June 1992

Exposure Assessment Information

Surface Impoundments
Technical Area 53

Los Alamos National Laboratory
Environmental Protection Group EM-8
Los Alamos, New Mexico 87545

4275

TABLE OF CONTENTS

Page

Introduction

Section 1.0 - General Facility Information 1

Section 2.0 - Regulatory Compliance History 5

Section 3.0 - Potential Releases, Potential Pathways, & Potential Magnitude and Nature of Exposure. 6

Section 4.0 - Waste Transportation, Accidents, Fire, and Worker Exposure Information 20

Section 5.0 - References 22

Appendices

LIST OF APPENDICES

APPENDIX I: Environmental Surveillance Report, 1989

APPENDIX II: Land Use Maps

APPENDIX III: Aerial Photograph of Impoundments

APPENDIX IV: Analytical Data from Impoundment Liquid and Sludge

APPENDIX V: Historical Mass Balance Data

APPENDIX VI: Flood Frequency and Maximum Discharge of Canyons

APPENDIX VII: Net Precipitation Calculation

APPENDIX VIII: NMED's Notice of Violation (5/24/91) and DOE's Response (6/28/91)

APPENDIX IX: Summary of Violations - NPDES

APPENDIX X: Off-normal Occurrence Report (8/29/91)

APPENDIX XI: Gravimetric Moisture & Tritiated Water Concentration Profiles

APPENDIX XII: Stratigraphic Logs and Completion Diagrams

APPENDIX XIII: Volumetric Moisture Plots

APPENDIX XIV: Field Gas Monitoring Report

APPENDIX XV: Underground Lines

APPENDIX XVI: Pore Gas Analytical Data (8/29/91, 12/16/91)

APPENDIX XVII: Map of Lift Stations & Holding Tank Locations, and Pump Truck Route

APPENDIX XVIII: Vehicular Incident Report

APPENDIX XIX: Vehicular Incident Report & Decontamination Data

APPENDIX XX: Report of No Worker Exposures/Injuries

INTRODUCTION

This document presents the Los Alamos National Laboratory's (the Laboratory) and the Department of Energy's (DOE) Hazardous Waste Facilities Exposure Information Report (EIR) to meet the requirements of the Hazardous and Solid Waste Amendments of 1984, Subtitle D, Section 247 (Subtitle C of the Solid Waste Act, Section 3019).

The provisions of Section 247 apply to mixed waste surface impoundments or landfills seeking a final determination for a permit under Section 3005(c) of the Solid Waste Disposal Act. The Laboratory and DOE have submitted a Resource Conservation and Recovery Act (RCRA) Part B Permit Application to the New Mexico Environment Department and the Environmental Protection Agency (EPA) for the surface impoundments at Technical Area (TA) 53. The Part B Application provides a detailed explanation of the facility in general and specific information about the impoundments. Information pertinent to the EIR that has already been provided in the Part B Permit Application has not been resubmitted in this document but the sections where this information can be found have been referenced. Information that is provided in other documents, such as the Environmental Surveillance Report, 1989, found in the EIR Appendix I has also been included by reference.

This document is organized into 5 sections. Section 1.0 describes general information about the facility, its operation, and the surrounding area. Section 2.0 describes the regulatory compliance history of the TA-53 impoundments. Section 3.0 provides descriptions of reasonably foreseeable potential releases, potential pathways of human exposure to hazardous waste or constituents, and the potential magnitude and nature of the exposure. The potential pathways of exposure evaluated include ground water, surface water, air, subsurface gas, and soil. Section 4.0 describes waste transportation, accidents, fire, and worker exposure information associated with the impoundments. Section 5.0 provides references used in developing this document.

Section 1.0

1.0 GENERAL INFORMATION

1.01 General description of facility - see RCRA Part B Permit Application, Section 2.1.

1.02 Land use - see RCRA Part B Permit Application, Section 2.1.5, Environmental Surveillance Report page 13, Section B., and Appendix II.

1.03 Weather - see Environmental Surveillance Report, page 16, Section D.

1.04 Wind rose showing prevailing wind speed and direction - see RCRA Part B Permit Application, Section 2.1.4.

1.05 Topographic map - see RCRA Part B Permit Application, Section 2.1.2

1.06 Description of surface impoundments, TA-53 - see RCRA Part B Permit Application, Section 2.1.1

1.07 Facility location information and aerial photo - see RCRA Part B Permit Application, Section 2.1.1, and Appendix III. The impoundments are hereby referenced as the northwest (NW), northeast (NE), and south (S) impoundments

1.08 Chemical and physical analyses of wastes - see RCRA Part B Permit Application, Section 3.0

1.09 List of wastes placed or to be placed in each unit - see RCRA Part B Permit Application, Section 3.0, data provided in EIR Appendix IV, and the following summary:

Future placement of hazardous waste in the impoundments is not anticipated. However, as referenced in EIR Section 1.08., an extensive sampling and analysis effort was performed to fully characterize the current contents of the impoundments. Data from this effort will be available when analyses are complete. Some preliminary sampling and analysis was performed by DOE in 1987, and by the Laboratory in July, 1991.

The analytical data collected by DOE was somewhat suspect due to the indication of many false positives. The data did indicate the presence of toluene between 200 and 3600 ug/kg in the northwest impoundment sludge and various metals at levels unlikely to meet toxic characteristics. Specifically, the metals detected were barium, copper, zinc in all six sludge samples collected at concentrations of 41 to 110 mg/kg, 78 to 300 mg/kg, and 120 to 580 mg/kg, respectively. Beryllium was detected in 4 samples at concentrations ranging from 0.6 to 0.9 mg/kg.

Chromium was found in three samples at concentrations ranging from 13 to 18 mg/kg. Mercury was detected in three samples between 0.5 and 1.1 mg/kg, and silver in two samples at 4.9 and 7.1 mg/kg. respectively. Samples were analyzed for radioactivity but the results will not be summarized in this document.

The Laboratory collected sludge and liquid samples from the three impoundments in July, 1991. Analysis was performed for tritium and other radioisotopes, Toxicity Characteristic Leaching Procedure (TCLP) metals (Ag, As, Ba, Cd, Cr, Hg, Pb and Se), and RCRA target volatile (VOC) and semivolatile (SVOC) compounds. Summary of the radioactive content in the impoundments is not provided in this document. Low concentrations of target compounds were detected in the sludge and liquid and are summarized below.

Liquid and sludge samples contained some TCLP metals, however, the concentrations were far below hazardous waste TCLP criteria. No VOCs were detected in the liquid collected from the impoundments, but toluene was detected in the northwest impoundment sludge at 25 to 68 ug/kg and in the south impoundment sludge at 14 ug/kg. P-isopropyltoluene at 9 ug/kg was also found in the south impoundment sludge.

Low concentrations of SVOCs were detected in the northwest impoundment liquid and sludge. Benzoic acid was detected in the northwest impoundment liquid at 15 ug/l. Benzidine, bis-2-ethyl-hexyl-phthalate, and di-n-butyl-phthalate at 1.9-3.9 mg/kg, 1.1-1.2 mg/kg and 1.4 mg/kg, respectively, were detected in the northwest impoundment sludge. Di-n-butyl-phthalate was also detected in the south impoundment at 1.4 mg/kg and at .6 mg/kg in the blank.

Liquid samples were also collected by the Laboratory prior to a planned National Pollution Discharge and Elimination System (NPDES) discharge in July, 1991. Analysis was performed for VOCs, SVOCs and radioactivity. No VOCs or SVOCs were detected.

1.10 Estimated annual volume of waste received at unit - see historical mass balance data from July 1986 thru September 1988 for the northwest and northeast impoundments in Appendix V. The daily influent volume averaged from September 1990 to August 1991 has been determined to be 15,860 gal/day.

Since use of the south impoundment has been changed to be the only impoundment to receive radioactive waste in 1989, the annual volume of waste received was recorded as 900,000 liters in 1989 and 1,006,000 liters in 1990.

1.11 Description of liner - see RCRA Part B Permit Application, Section 4.0

1.12 Structural integrity of dikes - see RCRA Part B Permit Application, Sections 4.1.2, 4.2.2

1.13 Procedures/equipment to prevent overtopping - see RCRA Part B Permit Application, Section 4.3.1.

1.14 Access control and security description of active portion - see RCRA Part B Permit Application, Section 6.1

1.15 Traffic patterns, volume, and controls; access road characteristics - see RCRA Part B Permit Application, Section 2.3

1.16 General inspection schedule and procedures - see RCRA Part B Permit Application, Sections 6.2, 6.3, 6.4

1.17 Preparedness and prevention documentation - see RCRA Part B Permit Application, Sections 6.5, 6.6

1.18 Documentation of procedures to prevent accidental ignition or reaction - see RCRA Part B Permit Application, Section 6.5

1.19 Contingency plan - see RCRA Part B Permit Application, Section 7.0

1.20 Preventive procedures - see RCRA Part B Permit Application, Section 6.6

1.21 Outline of programs to train employees to safely operate and maintain facility, including emergency response activities - see RCRA Part B Permit Application, Section 8.0

1.22 Closure plan - see RCRA Part B Permit Application, Section 9.0

1.23 Regional Geology - see RCRA Part B Permit Application, Section 2.2.4.1, and Environmental Surveillance Report, page 15, Section C.

1.24 Ground Water - see RCRA Part B Permit Application, Section 2.2.5, and Environmental Surveillance Report, page 15, Section C.

1.25 Municipal and industrial water supply - See RCRA Part B Permit Application, Section 2.1.3, and Environmental Surveillance Report, page 51, Section 5.

1.26 Identification of uppermost aquifer, including flow rate and direction - see RCRA Part B Permit Application, Section 2.2.5

1.27 Maps related to ground-water protection (well location, water table, elevation contours, etc.) - see RCRA Part B Permit Application, Section 2.2.5, figure 2-13

1.28 Detailed plans for ground-water monitoring program - see RCRA Part B Permit Application, Section 5.0

1.29 Interim status ground-water monitoring results - see RCRA Part B Permit Application, Section 5.0

1.30 Description of existing contamination - see brief summary below:

During subsurface drilling operations adjacent to the impoundments, levels of tritium above background were detected in July, 1991. The source of the tritium is still under investigation. A summary of the tritium data collected is presented in EIR Section 3.01. Further evaluation for the presence of hazardous waste or constituents in subsurface cores and in pore gas indicated that no volatile or semi-volatile organics, and no metals above background were detectable (EIR Section 3.01.)

1.31 Surface Water - see Environmental Surveillance Report,page 43, Section B.

1.32 Rio Grande Flow Data - see Environmental Surveillance Report, page 44, Section B.2

1.33 Flood Frequency and Maximum Discharge of Canyons - see RCRA Part B Permit Application, Section 2.2.2 (Floodplain Standard), and EIR Appendix VI.

1.34 Net precipitation using net seasonal rainfall or other available data - see EIR Appendix VII.

Section 2.0

2.0 REGULATORY COMPLIANCE HISTORY

One hazardous/mixed waste inspection of the TA-53 impoundments was performed by the New Mexico Environment Department on May 3, 1991. The deficiencies cited were the lack of an inspection schedule and that inspection logs were not maintained. These issues have been resolved (see NMED Notice of Violation to DOE, May 24, 1991, and DOE's response to NMED, June 28, 1991 in Appendix VIII).

Another recent hazardous/mixed waste inspection was performed (5/4-5/8/92) but no violations have been formally reported to the Laboratory at this time.

Discharge from the impoundments has been regulated by the EPA's NPDES program for pH, total suspended solids (TSS), biological oxygen demand (BOD), and flow since 1976. Violations of the NPDES permit were frequent for pH, TSS and BOD parameters, pH being the most frequent, followed by TSS, and then BOD. TSS and pH violations were almost exclusively the result of algal growth. A summary of the violations is included in EIR Appendix IX.

A Federal Facilities Compliance Agreement (FFCA) was established in 1983 that contained a schedule to install sand filters intended to correct permit violations. Aerators and a third impoundment were installed in lieu of sand filters by 1985. Various reports were submitted pursuant to the 1983 FFCA, new FFCAs were established in 1986, 1989, and 1991 including plans to remedy noncompliance problems, and several enforcement actions issued describing noncomliance incidents. Most recently, plans to pipe sanitary wastewater to the TA-3 treatment facility have been completed and implementation will begin in mid-1992. Records of these documents have not been included in this EIR but reside with the Environmental Protection Group at the Laboratory.

An off-normal occurrence report was recently filed pursuant to DOE Order 5000.3A following observation of a red, milky liquid in the influent to the sanitary impoundments on August 29, 1991. A copy of the report is included in Appendix X. It is not known what the liquid was or where it came from.

Section 3.0

3.0 POTENTIAL RELEASES, POTENTIAL PATHWAYS, AND POTENTIAL MAGNITUDE/NATURE OF EXPOSURES

3.01 Potential for Human Exposure via the Ground-Water Pathway - see the following discussion:

A demonstration document (International Technology Corporation, 1992) for a ground-water monitoring waiver at the TA-53-166 surface impoundments has been developed. This document was prepared in accordance with 40 CFR 264.90(b), and provides supporting information to demonstrate a variance from 40 CFR 264, Subpart F (Ground-Water Monitoring). The general conclusions of this demonstration state that: (1) the annual evapotranspiration equals or exceeds the annual precipitation resulting in a negative annual percolation at TA-53; (2) the unsaturated hydraulic transmitting characteristics of the vadose zone below the TA-53-166 surface impoundments on Mesita de Los Alamos demonstrate low moisture contents with depth similar to the field measurements obtained for TA-54 (low potential for fluid migration from the surface to the uppermost aquifer, located approximately 1,000 ft below); (3) the approximate rate of ground-water flow in the uppermost aquifer immediately below TA-53 ranges from 50 feet per year (fpy) to 250 fpy; (4) the closest active municipal water supply well is PM-3, located in the Pajarito well field approximately one mile hydraulically downgradient from the impoundment site; and (5) seepage flow calculations were performed for potential leakage from the impoundments. A recently installed municipal water supply well (Otowi-4) is located within one-half mile of the impoundments; however, this new well will not begin production until 1992 or later. This waiver demonstration concludes that the TA-53-166 surface impoundments have a very low potential for affecting ground-water contained in the uppermost aquifer since any potential seepage from the impoundments must first migrate through approximately 1,000 feet of unsaturated volcanic tuffs and sediments.

Gravimetric moisture and tritium grab and core samples were obtained in late June and early July, 1991, from eight test holes located adjacent to the TA-53-166 surface impoundments (see Part B Permit Application, Appendix E, for tabulated laboratory data). Plots of these data (see Appendix XI) indicate that the underlying strata are indeed unsaturated, and support test hole drilling observations (see Appendix XII). One test hole (5-53) was completed as a pore-gas monitoring system, while a second test hole (6-53) was used only for core sample recovery and may be completed as both a pore gas and neutron moisture monitoring hole. The remaining six test holes were cased with two inch diameter aluminum tubing so that neutron moisture data could be routinely collected. A pressure-vacuum lysimeter was also installed in the annulus of well 7-53 between the aluminum casing and the borehole wall in order to collect pore water moisture samples for subsequent analyses in addition

to neutron moisture data (see completion details for all holes in Appendix XII). The pore-gas monitoring system was sampled on August 29, 1991, December 16 1991, and March 27, 1992 (still awaiting analytical results from March 1992 sampling effort). Neutron moisture probe measurements were recorded on August 29, 1991 April 22-23, 1992, and June 17, 1992, at varying depths in these six cased test holes using a California Pacific Nuclear (CPN) Corporation Model 503-DR probe. A CPN factory calibration curve was used to convert detected neutron radiation counts to volumetric moisture content versus depth in these six access wells. Plots of these preliminary data are shown in Appendix XIII.

Table 1 represents a brief summary of the gravimetric moisture and tritium data obtained from the TA-53 test wells (see Appendix XI for plots). The indicated tritiated moisture penetration depths were directly estimated from the Appendix XI plots. At depths listed in Table 1, tritium concentrations were detected in soil moisture that exceed the upper limit for background concentration (BGC) established for well B-53, the background well for the TA-53-166 surface impoundments. This upper background limit was estimated from the tritium concentration data obtained from twelve soil moisture samples recovered in well B-53, and is equal to the mean tritium concentration plus two times the standard deviation (BGC for tritium in soil moisture at the TA-53-166 surface impoundments = 1.49 nCi/l). Table 1 indicates that tritium has migrated vertically downward in the soil moisture to different depths at various locations surrounding the impoundments. This tritiated moisture migration may have occurred since 1969 when the TA-53-166-NE and NW ponds were first constructed. The most extensive tritiated moisture migration was observed in hole 5-53, where it has penetrated to at least 100 feet below ground surface. Holes 2-53 and 6-53 show levels of tritiated moisture above BGC have penetrated to depths of 50 and 46 feet below ground surface, respectively. The remaining holes showed penetration depths less than 14 feet, with holes B-53 and 7-53 having no tritium above the BGC limit.

Two potential sources of tritium detected in these boreholes have been identified. There may possibly be some limited impoundment seepage in the vicinity of holes 2-53 and 6-53, and a much lesser amount near holes 1-53, 3-53, and 4-53. Also, surface contamination of tritium resulting from previous spills, evaporation from the impoundments, and/or stack air emissions from area operations may have been driven into the subsurface by precipitation.

The levels of tritium in hole 5-53 may have resulted from one or several sources. This well is located immediately adjacent to the location of the historical discharge drainage ditch than ran west-to-east along the southern boundary of the TA-53-166-NE pond. This ditch was constructed at the same time as the NW and NE ponds (i.e., 1969). When the southern pond (i.e., TA-53-166-S) was installed in 1985, this drainage ditch was

removed. Hence the higher tritium levels in hole 5-53 may be the result of liquid infiltration originating from TA-53-166-NE and NW pond discharges between 1969 and 1985. However, these higher tritium levels may have also originated from leakage around the manhole access connection and/or the liner seal around the influent pipe entering the TA-53-166-S impoundment since 1985.

Hence these tritiated moisture penetration depths potentially represent maximum moisture infiltration depths since about 1969 using tritium as a non-conservative tracer. Most importantly, the tritiated moisture penetration depths reinforce the seepage calculations presented in the ground-water monitoring waiver demonstration (International Technology Corporation, 1992).

As implied above, tritium in near-surface soil moisture is an excellent indicator (or tracer) of subsurface water movement because it can represent the maximum penetration depth of surface infiltration. However, tritium may also be present in varying amounts in precipitation waters due to natural production in the upper atmosphere and from historical atmospheric thermonuclear testing. As previously mentioned, tritium may also be present in localized precipitation waters at TA-53 due to stack emissions at Los Alamos Meson Physics Facility (LAMPF), or from TA-53-166 impoundment evaporation. Appendix XI contains a time-history plot of mean annual tritium concentrations in precipitation waters collected in Albuquerque for comparison to the TA-53 data. One may conclude from this figure that the maximum recorded mean annual tritium concentration levels in precipitation waters in Albuquerque occurred in 1963, and that these historical levels do not currently exceed about 0.7 nCi/l when decayed to 1991 levels. By serendipitous coincidence, this level is nearly identical to the Minimum Detection Limit (MDL) for tritium analyses by liquid scintillation counting by the Environmental Chemistry Group (EM-9) at the Laboratory. This MDL is shown on all plots in Appendix XI. One should recognize that tritium in Albuquerque precipitation waters is and was probably different than at Los Alamos. Hence if one assumes that aereal Los Alamos County historical tritium values in natural precipitation have not exceeded about 1.0 to 1.5 nCi/l when decayed to 1991 levels, then the BGC threshold just above the MDL line on the Appendix XI graphs will approximate an upper boundary for aereal background tritium in infiltrated soil moisture. One therefore concludes that it is impossible to distinguish between natural precipitation and impoundment infiltration for those tritium levels shown in Appendix XI that are above the MDL but below the BGC. Tritium levels above BGC could be the result of contributions from sources previously described. Again, this interpretation assumes that localized tritium in precipitation has always been below the 1.49 nCi/l BGC value in terms of tritium concentration values decayed to 1991 levels. It should be noted, however, that localized tritium levels in precipitation have not been fully characterized at Los Alamos, and that they were simply assumed to have always been below the 1991 BGC value

as a matter of convenience. Hence additional information may eventually modify the interpretation presented above.

The last figure in Appendix XI shows the gravimetric moisture and tritiated water concentration profiles obtained from core samples recovered in an unrelated test well (SIMO-1) located in Mortandad Canyon for comparison purposes only (see Stoker, et al. 1991, for original data and well location). This later well is located immediately adjacent to the ephemeral stream channel segment contained on Indian Sacred Lands. These lands are located immediately east of the Laboratory property boundary and upstream of New Mexico State Road 4 in Mortandad Canyon at a location that has not received any streamflow run-off originating from the Laboratory property since at least 1960 (i.e., prior to the operation of the waste treatment plant at TA-50). This figure demonstrates that moisture and tritium levels in Mortandad Canyon at an off-site location are still comparable to those at holes B-53 and 7-53 at the TA-53 site. Tritium concentrations above the MDL line for well SIMO-1 (i.e., the upper 15 feet) are below the 1.49 nCi/l background value for TA-53, and probably represent natural tritium contamination from precipitation infiltration since about 1960 to 1963.

Finally, it should be emphasized that, although low concentrations of some hazardous constituents were detected in the impoundment sludge (see EIR Section 1.09.), no hazardous wastes or hazardous constituents were detected or exceeded background ranges (Ferenbaugh, et al., 1990) in any of the core or pore gas samples taken from the test wells at TA-53.

Based on tritium, moisture, and chemical analyses summarized above, the potential for migration of hazardous waste or constituents to the main aquifer approximately 1000' from the surface is extremely low. Typical gravimetric and volumetric moisture profiles from the TA-53 test wells are approximately comparable to each other and to other unrelated LANL waste disposal sites containing no surface impoundments (i.e., TA-54). They are also approximately comparable to non-Laborotory canyon site locations on Pajarito Plateau that have had no influence from surface impoundments (i.e., core hole SIMO-1). The test wells at TA-53 indicate that no hazardous wastes or hazardous constituents are present or exceed background levels in the subsurface area surrounding the three TA-53-166 impoundments, and that subsurface infiltration originating from impoundment seepage has apparently not penetrated below the mesa top to the adjacent canyon floor at core hole 7-53. Analysis of sludge and liquid from the impoundments indicates very low levels of hazardous constituents present in the sludge potentially available for a potential release. (Also, no future placement of hazardous waste or constituents is anticipated.) These factors considered, in the unlikely event of an unplanned release of hazardous waste or constituents from the impoundments, migration to groundwater is extremely unlikely, migration in the groundwater to a human receptor an even more remote possibility, and the impact on a human receptor is almost immeasurable.

(Note: no springs or water seeps have ever been documented to occur on canyon walls adjacent to TA-53. Therefore, a ground-water pathway connecting the surface impoundments to canyon runoff waters also seems very unlikely.)

Table 1. Maximum tritiated moisture penetration depths in TA-53 test wells.

Well No.	Penetration[1] Depth (ft)	Total Depth (ft)	Remarks
B-53	0	50	None
1-53	14	50	None
2-53	50	50	None
3-53	9	50	Possible caving at 50 ft
4-53	14	50	None
5-53	100	100	Questionable value at 70 ft
6-53	46	150	None
7-53	0	80	Tritium at 5 ft may be upper BGC

[1]Maximum depth in feet below the ground surface where tritium concentrations in soil moisture exceed the estimated upper limit of tritium background concentration (BGC) established for well B-53, where BGC = Mean + 2*Standard Deviation = 1.49 nCi/l.

3.02. Ground-water Monitoring - see Environmental Surveillance Report, page 43, Section VI.

3.03. Ground-water Use - see RCRA Part B Permit Application, Section 2.1.3.

3.04. Ground-water Contamination - see Environmental Surveillance Report, page 43, Section B.

3.05. Potential for Human Exposure via the Surface Water Pathway - see the following discussion:

Initially the TA-53-166-NE and NW ponds were constructed in 1969, and the TA-53-166-S pond was added in 1985. This three-cell lagoon system was split into two separate systems in 1989 to segregate radioactive liquids into the TA-53-166-S pond only. This south pond receives low-level radioactive wastewater which originates from operations at TA-53. This impoundment is lined with a Hypalon liner and operates as an evaporative lagoon which does not discharge liquid effluent to the environment.

The bottoms of the TA-53-166-NE and NW sanitary lagoons are lined with bentonite clay, and the side-slopes are lined with gunite. Presently these lagoons receive only sanitary wastewater and are operated in series. These two impoundments occasionally released surface discharges to Los Alamos Canyon under U.S. Department of

Energy's (DOE) National Pollution Discharge Elimination System (NPDES) Permit Number NM-0028355, Outfall No. 09S. Recently, NMED has directed the Laboratory to release liquid continuously rather than periodically. These sanitary ponds also have a six inch diameter emergency overflow pipe at elevation 6920 feet that will automatically release any excess impoundment fluids through the outfall and maintain a two foot impoundment free-board level.

Testing for volatiles, semi-volatiles, metals, and radioactivity was conducted on samples obtained from the liquid and sludge portions of all three lagoons in July, 1991. Testing for these same compounds (except metals) was also conducted on samples collected from the effluent discharged from the sanitary lagoons later during July (see EIR, Section 1.09.). Low concentrations of toluene, p-isobutlytoluene, and benzidine were detected in sludge samples from the TA-53-166-NW and S impoundments. Bis-2-ethylhexyl) phthalate and di-n-butyl-phthalate were also found in the sludges and di-n-butyl-phthalate in the blank. Phthalates are common plasticizers frequently found in environmental samples. Benzoic acid was found in the liquid portion of the NW impoundment. This compound is commonly associated with vegetable matter decomposition in most sanitary lagoons. No metals in excess of the Toxicity Characteristic Leaching Procedure (TCLP) limits (40 CFR 261.24) were found in any samples (see Appendix IV).

Under normal operations, effluent from the TA-53-166-NE and NW sanitary impoundments has been discharged twice a year for a period of approximately one month for each discharge. Effluent from the outfall drops approximately 400 feet into Los Alamos Canyon where it enters the shallow alluvium in the canyon bottom. Effluent from these sanitary lagoons may eventually leave DOE property when the discharge is picked up by surface runoff from a large thunderstorm or snowmelt event (Purtymun, et al., 1990), or perched canyon waters may discharge to off-site surface springs (Purtymun, 1981). Los Alamos Canyon is normally dry at the point where the TA-53-166-NE and NW sanitary impoundment drainage enters the canyon watercourse. Hence, under normal operations, the potential for human exposure to contaminants originating at the TA-53-166-NE and NW sanitary lagoons via the surface water pathway is extremely small.

In those unusual situations when normally discharged effluent is carried off Laboratory property by a large rainfall or snowmelt runoff event, there will be a runoff dilution effect as illustrated below. Furthermore, off-site spring flows are fed by intermittent surface flow infiltration in Los Alamos and Pueblo Canyons, and a combined surface-subsurface dilution effect can occur. In addition to combinations of these normal discharges and unusual runoff events, there is a slight possibility that sanitary discharges may be released at any time through the emergency overflow pipeline in the sanitary impoundments. However, emergency discharges from such an event would be less than normal periodic releases, and would probably not be carried

off-site unless they coincided with a large runoff event. In addition, the liquid would probably be even less likely to contain hazardous constituents due to a possible increase in water causing the overflow. Hence, one concludes that even for these unusual situations, the potential for human exposure to hazardous wastes or hazardous constituent releases originating from the sanitary impoundment via the surface pathway is very small.

Each of the sanitary impoundments has a surface area of approximately 1.01 acres, and an average operating depth of approximately five feet. The maximum capacity of each sanitary impoundment is 1.63 million gallons. In the event of a catastrophic failure of a sanitary impoundment dike, approximately 3.26 million gallons of sanitary wastewater could potentially be released from the two impoundments. The TA-53-166-S impoundment has a surface area of approximately 1.04 acres, and an average operating depth of approximately five feet. The maximum capacity of the TA-53-166-S lagoon is 2.58 million gallons. In the event of a catastrophic failure of a TA-53-166-S lagoon dike, approximately 2.58 million gallons of low-level radioactive wastewater could potentially be released. In the unlikely event of an interconnected catastrophic dike failure breaching all three ponds, approximately 5.84 million gallons of combined sanitary and low-level radioactive liquids could potentially be released. In any of these hypothetical catastrophic failures, concentrations of hazardous wastes or hazardous constituents would be limited since the liquid portion of all three impoundments has been found to be free of all of these compounds, and to contain benzoic acid at parts per billion levels. Inspection of the impoundments and impoundment dikes is being conducted on a daily basis to insure against catastrophic failure.

Despite these safeguards, a catastrophic failure could potentially occur during an intense thunderstorm event that occurs between daily inspections. However, a hazardous waste constituent dilution effect from rainfall runoff would be generated. The peak flows and total runoff volumes of various recurrence interval flood events are shown in Table 2 for Los Alamos Canyon above its confluence with Pueblo Canyon (McLin, 1991). These runoff volumes can be used to compute a dilution factor for the TA-53-166 lagoons in the event of a catastrophic dike failure. In equation form, a simple volumetric mass balance statement for any hazardous constituent would be represented by:

$$(V_r+V_1+V_2+V_3)c = V_r c_r + V_1 c_1 + V_2 c_2 + V_3 c_3 \quad (1)$$

where V_r = 24-hour runoff volume in LA Canyon (millions of gals),
V_1 = breached volume from NE pond (1.63 million gallons),
V_2 = breached volume from NW pond (1.63 millions gallons),

V_3 = breached volume from S pond (2.58 millions gallons),
c = hazardous waste/constituent concentration of commingled runoff and pond waters (ppm),
c_r = hazardous waste/constituent concentration in runoff volume (ppm),
c_1 = hazardous waste/constituent concentration in NE pond (ppm),
c_2 = hazardous waste/constituent concentration in NW pond (ppm),
c_3 = hazardous waste/constituent concentration in S pond (ppm).

A dilution factor for any hazardous waste/constituent of interest can be found from equation (1) by solving for c. Note that c_r will typically be zero (i.e., runoff waters will contain no hazardous wastes or hazardous constituents before they commingle with TA-53-166 lagoon waters in Los Alamos Canyon). For example, to compute the dilution factor associated with a TA-53-166-S pond breach during the 100-year flood event, where $V_1 = V_2 = 0$, and $c_r = 0$, c would be calculated as follows:

$$c = V_3 c_3/(V_r+V_3) = c_3\ [2.58/(64.84+2.58)] = 0.0383\ c_3.$$

In this example the dilution factor for commingled waters in Los Alamos Canyon above the Pueblo Canyon confluence is only 3.83% of the original hypothetical contaminant concentration in the south pond. It is important to realize that equation (1) will never yield a dilution factor greater than 100% as long as $c_r < c_3$. Furthermore, $c = c_3$ if and only if $c_r = c_3$. No hazardous wastes or hazardous constituents have ever been observed in Los Alamos Canyon in literally hundreds of water, soil, and sediment analyses (see annual Environmental Surveillance Reports since 1970); hence $c_r = 0$. As a convenience to the reader, numerous dilution factors are summarized in Table 3 for various hypothetical pond breach combinations. For any of these postulated catastrophic failures, concentrations of hazardous wastes or hazardous constituents in Los Alamos Canyon above the Pueblo Canyon confluence and the DOE east boundary would be zero because the liquid portion of all three TA-53-166 lagoons has been found to be free of these compounds. Concentrations of these compounds in the sludges are addressed below. Hence, even under catastrophic failure conditions, the potential for human exposure to hazardous waste or hazardous constituents originating from the TA-53-166 surface impoundments via the surface water pathway is almost nonexistent. The impact of such exposure would be equally as low because no hazardous waste or constituent exist in the liquid.

Table 2. Peak flows and total 24-hour runoff volumes in Los Alamos Canyon above the Pueblo Canyon confluence (see McLin, 1991, Table 8).

Recurrence Interval (years)	Peak Flow (cfs)	Total Runoff Volume (acre-feet)
2	8	4
5	61	32
10	125	62
25	223	107
50	314	149
100	426	199

Table 3. TA-53 impoundment dilution factors from Equation (1).

LOCATION: Los Alamos Canyon above Pueblo Canyon confluence[1]

Recurrence Interval (years)	South Pond Breach	NE+NW Pond Breach	NE+NW+South Pond Breach
2	0.6644[2]	0.7144[3]	0.8175[4]
5	0.1984	0.2382	0.3590
10	0.1133	0.1390	0.2243
25	0.0689	0.0855	0.1435
50	0.0505	0.0629	0.1074
100	0.0383	0.0479	0.0826

[1]Multiply appropriate factor by the breached pond contaminant concentration level to obtain mixed concentration level of commingled waters in Los Alamos Canyon.

[2]Assumes $V_1 = V_2 = 0$, and $c_r = 0$ in equation (1).

[3]Assumes $V_3 = 0$, $c_r = 0$, and $c_1 = c_2$ in equation (1).

[4]Assumes $c_r = 0$, and $c_1 = c_2 = c_3$ in equation (1).

3.06. Monitoring and Results of Surface Water Quality - see Environmental Surveillance Report, page 43, section VI.B.

3.07. Potential for Human Exposure via Releases from Soils - see the following discussion:

As mentioned in the previous sections, testing for volatiles, semi-volatiles, metals, and radioactivity was conducted on samples obtained from the liquid and sludge portions of all three

impoundments, and from core samples recovered from two test hole locations in the summer of 1991. No volatile or semi-volatile compounds were found in any of these water and core samples. Low concentrations (ppb levels) of toluene, p-isopropyltoluene, benzidine, bis-2-ethylhexyl phthalate and di-n-butyl phthalate were detected in sludges from the NW and S impoundments. Hence, under normal operations, the potential for human exposure to hazardous wastes and hazardous constituents originating at the TA-53-166 surface impoundments via releases from the soil pathway is almost nonexistent.

In any of the hypothetical catastrophic failure scenarios mentioned in the previous section, concentrations of volatiles and semi-volatiles compounds would be limited since all liquid and core samples have been found to be free of these compounds, and the sludges only contained relatively low levels (i.e., ppb range) of toluene, p-isobutyltoluene, benzidine, bis-2-ethylhexyl phthalate and di-n-butyl phthalate. A similar dilution factor approach as that taken in the EIR Section 3.05 could also be computed for sediments, and similar results would be expected. However these calculations cannot be fully quantified at this time. Instead it should be mentioned that sediment loading studies in Los Alamos, Pueblo, Bayo, and Guaje Canyons is presently underway (Graf, 1991a); hence, it will eventually be possible to quantify these sediment dilution factors above the east DOE boundary. A sediment dilution effect at the confluence of Los Alamos Canyon and the Rio Grande does, however, indicate that a sediment dilution effect between five and ten orders of magnitude has existed for at least the past 50 years (Graf, 1991). Hence, even under catastrophic failure conditions, the potential for human exposure to contaminants originating from the TA-53-166 surface impoundments via releases from the soil (and sediment) pathway is practically nonexistent. Hence, the magnitude of such an unlikely exposure would be equally immeasurable.

3.08. Soil Sampling and Results - see Environmental Surveillance Report, page 56, Section C.

3.09. Foodstuffs Monitoring - see Environmental Surveillance Report, page 65, Section VII.

3.10. Potential for Human Exposure via Releases in Air - see the following discussion:

Most of Los Alamos County is undeveloped. The only significant developments in Los Alamos County are the Laboratory facilities, with approximately 9,000 employees, and the associated residential communities. The communities located closest to TA-53 are Los Alamos, located northwest of TA-53-166 approximately 1.5 miles, and White Rock, located approximately 3.5 miles southeast of TA-53-166. The total population of Los Alamos County is approximately 19,000. The potential exists for

Laboratory employees and area residents to be exposed to airborne materials from the surface impoundments.

The irregular terrain at Los Alamos County produces a variable wind pattern dependent on time of day, location, and height above ground. In the afternoon and evening, winds usually flow from the southwest and from the northwest. At night, winds are usually west-northwesterly. Due to the wind directions in the afternoon, evening, and at night, air releases from TA-53-166 could result in exposure to the residents of Los Alamos and White Rock. During the earlier part of the day, upslope winds flow predominantly out of the southeasterly and southwesterly directions. Due to the predominant wind direction during the day, residents of Los Alamos could potentially receive exposure to emissions from the surface impoundments.

Los Alamos is generally a light wind with an annual average wind speed of 2.8 meters per second. The ambient atmosphere's ability to disperse air releases from the surface impoundments is minimal due to the generally light wind speed. Therefore, exposure to Laboratory employees in close proximity to the impoundments could occur if any hazardous constituents were released from the surface impoundments.

The NE and NW impoundments are each equipped with two AquaAerobics surface turbine aerators for purposes of enhanced aeration and enhanced evaporation. Only the NW impoundment aerator remains on when a discharge to the outfall from the NE impoundment is occurring to prevent unnecessary disturbance of sludge and other bottom sediments. Release of volatile organic compounds (VOCs) could possibly occur as a result of the evaporation process. However, no VOCs were found in the liquid being aerated, and consequently, no VOCs would be released.

The surface impoundments contain waste consisting of metals, organic compounds, and low level radionuclides. The metals pose no potential risk of exposure to humans via the air pathway. Metals are not typically volatile and therefore, will not be released into the atmosphere. The semi-volatile organic compounds detected in sludge samples are also not likely to be released to the atmosphere based on their low volatility. Benzoic acid was detected in the wastewater in low concentrations, however due to its low concentration and low volatility, it does not pose a potential risk (nor is it a hazardous constituent). VOCs detected in sludge samples were detected at very low concentrations. If the VOCs were to migrate from the sludge into the wastewater and eventually be released into the atmosphere, the concentrations would be so low that the impact on human receptors would be very small.

The surface impoundments at TA-53 manage compatible liquid waste. No known compounds are present in the impoundments at levels that could exhibit the characteristics of ignitability or reactivity. The likelihood of a fire or explosion resulting from a reaction

of ignitable, reactive, or incompatible wastes, therefore, does not exist at these waste management units. Hence, a release of hazardous waste resulting from volatilization in a fire or explosion is extremely unlikely.

To date, TA-53 has not experienced any releases from the surface impoundments which have caused a significant threat to human health or the environment.

In summary, based on the very low concentrations of volatile hazardous constituents found in the sludge, and the unlikelihood of the constituents moving into the liquid and volatilizing into the atmosphere, the availability of hazardous constituents for release is small. If a release did occur, the likelihood of transport to human receptors would be possible, however, the impact on the receptors would be almost immeasurable based on the potential concentrations in the air.

3.11. Air Monitoring - see Environmental Surveillance Report, Page 35, Section V.

3.12. Air Releases - see Environmental Surveillance Report, page 35, Section V.

3.13. Subsurface Gas Pathway - see the following discussion:

Previous and ongoing analysis at TA-54, Areas L and G indicates that organic vapors can be transported through the tuff. The likelihood of migration, the speed with which migration may occur, the pathway traveled and the existing vapor concentration are dependent upon several factors. These factors include the concentration and location of the source, dilution effects, biological degradation, subsurface characteristics, and climatological effects. Not all of these will be discussed here, but two very significant factors are briefly summarized below.

The potential for organic vapors to be transported through the subsurface is, in part, driven by the source. Obviously, the higher the concentration of the source, the more compound is available for volatilization, and the more potential vapor available for transport. As previously mentioned in EIR Section 1.09., the only volatile organics detected in the impoundments are toluene and p-isobutyltoluene at very low concentrations (ppb) in the sludge. No volatile organics were detected in the liquid. It follows that, regardless of the existence of a pathway, if little contaminant exists, there is little to transport.

Potential pathways for vapor transport through the tuff pore space and along joints and ash flow contacts exist. These pathways are probably interrupted vertically by dense basalt flows causing vapor to move laterally in the direction of least resistance. It is unlikely that an uninterrupted pathway exists

canyon walls. Also, utility lines around the impoundment could provide additional pathways to surface discharge of vapors.

Based on the extremely low concentrations of volatile organics detected in the sludge, the tendency for the sludge to hold these compounds, the distance to groundwater, and the fact that no hazardous waste is intended to be placed into the impoundments in the future, the likelihood for vapors to be transported to a human receptor is small and the potential impact almost immeasurable.

3.14. Gas Generating Wastes

Historically, the three cell impoundment system received domestic wastewater, small contributions from industrial activities, and a low-level radioactive waste stream. The system was split into two separate systems in 1989 so that radioactive liquid was directed only to the south impoundment. Clean water is directed when necessary to the south impoundment from the northwest and northeast impoundments to maintain a manageable liquid level in the north impoundments and hold the liner down in the south impoundment. Previously, sanitary wastewater was used for this purpose. The waste received by all three impoundments can therefore potentially generate gas typically associated with the degradation of sewage. In fact, low concentrations of hydrogen sulfide were detected in the subsurface during drilling operations adjacent to the impoundments (see Appendix XIV).

As indicated in EIR Section 1.09., very low concentrations of toluene were detected in the sludge in the northwest and south impoundments. Toluene is a volatile compound that could exist in the pore spaces of the tuff beneath the impoundments. This would, however, be an unlikely scenario because the aerators in the pond would tend to volatilize toluene that may be present in the liquid and the sludge would tend to retain it in that matrix.

Other compounds detected in the impoundments would not typically tend to volatilize from the liquid and sludge phases in the impoundment.

3.15. Underground Lines - see EIR Appendix XV

3.16. Subsurface Gas Monitoring - see Appendix XVI for analytical data for samples collected on August 29, 1991, and December 16, 1991 (still awaiting analytical data from March 27, 1992. This data indicates that no target volatile organic compounds were detected in the pore gas monitoring system between the three impoundments.

3.17. Transportation - see following discussion:

Potential releases could result from a vehicular accident involving rupture of the pressure tank on the septic tank truck, from leakage of valves on the vehicle, or from spills while sewage is being loaded into, or unloaded from, the vehicle. The route taken to the impoundments is to the east along La Mesita Road, which is the principle traffic artery for the TA. Volume of wastewater moved is less that 1,000 gallons, once per week. The small volume of material transported, the Laboratory's aggressive spill response program, and the non-hazardous nature of the wastewater all mean that the potential for human exposure from this operation is very low.

Section 4.0

4.0 TRANSPORTATION, ACCIDENTS, FIRE, WORKER EXPOSURE/INJURY INFORMATION

4.01. Transportation Information

Waste is no longer being transported to TA-53 from other areas in the Laboratory. However, domestic sanitary wastewater is still collected within TA-53 by motorized vehicle. The vehicle used is a 1983 GMC 7000 Series Diesel truck equipped with a 1600 gallon pressure/vacuum tank designed for pumping out septic tanks.

Only wastewater originating in TA-53 is transported to the TA-53 impoundments. The only wastewater normally transported by truck and not through the sewer system is from holding tank No. TA-53-MPF-1, located in Building 1. This holding tank is pumped when it nears capacity and after its contents have been analyzed for radioactivity. The radioactive liquid is then taken to the S impoundment.

Occasionally equipment at one of the lift stations in the TA will malfunction, and the wet well must be pumped out by the septic tank pump truck while repairs are being made. The map in Appendix XVII identifies locations of lift stations, the location of the holding tank, and the route taken by the septic tank pump truck transporting wastewater to the impoundments.

Wastewater spills are handled according to the Laboratory Spill Prevention, Control, and Countermeasures Plan. Basically, any visible pools of wastewater are vacuumed up with the septic tank truck (or by an air-driven pump into another container if the septic tank truck is not operational), then the area is disinfected with a powder of 65% calcium hypochlorite. Wastewater collected from a spill in this TA would be returned to the TA-53 wastewater collection system. The spill area would also be monitored for radiation, and the appropriate personnel and environmental protective measures taken at the direction of the Laboratory Health Physics Monitor.

4.02. Accidents

One accident occurred during transportation of sanitary waste to the TA-53 impoundments on February 22, 1991. The transportation truck hit another truck that was stopped but there was no release of the truck's contents. A copy of the incident report can be found in Appendix XVIII.

Another incident occurred unrelated to vehicular transportation of waste on November 26-29, 1987 when radioactively-contaminated waste overflowed manholes in the sewer line leading to the impoundments. Contaminated soil was excavated and disposed of in TA-54, Area G, and the road and manholes were decontaminated. Levels of radioactivity were measured and recorded prior to the

incident. This data and the incident report are included in Appendix XIX.

4.03. Fire Information

No fires have been reported to have occurred at the TA-53 impoundments.

4.04. Worker Exposure/Injury Records

No worker exposures or injuries associated with the operation of the TA-53 impoundments have been reported (see Appendix XX).

Section 5.0

5.0 REFERENCES

Bouwer, H., 1978, Groundwater Hydrology, McGraw-Hill, New York.

Delta H Engineering, LTD., 1985, RCRA Part B Exposure Information Report, Los Alamos National Laboratory, Los Alamos, New Mexico

DOE, 1989, Los Alamos National Laboratory, Sampling and Analysis Data Document, Draft, Volume I, EGG-ES-8204

Ferenbaugh, R.W., E.S. Gladney, and G.H. Brooks, 1990, Sigma Mesa: Background Elemental Concentrations in Soil and Vegetation, 1979; Los Alamos National Laboratory, Report No. LA-11941-MS, Los Alamos, NM.

Graf, W.L., 1991a, Heavy metal transport in river sediments of the Pajarito Plateau canyons and the Rio Grande; 1991-94 contract statement of work by Geography Department, Arizona State University, Tempe, Arizona, for Los Alamos National Laboratory, Environmental Protection Group (EM-8), Los Alamos, NM.

Graf, W.L., 1991b, Geomorphology of plutonium in the Northern Rio Grande system; final contract report prepared by Geography Department, Arizona State University, Tempe, Arizona, for Los Alamos National Laboratory, Environmental Protection Group (EM-8), Los Alamos, NM.

International Technology Corporation, 1992, Ground-water monitoring waiver demonstration for surface impoundments at Technical Area 53; private consulting report prepared for Los Alamos National Laboratory, Environmental Protection Group (EM-8), Los Alamos, NM.

Los Alamos National Laboratory, 1991, RCRA Part B Permit Application - Surface Impoundments Technical Area 53, Los Alamos National Laboratory, Los Alamos, New Mexico 87545

Los Alamos National Laboratory, 1989, Environmental Surveillance at Los Alamos During 1989, LA-12000-ENV.1.0

McLin, S.G., 1991, Determination of 100-year Floodplain Elevations at Los Alamos National Laboratory; Los Alamos National Laboratory, Report No. LA-12195-MS, Los Alamos, NM.

Purtymun, W.D., 1981, Perched water in Puye Formation and basaltic rocks of the Chino Mesa (Section VIII); in Formerly Utilized MED/AEC Sites Remedial Action Program, Los Alamos National Laboratory, Report No. DOE/EV-0005/30, LA-8890-ENV, Los Alamos, NM.

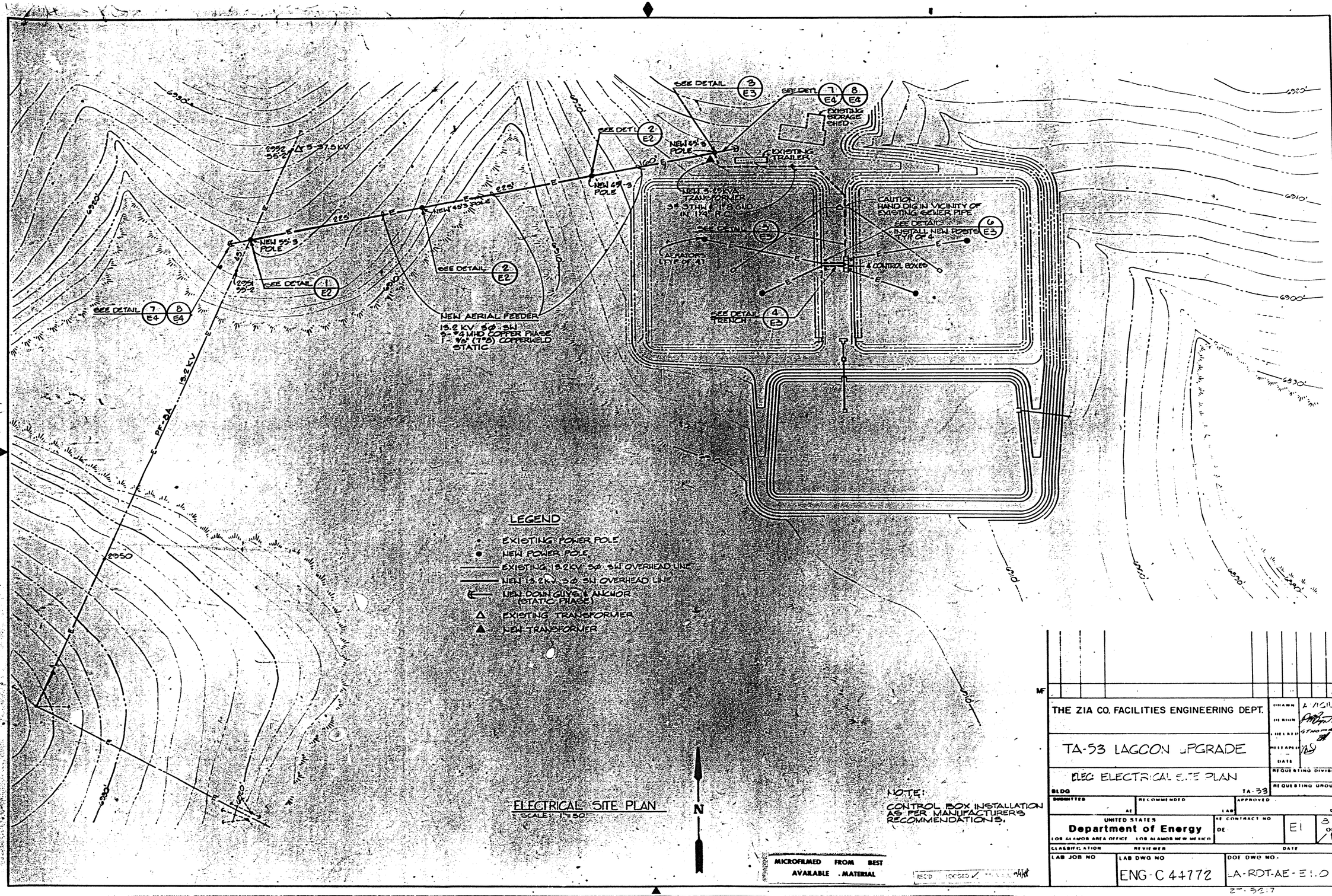
Purtymun, W.D., R. Peters, and M.N. Maes, 1990, Transport of plutonium in snowmelt runoff; Los Alamos National Laboratory, Report No. LA-11795-MS, Los Alamos, NM.

