank Farm Removal of Contaminated Soil" (LANL 1996 ER ID 55344); "Voluntary Corrective Action Report for Potential Release Site 21-029, DP Tank Farm" (LANL 1996, ER ID 55347) and most recently the "RCRA Facility Investigation Work Plan, Volume II, DP Tank Farm" (LANL 1998, ER ID 59976.3), did not provide detailed information regarding the contents of the tanks at PRS 21-029. The following discussion and corresponding documentation supports the operating history of the DP Tank Farm and the contents of the storage tanks.

Recent interviews with William C. Francis and Gerald Huber, documented in attached memorandums (and new memorandums to be included in our official RSI response), were conducted to clarify statements in the work plan regarding the contents of the tanks at PRS 21-029. Mr. Francis is a retired construction supervisor for the Zia Company who was involved with the construction and knowledgeable of day-to-day operations at the DP Tank Farm. Mr. Huber is a retired supervisor of the Zia Company's Warehouse Division who was responsible for all fuel and lubricant storage and delivery and who worked at the DP Tank Farm from 1946 until he retired in 1987. According to Mr. Francis and Mr. Huber, five petroleum storage tanks were installed in 1946 by the Army Corps. of Engineers at the DP Road Storage Area (PRS 00-027). All five of the original petroleum storage tanks were moved to DP Tank Farm in mid-1948 when the Zia Company took over the operation and relocated the fuel tank farm to PRS 21-029, the DP Tank Farm directly east of the DP Road Storage Area. Review of historic engineering drawings and aerial photographs confirm the presence of five aboveground storage tanks in the northern portion of the DP Road Storage Area in 1946 and 1947 (attached).

The DP Tank Farm, known at the time as the "fuel yard" was located between the eastern boundary of the Knights of Columbus property line and the western boundary of the DP Road Fire Station. Gerald Huber confirmed that a total of 15 storage tanks were installed at the DP Tank Farm including the five tanks from the DP Road Storage Area. The tanks had a total capacity of 281,364 gallons. The tanks relocated from the DP Road Storage Area were in excellent condition. Thirteen of the tanks at the DP Tank Farm were installed below ground and two were installed above ground. Mr. Huber also confirmed that the as built configuration of the DP Tank Farm including tank number, capacity and proposed contents as depicted in the attached Zia Company drawings Z-252, sheets 1 through 5 (LANL drawing number ENG-C49054) is accurate. The description of the tanks as installed and at the time of decommissioning at the DP Tank Farm is provided in Table 1 below.

TABLE 1 – DP TANK FARM TANK DESCRIPTIONS

Tank No.	Capacity (gallons)	Planned Contents Upon Installation – 1948	Contents Upon Decommissioning - 1983
1	28,500	Diesel Fuel #1	Diesel Fuel #2
2	14,494	Diesel Fuel #2	Diesel Fuel #2
3	23,967	Diesel Fuel #1	Diesel Fuel #2
4	14,994	Diesel Fuel #2	Diesel Fuel #2
5	5,170	Kerosene	Diesel Fuel #2
6	2,099	Kerosene	Residual Gasoline/Stoddard Solvent
7	2,978	White Gas	Residual Gasoline/Stoddard Solvent
8	5,170	Kerosene	Diesel Fuel #2
9	21,644	Diesel Fuel #2	Diesel Fuel #2
10	21,644	Diesel Fuel #2	Diesel Fuel #2
11	23,967	H.E. Diesel Fuel	Residual Ethanol/Gasoline
12	20,266	Diesel Fuel #1	Residual Kerosene
13	24,770	Bronze Gas	Residual Diesel Fuel #2
14	20,266	Diesel Fuel #1	Diesel Fuel #2
17	51,015	P.P. Diesel Fuel	Residual Gasoline

