

M E M O R A N D U M

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

THROUGH: <sup>has</sup> Bruce Swanton, Program Manager DOE/EM Oversight

FROM: Steve Yanicak, NMED AIP/LANL

DATE: September 16, 1994

SUBJECT: AIP visit of OU-1114, TA-3, Phase II Soil Gas Survey Sampling at Mercury SWMU Site West of Building SM-30, Los Alamos, NM.

AIP staff visited SWMU 3-010(a) which is located within operable unit (OU) 1114 at TA-3 on a hillside west of Building SM-30. AIP staff split 4 volatile organic carbon (VOC) soil gas samples with ERM-Golder (LANL contractor). The purpose of the split sampling was to verify that LANLs PID instruments would be able to detect suspected very low concentrations of VOCs in the soil at the bottom of the bore holes during the soil gas survey. Much to LANLs and AIPs surprise, LANL PIDs not only detected VOCs, but the soil gas survey yielded higher than expected VOC results within a proximal topographic region up-gradient and down-gradient of the SWMU excavation pit. LANL conducted 2 background PID measurements west of the pit across the drainage to confirm that 9 - 14 ppm was a confirmable background reading for the area. The AIP sampling procedure utilized activated carbon tubes that were purged using LANL PIDs. The amount of air volume through the activated charcoal tubes needed for ATI laboratory detection limits required about 15 - 20 liters of air at a PID flow rate of 1 liter/min for 20 minutes from down hole sampling locations (see attachment). The air tube samples were collected over two days and sent to ATI in Pensicola Florida for VOC analysis.

SWMU 3-010(a) brief history: From 1950 through 1957 laboratory-wide vacuum pump oil containing mercury, and low-levels of tritium, plutonium and cesium-137 contamination was discharged from Building SM-30 to the hillside. The hillside was recently mitigated by an Environmental Restoration (ER) Program voluntary corrective action (VCA) that removed the top soil contaminated with mercury and radiological constituents. The contaminated soil was transported to TA-54. In May 1994, results of a BTX analysis taken at the bottom-toe of the excavation showed that the soil also contained trace amounts of the chlorinated solvents 1,1,1 & 1,1,2 trichloroethane (TCA), 1,1-Dichloroethene (DCE) and trichloroethene (TCE). Initial hillside soil samples were not analyzed for VOCs due to the interpretation of archival data concerning the site's history and process knowledge. Process knowledge was determined in part by interviews with former site workers. Those interviews did not reveal the use of solvents in operations at the site.

cc w/attachment: Benito Garcia, HRMB Bureau Chief  
Neil Weber, DOE Oversight Bureau Chief

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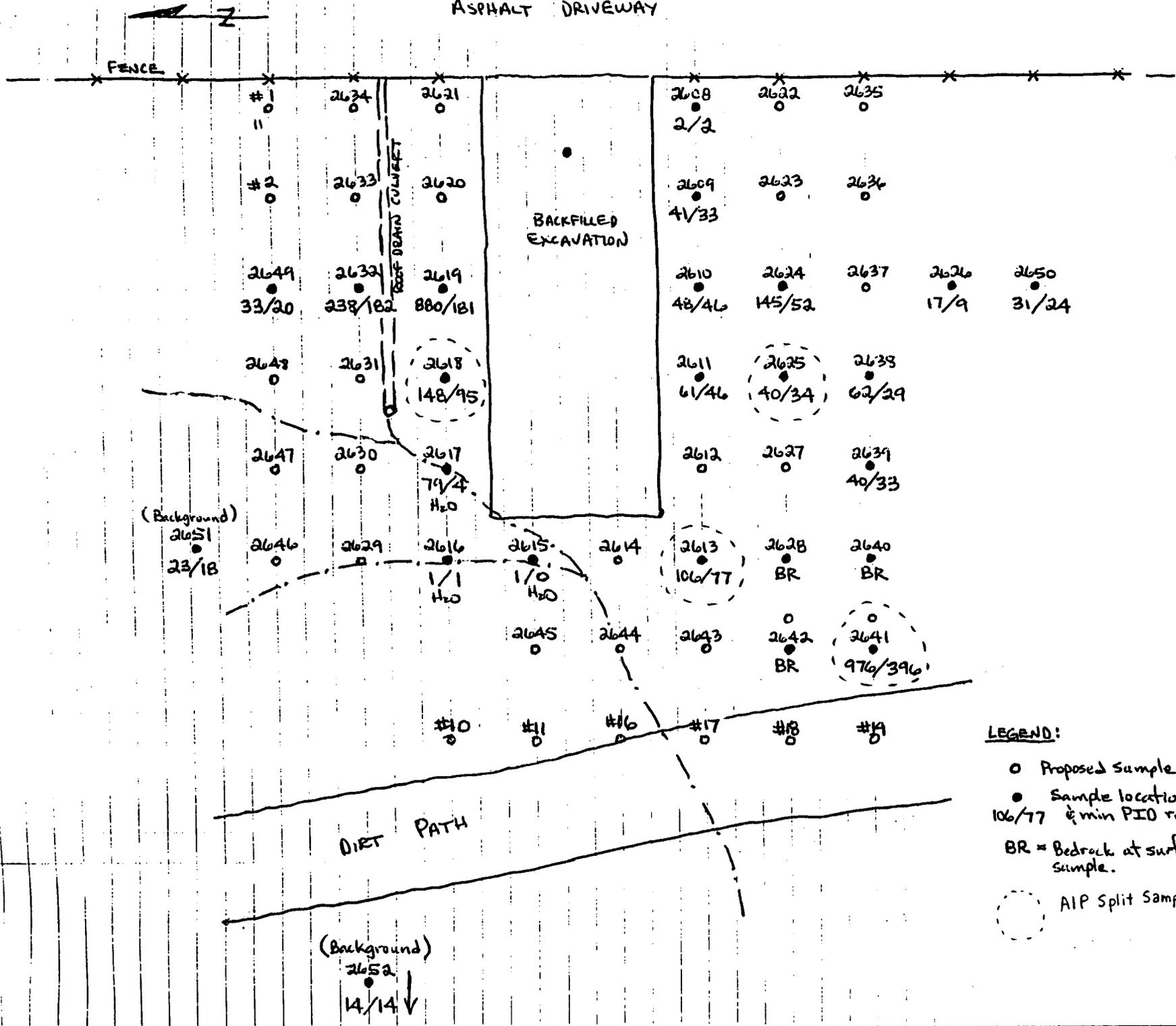
5444

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XXR1114

TV

SM-30  
ASPHALT DRIVEWAY



- LEGEND:**
- Proposed sample location
  - Sample location w/ max. 106/77 & min PID readings.
  - BR = Bedrock at surface. No sample.
  - AIP Split Sampling location

(Background)  
2651  
23/18

(Background)  
2652  
14/14 ↓

#10 #11 #16 #17 #18 #19

2618  
148/95

2613  
106/77

2641  
976/396

2616  
1/1  
H<sub>2</sub>O

2615  
1/0  
H<sub>2</sub>O

2617  
79/4  
H<sub>2</sub>O

2632  
238/182

2619  
880/181

2649  
33/20

2611  
61/46

2625  
40/34

2633  
62/29

2612

2627

2639  
40/33

2610  
48/46

2624  
145/52

2637

2626  
17/9

2650  
31/24

2609  
41/33

2623

2636

2608  
2/2

2622

2635

#1

2624

2621

#2

2633

2620

FENCE



FOOT DRAIN CULVERT

BACKFILLED  
EXCAVATION

DIRT PATH