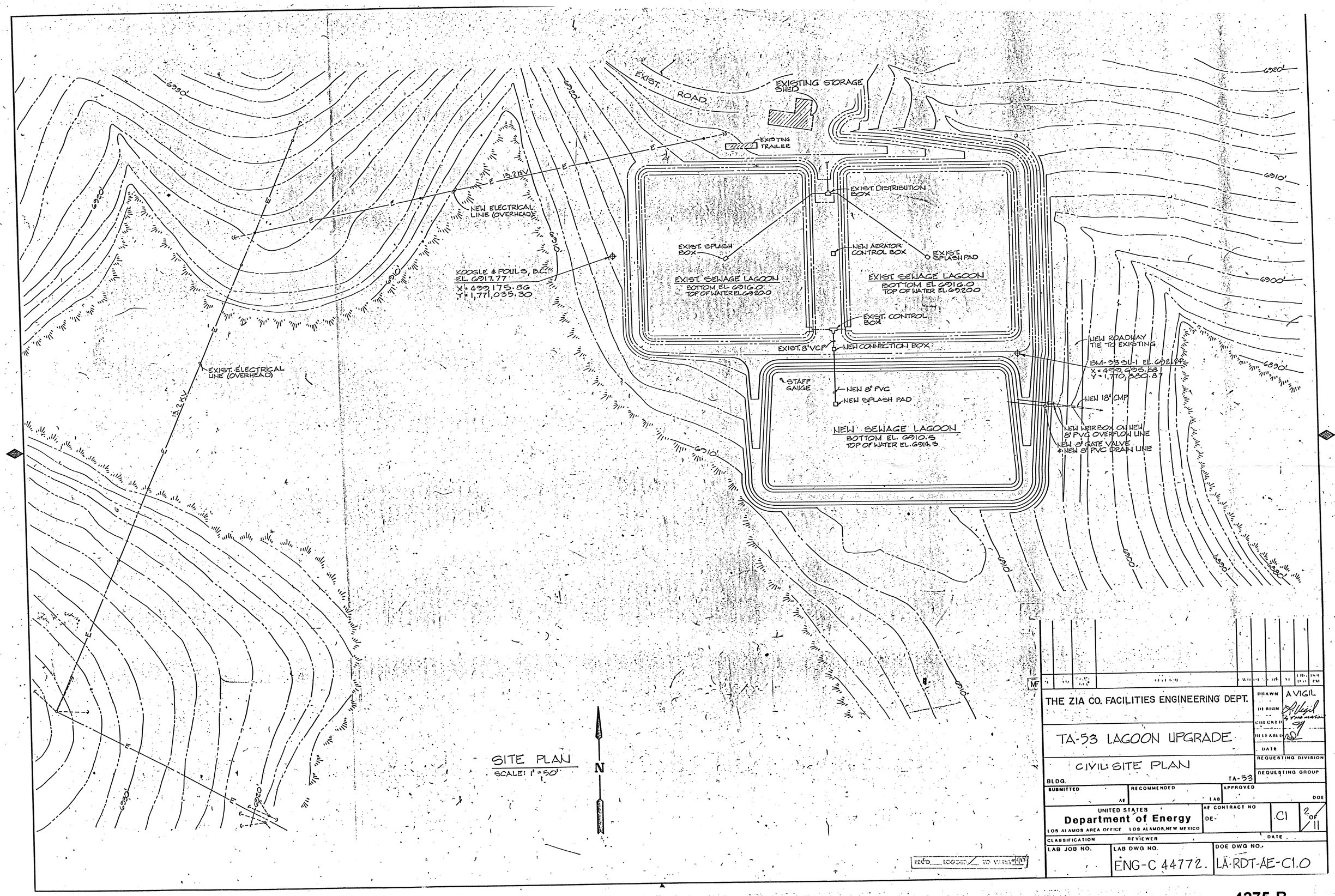
Stoker, A.K., W.D. Purtymun, S.G. McLin, and M.N. Maes, 1991, Extent of saturation in Mortandad Canyon; Los Alamos National Laboratory, Report No. LA-UR-91-1660, Los Alamos National Laboratory, Los Alamos, NM.

U.S. Department of Energy, Radiation Protection of the Public and the Environment, U.S. Department of Energy Order 5400.5 (February 8, 1990), Washington, D.C.

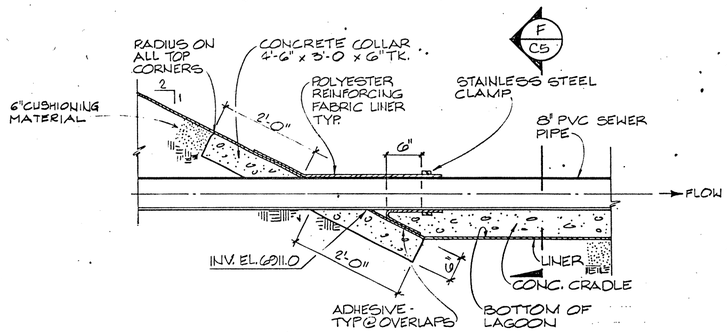
Vuataz, F.D., and F. Goff, 1985, Isotope geochemistry of thermal and nonthermal waters in the Valles Caldera, Jemez Mountains, Northern New Mexico; Journal of Geophysical Research, v. 91, n. B2, p. 1835-1853.

APPENDIX I

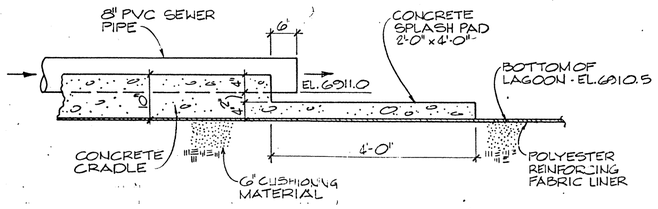

SEE DETAIL 3 E3
SEE DET. 7 E4
8 E4
EXISTING STORAGE SHED
SEE DET. 2 E2
NEW 55-3 POLE
EXISTING TRAILER
NEW 3-150 KVA TRANSFORMER 3Ø 3THW #2 CUD IN 1½" P.C.
CAUTION HAND DIG IN VICINITY OF EXISTING SEWER PIPE
SEE DETAIL 5 E3
INSTALL NEW POSTS (1/4 OF 4) 6 E3
AERATORS (1 TYP OF 4)
& CONTROL BOXES
SEE DETAIL 4 E3
TRENCH
NEW 55-3 POLE
SEE DETAIL 1 E2
SEE DETAIL 7 E4 8 E4
NEW 45-3 POLE
NEW 45-3 POLE
SEE DETAIL 2 E2
NEW AERIAL FEEDER
13.2 KV 3Ø 3W
3-#4 WHD COPPER PHASE
1-#8 (1Ø8) COPPERWELD STATIC
13.2 KV
PF-2A
6950
6930
6910
6900
6890
6880
6870
6850
6830
6810
6800
6790
6780
6770
6750
6730
6710
6690
6670
6650
6630
6610
6590
6570
6550
6530
6510
6490
6470
6450
6430
6410
6390
6370
6350
6330
6310
6290
6270
6250
6230
6210
6190
6170
6150
6130
6110
6090
6070
6050
6030
6010
5990
5970
5950
5930
5910
5890
5870
5850
5830
5810
5790
5770
5750
5730
5710
5690
5670
5650
5630
5610
5590
5570
5550
5530
5510
5490
5470
5450
5430
5410
5390
5370
5350
5330
5310
5290
5270
5250
5230
5210
5190
5170
5150
5130
5110
5090
5070
5050
5030
5010
4990
4970
4950
4930
4910
4890
4870
4850
4830
4810
4790
4770
4750
4730
4710
4690
4670
4650
4630
4610
4590
4570
4550
4530
4510
4490
4470
4450
4430
4410
4390
4370
4350
4330
4310
4290
4270
4250
4230
4210
4190
4170
4150
4130
4110
4090
4070
4050
4030
4010
3990
3970
3950
3930
3910
3890
3870
3850
3830
3810
3790
3770
3750
3730
3710
3690
3670
3650
3630
3610
3590
3570
3550
3530
3510
3490
3470
3450
3430
3410
3390
3370
3350
3330
3310
3290
3270
3250
3230
3210
3190
3170
3150
3130
3110
3090
3070
3050
3030
3010
2990
2970
2950
2930
2910
2890
2870
2850
2830
2810
2790
2770
2750
2730
2710
2690
2670
2650
2630
2610
2590
2570
2550
2530
2510
2490
2470
2450
2430
2410
2390
2370
2350
2330
2310
2290
2270
2250
2230
2210
2190
2170
2150
2130
2110
2090
2070
2050
2030
2010
1990
1970
1950
1930
1910
1890
1870
1850
1830
1810
1790
1770
1750
1730
1710
1690
1670
1650
1630
1610
1590
1570
1550
1530
1510
1490
1470
1450
1430
1410
1390
1370
1350
1330
1310
1290
1270
1250
1230
1210
1190
1170
1150
1130
1110
1090
1070
1050
1030
1010
990
970
950
930
910
890
870
850
830
810
790
770
750
730
710
690
670
650
630
610
590
570
550
530
510
490
470
450
430
410
390
370
350
330
310
290
270
250
230
210
190
170
150
130
110
90
70
50
30
10
LEGEND
EXISTING POWER POLE
NEW POWER POLE
EXISTING 13.2KV 3Ø 3W OVERHEAD LINE
NEW 13.2KV 3Ø 3W OVERHEAD LINE
NEW DOWN GUYS & ANCHOR (STATIC PHASE)
EXISTING TRANSFORMER
NEW TRANSFORMER
N
NOTE:
CONTROL BOX INSTALLATION AS PER MANUFACTURER'S RECOMMENDATIONS.
MICROFILMED FROM BEST AVAILABLE MATERIAL
THE ZIA CO. FACILITIES ENGINEERING DEPT.
TA-53 LAGOON UPGRADE
ELEC: ELECTRICAL SITE PLAN
BLDG
TA-53
REQUESTING DIVISION
REQUESTING GROUP
SUBMITTED
RECOMMENDED
APPROVED
UNITED STATES
Department of Energy
LOS ALAMOS AREA OFFICE
LOS ALAMOS NEW MEXICO
AE CONTRACT NO
DE
E1
8 of 11
CLASSIFICATION
REVIEWER
DATE
LAB JOB NO
LAB DWG NO
ENG-C 44772
DOE DWG NO.
LA-RDT-AE-E1.0
ELECTRICAL SITE PLAN
SCALE: 1"=50'
amtec
4275-A


EXIST. ROAD
EXISTING STORAGE SHED
EXISTING TRAILER
13.2 KV
NEW ELECTRICAL LINE (OVERHEAD)
KOOGLE & POULS, B.C.
EL. 6917.77
X = 499,175.86
Y = 1,771,035.30
EXIST. ELECTRICAL LINE (OVERHEAD)
EXIST. DISTRIBUTION BOX
EXIST. SPLASH BOX
NEW AERATOR CONTROL BOX
EXIST. SPLASH PAD
EXIST. SEWAGE LAGOON
BOTTOM EL. 6916.0
TOP OF WATER EL. 6920.0
EXIST. SEWAGE LAGOON
BOTTOM EL. 6916.0
TOP OF WATER EL. 6920.0
EXIST. CONTROL BOX
EXIST. 8" VCP
NEW CONNECTION BOX
NEW ROADWAY TIE TO EXISTING
BM-53 SU-1 EL. 6921.24
X = 499,695.88
Y = 1,770,880.87
STAFF GAUGE
NEW 8" PVC
NEW SPLASH PAD
NEW 18" CMP
NEW SEWAGE LAGOON
BOTTOM EL. 6910.5
TOP OF WATER EL. 6914.5
NEW WEIR BOX ON NEW 8" PVC OVERFLOW LINE
NEW 8" GATE VALVE & NEW 8" PVC DRAIN LINE
6930'
6920'
6910'
6900'
6890'
N
SITE PLAN
SCALE: 1" = 50'
THE ZIA CO. FACILITIES ENGINEERING DEPT.
TA-53 LAGOON UPGRADE
CIVIL: SITE PLAN
BLDG. TA-53
DRAWN A VIGIL
DESIGN
CHECKED
RELEASED
DATE
REQUESTING DIVISION
REQUESTING GROUP
SUBMITTED AE
RECOMMENDED LAB
APPROVED DOE
UNITED STATES
Department of Energy
LOS ALAMOS AREA OFFICE LOS ALAMOS, NEW MEXICO
AE CONTRACT NO DE-
C1
2 OF 11
CLASSIFICATION
REVIEWER
DATE
LAB JOB NO.
LAB DWG NO. ENG-C 44772.
DOE DWG NO. LA-RDT-AE-C1.0
REC'D LOGGED TO VAULT

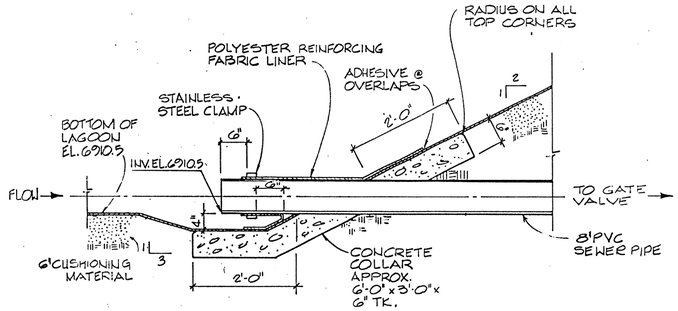
4275-B



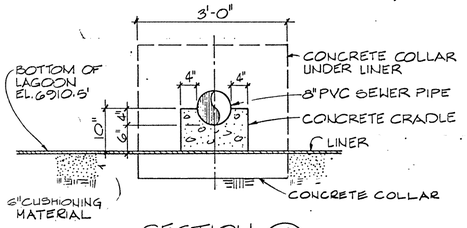
INLET DETAIL (7 / C2)
SCALE: 3/4" = 1'-0"



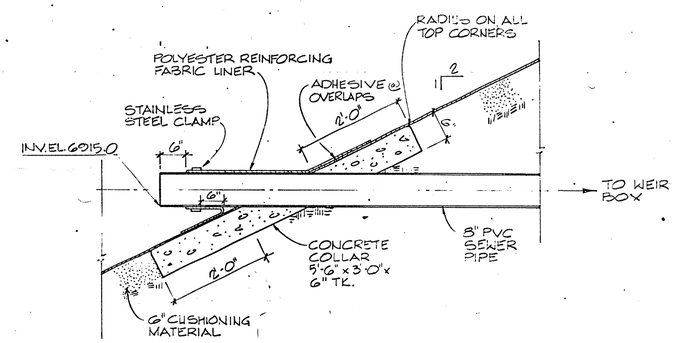
SPLASH PAD DETAIL (8 / C2)
SCALE: 3/8" = 1'-0"



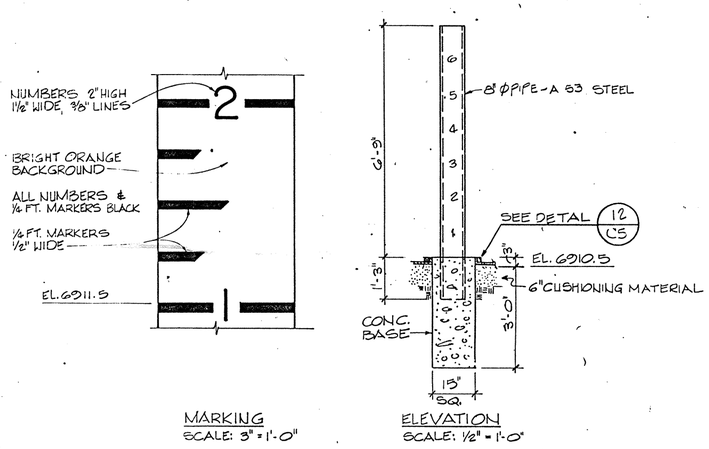
DRAIN OUTLET DETAIL (9 / C2)
SCALE: 3/4" = 1'-0"



SECTION (F / C5)
SCALE: 3/4" = 1'-0"



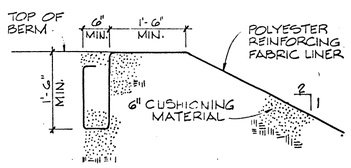
OVERFLOW OUTLET DETAIL (10 / C2)
SCALE: 3/8" = 1'-0"



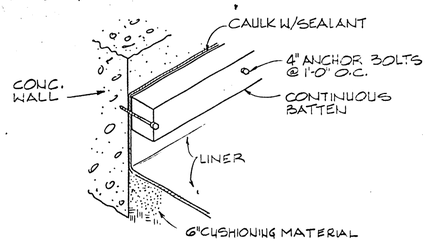
MARKING
SCALE: 3" = 1'-0"

ELEVATION
SCALE: 1/2" = 1'-0"

STAFF GAUGE DETAIL (11 / C2)



LINER ANCHOR TRENCH
SCALE: 3/4" = 1'-0"



CONCRETE ATTACHMENT DETAIL (12 / C2) (12 / C4) (12 / C5)
NOT TO SCALE

NO	DATE	CLASS REV.	REVISIONS	DWN	DES	CHK	AI	ENG D.O.	DOE PM

THE ZIA CO. FACILITIES ENGINEERING DEPT.

TA-53 LAGOON UPGRADE

CIVIL: DRAINAGE STRUCTURE DETAILS

BLDG. TA-53

DRAWN AVF
DESIGN
CHECKED
RELEASED
DATE
REQUESTING DIVISION
REQUESTING GROUP

SUBMITTED AE | RECOMMENDED LAB | APPROVED DOE

UNITED STATES
Department of Energy
LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO

AE CONTRACT NO DE- | C5 | OF

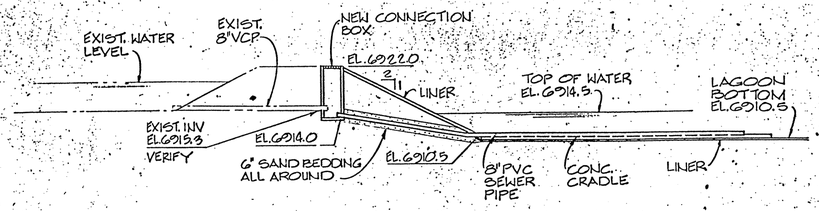
CLASSIFICATION | REVIEWER | DATE

LAB JOB NO. | LAB DWG NO. ENG-C 44772 | DOE DWG NO. LA-RDT-AE

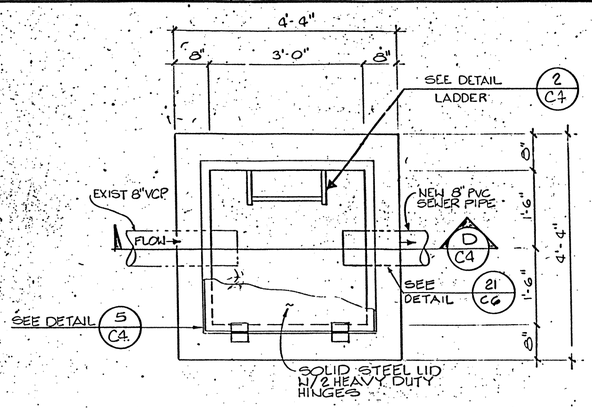
REC'D ..... LOGGED ..... TO VAULT

CT-5217

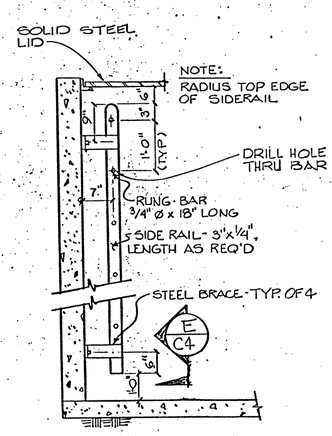
4275-C



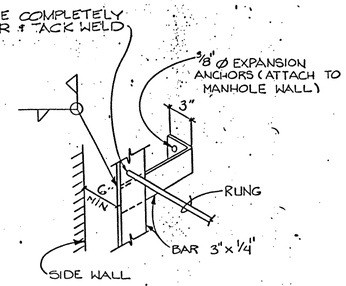
SECTION @ INLET (A / C2)
SCALE: 1" = 1'-0"



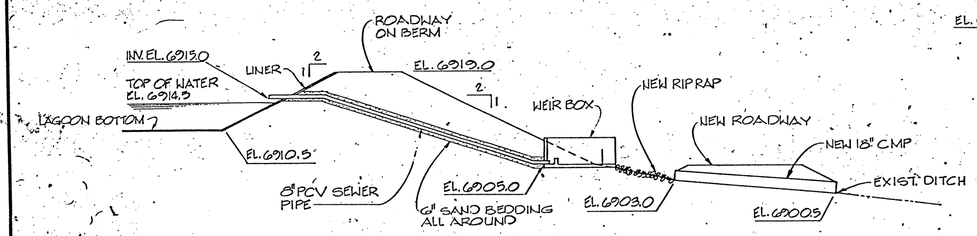
DETAIL (1 / C2)
SCALE: 3/4" = 1'-0"



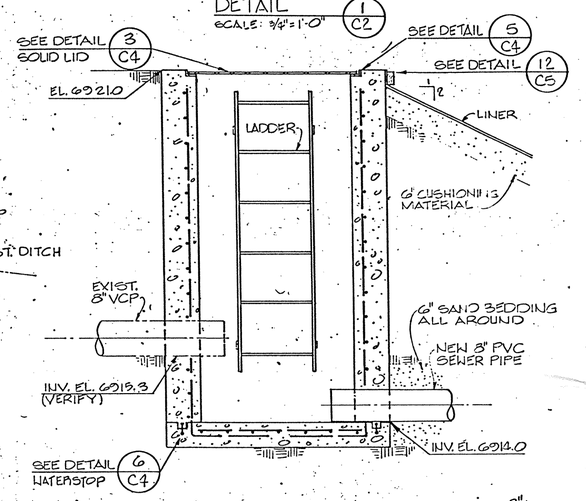
LADDER INSTALLATION DETAIL (2 / C4)
NOT TO SCALE



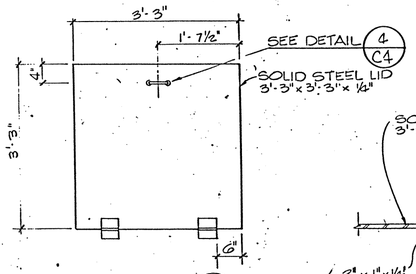
SECTION - STEEL BRACE (E / C4)
NOT TO SCALE



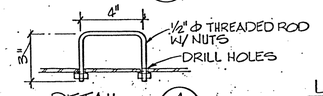
SECTION @ OVERFLOW OUTLET (B / C2)
SCALE: 1" = 1'-0"



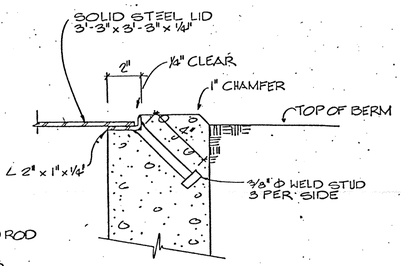
SECTION (D / C4)
SCALE: 3/4" = 1'-0"



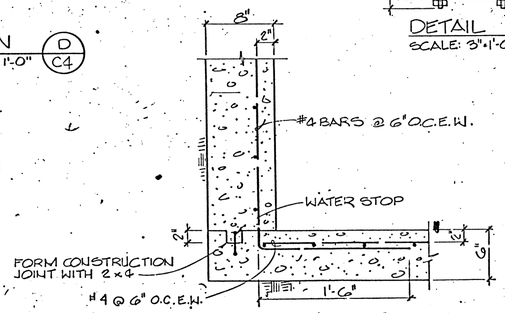
DETAIL (3 / C4)
SCALE: 3/4" = 1'-0"



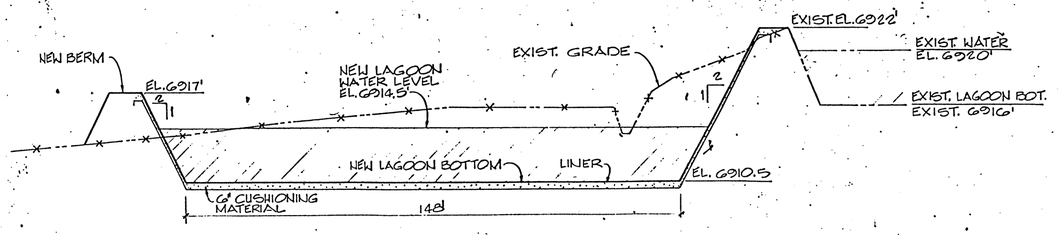
DETAIL (4 / C4)
SCALE: 3" = 1'-0"



LID SEAT DETAIL (5 / C4)
SCALE: 3" = 1'-0"



WATERSTOP DETAIL (6 / C4)
SCALE: 1 1/2" = 1'-0"



CROSS SECTION (C / C2)
SCALE: VERT. 1" = 5'
HORIZ. 1" = 20'

NO	DATE	CLASS REV.	REVISIONS	DWN	DES	CHK	AE	ENG D.O.	DOE PM

THE ZIA CO. FACILITIES ENGINEERING DEPT.

TA-53 LAGOON UPGRADE

CIVIL: CROSS SECTION & DETAILS

BLDG. TA-53

DRAWN	A. VIGIL
DESIGN	A. Vigil
CHECKED	G.T. Hodgson
RELEASED	
DATE	
REQUESTING DIVISION	
REQUESTING GROUP	

SUBMITTED AE | RECOMMENDED LAB | APPROVED DOE

UNITED STATES
Department of Energy
LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO

AE CONTRACT NO DE- | C4 | 5 OF 11

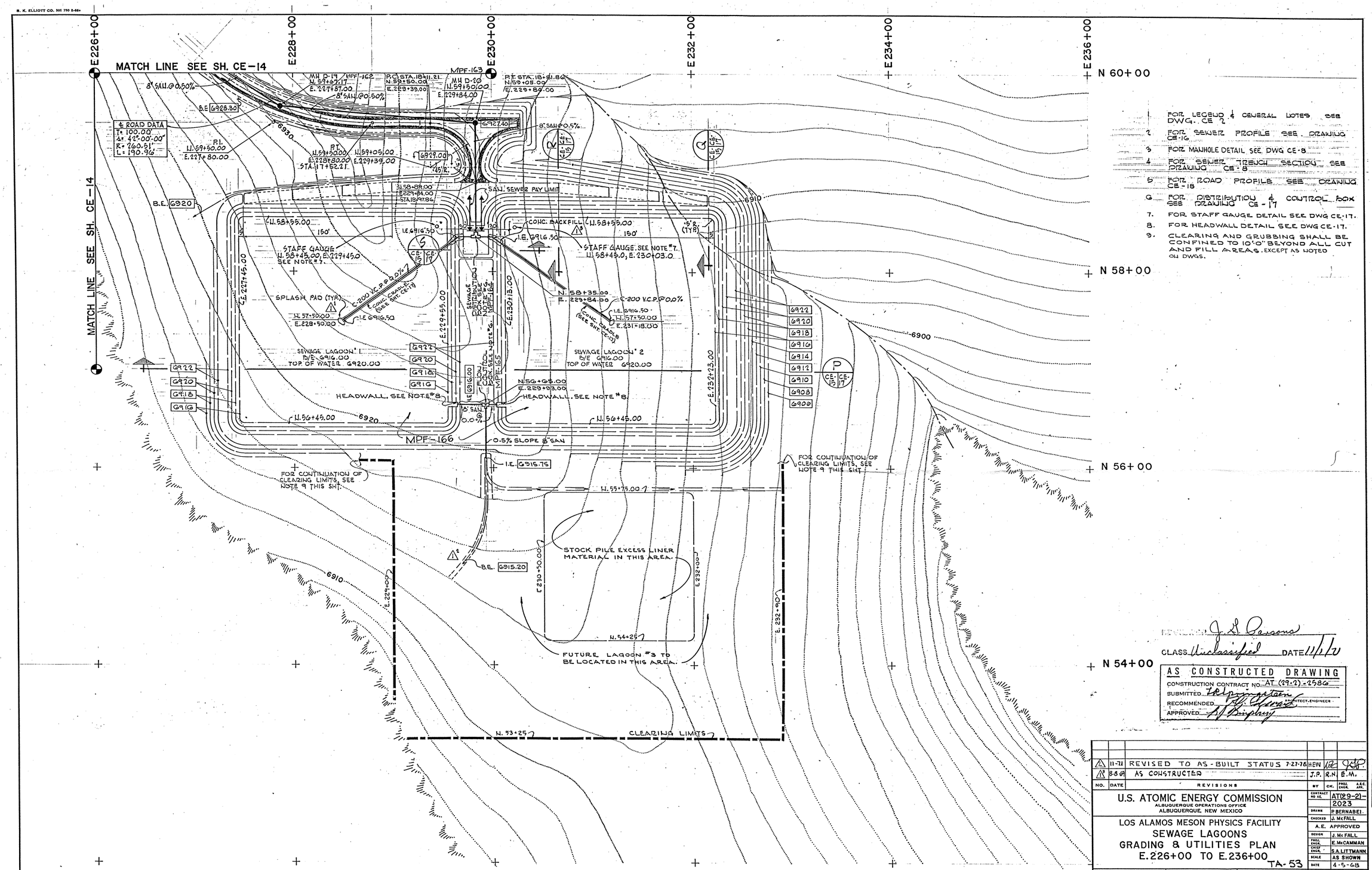
CLASSIFICATION | REVIEWER | DATE

LAB JOB NO. | LAB DWG NO. ENG-C 44772 | DOE DWG NO. LA-RDT-AE-C4.C

ZT-5217

4275-D

B. K. ELLIOTT CO. 301 750 2-66



1. FOR LEGEND & GENERAL NOTES SEE DWG. CE 2
2. FOR SEWER PROFILE SEE DRAWING CE-16
3. FOR MANHOLE DETAIL SEE DWG CE-8
4. FOR SEWER TRENCH SECTION SEE DRAWING CE-8
5. FOR ROAD PROFILE SEE DRAWING CE-18
6. FOR DISTRIBUTION & CONTROL BOX SEE DRAWING CE-17
7. FOR STAFF GAUGE DETAIL SEE DWG CE-17.
8. FOR HEADWALL DETAIL SEE DWG CE-17.
9. CLEARING AND GRUBBING SHALL BE CONFINED TO 10'-0" BEYOND ALL CUT AND FILL AREAS, EXCEPT AS NOTED ON DWGS.

CLASS Unclassified DATE 11/1/70

AS CONSTRUCTED DRAWING
CONSTRUCTION CONTRACT NO. AT (29-2)-2580
SUBMITTED
RECOMMENDED ARCHITECT-ENGINEER
APPROVED

NO.	DATE	REVISIONS	BY	CK.	PROJ. ENGR.	A.E.C. APP.
1	11-71	REVISED TO AS-BUILT STATUS 7-27-76	HEW			
2	8-8-69	AS CONSTRUCTED	J.P.	R.N.	E.M.	

U.S. ATOMIC ENERGY COMMISSION
ALBUQUERQUE OPERATIONS OFFICE
ALBUQUERQUE, NEW MEXICO

LOS ALAMOS MESON PHYSICS FACILITY
SEWAGE LAGOONS
GRADING & UTILITIES PLAN
E. 226+00 TO E. 236+00 TA-53

CONTRACT NO. A.E.	AT(29-2)-2023
DRAWN	P. BERNABEI
CHECKED	J. McFALL
A.E.	APPROVED
DESIGN	J. McFALL
PROJ. ENGR.	E. McCAMMAN
CHIEF ENGR.	S.A. LITTMANN
SCALE	AS SHOWN
DATE	4-5-68

SUBMITTED ARCHITECT-ENGINEER | RECOMMENDED LASL | APPROVED A.E.C.

GIFFELS & ROSSETTI, INC.
ARCHITECTS-ENGINEERS DETROIT, MICHIGAN

JOB NO.	SHEET NO.	DRAWING NO.	SHEET	OF
66-17	CE-15	LAM.-D-CE-15	15	29

4-1

REC'D LOGGED TO VAULT

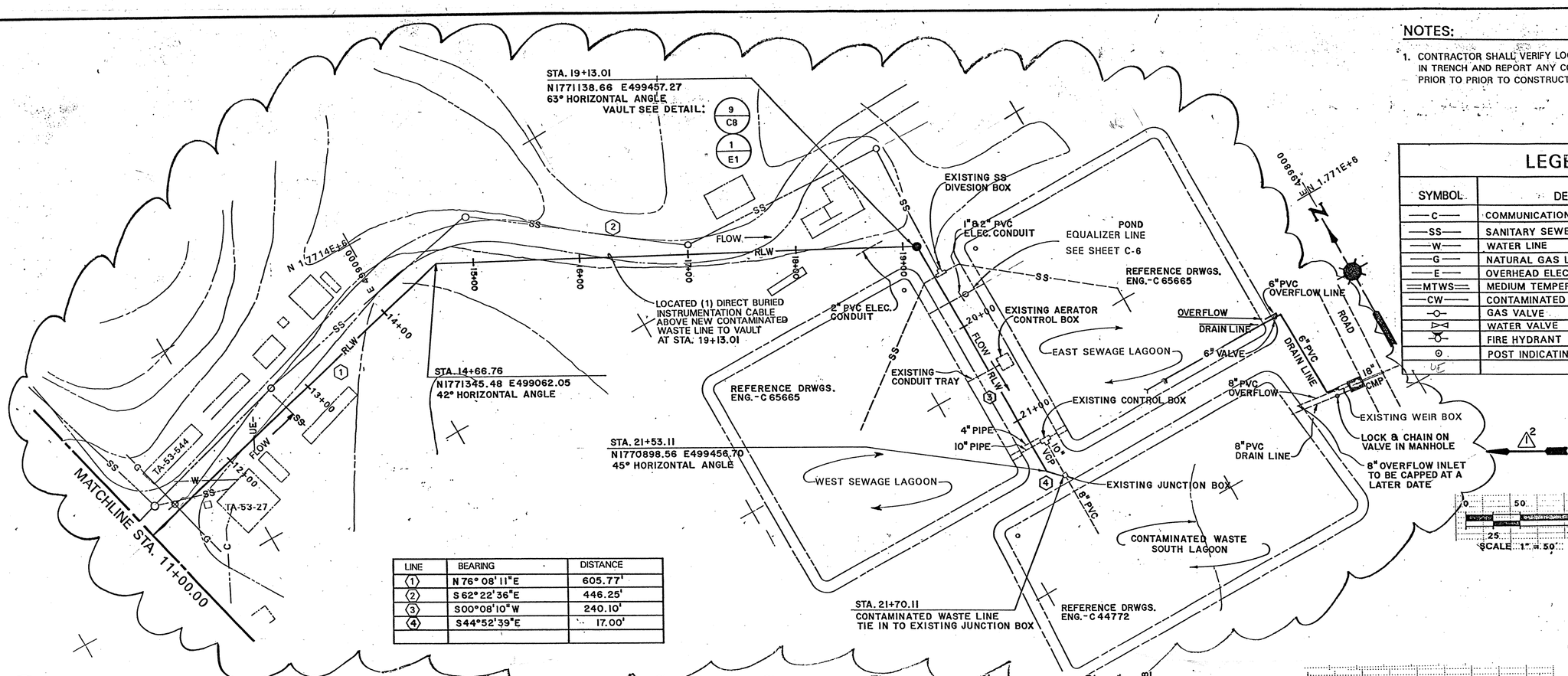
4275-E

NOTES:

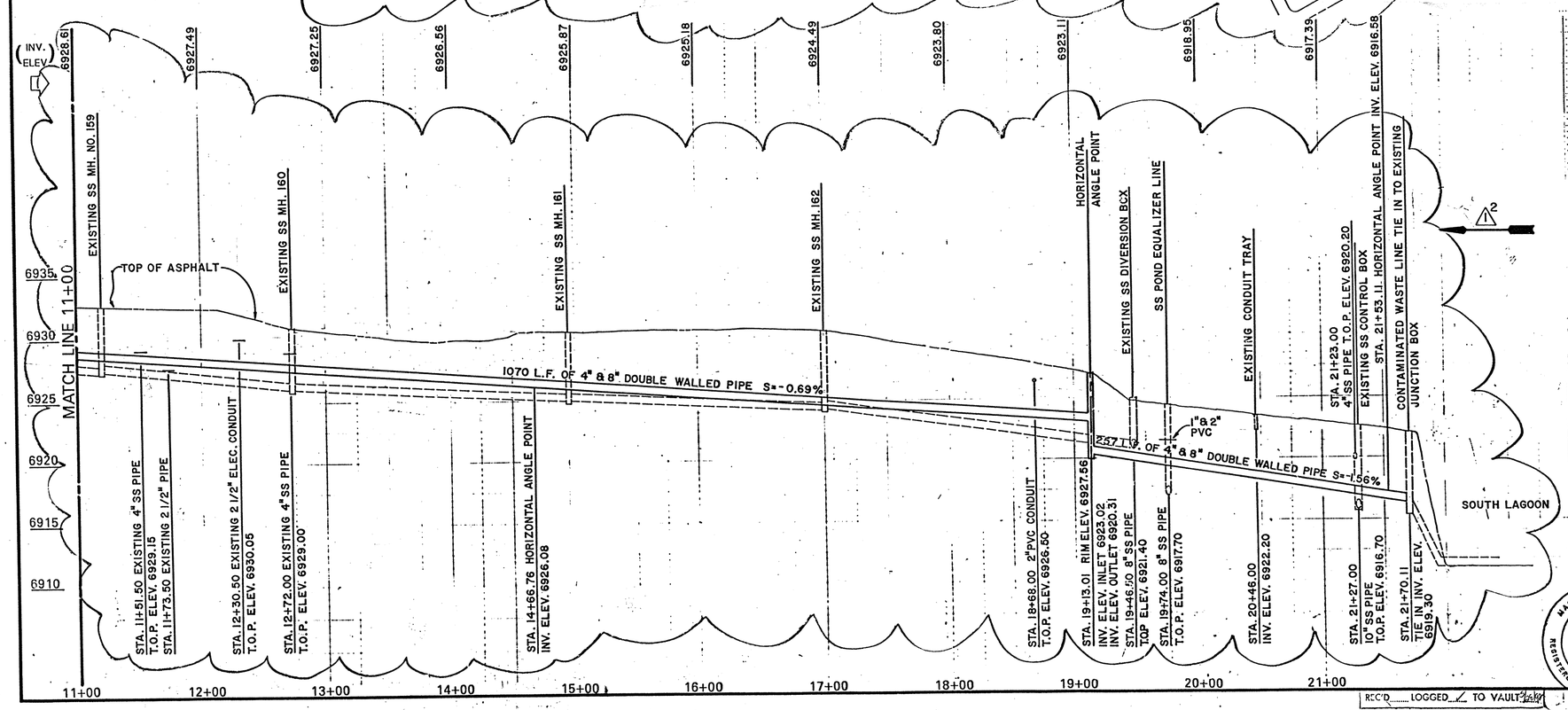
1. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES IN TRENCH AND REPORT ANY CONFLICTS TO ENGINEERING 1 PRIOR TO PRIOR TO CONSTRUCTION OF PROJECT.

LEGEND

SYMBOL	DESCRIPTION
—C—	COMMUNICATION CABLE
—SS—	SANITARY SEWER
—W—	WATER LINE
—G—	NATURAL GAS LINE
—E—	OVERHEAD ELECTRICAL
MTWS	MEDIUM TEMPERATURE WATER SUPPLY
—CW—	CONTAMINATED WASTE
	GAS VALVE
	WATER VALVE
	FIRE HYDRANT
	POST INDICATING VALVE



LINE	BEARING	DISTANCE
1	N 76° 08' 11" E	605.77'
2	S 62° 22' 36" E	446.25'
3	S 00° 08' 10" W	240.10'
4	S 44° 52' 39" E	17.00'



NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	CHKD	REQ GRP	REQ D.O.	ENG GRP	ENG D.O.
2	2/92		REVISED PLAN AND PROFILE TO AS-BUILT STATUS.	G.V.						

MERRICK
SOUTHWEST BRANCH
LOS ALAMOS, NEW MEXICO

LAMPF WASTEWATER MODIFICATIONS

CONTAMINATED WASTE LINE
PLAN & PROFILE
STA.: 11+00 TO 21+70.11

TA-53

DRAWN	GUTIERREZ
DESIGN	SPANDE
CHECKED	ZIMMERMAN
RELEASED	M.ZARRABY
DATE	1-27-89

SUBMITTED Masoud Zarraby
RECOMMENDED
APPROVED J. Cody Milligan

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

SHEET C3 — 5 OF 18

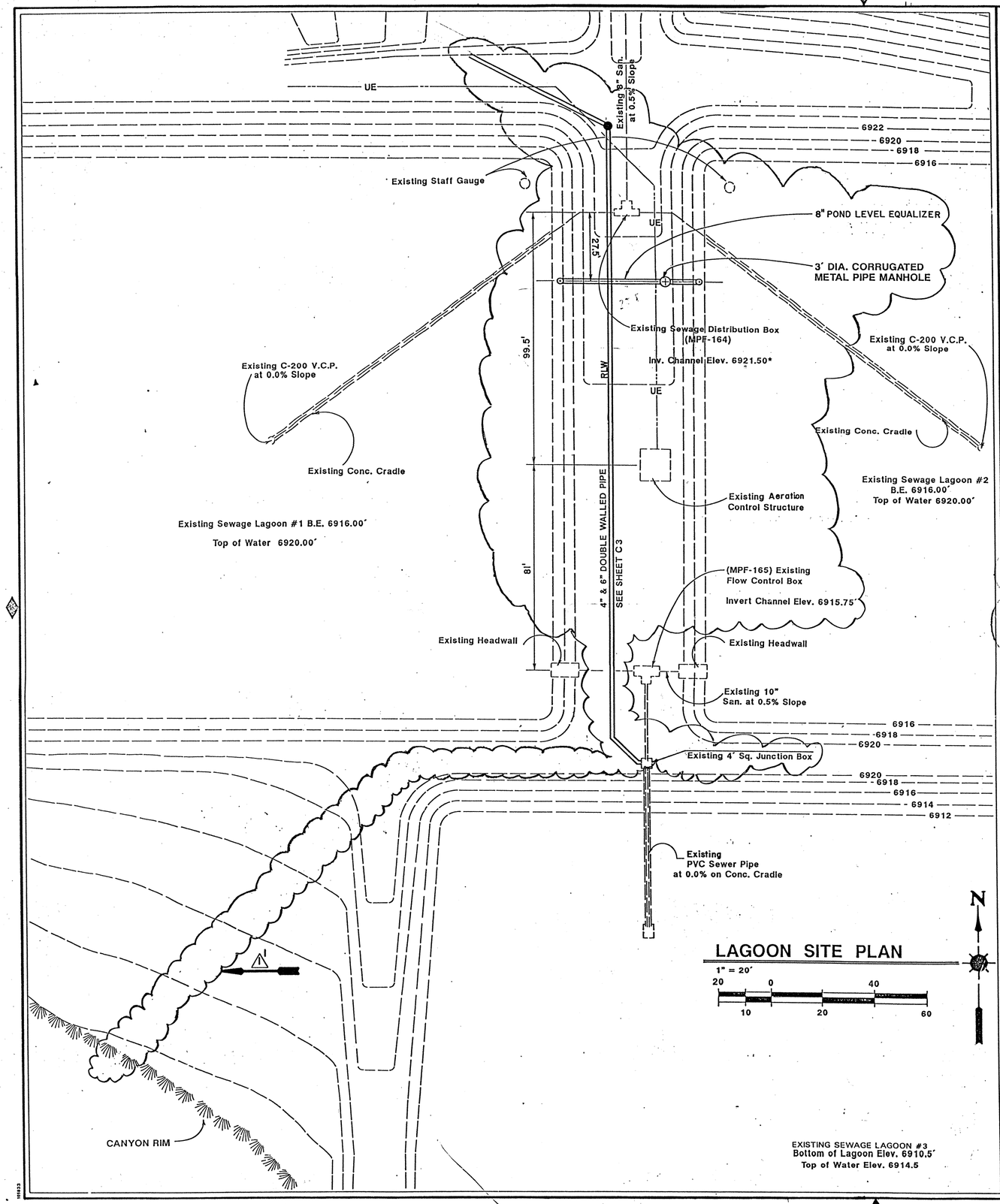
CLASSIFICATION UNC — REVIEWER — DATE 1 Feb 89

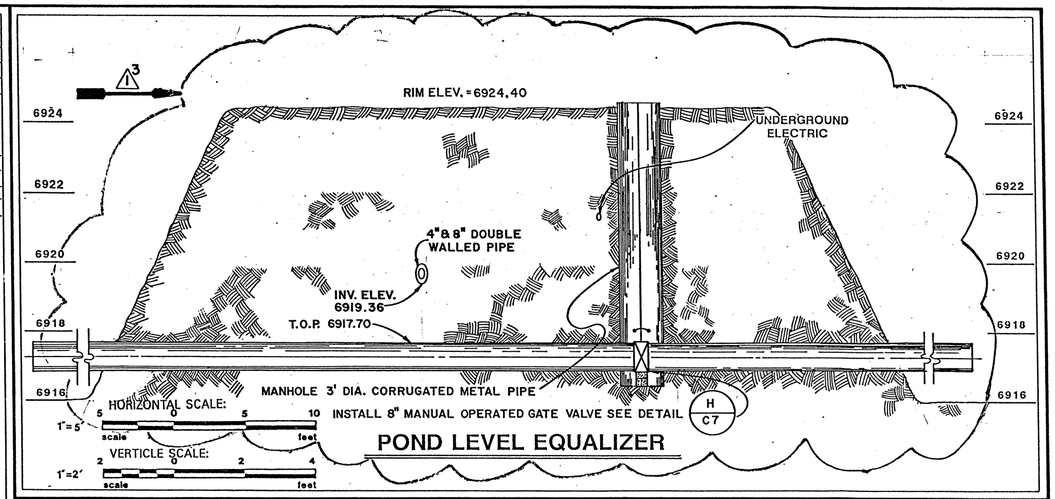
REQUESTING DIVISION HSE-DO N/A
REQUESTING GROUP HSE-8 N/A
LAB JOB NO. 9546-53
DRAWING NO. ENG-C 45523
REV. 1

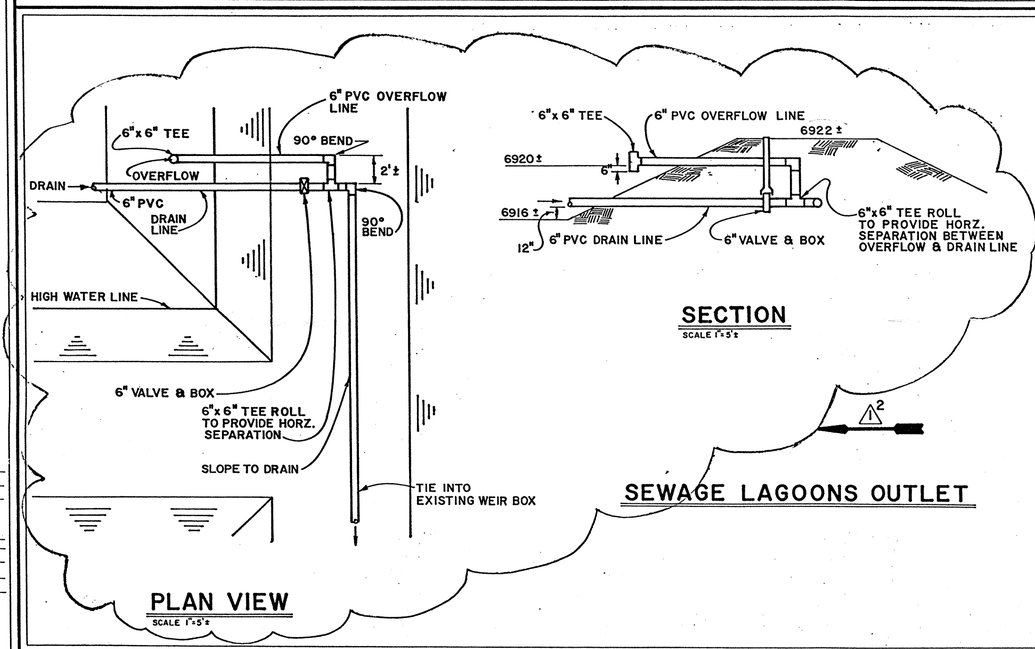
MASOUD ZARRABY — NEW MEXICO — 7726 — REGISTERED PROFESSIONAL ENGINEER

REC'D ____ LOGGED ____ TO VAULT ____

4275-F







NOTE:
CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES IN TRENCHES AND REPORT ANY CONFLICTS TO ENG. 1 PRIOR TO CONSTRUCTION OF PROJECT.

NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	CHKD	REQ GRP	REQ D.O.	ENG GRP	ENG D.O.
3	2/92	MF	REVISED LAGOON SITE PLAN. REVISED POND LEVEL EQUALIZER ADDED PLAN VIEW AND SECTION. DELETED WEST SANITARY SEWER OUTFLOW TO AS-BUILT STATUS.	G.V.						