Tanks 1 through 8, 11 through 14, and 17 were buried, and tanks 9 and 10 were installed above ground with earthen dikes constructed on the downhill side around each tank from soil excavated for the tank installation. According to Mr. Huber and Mr. Francis, tanks 15 and 16 shown as proposed on the engineering drawings were never installed. According to Mr. Francis and Mr. Huber, white gas was similar to Coleman fuel and was used in welder's torches, bronze gas was leaded gasoline for vehicles, distillate diesel fuel #1 and #2 was used primarily for heating, P.P. diesel fuel was used in the power plant for power generation, and H.E. diesel fuel was used to power heavy equipment, and kerosene was used for heating. Mr. Francis and Mr. Huber indicated that the tanks were designed to be drained to within a few gallons of their capacity. The contents of particular tanks were changed only in response to low usage of particular petroleum products and a corresponding high usage of other products, particularly diesel fuel #2 which had numerous uses and was routinely in high demand. Additionally, Mr. Huber does not recall any major spills during the operation of the tank farm due to the product distribution procedure which required the presence of two operators when product was transferred from a storage tank to a tanker truck, one at the tank and one at the truck.

Mr. Huber stated that new Stoddard solvent was stored in one of the small-buried tanks tied to the West Fill Station (tank 6 or 7) from mid-1948 when operations began at the DP Tank Farm until the late 1970s when Stoddard solvent was delivered directly to and picked up from Laboratory maintenance shops by Safety Kleen Corporation. According to Mr. Huber, the Stoddard solvent was transferred to a Zia Company tanker truck that would distribute the material to automotive and equipment maintenance shops throughout the Laboratory. Mr. Huber confirmed that no spent Stoddard solvent was ever returned to the DP Tank Farm. The following summary is provided for information purposes. Stoddard solvent is a mixture of numerous hydrocarbon derived from refining crude oil composed of approximately 85% nonane and 15% trimethyl benzene, and is insoluble in water. It has a flash point between 100 - 110°F and is considered to be a form of mineral spirits, naphtha and white spirits. Stoddard solvent is used primarily as paint thinner, and as a general cleaner and degreaser. The solvent smells and tastes like kerosene and can be detected in the environment by the same analytical method (Total Petroleum Hydrocarbons or TPH) specified for Stoddard solvent (*Hazardous Chemical Desk Reference, Third Edition, 1993* attached).

Mr. Huber confirmed that only Stoddard solvent and the other petroleum products listed in Table 1 were stored at and distributed from the DP Tanks Farm. No hydraulic oils, mineral oils, or motor oils were stored at the DP Tank Farm. Hydraulic and motor oils were stored in drums at the DP Road Storage Area to the west and mineral oils were stored at electrical yards maintained by the Zia Company utility crews. Mr. Huber and Mr. Francis also stated that the only tanks present at the DP Tank Farm were the 15 petroleum product storage tanks installed in 1948 and removed in 1988.

According to Mr. Francis and Mr. Huber, the DP Tank Farm was in full operation until the late 1970s when some of the fuel storage and distribution operations were moved to TA-3. According to Mr. Francis, Mr. Huber and Dave McInroy, the large volumes of fuel stored at the DP Tank Farm from 1948 until the late 1970s were required to ensure that the Laboratory and community of Los Alamos would be self-sufficient if there was an emergency which resulted in a fuel shortage. By the late 1970s, this security concern was relaxed and the large quantities of fuel stored at the DP Tank Farm were no longer required. Additionally, at that time, petroleum products were distributed to various Laboratory facilities directly by suppliers.

In 1980, the tanks at DP Tank Farm were initially considered for disposition. At the time, only one of the diesel tanks was still in operation while the remainder of the tanks still contained various quantities of fuel but were no longer being used. A corrosion inspection was made to assess the condition of each tank by excavating a cross section of six of the tanks at the fuel farm in 1980. The portions of the exposed tanks showed that the original corrosion coating on each tank was substantially intact. The exteriors of the tanks were determined to be in excellent condition. This was confirmed by Dave McInroy et. al. during the subsequent excavation and removal of the tanks in 1988 described in the RFI Work Plan Volume II and in Dave McInroy's field notes (attached). Samples of the contents of each tank were collected in 1980 and sent to E.W. Saybolt & Company, Inc. for analysis and comparison with the Federal

Specification for diesel fuel oil VV-F-800B. The results reported by Saybolt indicated that the diesel fuel on hand met the all the specification for use as motor fuel with an octane reading of between 43 and 48. Approximately 10,000 gallons of the remaining fuel had an octane level of 41.3. Copies of analytical results are not available, just the memorandum from Mr. LeRoy Warren, Chief, Financial Management and Contracts Branch, DOE LAAO, ER ID 3688, attached).

