

TA-21

MEMORANDUM

LANL/ER/OU 1106

TO: LANL/RED/94  
 LANL/94/Technical Oversight Program File-White Rock

FROM: Steve Yanicak, HRMB AIP/LANL

DATE: October 27, 1994

RE: AIP site visit of TA-21 to observe priority PRSs and to meet new LANL FPLs

The site visit was led by John Smith (ERM/GOLDER) and Carl Newton (LANL). Also attending was Linda Sobojinski (ERM/GOLDER), Mary Perkins, Michael Dale, Bruce Swanton and myself. The attachment (provided by LANL-ER) contains brief, detailed information about each site visited. Areas of interest visited were MDA V PRS 21-018, which contains 3 absorption pits that received rad and organic liquid waste. The MDA V area was sampled during the summer of 1994 by intermediate depth bore holes which averaged about 125 ft. Data results are expected about August 1995. A vadose zone monitoring well (also drilled during the summer of 1994) just east of MDA V (V-DP) was taken down to 350 ft. V-DP might be drilled deeper to investigate whether the Guaje Pumice bed exists and is continuous beneath DP mesa.

A surface disposal area PRS 21-013(g) containing rubble and concrete debris (a possible NFA candidate) at the mesa edge, just south of MDA V, was visited.

Septic Tank 123 PRS 21-024(e) and outfall PRS 21-024(o), just east of MDA V, might have served a laundry. Recent sampling found elevated levels (above background but less than SALs) of Pu, Am, and U. It was also noted that the tuff benches beneath the mesa edge outfall showed elevated U concentrations.

MDA T and PRS 21-011(k), were the sites that received wastes from the Industrial Liquid Waste Treatment Systems at TA-21. There were two known historical releases in the area. It is also the only area known to have released fission products (<sup>137</sup>Cs, <sup>90</sup>Sr) due to the handling of reactor control rods. EG & G performed an aerial gamma radiation survey of the area including DP Canyon (upper, lower & creek bed) and DP and Los Alamos Canyon confluence that showed elevated amounts of gamma radioactivity (< 2mRem/hr).



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TA-21 Site Visit  
October 27, 1994  
Page 2.

MDA U, was remediated once but some contamination was left in place. It received <sup>3</sup>H contamination and waste from the DP East Tritium Facility.

LAUZ-1, a shallow monitor well (TD=250') drilled to investigate perched water in DP Canyon.

LAUZ-2, a shallow monitor well (TD=250') , 150 yards east of LAUZ-1, drilled to investigate perched water in DP Canyon. Perched water was not encountered in DP Canyon by any existing wells.

Outfall PRS 21-024(i), This outfall, which has dead vegetation in its drainage, historically released into Los Alamos Canyon and contains the highest soil alpha activity of all the outfalls that release into DP or Los Alamos Canyons. The alpha activity in the soils is thought to have occurred from daughter products of highly-enriched uranium, which was purified at DP West.

Sand Pits east of DP East, the waste water treatment facility including the pits was only supposed to handle sanitary waste. Due to rad contamination being found in these pits in the past, sand from the pits was previously removed as low-level rad waste.

DP Tank Farm, this site was used as a refueling depot from 1946 - 1985. The site was remediated in 1988 according to 1988 regulations. The site still contains in-ground gasoline and diesel products in the vicinity of the removed tanks.

cc: Neil Weber, DOE Oversight Program Bureau Chief  
Michael Dale, GWPRB AIP/LANL  
Mary Perkins, HRMB AIP/LANL  
Harvey Decker, SWQB AIP/LANL

## TA-21, OU 1106 RFI TOUR FACT SHEET

### Site 1 - DP Tank Farm

The DP Tank farm was used as a refueling depot from 1946 - 1985 and was decommissioned and remediated. Remediation took place in 1988 to the current standards of the day. This site in particular may serve as an example of the problems the ER Program may face in the very near future. If this site was remediated today according to the UST regulations, the filter test procedure will still be the clean-up standard that applies. However as a PRS, the sampling results are compared to the Screening Action Levels (SALs) of the hazardous gasoline components which are: benzene, toluene, xylene, and ethyl benzene. The UST cleanup standards deal with these components on a percentage or even part per thousand concentration where as the SALs are in the part per million to part per billion ranges.