MERRICK
SOUTHWEST BRANCH
LOS ALAMOS, NEW MEXICO

LAMPF WASTEWATER MODIFICATIONS
SEWAGE LAGOON OUTFALL LINE AND POND LEVEL EQUALIZER

TA-53

DRAWN	PENNEY
DESIGN	SPANDE
CHECKED	ZIMMERMAN
RELEASED	M.ZARRABY
DATE	1-27-89

SUBMITTED Harold Ramsey
RECOMMENDED Earl J. Hirsh
APPROVED J. Carter Mulligan

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

SHEET C6 — 8 OF 18

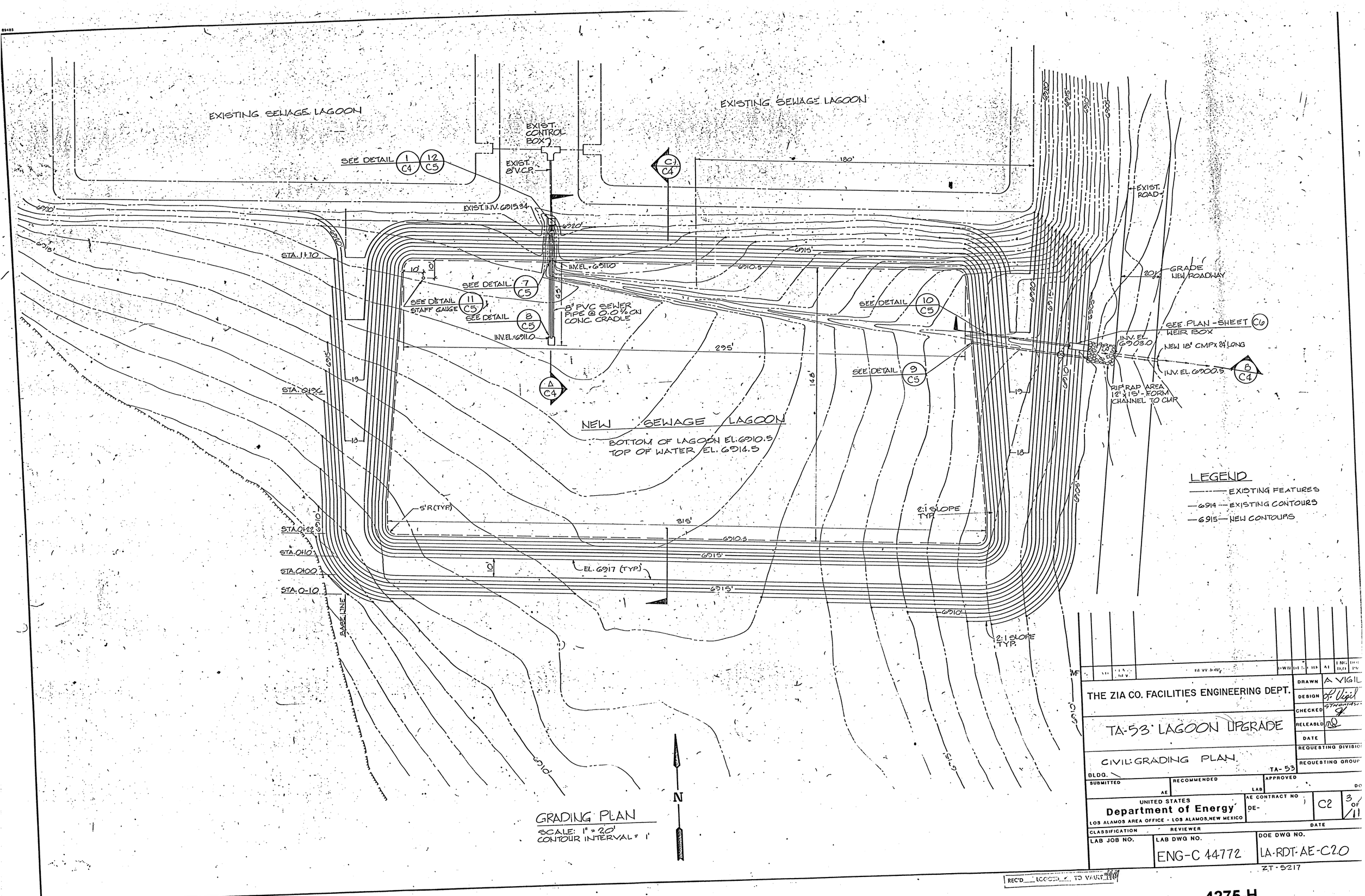
CLASSIFICATION U/L REVIEWER Earl J. Hirsh DATE 1 Feb 89

REQUESTING DIVISION	LAB JOB NO.	DRAWING NO.	REV.
HSE-DO N/A	9546-53	ENG-C45523	1
REQUESTING GROUP HSE-8 N/A			

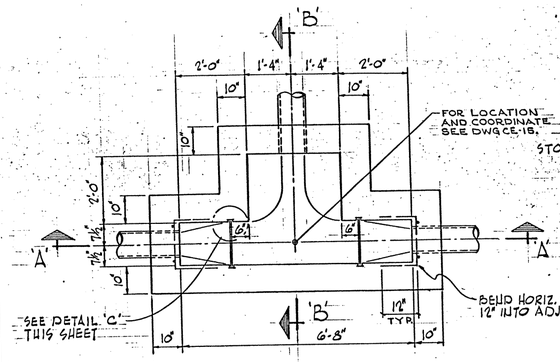
MASOUD ZARRABY NEW MEXICO 7750 REGISTERED PROFESSIONAL ENGINEER

REC'D LOGGED / TO VAULT

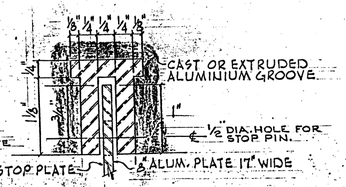
4275-G


EXISTING SEWAGE LAGOON
EXISTING SEWAGE LAGOON
EXIST. CONTROL BOX
SEE DETAIL 1 C4 12 C5
EXIST. 8" V.C.P.
C1 C4
180'
EXIST. ROAD
EXIST. INV. 6915.34
6920'
6918'
STA. 1+70
INV. EL. = 6911.0
6910.5
6915'
SEE DETAIL 7 C5
SEE DETAIL 11 C5
STAFF GAUGE
SEE DETAIL 8 C5
8" PVC SEWER PIPE @ 0.0% ON CONC. CRADLE
INV. EL. 6911.0
295'
SEE DETAIL 10 C5
SEE DETAIL 9 C5
20%
GRADE NEW ROADWAY
SEE PLAN - SHEET C6
WEIR BOX
INV. EL. 6903.0
NEW 18" CMP x 24' LONG
INV. EL. 6900.5
B C4
RIP RAP AREA 12' x 15' - FORM CHANNEL TO CMP
A C4
STA. 0+96
145'
NEW SEWAGE LAGOON
BOTTOM OF LAGOON EL. 6910.5
TOP OF WATER EL. 6914.5
5'R (TYP.)
315'
2:1 SLOPE TYP.
STA. 0+22.5
STA. 0+10
STA. 0+00
STA. 0-10
6910.5
6915'
EL. 6917 (TYP.)
6915'
6910'
BASE LINE
2:1 SLOPE TYP.
N
LEGEND
EXISTING FEATURES
6914 EXISTING CONTOURS
6915 NEW CONTOURS
GRADING PLAN
SCALE: 1" = 20'
CONTOUR INTERVAL = 1'
THE ZIA CO. FACILITIES ENGINEERING DEPT.
TA-53 LAGOON UPGRADE
CIVIL: GRADING PLAN.
TA-53
BLDG.
DRAWN A VIGIL
DESIGN A. Vigil
CHECKED
RELEASED
DATE
REQUESTING DIVISION
REQUESTING GROUP
SUBMITTED
RECOMMENDED
APPROVED
AE
LAB
UNITED STATES
Department of Energy
LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO
AE CONTRACT NO DE-
C2
3 OF 11
CLASSIFICATION
REVIEWER
DATE
LAB JOB NO.
LAB DWG NO.
ENG-C 44772
DOE DWG NO.
LA-RDT-AE-C2.0
ZT-5217
REC'D LOGGED TO VAULT
4275-H

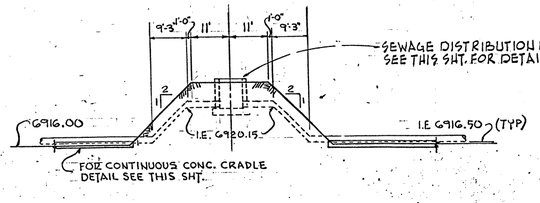
R. K. ELLIOTT CO. 301 750 2-66



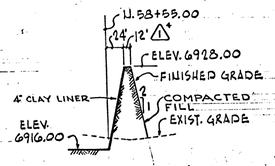
PLAN



DETAIL 'C'
FULL SIZE

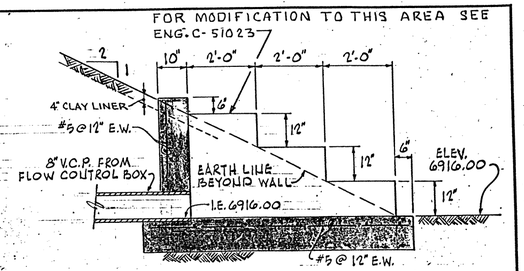


SECTION S (CE-15 | CE-17)
SCALE HORIZ. 1"=20'
VERT. 1"=10'

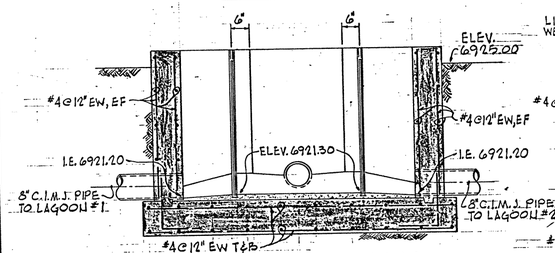


SECTION R (CE-15 | CE-17)
SCALE HORIZ 1"=100'
VERT. 1"=10'

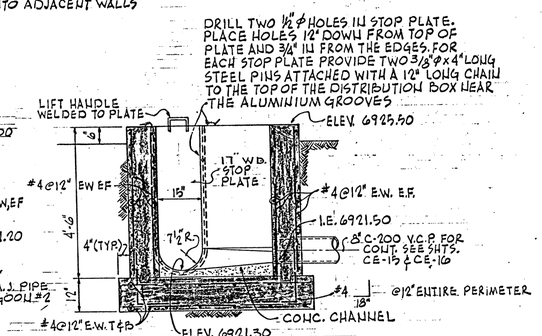
FOR MODIFICATION TO THIS AREA SEE ENG.-C-51023



SECTION G-G

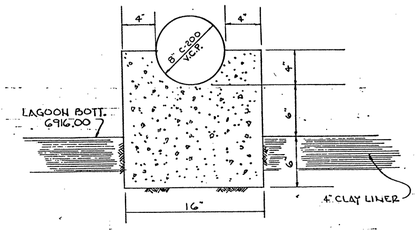


SECTION 'A'-'A'

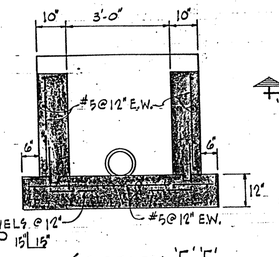


SECTION 'B'-'B'

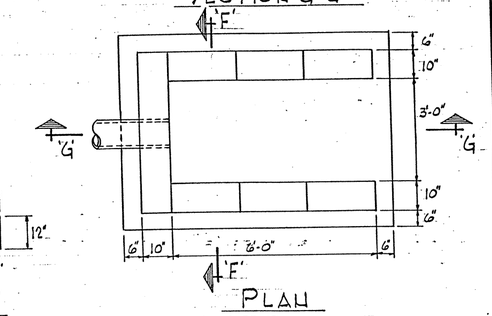
SEWAGE DISTRIBUTION BOX MPF-164
SCALE 1/2"=1'-0"



CONC. CRADLE DETAIL
SCALE 1 1/2"=1'-0"



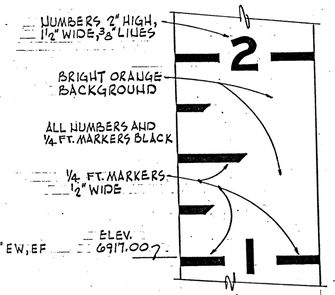
SECTION 'F'-'F'



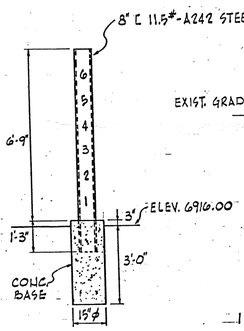
PLAN

FOR LOCATION SEE DRAWING CE-15.

LAGOON HEADWALL DETAIL MPF-166
SCALE: 1/2"=1'-0"

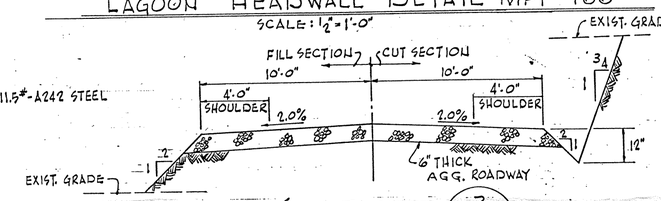


MARKINGS
SCALE 3"=1'-0"

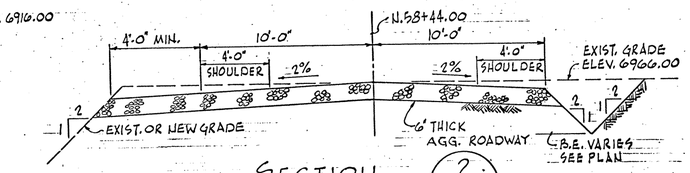


ELEVATION
SCALE 3/8"=1'-0"

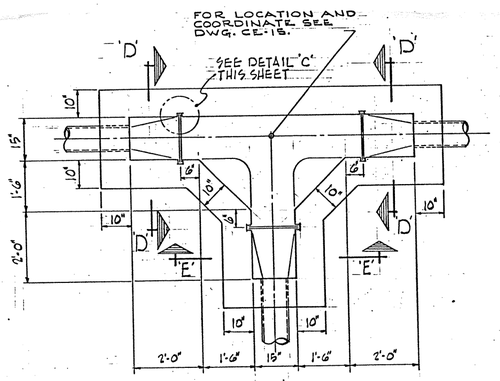
STAFF GAUGE DETAIL
FOR LOCATION SEE DRAWING CE-15.



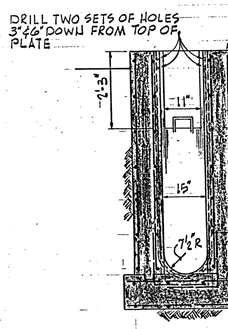
SECTION 3 (CE-14,15 | CE-17)
SCALE: HORIZ. 1"=4'
VERT. 1"=2'



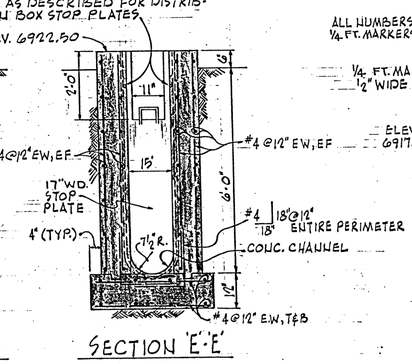
SECTION 2 (CE-13 | CE-17)
SCALE: HORIZ 1"=4'
VERT 1"=2'



PLAN

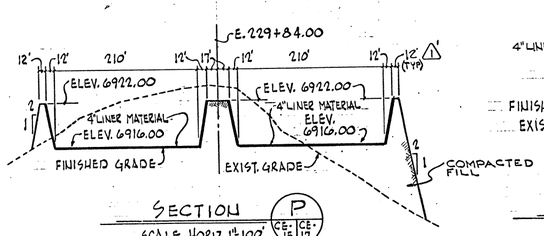


SECTION 'D'-'D'

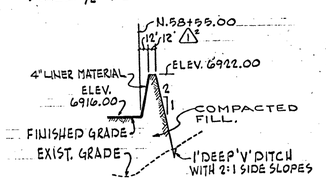


SECTION 'E'-'E'

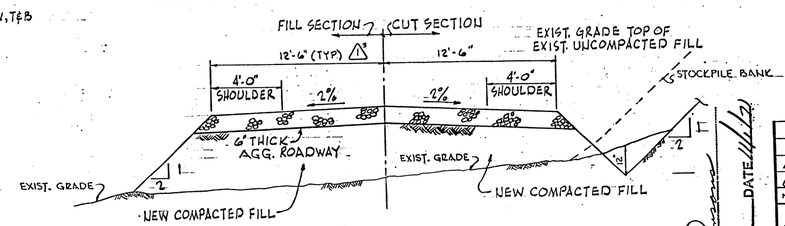
FLOW CONTROL BOX MPF-165
SCALE: 1/2"=1'-0"



SECTION P (CE-15 | CE-17)
SCALE HORIZ 1"=100'
VERT 1"=10'



SECTION Q (CE-15 | CE-17)
SCALE HORIZ 1"=100'
VERT 1"=10'



NOTE: FOR THE EXTENT OF THE EXIST. UNCOMPACTED FILL SEE SHT. CE-18

SECTION 1 (CE-13 | CE-17)
SCALE HORIZ. 1"=4'
VERT. 1"=2'

AS CONSTRUCTED DRAWING
CONSTRUCTION CONTRACT NO. AT(29-2)-2586
SUBMITTED
RECOMMENDED
APPROVED

NO.	DATE	REVISIONS	BY	CK.	PROJ. ENGR.	A.E.C. APP.
1	1-1-71	REVISED TO AS BUILT STATUS AS OF 7-27-70	HEW			
0	8-8-69	AS CONSTRUCTED	J.W.P.	RWH	ERM	

U.S. ATOMIC ENERGY COMMISSION
ALBUQUERQUE OPERATIONS OFFICE
ALBUQUERQUE, NEW MEXICO

LOS ALAMOS MESON PHYSICS FACILITY
SEWAGE LAGOONS
UNDERGROUND UTILITIES DETAILS
& SITE DETAILS TA-53

CONTRACT NO A.E. AT(29-2)-2023
DRAWN J.W.PRADTHER
CHECKED R. NOGAS
A.E. APPROVED
DESIGN J. McFALL
PROJ. ENGR. E. McCAMMAN
CHIEF ENGR. S. LITTMANN
SCALE AS SHOWN
DATE 4-5-68

SUBMITTED ARCHITECT-ENGINEER
RECOMMENDED
APPROVED A.E.C.

GIFFELS & ROSSETTI, INC.
ARCHITECTS-ENGINEERS DETROIT, MICHIGAN

JOB NO. 66-17
SHEET NO. CE-17
DRAWING NO. LAM-D-CE-17
SHEET 17 OF 29

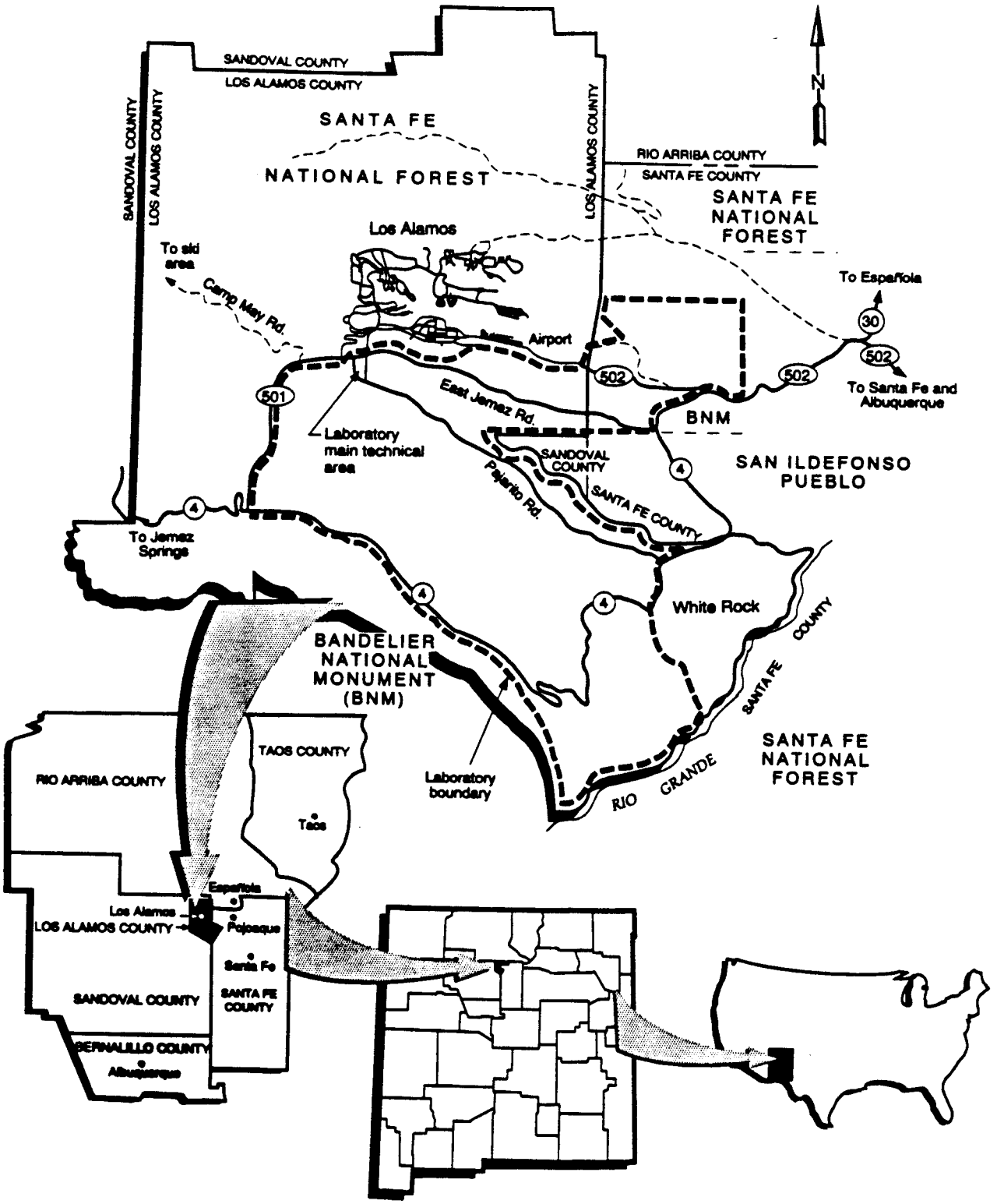
CLASS
DATE 1/11/71

LAB JOB 2856 ENG-C 57817

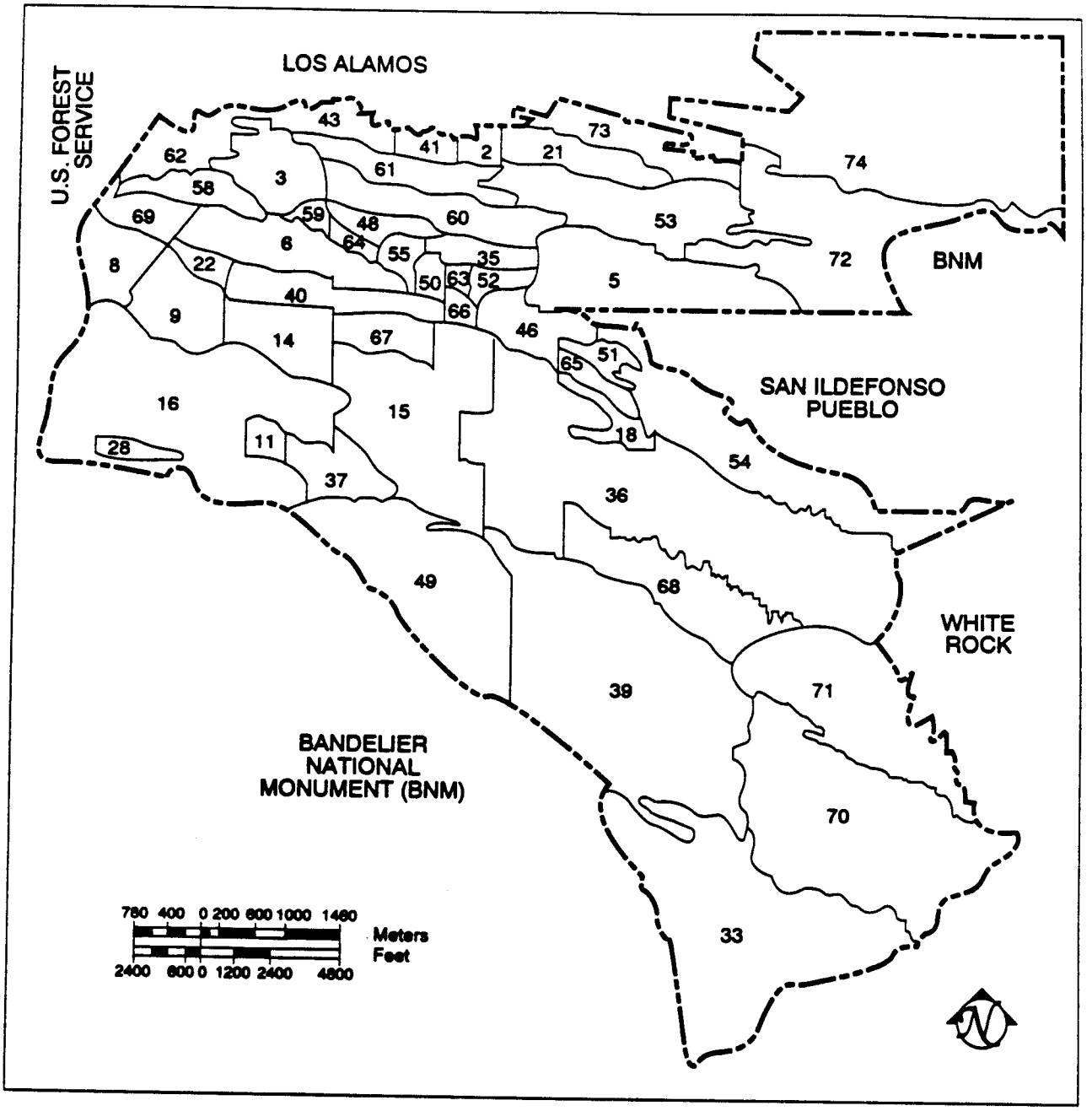
4-2

4275-I

APPENDIX II



Regional location of Los Alamos.



Technical areas (TAs) of Los Alamos National Laboratory in relation to surrounding land holdings.

APPENDIX III

APPENDIX IV

EGG-ES-8204

Los Alamos National Laboratory

Sampling and Analysis Data Document

This document contains uninterpreted sampling and analytical data. The data will be interpreted by the DOE Environmental Survey Team and used to modify, as appropriate, the tentative Survey findings contained in the Environmental Survey Preliminary Report. Final Survey findings will be presented in the Environmental Survey Summary Report.

DRAFT

Volume I
November 1989

DEPARTMENT OF ENERGY
ENVIRONMENTAL SURVEY

4.13 Environmental Problem 13--TA-53 Lagoon

- Request Number: LA500

- Requester: P. Alexandro

- Finding and Basis: There is a potential for the sludge in the TA-53 Wastewater Treatment Lagoon to be contaminated from the discharge of solvents used in the TA-53 machine shop. If the sludge is a hazardous waste, the lagoons would be considered a hazardous waste surface impoundment and would require RCRA management practices.

  Survey team members visited the TA-53 machine shop/maintenance shop and found that there was a potential for the solvents to be discharged to drains that empty to the lagoons. TA-53 personnel have stated that there has been an "oily sheen" visible on the surface of the lagoons at times in the past. The lagoon sludge has been tested by the EP toxicity method but not by the TCLP method for organic contamination. In the future, TCLP may become the EPA-mandated leach test to determine toxicity of a waste.

4.13.1 Sampling and Analysis Objectives

- Statement

  The S&A objective was to determine the presence of organic and toxic metal contamination in the lagoon sludge. The TCLP test was requested to determine if sufficient organic contamination exists to classify the sludge as hazardous waste.

- Supporting Information:

  None.

4.13.2 Sampling and Analysis Design

- Sampling Design

As planned, a series of systematic composite samples from each lagoon was collected to provide data regarding the presence of the contaminants of concern, their average concentrations, and information regarding the variability of average concentrations within each lagoon and between lagoons. Each lagoon has surface aerators that were shut down temporarily to facilitate sample collection. The samples were collected using stainless steel beakers attached to metal poles instead of the power dredge as originally planned.

Three composite sludge samples, each consisting of three subsamples, were collected from each of the two primary treatment lagoons. Each lagoon was sectioned into three rows and three columns (nine sampling points). Composite samples were collected from three regions of each lagoon. Grab samples of sludge were collected for volatile organic analysis from a part of one of the three subsamples making up each composite.

Table 4.13.1 summarizes the sampling and analytical requests and the analyses performed.

- Analytical Design

Samples of sludge were analyzed for volatile and semivolatile organic compounds and metals to ICP detection limits. TCLP was requested for metals and semivolatiles when concentrations exceeded the threshold limits in Table 4.0.6. Mercury analyses was performed, although not requested. Although only a gamma screen for shipping purposes was required, the known presence of a variety of radionuclides in the sludge warranted a gamma analysis for confirmatory purposes.

4.13.3 Field and Analytical Data

- Field Data

Field surveys measured radioactivity at less than 2 µR/h. No field measurements for organic vapors were taken. The sludge samples were collected in approximately 5 ft of water. Sludge depth varied between 3 and 18 in. Small worms (1/8 to 1/2 in. long) were observed in all samples.

- Field Data Evaluation

None.

- Analytical Data

Analytical data for the six samples collected from the TA-53 waste water lagoons are summarized in Tables 4.13.2 through 4.13.4.

None of the semivolatile organic compounds or metals detected exceeded the TCLP threshold limits; therefore, TCLP analyses were not required for these samples. The primary volatile and semivolatile organic TICs detected were hydrocarbons, which are indicative of petroleum distillate contaminants and could cause the noted oily sheen on the lagoons. Toluene was the only target organic compound detected with certainty from the West Lagoon at concentrations ranging from 200 to 3600 µg/kg.

Barium, copper, and zinc were detected in all six samples, at concentrations of 41 to 110 mg/kg, 78 to 300 mg/kg, and 120 to 580 mg/kg, respectively. Beryllium was detected in samples 02, 03, 05, and 06 in concentrations ranging from 0.6 to 0.9 mg/kg. Chromium was detected in samples 02, 03, and

05 at concentrations ranging from 13 to 18 mg/kg. Mercury was detected in samples 01, 02, and 03 in concentrations ranging from 0.5 to 1.1 mg/kg, and silver was detected in samples 02 and 03 at 4.9 and 7.1 mg/kg, respectively.

- Analytical Data Evaluation

LA500: TA-53, Primary East and West Wastewater Lagoons. Composite samples 01, 02, and 03 were collected from the West Lagoon, while composite samples 04, 05, and 06 were collected from the East Lagoon. The majority of the contaminants was detected in the samples collected from the West Lagoon. Toluene was definitively detected in samples 01, 02, and 03, collected from the West Lagoon, at concentrations ranging from 200 to 3600 µg/kg. Fluoranthene was detected in one sample (03) at 88 µg/kg; however, it is suspected as a false positive.

Caution should be exercised by the data user when evaluating the volatile and semivolatile organic data for this environmental problem because the following data are highly suspect as false positives (see the Limitations and Qualification Section 4.13.4). A number of other organic compounds are reported in Appendix E; however, they have not been reported in Table 4.13.2 since they are highly suspect as false positives. Insufficient date were provided to conclusively confirm or deny their presence in these samples.

The three samples collected from the West Lagoon contained barium, copper, mercury, and zinc at concentrations ranging from 75 to 110 mg/kg, 120 to 300 mg/kg, 0.5 to 1.1 mg/kg, and 170 to 580 mg/kg, respectively. Samples 02 and 03 also contained beryllium, chromium, and silver in comparable concentrations, with concentrations of silver and beryllium less than their respective CRDLs. All three metals samples collected from the East Lagoon contained barium, copper, and zinc, at concentrations ranging from 41 to 100 mg/kg, 78 to 120 mg/kg, and 120 to 240 mg/kg,

respectively. Samples 02 and 03 each contained 0.90 mg/kg beryllium, and sample 02 also contained 14.0 mg/kg chromium.

- Radiological Data

Results of the gamma analyses are listed in Table 4.13.5.

Gamma analyses indicated elevated levels of radioactivity in the sediment samples from the TA-53 Waste Water Treatment Lagoon. The following radionuclides were detected in all six samples: ^{7}Be (400,000 to 14,970,000 pCi/kgW), ^{22}Na (7890 to 28,600 pCi/kgW), ^{54}Mn (235,000 to 3,100,000 pCi/kgW), ^{56}Co (15,000 to 540,000 pCi/kgW), ^{57}Co (238,000 to 5,740,000 pCi/kgW), ^{58}Co (43,700 to 1,610,000 pCi/kgW), ^{60}Co (61,800 to 1,060,000 pCi/kgW), ^{65}Zn (2490 to 154,000 pCi/kgW), ^{75}Se (4340 to 57,500 pCi/kgW), ^{83}Rb (46,500 to 240,000 pCi/kgW), ^{88}Y (292 to 12,300 pCi/kgW), and ^{134}Cs (325,000 to 1,380,000 pCi/kgW). In addition, ^{46}Sc (1820 to 5330 pCi/kgW) and ^{88}Zr (1130 to 1810 pCi/kgW) were seen in three samples (01, 02, and 03), ^{110m}Ag (2920 to 3000 pCi/kgW) in two samples (02 and 03), ^{109}Cd (1,060,000 pCi/kgW) in one sample 03, and natural ^{40}K in all six samples.

With the exception of a few radionuclides, the highest concentrations were generally observed in composite sample 02 from the West Lagoon.

- Radiological Data Evaluation

<u>LA500: TA-53, Primary East and West Wastewater Lagoons</u>.

In general, samples from the West Lagoon contained higher radionuclide concentrations than did the samples from the East Lagoon. With the exception of several radionuclides (i.e., ^{2}Na, ^{75}Se, ^{88}Zr, ^{109}Cd, and ^{134}Cs), the highest concentrations

were observed in sample 02. The ^{22}Na concentration in samples 04, 05, and 06 ranged in from 26,100 to 28,600 pCi/kgW. Cesium-134 concentrations in the same three samples ranged from 719,000 to 1,376,000 pCi/kgW.

4.13.4 Limitations and Qualifications

- Data Quality Level

  The sampling design, sample collection, documentation, and analytical data for metals are Quality Level I. The volatile and semivolatile organic analytical data are Quality Level III.

- Field Data

  None.

- Analytical Data

  LA500: TA-53, Primary East and West Wastewater Lagoons. The volatile organic data obtained for this environmental problem are highly suspect and contain both false positives and false negatives. In general the chromatography is very poor, making the identification of target and non-target compounds difficult. This is evidenced by random retention time shifts throughout the data set. Some of the internal standards and surrogates were manually integrated while the automated data processing routines were relied upon for identification of both the TCL and TIC compounds. The poor quality of the mass spectral data is another indication that the majority of the compounds were either misidentified or not identified at all. Many of the peaks (especially the surrogate compound 1,2-dichloroethane-d_4) are split, which indicates hardware problems with the instrumentation. It would b necessary to manually reprocess the data from the magnetic tape t more accurately report these data.

The elevated CRQLs are due to only 1 g of sample being analyzed, rather than 5 g of soil as specified in the analytical protocol. This deviation from the protocol compromises the data comparability; therefore, it increases the probability of false negatives.

Volatile organic compounds that are suspect as false positives for this environmental problem include acetone, methylene chloride, vinyl acetate, 4-methyl-2-pentanone, chloroform, carbon disulfide, and 1,2-dichloroethane. There are a number of unidentified peaks present on the chromatograms, which indicate false negatives for this data set.

All semivolatile samples in this environmental problem were reanalyzed due to initial analyses failing CLP QC criteria. These samples are all sediment samples with high percent moistures (43-70%). Possible matrix effects may have contributed to low surrogate and matrix spike recoveries as well as the lack of definite TCL hits. There also may have been chemical interferences due to the presence of hydrocarbon TICs, which were detected in all of the samples. The reported target analyte concentrations are probably biased low, or may be false negatives.

Semivolatile organic compounds that are suspect as false positives for this environmental problem include benzoic acid, pyrene, benzyl alcohol, 4-methylphenol, 2-methylphenol, and fluoranthene. The poor mass spectral data quality for these compounds make their identification suspect.

In general there was no adverse impact to the usability of the metals data indicated by the associated QC data. The serial dilution result for zinc was greater than the 10% difference control limit, at 15.4%. Although the high percent difference could indicate the presence of an interference, it could also

indicate error introduced by dilution or non-linearity in the calibration curve. Zinc quantitation may therefore be subject to increased analytical uncertainty.

- Radiological Data

The results of QC checks indicate that the performance of the gamma-ray spectrometers and analytical methods were adequate to ensure accuracy and reproducibility of the results obtained using them. In addition, the background seen by each detector was sufficiently low and constant to ensure accurate compensation for background effects.

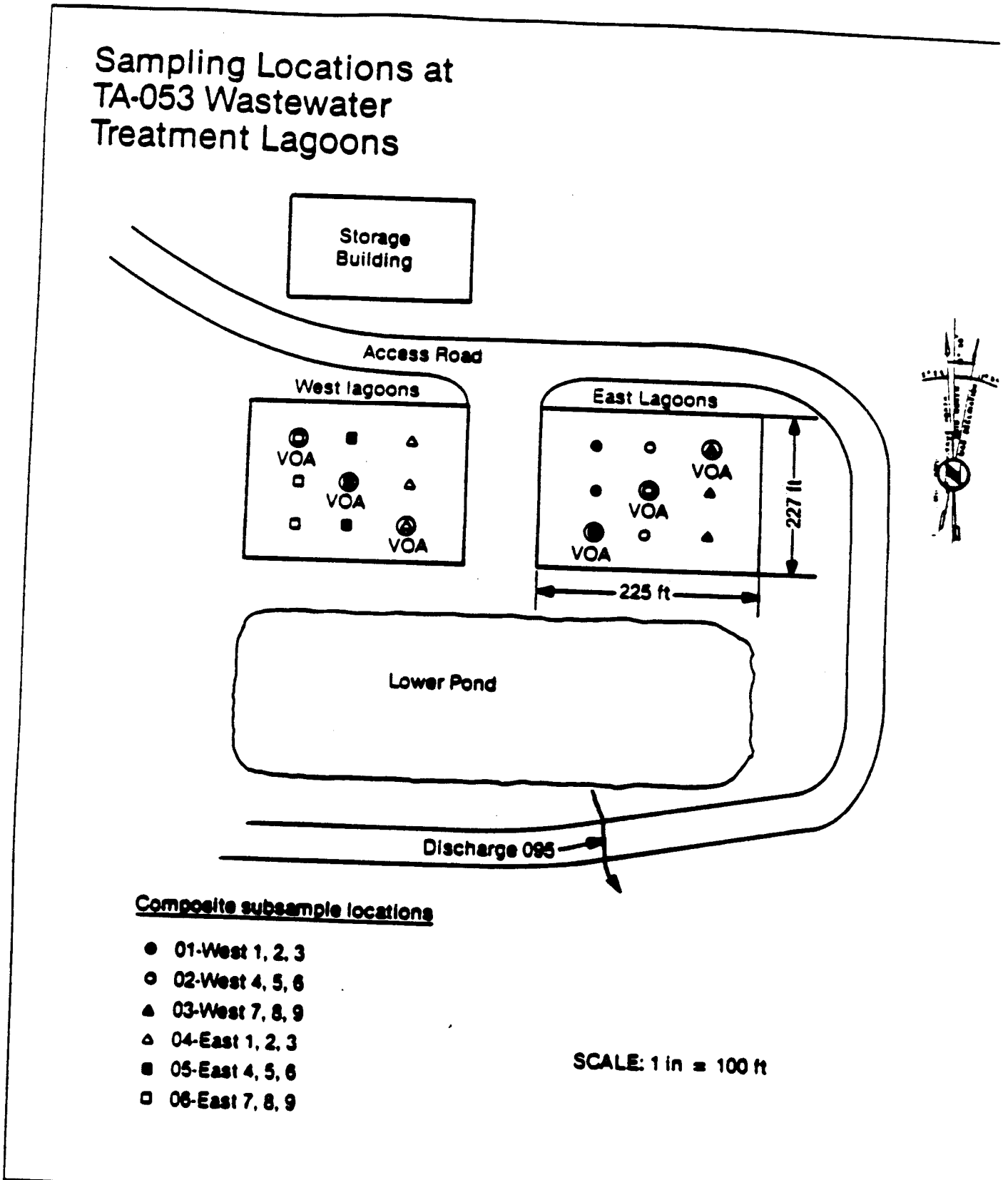

Sampling Locations at
TA-053 Wastewater
Treatment Lagoons
Storage Building
Access Road
West lagoons
East Lagoons
VOA
VOA
VOA
VOA
VOA
VOA
227 ft
225 ft
Lower Pond
Discharge 095
Composite subsample locations
01-West 1, 2, 3
02-West 4, 5, 6
03-West 7, 8, 9
04-East 1, 2, 3
05-East 4, 5, 6
06-East 7, 8, 9
SCALE: 1 in = 100 ft

Figure 4.13.1

TABLE 4.13.1 LOS ALAMOS NATIONAL LABORATORY - COMPLETION TABLE - ENVIRONMENTAL PROBLEM 13

(Column Header Legend: P = Planned C = Collected A = Analyzed)
(Status Column Legend: Del = Deleted Dev = Deviation)

REQUEST NUMBER	SM	STAT	DATE COLLECTED mm/dd/yy	AREA	LOCATION	TYPE LOCATION	MEDIA	TYPE	NUMBER SAMPLES		VOLATILE			SEMI VOLATILE			TCLP SEMIVOL			ICP METALS			TCLP METALS			GAMMA ANALYSIS		
									P	C	P	C	A	P	C	A	P	C	A	P	C	A	P	C	A	P	C	A
LA500			06/03/88	14-33	WAT LAGOONS	PRIMARY EAW	SED	S.COMP	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	6	6
Totals for Problem Number 13									6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	6	6

TABLE 4.13.2 LOS ALAMOS NATIONAL LABORATORY - VOLATILE ORGANIC DATA - ENVIRONMENTAL PROBLEM 13

AREA	TA-53	TA-53	TA-53	TA-53	TA-53	TA-53
LOCATION	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS
TYPE OF LOCATION	PRIMARY W	PRIMARY W	PRIMARY W	PRIMARY E	PRIMARY E	PRIMARY E
SAMPLE NUMBER	LA50001XX	LA50002XX	LA50003XX	LA50004XX	LA50005XX	LA50006XX
MEDIA	SED	SED	SED	SED	SED	SED
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SDG NUMBER	LA50001XX	LA50001XX	LA50001XX	LA50001XX	LA50001XX	LA50006XX
FIELD MEASUREMENTS						
Depth (ft)	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0
TARGET COMPOUNDS						
Acetone	640 B[a]	---	970 B[a]	4900 B[a]	250 B[a]	9000 B[a]
Toluene	3400 E	200	870	---	---	---
Total (Allowed) Hold Time	10(14)d	11(14)d	10(14)d	11(14)d	11(14)d	13(14)d
ELEVated/DECReased CRQL	ELEV	ELEV	ELEV	ELEV	ELEV	ELEV
Dilution Factor	1.000	1.000	1.000	1.000	1.000	1.000

a. Possible false positive.

TABLE 4.13.3 LOS ALAMOS NATIONAL LABORATORY - SEMIVOLATILE ORGANIC DATA - ENVIRONMENTAL PROBLEM 13

AREA	TA-53	TA-53	TA-53	TA-53	TA-53	TA-53
LOCATION	WAT LAGOONS	WAT LAGOONS	WAT LAGOONS	WAT LAGOONS	WAT LAGOONS	WAT LAGOONS
TYPE OF LOCATION	PRIMARY E&W	PRIMARY E&W	PRIMARY E&W	PRIMARY E&W	PRIMARY E&W	PRIMARY E&W
SAMPLE NUMBER	LA50001XVRE	LA50002XVRE	LA50003XVRE	LA50004XVRE	LA50005XVRE	LA50006XVRE
MEDIA	SED	SED	SED	SED	SED	SED
UNITS	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SDG NUMBER	LA50001XV	LA50001XV	LA50001XV	LA50001XV	LA50001XV	LA50001XV
FIELD MEASUREMENTS						
Depth (ft)	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0
TARGET COMPOUNDS						
Benzyl alcohol	---	57 J	---	---	---	---
2-Methylphenol	---	30 J	---	---	---	---
4-Methylphenol	---	1100	---	---	---	---
Benzoic acid	200 JB	---	---	110 JB	---	---
Fluoranthene	---	---	88 J	---	---	---
Pyrene	50 JB	---	120 JB	---	---	---
TENTATIVELY IDENTIFIED COMPOUNDS						
Methylbenzene	---	---	600 J	---	---	---
Total (Allowed) Hold Time	6(14)d	6(14)d	6(14)d	6(14)d	6(14)d	6(14)d
ELEVated/DECreased CRQL	ELEV	ELEV	ELEV	ELEV	ELEV	ELEV
Dilution Factor	1.000	1.000	1.000	1.000	1.000	1.000

TABLE 4.13.4 LOS ALAMOS NATIONAL LABORATORY - INORGANIC DATA - ENVIRONMENTAL PROBLEM 13

AREA	TA-53	TA-53	TA-53	TA-53	TA-53	TA-53
LOCATION	W/T LAGOONS	W/T LAGOONS	W/T LAGOONS	W/T LAGOONS	W/T LAGOONS	W/T LAGOONS
TYPE OF LOCATION	PRIMARY W	PRIMARY W	PRIMARY W	PRIMARY E	PRIMARY E	PRIMARY E
SAMPLE NUMBER	LA50001NW	LA50002NW	LA50003NW	LA50004NW	LA50005NW	LA50006NW
MEDIA	SED	SED	SED	SED	SED	SED
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SDG NUMBER	LA50001NW	LA50001NW	LA50001NW	LA50001NW	LA50001NW	LA50006NW
FIELD MEASUREMENTS						
Depth (ft)	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0
ANALYTES						
Antimony	---	---	---	---	---	---
Arsenic	---	---	---	---	---	---
Barium	112 B	74.8	103 B	41.2 B	85.0 B	102 B
Beryllium	---	0.59 B	0.67 B	---	0.98 B	0.90 B
Cadmium	---	---	---	---	---	---
Chromium	---	12.8	17.7	---	14.0	---
Copper	383	119	241	78.2	97.6	122
Lead[c]	---	---	---	---	---	---
Mercury[b]	1.1	0.50	0.49	---	---	---
Nickel	---	---	---	---	---	---
Selenium	---	---	---	---	---	---
Silver	---	4.9 B	7.1 B	---	---	---
Thallium	---	---	---	---	---	---
Zinc	578	166	385	118	178	244
% Solids	18.3	53.7	32.5	31.9	32.9	26.6
Total (Allowed) Hold Time[a]	24(182)d	24(182)d	24(182)d	24(182)d	24(182)d	12(182)d
Total (Allowed) Hold Time[b]	24(28)d	24(28)d	24(28)d	24(28)d	24(28)d	24(28)d
Total (Allowed) Hold Time[c]	12(182)d	12(182)d	12(182)d	12(182)d	12(182)d	12(182)d

a. ICP.
b. CVAAS.
c. GFAAS.

TABLE 4.13.5 LOS ALAMOS NATIONAL LABORATORY - RADIOLOGICAL DATA - ENVIRONMENTAL PROBLEM 13

AREA	TA-53	TA-53	TA-53	TA-53	TA-53
LOCATION	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS	WWT LAGOONS
TYPE OF LOCATION	PRIMARY W	PRIMARY W	PRIMARY W	PRIMARY E	PRIMARY E
SAMPLE NUMBER	LA50001W	LA50002W	LA50003W	LA50004W	LA50005W
MEDIA	SED	SED	SED	SED	SED
UNITS	pCi/kgW	pCi/kgW	pCi/kgW	pCi/kgW	pCi/kgW
Gamma Emitters					
Beryllium - 7	14970000 ±960000	35500000 ±2200000	23700000 ±1400000	1050000 ±140000	580000 ±130000
Sodium - 22	7080 ±570	8200 ±660	10960 ±780	28600 ±2000	26100 ±1900
Potassium - 40	12100 ±2200	18400 ±2300	12000 ±2600	9670 ±910	8300 ±1000
Scandium - 46	1020 ±340	5330 ±610	4180 ±390	----	----
Manganese - 54	1443000 ±93000	3100000 ±190000	2050000 ±130000	659000 ±41000	442000 ±28000
Cobalt - 56	254000 ±16000	540000 ±33000	389000 ±24000	30800 ±1900	19600 ±1200
Cobalt - 57	2780000 ±170000	5740000 ±370000	4550000 ±280000	413000 ±25000	238000 ±15000
Cobalt - 58	725000 ±44000	1404000 ±90000	1155000 ±71000	91300 ±6200	57100 ±3800
Cobalt - 60	515000 ±35000	1061000 ±65000	861000 ±53000	113000 ±7400	61800 ±4000
Zinc - 65	57100 ±4200	154000 ±11000	111300 ±8000	4140 ±610	2720 ±310
Selenium - 75	23700 ±1500	54400 ±3800	57500 ±3700	7340 ±700	4340 ±440
Rubidium - 83	178000 ±12000	240000 ±15000	150300 ±9400	104300 ±6400	84600 ±5200
Yttrium - 88	5120 ±430	12300 ±850	9360 ±660	591 ±66.0	350 ±54.0
Zirconium - 88	1130 ±270	1570 ±120	1810 ±470	----	----
Cadmium - 109	----	----	1060000 ±530000	----	----
Silver - 110m	----	2920 ±510	3000 ±430	----	----
Cesium - 134	325000 ±20000	406000 ±25000	319000 ±20000	1376000 ±83000	980000 ±59000
Neodymium - 147	<5850	----	<160000	----	----

TABLE 4.13.5 LOS ALAMOS NATIONAL LABORATORY - RADIOLOGICAL DATA - ENVIRONMENTAL PROBLEM 13 (Continued)

AREA	TA-53
LOCATION	WAF LAGOONS
TYPE OF LOCATION	PRIMARY E
SAMPLE NUMBER	LA50004W
MEDIA	BED
UNITS	pCi/kgW
Gamma Emitters	
Beryllium - 7	400000 ±90000
Sodium - 22	26200 ±1900
Potassium - 40	7600 ±740
Scandium - 46	----
Manganese - 54	235000 ±15000
Cobalt - 56	14900 ±960
Cobalt - 57	239000 ±15000
Cobalt - 58	43700 ±2900
Cobalt - 60	74000 ±5000
Zinc - 65	2490 ±350
Selenium - 75	4700 ±440
Rubidium - 83	46500 ±2900
Yttrium - 88	292 ±44.0
Zirconium - 88	----
Cadmium - 109	----
Silver - 110m	----
Cesium - 134	719000 ±44000
Neodymium - 147	----

TO: ALICE BARR
THRU: CHRIS LEIBMAN
FROM: TONEY BEGAY
REQUEST: 11673.

The following samples were analyzed for Volatile Organic Components (VOC'S) using SW 846 Purge and Trap (P/T) GC/MS method 8260 of analysis:

91.05740	91.05741	91.05742	91.05743	91.05744
91.05745	91.05746	91.05747	91.05748	91.05749
91.05750	91.05751	91.05752	91.05753	91.05754
91.05755	91.05756	91.05757	91.05758	91.05759
91.05762	91.05763	91.05764		

The matrices of these samples were sludge and wastewater. They were relatively radioactive. The samples were received in 40mL capacity vials.