In October 1983, all fuel storage facilities at the Laboratory were reviewed prior to implementation of the formal Spill Prevention, Control and Countermeasures (SPCC) Plan. The memorandum states that the earthen dike enclosing the 15 tanks was 397 feet long and 4 feet high with a containment capacity of 377,000 gallons. The dike was considered to be in good condition at the time. Notes in the margin of the memorandum indicate that there was 142,289 gallons of diesel fuel #2 remaining on site. A site sketch and inventory attached to the October 1983 memorandum showed that the remaining diesel fuel was stored in tanks 1, 2, 3, 4, 5, 8, 9, 10, and 14. Only residual gasoline remained in tanks 6, 7 and 17, residual ethanol remained in tank 11, residual kerosene remained in tank 12, and residual diesel fuel remained in tank 13 (ER ID 698, attached).

After being identified for disposition in 1983, soil samples were collected from various locations around the DP Tank Farm in November 1984 and soil control samples and liquid samples were collected from the tanks in January 1985. The results are discussed below in LANL's response to Specific Comment #17.

A memorandum dated May 17, 1985 from Jesse Aragon to Avedon Gallegos provides recommendations for emptying and decommissioning the tanks at the DP Tank Farm (ER ID 37311, attached). A report entitled "Description of Underground Storage Tanks at Los Alamos National Laboratory" dated June 1987, was prepared by IT Corporation just prior to the decommissioning of the tank farm (ER ID 3090, attached). The report describes each of the 13 USTs and does not include the two large aboveground storage tanks. The report describes the status of each tank including approximate capacity and contents. According to the report, each tank had only a residual amount of fuel remaining (approximately 100 gallons).

The DP Tank Farm was decommissioned in 1988 as described in the RFI Work Plan Volume II and in Dave McInroy's field notes (attached). According to Mr. McInroy all concrete support saddles for each tank were removed and each excavation filled in with soil previously covering each tank. Clean fill was brought in the fill the depression caused by the removal of contaminated soil beneath tank #10. The soil berms were also used to regrade the site. According to Mr. McInroy, the soil from the dike was presumed to be clean since none of the tanks had ever ruptured. Additionally, Mr. McInroy confirmed that all known piping, fill stations and valve boxes at the site were drained and removed as part of the decommissioning in 1988. The piping and concrete were disposed of at the Los Alamos County Landfill. Petroleum-contaminated soil excavated during decommissioning activities was brought to Area G at TA-54 for land farming (approximately 75 cubic yards). According to Dave McInroy, the bulk of this soil was associated with the West Fill Station. Prior to land farming, the petroleum-contaminated soils were sampled and analyzed for benzene, toluene, total xylenes and lead to ensure the soils met applicable waste acceptance criteria. Results showed the soil to be within acceptable levels (ER ID1630).

Lastly, waste characterization results from the drums of residual fuels and sludge generated during the tank decommissioning (emptying and cleaning) in 1988 confirm that only petroleum products were stored in the tanks. A copy of the Chemical Waste Disposal Request prepared by Dave McInroy confirms that 10 30-gallon drums and 40 55-gallon drums of residual fuel and sludge were generated during the decommissioning of the tank farm. Radiation screening results for samples collected from each drum show no elevated radiation levels (see attached results), and the Special Waste Analysis Reports generated by Chemical Waste Management for waste approval confirm that no PCBs were present, nor were any solvents or metals other than low levels of lead (see attached). Additionally, the inside of each tank was monitored for radiation prior to shipment off site for salvage and no radiation was found (ER ID 1642).