### Site 2 - Material Disposal Area (MDA) B

MDA-B is in the initial stages of investigation which includes drainage studies and surface alpha studies conducted in FY94. MDA B was used from 1945 to 1948 for disposal of low level radioactive solid waste. The Eastern most portion of the MDA was used for chemical disposal and it is reported that a chemical reaction caused a fire shortly before the MDA was closed. The LRAD (alpha) study was intended to identify radioactive contamination surfacing through cracks in the asphalt cover on the Western half of the MDA. At the time of this writing the survey was not completed. However, there appears to be no contamination on the asphalt surface due to the cracks in the cover.

### Site 3 - Typical Group of PRSs at TA-21

This area includes the following PRSs: 21-018 MDA V, 21-013(g) Surface disposal area, 21-024(e) Septic tank, and 21-024(o) outfall w/ a ponding area.

**MDA V** This disposal area contains three absorption beds which received liquid wastes from the laundry operations at Building 20 from 1945-1961.

**Surface Disposal Area** The surface disposal area behind MDA V contains drainage pipes believed to have originated from MDA V. However, it also contains other debris which came from an unknown source.

**Outfalls (General)** Most of the outfalls encountered at TA-21 originated from floor drains and sinks from one or more buildings. The wastes from these outfalls typically were released at the canyon edge.

**Septic Tank 123 - SWMU 21-024(e)** SWMU 21-024(e) is a septic system that routed sewage from Building 21-20, the former laundry (removed in 1955) through a 1000-gal. steel septic tank (TA-21-123) to the surface on the south rim of DP Mesa above Los Alamos Canyon.

**SWMU 21-024(o)** This outfall is typical of about 1/3 of the outfalls at TA-21, which release liquid effluents that pool before draining off the mesa edge into the canyon. SWMU 21-024(o) received waste from the old diesel plant.

### Site 4 - Material Disposal Area (MDA) T. Building 21-35 (Industrial Liquid Waste Treatment Plant)

MDA T is the area where the highest concentration and volume of hazardous and radioactive constituents were released into the environment. MDA T and it's associated SWMU subunits received wastes from the Industrial Liquid Waste Treatment Systems at TA-21. It was used for disposal of untreated liquid wastes generated at DP West, which housed plutonium purification processes that operated during and after the Manhattan Project. Building 21-35 was the predecessor to the New Industrial Liquid Treatment Waste Facility (21-257). Building 35 solidified liquid waste using cement mixed in a pug mill. The cement mixture was pumped into 50' disposal shafts that were removed in 1984 & 1986 for storage in Area G at TA-54. Significant radiological contamination has been identified in what appears to be trenches where waste lines fed into Building 35.

### Site 5 - SWMU 21-011(k)

This site represents the suspected result of wastes released from the Industrial Liquid Wastes Treatment Facilities and MDA T. This SWMU is the first area at TA-21 where a Voluntary Corrective Action (VCA) was initiated. The VCA includes the fence you can see from the road and at LADP-4. Contamination is anticipated to have originated from MDA T. Contamination from this SWMU extends to the intersection of Los Alamos and DP Canyons.

### Site 6 - LADP-4. LAUZ-1 & 2

LADP-4 was drilled in the FY94 field season to a depth of 800 feet. The intent of the borehole was to discover if there was an alluvial aquifer at the basalt contact and to attempt to identify the fate of the millions of gallons of contaminated water pumped into MDA-T. The depth of basalt was estimated to be no greater than 800 ft. Since the borehole did not identify an alluvial aquifer or basalt, drilling ceased and the hole was temporarily abandoned.

LAUZ -1 & 2 are being drilled in the FY94 field season. By today, it will be known if a perched zone is present in DP Canyon. It is not likely that one will be identified. These boreholes are being used to help characterize the geology/hydrology of DP Mesa and the adjacent LA and DP Canyons. The boreholes are also expected to help identify the source of DP Spring. From recent discoveries it is likely to be the shallow alluvial aquifer which is present at about 5 ft. below the DP Canyon surface along the stream channel. It appears that this aquifer flows year around.

### Site 7 - Outfall 21-024(i)

This outfall received sewage from Building 21-152 through tank 21-181. Also routed to this outfall was blowdown from two cooling towers. The outfall is contaminated with rad and metals and strangely has no vegetation in the drainage channel.

INTERMEDIATE