Approximately 5 gram aliquot of the sludge samples was weighed out and 5 mL of ISM/PSS spiked water was added to the sample and analyzed. 5mL aliquot of the wastewater samples were spiked with ISM/PSS mix and analyzed.

Since the method blank samples were not blank subtracted, a copy of the results have been included in the report. **The 7 and 14 day holding time for the appropriate matrices <u>were</u> satisfied.**

<u>RESULTS</u>:

SAMPLE	COMPOUND	CONC.	LOQ
91.05743	TOLUENE	68.0 ug/kg	5 ug/kg
91.05744	TOLUENE	42.0 ug/kg	5 ug/kg
91.05746	TOLUENE	25.0 ug/kg	5 ug/kg
91.05758	TOLUENE	14.0 ug/kg	5 ug/kg
	p-ISOPROPYLTOLUENE	8.7 ug/kg	5 ug/kg

QC SUMMARY:

Sample 91.05743 was used for the sludge matrix spike recovery determinations. All the matrix spike compound recoveries were within the control limits except for toluene, which was above. This is a result of toluene being present in the sample. Unfortunately, the sample had a bad purge and had to be analyzed another day. This resulted in a higher toluene concentration value and therefore, a definitive matrix spike recovery could not be done.

Sample 91.05741 was used for the wastewater matrix spike recovery determinations. All the matrix spike compound recoveries were within the control limits.

There were alot of samples that had surrogate recoveries out of control. The following are the recoveries and their relation to the control limits:

SAMPLE	1,2-DCE(d4)	TOLUENE(d8)	4-BFB
91.05740			BELOW
91.05741	ABOVE	ABOVE	
91.05742		ABOVE	
91.05743			ABOVE
91.05744			ABOVE
91.05745	ABOVE		
91.05746	ABOVE		
91.05747			BELOW
91.05748			BELOW
91.05751			ABOVE
91.05752			ABOVE
91.05753			ABOVE
91.05754	ABOVE		
91.05757	ABOVE		ABOVE
91.05758			ABOVE
91.05759	ABOVE		ABOVE
91.05763	ABOVE	ABOVE	
91.05764	ABOVE		

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR VOLATILES
IN WATER TYPE MATRICES

REQUEST #: 11673

NUMBER OF SAMPLES: 18
MATRIX 4
ANALYST: TRB
Date: 07/08/91

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	d4-1,2-dichloro-ethene	toluene-(d8)	4-bromo-fluoro-benzene
1	B91.05766	BLANK	94	96	103
2	S91.05740	SAMPLE	79	103	81 *
3	S91.05741	SAMPLE	259 *	116 *	90
4	S91.05742	SAMPLE	103	111 *	91
5	S91.05747	SAMPLE	83	106	85 *
6	S91.05748	SAMPLE	108	104	85 *
7	S91.05749	SAMPLE	99	106	86
8	S91.05750	SAMPLE	110	107	88
9	S91.05754	SAMPLE	126 *	107	93
10	S91.05755	SAMPLE	94	106	89
11	S91.05756	SAMPLE	91	106	93
12	S91.05762	SAMPLE	86	104	92
13	S91.05763	SAMPLE	216 *	113 *	93
14	S91.05764	SAMPLE	152 *	108	96
15	B91.05767	BLANK	88	107	84 *
16	M91.05741	MATRIX SPIK	86	105	82 *
17	M91.05741	MATRIX SP-D	91	107	83 *
18	S91.05765	SAMPLE	220 *	117 *	92
19					
20					
21					
22					

Average % Surrogate Recovery...	115	106	89
Defined Lower QC Limits (%)....	76	89	86
Defined Upper QC Limits (%)....	114	110	115
Observed Lower QC Limits (%)...	79	96	81
Observed Upper QC Limits (%)...	259	116	103

'*' If % Surrogate Recovery is Followed by a '*', it is out of QC Limits.

Reviewed By: 7/9/91

[illegible]

[illegible] NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
[illegible]

SURROGATE RECOVERIES FOR VOLATILES
SOIL

REQUEST #: [illegible]

NUMBER OF SAMPLES: [illegible]
MATRIX: [illegible]
ANALYST: [illegible]
DATE: [illegible]

SURROGATE RECOVERIES

SURROGATE RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	4-Br-1,2-Difluorobenzene	Toluene-d8	4-Bromofluorobenzene
1	[illegible]	BLANK	[illegible]	[illegible]	[illegible]
	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
	[illegible]	SAMPLE	[illegible] *	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible] *	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
4	[illegible]	[illegible]	[illegible] *	[illegible] *	[illegible]
5	[illegible]	[illegible]	[illegible] *		[illegible] *
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
7	[illegible]	[illegible]	[illegible] *	[illegible]	[illegible]
8	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
9	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
10	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
11	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
12	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
13	[illegible]	SAMPLE	[illegible] *	[illegible]	[illegible] *
14	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
15					
16					
17					
18					
19					
20					
21					
22					

Average % Surrogate Recovery....	[illegible]	[illegible]	[illegible]
Defined Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]
Defined Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]
Observed Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]
Observed Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]

) If % Surrogate Recovery is followed by a "", it is out of QC limits

Reviewed By: [illegible] 3/9/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR VOLATILES

		DRY WT/VOL (G or ML)		DILUTION FACTOR	AMOUNT SPIKED	LOQ (UG/G OR UG/L)
REQUEST #:	11673					
NUMBER OF SAMPLES:	13					
SPIKE ID: (STARTS M OR E)	MP1.05741	SPIKE	5	1	50	5
SPIKE DUP ID: (STARTS D OR F)	DP1.05741	SPIKE-DUP	5	1	50	5
RAW DATA WITH:	---					
ANALYST:	TRB					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
1,1-Dichlorethene	43	45	86%	90%	5%	61	145	14
Benzene	52	51	104%	102%	2%	76	127	11
Trichlorethene	50	49	100%	98%	2%	71	120	14
Toluene	50	48	100%	96%	4%	76	125	13
Chlorobenzene	51	48	102%	96%	6%	75	130	13

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 7/9/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-4
MATRIX SPIKE RECOVERIES FOR VOLATILES

PROJECT #:		DRY WT/VOL		DILUTION	AMOUNT		
NUMBER OF SAMPLES:	DATE	WB OR MLS		FACTOR	SPIKED		
	15						
SPIKE ID: STARTS W/ S	MAY 1997-3	SPIKE	5.02	1	50		5
SPIKE DUP ID: STARTS W/ SD	SPIKE-DUP	SPIKE-DUP	5.03	1	50		5
RUN DATE/TIME:	---						
ANALYST:	---						

	SPIKE REC.	SPIKE DUP REC.	SPIKE REC.	SPIKE DUP REC.	RPD	LOW. LIM. REC.	HIGH. LIM. REC.	RPD LIM.
1-Dichloroethene	88	88	88%	88%	0.0	59	172	22
Benzene	98	98	98%	98%	0.0	66	142	21
Trichloroethene	97	98	98%	98%	1.0	62	137	24
Toluene	88	100	1.88E+4	0.12%	100*	59	139	21
Chlorobenzene	98	98	98%	98%	0.0	60	133	21

* RPD > LIMIT. RESULT IS FLAGGED DUE TO [illegible]

7/9/91

7/8/91

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05740

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NW-1W	91.05740	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NW-1W	91.05740	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NW-1W	91.05740	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NW-1W	91.05740	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NW-1W	91.05740	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NW-1W	91.05740	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NW-1W	91.05740	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NW-1W	91.05740	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NW-1W	91.05740	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NW-1W	91.05740	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NW-1W	91.05740	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NW-1W	91.05740	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NW-1W	91.05740	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NW-1W	91.05740	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NW-1W	91.05740	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NW-1W	91.05740	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NW-1W	91.05740	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NW-1W	91.05740	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-1W	91.05740	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NW-	91.05740	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NW-1W	91.05740	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NW-1W	91.05740	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NW-1W	91.05740	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-1W	91.05740	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NW-1W	91.05740	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NW-1W	91.05740	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-1W	91.05740	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-1W	91.05740	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NW-1W	91.05740	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NW-1W	91.05740	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NW-1W	91.05740	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NW-1W	91.05740	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-1W	91.05740	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-1W	91.05740	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NW-1W	91.05740	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NW-1W	91.05740	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NW-1W	91.05740	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NW-1W	91.05740	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-1W	91.05740	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-1W	91.05740	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NW-1W	91.05740	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NW-1W	91.05740	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NW-1W	91.05740	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NW-1W	91.05740	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NW-1W	91.05740	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NW-1W	91.05740	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NW-1W	91.05740	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NW-1W	91.05740	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NW-1W	91.05740	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-1W	91.05740	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-1W	91.05740	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NW-1W	91.05740	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NW-1W	91.05740	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-1W	91.05740	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NW-1W	91.05740	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NW-1W	91.05740	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NW-1W	91.05740	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NW-1W	91.05740	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NW-1W	91.05740	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-1W	91.05740	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-1W	91.05740	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NW-1W	91.05740	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NW-1W	91.05740	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentatively Identified Compounds in Customer Sample # 91.05740

none

Customer Sample Duplicate Results for Sample # 91.05740

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05740

none

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05741

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2W	91.05741	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NW-2W	91.05741	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NW-2W	91.05741	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NW-2W	91.05741	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NW-2W	91.05741	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NW-2W	91.05741	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NW-2W	91.05741	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NW-2W	91.05741	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NW-2W	91.05741	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NW-2W	91.05741	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NW-2W	91.05741	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NW-2W	91.05741	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NW-2W	91.05741	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NW-2W	91.05741	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NW-2W	91.05741	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NW-2W	91.05741	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NW-2W	91.05741	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NW-2W	91.05741	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NW-2W	91.05741	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-2W	91.05741	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NW-2W	91.05741	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NW-2W	91.05741	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NW-2W	91.05741	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NW-2W	91.05741	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-2W	91.05741	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NW-2W	91.05741	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NW-2W	91.05741	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-2W	91.05741	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-2W	91.05741	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-2W	91.05741	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NW-2W	91.05741	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NW-2W	91.05741	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NW-2W	91.05741	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NW-2W	91.05741	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-2W	91.05741	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-2W	91.05741	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NW-2W	91.05741	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NW-2W	91.05741	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NW-2W	91.05741	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NW-2W	91.05741	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-2W	91.05741	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-2W	91.05741	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NW-2W	91.05741	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NW-2W	91.05741	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NW-2W	91.05741	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NW-2W	91.05741	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NW-2W	91.05741	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NW-2W	91.05741	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NW-2W	91.05741	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NW-2W	91.05741	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NW-2W	91.05741	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-2W	91.05741	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-2W	91.05741	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NW-2W	91.05741	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NW-2W	91.05741	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-2W	91.05741	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NW-2W	91.05741	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NW-2W	91.05741	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NW-2W	91.05741	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NW-2W	91.05741	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NW-2W	91.05741	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-2W	91.05741	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-2W	91.05741	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NW-2W	91.05741	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NW-2W	91.05741	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentatively Identified Compounds in Customer Sample # 91.05741

none

Customer Sample Duplicate Results for Sample # 91.05741

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05741

none

Matrix Spike Results for Sample # 91.05741

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2W	91.05741	71432	50.	52.	UG/L	7/09/91		Benzene
AB-53-NW-2W	91.05741	108907	50.	51.	UG/L	7/09/91		Chlorobenzene
AB-53-NW-2W	91.05741	75343	50.	43.	UG/L	7/09/91		1,1-Dichloroethane
AB-53-NW-2W	91.05741	108883	50.	50.	UG/L	7/09/91		Toluene
AB-53-NW-2W	91.05741	79016	50.	50.	UG/L	7/09/91		Trichloroethene

Matrix Spike Duplicate Results for Sample # 91.05741

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2W	91.05741	71432	50.	51.	UG/L	7/09/91		Benzene
AB-53-NW-2W	91.05741	108907	50.	48.	UG/L	7/09/91		Chlorobenzene
AB-53-NW-2W	91.05741	75343	50.	45.	UG/L	7/09/91		1,1-Dichloroethane
AB-53-NW-2W	91.05741	108883	50.	48.	UG/L	7/09/91		Toluene
AB-53-NW-2W	91.05741	79016	50.	49.	UG/L	7/09/91		Trichloroethene

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05742

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-3W	91.05742	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NW-3W	91.05742	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NW-3W	91.05742	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NW-3W	91.05742	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NW-3W	91.05742	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NW-3W	91.05742	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NW-3W	91.05742	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NW-3W	91.05742	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NW-3W	91.05742	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NW-3W	91.05742	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NW-3W	91.05742	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NW-3W	91.05742	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NW-3W	91.05742	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NW-3W	91.05742	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NW-3W	91.05742	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NW-3W	91.05742	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NW-3W	91.05742	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NW-3W	91.05742	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NW-3W	91.05742	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-3W	91.05742	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NW-3W	91.05742	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NW-3W	91.05742	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NW-3W	91.05742	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NW-3W	91.05742	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-3W	91.05742	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NW-3W	91.05742	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NW-3W	91.05742	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-3W	91.05742	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-3W	91.05742	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-3W	91.05742	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NW-3W	91.05742	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NW-3W	91.05742	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NW-3W	91.05742	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NW-3W	91.05742	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-3W	91.05742	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-3W	91.05742	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NW-3W	91.05742	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NW-3W	91.05742	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NW-3W	91.05742	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NW-3W	91.05742	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-3W	91.05742	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-3W	91.05742	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NW-3W	91.05742	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NW-3W	91.05742	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NW-3W	91.05742	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NW-3W	91.05742	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NW-3W	91.05742	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NW-3W	91.05742	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NW-3W	91.05742	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NW-3W	91.05742	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NW-3W	91.05742	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-3W	91.05742	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-3W	91.05742	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NW-3W	91.05742	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NW-3W	91.05742	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-3W	91.05742	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NW-3W	91.05742	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NW-3W	91.05742	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NW-3W	91.05742	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NW-3W	91.05742	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NW-3W	91.05742	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-3W	91.05742	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-3W	91.05742	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NW-3W	91.05742	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NW-3W	91.05742	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentatively Identified Compounds in Customer Sample # 91.05742

none

Customer Sample Duplicate Results for Sample # 91.05742

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05742

none

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05743

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/07/91 Date Analyzed: 7/07/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1S	91.05743	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NW-1S	91.05743	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NW-1S	91.05743	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NW-1S	91.05743	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NW-1S	91.05743	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NW-1S	91.05743	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NW-1S	91.05743	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NW-1S	91.05743	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NW-1S	91.05743	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NW-1S	91.05743	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NW-1S	91.05743	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NW-1S	91.05743	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NW-1S	91.05743	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NW-1S	91.05743	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NW-1S	91.05743	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NW-1S	91.05743	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NW-1S	91.05743	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NW-1S	91.05743	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NW-1S	91.05743	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-1S	91.05743	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NW-1S	91.05743	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-NW-1S	91.05743	95498	< 5.		UG/KG	7/09/91	o-Chlorotoluene
AB-53-NW-1S	91.05743	106434	< 5.		UG/KG	7/09/91	p-Chlorotoluene
AB-53-NW-1S	91.05743	96128	< 10.		UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-1S	91.05743	106934	< 5.		UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NW-1S	91.05743	74953	< 5.		UG/KG	7/09/91	Dibromomethane
AB-53-NW-1S	91.05743	95501	< 5.		UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-1S	91.05743	541731	< 5.		UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-1S	91.05743	106467	< 5.		UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-1S	91.05743	75718	< 10.		UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NW-1S	91.05743	75343	< 5.		UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NW-1S	91.05743	107062	< 5.		UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NW-1S	91.05743	75354	< 5.		UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NW-1S	91.05743	156605	< 5.		UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-1S	91.05743	156592	< 5.		UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-1S	91.05743	78875	< 5.		UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NW-1S	91.05743	142289	< 5.		UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NW-1S	91.05743	594207	< 5.		UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NW-1S	91.05743	563586	< 5.		UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NW-1S	91.05743	10061015	< 5.		UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-1S	91.05743	10061026	< 5.		UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-1S	91.05743	100414	< 5.		UG/KG	7/09/91	Ethylbenzene
AB-53-NW-1S	91.05743	591786	< 20.		UG/KG	7/09/91	2-Hexanone
AB-53-NW-1S	91.05743	98828	< 5.		UG/KG	7/09/91	Isopropylbenzene
AB-53-NW-1S	91.05743	99876	< 5.		UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NW-1S	91.05743	74884	< 5.		UG/KG	7/09/91	Methyl iodide
AB-53-NW-1S	91.05743	108101	< 20.		UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NW-1S	91.05743	75092	< 5.		UG/KG	7/09/91	Methylene chloride
AB-53-NW-1S	91.05743	103651	< 5.		UG/KG	7/09/91	Propylbenzene
AB-53-NW-1S	91.05743	100425	< 5.		UG/KG	7/09/91	Styrene
AB-53-NW-1S	91.05743	630206	< 5.		UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-1S	91.05743	79345	< 5.		UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-1S	91.05743	127184	< 5.		UG/KG	7/09/91	Tetrachloroethylene
AB-53-NW-1S	91.05743	108883	68.	20.4	UG/KG	7/09/91	Toluene
AB-53-NW-1S	91.05743	76131	< 5.		UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-1S	91.05743	71556	< 5.		UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NW-1S	91.05743	79005	< 5.		UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NW-1S	91.05743	79016	< 5.		UG/KG	7/09/91	Trichloroethene
AB-53-NW-1S	91.05743	75694	< 5.		UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NW-1S	91.05743	96184	< 5.		UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NW-1S	91.05743	95636	< 5.		UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-1S	91.05743	108678	< 5.		UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-1S	91.05743	108054	< 10.		UG/KG	7/09/91	Vinyl acetate
AB-53-NW-1S	91.05743	75014	< 10.		UG/KG	7/09/91	Vinyl chloride
AB-53-NW-1S	91.05743	1330207	< 5.		UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tentatively Identified Compounds in Customer Sample # 91.05743

none

Customer Sample Duplicate Results for Sample # 91.05743

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05743

none

Matrix Spike Results for Sample # 91.05743

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1S	91.05743	71432	44.48	38.	UG/KG	7/09/91		Benzene
AB-53-NW-1S	91.05743	108907	44.48	42.	UG/KG	7/09/91		Chlorobenzene
AB-53-NW-1S	91.05743	75343	44.48	28.	UG/KG	7/09/91		1,1-Dichloroethane
AB-53-NW-1S	91.05743	108883	44.48	63.	UG/KG	7/09/91		Toluene
AB-53-NW-1S	91.05743	79016	44.48	37.	UG/KG	7/09/91		Trichloroethene

Matrix Spike Duplicate Results for Sample # 91.05743

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1S	91.05743	71432	47.26	35.	UG/KG	7/09/91		Benzene
AB-53-NW-1S	91.05743	108907	47.26	44.	UG/KG	7/09/91		Chlorobenzene
AB-53-NW-1S	91.05743	75343	47.26	38.	UG/KG	7/09/91		1,1-Dichloroethane
AB-53-NW-1S	91.05743	108883	47.26	100.	UG/KG	7/09/91		Toluene
AB-53-NW-1S	91.05743	79016	47.26	46.	UG/KG	7/09/91		Trichloroethene

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05744

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2S	91.05744	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NW-2S	91.05744	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NW-2S	91.05744	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NW-2S	91.05744	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NW-2S	91.05744	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NW-2S	91.05744	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NW-2S	91.05744	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NW-2S	91.05744	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NW-2S	91.05744	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NW-2S	91.05744	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NW-2S	91.05744	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NW-2S	91.05744	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NW-2S	91.05744	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NW-2S	91.05744	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NW-2S	91.05744	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NW-2S	91.05744	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NW-2S	91.05744	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NW-2S	91.05744	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NW-2S	91.05744	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-2S	91.05744	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NW-2S	91.05744	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-NW-2S	91.05744	95498	< 5.		UG/KG	7/09/91	o-Chlorotoluene
AB-53-NW-2S	91.05744	106434	< 5.		UG/KG	7/09/91	p-Chlorotoluene
AB-53-NW-2S	91.05744	96128	< 10.		UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-2S	91.05744	106934	< 5.		UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NW-2S	91.05744	74953	< 5.		UG/KG	7/09/91	Dibromomethane
AB-53-NW-2S	91.05744	95501	< 5.		UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-2S	91.05744	541731	< 5.		UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-2S	91.05744	106467	< 5.		UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-2S	91.05744	75718	< 10.		UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NW-2S	91.05744	75343	< 5.		UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NW-2S	91.05744	107062	< 5.		UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NW-2S	91.05744	75354	< 5.		UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NW-2S	91.05744	156605	< 5.		UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-2S	91.05744	156592	< 5.		UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-2S	91.05744	78875	< 5.		UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NW-2S	91.05744	142289	< 5.		UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NW-2S	91.05744	594207	< 5.		UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NW-2S	91.05744	563586	< 5.		UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NW-2S	91.05744	10061015	< 5.		UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-2S	91.05744	10061026	< 5.		UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-2S	91.05744	100414	< 5.		UG/KG	7/09/91	Ethylbenzene
AB-53-NW-2S	91.05744	591786	< 20.		UG/KG	7/09/91	2-Hexanone
AB-53-NW-2S	91.05744	98828	< 5.		UG/KG	7/09/91	Isopropylbenzene
AB-53-NW-2S	91.05744	99876	< 5.		UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NW-2S	91.05744	74884	< 5.		UG/KG	7/09/91	Methyl iodide
AB-53-NW-2S	91.05744	108101	< 20.		UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NW-2S	91.05744	75092	< 5.		UG/KG	7/09/91	Methylene chloride
AB-53-NW-2S	91.05744	103651	< 5.		UG/KG	7/09/91	Propylbenzene
AB-53-NW-2S	91.05744	100425	< 5.		UG/KG	7/09/91	Styrene
AB-53-NW-2S	91.05744	630206	< 5.		UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-2S	91.05744	79345	< 5.		UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-2S	91.05744	127184	< 5.		UG/KG	7/09/91	Tetrachloroethylene
AB-53-NW-2S	91.05744	108883	42.	12.6	UG/KG	7/09/91	Toluene
AB-53-NW-2S	91.05744	76131	< 5.		UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-2S	91.05744	71556	< 5.		UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NW-2S	91.05744	79005	< 5.		UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NW-2S	91.05744	79016	< 5.		UG/KG	7/09/91	Trichloroethene
AB-53-NW-2S	91.05744	75694	< 5.		UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NW-2S	91.05744	96184	< 5.		UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NW-2S	91.05744	95636	< 5.		UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-2S	91.05744	108678	< 5.		UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-2S	91.05744	108054	< 10.		UG/KG	7/09/91	Vinyl acetate
AB-53-NW-2S	91.05744	75014	< 10.		UG/KG	7/09/91	Vinyl chloride
AB-53-NW-2S	91.05744	1330207	< 5.		UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tentatively Identified Compounds in Customer Sample # 91.05744

none

Customer Sample Duplicate Results for Sample # 91.05744

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05744

none

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05745

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-3S	91.05745	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NW-3S	91.05745	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NW-3S	91.05745	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NW-3S	91.05745	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NW-3S	91.05745	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NW-3S	91.05745	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NW-3S	91.05745	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NW-3S	91.05745	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NW-3S	91.05745	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NW-3S	91.05745	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NW-3S	91.05745	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NW-3S	91.05745	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NW-3S	91.05745	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NW-3S	91.05745	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NW-3S	91.05745	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NW-3S	91.05745	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NW-3S	91.05745	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NW-3S	91.05745	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NW-3S	91.05745	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-3S	91.05745	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NW-3S	91.05745	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-NW-3S	91.05745	95498	< 5.	UG/KG	7/09/91	o-Chlorotoluene
AB-53-NW-3S	91.05745	106434	< 5.	UG/KG	7/09/91	p-Chlorotoluene
AB-53-NW-3S	91.05745	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-3S	91.05745	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NW-3S	91.05745	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-NW-3S	91.05745	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-3S	91.05745	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-3S	91.05745	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-3S	91.05745	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NW-3S	91.05745	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NW-3S	91.05745	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NW-3S	91.05745	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NW-3S	91.05745	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-3S	91.05745	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-3S	91.05745	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NW-3S	91.05745	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NW-3S	91.05745	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NW-3S	91.05745	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NW-3S	91.05745	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-3S	91.05745	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-3S	91.05745	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-NW-3S	91.05745	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-NW-3S	91.05745	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-NW-3S	91.05745	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NW-3S	91.05745	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-NW-3S	91.05745	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NW-3S	91.05745	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-NW-3S	91.05745	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-NW-3S	91.05745	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-NW-3S	91.05745	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-3S	91.05745	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-3S	91.05745	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-NW-3S	91.05745	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-NW-3S	91.05745	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-3S	91.05745	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NW-3S	91.05745	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NW-3S	91.05745	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-NW-3S	91.05745	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NW-3S	91.05745	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NW-3S	91.05745	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-3S	91.05745	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-3S	91.05745	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-NW-3S	91.05745	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-NW-3S	91.05745	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.05745

none

Customer Sample Duplicate Results for Sample # 91.05745

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05745

none

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91,05746

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-4SQ	91.05746	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NW-4SQ	91.05746	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NW-4SQ	91.05746	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NW-4SQ	91.05746	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NW-4SQ	91.05746	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NW-4SQ	91.05746	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NW-4SQ	91.05746	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NW-4SQ	91.05746	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NW-4SQ	91.05746	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NW-4SQ	91.05746	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NW-4SQ	91.05746	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NW-4SQ	91.05746	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NW-4SQ	91.05746	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NW-4SQ	91.05746	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NW-4SQ	91.05746	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NW-4SQ	91.05746	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NW-4SQ	91.05746	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NW-4SQ	91.05746	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NW-4SQ	91.05746	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-4SQ	91.05746	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NW-4SQ	91.05746	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-NW-4SQ	91.05746	95498	< 5.		UG/KG	7/09/91	o-Chlorotoluene
AB-53-NW-4SQ	91.05746	106434	< 5.		UG/KG	7/09/91	p-Chlorotoluene
AB-53-NW-4SQ	91.05746	96128	< 10.		UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-4SQ	91.05746	106934	< 5.		UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NW-4SQ	91.05746	74953	< 5.		UG/KG	7/09/91	Dibromomethane
AB-53-NW-4SQ	91.05746	95501	< 5.		UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-4SQ	91.05746	541731	< 5.		UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-4SQ	91.05746	106467	< 5.		UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-4SQ	91.05746	75718	< 10.		UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NW-4SQ	91.05746	75343	< 5.		UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NW-4SQ	91.05746	107062	< 5.		UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NW-4SQ	91.05746	75354	< 5.		UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NW-4SQ	91.05746	156605	< 5.		UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-4SQ	91.05746	156592	< 5.		UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-4SQ	91.05746	78875	< 5.		UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NW-4SQ	91.05746	142289	< 5.		UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NW-4SQ	91.05746	594207	< 5.		UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NW-4SQ	91.05746	563586	< 5.		UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NW-4SQ	91.05746	10061015	< 5.		UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-4SQ	91.05746	10061026	< 5.		UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-4SQ	91.05746	100414	< 5.		UG/KG	7/09/91	Ethylbenzene
AB-53-NW-4SQ	91.05746	591786	< 20.		UG/KG	7/09/91	2-Hexanone
AB-53-NW-4SQ	91.05746	98828	< 5.		UG/KG	7/09/91	Isopropylbenzene
AB-53-NW-4SQ	91.05746	99876	< 5.		UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NW-4SQ	91.05746	74884	< 5.		UG/KG	7/09/91	Methyl iodide
AB-53-NW-4SQ	91.05746	108101	< 20.		UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NW-4SQ	91.05746	75092	< 5.		UG/KG	7/09/91	Methylene chloride
AB-53-NW-4SQ	91.05746	103651	< 5.		UG/KG	7/09/91	Propylbenzene
AB-53-NW-4SQ	91.05746	100425	< 5.		UG/KG	7/09/91	Styrene
AB-53-NW-4SQ	91.05746	630206	< 5.		UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-4SQ	91.05746	79345	< 5.		UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-4SQ	91.05746	127184	< 5.		UG/KG	7/09/91	Tetrachloroethylene
AB-53-NW-4SQ	91.05746	108883	25.	7.5	UG/KG	7/09/91	Toluene
AB-53-NW-4SQ	91.05746	76131	< 5.		UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-4SQ	91.05746	71556	< 5.		UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NW-4SQ	91.05746	79005	< 5.		UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NW-4SQ	91.05746	79016	< 5.		UG/KG	7/09/91	Trichloroethene
AB-53-NW-4SQ	91.05746	75694	< 5.		UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NW-4SQ	91.05746	96184	< 5.		UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NW-4SQ	91.05746	95636	< 5.		UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-4SQ	91.05746	108678	< 5.		UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-4SQ	91.05746	108054	< 10.		UG/KG	7/09/91	Vinyl acetate
AB-53-NW-4SQ	91.05746	75014	< 10.		UG/KG	7/09/91	Vinyl chloride
AB-53-NW-4SQ	91.05746	1330207	< 5.		UG/KG	7/09/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.05746

none

Customer Sample Duplicate Results for Sample # 91.05746

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05746

none

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05747

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1W	91.05747	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NE-1W	91.05747	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NE-1W	91.05747	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NE-1W	91.05747	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NE-1W	91.05747	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NE-1W	91.05747	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NE-1W	91.05747	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NE-1W	91.05747	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NE-1W	91.05747	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NE-1W	91.05747	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NE-1W	91.05747	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NE-1W	91.05747	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NE-1W	91.05747	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NE-1W	91.05747	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NE-1W	91.05747	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NE-1W	91.05747	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NE-1W	91.05747	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NE-1W	91.05747	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NE-1W	91.05747	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-1W	91.05747	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NE-1W	91.05747	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NE-1W	91.05747	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NE-1W	91.05747	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NE-1W	91.05747	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE-1W	91.05747	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NE-1W	91.05747	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NE-1W	91.05747	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-1W	91.05747	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-1W	91.05747	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-1W	91.05747	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NE-1W	91.05747	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NE-1W	91.05747	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NE-1W	91.05747	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NE-1W	91.05747	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-1W	91.05747	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-1W	91.05747	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NE-1W	91.05747	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NE-1W	91.05747	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NE-1W	91.05747	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NE-1W	91.05747	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-1W	91.05747	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-1W	91.05747	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NE-1W	91.05747	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NE-1W	91.05747	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NE-1W	91.05747	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NE-1W	91.05747	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NE-1W	91.05747	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NE-1W	91.05747	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NE-1W	91.05747	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NE-1W	91.05747	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NE-1W	91.05747	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-1W	91.05747	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-1W	91.05747	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NE-1W	91.05747	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NE-1W	91.05747	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-1W	91.05747	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NE-1W	91.05747	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NE-1W	91.05747	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NE-1W	91.05747	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NE-1W	91.05747	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NE-1W	91.05747	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-1W	91.05747	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-1W	91.05747	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NE-1W	91.05747	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NE-1W	91.05747	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentat / Identified Compounds in Customer Sample # 91.05747

none

Customer Sample Duplicate Results for Sample # 91.05747

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05747

none

REP(UMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05748

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-2W	91.05748	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NE-2W	91.05748	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NE-2W	91.05748	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NE-2W	91.05748	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NE-2W	91.05748	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NE-2W	91.05748	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NE-2W	91.05748	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NE-2W	91.05748	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NE-2W	91.05748	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NE-2W	91.05748	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NE-2W	91.05748	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NE-2W	91.05748	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NE-2W	91.05748	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NE-2W	91.05748	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NE-2W	91.05748	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NE-2W	91.05748	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NE-2W	91.05748	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NE-2W	91.05748	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NE-2W	91.05748	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-2W	91.05748	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NE-2W	91.05748	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53 2W	91.05748	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NE-2W	91.05748	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NE-2W	91.05748	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE-2W	91.05748	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NE-2W	91.05748	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NE-2W	91.05748	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-2W	91.05748	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-2W	91.05748	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-2W	91.05748	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NE-2W	91.05748	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NE-2W	91.05748	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NE-2W	91.05748	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NE-2W	91.05748	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-2W	91.05748	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-2W	91.05748	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NE-2W	91.05748	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NE-2W	91.05748	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NE-2W	91.05748	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NE-2W	91.05748	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-2W	91.05748	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-2W	91.05748	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NE-2W	91.05748	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NE-2W	91.05748	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NE-2W	91.05748	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NE-2W	91.05748	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NE-2W	91.05748	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NE-2W	91.05748	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NE-2W	91.05748	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NE-2W	91.05748	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NE-2W	91.05748	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-2W	91.05748	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-2W	91.05748	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NE-2W	91.05748	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NE-2W	91.05748	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-2W	91.05748	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NE-2W	91.05748	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NE-2W	91.05748	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NE-2W	91.05748	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NE-2W	91.05748	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NE-2W	91.05748	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-2W	91.05748	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-2W	91.05748	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NE-2W	91.05748	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NE-2W	91.05748	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentat / Identified Compounds in Customer Sample # 91.05748

none

Customer Sample Duplicate Results for Sample # 91.05748

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05748

none

REPO MBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05749

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-3W	91.05749	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NE-3W	91.05749	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NE-3W	91.05749	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NE-3W	91.05749	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NE-3W	91.05749	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NE-3W	91.05749	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NE-3W	91.05749	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NE-3W	91.05749	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NE-3W	91.05749	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NE-3W	91.05749	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NE-3W	91.05749	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NE-3W	91.05749	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NE-3W	91.05749	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NE-3W	91.05749	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NE-3W	91.05749	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NE-3W	91.05749	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NE-3W	91.05749	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NE-3W	91.05749	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NE-3W	91.05749	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-3W	91.05749	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NE-3W	91.05749	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-[illegible]	91.05749	95498	< 5.	UG/L	J9/91	o-Chlorotoluene
AB-53-NE-3W	91.05749	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NE-3W	91.05749	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE-3W	91.05749	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NE-3W	91.05749	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NE-3W	91.05749	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-3W	91.05749	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-3W	91.05749	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-3W	91.05749	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NE-3W	91.05749	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NE-3W	91.05749	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NE-3W	91.05749	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NE-3W	91.05749	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-3W	91.05749	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-3W	91.05749	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NE-3W	91.05749	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NE-3W	91.05749	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NE-3W	91.05749	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NE-3W	91.05749	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-3W	91.05749	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-3W	91.05749	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NE-3W	91.05749	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NE-3W	91.05749	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NE-3W	91.05749	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NE-3W	91.05749	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NE-3W	91.05749	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NE-3W	91.05749	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NE-3W	91.05749	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NE-3W	91.05749	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NE-3W	91.05749	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-3W	91.05749	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-3W	91.05749	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NE-3W	91.05749	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NE-3W	91.05749	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-3W	91.05749	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NE-3W	91.05749	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NE-3W	91.05749	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NE-3W	91.05749	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NE-3W	91.05749	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NE-3W	91.05749	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-3W	91.05749	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-3W	91.05749	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NE-3W	91.05749	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NE-3W	91.05749	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tenta ıy Identified Compounds in Customer Sample # 91.05749

none

Customer Sample Duplicate Results for Sample # 91.05749

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05749

none

REPO JMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05750

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-4WQ	91.05750	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NE-4WQ	91.05750	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NE-4WQ	91.05750	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NE-4WQ	91.05750	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NE-4WQ	91.05750	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NE-4WQ	91.05750	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NE-4WQ	91.05750	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NE-4WQ	91.05750	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NE-4WQ	91.05750	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NE-4WQ	91.05750	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NE-4WQ	91.05750	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NE-4WQ	91.05750	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NE-4WQ	91.05750	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NE-4WQ	91.05750	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NE-4WQ	91.05750	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NE-4WQ	91.05750	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NE-4WQ	91.05750	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NE-4WQ	91.05750	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NE-4WQ	91.05750	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-4WQ	91.05750	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NE-4WQ	91.05750	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53	4WQ	91.05750	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-NE	-4WQ	91.05750	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NE	-4WQ	91.05750	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE	-4WQ	91.05750	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NE	-4WQ	91.05750	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NE	-4WQ	91.05750	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE	-4WQ	91.05750	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE	-4WQ	91.05750	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE	-4WQ	91.05750	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NE	-4WQ	91.05750	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NE	-4WQ	91.05750	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NE	-4WQ	91.05750	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NE	-4WQ	91.05750	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NE	-4WQ	91.05750	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE	-4WQ	91.05750	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NE	-4WQ	91.05750	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NE	-4WQ	91.05750	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NE	-4WQ	91.05750	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NE	-4WQ	91.05750	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NE	-4WQ	91.05750	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NE	-4WQ	91.05750	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NE	-4WQ	91.05750	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NE	-4WQ	91.05750	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NE	-4WQ	91.05750	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NE	-4WQ	91.05750	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NE	-4WQ	91.05750	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NE	-4WQ	91.05750	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NE	-4WQ	91.05750	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NE	-4WQ	91.05750	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NE	-4WQ	91.05750	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE	-4WQ	91.05750	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE	-4WQ	91.05750	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NE	-4WQ	91.05750	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NE	-4WQ	91.05750	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE	-4WQ	91.05750	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NE	-4WQ	91.05750	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NE	-4WQ	91.05750	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NE	-4WQ	91.05750	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NE	-4WQ	91.05750	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NE	-4WQ	91.05750	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE	-4WQ	91.05750	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE	-4WQ	91.05750	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NE	-4WQ	91.05750	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NE	-4WQ	91.05750	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentat y Identified Compounds in Customer Sample # 91.05750

none

Customer Sample Duplicate Results for Sample # 91.05750

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05750

none

REPO JMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05751

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1S	91.05751	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NE-1S	91.05751	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NE-1S	91.05751	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NE-1S	91.05751	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NE-1S	91.05751	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NE-1S	91.05751	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NE-1S	91.05751	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NE-1S	91.05751	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NE-1S	91.05751	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NE-1S	91.05751	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NE-1S	91.05751	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NE-1S	91.05751	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NE-1S	91.05751	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NE-1S	91.05751	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NE-1S	91.05751	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NE-1S	91.05751	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NE-1S	91.05751	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NE-1S	91.05751	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NE-1S	91.05751	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-1S	91.05751	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NE-1S	91.05751	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53 1S	91.05751	95498	< 5.	UG/KG	7/09/91	o-Chlorotoluene
AB-53-NE-1S	91.05751	106434	< 5.	UG/KG	7/09/91	p-Chlorotoluene
AB-53-NE-1S	91.05751	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropene
AB-53-NE-1S	91.05751	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NE-1S	91.05751	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-NE-1S	91.05751	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-1S	91.05751	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-1S	91.05751	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-1S	91.05751	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NE-1S	91.05751	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NE-1S	91.05751	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NE-1S	91.05751	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NE-1S	91.05751	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-1S	91.05751	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-1S	91.05751	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NE-1S	91.05751	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NE-1S	91.05751	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NE-1S	91.05751	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NE-1S	91.05751	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-1S	91.05751	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-1S	91.05751	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-NE-1S	91.05751	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-NE-1S	91.05751	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-NE-1S	91.05751	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NE-1S	91.05751	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-NE-1S	91.05751	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NE-1S	91.05751	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-NE-1S	91.05751	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-NE-1S	91.05751	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-NE-1S	91.05751	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-1S	91.05751	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-1S	91.05751	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-NE-1S	91.05751	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-NE-1S	91.05751	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-1S	91.05751	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NE-1S	91.05751	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NE-1S	91.05751	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-NE-1S	91.05751	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NE-1S	91.05751	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NE-1S	91.05751	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-1S	91.05751	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-1S	91.05751	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-NE-1S	91.05751	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-NE-1S	91.05751	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tenta y Identified Compounds in Customer Sample # 91.05751

none

Customer Sample Duplicate Results for Sample # 91.05751

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05751

none

REPOR MBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05752

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/07/91 Date Analyzed: 7/07/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-2S	91.05752	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-NE-2S	91.05752	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-NE-2S	91.05752	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-NE-2S	91.05752	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-NE-2S	91.05752	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-NE-2S	91.05752	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-NE-2S	91.05752	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-NE-2S	91.05752	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-NE-2S	91.05752	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-NE-2S	91.05752	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-NE-2S	91.05752	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-NE-2S	91.05752	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-NE-2S	91.05752	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-NE-2S	91.05752	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-NE-2S	91.05752	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-NE-2S	91.05752	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-NE-2S	91.05752	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-NE-2S	91.05752	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-NE-2S	91.05752	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-NE-2S	91.05752	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-NE-2S	91.05752	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53	2S	91.05752	95498	< 5.	UG/KG	7/09/91	o-Chlorotoluene
AB-53	2S	91.05752	106434	< 5.	UG/KG	7/09/91	p-Chlorotoluene
AB-53-NE-2S		91.05752	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE-2S		91.05752	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NE-2S		91.05752	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-NE-2S		91.05752	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-2S		91.05752	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-2S		91.05752	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-2S		91.05752	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NE-2S		91.05752	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NE-2S		91.05752	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NE-2S		91.05752	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NE-2S		91.05752	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-2S		91.05752	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-2S		91.05752	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NE-2S		91.05752	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NE-2S		91.05752	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NE-2S		91.05752	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NE-2S		91.05752	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-2S		91.05752	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-2S		91.05752	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-NE-2S		91.05752	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-NE-2S		91.05752	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-NE-2S		91.05752	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NE-2S		91.05752	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-NE-2S		91.05752	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NE-2S		91.05752	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-NE-2S		91.05752	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-NE-2S		91.05752	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-NE-2S		91.05752	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-2S		91.05752	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-2S		91.05752	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-NE-2S		91.05752	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-NE-2S		91.05752	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-2S		91.05752	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NE-2S		91.05752	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NE-2S		91.05752	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-NE-2S		91.05752	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NE-2S		91.05752	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NE-2S		91.05752	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-2S		91.05752	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-2S		91.05752	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-NE-2S		91.05752	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-NE-2S		91.05752	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tenta' ly Identified Compounds in Customer Sample # 91.05752

none

Customer Sample Duplicate Results for Sample # 91.05752

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05752

none

Tentat' 'v Identified Compounds in Customer Sample # 91.05753

none

Customer Sample Duplicate Results for Sample # 91.05753

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05753

none

REPORT NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05754

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-1W	91.05754	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-SO-1W	91.05754	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-SO-1W	91.05754	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-SO-1W	91.05754	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-SO-1W	91.05754	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-SO-1W	91.05754	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-SO-1W	91.05754	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-SO-1W	91.05754	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-SO-1W	91.05754	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-SO-1W	91.05754	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-SO-1W	91.05754	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-SO-1W	91.05754	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-SO-1W	91.05754	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-SO-1W	91.05754	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-SO-1W	91.05754	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-SO-1W	91.05754	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-SO-1W	91.05754	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-SO-1W	91.05754	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-SO-1W	91.05754	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-1W	91.05754	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-SO-1W	91.05754	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-SO-1W	91.05754	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53-SO-1W	91.05754	106434	< 5.	UG/L	/09/91	p-Chlorotoluene
AB-53-SO-1W	91.05754	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-1W	91.05754	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-SO-1W	91.05754	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-SO-1W	91.05754	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-1W	91.05754	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-1W	91.05754	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-1W	91.05754	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-SO-1W	91.05754	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-SO-1W	91.05754	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-SO-1W	91.05754	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-SO-1W	91.05754	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-1W	91.05754	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-1W	91.05754	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-SO-1W	91.05754	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-SO-1W	91.05754	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-SO-1W	91.05754	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-SO-1W	91.05754	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-1W	91.05754	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-1W	91.05754	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-SO-1W	91.05754	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-SO-1W	91.05754	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-SO-1W	91.05754	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-SO-1W	91.05754	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-SO-1W	91.05754	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-SO-1W	91.05754	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-SO-1W	91.05754	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-SO-1W	91.05754	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-SO-1W	91.05754	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-1W	91.05754	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-1W	91.05754	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-SO-1W	91.05754	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-SO-1W	91.05754	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-1W	91.05754	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-SO-1W	91.05754	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-SO-1W	91.05754	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-SO-1W	91.05754	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-SO-1W	91.05754	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-SO-1W	91.05754	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-1W	91.05754	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-1W	91.05754	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-SO-1W	91.05754	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-SO-1W	91.05754	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tent vely Identified Compounds in Customer Sample # 91.05754

none

Customer Sample Duplicate Results for Sample # 91.05754

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05754

none

REPOR NUMBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05755

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-2W	91.05755	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-SO-2W	91.05755	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-SO-2W	91.05755	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-SO-2W	91.05755	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-SO-2W	91.05755	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-SO-2W	91.05755	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-SO-2W	91.05755	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-SO-2W	91.05755	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-SO-2W	91.05755	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-SO-2W	91.05755	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-SO-2W	91.05755	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-SO-2W	91.05755	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-SO-2W	91.05755	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-SO-2W	91.05755	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-SO-2W	91.05755	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-SO-2W	91.05755	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-SO-2W	91.05755	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-SO-2W	91.05755	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-SO-2W	91.05755	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-2W	91.05755	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-SO-2W	91.05755	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53	2W	91.05755	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53	2W	91.05755	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-SO-2W		91.05755	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-2W		91.05755	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-SO-2W		91.05755	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-SO-2W		91.05755	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-2W		91.05755	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-2W		91.05755	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-2W		91.05755	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-SO-2W		91.05755	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-SO-2W		91.05755	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-SO-2W		91.05755	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-SO-2W		91.05755	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-2W		91.05755	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-2W		91.05755	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-SO-2W		91.05755	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-SO-2W		91.05755	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-SO-2W		91.05755	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-SO-2W		91.05755	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-2W		91.05755	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-2W		91.05755	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-SO-2W		91.05755	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-SO-2W		91.05755	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-SO-2W		91.05755	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-SO-2W		91.05755	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-SO-2W		91.05755	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-SO-2W		91.05755	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-SO-2W		91.05755	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-SO-2W		91.05755	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-SO-2W		91.05755	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-2W		91.05755	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-2W		91.05755	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-SO-2W		91.05755	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-SO-2W		91.05755	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-2W		91.05755	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-SO-2W		91.05755	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-SO-2W		91.05755	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-SO-2W		91.05755	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-SO-2W		91.05755	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-SO-2W		91.05755	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-2W		91.05755	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-2W		91.05755	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-SO-2W		91.05755	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-SO-2W		91.05755	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentat' ly Identified Compounds in Customer Sample # 91.05755

none

Customer Sample Duplicate Results for Sample # 91.05755

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05755

none

REPORT NUMBER: 10790

********** NSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: NSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05756

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-3W	91.05756	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-SO-3W	91.05756	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-SO-3W	91.05756	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-SO-3W	91.05756	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-SO-3W	91.05756	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-SO-3W	91.05756	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-SO-3W	91.05756	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-SO-3W	91.05756	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-SO-3W	91.05756	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-SO-3W	91.05756	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-SO-3W	91.05756	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-SO-3W	91.05756	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-SO-3W	91.05756	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-SO-3W	91.05756	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-SO-3W	91.05756	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-SO-3W	91.05756	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-SO-3W	91.05756	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-SO-3W	91.05756	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-SO-3W	91.05756	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-3W	91.05756	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-SO-3W	91.05756	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53	3W	91.05756	95498	< 5.	UG/L	/09/91	o-Chlorotoluene
AB-53	3W	91.05756	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-SO-3W		91.05756	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-3W		91.05756	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-SO-3W		91.05756	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-SO-3W		91.05756	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-3W		91.05756	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-3W		91.05756	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-3W		91.05756	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-SO-3W		91.05756	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-SO-3W		91.05756	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-SO-3W		91.05756	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-SO-3W		91.05756	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-3W		91.05756	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-3W		91.05756	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-SO-3W		91.05756	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-SO-3W		91.05756	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-SO-3W		91.05756	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-SO-3W		91.05756	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-3W		91.05756	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-3W		91.05756	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-SO-3W		91.05756	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-SO-3W		91.05756	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-SO-3W		91.05756	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-SO-3W		91.05756	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-SO-3W		91.05756	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-SO-3W		91.05756	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-SO-3W		91.05756	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-SO-3W		91.05756	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-SO-3W		91.05756	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-3W		91.05756	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-3W		91.05756	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-SO-3W		91.05756	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-SO-3W		91.05756	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-3W		91.05756	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-SO-3W		91.05756	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-SO-3W		91.05756	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-SO-3W		91.05756	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-SO-3W		91.05756	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-SO-3W		91.05756	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-3W		91.05756	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-3W		91.05756	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-SO-3W		91.05756	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-SO-3W		91.05756	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o ± m ± p)

Tentati· Identified Compounds in Customer Sample # 91.05756

none

Customer Sample Duplicate Results for Sample # 91,05756

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91,05756

none

REPOR MBER: 10790

********** NSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: NSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05757