Based on the information provided herein, and investigations conducted to date it can be concluded that no solid wastes, and thus no hazardous wastes, PCBs or radionuclides were ever stored at the DP Tank Farm.

Specific Comment 17:

§ 2.2.1.2 Sampling, Predecommissioning Investigation Sampling and Analysis Activities (1984 and 1985), page 2-24

" Analytical results for EP toxicity lead and arsenic, and net total organics for the surface soil and control samples, location for which are indicated by the map, are summarized in a copy of the handwritten table submitted in 1985 (LANL 1985, 37841) (provided in Appendix A-1.0 of this work plan). The results show lead and arsenic concentrations in the EP toxicity leachate of samples at below detection (<0.1 mg/L) for lead (with the same result in the controls) and up to 0.0042 mg/L for arsenic (slightly greater than the highest value in the controls)..... A memorandum attached to LANL (1985, 37841) gives the exact date of the soil sample collection as November 27, 1984, followed by collection of soil sample controls and liquid samples from the tanks on January 17, 1985. Details of the analytical results for the liquid samples are not provided."

The analytical method used and the laboratory analytical results for the soil samples collected are not provided in the RFI Work Plan, Vol. II. Please provide laboratory data for review along with the analytical method used. In addition, please provide the exact locations of the samples, which were used as "control samples", as well as the land use history for the sampling location. It is unclear as to where the exact sampling location for the control samples is and if they were collected from an area that has not be previously disturbed. In addition, liquid samples were collected from the tanks on January 17, 1985. Based on the results of the liquid sampling, conclusions were made as to the contents of each of the tanks, however the analytical results are not provided. Please provide the analytical results for verification of the tank contents prior to the removal of the tanks.

LANL Response to Specific Comment 17:

After being identified for disposition in 1983, soil samples were collected from various locations around the DP Tank Farm in November 1984 and soil control samples and liquid samples were collected from the tanks in January 1985. The analytical results and a map of the sample locations were included in a March 1, 1985 memorandum from Lynn Scholl Fritz to John Alquist (ER ID 1635.2, attached). Attached to the memorandum are hand-written analytical results for Extraction Procedure (EP) Toxicity (EP Tox) lead and arsenic and total extractable organics as well as a map of sample locations. An actual print out of these analytical results cannot be located. The memo notes that a radiation survey was not completed due to the presence of snow on the ground. Dave McInroy stated that it was Laboratory policy to conduct a radiation survey prior to decommissioning any Laboratory buildings and equipment, regardless of their use. The liquid samples were collected from fuel ports and results showed fuel range distillates with one sample containing ethanol. The two control soil samples were collected from an area to the south across DP Road. Review of historic aerial photographs from 1974 and 1986 show that the land was vacant at the time the control samples were collected. Review of aerial photographs from 1946, 1958 and 1965 show what appears to be a large coal pile in 1946 and residential trailers and associated parking areas in 1958 and 1965 on the parcel directly south of the DP Tank Farm (copies of aerial photographs attached). In a recent interview, Mr. Francis and Mr. Huber confirmed that the location of the two control samples collected in 1983 was the former location of the western end of a large coal pile, which was present in 1946 aerial photographs, was later the location of a residential trailer park.

The March 1, 1985 memorandum indicates that results for the soil samples showed no elevated lead, arsenic or total organics in surface soils; however, actual analytical results are not available. A radiation survey using a Phoswich instrument was conducted at the DP Tank Farm on April 19, 1985. A memorandum dated April 22, 1985 from John Alquist to Wayne Hansen includes a copy of hand written

survey maps and results documenting that no radioactivity above background was detected (ER ID 1636, attached). Mr. Francis and Mr. Huber also confirmed that no radioactive materials were ever brought on or used on site. The memorandum also stated that several core samples of fuel-soaked soil had been collected from around the two loading docks and analyzed for lead. However, these results were never located and the areas were sampled again during the decommissioning in 1988.