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/07/91 Date Analyzed: 7/07/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-1S	91.05757	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-SO-1S	91.05757	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-SO-1S	91.05757	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-SO-1S	91.05757	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-SO-1S	91.05757	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-SO-1S	91.05757	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-SO-1S	91.05757	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-SO-1S	91.05757	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-SO-1S	91.05757	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-SO-1S	91.05757	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-SO-1S	91.05757	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-SO-1S	91.05757	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-SO-1S	91.05757	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-SO-1S	91.05757	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-SO-1S	91.05757	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-SO-1S	91.05757	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-SO-1S	91.05757	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-SO-1S	91.05757	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-SO-1S	91.05757	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-1S	91.05757	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-SO-1S	91.05757	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-SO	91.05757	95498	< 5.	UG/KG	7/91	o-Chlorotoluene
AB-53-SO	91.05757	106434	< 5.	UG/KG	7/09/91	p-Chlorotoluene
AB-53-SO-1S	91.05757	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-1S	91.05757	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-SO-1S	91.05757	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-SO-1S	91.05757	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-1S	91.05757	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-1S	91.05757	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-1S	91.05757	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-SO-1S	91.05757	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-SO-1S	91.05757	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-SO-1S	91.05757	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-SO-1S	91.05757	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-1S	91.05757	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-1S	91.05757	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-SO-1S	91.05757	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-SO-1S	91.05757	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-SO-1S	91.05757	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-SO-1S	91.05757	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-1S	91.05757	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-1S	91.05757	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-SO-1S	91.05757	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-SO-1S	91.05757	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-SO-1S	91.05757	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-SO-1S	91.05757	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-SO-1S	91.05757	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-SO-1S	91.05757	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-SO-1S	91.05757	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-SO-1S	91.05757	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-SO-1S	91.05757	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-1S	91.05757	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-1S	91.05757	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-SO-1S	91.05757	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-SO-1S	91.05757	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-1S	91.05757	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-SO-1S	91.05757	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-SO-1S	91.05757	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-SO-1S	91.05757	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-SO-1S	91.05757	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-SO-1S	91.05757	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-1S	91.05757	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-1S	91.05757	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-SO-1S	91.05757	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-SO-1S	91.05757	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tental y Identified Compounds in Customer Sample # 91.05757

none

Customer Sample Duplicate Results for Sample # 91.05757

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05757

none

REPOR MBER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05758

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/07/91 Date Analyzed: 7/07/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-2S	91.05758	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-SO-2S	91.05758	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-SO-2S	91.05758	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-SO-2S	91.05758	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-SO-2S	91.05758	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-SO-2S	91.05758	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-SO-2S	91.05758	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-SO-2S	91.05758	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-SO-2S	91.05758	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-SO-2S	91.05758	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-SO-2S	91.05758	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-SO-2S	91.05758	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-SO-2S	91.05758	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-SO-2S	91.05758	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-SO-2S	91.05758	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-SO-2S	91.05758	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-SO-2S	91.05758	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-SO-2S	91.05758	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-SO-2S	91.05758	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-2S	91.05758	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-SO-2S	91.05758	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-SO	91.05758	95498	< 5.		UG/KG	/91	o-Chlorotoluene
AB-53-SO-2S	91.05758	106434	< 5.		UG/KG	7/09/91	p-Chlorotoluene
AB-53-SO-2S	91.05758	96128	< 10.		UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-2S	91.05758	106934	< 5.		UG/KG	7/09/91	1,2-Dibromoethane
AB-53-SO-2S	91.05758	74953	< 5.		UG/KG	7/09/91	Dibromomethane
AB-53-SO-2S	91.05758	95501	< 5.		UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-2S	91.05758	541731	< 5.		UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-2S	91.05758	106467	< 5.		UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-2S	91.05758	75718	< 10.		UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-SO-2S	91.05758	75343	< 5.		UG/KG	7/09/91	1,1-Dichloroethane
AB-53-SO-2S	91.05758	107062	< 5.		UG/KG	7/09/91	1,2-Dichloroethane
AB-53-SO-2S	91.05758	75354	< 5.		UG/KG	7/09/91	1,1-Dichloroethene
AB-53-SO-2S	91.05758	156605	< 5.		UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-2S	91.05758	156592	< 5.		UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-2S	91.05758	78875	< 5.		UG/KG	7/09/91	1,2-Dichloropropane
AB-53-SO-2S	91.05758	142289	< 5.		UG/KG	7/09/91	1,3-Dichloropropane
AB-53-SO-2S	91.05758	594207	< 5.		UG/KG	7/09/91	2,2-Dichloropropane
AB-53-SO-2S	91.05758	563586	< 5.		UG/KG	7/09/91	1,1-Dichloropropene
AB-53-SO-2S	91.05758	10061015	< 5.		UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-2S	91.05758	10061026	< 5.		UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-2S	91.05758	100414	< 5.		UG/KG	7/09/91	Ethylbenzene
AB-53-SO-2S	91.05758	591786	< 20.		UG/KG	7/09/91	2-Hexanone
AB-53-SO-2S	91.05758	98828	< 5.		UG/KG	7/09/91	Isopropylbenzene
AB-53-SO-2S	91.05758	99876	8.7	2.61	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-SO-2S	91.05758	74884	< 5.		UG/KG	7/09/91	Methyl iodide
AB-53-SO-2S	91.05758	108101	< 20.		UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-SO-2S	91.05758	75092	< 5.		UG/KG	7/09/91	Methylene chloride
AB-53-SO-2S	91.05758	103651	< 5.		UG/KG	7/09/91	Propylbenzene
AB-53-SO-2S	91.05758	100425	< 5.		UG/KG	7/09/91	Styrene
AB-53-SO-2S	91.05758	630206	< 5.		UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-2S	91.05758	79345	< 5.		UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-2S	91.05758	127184	< 5.		UG/KG	7/09/91	Tetrachloroethylene
AB-53-SO-2S	91.05758	108883	14.	4.2	UG/KG	7/09/91	Toluene
AB-53-SO-2S	91.05758	76131	< 5.		UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-2S	91.05758	71556	< 5.		UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-SO-2S	91.05758	79005	< 5.		UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-SO-2S	91.05758	79016	< 5.		UG/KG	7/09/91	Trichloroethene
AB-53-SO-2S	91.05758	75694	< 5.		UG/KG	7/09/91	Trichlorofluoromethane
AB-53-SO-2S	91.05758	96184	< 5.		UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-SO-2S	91.05758	95636	< 5.		UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-2S	91.05758	108678	< 5.		UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-2S	91.05758	108054	< 10.		UG/KG	7/09/91	Vinyl acetate
AB-53-SO-2S	91.05758	75014	< 10.		UG/KG	7/09/91	Vinyl chloride
AB-53-SO-2S	91.05758	1330207	< 5.		UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tentativ Identified Compounds in Customer Sample # 91.05758

none

Customer Sample Duplicate Results for Sample # 91.05758

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05758

none

REPORT ! R: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05759

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-3S	91.05759	67641	< 20.		UG/KG	7/09/91		Acetone
AB-53-SO-3S	91.05759	107028	< 100.		UG/KG	7/09/91		Acrolein
AB-53-SO-3S	91.05759	107131	< 100.		UG/KG	7/09/91		Acrylonitrile
AB-53-SO-3S	91.05759	71432	< 5.		UG/KG	7/09/91		Benzene
AB-53-SO-3S	91.05759	108861	< 5.		UG/KG	7/09/91		Bromobenzene
AB-53-SO-3S	91.05759	74975	< 5.		UG/KG	7/09/91		Bromochloromethane
AB-53-SO-3S	91.05759	75274	< 5.		UG/KG	7/09/91		Bromodichloromethane
AB-53-SO-3S	91.05759	75252	< 5.		UG/KG	7/09/91		Bromoform
AB-53-SO-3S	91.05759	74839	< 10.		UG/KG	7/09/91		Bromomethane
AB-53-SO-3S	91.05759	78933	< 20.		UG/KG	7/09/91		2-Butanone
AB-53-SO-3S	91.05759	104518	< 5.		UG/KG	7/09/91		n-Butylbenzene
AB-53-SO-3S	91.05759	135988	< 5.		UG/KG	7/09/91		sec-Butylbenzene
AB-53-SO-3S	91.05759	98066	< 5.		UG/KG	7/09/91		tert-Butylbenzene
AB-53-SO-3S	91.05759	75150	< 5.		UG/KG	7/09/91		Carbon disulfide
AB-53-SO-3S	91.05759	56235	< 5.		UG/KG	7/09/91		Carbon tetrachloride
AB-53-SO-3S	91.05759	108907	< 5.		UG/KG	7/09/91		Chlorobenzene
AB-53-SO-3S	91.05759	124481	< 5.		UG/KG	7/09/91		Chlorodibromomethane
AB-53-SO-3S	91.05759	75003	< 10.		UG/KG	7/09/91		Chloroethane
AB-53-SO-3S	91.05759	110758	< 50.		UG/KG	7/09/91		2-Chloroethylvinyl ether
AB-53-SO-3S	91.05759	67663	< 5.		UG/KG	7/09/91		Chloroform
AB-53-SO-3S	91.05759	74873	< 10.		UG/KG	7/09/91		Chloromethane

AB-53-S'	91.05759	95498	< 5.	UG/KG	9/91	o-Chlorotoluene
AB-53-S	91.05759	106434	< 5.	UG/KG	,/09/91	p-Chlorotoluene
AB-53-SO-3S	91.05759	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-SO-3S	91.05759	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-SO-3S	91.05759	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-SO-3S	91.05759	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-SO-3S	91.05759	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-SO-3S	91.05759	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-SO-3S	91.05759	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-SO-3S	91.05759	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-SO-3S	91.05759	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-SO-3S	91.05759	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-SO-3S	91.05759	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-SO-3S	91.05759	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-SO-3S	91.05759	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-SO-3S	91.05759	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-SO-3S	91.05759	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-SO-3S	91.05759	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-SO-3S	91.05759	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-SO-3S	91.05759	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-SO-3S	91.05759	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-SO-3S	91.05759	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-SO-3S	91.05759	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-SO-3S	91.05759	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-SO-3S	91.06759	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-SO-3S	91.05759	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-SO-3S	91.05759	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-SO-3S	91.05759	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-SO-3S	91.05759	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-SO-3S	91.05759	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-SO-3S	91.05759	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-SO-3S	91.05759	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-SO-3S	91.05759	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-SO-3S	91.05759	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-SO-3S	91.05759	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-SO-3S	91.05759	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-SO-3S	91.05759	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-SO-3S	91.05759	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-SO-3S	91.05759	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-SO-3S	91.05759	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-SO-3S	91.05759	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-SO-3S	91.05759	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-SO-3S	91.05759	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-SO-3S	91.05759	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

Tentati Identified Compounds in Customer Sample # 91.05759

none

Customer Sample Duplicate Results for Sample # 91.05759

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05759

none

REPORT ' 'ER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05762

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53NW-TB	91.05762	67641	< 20.		UG/L	7/09/91		Acetone
AB-53NW-TB	91.05762	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53NW-TB	91.05762	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53NW-TB	91.05762	71432	< 5.		UG/L	7/09/91		Benzene
AB-53NW-TB	91.05762	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53NW-TB	91.05762	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53NW-TB	91.05762	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53NW-TB	91.05762	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53NW-TB	91.05762	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53NW-TB	91.05762	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53NW-TB	91.05762	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53NW-TB	91.05762	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53NW-TB	91.05762	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53NW-TB	91.05762	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53NW-TB	91.05762	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53NW-TB	91.05762	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53NW-TB	91.05762	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53NW-TB	91.05762	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53NW-TB	91.05762	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53NW-TB	91.05762	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53NW-TB	91.05762	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53NW-	91.05762	95498	< 5.	UG/L	/91	o-Chlorotoluene
AB-53NW-..	91.05762	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53NW-TB	91.05762	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropene
AB-53NW-TB	91.05762	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53NW-TB	91.05762	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53NW-TB	91.05762	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53NW-TB	91.05762	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53NW-TB	91.05762	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53NW-TB	91.05762	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53NW-TB	91.05762	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53NW-TB	91.05762	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53NW-TB	91.05762	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53NW-TB	91.05762	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53NW-TB	91.05762	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53NW-TB	91.05762	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53NW-TB	91.05762	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53NW-TB	91.05762	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53NW-TB	91.05762	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53NW-TB	91.05762	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53NW-TB	91.05762	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53NW-TB	91.05762	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53NW-TB	91.05762	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53NW-TB	91.05762	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53NW-TB	91.05762	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53NW-TB	91.05762	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53NW-TB	91.05762	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53NW-TB	91.05762	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53NW-TB	91.05762	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53NW-TB	91.05762	100425	< 5.	UG/L	7/09/91	Styrene
AB-53NW-TB	91.05762	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53NW-TB	91.05762	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53NW-TB	91.05762	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53NW-TB	91.05762	108883	< 5.	UG/L	7/09/91	Toluene
AB-53NW-TB	91.05762	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53NW-TB	91.05762	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53NW-TB	91.05762	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53NW-TB	91.05762	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53NW-TB	91.05762	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53NW-TB	91.05762	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53NW-TB	91.05762	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53NW-TB	91.05762	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53NW-TB	91.05762	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53NW-TB	91.05762	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53NW-TB	91.05762	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentati Identified Compounds in Customer Sample # 91.05762

none

Customer Sample Duplicate Results for Sample # 91.05762

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05762

none

REPORT 'ER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05763

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53NE-TB	91.05763	67641	< 20.		UG/L	7/09/91		Acetone
AB-53NE-TB	91.05763	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53NE-TB	91.05763	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53NE-TB	91.05763	71432	< 5.		UG/L	7/09/91		Benzene
AB-53NE-TB	91.05763	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53NE-TB	91.05763	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53NE-TB	91.05763	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53NE-TB	91.05763	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53NE-TB	91.05763	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53NE-TB	91.05763	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53NE-TB	91.05763	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53NE-TB	91.05763	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53NE-TB	91.05763	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53NE-TB	91.05763	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53NE-TB	91.05763	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53NE-TB	91.05763	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53NE-TB	91.05763	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53NE-TB	91.05763	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53NE-TB	91.05763	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53NE-TB	91.05763	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53NE-TB	91.05763	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53NE	91.05763	95498	< 5.	UG/L	7/09/91	o-Chlorotoluene
AB-53NE	91.05763	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53NE-TB	91.05763	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53NE-TB	91.05763	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53NE-TB	91.05763	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53NE-TB	91.05763	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53NE-TB	91.05763	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53NE-TB	91.05763	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53NE-TB	91.05763	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53NE-TB	91.05763	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53NE-TB	91.05763	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53NE-TB	91.05763	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53NE-TB	91.05763	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53NE-TB	91.05763	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53NE-TB	91.05763	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53NE-TB	91.05763	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53NE-TB	91.05763	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53NE-TB	91.05763	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53NE-TB	91.05763	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53NE-TB	91.05763	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53NE-TB	91.05763	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53NE-TB	91.05763	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53NE-TB	91.05763	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53NE-TB	91.05763	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53NE-TB	91.05763	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53NE-TB	91.05763	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53NE-TB	91.05763	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53NE-TB	91.05763	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53NE-TB	91.05763	100425	< 5.	UG/L	7/09/91	Styrene
AB-53NE-TB	91.05763	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53NE-TB	91.05763	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53NE-TB	91.05763	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53NE-TB	91.05763	108883	< 5.	UG/L	7/09/91	Toluene
AB-53NE-TB	91.05763	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53NE-TB	91.05763	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53NE-TB	91.05763	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53NE-TB	91.05763	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53NE-TB	91.05763	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53NE-TB	91.05763	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53NE-TB	91.05763	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53NE-TB	91.05763	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53NE-TB	91.05763	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53NE-TB	91.05763	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53NE-TB	91.05763	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentati Identified Compounds in Customer Sample # 91.05763

none

Customer Sample Duplicate Results for Sample # 91.05763

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05763

none

REPORT ER: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05764

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53SO-TB	91.05764	67641	< 20.		UG/L	7/09/91		Acetone
AB-53SO-TB	91.05764	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53SO-TB	91.05764	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53SO-TB	91.05764	71432	< 5.		UG/L	7/09/91		Benzene
AB-53SO-TB	91.05764	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53SO-TB	91.05764	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53SO-TB	91.05764	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53SO-TB	91.05764	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53SO-TB	91.05764	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53SO-TB	91.05764	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53SO-TB	91.05764	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53SO-TB	91.05764	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53SO-TB	91.05764	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53SO-TB	91.05764	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53SO-TB	91.05764	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53SO-TB	91.05764	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53SO-TB	91.05764	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53SO-TB	91.05764	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53SO-TB	91.05764	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53SO-TB	91.05764	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53SO-TB	91.05764	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53SC	91.05764	95498	< 5.	UG/L	9/91	o-Chlorotoluene
AB-53SO-	91.05764	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53SO-TB	91.05764	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53SO-TB	91.05764	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53SO-TB	91.05764	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53SO-TB	91.05764	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53SO-TB	91.05764	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53SO-TB	91.05764	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53SO-TB	91.05764	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53SO-TB	91.05764	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53SO-TB	91.05764	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53SO-TB	91.05764	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53SO-TB	91.05764	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53SO-TB	91.05764	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53SO-TB	91.05764	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53SO-TB	91.05764	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53SO-TB	91.05764	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53SO-TB	91.05764	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53SO-TB	91.05764	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53SO-TB	91.05764	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53SO-TB	91.05764	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53SO-TB	91.05764	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53SO-TB	91.05764	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53SO-TB	91.05764	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53SO-TB	91.05764	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53SO-TB	91.05764	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53SO-TB	91.05764	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53SO-TB	91.05764	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53SO-TB	91.05764	100425	< 5.	UG/L	7/09/91	Styrene
AB-53SO-TB	91.05764	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53SO-TB	91.05764	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53SO-TB	91.05764	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53SO-TB	91.05764	108883	< 5.	UG/L	7/09/91	Toluene
AB-53SO-TB	91.05764	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53SO-TB	91.05764	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53SO-TB	91.05764	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53SO-TB	91.05764	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53SO-TB	91.05764	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53SO-TB	91.05764	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53SO-TB	91.05764	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53SO-TB	91.05764	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53SO-TB	91.05764	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53SO-TB	91.05764	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53SO-TB	91.05764	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentat Identified Compounds in Customer Sample # 91.05764

none

Customer Sample Duplicate Results for Sample # 91.05764

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05764

none

****

********** HSE-9 QUALITY ASSURANCE REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20226	91.05766	67641	< 20.		UG/L	0.0		7/09/91	UNDER CONTROL	Acetone
00.20226	91.05766	107028	< 100.		UG/L	0.0		7/09/91	UNDER CONTROL	Acrolein
00.20226	91.05766	107131	< 100.		UG/L	0.0		7/09/91	UNDER CONTROL	Acrylonitrile
00.20226	91.05766	71432	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Benzene
00.20226	91.05766	108861	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromobenzene
00.20226	91.05766	74975	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromochloromethane
00.20226	91.05766	75274	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromodichloromethane
00.20226	91.05766	75252	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromoform
00.20226	91.05766	74839	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromomethane
00.20226	91.05766	78933	< 20.		UG/L	0.0		7/09/91	UNDER CONTROL	2-Butanone
00.20226	91.05766	104518	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	n-Butylbenzene
00.20226	91.05766	135988	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	sec-Butylbenzene
00.20226	91.05766	98066	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	tert-Butylbenzene
00.20226	91.05766	75150	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Carbon disulfide
00.20226	91.05766	56235	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Carbon tetrachloride
00.20226	91.05766	108907	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Chlorobenzene
00.20226	91.05766	124481	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Chlorodibromomethane
00.20226	91.05766	75003	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloroethane
00.20226	91.05766	110758	< 50.		UG/L	0.0		7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20226	91.05766	67663	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloroform
00.20226	91.05766	74873	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloromethane
00.20226	91.05766	95498	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	o-Chlorotoluene
00.20226	91.05766	106434	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	p-Chlorotoluene
00.20226	91.05766	96128	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20226	91.05766	106934	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2-Dibromoethane
00.20226	91.05766	74953	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Dibromomethane
00.20226	91.05766	95501	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.05766	541731	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.05766	106467	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.05766	75718	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Dichlorodifluoromethane
00.20226	91.05766	75343	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1-Dichloroethane
00.20226	91.05766	107062	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2-Dichloroe

00.2022/	91.05766	75354	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroet
00.2022.	91.05766	156605	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20226	91.05766	156592	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20226	91.05766	78875	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2-Dichloropropane
00.20226	91.05766	142289	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,3-Dichloropropane
00.20226	91.05766	594207	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	2,2-Dichloropropane
00.20226	91.05766	563586	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1-Dichloropropene
00.20226	91.05766	10061015	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20226	91.05766	10061026	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20226	91.05766	100414	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Ethylbenzene
00.20226	91.05766	591786	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	2-Hexanone
00.20226	91.05766	98828	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Isopropylbenzene
00.20226	91.05766	99876	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	4-Isopropyltoluene
00.20226	91.05766	74884	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Methyl iodide
00.20226	91.05766	108101	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20226	91.05766	75092	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Methylene chloride
00.20226	91.05766	103651	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Propylbenzene
00.20226	91.05766	100425	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Styrene
00.20226	91.05766	630206	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20226	91.05766	79345	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20226	91.05766	127184	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Tetrachloroethylene
00.20226	91.05766	108883	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Toluene
00.20226	91.05766	76131	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20226	91.05766	71556	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20226	91.05766	79005	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20226	91.05766	79016	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Trichloroethene
00.20226	91.05766	75694	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Trichlorofluoromethane
00.20226	91.05766	96184	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20226	91.05766	95636	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20226	91.05766	108678	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20226	91.05766	108054	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Vinyl acetate
00.20226	91.05766	75014	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Vinyl chloride
00.20226	91.05766	1330207	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20226	91.05767	67641	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	Acetone
00.20226	91.05767	107028	< 100.	UG/L	0.0	7/09/91	UNDER CONTROL	Acrolein
00.20226	91.05767	107131	< 100.	UG/L	0.0	7/09/91	UNDER CONTROL	Acrylonitrile
00.20226	91.05767	71432	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Benzene
00.20226	91.05767	108861	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Bromobenzene
00.20226	91.05767	74975	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Bromochloromethane
00.20226	91.05767	75274	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Bromodichloromethane
00.20226	91.05767	75252	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Bromoform
00.20226	91.05767	74839	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Bromomethane
00.20226	91.05767	78933	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	2-Butanone
00.20226	91.05767	104518	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	n-Butylbenzene
00.20226	91.05767	135988	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	sec-Butylbenzene

00.202	91.05767	98066	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	tert-Butylben
00.20226	91.05767	75150	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Carbon disulfide
00.20226	91.05767	56235	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Carbon tetrachloride
00.20226	91.05767	108907	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Chlorobenzene
00.20226	91.05767	124481	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Chlorodibromomethane
00.20226	91.05767	75003	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Chloroethane
00.20226	91.05767	110758	< 50.	UG/L	0.0	7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20226	91.05767	67663	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Chloroform
00.20226	91.05767	74873	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Chloromethane
00.20226	91.05767	95498	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	o-Chlorotoluene
00.20226	91.05767	106434	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	p-Chlorotoluene
00.20226	91.05767	96128	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20226	91.05767	106934	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2-Dibromoethane
00.20226	91.05767	74953	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Dibromomethane
00.20226	91.05767	95501	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.05767	541731	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.05767	106467	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.05767	75718	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Dichlorodifluoromethane
00.20226	91.05767	75343	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethane
00.20226	91.05767	107062	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2-Dichloroethane
00.20226	91.05767	75354	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethene
00.20226	91.05767	156605	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20226	91.05767	156592	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20226	91.05767	78875	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2-Dichloropropane
00.20226	91.05767	142289	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,3-Dichloropropane
00.20226	91.05767	594207	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	2,2-Dichloropropane
00.20226	91.05767	563586	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1-Dichloropropene
00.20226	91.05767	10061015	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20226	91.05767	10061026	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20226	91.05767	100414	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Ethylbenzene
00.20226	91.05767	591786	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	2-Hexanone
00.20226	91.05767	98828	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Isopropylbenzene
00.20226	91.05767	99876	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	4-Isopropyltoluene
00.20226	91.05767	74884	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Methyl iodide
00.20226	91.05767	108101	< 20.	UG/L	0.0	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20226	91.05767	75092	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Methylene chloride
00.20226	91.05767	103651	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Propylbenzene
00.20226	91.05767	100425	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Styrene
00.20226	91.05767	630206	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20226	91.05767	79345	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20226	91.05767	127184	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Tetrachloroethylene
00.20226	91.05767	108883	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Toluene
00.20226	91.05767	76131	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20226	91.05767	71556	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20226	91.05767	79005	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloro-ethane

00.20227	91.05767	79016	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Trichloroether
00.20226	91.05767	75694	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Trichlorofluoromethane
00.20226	91.05767	96184	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20226	91.05767	95636	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20226	91.05767	108678	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20226	91.05767	108054	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Vinyl acetate
00.20226	91.05767	75014	< 10.	UG/L	0.0	7/09/91	UNDER CONTROL	Vinyl chloride
00.20226	91.05767	1330207	< 5.	UG/L	0.0	7/09/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20227	91.05771	67641	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acetone
00.20227	91.05771	107028	< 100.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acrolein
00.20227	91.05771	107131	< 100.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acrylonitrile
00.20227	91.05771	71432	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Benzene
00.20227	91.05771	108861	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromobenzene
00.20227	91.05771	74975	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromochloromethane
00.20227	91.05771	75274	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.05771	75252	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromoform
00.20227	91.05771	74839	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromomethane
00.20227	91.05771	78933	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Butanone
00.20227	91.05771	104518	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.05771	135988	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.05771	98066	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	tert-Butylbenzene
00.20227	91.05771	75150	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Carbon disulfide
00.20227	91.05771	56235	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.05771	108907	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chlorobenzene
00.20227	91.05771	124481	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chlorodibromomethane
00.20227	91.05771	75003	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloroethane
00.20227	91.05771	110758	< 50.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20227	91.05771	67663	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloroform
00.20227	91.05771	74873	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloromethane
00.20227	91.05771	95498	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.05771	106434	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.05771	96128	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.05771	106934	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.05771	74953	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Dibromomethane
00.20227	91.05771	95501	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.05771	541731	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.05771	106467	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.05771	75718	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.05771	75343	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.05771	107062	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.05771	75354	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethene
00.20227	91.05771	156605	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20227	91.05771	156592	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.05771	78875	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.05771	142289	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,3-Dichloropropane

00.20227	91.05771	594207	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	2,2-Dichloropr
00.20227	91.05771	563586	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloropropene
00.20227	91.05771	10061015	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.05771	10061026	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.05771	100414	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Ethylbenzene
00.20227	91.05771	591786	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Hexanone
00.20227	91.05771	98828	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.05771	99876	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.05771	74884	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Methyl iodide
00.20227	91.05771	108101	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.05771	75092	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Methylene chloride
00.20227	91.05771	103651	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Propylbenzene
00.20227	91.05771	100425	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Styrene
00.20227	91.05771	630206	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.05771	79345	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.05771	127184	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.05771	108883	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Toluene
00.20227	91.05771	76131	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.05771	71556	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.05771	79005	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.05771	79016	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Trichloroethene
00.20227	91.05771	75694	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Trichlorofluoromethane
00.20227	91.05771	96184	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.05771	95636	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.05771	108678	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20227	91.05771	108054	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Vinyl acetate
00.20227	91.05771	75014	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Vinyl chloride
00.20227	91.05771	1330207	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20227	91.05772	67641	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acetone
00.20227	91.05772	107028	< 100.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acrolein
00.20227	91.05772	107131	< 100.	UG/KG	0.0	7/09/91	UNDER CONTROL	Acrylonitrile
00.20227	91.05772	71432	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Benzene
00.20227	91.05772	108861	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromobenzene
00.20227	91.05772	74975	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromochloromethane
00.20227	91.05772	75274	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.05772	75252	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromoform
00.20227	91.05772	74839	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Bromomethane
00.20227	91.05772	78933	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Butanone
00.20227	91.05772	104518	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.05772	135988	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.05772	98066	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	tert-Butylbenzene
00.20227	91.05772	75150	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Carbon disulfide
00.20227	91.05772	56235	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.05772	108907	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chlorobenzene
00.20227	91.05772	124481	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chlorodibromomethane

00.2027	91.05772	75003	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloroethane
00.202.	91.05772	110758	< 50.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20227	91.05772	67663	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloroform
00.20227	91.05772	74873	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Chloromethane
00.20227	91.05772	95498	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.05772	106434	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.05772	96128	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.05772	106934	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.05772	74953	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Dibromomethane
00.20227	91.05772	95501	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.05772	541731	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.05772	106467	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.05772	75718	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.05772	75343	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.05772	107062	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.05772	75354	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloroethene
00.20227	91.05772	156605	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20227	91.05772	156592	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.05772	78875	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.05772	142289	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,3-Dichloropropane
00.20227	91.05772	594207	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	2,2-Dichloropropane
00.20227	91.05772	563586	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1-Dichloropropene
00.20227	91.05772	10061015	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.05772	10061026	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.05772	100414	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Ethylbenzene
00.20227	91.05772	591786	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	2-Hexanone
00.20227	91.05772	98828	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.05772	99876	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.05772	74884	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Methyl iodide
00.20227	91.05772	108101	< 20.	UG/KG	0.0	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.05772	75092	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Methylene chloride
00.20227	91.05772	103651	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Propylbenzene
00.20227	91.05772	100425	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Styrene
00.20227	91.05772	630206	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.05772	79345	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.05772	127184	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.05772	108883	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Toluene
00.20227	91.05772	76131	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.05772	71556	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.05772	79005	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.05772	79016	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Trichloroethene
00.20227	91.05772	75694	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Trichlorofluoromethane
00.20227	91.05772	96184	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.05772	95636	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.05772	108678	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene

00.20227	91.05772	108054	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Vinyl acetate
00.20227	91.05772	75014	< 10.	UG/KG	0.0	7/09/91	UNDER CONTROL	Vinyl chloride
00.20227	91.05772	1330207	< 5.	UG/KG	0.0	7/09/91	UNDER CONTROL	Mixed-Xylenes (o + m + p)

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.05765

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.05765	67641	74.	22.2	UG/L	80.	8.	7/09/91	UNDER CONTROL	Acetone
91.05765	107028	< 100.		UG/L	0.0		7/09/91	UNDER CONTROL	Acrolein
91.05765	107131	< 100.		UG/L	0.0		7/09/91	UNDER CONTROL	Acrylonitrile
91.05765	71432	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Benzene
91.05765	108861	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromobenzene
91.05765	76975	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromochloromethane
91.05765	75274	140.	42.	UG/L	82.	8.	7/09/91	UNDER CONTROL	Bromodichloromethane
91.05765	75252	97.	29.1	UG/L	86.	9.	7/09/91	UNDER CONTROL	Bromoform
91.05765	74839	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Bromomethane
91.05765	78933	< 20.		UG/L	82.	8.	7/09/91	WARNING 2-3 SIG	2-Butanone
91.05765	104518	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	n-Butylbenzene
91.05765	135988	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	sec-Butylbenzene
91.05765	98066	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	tert-Butylbenzene
91.05765	75150	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Carbon disulfide
91.05765	56235	96.	28.8	UG/L	85.	8.	7/09/91	UNDER CONTROL	Carbon tetrachloride
91.05765	108907	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Chlorobenzene
91.05765	124481	94.	28.2	UG/L	86.	9.	7/09/91	UNDER CONTROL	Chlorodibromomethane
91.05765	75003	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloroethane
91.05765	110758	< 50.		UG/L	0.0		7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
91.05765	67663	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloroform

91.0576	74873	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Chloromethane
91.05765	95498	49.	14.7	UG/L	79.	8.	7/09/91	UNDER CONTROL	o-Chlorotoluene
91.05765	106434	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	p-Chlorotoluene
91.05765	96128	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
91.05765	106934	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2-Dibromoethane
91.05765	74953	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Dibromomethane
91.05765	95501	55.	16.5	UG/L	82.	8.	7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.05765	541731	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.05765	106467	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.05765	75718	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Dichlorodifluoromethane
91.05765	75343	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1-Dichloroethane
91.05765	107062	210.	63.	UG/L	105.	10.	7/09/91	UNDER CONTROL	1,2-Dichloroethane
91.05765	75354	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1-Dichloroethene
91.05765	156605	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
91.05765	156592	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
91.05765	78875	100.	30.	UG/L	85.	8.	7/09/91	UNDER CONTROL	1,2-Dichloropropane
91.05765	142289	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,3-Dichloropropane
91.05765	594207	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	2,2-Dichloropropane
91.05765	563586	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1-Dichloropropene
91.05765	10061015	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
91.05765	10061026	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	trans-1,3-Dichloropropene
91.05765	100414	54.	16.2	UG/L	84.	8.	7/09/91	UNDER CONTROL	Ethylbenzene
91.05765	591786	< 20.		UG/L	76.	8.	7/09/91	WARNING 2-3 SIG	2-Hexanone
91.05765	98828	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Isopropylbenzene
91.05765	99876	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	4-Isopropyltoluene
91.05765	74884	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Methyl iodide
91.05765	108101	62.	18.6	UG/L	83.	8.	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
91.05765	75092	130.	39.	UG/L	90.	9.	7/09/91	UNDER CONTROL	Methylene chloride
91.05765	103651	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Propylbenzene
91.05765	100425	80.	24.	UG/L	96.	10.	7/09/91	UNDER CONTROL	Styrene
91.05765	630206	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
91.05765	79345	89.	26.7	UG/L	90.	9.	7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
91.05765	127184	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Tetrachloroethylene
91.05765	108883	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Toluene
91.05765	76131	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
91.05765	71556	96.	28.8	UG/L	82.	8.	7/09/91	UNDER CONTROL	1,1,1-Trichloroethane
91.05765	79005	92.	27.6	UG/L	83.	8.	7/09/91	UNDER CONTROL	1,1,2-Trichloroethane
91.05765	79016	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Trichloroethene
91.05765	75694	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Trichlorofluoromethane
91.05765	96184	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
91.05765	95636	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
91.05765	108678	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene
91.05765	108054	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Vinyl acetate
91.05765	75014	< 10.		UG/L	0.0		7/09/91	UNDER CONTROL	Vinyl chloride
91.05765	1330207	< 5.		UG/L	0.0		7/09/91	UNDER CONTROL	Mixed-Xylenes (o + m +

Blind Qc ults, Sample # 91.05770

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/05/91 Date Analyzed: 7/05/91

91.05770	67641	170.	51.	UG/KG	149.	15.	7/09/91	UNDER CONTROL	Acetone
91.05770	107028	< 100.		UG/KG	0.0		7/09/91	UNDER CONTROL	Acrolein
91.05770	107131	< 100.		UG/KG	0.0		7/09/91	UNDER CONTROL	Acrylonitrile
91.05770	71432	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Benzene
91.05770	108861	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Bromobenzene
91.05770	74975	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Bromochloromethane
91.05770	75274	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Bromodichloromethane
91.05770	75252	220.	66.	UG/KG	134.	13.	7/09/91	UNDER CONTROL	Bromoform
91.05770	74839	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Bromomethane
91.05770	78933	150.	45.	UG/KG	154.	15.	7/09/91	UNDER CONTROL	2-Butanone
91.05770	104518	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	n-Butylbenzene
91.05770	135988	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	sec-Butylbenzene
91.05770	98066	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	tert-Butylbenzene
91.05770	75150	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Carbon disulfide
91.05770	56235	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Carbon tetrachloride
91.05770	108907	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Chlorobenzene
91.05770	124481	150.	45.	UG/KG	160.	16.	7/09/91	UNDER CONTROL	Chlorodibromomethane
91.05770	75003	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Chloroethane
91.05770	110758	< 50.		UG/KG	0.0		7/09/91	UNDER CONTROL	2-Chloroethylvinyl ether
91.05770	67663	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Chloroform
91.05770	74873	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Chloromethane
91.05770	95498	38.	11.4	UG/KG	123.	12.	7/09/91	OUT OF CONTROL	o-Chlorotoluene
91.05770	106434	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	p-Chlorotoluene
91.05770	96128	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
91.05770	106934	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,2-Dibromoethane
91.05770	74953	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Dibromomethane
91.05770	95501	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.05770	541731	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.05770	106467	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.05770	75718	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Dichlorodifluoromethane
91.05770	75343	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1-Dichloroethane
91.05770	107062	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,2-Dichloroethane
91.05770	75354	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1-Dichloroethene
91.05770	156605	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	trans-1,2-Dichloroethene
91.05770	156592	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	cis-1,2-Dichloroethylene
91.05770	78875	39.	11.7	UG/KG	132.	13.	7/09/91	OUT OF CONTROL	1,2-Dichloropropane
91.05770	142289	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,3-Dichloropropane
91.05770	594207	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	2,2-Dichloropropane
91.05770	563586	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1-Dichloropropene
91.05770	10061015	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	cis-1,3-Dichloropropene
91.05770	10061026	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	trans-1,3-Dichloroprope

91.05770	100414	23.	6.9	UG/KG	130.	13.	7/09/91	OUT OF CONTROL	Ethylbenzene
91.05770	591786	< 20.		UG/KG	118.	12.	7/09/91	OUT OF CONTROL	2-Hexanone
91.05770	98828	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Isopropylbenzene
91.05770	99876	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	4-Isopropyltoluene
91.05770	74884	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Methyl iodide
91.05770	108101	170.	51.	UG/KG	155.	16.	7/09/91	UNDER CONTROL	4-Methyl-2-pentanone
91.05770	75092	43.	12.9	UG/KG	167.	17.	7/09/91	OUT OF CONTROL	Methylene chloride
91.05770	103651	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Propylbenzene
91.05770	100425	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Styrene
91.05770	630206	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
91.05770	79345	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
91.05770	127184	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Tetrachloroethylene
91.05770	108883	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Toluene
91.05770	76131	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
91.05770	71556	10.	3.	UG/KG	154.	15.	7/09/91	OUT OF CONTROL	1,1,1-Trichloroethane
91.05770	79005	120.	36.	UG/KG	129.	13.	7/09/91	UNDER CONTROL	1,1,2-Trichloroethane
91.05770	79016	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Trichloroethene
91.05770	75694	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Trichlorofluoromethane
91.05770	96184	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,2,3-Trichloropropane
91.05770	95636	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
91.05770	108678	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	1,3,5-Trimethylbenzene
91.05770	108054	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Vinyl acetate
91.05770	75014	< 10.		UG/KG	0.0		7/09/91	UNDER CONTROL	Vinyl chloride
91.05770	1330207	< 5.		UG/KG	0.0		7/09/91	UNDER CONTROL	Mixed-Xylenes (o + m + p)

SURROGATE RESULTS FOR EPA VOLATILES

Surrogate 1 = 1,2-Dichloroethane d4 (CAS # = 17060070)
Surrogate 2 = Toluene d8 (CAS # = 2037265)
Surrogate 3 = 4-Bromofluorobenzene (CAS # = 460004)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	COMPLETION DATE
91.05740	%	78.6	103.2	80.8	9-Jul-1991
91.05741	%	87.8	105.	82.4	9-Jul-1991
91.05741	%	90.6	107.	82.8	9-Jul-1991
91.05741	%	259.	115.6	90.	9-Jul-1991
91.05742	%	102.6	110.8	91.	9-Jul-1991
91.05743	%	203.2	111.	139.6	9-Jul-1991
91.05743	%	83.4	94.	214.2	9-Jul-1991
91.05743	%	104.6	97.6	127.8	9-Jul-1991
91.05744	%	112.8	105.	122.4	9-Jul-1991
91.05745	%	160.4	111.6	106.6	9-Jul-1991
91.05746	%	122.	104.8	116.	9-Jul-1991

91.05747		82.8	105.8	85.	9-Jul-1991
91.05748	.	107.6	104.	85.4	9-Jul-1991
91.05749	%	99.2	105.8	86.2	9-Jul-1991
91.05750	%	110.2	107.	88.2	9-Jul-1991
91.05751	%	117.4	100.4	155.2	9-Jul-1991
91.05752	%	104.	101.	133.8	9-Jul-1991
91.05753	%	96.6	96.8	131.2	9-Jul-1991
91.05754	%	126.	107.4	92.6	9-Jul-1991
91.05755	%	93.8	106.4	88.6	9-Jul-1991
91.05756	%	90.6	106.	93.4	9-Jul-1991
91.05757	%	124.	94.	139.2	9-Jul-1991
91.05758	%	118.2	95.4	130.8	9-Jul-1991
91.05759	%	171.6	96.6	160.6	9-Jul-1991
91.05762	%	86.	103.6	92.2	9-Jul-1991
91.05763	%	216.2	113.	92.6	9-Jul-1991
91.05764	%	151.6	108.	96.	9-Jul-1991
91.05765	%	219.8	116.8	91.6	9-Jul-1991
91.05766	%	79.6	103.2	83.2	9-Jul-1991
91.05767	%	87.8	107.4	83.6	9-Jul-1991
91.05770	%	365.4	117.8	106.4	9-Jul-1991
91.05771	%	109.2	109.	100.6	9-Jul-1991
91.05772	%	123.2	104.	95.2	9-Jul-1991

EPA Limits:

Water	%	76 - 114	88 - 110	86 - 115
Soil	%	70 - 121	81 - 117	74 - 121

REPORT NUMBER: 10790

L. Bigthorns for FLB — Analyst — 7/10/91 Date

L. Bigthorns — Reviewer — 7/10/91 Date

S.D. Nielson for CRL — Section Leader — 7/10/91 Date

mag — QA Officer — 7/10/91 Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR VOLATILES
IN WATER TYPE MATRICES

REQUEST #: 11673

NUMBER OF SAMPLES: 18
MATRIX W
ANALYST: TRB
Date: 07/08/91

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	d4-1,2-dichloro-ethene	toluene-(d8)	4-bromo-fluoro-benzene
1	B91.05766	BLANK	94	96	103
2	S91.05740	SAMPLE	79	103	81 *
3	S91.05741	SAMPLE	259 *	116 *	90
4	S91.05742	SAMPLE	103	111 *	91
5	S91.05747	SAMPLE	83	106	65 *
6	S91.05746	SAMPLE	108	104	85 *
7	S91.05749	SAMPLE	99	106	86
8	S91.05750	SAMPLE	110	107	88
9	S91.05754	SAMPLE	126 *	107	93
10	S91.05755	SAMPLE	94	106	89
11	S91.05756	SAMPLE	91	106	93
12	S91.05762	SAMPLE	86	104	92
13	S91.05763	SAMPLE	216 *	113 *	93
14	S91.05764	SAMPLE	152 *	108	96
15	B91.05767	BLANK	88	107	84 *
16	M91.05741	MATRIX SPIK	88	105	82 *
17	D91.05741	MATRIX SP-D	91	107	83 *
18	S91.05765	SAMPLE	220 *	117 *	92
19					
20					
21					
22					

Average % Surrogate Recovery...	115	106	89
Defined Lower QC Limits (%)....	76	88	86
Defined Upper QC Limits (%)....	114	110	115
Observed Lower QC Limits (%)...	79	96	81
Observed Upper QC Limits (%)...	259	116	103

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 7/9/91

7-8-91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR VOLATILES
SOIL

REQUEST #: [illegible]

NUMBER OF SAMPLES: 15
MATRIX: [illegible]
ANALYST: [illegible]
Date: [illegible]

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT %

	SAMPLE NUMBERS	TYPE	4-Bromo-fluoro-benzene	Toluene-D8	1,2-Dichloro-ethane-d4
1	ERL05771	BLANK	109	109	[illegible]
2	ERL05744	SAMPLE	113	115	122 *
3	[illegible]	SAMPLE	160 *	112	107
4	[illegible]	[illegible]	122 *	105	113
5	[illegible]	SAMPLE	[illegible]	[illegible]	155 *
6	[illegible]	SAMPLE	[illegible]	[illegible]	131 *
7	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]
8	[illegible]	MATRIX SPI	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible] SPI	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible] *	[illegible]	[illegible]
11	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]
12	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]
13	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible] *
14	[illegible]	SAMPLE	[illegible] *	[illegible]	[illegible] *
15	[illegible]	SAMPLE	113	[illegible]	[illegible] *

Average % Surrogate Recovery....	[illegible]	[illegible]	[illegible]
Defined Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]
Defined Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]
Observed Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]
Observed Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]

** If % Surrogate Recovery is followed by a '*', value [illegible]

Reviewed By: [illegible] 7/9/91

[illegible] 7-5-91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR VOLATILES

			DRY WT/VOL (G or ML)	DILUTION FACTOR	AMOUNT SPIKED	LOG (UG/KG OR UG/L)
REQUEST #:	11673					
NUMBER OF SAMPLES:	18					
SPIKE ID: (STARTS M OR E)	M91.05741	SPIKE	5	1	50	5
SPIKE DUP ID: (STARTS D OR F)	D91.05741	SPIKE-DUP	5	1	50	5
RAW DATA WITH:	---					
ANALYST:	TRB					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
1,1-Dichlorethene	43	45	86%	90%	5%	61	145	14
Benzene	52	51	104%	102%	2%	76	127	11
Trichlorethene	50	49	100%	98%	2%	71	120	14
Toluene	50	48	100%	96%	4%	76	125	13
Chlorobenzene	51	48	102%	96%	6%	75	130	13

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 7/9/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR VOLATILES

REQUEST #:	[illegible]	SPIKE MIX [illegible]		DILUTION FACTOR	AMOUNT SPIKED	[illegible]
NUMBER OF SAMPLES:	15					
SPIKE ID: [illegible]	MS[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]
SPIKE DUP ID: [illegible]	SPIKE[illegible]	SPIKE-DUP	[illegible]		[illegible]	[illegible]
RAW DATA [illegible]	[illegible]					
ANALYST:	[illegible]					

	SPIKE REC.	SPIKE DUP REC.	SPIKE RPD	SPIKE DUP RPD	RPD	LOW. LIM. REC.	HIGH. LIM. REC.	RPD
1-Dichloroethene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Benzene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Trichloroethene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Toluene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chlorobenzene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 7/9/91

[illegible] Matrix Recovery [illegible] Followed [illegible]

[illegible]

[illegible] 7/9/91

REPORT N R: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05740

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NW-1W	91.05740	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NW-1W	91.05740	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NW-1W	91.05740	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NW-1W	91.05740	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NW-1W	91.05740	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NW-1W	91.05740	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NW-1W	91.05740	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NW-1W	91.05740	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NW-1W	91.05740	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NW-1W	91.05740	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NW-1W	91.05740	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NW-1W	91.05740	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NW-1W	91.05740	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NW-1W	91.05740	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NW-1W	91.05740	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NW-1W	91.05740	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NW-1W	91.05740	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NW-1W	91.05740	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-1W	91.05740	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NW-	91.05740	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NW-	91.05740	95498	< 5.	UG/L	91	o-Chlorotoluene
AB-53-NW-1.	91.05740	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NW-1W	91.05740	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-1W	91.05740	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NW-1W	91.05740	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NW-1W	91.05740	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-1W	91.05740	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-1W	91.05740	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NW-1W	91.05740	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NW-1W	91.05740	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NW-1W	91.05740	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NW-1W	91.05740	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-1W	91.05740	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-1W	91.05740	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NW-1W	91.05740	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NW-1W	91.05740	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NW-1W	91.05740	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NW-1W	91.05740	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-1W	91.05740	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-1W	91.05740	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NW-1W	91.05740	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NW-1W	91.05740	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NW-1W	91.05740	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NW-1W	91.05740	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NW-1W	91.05740	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NW-1W	91.05740	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NW-1W	91.05740	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NW-1W	91.05740	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NW-1W	91.05740	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-1W	91.05740	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-1W	91.05740	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NW-1W	91.05740	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NW-1W	91.05740	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-1W	91.05740	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NW-1W	91.05740	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NW-1W	91.05740	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NW-1W	91.05740	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NW-1W	91.05740	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NW-1W	91.05740	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-1W	91.05740	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-1W	91.05740	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NW-1W	91.05740	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NW-1W	91.05740	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

Tentativ Identified Compounds in Customer Sample # 91.05740

none

Customer Sample Duplicate Results for Sample # 91.05740

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05740

none

REPORT I R: 10790

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91,05741

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/06/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2W	91.05741	67641	< 20.		UG/L	7/09/91		Acetone
AB-53-NW-2W	91.05741	107028	< 100.		UG/L	7/09/91		Acrolein
AB-53-NW-2W	91.05741	107131	< 100.		UG/L	7/09/91		Acrylonitrile
AB-53-NW-2W	91.05741	71432	< 5.		UG/L	7/09/91		Benzene
AB-53-NW-2W	91.05741	108861	< 5.		UG/L	7/09/91		Bromobenzene
AB-53-NW-2W	91.05741	74975	< 5.		UG/L	7/09/91		Bromochloromethane
AB-53-NW-2W	91.05741	75274	< 5.		UG/L	7/09/91		Bromodichloromethane
AB-53-NW-2W	91.05741	75252	< 5.		UG/L	7/09/91		Bromoform
AB-53-NW-2W	91.05741	74839	< 10.		UG/L	7/09/91		Bromomethane
AB-53-NW-2W	91.05741	78933	< 20.		UG/L	7/09/91		2-Butanone
AB-53-NW-2W	91.05741	104518	< 5.		UG/L	7/09/91		n-Butylbenzene
AB-53-NW-2W	91.05741	135988	< 5.		UG/L	7/09/91		sec-Butylbenzene
AB-53-NW-2W	91.05741	98066	< 5.		UG/L	7/09/91		tert-Butylbenzene
AB-53-NW-2W	91.05741	75150	< 5.		UG/L	7/09/91		Carbon disulfide
AB-53-NW-2W	91.05741	56235	< 5.		UG/L	7/09/91		Carbon tetrachloride
AB-53-NW-2W	91.05741	108907	< 5.		UG/L	7/09/91		Chlorobenzene
AB-53-NW-2W	91.05741	124481	< 5.		UG/L	7/09/91		Chlorodibromomethane
AB-53-NW-2W	91.05741	75003	< 10.		UG/L	7/09/91		Chloroethane
AB-53-NW-2W	91.05741	110758	< 50.		UG/L	7/09/91		2-Chloroethylvinyl ether
AB-53-NW-2W	91.05741	67663	< 5.		UG/L	7/09/91		Chloroform
AB-53-NW-2W	91.05741	74873	< 10.		UG/L	7/09/91		Chloromethane

AB-53-NW	91.05741	95498	< 5.	UG/L	/91	o-Chlorotoluene
AB-53-NW-2	91.05741	106434	< 5.	UG/L	7/09/91	p-Chlorotoluene
AB-53-NW-2W	91.05741	96128	< 10.	UG/L	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NW-2W	91.05741	106934	< 5.	UG/L	7/09/91	1,2-Dibromoethane
AB-53-NW-2W	91.05741	74953	< 5.	UG/L	7/09/91	Dibromomethane
AB-53-NW-2W	91.05741	95501	< 5.	UG/L	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NW-2W	91.05741	541731	< 5.	UG/L	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NW-2W	91.05741	106467	< 5.	UG/L	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NW-2W	91.05741	75718	< 10.	UG/L	7/09/91	Dichlorodifluoromethane
AB-53-NW-2W	91.05741	75343	< 5.	UG/L	7/09/91	1,1-Dichloroethane
AB-53-NW-2W	91.05741	107062	< 5.	UG/L	7/09/91	1,2-Dichloroethane
AB-53-NW-2W	91.05741	75354	< 5.	UG/L	7/09/91	1,1-Dichloroethene
AB-53-NW-2W	91.05741	156605	< 5.	UG/L	7/09/91	trans-1,2-Dichloroethene
AB-53-NW-2W	91.05741	156592	< 5.	UG/L	7/09/91	cis-1,2-Dichloroethylene
AB-53-NW-2W	91.05741	78875	< 5.	UG/L	7/09/91	1,2-Dichloropropane
AB-53-NW-2W	91.05741	142289	< 5.	UG/L	7/09/91	1,3-Dichloropropane
AB-53-NW-2W	91.05741	594207	< 5.	UG/L	7/09/91	2,2-Dichloropropane
AB-53-NW-2W	91.05741	563586	< 5.	UG/L	7/09/91	1,1-Dichloropropene
AB-53-NW-2W	91.05741	10061015	< 5.	UG/L	7/09/91	cis-1,3-Dichloropropene
AB-53-NW-2W	91.05741	10061026	< 5.	UG/L	7/09/91	trans-1,3-Dichloropropene
AB-53-NW-2W	91.05741	100414	< 5.	UG/L	7/09/91	Ethylbenzene
AB-53-NW-2W	91.05741	591786	< 20.	UG/L	7/09/91	2-Hexanone
AB-53-NW-2W	91.05741	98828	< 5.	UG/L	7/09/91	Isopropylbenzene
AB-53-NW-2W	91.05741	99876	< 5.	UG/L	7/09/91	4-Isopropyltoluene
AB-53-NW-2W	91.05741	74884	< 5.	UG/L	7/09/91	Methyl iodide
AB-53-NW-2W	91.05741	108101	< 20.	UG/L	7/09/91	4-Methyl-2-pentanone
AB-53-NW-2W	91.05741	75092	< 5.	UG/L	7/09/91	Methylene chloride
AB-53-NW-2W	91.05741	103651	< 5.	UG/L	7/09/91	Propylbenzene
AB-53-NW-2W	91.05741	100425	< 5.	UG/L	7/09/91	Styrene
AB-53-NW-2W	91.05741	630206	< 5.	UG/L	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NW-2W	91.05741	79345	< 5.	UG/L	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NW-2W	91.05741	127184	< 5.	UG/L	7/09/91	Tetrachloroethylene
AB-53-NW-2W	91.05741	108883	< 5.	UG/L	7/09/91	Toluene
AB-53-NW-2W	91.05741	76131	< 5.	UG/L	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NW-2W	91.05741	71556	< 5.	UG/L	7/09/91	1,1,1-Trichloroethane
AB-53-NW-2W	91.05741	79005	< 5.	UG/L	7/09/91	1,1,2-Trichloroethane
AB-53-NW-2W	91.05741	79016	< 5.	UG/L	7/09/91	Trichloroethene
AB-53-NW-2W	91.05741	75694	< 5.	UG/L	7/09/91	Trichlorofluoromethane
AB-53-NW-2W	91.05741	96184	< 5.	UG/L	7/09/91	1,2,3-Trichloropropane
AB-53-NW-2W	91.05741	95636	< 5.	UG/L	7/09/91	1,2,4-Trimethylbenzene
AB-53-NW-2W	91.05741	108678	< 5.	UG/L	7/09/91	1,3,5-Trimethylbenzene
AB-53-NW-2W	91.05741	108054	< 10.	UG/L	7/09/91	Vinyl acetate
AB-53-NW-2W	91.05741	75014	< 10.	UG/L	7/09/91	Vinyl chloride
AB-53-NW-2W	91.05741	1330207	< 5.	UG/L	7/09/91	Mixed-Xylenes (o + m + p)

ADDENDUM TO SEMIVOLATILE ORGANIC ANALYSIS 11673

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Sludge, water
Date: 11 September 1991

Upon receiving notification of discrepancies in the preliminary report and the final reports, I reviewed the data for these two requests further. It appears that the error is in the preliminary report and is due solely to a typing error on my part. Please note that the final reports generated by the QADM section still reflect the correct concentrations in the samples. Attached you will find the modified preliminary reports that reflect these values. I sincerely regret the error and hope it did not cause you too much inconvenience. If you have any further questions feel free to call me at 7-6871.

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Sludge
Summary Date: 08 July 1991
Modified: 11 September 1991

Sample ID	Target Compounds Found	Amount (ug/kg)	Level of Quantitation (ug/kg)	TIC's
Blank (03-Jul.-1991)	Di-n-butyl-phthalate	600	330	Yes
91.05743	Di-n-butyl-phthalate	1400	640	Yes
	Benzidine	3900		
	Bis-2-ethyl-hexylphthalate	1200		
91.05744	Benzidine	1900	490	Yes
	Bis-2-ethyl-hexylphthalate	1100		
91.05745	Di-n-butyl-phthalate	1400	640	Yes
91.05746	NONE		650	Yes
91.05751	NONE		480	Yes
91.05752	NONE		630	Yes
91.05753	NONE		650	Yes
91.05757	Di-n-butyl-phthalate	1400	660	Yes
91.05758	NONE		660	Yes
91.05759	NONE		490	Yes

c:\wp51\m2\qnt11673

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Soil
Summary Date: 08 July 1991

Summary:

Ten sludge samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. After radioactivity screening, the samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous extraction methods on 03 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 05, 06 and 07 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

The sludge samples were extremely wet; therefore, a reduced amount of sample was used in order to use more drying agent. This accounts for the higher reporting limits. In addition, due to the nature of the samples no percent moisture was performed on these samples and all the results are reported as wet weight.

Reportable quantities of three target compounds were found in the sludge samples submitted. Bis-(2-ethylhexyl) phthalate and di-n-butylphthalate are both common plasticizers frequently found in environmental samples. Di-n-butylphthalate was found in the blank at reportable levels. Therefore, it is possible that the di-n-butylphthalate in the sample is due to laboratory contamination.

Benzidine is a target compound that is difficult to chromatograph. Therefore, the presence of this target compound was verified through standard addition. A known amount of benzidine was added to one of the samples and the sample re-analyzed. This re-analysis confirmed the presence of benzidine. Additionally, the benzidine was quantitated using a one point calibration based on an 80 ppm standard due to decomposition of the benzidine in the 50 ppm standard.

In response to historical data I specifically looked for benzyl alcohol, 2-methylphenol, and 4-methylphenol. None of these compounds were found at reportable levels in any of the samples submitted.

Significant quantities of tentatively identified compounds including saturated hydrocarbons and polynuclear aromatic hydrocarbons were found in all the samples submitted. Two tentatively identified compounds were found in the blank.

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Soil
Summary Date: 08 July 1991

Surrogate and Matrix Spike Recoveries:

All surrogate recoveries were within EPA guidelines. Matrix spike recoveries and relative percent deviations for some compounds were outside the EPA guidelines. This could be a problem with the extraction or matrices. This is not believed to affect the data in any way.

Problems encountered:

No other problems were encountered with the analysis of these samples.

c:\wp51\m2\qnt11673

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991
Modified: 11 September 1991

Sample ID	Target Compounds Found	Amount (ug/L)	Level of Quantitation (ug/L)	TIC's
Blank (04-Jul.-1991)	Bis 2-ethylhexyl-phthalate	22	10	Yes
91.05740	Benzoic Acid	15	10	Yes
91.05741	NONE		10	Yes
91.05742	NONE		10	Yes
91.05747	NONE		10	Yes
91.05748	NONE		10	Yes
91.05749	NONE		10	Yes
91.05750	NONE		10	Yes
91.05754	NONE		10	Yes
91.05755	NONE		10	Yes
91.05756	NONE		10	Yes

c:\wp51\m2\qnt11673

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Summary:

Ten water samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. The samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous liquid-liquid extraction on 04 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 10 and 20 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

Reportable quantities of one target compound was found in one of the water samples submitted. Benzoic acid was found in 91.05740. Additionally, bis-(2-ethylhexyl)phthalate, a common plasticizer found in environmental samples, was found in the blank at reportable levels.

Significant amounts of tentatively identified compounds, were found in all the samples submitted. A complete listing of these compounds may be obtained by calling Luara Tsiagkouris at 7-5889.

Surrogate and Matrix Spike Recoveries:

Surrogate recoveries for many of the samples were <u>not</u> within the EPA guidelines. There were several samples that had very low terphenyl d-14 recoveries. As per our phone conversation, some of these samples were re-sampled. However, upon further analysis, two of the samples (91.05747 and 91.05755) had low base neutral recoveries and were not re-sampled. You may wish to re-sample these samples. However, it is my opinion that, due to consistent low recoveries of the base neutral surrogates on these samples as well as the re-submitted samples, this is actually a matrix effect and not due to the analytical process. Matrix spike recoveries for some acid components were high while the base neutrals were low which agrees well with the surrogate recoveries. The relative percent deviation on these matrix spikes is very low.

All holding times <u>were</u> met

c:\wp51\m2\qnt11673

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Problems encountered:

All samples were received with a pH of 1-2 as per our pre-sampling agreement. Because of this, the acid fraction was extracted first. The condensers went dry on both the base-neutral and acid fractions of this extraction. Appropriate steps were taken to recover the samples.

c:\wp51\m2\qnt11673

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Sample ID	Target Compounds Found	Amount (ug/L)	Level of Quantitation (ug/L)	TIC's
Blank (04-Jul.-1991)	Bis 2-ethylhexyl-phthalate	22	10	Yes
91.05740	Benzoic Acid	18	10	Yes
91.05741	NONE		10	Yes
91.05742	NONE		10	Yes
91.05747	NONE		10	Yes
91.05748	NONE		10	Yes
91.05749	NONE		10	Yes
91.05750	NONE		10	Yes
91.05754	NONE		10	Yes
91.05755	NONE		10	Yes
91.05756	NONE		10	Yes

c:\wp51\m2\qnt11673 8/13/91

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman CL
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Summary:

Ten water samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. The samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous liquid-liquid extraction on 04 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 10 and 20 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

Reportable quantities of one target compound was found in one of the water samples submitted. Benzoic acid was found in 91.05740. Additionally, bis-(2-ethylhexyl)phthalate, a common plasticizer found in environmental samples, was found in the blank at reportable levels.

Significant amounts of tentatively identified compounds, were found in all the samples submitted. A complete listing of these compounds may be obtained by calling Lara Tsiagkouris at 7-5889.

Surrogate and Matrix Spike Recoveries:

Surrogate recoveries for many of the samples were <u>not</u> within the EPA guidelines. There were several samples that had very low terphenyl d-14 recoveries. As per our phone conversation, some of these samples were re-sampled. However, upon further analysis, two of the samples (91.05747 and 91.05755) had low base neutral recoveries and were not re-sampled. You may wish to re-sample these samples. However, it is my opinion that, due to consistent low recoveries of the base neutral surrogates on these samples as well as the re-submitted samples, this is actually a matrix effect and not due to the analytical process. Matrix spike recoveries for some acid components were high while the base neutrals were low which agrees well with the surrogate recoveries. The relative percent deviation on these matrix spikes is very low.

All holding times <u>were</u> met

c:\wp51\m2\qnt11673

5/13/91

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Problems encountered:

All samples were received with a pH of 1-2 as per our pre-sampling agreement. Because of this, the acid fraction was extracted first. The condensers went dry on both the base-neutral and acid fractions of this extraction. Appropriate steps were taken to recover the samples.

c:\wp51\m2\qnt11673

VK 8/13/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

REQUEST #: [illegible]
NUMBER OF SAMPLES: [illegible]
SPIKE ID: [illegible]
SPIKE DUP ID: [illegible]
RAW DATA WITH: [illegible]
ANALYST: [illegible]

DRY WT/VOL [illegible] AMOUNT SPIKED [illegible] IN UG/KG OR UG/L [illegible]

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. ACC. REC. LIM.	RPD LIM.
PHENOL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2-CHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1,4-DICHLOROBENZENE	4.[illegible]	[illegible]	77%	[illegible]	[illegible]	[illegible]	[illegible]
N-NITROSO-DI-N-PROPYLAMINE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1,2,4-TRICHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4-CHLORO-3-METHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ACENAPHTHENE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PYRENE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VH
8/12/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN WATER

REQUEST #: [illegible]

NUMBER OF SAMPLES: 14
MATRIX: [illegible]
ANALYSTS: [illegible]
DATE: [illegible]

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL D6	NITRO-BENZENE D5	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL D14
1	[illegible]	BLANK	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	MATRIX SPK	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	MATRIX SPKD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15								
16								
17								
18								
19								
20								
21								
22								

	2-FLUORO-PHENOL	PHENOL D6	NITRO-BENZENE D5	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL D14
Average % Surrogate Recovery....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Observed Lower QC Limits (%)....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Observed Upper QC Limits (%)....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* = Surrogate Recovery Outside Defined QC Limits

Reviewed By: [handwritten initials] 8/13/91

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05740

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-NW-1W	91.05740	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-NW-1W	91.05740	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-NW-1W	91.05740	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-NW-1W	91.05740	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-NW-1W	91.05740	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-NW-1W	91.05740	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NW-1W	91.05740	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NW-1W	91.05740	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NW-1W	91.05740	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NW-1W	91.05740	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NW-1W	91.05740	65850	15.	4.5	UG/L	8/12/91		Benzoic acid
AB-53-NW-1W	91.05740	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-NW-1W	91.05740	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NW-1W	91.05740	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NW-1W	91.05740	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NW-1W	91.05740	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-1W	91.05740	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NW-1W	91.05740	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NW-1W	91.05740	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-NW-1W	91.05740	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NW-1W	91.05740	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-NW-1W	91.05740	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NW-1W	91.05740	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-NW-1W	91.05740	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NW-1W	91.05740	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NW-1W	91.05740	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NW-1W	91.05740	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-NW-1W	91.05740	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NW-1W	91.05740	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NW-1W	91.05740	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NW-1W	91.05740	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NW-1W	91.05740	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-NW-1W	91.05740	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NW-1W	91.05740	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NW-1W	91.05740	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NW-1W	91.05740	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NW-1W	91.05740	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NW-1W	91.05740	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-NW-1W	91.05740	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-NW-1W	91.05740	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NW-1W	91.05740	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NW-1W	91.05740	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NW-1W	91.05740	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-NW-1W	91.05740	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-1W	91.05740	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-NW-1W	91.05740	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-1W	91.05740	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NW-1W	91.05740	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-NW-1W	91.05740	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-NW-1W	91.05740	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-NW-1W	91.05740	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-NW-1W	91.05740	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-NW-1W	91.05740	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-NW-1W	91.05740	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-NW-1W	91.05740	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-NW-1W	91.05740	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-NW-1W	91.05740	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NW-1W	91.05740	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NW-1W	91.05740	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-NW-1W	91.05740	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-NW-1W	91.05740	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-NW-1W	91.05740	129000	< 10.	UG/L	8/12/91	Pyrene

AB-53-NW-1W	91.05740	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-NW-1W	91.05740	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-NW-1W	91.05740	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05740

none

Customer Sample Duplicate Results for Sample # 91.05740

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05740

none

Matrix Spike Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	56.82	41.	UG/L	8/12/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	113.64	120.	UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	113.64	91.	UG/L	8/12/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	56.82	46.	UG/L	8/12/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	106467	0.0			8/12/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	56.82	69.	UG/L	8/12/91		2,4-Dinitrotoluene
AB-53-NW-1W	91.05740	100027	113.64	130.	UG/L	8/12/91		4-Nitrophenol
AB-53-NW-1W	91.05740	621647	56.82	46.	UG/L	8/12/91		N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	113.64	110.	UG/L	8/12/91		Pentachlorophenol
AB-53-NW-1W	91.05740	108952	113.64	85.	UG/L	8/12/91		Phenol
AB-53-NW-1W	91.05740	129000	56.82	23.	UG/L	8/12/91		Pyrene
AB-53-NW-1W	91.05740	120821	56.82	45.	UG/L	8/12/91		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	54.35	36.	UG/L	8/12/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	108.7	98.	UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	108.7	88.	UG/L	8/12/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	54.35	42.	UG/L	8/12/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	54.35	59.	UG/L	8/12/91		2,4-Dinitrotoluene
AB-53-NW-1W	91.05740	100027	108.7	110.	UG/L	8/12/91		4-Nitrophenol

AB-53-NW-1W	91.05740	621647	54.35	40.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	108.7	120.	UG/L	8/12/91	Pentachlorophenol
AB-53-NW-1W	91.05740	108952	108.7	89.	UG/L	8/12/91	Phenol
AB-53-NW-1W	91.05740	129000	54.35	26.	UG/L	8/12/91	Pyrene
AB-53-NW-1W	91.05740	120821	54.35	45.	UG/L	8/12/91	1,2,4-Trichlorobenzene

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05741

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2W	91.05741	83329	< 11.		UG/L	8/12/91		Acenaphthene
AB-53-NW-2W	91.05741	208968	< 11.		UG/L	8/12/91		Acenaphthylene
AB-53-NW-2W	91.05741	62533	< 11.		UG/L	8/12/91		Aniline
AB-53-NW-2W	91.05741	120127	< 11.		UG/L	8/12/91		Anthracene
AB-53-NW-2W	91.05741	103333	< 11.		UG/L	8/12/91		Azobenzene
AB-53-NW-2W	91.05741	92875	< 11.		UG/L	8/12/91		m-Benzidine
AB-53-NW-2W	91.05741	56553	< 11.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NW-2W	91.05741	50328	< 11.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NW-2W	91.05741	205992	< 11.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NW-2W	91.05741	191242	< 11.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NW-2W	91.05741	207089	< 11.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NW-2W	91.05741	65850	< 11.		UG/L	8/12/91		Benzoic acid
AB-53-NW-2W	91.05741	100516	< 11.		UG/L	8/12/91		Benzyl alcohol
AB-53-NW-2W	91.05741	111911	< 11.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NW-2W	91.05741	111444	< 11.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NW-2W	91.05741	108601	< 11.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NW-2W	91.05741	117817	< 11.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-2W	91.05741	101553	< 11.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NW-2W	91.05741	85687	< 11.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NW-2W	91.05741	59507	< 11.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NW-2W	91.05741	106478	< 11.		UG/L	8/12/91		4-Chloroaniline

AB-53-NW-2W	91.05741	91587	< 11.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NW-2W	91.05741	95578	< 11.	UG/L	8/12/91	o-Chlorophenol
AB-53-NW-2W	91.05741	7005723	< 11.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NW-2W	91.05741	218019	< 11.	UG/L	8/12/91	Chrysene
AB-53-NW-2W	91.05741	84742	< 11.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NW-2W	91.05741	117840	< 11.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NW-2W	91.05741	53703	< 11.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NW-2W	91.05741	132649	< 11.	UG/L	8/12/91	Dibenzofuran
AB-53-NW-2W	91.05741	95501	< 11.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NW-2W	91.05741	541731	< 11.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NW-2W	91.05741	106467	< 11.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NW-2W	91.05741	91941	< 11.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NW-2W	91.05741	120832	< 11.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NW-2W	91.05741	84662	< 11.	UG/L	8/12/91	Diethyl phthalate
AB-53-NW-2W	91.05741	131113	< 11.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NW-2W	91.05741	105679	< 11.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NW-2W	91.05741	51285	< 11.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NW-2W	91.05741	121142	< 11.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NW-2W	91.05741	606202	< 11.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NW-2W	91.05741	206440	< 11.	UG/L	8/12/91	Fluoranthene
AB-53-NW-2W	91.05741	86737	< 11.	UG/L	8/12/91	Fluorene
AB-53-NW-2W	91.05741	118741	< 11.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NW-2W	91.05741	87683	< 11.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NW-2W	91.05741	77474	< 11.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NW-2W	91.05741	67721	< 11.	UG/L	8/12/91	Hexachloroethane
AB-53-NW-2W	91.05741	193395	< 11.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-2W	91.05741	78591	< 11.	UG/L	8/12/91	Isophorone
AB-53-NW-2W	91.05741	534521	< 11.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-2W	91.05741	91576	< 11.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NW-2W	91.05741	95487	< 11.	UG/L	8/12/91	2-Methylphenol
AB-53-NW-2W	91.05741	106445	< 11.	UG/L	8/12/91	4-Methylphenol
AB-53-NW-2W	91.05741	91203	< 11.	UG/L	8/12/91	Naphthalene
AB-53-NW-2W	91.05741	88744	< 11.	UG/L	8/12/91	2-Nitroaniline
AB-53-NW-2W	91.05741	99092	< 11.	UG/L	8/12/91	3-Nitroaniline
AB-53-NW-2W	91.05741	100016	< 11.	UG/L	8/12/91	4-Nitroaniline
AB-53-NW-2W	91.05741	98953	< 11.	UG/L	8/12/91	Nitrobenzene
AB-53-NW-2W	91.05741	88755	< 11.	UG/L	8/12/91	2-Nitrophenol
AB-53-NW-2W	91.05741	100027	< 11.	UG/L	8/12/91	4-Nitrophenol
AB-53-NW-2W	91.05741	621647	< 11.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NW-2W	91.05741	62759	< 11.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NW-2W	91.05741	86306	< 11.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NW-2W	91.05741	87865	< 11.	UG/L	8/12/91	Pentachlorophenol
AB-53-NW-2W	91.05741	85018	< 11.	UG/L	8/12/91	Phenanthrene
AB-53-NW-2W	91.05741	108952	< 11.	UG/L	8/12/91	Phenol
AB-53-NW-2W	91.05741	129000	< 11.	UG/L	8/12/91	Pyrene

AB-53-NW-2W	91.05741	120821	< 11.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-NW-2W	91.05741	95954	< 11.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-NW-2W	91.05741	88062	< 11.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05741

none

Customer Sample Duplicate Results for Sample # 91.05741

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05741

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05742

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-3W	91.05742	83329	< 12.		UG/L	8/12/91		Acenaphthene
AB-53-NW-3W	91.05742	208968	< 12.		UG/L	8/12/91		Acenaphthylene
AB-53-NW-3W	91.05742	62533	< 12.		UG/L	8/12/91		Aniline
AB-53-NW-3W	91.05742	120127	< 12.		UG/L	8/12/91		Anthracene
AB-53-NW-3W	91.05742	103333	< 12.		UG/L	8/12/91		Azobenzene
AB-53-NW-3W	91.05742	92875	< 12.		UG/L	8/12/91		m-Benzidine
AB-53-NW-3W	91.05742	56553	< 12.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NW-3W	91.05742	50328	< 12.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NW-3W	91.05742	205992	< 12.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NW-3W	91.05742	191242	< 12.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NW-3W	91.05742	207089	< 12.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NW-3W	91.05742	65850	< 12.		UG/L	8/12/91		Benzoic acid
AB-53-NW-3W	91.05742	100516	< 12.		UG/L	8/12/91		Benzyl alcohol
AB-53-NW-3W	91.05742	111911	< 12.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NW-3W	91.05742	111444	< 12.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NW-3W	91.05742	108601	< 12.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NW-3W	91.05742	117817	< 12.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-3W	91.05742	101553	< 12.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NW-3W	91.05742	85687	< 12.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NW-3W	91.05742	59507	< 12.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NW-3W	91.05742	106478	< 12.		UG/L	8/12/91		4-Chloroaniline

AB-53-NW-3W	91.05742	91587	< 12.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NW-3W	91.05742	95578	< 12.	UG/L	8/12/91	o-Chlorophenol
AB-53-NW-3W	91.05742	7005723	< 12.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NW-3W	91.05742	218019	< 12.	UG/L	8/12/91	Chrysene
AB-53-NW-3W	91.05742	84742	< 12.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NW-3W	91.05742	117840	< 12.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NW-3W	91.05742	53703	< 12.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NW-3W	91.05742	132649	< 12.	UG/L	8/12/91	Dibenzofuran
AB-53-NW-3W	91.05742	95501	< 12.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NW-3W	91.05742	541731	< 12.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NW-3W	91.05742	106467	< 12.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NW-3W	91.05742	91941	< 12.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NW-3W	91.05742	120832	< 12.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NW-3W	91.05742	84662	< 12.	UG/L	8/12/91	Diethyl phthalate
AB-53-NW-3W	91.05742	131113	< 12.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NW-3W	91.05742	105679	< 12.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NW-3W	91.05742	51285	< 12.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NW-3W	91.05742	121142	< 12.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NW-3W	91.05742	606202	< 12.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NW-3W	91.05742	206440	< 12.	UG/L	8/12/91	Fluoranthene
AB-53-NW-3W	91.05742	86737	< 12.	UG/L	8/12/91	Fluorene
AB-53-NW-3W	91.05742	118741	< 12.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NW-3W	91.05742	87683	< 12.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NW-3W	91.05742	77474	< 12.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NW-3W	91.05742	67721	< 12.	UG/L	8/12/91	Hexachloroethane
AB-53-NW-3W	91.05742	193395	< 12.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-3W	91.05742	78591	< 12.	UG/L	8/12/91	Isophorone
AB-53-NW-3W	91.05742	534521	< 12.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-3W	91.05742	91576	< 12.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NW-3W	91.05742	95487	< 12.	UG/L	8/12/91	2-Methylphenol
AB-53-NW-3W	91.05742	106445	< 12.	UG/L	8/12/91	4-Methylphenol
AB-53-NW-3W	91.05742	91203	< 12.	UG/L	8/12/91	Naphthalene
AB-53-NW-3W	91.05742	88744	< 12.	UG/L	8/12/91	2-Nitroaniline
AB-53-NW-3W	91.05742	99092	< 12.	UG/L	8/12/91	3-Nitroaniline
AB-53-NW-3W	91.05742	100016	< 12.	UG/L	8/12/91	4-Nitroaniline
AB-53-NW-3W	91.05742	98953	< 12.	UG/L	8/12/91	Nitrobenzene
AB-53-NW-3W	91.05742	88755	< 12.	UG/L	8/12/91	2-Nitrophenol
AB-53-NW-3W	91.05742	100027	< 12.	UG/L	8/12/91	4-Nitrophenol
AB-53-NW-3W	91.05742	621647	< 12.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NW-3W	91.05742	62759	< 12.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NW-3W	91.05742	86306	< 12.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NW-3W	91.05742	87865	< 12.	UG/L	8/12/91	Pentachlorophenol
AB-53-NW-3W	91.05742	85018	< 12.	UG/L	8/12/91	Phenanthrene
AB-53-NW-3W	91.05742	108952	< 12.	UG/L	8/12/91	Phenol
AB-53-NW-3W	91.05742	129000	< 12.	UG/L	8/12/91	Pyrene

AB-53-NW-3W	91.05742	120821	< 12.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-NW-3W	91.05742	95954	< 12.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-NW-3W	91.05742	88062	< 12.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05742

none

Customer Sample Duplicate Results for Sample # 91.05742

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05742

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05747

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1W	91.05747	83329	< 11.		UG/L	8/12/91		Acenaphthene
AB-53-NE-1W	91.05747	208968	< 11.		UG/L	8/12/91		Acenaphthylene
AB-53-NE-1W	91.05747	62533	< 11.		UG/L	8/12/91		Aniline
AB-53-NE-1W	91.05747	120127	< 11.		UG/L	8/12/91		Anthracene
AB-53-NE-1W	91.05747	103333	< 11.		UG/L	8/12/91		Azobenzene
AB-53-NE-1W	91.05747	92875	< 11.		UG/L	8/12/91		m-Benzidine
AB-53-NE-1W	91.05747	56553	< 11.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NE-1W	91.05747	50328	< 11.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NE-1W	91.05747	205992	< 11.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NE-1W	91.05747	191242	< 11.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NE-1W	91.05747	207089	< 11.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NE-1W	91.05747	65850	< 11.		UG/L	8/12/91		Benzoic acid
AB-53-NE-1W	91.05747	100516	< 11.		UG/L	8/12/91		Benzyl alcohol
AB-53-NE-1W	91.05747	111911	< 11.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NE-1W	91.05747	111444	< 11.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NE-1W	91.05747	108601	< 11.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NE-1W	91.05747	117817	< 11.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-1W	91.05747	101553	< 11.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NE-1W	91.05747	85687	< 11.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NE-1W	91.05747	59507	< 11.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NE-1W	91.05747	106478	< 11.		UG/L	8/12/91		4-Chloroaniline

AB-53-NE-1W	91.05747	91587	< 11.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NE-1W	91.05747	95578	< 11.	UG/L	8/12/91	o-Chlorophenol
AB-53-NE-1W	91.05747	7005723	< 11.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NE-1W	91.05747	218019	< 11.	UG/L	8/12/91	Chrysene
AB-53-NE-1W	91.05747	84742	< 11.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NE-1W	91.05747	117840	< 11.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NE-1W	91.05747	53703	< 11.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NE-1W	91.05747	132649	< 11.	UG/L	8/12/91	Dibenzofuran
AB-53-NE-1W	91.05747	95501	< 11.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NE-1W	91.05747	541731	< 11.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NE-1W	91.05747	106467	< 11.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NE-1W	91.05747	91941	< 11.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NE-1W	91.05747	120832	< 11.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NE-1W	91.05747	84662	< 11.	UG/L	8/12/91	Diethyl phthalate
AB-53-NE-1W	91.05747	131113	< 11.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NE-1W	91.05747	105679	< 11.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NE-1W	91.05747	51285	< 11.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NE-1W	91.05747	121142	< 11.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NE-1W	91.05747	606202	< 11.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NE-1W	91.05747	206440	< 11.	UG/L	8/12/91	Fluoranthene
AB-53-NE-1W	91.05747	86737	< 11.	UG/L	8/12/91	Fluorene
AB-53-NE-1W	91.05747	118741	< 11.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NE-1W	91.05747	87683	< 11.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NE-1W	91.05747	77474	< 11.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NE-1W	91.05747	67721	< 11.	UG/L	8/12/91	Hexachloroethane
AB-53-NE-1W	91.05747	193395	< 11.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-1W	91.05747	78591	< 11.	UG/L	8/12/91	Isophorone
AB-53-NE-1W	91.05747	534521	< 11.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-1W	91.05747	91576	< 11.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NE-1W	91.05747	95487	< 11.	UG/L	8/12/91	2-Methylphenol
AB-53-NE-1W	91.05747	106445	< 11.	UG/L	8/12/91	4-Methylphenol
AB-53-NE-1W	91.05747	91203	< 11.	UG/L	8/12/91	Naphthalene
AB-53-NE-1W	91.05747	88744	< 11.	UG/L	8/12/91	2-Nitroaniline
AB-53-NE-1W	91.05747	99092	< 11.	UG/L	8/12/91	3-Nitroaniline
AB-53-NE-1W	91.05747	100016	< 11.	UG/L	8/12/91	4-Nitroaniline
AB-53-NE-1W	91.05747	98953	< 11.	UG/L	8/12/91	Nitrobenzene
AB-53-NE-1W	91.05747	88755	< 11.	UG/L	8/12/91	2-Nitrophenol
AB-53-NE-1W	91.05747	100027	< 11.	UG/L	8/12/91	4-Nitrophenol
AB-53-NE-1W	91.05747	621647	< 11.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NE-1W	91.05747	62759	< 11.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NE-1W	91.05747	86306	< 11.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NE-1W	91.05747	87865	< 11.	UG/L	8/12/91	Pentachlorophenol
AB-53-NE-1W	91.05747	85018	< 11.	UG/L	8/12/91	Phenanthrene
AB-53-NE-1W	91.05747	108952	< 11.	UG/L	8/12/91	Phenol
AB-53-NE-1W	91.05747	129000	< 11.	UG/L	8/12/91	Pyrene

AB 53 NE 1W	91.05747	120821	< 11.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53 NE-1W	91.05747	95954	< 11.	UG/L.	8/12/91	2,4,5-Trichlorophenol
AB-53-NE-1W	91.05747	88062	< 11.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05747

none

Customer Sample Duplicate Results for Sample # 91.05747

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05747

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05748

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-2W	91.05748	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-NE-2W	91.05748	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-NE-2W	91.05748	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-NE-2W	91.05748	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-NE-2W	91.05748	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-NE-2W	91.05748	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-NE-2W	91.05748	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NE-2W	91.05748	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NE-2W	91.05748	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NE-2W	91.05748	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NE-2W	91.05748	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NE-2W	91.05748	65850	< 10.		UG/L	8/12/91		Benzoic acid
AB-53-NE-2W	91.05748	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-NE-2W	91.05748	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NE-2W	91.05748	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NE-2W	91.05748	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NE-2W	91.05748	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-2W	91.05748	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NE-2W	91.05748	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NE-2W	91.05748	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NE-2W	91.05748	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-NE-2W	91.05748	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NE-2W	91.05748	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-NE-2W	91.05748	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NE-2W	91.05748	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-NE-2W	91.05748	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NE-2W	91.05748	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NE-2W	91.05748	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NE-2W	91.05748	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-NE-2W	91.05748	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NE-2W	91.05748	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NE-2W	91.05748	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NE-2W	91.05748	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NE-2W	91.05748	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NE-2W	91.05748	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-NE-2W	91.05748	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NE-2W	91.05748	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NE-2W	91.05748	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NE-2W	91.05748	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NE-2W	91.05748	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NE-2W	91.05748	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-NE-2W	91.05748	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-NE-2W	91.05748	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NE-2W	91.05748	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NE-2W	91.05748	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NE-2W	91.05748	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-NE-2W	91.05748	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-2W	91.05748	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-NE-2W	91.05748	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-2W	91.05748	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NE-2W	91.05748	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-NE-2W	91.05748	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-NE-2W	91.05748	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-NE-2W	91.05748	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-NE-2W	91.05748	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-NE-2W	91.05748	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-NE-2W	91.05748	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-NE-2W	91.05748	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-NE-2W	91.05748	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-NE-2W	91.05748	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NE-2W	91.05748	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NE-2W	91.05748	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NE-2W	91.05748	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-NE-2W	91.05748	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-NE-2W	91.05748	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-NE-2W	91.05748	129000	< 10.	UG/L	8/12/91	Pyrene

AB 53 NE-2W	91.05748	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB 53 NE-2W	91.05748	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB 53 NE-2W	91.05748	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05748

none

Customer Sample Duplicate Results for Sample # 91.05748

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05748

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05749

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-3W	91.05749	83329	< 24.		UG/L	8/12/91		Acenaphthene
AB-53-NE-3W	91.05749	208968	< 24.		UG/L	8/12/91		Acenaphthylene
AB-53-NE-3W	91.05749	62533	< 24.		UG/L	8/12/91		Aniline
AB-53-NE-3W	91.05749	120127	< 24.		UG/L	8/12/91		Anthracene
AB-53-NE-3W	91.05749	103333	< 24.		UG/L	8/12/91		Azobenzene
AB-53-NE-3W	91.05749	92875	< 24.		UG/L	8/12/91		m-Benzidine
AB-53-NE-3W	91.05749	56553	< 24.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NE-3W	91.05749	50328	< 24.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NE-3W	91.05749	205992	< 24.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NE-3W	91.05749	191242	< 24.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NE-3W	91.05749	207089	< 24.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NE-3W	91.05749	65850	< 24.		UG/L	8/12/91		Benzoic acid
AB-53-NE-3W	91.05749	100516	< 24.		UG/L	8/12/91		Benzyl alcohol
AB-53-NE-3W	91.05749	111911	< 24.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NE-3W	91.05749	111444	< 24.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NE-3W	91.05749	108601	< 24.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NE-3W	91.05749	117817	< 24.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-3W	91.05749	101553	< 24.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NE-3W	91.05749	85687	< 24.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NE-3W	91.05749	59507	< 24.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NE-3W	91.05749	106478	< 24.		UG/L	8/12/91		4-Chloroaniline

AB-53-NE-3W	91.05749	91587	< 24.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NE-3W	91.05749	95578	< 24.	UG/L	8/12/91	o-Chlorophenol
AB-53-NE-3W	91.05749	7005723	< 24.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NE-3W	91.05749	218019	< 24.	UG/L	8/12/91	Chrysene
AB-53-NE-3W	91.05749	84742	< 24.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NE-3W	91.05749	117840	< 24.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NE-3W	91.05749	53703	< 24.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NE-3W	91.05749	132649	< 24.	UG/L	8/12/91	Dibenzofuran
AB-53-NE-3W	91.05749	95501	< 24.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NE-3W	91.05749	541731	< 24.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NE-3W	91.05749	106467	< 24.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NE-3W	91.05749	91941	< 24.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NE-3W	91.05749	120832	< 24.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NE-3W	91.05749	84662	< 24.	UG/L	8/12/91	Diethyl phthalate
AB-53-NE-3W	91.05749	131113	< 24.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NE-3W	91.05749	105679	< 24.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NE-3W	91.05749	51285	< 24.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NE-3W	91.05749	121142	< 24.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NE-3W	91.05749	606202	< 24.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NE-3W	91.05749	206440	< 24.	UG/L	8/12/91	Fluoranthene
AB-53-NE-3W	91.05749	86737	< 24.	UG/L	8/12/91	Fluorene
AB-53-NE-3W	91.05749	118741	< 24.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NE-3W	91.05749	87683	< 24.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NE-3W	91.05749	77474	< 24.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NE-3W	91.05749	67721	< 24.	UG/L	8/12/91	Hexachloroethane
AB-53-NE-3W	91.05749	193395	< 24.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-3W	91.05749	78591	< 24.	UG/L	8/12/91	Isophorone
AB-53-NE-3W	91.05749	534521	< 24.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-3W	91.05749	91576	< 24.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NE-3W	91.05749	95487	< 24.	UG/L	8/12/91	2-Methylphenol
AB-53-NE-3W	91.05749	106445	< 24.	UG/L	8/12/91	4-Methylphenol
AB-53-NE-3W	91.05749	91203	< 24.	UG/L	8/12/91	Naphthalene
AB-53-NE-3W	91.05749	88744	< 24.	UG/L	8/12/91	2-Nitroaniline
AB-53-NE-3W	91.05749	99092	< 24.	UG/L	8/12/91	3-Nitroaniline
AB-53-NE-3W	91.05749	100016	< 24.	UG/L	8/12/91	4-Nitroaniline
AB-53-NE-3W	91.05749	98953	< 24.	UG/L	8/12/91	Nitrobenzene
AB-53-NE-3W	91.05749	88755	< 24.	UG/L	8/12/91	2-Nitrophenol
AB-53-NE-3W	91.05749	100027	< 24.	UG/L	8/12/91	4-Nitrophenol
AB-53-NE-3W	91.05749	621647	< 24.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NE-3W	91.05749	62759	< 24.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NE-3W	91.05749	86306	< 24.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NE-3W	91.05749	87865	< 24.	UG/L	8/12/91	Pentachlorophenol
AB-53-NE-3W	91.05749	85018	< 24.	UG/L	8/12/91	Phenanthrene
AB-53-NE-3W	91.05749	108952	< 24.	UG/L	8/12/91	Phenol
AB-53-NE-3W	91.05749	129000	< 24.	UG/L	8/12/91	Pyrene

AB-53-NE-3W	91.05749	120821	< 24.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-NE-3W	91.05749	95954	< 24.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-NE-3W	91.05749	88062	< 24.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05749

none

Customer Sample Duplicate Results for Sample # 91.05749

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05749

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05750

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-4WQ	91.05750	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-NE-4WQ	91.05750	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-NE-4WQ	91.05750	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-NE-4WQ	91.05750	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-NE-4WQ	91.05750	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-NE-4WQ	91.05750	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-NE-4WQ	91.05750	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-NE-4WQ	91.05750	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-NE-4WQ	91.05750	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-NE-4WQ	91.05750	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-NE-4WQ	91.05750	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-NE-4WQ	91.05750	65850	< 10.		UG/L	8/12/91		Benzoic acid
AB-53-NE-4WQ	91.05750	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-NE-4WQ	91.05750	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-NE-4WQ	91.05750	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-NE-4WQ	91.05750	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-NE-4WQ	91.05750	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-4WQ	91.05750	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-NE-4WQ	91.05750	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-NE-4WQ	91.05750	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-NE-4WQ	91.05750	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-NE-4WQ	91.05750	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-NE-4WQ	91.05750	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-NE-4WQ	91.05750	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-NE-4WQ	91.05750	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-NE-4WQ	91.05750	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-NE-4WQ	91.05750	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-NE-4WQ	91.05750	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-NE-4WQ	91.05750	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-NE-4WQ	91.05750	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-NE-4WQ	91.05750	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-NE-4WQ	91.05750	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-NE-4WQ	91.05750	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-NE-4WQ	91.05750	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-NE-4WQ	91.05750	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-NE-4WQ	91.05750	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-NE-4WQ	91.05750	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-NE-4WQ	91.05750	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-NE-4WQ	91.05750	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-NE-4WQ	91.05750	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-NE-4WQ	91.05750	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-NE-4WQ	91.05750	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-NE-4WQ	91.05750	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-NE-4WQ	91.05750	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-NE-4WQ	91.05750	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-NE-4WQ	91.05750	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-NE-4WQ	91.05750	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-4WQ	91.05750	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-NE-4WQ	91.05750	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-4WQ	91.05750	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-NE-4WQ	91.05750	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-NE-4WQ	91.05750	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-NE-4WQ	91.05750	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-NE-4WQ	91.05750	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-NE-4WQ	91.05750	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-NE-4WQ	91.05750	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-NE-4WQ	91.05750	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-NE-4WQ	91.05750	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-NE-4WQ	91.05750	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-NE-4WQ	91.05750	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-NE-4WQ	91.05750	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-NE-4WQ	91.05750	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-NE-4WQ	91.05750	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-NE-4WQ	91.05750	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-NE-4WQ	91.05750	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-NE-4WQ	91.05750	129000	< 10.	UG/L	8/12/91	Pyrene

AB-53-NE-4WQ 91.05750	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-NE-4WQ 91.05750	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-NE-4WQ 91.05750	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05750

none

Customer Sample Duplicate Results for Sample # 91.05750

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05750

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05754

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-1W	91.05754	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-SO-1W	91.05754	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-SO-1W	91.05754	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-SO-1W	91.05754	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-SO-1W	91.05754	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-SO-1W	91.05754	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-SO-1W	91.05754	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-SO-1W	91.05754	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-SO-1W	91.05754	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-SO-1W	91.05754	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-SO-1W	91.05754	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-SO-1W	91.05754	65850	< 10.		UG/L	8/12/91		Benzoic acid
AB-53-SO-1W	91.05754	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-SO-1W	91.05754	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-SO-1W	91.05754	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-SO-1W	91.05754	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-SO-1W	91.05754	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-1W	91.05754	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-SO-1W	91.05754	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-SO-1W	91.05754	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-SO-1W	91.05754	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-SO-1W	91.05754	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-SO-1W	91.05754	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-SO-1W	91.05754	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-SO-1W	91.05754	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-SO-1W	91.05754	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-SO-1W	91.05754	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-SO-1W	91.05754	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-SO-1W	91.05754	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-SO-1W	91.05754	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-SO-1W	91.05754	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-SO-1W	91.05754	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-SO-1W	91.05754	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-SO-1W	91.05754	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-SO-1W	91.05754	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-SO-1W	91.05754	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-SO-1W	91.05754	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-SO-1W	91.05754	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-SO-1W	91.05754	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-SO-1W	91.05754	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-SO-1W	91.05754	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-SO-1W	91.05754	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-SO-1W	91.05754	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-SO-1W	91.05754	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-SO-1W	91.05754	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-SO-1W	91.05754	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-SO-1W	91.05754	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-1W	91.05754	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-SO-1W	91.05754	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-1W	91.05754	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-SO-1W	91.05754	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-SO-1W	91.05754	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-SO-1W	91.05754	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-SO-1W	91.05754	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-SO-1W	91.05754	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-SO-1W	91.05754	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-SO-1W	91.05754	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-SO-1W	91.05754	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-SO-1W	91.05754	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-SO-1W	91.05754	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-SO-1W	91.05754	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-SO-1W	91.05754	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-SO-1W	91.05754	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-SO-1W	91.05754	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-SO-1W	91.05754	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-SO-1W	91.05754	129000	< 10.	UG/L	8/12/91	Pyrene

AB-53-SO-1W	91.05754	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-SO-1W	91.05754	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-SO-1W	91.05754	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05754

none

Customer Sample Duplicate Results for Sample # 91.05754

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05754

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WN54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05755

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-2W	91.05755	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-SO-2W	91.05755	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-SO-2W	91.05755	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-SO-2W	91.05755	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-SO-2W	91.05755	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-SO-2W	91.05755	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-SO-2W	91.05755	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-SO-2W	91.05755	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-SO-2W	91.05755	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-SO-2W	91.05755	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-SO-2W	91.05755	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-SO-2W	91.05755	65850	< 10.		UG/L	8/12/91		Benzoic acid
AB-53-SO-2W	91.05755	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-SO-2W	91.05755	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-SO-2W	91.05755	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-SO-2W	91.05755	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-SO-2W	91.05755	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-2W	91.05755	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-SO-2W	91.05755	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-SO-2W	91.05755	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-SO-2W	91.05755	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-SO-2W	91.05755	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-SO-2W	91.05755	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-SO-2W	91.05755	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-SO-2W	91.05755	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-SO-2W	91.05755	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-SO-2W	91.05755	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-SO-2W	91.05755	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-SO-2W	91.05755	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-SO-2W	91.05755	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-SO-2W	91.05755	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-SO-2W	91.05755	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-SO-2W	91.05755	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-SO-2W	91.05755	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-SO-2W	91.05755	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-SO-2W	91.05755	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-SO-2W	91.05755	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-SO-2W	91.05755	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-SO-2W	91.05755	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-SO-2W	91.05755	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-SO-2W	91.05755	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-SO-2W	91.05755	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-SO-2W	91.05755	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-SO-2W	91.05755	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-SO-2W	91.05755	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-SO-2W	91.05755	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-SO-2W	91.05755	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-2W	91.05755	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-SO-2W	91.05755	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-2W	91.05755	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-SO-2W	91.05755	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-SO-2W	91.05755	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-SO-2W	91.05755	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-SO-2W	91.05755	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-SO-2W	91.05755	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-SO-2W	91.05755	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-SO-2W	91.05755	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-SO-2W	91.05755	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-SO-2W	91.05755	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-SO-2W	91.05755	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-SO-2W	91.05755	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-SO-2W	91.05755	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-SO-2W	91.05755	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-SO-2W	91.05755	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-SO-2W	91.05755	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-SO-2W	91.05755	129000	< 10.	UG/L	8/12/91	Pyrene

AB-53-SO-2W	91.05755	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-SO-2W	91.05755	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-SO-2W	91.05755	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05755

none

Customer Sample Duplicate Results for Sample # 91.05755

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05755

none

REPORT NUMBER: 11225

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05756

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/10/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-3W	91.05756	83329	< 10.		UG/L	8/12/91		Acenaphthene
AB-53-SO-3W	91.05756	208968	< 10.		UG/L	8/12/91		Acenaphthylene
AB-53-SO-3W	91.05756	62533	< 10.		UG/L	8/12/91		Aniline
AB-53-SO-3W	91.05756	120127	< 10.		UG/L	8/12/91		Anthracene
AB-53-SO-3W	91.05756	103333	< 10.		UG/L	8/12/91		Azobenzene
AB-53-SO-3W	91.05756	92875	< 10.		UG/L	8/12/91		m-Benzidine
AB-53-SO-3W	91.05756	56553	< 10.		UG/L	8/12/91		Benzo[a]anthracene
AB-53-SO-3W	91.05756	50328	< 10.		UG/L	8/12/91		Benzo[a]pyrene
AB-53-SO-3W	91.05756	205992	< 10.		UG/L	8/12/91		Benzo[b]fluoranthene
AB-53-SO-3W	91.05756	191242	< 10.		UG/L	8/12/91		Benzo[g,h,i]perylene
AB-53-SO-3W	91.05756	207089	< 10.		UG/L	8/12/91		Benzo[k]fluoranthene
AB-53-SO-3W	91.05756	65850	< 10.		UG/L	8/12/91		Benzoic acid
AB-53-SO-3W	91.05756	100516	< 10.		UG/L	8/12/91		Benzyl alcohol
AB-53-SO-3W	91.05756	111911	< 10.		UG/L	8/12/91		Bis(2-chloroethoxy)methane
AB-53-SO-3W	91.05756	111444	< 10.		UG/L	8/12/91		Bis(2-chloroethyl)ether
AB-53-SO-3W	91.05756	108601	< 10.		UG/L	8/12/91		Bis(2-chloroisopropyl)ether
AB-53-SO-3W	91.05756	117817	< 10.		UG/L	8/12/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-3W	91.05756	101553	< 10.		UG/L	8/12/91		4-Bromophenylphenyl ether
AB-53-SO-3W	91.05756	85687	< 10.		UG/L	8/12/91		Butylbenzyl phthalate
AB-53-SO-3W	91.05756	59507	< 10.		UG/L	8/12/91		4-Chloro-3-methylphenol
AB-53-SO-3W	91.05756	106478	< 10.		UG/L	8/12/91		4-Chloroaniline

AB-53-SO-3W	91.05756	91587	< 10.	UG/L	8/12/91	2-Chloronaphthalene
AB-53-SO-3W	91.05756	95578	< 10.	UG/L	8/12/91	o-Chlorophenol
AB-53-SO-3W	91.05756	7005723	< 10.	UG/L	8/12/91	4-Chlorophenylphenyl ether
AB-53-SO-3W	91.05756	218019	< 10.	UG/L	8/12/91	Chrysene
AB-53-SO-3W	91.05756	84742	< 10.	UG/L	8/12/91	Di-n-butyl phthalate
AB-53-SO-3W	91.05756	117840	< 10.	UG/L	8/12/91	Di-n-octyl phthalate
AB-53-SO-3W	91.05756	53703	< 10.	UG/L	8/12/91	Dibenzo[a,h]anthracene
AB-53-SO-3W	91.05756	132649	< 10.	UG/L	8/12/91	Dibenzofuran
AB-53-SO-3W	91.05756	95501	< 10.	UG/L	8/12/91	o-Dichlorobenzene (1,2)
AB-53-SO-3W	91.05756	541731	< 10.	UG/L	8/12/91	m-Dichlorobenzene (1,3)
AB-53-SO-3W	91.05756	106467	< 10.	UG/L	8/12/91	p-Dichlorobenzene (1,4)
AB-53-SO-3W	91.05756	91941	< 10.	UG/L	8/12/91	3,3'-Dichlorobenzidine
AB-53-SO-3W	91.05756	120832	< 10.	UG/L	8/12/91	2,4-Dichlorophenol
AB-53-SO-3W	91.05756	84662	< 10.	UG/L	8/12/91	Diethyl phthalate
AB-53-SO-3W	91.05756	131113	< 10.	UG/L	8/12/91	Dimethyl phthalate
AB-53-SO-3W	91.05756	105679	< 10.	UG/L	8/12/91	2,4-Dimethylphenol
AB-53-SO-3W	91.05756	51285	< 10.	UG/L	8/12/91	2,4-Dinitrophenol
AB-53-SO-3W	91.05756	121142	< 10.	UG/L	8/12/91	2,4-Dinitrotoluene
AB-53-SO-3W	91.05756	606202	< 10.	UG/L	8/12/91	2,6-Dinitrotoluene
AB-53-SO-3W	91.05756	206440	< 10.	UG/L	8/12/91	Fluoranthene
AB-53-SO-3W	91.05756	86737	< 10.	UG/L	8/12/91	Fluorene
AB-53-SO-3W	91.05756	118741	< 10.	UG/L	8/12/91	Hexachlorobenzene
AB-53-SO-3W	91.05756	87683	< 10.	UG/L	8/12/91	Hexachlorobutadiene
AB-53-SO-3W	91.05756	77474	< 10.	UG/L	8/12/91	Hexachlorocyclopentadiene
AB-53-SO-3W	91.05756	67721	< 10.	UG/L	8/12/91	Hexachloroethane
AB-53-SO-3W	91.05756	193395	< 10.	UG/L	8/12/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-3W	91.05756	78591	< 10.	UG/L	8/12/91	Isophorone
AB-53-SO-3W	91.05756	534521	< 10.	UG/L	8/12/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-3W	91.05756	91576	< 10.	UG/L	8/12/91	2-Methylnaphthalene
AB-53-SO-3W	91.05756	95487	< 10.	UG/L	8/12/91	2-Methylphenol
AB-53-SO-3W	91.05756	106445	< 10.	UG/L	8/12/91	4-Methylphenol
AB-53-SO-3W	91.05756	91203	< 10.	UG/L	8/12/91	Naphthalene
AB-53-SO-3W	91.05756	88744	< 10.	UG/L	8/12/91	2-Nitroaniline
AB-53-SO-3W	91.05756	99092	< 10.	UG/L	8/12/91	3-Nitroaniline
AB-53-SO-3W	91.05756	100016	< 10.	UG/L	8/12/91	4-Nitroaniline
AB-53-SO-3W	91.05756	98953	< 10.	UG/L	8/12/91	Nitrobenzene
AB-53-SO-3W	91.05756	88755	< 10.	UG/L	8/12/91	2-Nitrophenol
AB-53-SO-3W	91.05756	100027	< 10.	UG/L	8/12/91	4-Nitrophenol
AB-53-SO-3W	91.05756	621647	< 10.	UG/L	8/12/91	N-Nitrosodi-n-propylamine
AB-53-SO-3W	91.05756	62759	< 10.	UG/L	8/12/91	N-Nitrosodimethylamine
AB-53-SO-3W	91.05756	86306	< 10.	UG/L	8/12/91	N-Nitrosodiphenylamine
AB-53-SO-3W	91.05756	87865	< 10.	UG/L	8/12/91	Pentachlorophenol
AB-53-SO-3W	91.05756	85018	< 10.	UG/L	8/12/91	Phenanthrene
AB-53-SO-3W	91.05756	108952	< 10.	UG/L	8/12/91	Phenol
AB-53-SO-3W	91.05756	129000	< 10.	UG/L	8/12/91	Pyrene

AB-53-SO-3W	91.05756	120821	< 10.	UG/L	8/12/91	1,2,4-Trichlorobenzene
AB-53-SO-3W	91.05756	95954	< 10.	UG/L	8/12/91	2,4,5-Trichlorophenol
AB-53-SO-3W	91.05756	88062	< 10.	UG/L	8/12/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05756

none

Customer Sample Duplicate Results for Sample # 91.05756

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05756

none

****

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: LAT on 12-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: WW ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20226	91.05769	83329	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthene
00.20226	91.05769	208968	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthylene
00.20226	91.05769	62533	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Aniline
00.20226	91.05769	120127	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Anthracene
00.20226	91.05769	103333	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Azobenzene
00.20226	91.05769	92875	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Benzidine
00.20226	91.05769	56553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[a]anthracene
00.20226	91.05769	50328	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[a]pyrene
00.20226	91.05769	205992	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[b]fluoranthene
00.20226	91.05769	191242	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[g,h,i]perylene
00.20226	91.05769	207089	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[k]fluoranthene
00.20226	91.05769	65850	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzoic acid
00.20226	91.05769	100516	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzyl alcohol
00.20226	91.05769	111911	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20226	91.05769	111444	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20226	91.05769	108601	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20226	91.05769	117817	22.	6.6	UG/L	0.0		8/12/91	OUT OF CONTROL	Bis(2-ethylhexyl)phthalate
00.20226	91.05769	101553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Bromophenylphenyl ether
00.20226	91.05769	85687	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Butylbenzyl phthalate
00.20226	91.05769	59507	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chloro-3-methylphenol
00.20226	91.05769	106478	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chloroaniline
00.20226	91.05769	91587	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Chloronaphthalene
00.20226	91.05769	95578	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Chlorophenol
00.20226	91.05769	7005723	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20226	91.05769	218019	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Chrysene
00.20226	91.05769	84742	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Di-n-butyl phthalate
00.20226	91.05769	117840	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Di-n-octyl phthalate
00.20226	91.05769	53703	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20226	91.05769	132649	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzofuran
00.20226	91.05769	95501	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.05769	541731	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.05769	106467	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.05769	91941	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	3,3'-Dichlorobenzidine

00.20226	91.05769	120832	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4-Dichlorophenol
00.20226	91.05769	84662	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Diethyl phthalate
00.20226	91.05769	131113	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Dimethyl phthalate
00.20226	91.05769	105679	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4-Dimethylphenol
00.20226	91.05769	51285	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4-Dinitrophenol
00.20226	91.05769	121142	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4-Dinitrotoluene
00.20226	91.05769	606202	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,6-Dinitrotoluene
00.20226	91.05769	206440	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Fluoranthene
00.20226	91.05769	86737	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Fluorene
00.20226	91.05769	118741	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Hexachlorobenzene
00.20226	91.05769	87683	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Hexachlorobutadiene
00.20226	91.05769	77474	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Hexachlorocyclopentadiene
00.20226	91.05769	67721	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Hexachloroethane
00.20226	91.05769	193395	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20226	91.05769	78591	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Isophorone
00.20226	91.05769	534521	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20226	91.05769	91576	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2-Methylnaphthalene
00.20226	91.05769	95487	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2-Methylphenol
00.20226	91.05769	106445	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	4-Methylphenol
00.20226	91.05769	91203	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Naphthalene
00.20226	91.05769	88744	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2-Nitroaniline
00.20226	91.05769	99092	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	3-Nitroaniline
00.20226	91.05769	100016	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	4-Nitroaniline
00.20226	91.05769	98953	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Nitrobenzene
00.20226	91.05769	88755	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2-Nitrophenol
00.20226	91.05769	100027	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	4-Nitrophenol
00.20226	91.05769	621647	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20226	91.05769	62759	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	N-Nitrosodimethylamine
00.20226	91.05769	86306	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	N-Nitrosodiphenylamine
00.20226	91.05769	87865	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Pentachlorophenol
00.20226	91.05769	85018	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Phenanthrene
00.20226	91.05769	108952	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Phenol
00.20226	91.05769	129000	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	Pyrene
00.20226	91.05769	120821	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20226	91.05769	95954	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4,5-Trichlorophenol
00.20226	91.05769	88062	< 10.	UG/L	0.0	8/12/91	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.05768

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/04/91 Date Analyzed: 7/20/91

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.05768	83329	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthene
91.05768	208968	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthylene
91.05768	62533	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Aniline
91.05768	120127	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Anthracene
91.05768	103333	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Azobenzene
91.05768	92875	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Benzidine
91.05768	56553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[a]anthracene
91.05768	50328	84.	25.2	UG/L	140.4	14.	8/12/91	UNDER CONTROL	Benzo[a]pyrene
91.05768	205992	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[b]fluoranthene
91.05768	191242	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[g,h,i]perylene
91.05768	207089	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[k]fluoranthene
91.05768	65850	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzoic acid
91.05768	100516	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzyl alcohol
91.05768	111911	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
91.05768	111444	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethyl)ether
91.05768	108601	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
91.05768	117817	< 10.		UG/L	117.6	12.	8/12/91	OUT OF CONTROL	Bis(2-ethylhexyl)phthalate
91.05768	101553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Bromophenylphenyl ether
91.05768	85687	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Butylbenzyl phthalate
91.05768	59507	140.	42.	UG/L	127.2	13.	8/12/91	UNDER CONTROL	4-Chloro-3-methylphenol
91.05768	106478	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chloroaniline
91.05768	91587	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Chloronaphthalene
91.05768	95578	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Chlorophenol
91.05768	7005723	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chlorophenylphenyl ether
91.05768	218019	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Chrysene
91.05768	84742	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Di-n-butyl phthalate
91.05768	117840	110.	33.	UG/L	0.0		8/12/91	OUT OF CONTROL	Di-n-octyl phthalate
91.05768	53703	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzo[a,h]anthracene
91.05768	132649	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzofuran
91.05768	95501	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.05768	541731	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.05768	106467	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.05768	91941	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	3,3'-Dichlorobenzidine

91.05768	120832	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dichlorophenol
91.05768	84662	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Diethyl phthalate
91.05768	131113	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dimethyl phthalate
91.05768	105679	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dimethylphenol
91.05768	51285	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dinitrophenol
91.05768	121142	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dinitrotoluene
91.05768	606202	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,6-Dinitrotoluene
91.05768	206440	130.	39.	UG/L	134.4	13.	8/12/91	UNDER CONTROL	Fluoranthene
91.05768	86737	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Fluorene
91.05768	118741	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorobenzene
91.05768	87683	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorobutadiene
91.05768	77474	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorocyclopentadiene
91.05768	67721	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachloroethane
91.05768	193395	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
91.05768	78591	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Isophorone
91.05768	534521	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
91.05768	91576	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methylnaphthalene
91.05768	95487	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methylphenol
91.05768	106445	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Methylphenol
91.05768	91203	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Naphthalene
91.05768	88744	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Nitroaniline
91.05768	99092	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	3-Nitroaniline
91.05768	100016	140.	42.	UG/L	152.4	15.	8/12/91	UNDER CONTROL	4-Nitroaniline
91.05768	98953	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Nitrobenzene
91.05768	88755	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Nitrophenol
91.05768	100027	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Nitrophenol
91.05768	621647	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
91.05768	62759	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodimethylamine
91.05768	86306	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodiphenylamine
91.05768	87865	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Pentachlorophenol
91.05768	85018	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Phenanthrene
91.05768	108952	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Phenol
91.05768	129000	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Pyrene
91.05768	120821	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	1,2,4-Trichlorobenzene
91.05768	95954	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4,5-Trichlorophenol
91.05768	88062	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4,6-Trichlorophenol

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
91.05740	%	65.03	79.07	88.4	79.58	111.25	21.5	12-Aug-1991
91.05740	%	65.4	82.7	89.	75.12	117.54	23.58	12-Aug-1991
91.05740	%	39.74	45.83	54.58	40.12	52.65	8.26	12-Aug-1991
91.05741	%	33.09	33.07	47.98	48.24	34.22	8.26	12-Aug-1991
91.05742	%	33.53	39.3	47.38	47.68	45.11	6.98	12-Aug-1991
91.05747	%	25.53	36.3	39.72	36.12	44.82	11.56	12-Aug-1991
91.05748	%	25.9	33.34	38.56	38.14	46.78	36.66	12-Aug-1991
91.05749	%	32.24	39.91	45.72	52.44	41.73	19.2	12-Aug-1991
91.05750	%	39.38	48.82	44.12	49.54	58.03	11.76	12-Aug-1991
91.05754	%	41.08	49.85	52.5	47.9	62.45	11.06	12-Aug-1991
91.05755	%	24.54	31.16	29.18	28.36	37.39	11.26	12-Aug-1991
91.05756	%	30.61	36.53	39.62	47.52	47.94	8.2	12-Aug-1991
91.05768	%	99.38	77.16	124.88	110.18	122.3	126.46	12-Aug-1991
91.05769	%	48.87	48.63	58.88	58.16	58.14	51.86	12-Aug-1991
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 11225

Analyst	Reviewer	Section Leader	QA Officer
8.12.91	8/12/91	8/15/91	
Date	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman CB for CL 8/23/91
From: Matthew Monagle

Request Number: 11728
Matrix: Waters
Summary Date: 08 August 1991

Sample ID	Target Compounds Found	Amount (ug/L)	Level of Quantitation (ug/L)	TIC's
Blank (16-Jul.-1991)	NONE		10	Yes
91.06429	NONE		10	Yes
91.06430	NONE		10	Yes
91.06431	NONE		10	Yes
91.06432	NONE		10	Yes

Summary:

Four water samples were received by Sandra Cisneros Flores (HSE-9) on 15 July 1991 at TA-50. The samples, along with a quality control blind and a method blank were extracted by continuous liquid-liquid extraction on 16 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 19 and 20 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

No target compounds were found above the reporting limit in these samples. No target compounds were found in the blank above the reporting limit.

Significant amounts of tentatively identified compounds were found in all the samples submitted. A complete listing of these compounds may be obtained by calling Luara Tsiagkouris at 7-5889.

All holding times for these samples <u>were</u> met.

c:\wp51\m2\qnt11673

8/13/91

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11728
Matrix: Waters
Summary Date: 08 August 1991

Surrogate and Matrix Spike Recoveries:

Surrogate recoveries for all the submitted samples were within the EPA guidelines. All of the samples had low terphenyl d-14 recoveries which is consistent with the previous analysis, 11673. It is my opinion that, due to consistent low recoveries of the terphenyl on these samples as well as the original request, this is actually a matrix effect and not due to the analytical process. The matrix spikes for this set of samples were batched from 11673.

Problems encountered:

All samples were received with a pH of 1-2 as per our pre-sampling agreement. Because of this, the acid fraction was extracted first. No other problems were encountered with these samples.

MM

c:\wp51\m2\qnt11728

MM 8/16/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WEIGHT (G or L)		AMOUNT SPIKED (RD OF 100 ug/g DL IN UG/G or UG/L) ACIDS	BASES	LOD (UG/G)
REQUEST #:	11733					
NUMBER OF SAMPLES:	6					
SPIKE ID: (STARTS M OR E)	M91.05740	SPIKE	0.95	114	57	11
SPIKE DUP ID: (STARTS D OR F)	D91.05740	SPIKE-DUP	1.05	109	54	10
RAW DATA WITH:	11673					
ANALYST:	MM					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	85	89	75%	78%	3%	12	89	43
2-CHLOROPHENOL	91	88	80%	81%	1%	27	123	40
1,4-DICHLOROBENZENE	45	48	81%	77%	5%	36	97	28
N-NITROSO-DI-N-PROPYLAMINE	46	43	81%	74%	10%	41	116	38
1,2,4-TRICHLOROBENZENE	45	45	79%	83%	4%	39	98	28
4-CHLORO-3-METHYLPHENOL	120	93	115%*	90%	16%	33	97	43
ACENAPHTHENE	41	36	73%	66%	9%	46	118	31
4-NITROPHENOL	130	110	114%*	101%*	13%	10	80	50
2,4-DINITROTOLUENE	69	59	121%*	105%*	11%	24	96	28
PENTACHLOROPHENOL	110	120	97%	110%*	13%	9	102	50
PYRENE	33	26	41%	48%	17%	26	127	31

"*" If % Matrix Recovery is Followed by a "*", it is out of QC limits.

Reviewed By: LM 8/23/91 BOB 8/23/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY, AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN WATER

PROJECT #: [illegible]

NUMBER OF SAMPLES: [illegible]
MATRIX: [illegible]
ANALYST: [illegible]
Date: [illegible]

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL D5	NITRO-BENZENE D5	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL D14
1	[illegible]	[illegible]	[illegible]	[illegible] *	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
4	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
5	[illegible]	SAMPLE	[illegible]	[illegible] *	[illegible]	[illegible]	[illegible]	[illegible] *
6	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
7	[illegible]	SAMPLE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
8 X	[illegible]	SAMPLE	[illegible] *	[illegible]	[illegible] *	[illegible] *	[illegible]	[illegible] *
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

SB 8/23/91

Average % Surrogate Recovery...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Lower QC Limits (%)...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Upper QC Limits (%)...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Under QC Lower QC Limits (%)...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Over QC Upper QC Limits (%)...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* If a Surrogate Recovery is followed by a (*), it is out of QC limits.

Reviewed By:

8/23/91

REPORT NUMBER: 11232

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME

Tentatively Identified Compounds in Customer Sample # 91.05740

none

Customer Sample Duplicate Results for Sample # 91.05740

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05740

none

Matrix Spike Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	56.82	41.	UG/L	8/13/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	113.64	120.	UG/L	8/13/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	113.64	91.	UG/L	8/13/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	56.82	46.	UG/L	8/13/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	56.82	69.	UG/L	8/13/91		2,4-Dinitrotoluene

AB-53-NW-1W	91.05740	100027	113.64	130.	UG/L	8/13/91		4-Nitrophenol
AB-53-NW-1W	91.05740	621647	56.82	46.	UG/L	8/13/91		N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	113.64	110.	UG/L	8/13/91		Pentachlorophenol
AB-53-NW-1W	91.05740	108952	113.64	85.	UG/L	8/13/91		Phenol
AB-53-NW-1W	91.05740	129000	56.82	23.	UG/L	8/13/91		Pyrene
AB-53-NW-1W	91.05740	120821	56.82	45.	UG/L	8/13/91		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	54.35	36.	UG/L	8/13/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	108.7	98.	UG/L	8/13/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	108.7	88.	UG/L	8/13/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	54.35	42.	UG/L	8/13/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	54.35	59.	UG/L	8/13/91		2,4-Dinitrotoluene
AB-53-NW-1W	91.05740	100027	108.7	110.	UG/L	8/13/91		4-Nitrophenol
AB-53-NW-1W	91.05740	621647	54.35	40.	UG/L	8/13/91		N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	108.7	120.	UG/L	8/13/91		Pentachlorophenol
AB-53-NW-1W	91.05740	108952	108.7	89.	UG/L	8/13/91		Phenol
AB-53-NW-1W	91.05740	129000	54.35	26.	UG/L	8/13/91		Pyrene
AB-53-NW-1W	91.05740	120821	54.35	45.	UG/L	8/13/91		1,2,4-Trichlorobenzene

REPORT NUMBER: 11232

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WN54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.06429

Date Collected: 7/15/91 Date Received: 7/15/91 Date Extracted: 7/16/91 Date Analyzed: 7/19/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
NW #1	91.06429	83329	< 10.		UG/L	8/13/91		Acenaphthene
NW #1	91.06429	208968	< 10.		UG/L	8/13/91		Acenaphthylene
NW #1	91.06429	62533	< 10.		UG/L	8/13/91		Aniline
NW #1	91.06429	120127	< 10.		UG/L	8/13/91		Anthracene
NW #1	91.06429	103333	< 10.		UG/L	8/13/91		Azobenzene
NW #1	91.06429	92875	< 10.		UG/L	8/13/91		m-Benzidine
NW #1	91.06429	56553	< 10.		UG/L	8/13/91		Benzo[a]anthracene
NW #1	91.06429	50328	< 10.		UG/L	8/13/91		Benzo[a]pyrene
NW #1	91.06429	205992	< 10.		UG/L	8/13/91		Benzo[b]fluoranthene
NW #1	91.06429	191242	< 10.		UG/L	8/13/91		Benzo[g,h,i]perylene
NW #1	91.06429	207089	< 10.		UG/L	8/13/91		Benzo[k]fluoranthene
NW #1	91.06429	65850	< 10.		UG/L	8/13/91		Benzoic acid
NW #1	91.06429	100516	< 10.		UG/L	8/13/91		Benzyl alcohol
NW #1	91.06429	111911	< 10.		UG/L	8/13/91		Bis(2-chloroethoxy)methane
NW #1	91.06429	111444	< 10.		UG/L	8/13/91		Bis(2-chloroethyl)ether
NW #1	91.06429	108601	< 10.		UG/L	8/13/91		Bis(2-chloroisopropyl)ether
NW #1	91.06429	117817	< 10.		UG/L	8/13/91		Bis(2-ethylhexyl)phthalate
NW #1	91.06429	101553	< 10.		UG/L	8/13/91		4-Bromophenylphenyl ether
NW #1	91.06429	85687	< 10.		UG/L	8/13/91		Butylbenzyl phthalate
NW #1	91.06429	59507	< 10.		UG/L	8/13/91		4-Chloro-3-methylphenol
NW #1	91.06429	106478	< 10.		UG/L	8/13/91		4-Chloroaniline

NW #1	91.06429	91587	< 10.	UG/L	8/13/91	2-Chloronaphthalene
NW #1	91.06429	95578	< 10.	UG/L	8/13/91	o-Chlorophenol
NW #1	91.06429	7005723	< 10.	UG/L	8/13/91	4-Chlorophenylphenyl ether
NW #1	91.06429	218019	< 10.	UG/L	8/13/91	Chrysene
NW #1	91.06429	84742	< 10.	UG/L	8/13/91	Di-n-butyl phthalate
NW #1	91.06429	117840	< 10.	UG/L	8/13/91	Di-n-octyl phthalate
NW #1	91.06429	53703	< 10.	UG/L	8/13/91	Dibenzo[a,h]anthracene
NW #1	91.06429	132649	< 10.	UG/L	8/13/91	Dibenzofuran
NW #1	91.06429	95501	< 10.	UG/L	8/13/91	o-Dichlorobenzene (1,2)
NW #1	91.06429	541731	< 10.	UG/L	8/13/91	m-Dichlorobenzene (1,3)
NW #1	91.06429	106467	< 10.	UG/L	8/13/91	p-Dichlorobenzene (1,4)
NW #1	91.06429	91941	< 10.	UG/L	8/13/91	3,3'-Dichlorobenzidine
NW #1	91.06429	120832	< 10.	UG/L	8/13/91	2,4-Dichlorophenol
NW #1	91.06429	84662	< 10.	UG/L	8/13/91	Diethyl phthalate
NW #1	91.06429	131113	< 10.	UG/L	8/13/91	Dimethyl phthalate
NW #1	91.06429	105679	< 10.	UG/L	8/13/91	2,4-Dimethylphenol
NW #1	91.06429	51285	< 10.	UG/L	8/13/91	2,4-Dinitrophenol
NW #1	91.06429	121142	< 10.	UG/L	8/13/91	2,4-Dinitrotoluene
NW #1	91.06429	606202	< 10.	UG/L	8/13/91	2,6-Dinitrotoluene
NW #1	91.06429	206440	< 10.	UG/L	8/13/91	Fluoranthene
NW #1	91.06429	86737	< 10.	UG/L	8/13/91	Fluorene
NW #1	91.06429	118741	< 10.	UG/L	8/13/91	Hexachlorobenzene
NW #1	91.06429	87683	< 10.	UG/L	8/13/91	Hexachlorobutadiene
NW #1	91.06429	77474	< 10.	UG/L	8/13/91	Hexachlorocyclopentadiene
NW #1	91.06429	67721	< 10.	UG/L	8/13/91	Hexachloroethane
NW #1	91.06429	193395	< 10.	UG/L	8/13/91	Indeno[1,2,3-cd]pyrene
NW #1	91.06429	78591	< 10.	UG/L	8/13/91	Isophorone
NW #1	91.06429	534521	< 10.	UG/L	8/13/91	2-Methyl-4,6-dinitrophenol
NW #1	91.06429	91576	< 10.	UG/L	8/13/91	2-Methylnaphthalene
NW #1	91.06429	95487	< 10.	UG/L	8/13/91	2-Methylphenol
NW #1	91.06429	106445	< 10.	UG/L	8/13/91	4-Methylphenol
NW #1	91.06429	91203	< 10.	UG/L	8/13/91	Naphthalene
NW #1	91.06429	88744	< 10.	UG/L	8/13/91	2-Nitroaniline
NW #1	91.06429	99092	< 10.	UG/L	8/13/91	3-Nitroaniline
NW #1	91.06429	100016	< 10.	UG/L	8/13/91	4-Nitroaniline
NW #1	91.06429	98953	< 10.	UG/L	8/13/91	Nitrobenzene
NW #1	91.06429	88755	< 10.	UG/L	8/13/91	2-Nitrophenol
NW #1	91.06429	100027	< 10.	UG/L	8/13/91	4-Nitrophenol
NW #1	91.06429	621647	< 10.	UG/L	8/13/91	N-Nitrosodi-n-propylamine
NW #1	91.06429	62759	< 10.	UG/L	8/13/91	N-Nitrosodimethylamine
NW #1	91.06429	86306	< 10.	UG/L	8/13/91	N-Nitrosodiphenylamine
NW #1	91.06429	87865	< 10.	UG/L	8/13/91	Pentachlorophenol
NW #1	91.06429	85018	< 10.	UG/L	8/13/91	Phenanthrene
NW #1	91.06429	108952	< 10.	UG/L	8/13/91	Phenol
NW #1	91.06429	129000	< 10.	UG/L	8/13/91	Pyrene

NW #1	91.06429	120821	< 10.	UG/L	8/13/91	1,2,4-Trichlorobenzene
NW #1	91.06429	95954	< 10.	UG/L	8/13/91	2,4,5-Trichlorophenol
NW #1	91.06429	88062	< 10.	UG/L	8/13/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06429

none

Customer Sample Duplicate Results for Sample # 91.06429

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06429

none

AB-5[illegible]	3S	91.05753	95498	< 5.	UG/KG	7/09/91	o-Chlorotoluene
AB-5[illegible]	3S	91.05753	106434	< 5.	UG/KG	7/09/91	p-Chlorotoluene
AB-53-NE-3S		91.05753	96128	< 10.	UG/KG	7/09/91	1,2-Dibromo-3-chloropropane
AB-53-NE-3S		91.05753	106934	< 5.	UG/KG	7/09/91	1,2-Dibromoethane
AB-53-NE-3S		91.05753	74953	< 5.	UG/KG	7/09/91	Dibromomethane
AB-53-NE-3S		91.05753	95501	< 5.	UG/KG	7/09/91	o-Dichlorobenzene (1,2)
AB-53-NE-3S		91.05753	541731	< 5.	UG/KG	7/09/91	m-Dichlorobenzene (1,3)
AB-53-NE-3S		91.05753	106467	< 5.	UG/KG	7/09/91	p-Dichlorobenzene (1,4)
AB-53-NE-3S		91.05753	75718	< 10.	UG/KG	7/09/91	Dichlorodifluoromethane
AB-53-NE-3S		91.05753	75343	< 5.	UG/KG	7/09/91	1,1-Dichloroethane
AB-53-NE-3S		91.05753	107062	< 5.	UG/KG	7/09/91	1,2-Dichloroethane
AB-53-NE-3S		91.05753	75354	< 5.	UG/KG	7/09/91	1,1-Dichloroethene
AB-53-NE-3S		91.05753	156605	< 5.	UG/KG	7/09/91	trans-1,2-Dichloroethene
AB-53-NE-3S		91.05753	156592	< 5.	UG/KG	7/09/91	cis-1,2-Dichloroethylene
AB-53-NE-3S		91.05753	78875	< 5.	UG/KG	7/09/91	1,2-Dichloropropane
AB-53-NE-3S		91.05753	142289	< 5.	UG/KG	7/09/91	1,3-Dichloropropane
AB-53-NE-3S		91.05753	594207	< 5.	UG/KG	7/09/91	2,2-Dichloropropane
AB-53-NE-3S		91.05753	563586	< 5.	UG/KG	7/09/91	1,1-Dichloropropene
AB-53-NE-3S		91.05753	10061015	< 5.	UG/KG	7/09/91	cis-1,3-Dichloropropene
AB-53-NE-3S		91.05753	10061026	< 5.	UG/KG	7/09/91	trans-1,3-Dichloropropene
AB-53-NE-3S		91.05753	100414	< 5.	UG/KG	7/09/91	Ethylbenzene
AB-53-NE-3S		91.05753	591786	< 20.	UG/KG	7/09/91	2-Hexanone
AB-53-NE-3S		91.05753	98828	< 5.	UG/KG	7/09/91	Isopropylbenzene
AB-53-NE-3S		91.05753	99876	< 5.	UG/KG	7/09/91	4-Isopropyltoluene
AB-53-NE-3S		91.05753	74884	< 5.	UG/KG	7/09/91	Methyl iodide
AB-53-NE-3S		91.05753	108101	< 20.	UG/KG	7/09/91	4-Methyl-2-pentanone
AB-53-NE-3S		91.05753	75092	< 5.	UG/KG	7/09/91	Methylene chloride
AB-53-NE-3S		91.05753	103651	< 5.	UG/KG	7/09/91	Propylbenzene
AB-53-NE-3S		91.05753	100425	< 5.	UG/KG	7/09/91	Styrene
AB-53-NE-3S		91.05753	630206	< 5.	UG/KG	7/09/91	1,1,1,2-Tetrachloroethane
AB-53-NE-3S		91.05753	79345	< 5.	UG/KG	7/09/91	1,1,2,2-Tetrachloroethane
AB-53-NE-3S		91.05753	127184	< 5.	UG/KG	7/09/91	Tetrachloroethylene
AB-53-NE-3S		91.05753	108883	< 5.	UG/KG	7/09/91	Toluene
AB-53-NE-3S		91.05753	76131	< 5.	UG/KG	7/09/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-53-NE-3S		91.05753	71556	< 5.	UG/KG	7/09/91	1,1,1-Trichloroethane
AB-53-NE-3S		91.05753	79005	< 5.	UG/KG	7/09/91	1,1,2-Trichloroethane
AB-53-NE-3S		91.05753	79016	< 5.	UG/KG	7/09/91	Trichloroethene
AB-53-NE-3S		91.05753	75694	< 5.	UG/KG	7/09/91	Trichlorofluoromethane
AB-53-NE-3S		91.05753	96184	< 5.	UG/KG	7/09/91	1,2,3-Trichloropropane
AB-53-NE-3S		91.05753	95636	< 5.	UG/KG	7/09/91	1,2,4-Trimethylbenzene
AB-53-NE-3S		91.05753	108678	< 5.	UG/KG	7/09/91	1,3,5-Trimethylbenzene
AB-53-NE-3S		91.05753	108054	< 10.	UG/KG	7/09/91	Vinyl acetate
AB-53-NE-3S		91.05753	75014	< 10.	UG/KG	7/09/91	Vinyl chloride
AB-53-NE-3S		91.05753	1330207	< 5.	UG/KG	7/09/91	Mixed-Xylenes (o + m + p)

REPORT NUMBER: 11232

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WN54

OWNER: Alice Barr GROUP: NSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.06430

Date Collected: 7/15/91 Date Received: 7/15/91 Date Extracted: 7/16/91 Date Analyzed: 7/20/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
NW #2	91.06430	83329	< 10.		UG/L	8/13/91		Acenaphthene
NW #2	91.06430	208968	< 10.		UG/L	8/13/91		Acenaphthylene
NW #2	91.06430	62533	< 10.		UG/L	8/13/91		Aniline
NW #2	91.06430	120127	< 10.		UG/L	8/13/91		Anthracene
NW #2	91.06430	103333	< 10.		UG/L	8/13/91		Azobenzene
NW #2	91.06430	92875	< 10.		UG/L	8/13/91		m-Benzidine
NW #2	91.06430	56553	< 10.		UG/L	8/13/91		Benzo[a]anthracene
NW #2	91.06430	50328	< 10.		UG/L	8/13/91		Benzo[a]pyrene
NW #2	91.06430	205992	< 10.		UG/L	8/13/91		Benzo[b]fluoranthene
NW #2	91.06430	191242	< 10.		UG/L	8/13/91		Benzo[g,h,i]perylene
NW #2	91.06430	207089	< 10.		UG/L	8/13/91		Benzo[k]fluoranthene
NW #2	91.06430	65850	< 10.		UG/L	8/13/91		Benzoic acid
NW #2	91.06430	100516	< 10.		UG/L	8/13/91		Benzyl alcohol
NW #2	91.06430	111911	< 10.		UG/L	8/13/91		Bis(2-chloroethoxy)methane
NW #2	91.06430	111444	< 10.		UG/L	8/13/91		Bis(2-chloroethyl)ether
NW #2	91.06430	108601	< 10.		UG/L	8/13/91		Bis(2-chloroisopropyl)ether
NW #2	91.06430	117817	< 10.		UG/L	8/13/91		Bis(2-ethylhexyl)phthalate
NW #2	91.06430	101553	< 10.		UG/L	8/13/91		4-Bromophenylphenyl ether
NW #2	91.06430	85687	< 10.		UG/L	8/13/91		Butylbenzyl phthalate
NW #2	91.06430	59507	< 10.		UG/L	8/13/91		4-Chloro-3-methylphenol
NW #2	91.06430	106478	< 10.		UG/L	8/13/91		4-Chloroaniline

NW #2	91.06430	91587	< 10.	UG/L	8/13/91	2-Chloronaphthalene
NW #2	91.06430	95578	< 10.	UG/L	8/13/91	o-Chlorophenol
NW #2	91.06430	7005723	< 10.	UG/L	8/13/91	4-Chlorophenylphenyl ether
NW #2	91.06430	218019	< 10.	UG/L	8/13/91	Chrysene
NW #2	91.06430	84742	< 10.	UG/L	8/13/91	Di-n-butyl phthalate
NW #2	91.06430	117840	< 10.	UG/L	8/13/91	Di-n-octyl phthalate
NW #2	91.06430	53703	< 10.	UG/L	8/13/91	Dibenzo[a,h]anthracene
NW #2	91.06430	132649	< 10.	UG/L	8/13/91	Dibenzofuran
NW #2	91.06430	95501	< 10.	UG/L	8/13/91	o-Dichlorobenzene (1,2)
NW #2	91.06430	541731	< 10.	UG/L	8/13/91	m-Dichlorobenzene (1,3)
NW #2	91.06430	106467	< 10.	UG/L	8/13/91	p-Dichlorobenzene (1,4)
NW #2	91.06430	91941	< 10.	UG/L	8/13/91	3,3'-Dichlorobenzidine
NW #2	91.06430	120832	< 10.	UG/L	8/13/91	2,4-Dichlorophenol
NW #2	91.06430	84662	< 10.	UG/L	8/13/91	Diethyl phthalate
NW #2	91.06430	131113	< 10.	UG/L	8/13/91	Dimethyl phthalate
NW #2	91.06430	105679	< 10.	UG/L	8/13/91	2,4-Dimethylphenol
NW #2	91.06430	51285	< 10.	UG/L	8/13/91	2,4-Dinitrophenol
NW #2	91.06430	121142	< 10.	UG/L	8/13/91	2,4-Dinitrotoluene
NW #2	91.06430	606202	< 10.	UG/L	8/13/91	2,6-Dinitrotoluene
NW #2	91.06430	206440	< 10.	UG/L	8/13/91	Fluoranthene
NW #2	91.06430	86737	< 10.	UG/L	8/13/91	Fluorene
NW #2	91.06430	118741	< 10.	UG/L	8/13/91	Hexachlorobenzene
NW #2	91.06430	87683	< 10.	UG/L	8/13/91	Hexachlorobutadiene
NW #2	91.06430	77474	< 10.	UG/L	8/13/91	Hexachlorocyclopentadiene
NW #2	91.06430	67721	< 10.	UG/L	8/13/91	Hexachloroethane
NW #2	91.06430	193395	< 10.	UG/L	8/13/91	Indeno[1,2,3-cd]pyrene
NW #2	91.06430	78591	< 10.	UG/L	8/13/91	Isophorone
NW #2	91.06430	534521	< 10.	UG/L	8/13/91	2-Methyl-4,6-dinitrophenol
NW #2	91.06430	91576	< 10.	UG/L	8/13/91	2-Methylnaphthalene
NW #2	91.06430	95487	< 10.	UG/L	8/13/91	2-Methylphenol
NW #2	91.06430	106445	< 10.	UG/L	8/13/91	4-Methylphenol
NW #2	91.06430	91203	< 10.	UG/L	8/13/91	Naphthalene
NW #2	91.06430	88744	< 10.	UG/L	8/13/91	2-Nitroaniline
NW #2	91.06430	99092	< 10.	UG/L	8/13/91	3-Nitroaniline
NW #2	91.06430	100016	< 10.	UG/L	8/13/91	4-Nitroaniline
NW #2	91.06430	98953	< 10.	UG/L	8/13/91	Nitrobenzene
NW #2	91.06430	88755	< 10.	UG/L	8/13/91	2-Nitrophenol
NW #2	91.06430	100027	< 10.	UG/L	8/13/91	4-Nitrophenol
NW #2	91.06430	621647	< 10.	UG/L	8/13/91	N-Nitrosodi-n-propylamine
NW #2	91.06430	62759	< 10.	UG/L	8/13/91	N-Nitrosodimethylamine
NW #2	91.06430	86306	< 10.	UG/L	8/13/91	N-Nitrosodiphenylamine
NW #2	91.06430	87865	< 10.	UG/L	8/13/91	Pentachlorophenol
NW #2	91.06430	85018	< 10.	UG/L	8/13/91	Phenanthrene
NW #2	91.06430	108952	< 10.	UG/L	8/13/91	Phenol
NW #2	91.06430	129000	< 10.	UG/L	8/13/91	Pyrene

NW #2	91.06430	120821	< 10.	UG/L	8/13/91	1,2,4-Trichlorobenzene
NW #2	91.06430	95954	< 10.	UG/L	8/13/91	2,4,5-Trichlorophenol
NW #2	91.06430	88062	< 10.	UG/L	8/13/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06430

none

Customer Sample Duplicate Results for Sample # 91.06430

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06430

none

REPORT NUMBER: 11232

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.06431

Date Collected: 7/15/91 Date Received: 7/15/91 Date Extracted: 7/16/91 Date Analyzed: 7/20/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
NW #3	91.06431	83329	< 10.		UG/L	8/13/91		Acenaphthene
NW #3	91.06431	208968	< 10.		UG/L	8/13/91		Acenaphthylene
NW #3	91.06431	62533	< 10.		UG/L	8/13/91		Aniline
NW #3	91.06431	120127	< 10.		UG/L	8/13/91		Anthracene
NW #3	91.06431	103333	< 10.		UG/L	8/13/91		Azobenzene
NW #3	91.06431	92875	< 10.		UG/L	8/13/91		m-Benzidine
NW #3	91.06431	56553	< 10.		UG/L	8/13/91		Benzo[a]anthracene
NW #3	91.06431	50328	< 10.		UG/L	8/13/91		Benzo[a]pyrene
NW #3	91.06431	205992	< 10.		UG/L	8/13/91		Benzo[b]fluoranthene
NW #3	91.06431	191242	< 10.		UG/L	8/13/91		Benzo[g,h,i]perylene
NW #3	91.06431	207089	< 10.		UG/L	8/13/91		Benzo[k]fluoranthene
NW #3	91.06431	65850	< 10.		UG/L	8/13/91		Benzoic acid
NW #3	91.06431	100516	< 10.		UG/L	8/13/91		Benzyl alcohol
NW #3	91.06431	111911	< 10.		UG/L	8/13/91		Bis(2-chloroethoxy)methane
NW #3	91.06431	111444	< 10.		UG/L	8/13/91		Bis(2-chloroethyl)ether
NW #3	91.06431	108601	< 10.		UG/L	8/13/91		Bis(2-chloroisopropyl)ether
NW #3	91.06431	117817	< 10.		UG/L	8/13/91		Bis(2-ethylhexyl)phthalate
NW #3	91.06431	101553	< 10.		UG/L	8/13/91		4-Bromophenylphenyl ether
NW #3	91.06431	85687	< 10.		UG/L	8/13/91		Butylbenzyl phthalate
NW #3	91.06431	59507	< 10.		UG/L	8/13/91		4-Chloro-3-methylphenol
NW #3	91.06431	106478	< 10.		UG/L	8/13/91		4-Chloroaniline

NW #3	91.06431	91587	< 10.	UG/L	8/13/91	2-Chloronaphthalene
NW #3	91.06431	95578	< 10.	UG/L	8/13/91	o-Chlorophenol
NW #3	91.06431	7005723	< 10.	UG/L	8/13/91	4-Chlorophenylphenyl ether
NW #3	91.06431	218019	< 10.	UG/L	8/13/91	Chrysene
NW #3	91.06431	84742	< 10.	UG/L	8/13/91	Di-n-butyl phthalate
NW #3	91.06431	117840	< 10.	UG/L	8/13/91	Di-n-octyl phthalate
NW #3	91.06431	53703	< 10.	UG/L	8/13/91	Dibenzo[a,h]anthracene
NW #3	91.06431	132649	< 10.	UG/L	8/13/91	Dibenzofuran
NW #3	91.06431	95501	< 10.	UG/L	8/13/91	o-Dichlorobenzene (1,2)
NW #3	91.06431	541731	< 10.	UG/L	8/13/91	m-Dichlorobenzene (1,3)
NW #3	91.06431	106467	< 10.	UG/L	8/13/91	p-Dichlorobenzene (1,4)
NW #3	91.06431	91941	< 10.	UG/L	8/13/91	3,3'-Dichlorobenzidine
NW #3	91.06431	120832	< 10.	UG/L	8/13/91	2,4-Dichlorophenol
NW #3	91.06431	84662	< 10.	UG/L	8/13/91	Diethyl phthalate
NW #3	91.06431	131113	< 10.	UG/L	8/13/91	Dimethyl phthalate
NW #3	91.06431	105679	< 10.	UG/L	8/13/91	2,4-Dimethylphenol
NW #3	91.06431	51285	< 10.	UG/L	8/13/91	2,4-Dinitrophenol
NW #3	91.06431	121142	< 10.	UG/L	8/13/91	2,4-Dinitrotoluene
NW #3	91.06431	606202	< 10.	UG/L	8/13/91	2,6-Dinitrotoluene
NW #3	91.06431	206440	< 10.	UG/L	8/13/91	Fluoranthene
NW #3	91.06431	86737	< 10.	UG/L	8/13/91	Fluorene
NW #3	91.06431	118741	< 10.	UG/L	8/13/91	Hexachlorobenzene
NW #3	91.06431	87683	< 10.	UG/L	8/13/91	Hexachlorobutadiene
NW #3	91.06431	77474	< 10.	UG/L	8/13/91	Hexachlorocyclopentadiene
NW #3	91.06431	67721	< 10.	UG/L	8/13/91	Hexachloroethane
NW #3	91.06431	193395	< 10.	UG/L	8/13/91	Indeno[1,2,3-cd]pyrene
NW #3	91.06431	78591	< 10.	UG/L	8/13/91	Isophorone
NW #3	91.06431	534521	< 10.	UG/L	8/13/91	2-Methyl-4,6-dinitrophenol
NW #3	91.06431	91576	< 10.	UG/L	8/13/91	2-Methylnaphthalene
NW #3	91.06431	95487	< 10.	UG/L	8/13/91	2-Methylphenol
NW #3	91.06431	106445	< 10.	UG/L	8/13/91	4-Methylphenol
NW #3	91.06431	91203	< 10.	UG/L	8/13/91	Naphthalene
NW #3	91.06431	88744	< 10.	UG/L	8/13/91	2-Nitroaniline
NW #3	91.06431	99092	< 10.	UG/L	8/13/91	3-Nitroaniline
NW #3	91.06431	100016	< 10.	UG/L	8/13/91	4-Nitroaniline
NW #3	91.06431	98953	< 10.	UG/L	8/13/91	Nitrobenzene
NW #3	91.06431	88755	< 10.	UG/L	8/13/91	2-Nitrophenol
NW #3	91.06431	100027	< 10.	UG/L	8/13/91	4-Nitrophenol
NW #3	91.06431	621647	< 10.	UG/L	8/13/91	N-Nitrosodi-n-propylamine
NW #3	91.06431	62759	< 10.	UG/L	8/13/91	N-Nitrosodimethylamine
NW #3	91.06431	86306	< 10.	UG/L	8/13/91	N-Nitrosodiphenylamine
NW #3	91.06431	87865	< 10.	UG/L	8/13/91	Pentachlorophenol
NW #3	91.06431	85018	< 10.	UG/L	8/13/91	Phenanthrene
NW #3	91.06431	108952	< 10.	UG/L	8/13/91	Phenol
NW #3	91.06431	129000	< 10.	UG/L	8/13/91	Pyrene

NW #3	91.06431	120821	< 10.	UG/L	8/13/91	1,2,4-Trichlorobenzene
NW #3	91.06431	95954	< 10.	UG/L	8/13/91	2,4,5-Trichlorophenol
NW #3	91.06431	88062	< 10.	UG/L	8/13/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06431

none

Customer Sample Duplicate Results for Sample # 91.06431

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06431

none

REPORT NUMBER: 11232

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.06432

Date Collected: 7/15/91 Date Received: 7/15/91 Date Extracted: 7/16/91 Date Analyzed: 7/20/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
SO. RAD #3	91.06432	83329	< 10.		UG/L	8/13/91		Acenaphthene
SO. RAD #3	91.06432	208968	< 10.		UG/L	8/13/91		Acenaphthylene
SO. RAD #3	91.06432	62533	< 10.		UG/L	8/13/91		Aniline
SO. RAD #3	91.06432	120127	< 10.		UG/L	8/13/91		Anthracene
SO. RAD #3	91.06432	103333	< 10.		UG/L	8/13/91		Azobenzene
SO. RAD #3	91.06432	92875	< 10.		UG/L	8/13/91		m-Benzidine
SO. RAD #3	91.06432	56553	< 10.		UG/L	8/13/91		Benzo[a]anthracene
SO. RAD #3	91.06432	50328	< 10.		UG/L	8/13/91		Benzo[a]pyrene
SO. RAD #3	91.06432	205992	< 10.		UG/L	8/13/91		Benzo[b]fluoranthene
SO. RAD #3	91.06432	191242	< 10.		UG/L	8/13/91		Benzo[g,h,i]perylene
SO. RAD #3	91.06432	207089	< 10.		UG/L	8/13/91		Benzo[k]fluoranthene
SO. RAD #3	91.06432	65850	< 10.		UG/L	8/13/91		Benzoic acid
SO. RAD #3	91.06432	100516	< 10.		UG/L	8/13/91		Benzyl alcohol
SO. RAD #3	91.06432	111911	< 10.		UG/L	8/13/91		Bis(2-chloroethoxy)methane
SO. RAD #3	91.06432	111444	< 10.		UG/L	8/13/91		Bis(2-chloroethyl)ether
SO. RAD #3	91.06432	108601	< 10.		UG/L	8/13/91		Bis(2-chloroisopropyl)ether
SO. RAD #3	91.06432	117817	< 10.		UG/L	8/13/91		Bis(2-ethylhexyl)phthalate
SO. RAD #3	91.06432	101553	< 10.		UG/L	8/13/91		4-Bromophenylphenyl ether
SO. RAD #3	91.06432	85687	< 10.		UG/L	8/13/91		Butylbenzyl phthalate
SO. RAD #3	91.06432	59507	< 10.		UG/L	8/13/91		4-Chloro-3-methylphenol
SO. RAD #3	91.06432	106478	< 10.		UG/L	8/13/91		4-Chloroaniline

SO. RAD #3	91.06432	91587	< 10.	UG/L	8/13/91	2-Chloronaphthalene
SO. RAD #3	91.06432	95578	< 10.	UG/L	8/13/91	o-Chlorophenol
SO. RAD #3	91.06432	7005723	< 10.	UG/L	8/13/91	4-Chlorophenylphenyl ether
SO. RAD #3	91.06432	218019	< 10.	UG/L	8/13/91	Chrysene
SO. RAD #3	91.06432	84742	< 10.	UG/L	8/13/91	Di-n-butyl phthalate
SO. RAD #3	91.06432	117840	< 10.	UG/L	8/13/91	Di-n-octyl phthalate
SO. RAD #3	91.06432	53703	< 10.	UG/L	8/13/91	Dibenzo[a,h]anthracene
SO. RAD #3	91.06432	132649	< 10.	UG/L	8/13/91	Dibenzofuran
SO. RAD #3	91.06432	95501	< 10.	UG/L	8/13/91	o-Dichlorobenzene (1,2)
SO. RAD #3	91.06432	541731	< 10.	UG/L	8/13/91	m-Dichlorobenzene (1,3)
SO. RAD #3	91.06432	106467	< 10.	UG/L	8/13/91	p-Dichlorobenzene (1,4)
SO. RAD #3	91.06432	91941	< 10.	UG/L	8/13/91	3,3'-Dichlorobenzidine
SO. RAD #3	91.06432	120832	< 10.	UG/L	8/13/91	2,4-Dichlorophenol
SO. RAD #3	91.06432	84662	< 10.	UG/L	8/13/91	Diethyl phthalate
SO. RAD #3	91.06432	131113	< 10.	UG/L	8/13/91	Dimethyl phthalate
SO. RAD #3	91.06432	105679	< 10.	UG/L	8/13/91	2,4-Dimethylphenol
SO. RAD #3	91.06432	51285	< 10.	UG/L	8/13/91	2,4-Dinitrophenol
SO. RAD #3	91.06432	121142	< 10.	UG/L	8/13/91	2,4-Dinitrotoluene
SO. RAD #3	91.06432	606202	< 10.	UG/L	8/13/91	2,6-Dinitrotoluene
SO. RAD #3	91.06432	206440	< 10.	UG/L	8/13/91	Fluoranthene
SO. RAD #3	91.06432	86737	< 10.	UG/L	8/13/91	Fluorene
SO. RAD #3	91.06432	118741	< 10.	UG/L	8/13/91	Hexachlorobenzene
SO. RAD #3	91.06432	87683	< 10.	UG/L	8/13/91	Hexachlorobutadiene
SO. RAD #3	91.06432	77474	< 10.	UG/L	8/13/91	Hexachlorocyclopentadiene
SO. RAD #3	91.06432	67721	< 10.	UG/L	8/13/91	Hexachloroethane
SO. RAD #3	91.06432	193395	< 10.	UG/L	8/13/91	Indeno[1,2,3-cd]pyrene
SO. RAD #3	91.06432	78591	< 10.	UG/L	8/13/91	Isophorone
SO. RAD #3	91.06432	534521	< 10.	UG/L	8/13/91	2-Methyl-4,6-dinitrophenol
SO. RAD #3	91.06432	91576	< 10.	UG/L	8/13/91	2-Methylnaphthalene
SO. RAD #3	91.06432	95487	< 10.	UG/L	8/13/91	2-Methylphenol
SO. RAD #3	91.06432	106445	< 10.	UG/L	8/13/91	4-Methylphenol
SO. RAD #3	91.06432	91203	< 10.	UG/L	8/13/91	Naphthalene
SO. RAD #3	91.06432	88744	< 10.	UG/L	8/13/91	2-Nitroaniline
SO. RAD #3	91.06432	99092	< 10.	UG/L	8/13/91	3-Nitroaniline
SO. RAD #3	91.06432	100016	< 10.	UG/L	8/13/91	4-Nitroaniline
SO. RAD #3	91.06432	98953	< 10.	UG/L	8/13/91	Nitrobenzene
SO. RAD #3	91.06432	88755	< 10.	UG/L	8/13/91	2-Nitrophenol
SO. RAD #3	91.06432	100027	< 10.	UG/L	8/13/91	4-Nitrophenol
SO. RAD #3	91.06432	621647	< 10.	UG/L	8/13/91	N-Nitrosodi-n-propylamine
SO. RAD #3	91.06432	62759	< 10.	UG/L	8/13/91	N-Nitrosodimethylamine
SO. RAD #3	91.06432	86306	< 10.	UG/L	8/13/91	N-Nitrosodiphenylamine
SO. RAD #3	91.06432	87865	< 10.	UG/L	8/13/91	Pentachlorophenol
SO. RAD #3	91.06432	85018	< 10.	UG/L	8/13/91	Phenanthrene
SO. RAD #3	91.06432	108952	< 10.	UG/L	8/13/91	Phenol
SO. RAD #3	91.06432	129000	< 10.	UG/L	8/13/91	Pyrene

SO. RAD #3	91.06432	120821	< 10.	UG/L	8/13/91	1,2,4-Trichlorobenzene
SO. RAD #3	91.06432	95954	< 10.	UG/L	8/13/91	2,4,5-Trichlorophenol
SO. RAD #3	91.06432	88062	< 10.	UG/L	8/13/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06432

none

Customer Sample Duplicate Results for Sample # 91.06432

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06432

none

****

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: LAT on 13-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11728 MATRIX: W ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20226	91.06434	83329	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Acenaphthene
00.20226	91.06434	208968	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Acenaphthylene
00.20226	91.06434	62533	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Aniline
00.20226	91.06434	120127	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Anthracene
00.20226	91.06434	103333	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Azobenzene
00.20226	91.06434	92875	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	m-Benzidine
00.20226	91.06434	56553	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[a]anthracene
00.20226	91.06434	50328	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[a]pyrene
00.20226	91.06434	205992	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[b]fluoranthene
00.20226	91.06434	191242	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[g,h,i]perylene
00.20226	91.06434	207089	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[k]fluoranthene
00.20226	91.06434	65850	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzoic acid
00.20226	91.06434	100516	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzyl alcohol
00.20226	91.06434	111911	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20226	91.06434	111444	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20226	91.06434	108601	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20226	91.06434	117817	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20226	91.06434	101553	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Bromophenylphenyl ether
00.20226	91.06434	85687	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Butylbenzyl phthalate
00.20226	91.06434	59507	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chloro-3-methylphenol
00.20226	91.06434	106478	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chloroaniline
00.20226	91.06434	91587	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Chloronaphthalene
00.20226	91.06434	95578	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	o-Chlorophenol
00.20226	91.06434	7005723	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20226	91.06434	218019	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Chrysene
00.20226	91.06434	84742	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Di-n-butyl phthalate
00.20226	91.06434	117840	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Di-n-octyl phthalate
00.20226	91.06434	53703	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20226	91.06434	132649	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Dibenzofuran
00.20226	91.06434	95501	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.06434	541731	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.06434	106467	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.06434	91941	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	3,3'-Dichlorobenzidine

00.20226	91.06434	120832	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4-Dichlorophenol
00.20226	91.06434	84662	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Diethyl phthalate
00.20226	91.06434	131113	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Dimethyl phthalate
00.20226	91.06434	105679	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4-Dimethylphenol
00.20226	91.06434	51285	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4-Dinitrophenol
00.20226	91.06434	121142	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4-Dinitrotoluene
00.20226	91.06434	606202	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,6-Dinitrotoluene
00.20226	91.06434	206440	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Fluoranthene
00.20226	91.06434	86737	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Fluorene
00.20226	91.06434	118741	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Hexachlorobenzene
00.20226	91.06434	87683	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Hexachlorobutadiene
00.20226	91.06434	77474	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Hexachlorocyclopentadiene
00.20226	91.06434	67721	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Hexachloroethane
00.20226	91.06434	193395	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Indeno(1,2,3-cd)pyrene
00.20226	91.06434	78591	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Isophorone
00.20226	91.06434	534521	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20226	91.06434	91576	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2-Methylnaphthalene
00.20226	91.06434	95487	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2-Methylphenol
00.20226	91.06434	106445	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	4-Methylphenol
00.20226	91.06434	91203	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Naphthalene
00.20226	91.06434	88744	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2-Nitroaniline
00.20226	91.06434	99092	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	3-Nitroaniline
00.20226	91.06434	100016	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	4-Nitroaniline
00.20226	91.06434	98953	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Nitrobenzene
00.20226	91.06434	88755	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2-Nitrophenol
00.20226	91.06434	100027	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	4-Nitrophenol
00.20226	91.06434	621647	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20226	91.06434	62759	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	N-Nitrosodimethylamine
00.20226	91.06434	86306	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	N-Nitrosodiphenylamine
00.20226	91.06434	87865	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Pentachlorophenol
00.20226	91.06434	85018	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Phenanthrene
00.20226	91.06434	108952	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Phenol
00.20226	91.06434	129000	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	Pyrene
00.20226	91.06434	120821	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20226	91.06434	95954	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4,5-Trichlorophenol
00.20226	91.06434	88062	< 10.	UG/L	0.0	8/13/91	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.05768

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.05768	83329	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthene
91.05768	208968	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Acenaphthylene
91.05768	62533	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Aniline
91.05768	120127	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Anthracene
91.05768	103333	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Azobenzene
91.05768	92875	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Benzidine
91.05768	56553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[a]anthracene
91.05768	50328	84.	25.2	UG/L	140.4	14.	8/12/91	UNDER CONTROL	Benzo[a]pyrene
91.05768	205992	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[b]fluoranthene
91.05768	191242	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[g,h,i]perylene
91.05768	207089	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzo[k]fluoranthene
91.05768	65850	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzoic acid
91.05768	100516	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Benzyl alcohol
91.05768	111911	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
91.05768	111444	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroethyl)ether
91.05768	108601	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
91.05768	117817	< 10.		UG/L	117.6	12.	8/12/91	OUT OF CONTROL	Bis(2-ethylhexyl)phthalate
91.05768	101553	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Bromophenylphenyl ether
91.05768	85687	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Butylbenzyl phthalate
91.05768	59507	140.	42.	UG/L	127.2	13.	8/12/91	UNDER CONTROL	4-Chloro-3-methylphenol
91.05768	106478	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chloroaniline
91.05768	91587	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Chloronaphthalene
91.05768	95578	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Chlorophenol
91.05768	7005723	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Chlorophenylphenyl ether
91.05768	218019	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Chrysene
91.05768	84742	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Di-n-butyl phthalate
91.05768	117840	110.	33.	UG/L	0.0		8/12/91	OUT OF CONTROL	Di-n-octyl phthalate
91.05768	53703	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzo[a,h]anthracene
91.05768	132649	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dibenzofuran
91.05768	95501	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.05768	541731	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.05768	106467	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.05768	91941	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	3,3'-Dichlorobenzidine
91.05768	120832	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dichlorophenol
91.05768	84662	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Diethyl phthalate

91.05768	131113	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Dimethyl phthalate
91.05768	105679	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dimethylphenol
91.05768	51285	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dinitrophenol
91.05768	121142	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4-Dinitrotoluene
91.05768	606202	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,6-Dinitrotoluene
91.05768	206440	130.	39.	UG/L	134.4	13.	8/12/91	UNDER CONTROL	Fluoranthene
91.05768	86737	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Fluorene
91.05768	118741	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorobenzene
91.05768	87683	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorobutadiene
91.05768	77474	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachlorocyclopentadiene
91.05768	67721	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Hexachloroethane
91.05768	193395	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
91.05768	78591	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Isophorone
91.05768	534521	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
91.05768	91576	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methylnaphthalene
91.05768	95487	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Methylphenol
91.05768	106445	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Methylphenol
91.05768	91203	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Naphthalene
91.05768	88744	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Nitroaniline
91.05768	99092	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	3-Nitroaniline
91.05768	100016	140.	42.	UG/L	152.4	15.	8/12/91	UNDER CONTROL	4-Nitroaniline
91.05768	98953	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Nitrobenzene
91.05768	88755	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2-Nitrophenol
91.05768	100027	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	4-Nitrophenol
91.05768	621647	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
91.05768	62759	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodimethylamine
91.05768	86306	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	N-Nitrosodiphenylamine
91.05768	87865	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Pentachlorophenol
91.05768	85018	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Phenanthrene
91.05768	108952	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Phenol
91.05768	129000	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	Pyrene
91.05768	120821	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	1,2,4-Trichlorobenzene
91.05768	95954	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4,5-Trichlorophenol
91.05768	88062	< 10.		UG/L	0.0		8/12/91	UNDER CONTROL	2,4,6-Trichlorophenol

Blind QC Results, Sample # 91.06433

Date Collected: 7/15/91 Date Received: 7/15/91 Date Extracted: 7/16/91 Date Analyzed: 7/20/91

91.06433	83329	22.	6.6	UG/L	172.	17.	8/13/91	OUT OF CONTROL	Acenaphthene
91.06433	208968	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Acenaphthylene
91.06433	62533	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Aniline
91.06433	120127	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Anthracene
91.06433	103333	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Azobenzene
91.06433	92875	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	m-Benzidine
91.06433	56553	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[a]anthracene

91.06433	50328	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[a]pyrene
91.06433	205992	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[b]fluoranthene
91.06433	191242	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[g,h,i]perylene
91.06433	207089	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzo[k]fluoranthene
91.06433	65850	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzoic acid
91.06433	100516	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Benzyl alcohol
91.06433	111911	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
91.06433	111444	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroethyl)ether
91.06433	108601	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
91.06433	117817	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
91.06433	101553	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Bromophenylphenyl ether
91.06433	85687	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Butylbenzyl phthalate
91.06433	59507	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chloro-3-methylphenol
91.06433	106478	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chloroaniline
91.06433	91587	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Chloronaphthalene
91.06433	95578	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	o-Chlorophenol
91.06433	7005723	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Chlorophenylphenyl ether
91.06433	218019	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Chrysene
91.06433	84742	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Di-n-butyl phthalate
91.06433	117840	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Di-n-octyl phthalate
91.06433	53703	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Dibenzo[a,h]anthracene
91.06433	132649	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Dibenzofuran
91.06433	95501	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.06433	541731	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.06433	106467	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.06433	91941	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	3,3'-Dichlorobenzidine
91.06433	120832	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4-Dichlorophenol
91.06433	84662	< 10.		UG/L	166.	17.	8/13/91	OUT OF CONTROL	Diethyl phthalate
91.06433	131113	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Dimethyl phthalate
91.06433	105679	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4-Dimethylphenol
91.06433	51285	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4-Dinitrophenol
91.06433	121142	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4-Dinitrotoluene
91.06433	606202	20.	6.	UG/L	172.	17.	8/13/91	OUT OF CONTROL	2,6-Dinitrotoluene
91.06433	206440	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Fluoranthene
91.06433	86737	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Fluorene
91.06433	118741	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Hexachlorobenzene
91.06433	87683	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Hexachlorobutadiene
91.06433	77474	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Hexachlorocyclopentadiene
91.06433	67721	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Hexachloroethane
91.06433	193395	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
91.06433	78591	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Isophorone
91.06433	534521	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
91.06433	91576	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Methylnaphthalene
91.06433	95487	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Methylphenol
91.06433	106445	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Methylphenol

91.06433	91203	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Naphthalene
91.06433	88744	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Nitroaniline
91.06433	99092	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	3-Nitroaniline
91.06433	100016	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Nitroaniline
91.06433	98953	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Nitrobenzene
91.06433	88755	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2-Nitrophenol
91.06433	100027	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	4-Nitrophenol
91.06433	621647	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
91.06433	62759	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	N-Nitrosodimethylamine
91.06433	86306	18.	5.4	UG/L	163.	16.	8/13/91	OUT OF CONTROL	N-Nitrosodiphenylamine
91.06433	87865	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Pentachlorophenol
91.06433	85018	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Phenanthrene
91.06433	108952	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Phenol
91.06433	129000	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	Pyrene
91.06433	120821	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	1,2,4-Trichlorobenzene
91.06433	95954	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4,5-Trichlorophenol
91.06433	88062	< 10.		UG/L	0.0		8/13/91	UNDER CONTROL	2,4,6-Trichlorophenol

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
91.05740	%	65.03	79.07	88.4	79.58	111.25	21.5	13-Aug-1991
91.05740	%	65.4	82.7	89.	75.12	117.54	23.58	13-Aug-1991
91.05768	%	99.38	77.16	124.88	110.18	122.3	126.46	12-Aug-1991
91.06429	%	47.72	67.2	46.48	61.16	69.04	14.5	13-Aug-1991
91.06430	%	92.82	119.59	110.98	96.48	116.2	30.4	13-Aug-1991
91.06431	%	68.84	87.36	89.08	80.02	72.92	22.42	13-Aug-1991
91.06432	%	74.48	115.12	90.42	85.74	104.2	25.	13-Aug-1991
91.06433	%	10.65	12.4	12.04	12.32	11.42	15.88	13-Aug-1991
91.06434	%	91.73	104.57	98.94	96.32	98.43	118.14	13-Aug-1991
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 11232

Analyst	Reviewer	Section Leader	QA Officer
8/19/91	8/14/91	8/23/91	8/23/91
Date	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Soil
Summary Date: 08 July 1991

Summary:

Ten sludge samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. After radioactivity screening, the samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous extraction methods on 03 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 05, 06 and 07 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

The sludge samples were extremely wet; therefore, a reduced amount of sample was used in order to use more drying agent. This accounts for the higher reporting limits. In addition, due to the nature of the samples no percent moisture was performed on these samples and all the results are reported as wet weight.

Reportable quantities of three target compounds were found in the sludge samples submitted. Bis-(2-ethylhexyl) phthalate and di-n-octylphthalate are both common plasticizers frequently found in environmental samples. Di-n-octylphthalate was found in the blank at reportable levels. Therefore, it is possible that the di-n-octylphthalate in the sample is due to laboratory contamination.

Benzidine is a target compound that is difficult to chromatograph. Therefore, the presence of this target compound was verified through standard addition. A known amount of benzidine was added to one of the samples and the sample re-analyzed. This re-analysis confirmed the presence of benzidine. Additionally, the benzidine was quantitated using a one point calibration based on an 80 ppm standard due to decomposition of the benzidine in the 50 ppm standard.

In response to historical data I specifically looked for benzyl alcohol, 2-methylphenol, and 4-methylphenol. None of these compounds were found at reportable levels in any of the samples submitted.

Significant quantities of tentatively identified compounds including saturated hydrocarbons and polynuclear aromatic hydrocarbons were found in all the samples submitted. Two tentatively identified compounds were found in the blank.

c:\wp51\m2\qnt11673

7/10/91

ASE-9 SEMI-VOLATILE ORGANIC ANALYSISS
SUMMARY OF ANALYTICAL RESULTSH
To: Alice Barr$
From: Matthew MonagleH
Request Number: 11728, 11673$
Matrix: Water
Summary Date: 20 July 1991

All the samples in the re-sampling performed on the TA-53 ponds are clean. Additionally, all the surrogates are legal although it is interesting to note that the surrogate that gave me trouble the first time is low again this time. Low, but legal. I would attribute this to some kind of matrix effect although I am not sure what that would be as that surrogate is a very stable compound. A sample by sample preliminary report for both 11728 and 11673 is attached for your use. This data is preliminary but I don't think it will change at all through the final report. There are tic's in these samples. While I would not say the samples are loaded with tentatively identified non-target compounds, there are tentatively identified aromatic compounds in these samples. Finally, I hope to get a final on 11728 early this week (I am turning it over to Martin for data work up and review) and 11673 should be to you early the week of the 29th. Matthew

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Sample ID	Target Compounds Found	Amount (ug/L)	Level of Quantitation (ug/L)	TIC's
Blank (04-Jul.-1991)	Bis 2-ethylhexyl-phthalate	22	10	Yes
91.05740	Benzoic Acid	18	10	Yes
91.05741	NONE		10	Yes
91.05742	NONE		10	Yes
91.05747	NONE		10	Yes
91.05748	NONE		10	Yes
91.05749	NONE		10	Yes
91.05750	NONE		10	Yes
91.05754	NONE		10	Yes
91.05755	NONE		10	Yes
91.05756	NONE		10	Yes

c:\wp51\m2\qnt11673 8/13/91

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman CL
From: Matthew Monagle

Request Number: 11673
Matrix: Waters
Summary Date: 02 August 1991

Summary:

Ten water samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. The samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous liquid-liquid extraction on 04 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 10 and 20 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

Reportable quantities of one target compound was found in one of the water samples submitted. Benzoic acid was found in 91.05740. Additionally, bis-(2-ethylhexyl)phthalate, a common plasticizer found in environmental samples, was found in the blank at reportable levels.

Significant amounts of tentatively identified compounds, were found in all the samples submitted. A complete listing of these compounds may be obtained by calling Lara Tsiagkouris at 7-5889.

Surrogate and Matrix Spike Recoveries:

Surrogate recoveries for many of the samples were <u>not</u> within the EPA guidelines. There were several samples that had very low terphenyl d-14 recoveries. As per our phone conversation, some of these samples were re-sampled. However, upon further analysis, two of the samples (91.05747 and 91.05755) had low base neutral recoveries and were not re-sampled. You may wish to re-sample these samples. However, it is my opinion that, due to consistent low recoveries of the base neutral surrogates on these samples as well as the re-submitted samples, this is actually a matrix effect and not due to the analytical process. Matrix spike recoveries for some acid components were high while the base neutrals were low which agrees well with the surrogate recoveries. The relative percent deviation on these matrix spikes is very low.

All holding times <u>were</u> met

c:\wp51\m2\qnt11673

5/13/91

TO: ALICE BARR
THRU: CHRIS LEIBMAN
FROM: TONEY BEGAY
REQUEST: 11673.

The following samples were analyzed for Volatile Organic Components (VOC'S) using SW 846 Purge and Trap (P/T) GC/MS method 8260 of analysis:

91.05740	91.05741	91.05742	91.05743	91.05744
91.05745	91.05746	91.05747	91.05748	91.05749
91.05750	91.05751	91.05752	91.05753	91.05754
91.05755	91.05756	91.05757	91.05758	91.05759
91.05762	91.05763	91.05764		

The matrices of these samples were sludge and wastewater. They were relatively radioactive. The samples were received in 40mL capacity vials.

Approximately 5 gram aliquot of the sludge samples was weighed out and 5 mL of ISM/PSS spiked water was added to the sample and analyzed. 5mL aliquot of the wastewater samples were spiked with ISM/PSS mix and analyzed.

Since the method blank samples were not blank subtracted, a copy of the results have been included in the report. **The 7 and 14 day holding time for the appropriate matrices were satisfied.**

RESULTS:

SAMPLE	COMPOUND	CONC.	LOQ
91.05743	TOLUENE	68.0 ug/kg	5 ug/kg
91.05744	TOLUENE	42.0 ug/kg	5 ug/kg
91.05746	TOLUENE	25.0 ug/kg	5 ug/kg
91.05758	TOLUENE	14.0 ug/kg	5 ug/kg
	p-ISOPROPYLTOLUENE	8.7 ug/kg	5 ug/kg

QC SUMMARY:

Sample 91.05743 was used for the sludge matrix spike recovery determinations. All the matrix spike compound recoveries were within the control limits except for toluene, which was above. This is a result of toluene being present in the sample. Unfortunately, the sample had a bad purge and had to be analyzed another day. This resulted in a higher toluene concentration value and therefore, a definitive matrix spike recovery could not be done.

Sample 91.05741 was used for the wastewater matrix spike recovery determinations. All the matrix spike compound recoveries were within the control limits.

There were alot of samples that had surrogate recoveries out of control. The following are the recoveries and their relation to the control limits:

SAMPLE	1,2-DCE(d4)	TOLUENE(d8)	4-BFB
91.05740			
91.05741	ABOVE		BELOW
91.05742		ABOVE	
91.05743		ABOVE	
91.05744			ABOVE
91.05745	ABOVE		ABOVE
91.05746	ABOVE		
91.05747			
91.05748			BELOW
91.05751			BELOW
91.05752			ABOVE
91.05753			ABOVE
91.05754	ABOVE		ABOVE
91.05757	ABOVE		
91.05758			ABOVE
91.05759	ABOVE		ABOVE
91.05763	ABOVE		ABOVE
91.05764	ABOVE	ABOVE	

To: Alice Barr
Thru: Chris Leibman
From: Laura Tsiagkouris

Enclosed is the **final** report for the sludge samples of request 11673. As Matthew Monagle has previously indicated, the samples submitted contained a number of Tentatively Identified Compounds (TIC's) at a significant level. Typically, TIC's are not reported on the final report unless specified by the client. If a detailed listing of the TIC's detected are required, please call me at 5-4993.

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman SM for CL
From: Matthew Monagle

Request Number: 11673
Matrix: Sludge
Summary Date: 08 July 1991

Sample ID	Target Compounds Found	Amount (ug/kg)	Level of Quantitation (ug/kg)	TIC's
Blank (03-Jul.-1991)	Di-n-butyl-phthalate	600	330	Yes
91.05743	Di-n-butyl-phthalate Benzidine Bis-2-ethyl-hexylphthalate	1400 3900 1200	640	Yes
91.05744	Benzidine Bis-2-ethyl-hexylphthalate	1900 1100	490	Yes
91.05745	Di-n-butyl-phthalate	1400	640	Yes
91.05746	NONE		650	Yes
91.05751	NONE		480	Yes
91.05752	NONE		630	Yes
91.05753	NONE		650	Yes
91.05757	Di-n-butyl-phthalate	1400	660	Yes
91.05758	NONE		660	Yes
91.05759	NONE		490	Yes

c:\wp51\m2\qnt11673

VM

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Soil
Summary Date: 08 July 1991

Summary:

Ten sludge samples were received by Sandra Cisneros Flores (HSE-9) on 02 July 1991 at TA-50. After radioactivity screening, the samples, along with a quality control blind, matrix spikes and a method blank were extracted by continuous extraction methods on 03 July 1991. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 05, 06 and 07 July 1991 at TA-35 by capillary gas chromatography/mass spectrometry using methods consistent with EPA method SW-846.

The sludge samples were extremely wet; therefore, a reduced amount of sample was used in order to use more drying agent. This accounts for the higher reporting limits. In addition, due to the nature of the samples no percent moisture was performed on these samples and all the results are reported as wet weight.

Reportable quantities of three target compounds were found in the sludge samples submitted. Bis-(2-ethylhexyl) phthalate and di-n-octylphthalate are both common plasticizers frequently found in environmental samples. Di-n-octylphthalate was found in the blank at reportable levels. Therefore, it is possible that the di-n-octylphthalate in the sample is due to laboratory contamination.

Benzidine is a target compound that is difficult to chromatograph. Therefore, the presence of this target compound was verified through standard addition. A known amount of benzidine was added to one of the samples and the sample re-analyzed. This re-analysis confirmed the presence of benzidine. Additionally, the benzidine was quantitated using a one point calibration based on an 80 ppm standard due to decomposition of the benzidine in the 50 ppm standard.

In response to historical data I specifically looked for benzyl alcohol, 2-methylphenol, and 4-methylphenol. None of these compounds were found at reportable levels in any of the samples submitted.

Significant quantities of tentatively identified compounds including saturated hydrocarbons and polynuclear aromatic hydrocarbons were found in all the samples submitted. Two tentatively identified compounds were found in the blank.

c:\wp51\m2\qnt11673

7/10/91

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman
From: Matthew Monagle

Request Number: 11673
Matrix: Soil
Summary Date: 08 July 1991

Surrogate and Matrix Spike Recoveries:

All surrogate recoveries were within EPA guidelines. Matrix spike recoveries and relative percent deviations for some compounds were outside the EPA guidelines. This could be a problem with the extraction or matrices. This is not believed to affect the data in any way.

Problems encountered:

No other problems were encountered with the analysis of these samples.

c:\wp51\m2\qnt11673

7/10/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

REQUEST #: 11673
NUMBER OF SAMPLES: 14
SPIKE ID: STARTS W 30 E
SPIKE DUP ID: STARTS D 30 E
RAW DATA WITH: 11673
ANALYST: MM

	SPIKE ID	SPIKE DUP ID	50% WT/VOL (G OF L)	AMOUNT SPIKED IN UG/G		
11673	SPIKE	SPIKE-DUP	0.33	4333	8417	4[illegible]
			0.33	4331	8461	4[illegible]

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. LIM. %	UP. LIM. %	RPD LIM. %
HENOL	2000	3600	41%	73%	55%*	35	42	35
2-C-LORCPHENOL	1600	3100	33%	63%	62%*	35	133	50
1,4-DICHLCROBENZENE	570	1600	24%*	65%	94%*	33	114	27
N-NITROSO-DI-N-PROPYLAMINE	1100	2100	46%	85%	61%*	41	126	38
1,2,4-TRICLCROBENZENE	910	2000	33%*	81%	72%*	33	117	33
-CHLORO-3-METHYLPHENOL	2300	3400	48%	69%	37%*	35	103	33
ACENAPHTHENE	1300	1900	54%	77%	36%*	31	137	19
-NITROPHENOL	2200	3100	45%	63%	32%	11	114	51
2,4-DINITROTOLUENE	1100	1500	46%	61%	29%	28	89	47
PENTACHLOROPHENOL	2800	3900	58%	79%	31%	17	109	47
PYRENE	1600	2300	66%	93%	34%	35	142	36

'*' IF % Matrix Recovery is Followed by a '*', it is out of 20 limits.

Reviewed By: 7/11/91

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
-EES-4
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN SOIL TYPE MATRICES

PROJECT #: 11673

NUMBER OF SAMPLES: 14
MATRIX: S
ANAL BY: TM
Date: 07/08/91

SURROGATE RECOVERIES

SURROGATE RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D5)	NITRO-BENZENE D5	2-FLUORO-BIP-ENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	SP1.05774	BLANK	52	60	61	75	76	75
2	MP1.05751	MATRIX SPIKE	34	42	32	53	69	66
3	SP1.05751	MATRIX SP-D	59	73	71	81	99	95
4	SP1.05743	SAMPLE	45	55	52	63	64	83
5	SP1.05744	SAMPLE	59	71	64	73	85	83
6	SP1.05745	SAMPLE	55	71	61	76	89	75
7	SP1.05746	SAMPLE	48	61	51	61	79	81
8	SP1.05751	SAMPLE	25	50	35	64	81	72
9	SP1.05752	SAMPLE	33	55	49	63	84	81
10	SP1.05753	SAMPLE	27	46	38	55	71	72
11	SP1.05757	SAMPLE	48	66	58	73	86	75
12	SP1.05758	SAMPLE	33	47	43	61	66	81
13	SP1.05759	SAMPLE	50	65	60	71	86	76
14	SP1.05775	SAMPLE	64	75	67	74	80	77
15								
16								
17								
18								
19								
20								
21								
22								

Average % Surrogate Recovery...	44	58	52	67	84	81
Defined Lower QC Limits (%)...	23	24	23	27	19	18
Defined Upper QC Limits (%)...	121	113	120	115	122	137
Observed Lower QC Limits (%)...	24	42	32	53	69	66
Observed Upper QC Limits (%)...	59	73	71	81	99	95

"*" If % Surrogate Recovery is followed by a "*", it is out of QC Limits.

Reviewed By:

7/11/91

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05743

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1S	91.05743	83329	< 640.		UG/KG	7/10/91		Acenaphthene
AB-53-NW-1S	91.05743	208968	< 640.		UG/KG	7/10/91		Acenaphthylene
AB-53-NW-1S	91.05743	62533	< 640.		UG/KG	7/10/91		Aniline
AB-53-NW-1S	91.05743	120127	< 640.		UG/KG	7/10/91		Anthracene
AB-53-NW-1S	91.05743	103333	< 640.		UG/KG	7/10/91		Azobenzene
AB-53-NW-1S	91.05743	92875	3900.	1170.	UG/KG	7/10/91		m-Benzidine
AB-53-NW-1S	91.05743	56553	< 640.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NW-1S	91.05743	50328	< 640.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NW-1S	91.05743	205992	< 640.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NW-1S	91.05743	191242	< 640.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NW-1S	91.05743	207089	< 640.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NW-1S	91.05743	65850	< 640.		UG/KG	7/10/91		Benzoic acid
AB-53-NW-1S	91.05743	100516	< 640.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NW-1S	91.05743	111911	< 640.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NW-1S	91.05743	111444	< 640.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NW-1S	91.05743	108601	< 640.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NW-1S	91.05743	117817	1200.	360.	UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-1S	91.05743	101553	< 640.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NW-1S	91.05743	85687	< 640.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NW-1S	91.05743	59507	< 640.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NW-1S	91.05743	106478	< 640.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NW-1S	91.05743	91587	< 640.		UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NW-1S	91.05743	95578	< 640.		UG/KG	7/10/91	o-Chlorophenol
AB-53-NW-1S	91.05743	7005723	< 640.		UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NW-1S	91.05743	218019	< 640.		UG/KG	7/10/91	Chrysene
AB-53-NW-1S	91.05743	84742	1400.	420.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NW-1S	91.05743	117840	< 640.		UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NW-1S	91.05743	53703	< 640.		UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NW-1S	91.05743	132649	< 640.		UG/KG	7/10/91	Dibenzofuran
AB-53-NW-1S	91.05743	95501	< 640.		UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NW-1S	91.05743	541731	< 640.		UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NW-1S	91.05743	106467	< 640.		UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NW-1S	91.05743	91941	< 640.		UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NW-1S	91.05743	120832	< 640.		UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NW-1S	91.05743	84662	< 640.		UG/KG	7/10/91	Diethyl phthalate
AB-53-NW-1S	91.05743	131113	< 640.		UG/KG	7/10/91	Dimethyl phthalate
AB-53-NW-1S	91.05743	105679	< 640.		UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NW-1S	91.05743	51285	< 640.		UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NW-1S	91.05743	121142	< 640.		UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NW-1S	91.05743	606202	< 640.		UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NW-1S	91.05743	206440	< 640.		UG/KG	7/10/91	Fluoranthene
AB-53-NW-1S	91.05743	86737	< 640.		UG/KG	7/10/91	Fluorene
AB-53-NW-1S	91.05743	118741	< 640.		UG/KG	7/10/91	Hexachlorobenzene
AB-53-NW-1S	91.05743	87683	< 640.		UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NW-1S	91.05743	77474	< 640.		UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NW-1S	91.05743	67721	< 640.		UG/KG	7/10/91	Hexachloroethane
AB-53-NW-1S	91.05743	193395	< 640.		UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-1S	91.05743	78591	< 640.		UG/KG	7/10/91	Isophorone
AB-53-NW-1S	91.05743	534521	< 640.		UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-1S	91.05743	91576	< 640.		UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NW-1S	91.05743	95487	< 640.		UG/KG	7/10/91	2-Methylphenol
AB-53-NW-1S	91.05743	106445	< 640.		UG/KG	7/10/91	4-Methylphenol
AB-53-NW-1S'	91.05743	91203	< 640.		UG/KG	7/10/91	Naphthalene
AB-53-NW-1S	91.05743	88744	< 640.		UG/KG	7/10/91	2-Nitroaniline
AB-53-NW-1S	91.05743	99092	< 640.		UG/KG	7/10/91	3-Nitroaniline
AB-53-NW-1S	91.05743	100016	< 640.		UG/KG	7/10/91	4-Nitroaniline
AB-53-NW-1S	91.05743	98953	< 640.		UG/KG	7/10/91	Nitrobenzene
AB-53-NW-1S	91.05743	88755	< 640.		UG/KG	7/10/91	2-Nitrophenol
AB-53-NW-1S	91.05743	100027	< 640.		UG/KG	7/10/91	4-Nitrophenol
AB-53-NW-1S	91.05743	621647	< 640.		UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NW-1S	91.05743	62759	< 640.		UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NW-1S	91.05743	86306	< 640.		UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NW-1S	91.05743	87865	< 640.		UG/KG	7/10/91	Pentachlorophenol
AB-53-NW-1S	91.05743	85018	< 640.		UG/KG	7/10/91	Phenanthrene
AB-53-NW-1S	91.05743	108952	< 640.		UG/KG	7/10/91	Phenol
AB-53-NW-1S	91.05743	129000	< 640.		UG/KG	7/10/91	Pyrene

AB-53-NW-1S	91.05743	120821	< 640.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NW-1S	91.05743	95954	< 640.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NW-1S	91.05743	88062	< 640.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05743

none

Customer Sample Duplicate Results for Sample # 91.05743

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05743

none

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05744

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-2S	91.05744	83329	< 490.		UG/KG	7/10/91		Acenaphthene
AB-53-NW-2S	91.05744	208968	< 490.		UG/KG	7/10/91		Acenaphthylene
AB-53-NW-2S	91.05744	62533	< 490.		UG/KG	7/10/91		Aniline
AB-53-NW-2S	91.05744	120127	< 490.		UG/KG	7/10/91		Anthracene
AB-53-NW-2S	91.05744	103333	< 490.		UG/KG	7/10/91		Azobenzene
AB-53-NW-2S	91.05744	92875	1900.	570.	UG/KG	7/10/91		m-Benzidine
AB-53-NW-2S	91.05744	56553	< 490.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NW-2S	91.05744	50328	< 490.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NW-2S	91.05744	205992	< 490.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NW-2S	91.05744	191242	< 490.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NW-2S	91.05744	207089	< 490.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NW-2S	91.05744	65850	< 490.		UG/KG	7/10/91		Benzoic acid
AB-53-NW-2S	91.05744	100516	< 490.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NW-2S	91.05744	111911	< 490.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NW-2S	91.05744	111444	< 490.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NW-2S	91.05744	108601	< 490.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NW-2S	91.05744	117817	1100.	330.	UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-2S	91.05744	101553	< 490.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NW-2S	91.05744	85687	< 490.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NW-2S	91.05744	59507	< 490.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NW-2S	91.05744	106478	< 490.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NW-2S	91.05744	91587	< 490.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NW-2S	91.05744	95578	< 490.	UG/KG	7/10/91	o-Chlorophenol
AB-53-NW-2S	91.05744	7005723	< 490.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NW-2S	91.05744	218019	< 490.	UG/KG	7/10/91	Chrysene
AB-53-NW-2S	91.05744	84742	< 490.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NW-2S	91.05744	117840	< 490.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NW-2S	91.05744	53703	< 490.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NW-2S	91.05744	132649	< 490.	UG/KG	7/10/91	Dibenzofuran
AB-53-NW-2S	91.05744	95501	< 490.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NW-2S	91.05744	541731	< 490.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NW-2S	91.05744	106467	< 490.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NW-2S	91.05744	91941	< 490.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NW-2S	91.05744	120832	< 490.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NW-2S	91.05744	84662	< 490.	UG/KG	7/10/91	Diethyl phthalate
AB-53-NW-2S	91.05744	131113	< 490.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-NW-2S	91.05744	105679	< 490.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NW-2S	91.05744	51285	< 490.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NW-2S	91.05744	121142	< 490.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NW-2S	91.05744	606202	< 490.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NW-2S	91.05744	206440	< 490.	UG/KG	7/10/91	Fluoranthene
AB-53-NW-2S	91.05744	86737	< 490.	UG/KG	7/10/91	Fluorene
AB-53-NW-2S	91.05744	118741	< 490.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-NW-2S	91.05744	87683	< 490.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NW-2S	91.05744	77474	< 490.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NW-2S	91.05744	67721	< 490.	UG/KG	7/10/91	Hexachloroethane
AB-53-NW-2S	91.05744	193395	< 490.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-2S	91.05744	78591	< 490.	UG/KG	7/10/91	Isophorone
AB-53-NW-2S	91.05744	534521	< 490.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-2S	91.05744	91576	< 490.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NW-2S	91.05744	95487	< 490.	UG/KG	7/10/91	2-Methylphenol
AB-53-NW-2S	91.05744	106445	< 490.	UG/KG	7/10/91	4-Methylphenol
AB-53-NW-2S	91.05744	91203	< 490.	UG/KG	7/10/91	Naphthalene
AB-53-NW-2S	91.05744	88744	< 490.	UG/KG	7/10/91	2-Nitroaniline
AB-53-NW-2S	91.05744	99092	< 490.	UG/KG	7/10/91	3-Nitroaniline
AB-53-NW-2S	91.05744	100016	< 490.	UG/KG	7/10/91	4-Nitroaniline
AB-53-NW-2S	91.05744	98953	< 490.	UG/KG	7/10/91	Nitrobenzene
AB-53-NW-2S	91.05744	88755	< 490.	UG/KG	7/10/91	2-Nitrophenol
AB-53-NW-2S	91.05744	100027	< 490.	UG/KG	7/10/91	4-Nitrophenol
AB-53-NW-2S	91.05744	621647	< 490.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NW-2S	91.05744	62759	< 490.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NW-2S	91.05744	86306	< 490.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NW-2S	91.05744	87865	< 490.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NW-2S	91.05744	85018	< 490.	UG/KG	7/10/91	Phenanthrene
AB-53-NW-2S	91.05744	108952	< 490.	UG/KG	7/10/91	Phenol
AB-53-NW-2S	91.05744	129000	< 490.	UG/KG	7/10/91	Pyrene

AB-53-NW-2S	91.05744	120821	< 490.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NW-2S	91.05744	95954	< 490.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NW-2S	91.05744	88062	< 490.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05744

none

Customer Sample Duplicate Results for Sample # 91.05744

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05744

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05745

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-3S	91.05745	83329	< 490.		UG/KG	7/10/91		Acenaphthene
AB-53-NW-3S	91.05745	208968	< 490.		UG/KG	7/10/91		Acenaphthylene
AB-53-NW-3S	91.05745	62533	< 490.		UG/KG	7/10/91		Aniline
AB-53-NW-3S	91.05745	120127	< 490.		UG/KG	7/10/91		Anthracene
AB-53-NW-3S	91.05745	103333	< 490.		UG/KG	7/10/91		Azobenzene
AB-53-NW-3S	91.05745	92875	< 490.		UG/KG	7/10/91		m-Benzidine
AB-53-NW-3S	91.05745	56553	< 490.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NW-3S	91.05745	50328	< 490.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NW-3S	91.05745	205992	< 490.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NW-3S	91.05745	191242	< 490.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NW-3S	91.05745	207089	< 490.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NW-3S	91.05745	65850	< 490.		UG/KG	7/10/91		Benzoic acid
AB-53-NW-3S	91.05745	100516	< 490.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NW-3S	91.05745	111911	< 490.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NW-3S	91.05745	111444	< 490.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NW-3S	91.05745	108601	< 490.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NW-3S	91.05745	117817	< 490.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-3S	91.05745	101553	< 490.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NW-3S	91.05745	85687	< 490.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NW-3S	91.05745	59507	< 490.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NW-3S	91.05745	106478	< 490.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NW-3S	91.05745	91587	< 490.		UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NW-3S	91.05745	95578	< 490.		UG/KG	7/10/91	o-Chlorophenol
AB-53-NW-3S	91.05745	7005723	< 490.		UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NW-3S	91.05745	218019	< 490.		UG/KG	7/10/91	Chrysene
AB-53-NW-3S	91.05745	84742	1400.	420.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NW-3S	91.05745	117840	< 490.		UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NW-3S	91.05745	53703	< 490.		UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NW-3S	91.05745	132649	< 490.		UG/KG	7/10/91	Dibenzofuran
AB-53-NW-3S	91.05745	95501	< 490.		UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NW-3S	91.05745	541731	< 490.		UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NW-3S	91.05745	106467	< 490.		UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NW-3S	91.05745	91941	< 490.		UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NW-3S	91.05745	120832	< 490.		UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NW-3S	91.05745	84662	< 490.		UG/KG	7/10/91	Diethyl phthalate
AB-53-NW-3S	91.05745	131113	< 490.		UG/KG	7/10/91	Dimethyl phthalate
AB-53-NW-3S	91.05745	105679	< 490.		UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NW-3S	91.05745	51285	< 490.		UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NW-3S	91.05745	121142	< 490.		UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NW-3S	91.05745	606202	< 490.		UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NW-3S	91.05745	206440	< 490.		UG/KG	7/10/91	Fluoranthene
AB-53-NW-3S	91.05745	86737	< 490.		UG/KG	7/10/91	Fluorene
AB-53-NW-3S	91.05745	118741	< 490.		UG/KG	7/10/91	Hexachlorobenzene
AB-53-NW-3S	91.05745	87683	< 490.		UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NW-3S	91.05745	77474	< 490.		UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NW-3S	91.05745	67721	< 490.		UG/KG	7/10/91	Hexachloroethane
AB-53-NW-3S	91.05745	193395	< 490.		UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-3S	91.05745	78591	< 490.		UG/KG	7/10/91	Isophorone
AB-53-NW-3S	91.05745	534521	< 490.		UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-3S	91.05745	91576	< 490.		UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NW-3S	91.05745	95487	< 490.		UG/KG	7/10/91	2-Methylphenol
AB-53-NW-3S	91.05745	106445	< 490.		UG/KG	7/10/91	4-Methylphenol
AB-53-NW-3S	91.05745	91203	< 490.		UG/KG	7/10/91	Naphthalene
AB-53-NW-3S	91.05745	88744	< 490.		UG/KG	7/10/91	2-Nitroaniline
AB-53-NW-3S	91.05745	99092	< 490.		UG/KG	7/10/91	3-Nitroaniline
AB-53-NW-3S	91.05745	100016	< 490.		UG/KG	7/10/91	4-Nitroaniline
AB-53-NW-3S	91.05745	98953	< 490.		UG/KG	7/10/91	Nitrobenzene
AB-53-NW-3S	91.05745	88755	< 490.		UG/KG	7/10/91	2-Nitrophenol
AB-53-NW-3S	91.05745	100027	< 490.		UG/KG	7/10/91	4-Nitrophenol
AB-53-NW-3S	91.05745	621647	< 490.		UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NW-3S	91.05745	62759	< 490.		UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NW-3S	91.05745	86306	< 490.		UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NW-3S	91.05745	87865	< 490.		UG/KG	7/10/91	Pentachlorophenol
AB-53-NW-3S	91.05745	85018	< 490.		UG/KG	7/10/91	Phenanthrene
AB-53-NW-3S	91.05745	108952	< 490.		UG/KG	7/10/91	Phenol
AB-53-NW-3S	91.05745	129000	< 490.		UG/KG	7/10/91	Pyrene

AB-53-NW-3S	91.05745	120821	< 490.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NW-3S	91.05745	95954	< 490.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NW-3S	91.05745	88062	< 490.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05745

none

Customer Sample Duplicate Results for Sample # 91.05745

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05745

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WN54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05746

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-4SQ	91.05746	83329	< 650.		UG/KG	7/10/91		Acenaphthene
AB-53-NW-4SQ	91.05746	208968	< 650.		UG/KG	7/10/91		Acenaphthylene
AB-53-NW-4SQ	91.05746	62533	< 650.		UG/KG	7/10/91		Aniline
AB-53-NW-4SQ	91.05746	120127	< 650.		UG/KG	7/10/91		Anthracene
AB-53-NW-4SQ	91.05746	103333	< 650.		UG/KG	7/10/91		Azobenzene
AB-53-NW-4SQ	91.05746	92875	< 650.		UG/KG	7/10/91		m-Benzidine
AB-53-NW-4SQ	91.05746	56553	< 650.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NW-4SQ	91.05746	50328	< 650.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NW-4SQ	91.05746	205992	< 650.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NW-4SQ	91.05746	191242	< 650.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NW-4SQ	91.05746	207089	< 650.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NW-4SQ	91.05746	65850	< 650.		UG/KG	7/10/91		Benzoic acid
AB-53-NW-4SQ	91.05746	100516	< 650.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NW-4SQ	91.05746	111911	< 650.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NW-4SQ	91.05746	111444	< 650.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NW-4SQ	91.05746	108601	< 650.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NW-4SQ	91.05746	117817	< 650.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NW-4SQ	91.05746	101553	< 650.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NW-4SQ	91.05746	85687	< 650.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NW-4SQ	91.05746	59507	< 650.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NW-4SQ	91.05746	106478	< 650.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NW-4SQ	91.05746	91587	< 650.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NW-4SQ	91.05746	95578	< 650.	UG/KG	7/10/91	o-Chlorophenol
AB-53-NW-4SQ	91.05746	7005723	< 650.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NW-4SQ	91.05746	218019	< 650.	UG/KG	7/10/91	Chrysene
AB-53-NW-4SQ	91.05746	84742	< 650.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NW-4SQ	91.05746	117840	< 650.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NW-4SQ	91.05746	53703	< 650.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NW-4SQ	91.05746	132649	< 650.	UG/KG	7/10/91	Dibenzofuran
AB-53-NW-4SQ	91.05746	95501	< 650.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NW-4SQ	91.05746	541731	< 650.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NW-4SQ	91.05746	106467	< 650.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NW-4SQ	91.05746	91941	< 650.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NW-4SQ	91.05746	120832	< 650.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NW-4SQ	91.05746	84662	< 650.	UG/KG	7/10/91	Diethyl phthalate
AB-53-NW-4SQ	91.05746	131113	< 650.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-NW-4SQ	91.05746	105679	< 650.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NW-4SQ	91.05746	51285	< 650.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NW-4SQ	91.05746	121142	< 650.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NW-4SQ	91.05746	606202	< 650.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NW-4SQ	91.05746	206440	< 650.	UG/KG	7/10/91	Fluoranthene
AB-53-NW-4SQ	91.05746	86737	< 650.	UG/KG	7/10/91	Fluorene
AB-53-NW-4SQ	91.05746	118741	< 650.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-NW-4SQ	91.05746	87683	< 650.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NW-4SQ	91.05746	77474	< 650.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NW-4SQ	91.05746	67721	< 650.	UG/KG	7/10/91	Hexachloroethane
AB-53-NW-4SQ	91.05746	193395	< 650.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NW-4SQ	91.05746	78591	< 650.	UG/KG	7/10/91	Isophorone
AB-53-NW-4SQ	91.05746	534521	< 650.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NW-4SQ	91.05746	91576	< 650.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NW-4SQ	91.05746	95487	< 650.	UG/KG	7/10/91	2-Methylphenol
AB-53-NW-4SQ	91.05746	106445	< 650.	UG/KG	7/10/91	4-Methylphenol
AB-53-NW-4SQ	91.05746	91203	< 650.	UG/KG	7/10/91	Naphthalene
AB-53-NW-4SQ	91.05746	88744	< 650.	UG/KG	7/10/91	2-Nitroaniline
AB-53-NW-4SQ	91.05746	99092	< 650.	UG/KG	7/10/91	3-Nitroaniline
AB-53-NW-4SQ	91.05746	100016	< 650.	UG/KG	7/10/91	4-Nitroaniline
AB-53-NW-4SQ	91.05746	98953	< 650.	UG/KG	7/10/91	Nitrobenzene
AB-53-NW-4SQ	91.05746	88755	< 650.	UG/KG	7/10/91	2-Nitrophenol
AB-53-NW-4SQ	91.05746	100027	< 650.	UG/KG	7/10/91	4-Nitrophenol
AB-53-NW-4SQ	91.05746	621647	< 650.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NW-4SQ	91.05746	62759	< 650.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NW-4SQ	91.05746	86306	< 650.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NW-4SQ	91.05746	87865	< 650.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NW-4SQ	91.05746	85018	< 650.	UG/KG	7/10/91	Phenanthrene
AB-53-NW-4SQ	91.05746	108952	< 650.	UG/KG	7/10/91	Phenol
AB-53-NW-4SQ	91.05746	129000	< 650.	UG/KG	7/10/91	Pyrene

AB-53-NW-4SQ 91.05746	120821	< 650.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NW-4SQ 91.05746	95954	< 650.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NW-4SQ 91.05746	88062	< 650.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05746

none

Customer Sample Duplicate Results for Sample # 91.05746

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05746

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05751

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1S	91.05751	83329	< 480.		UG/KG	7/10/91		Acenaphthene
AB-53-NE-1S	91.05751	208968	< 480.		UG/KG	7/10/91		Acenaphthylene
AB-53-NE-1S	91.05751	62533	< 480.		UG/KG	7/10/91		Aniline
AB-53-NE-1S	91.05751	120127	< 480.		UG/KG	7/10/91		Anthracene
AB-53-NE-1S	91.05751	103333	< 480.		UG/KG	7/10/91		Azobenzene
AB-53-NE-1S	91.05751	92875	< 480.		UG/KG	7/10/91		m-Benzidine
AB-53-NE-1S	91.05751	56553	< 480.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NE-1S	91.05751	50328	< 480.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NE-1S	91.05751	205992	< 480.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NE-1S	91.05751	191242	< 480.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NE-1S	91.05751	207089	< 480.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NE-1S	91.05751	65850	< 480.		UG/KG	7/10/91		Benzoic acid
AB-53-NE-1S	91.05751	100516	< 480.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NE-1S	91.05751	111911	< 480.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NE-1S	91.05751	111444	< 480.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NE-1S	91.05751	108601	< 480.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NE-1S	91.05751	117817	< 480.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-1S	91.05751	101553	< 480.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NE-1S	91.05751	85687	< 480.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NE-1S	91.05751	59507	< 480.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NE-1S	91.05751	106478	< 480.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NE-1S	91.05751	91587	< 480.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NE-1S	91.05751	95578	< 480.	UG/KG	7/10/91	o-Chlorophenol
AB-53-NE-1S	91.05751	7005723	< 480.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NE-1S	91.05751	218019	< 480.	UG/KG	7/10/91	Chrysene
AB-53-NE-1S	91.05751	84742	< 480.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NE-1S	91.05751	117840	< 480.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NE-1S	91.05751	53703	< 480.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NE-1S	91.05751	132649	< 480.	UG/KG	7/10/91	Dibenzofuran
AB-53-NE-1S	91.05751	95501	< 480.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NE-1S	91.05751	541731	< 480.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NE-1S	91.05751	106467	< 480.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NE-1S	91.05751	91941	< 480.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NE-1S	91.05751	120832	< 480.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NE-1S	91.05751	84662	< 480.	UG/KG	7/10/91	Diethyl phthalate
AB-53-NE-1S	91.05751	131113	< 480.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-NE-1S	91.05751	105679	< 480.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NE-1S	91.05751	51285	< 480.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NE-1S	91.05751	121142	< 480.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NE-1S	91.05751	606202	< 480.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NE-1S	91.05751	206440	< 480.	UG/KG	7/10/91	Fluoranthene
AB-53-NE-1S	91.05751	86737	< 480.	UG/KG	7/10/91	Fluorene
AB-53-NE-1S	91.05751	118741	< 480.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-NE-1S	91.05751	87683	< 480.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NE-1S	91.05751	77474	< 480.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NE-1S	91.05751	67721	< 480.	UG/KG	7/10/91	Hexachloroethane
AB-53-NE-1S	91.05751	193395	< 480.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-1S	91.05751	78591	< 480.	UG/KG	7/10/91	Isophorone
AB-53-NE-1S	91.05751	534521	< 480.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-1S	91.05751	91576	< 480.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NE-1S	91.05751	95487	< 480.	UG/KG	7/10/91	2-Methylphenol
AB-53-NE-1S	91.05751	106445	< 480.	UG/KG	7/10/91	4-Methylphenol
AB-53-NE-1S	91.05751	91203	< 480.	UG/KG	7/10/91	Naphthalene
AB-53-NE-1S	91.05751	88744	< 480.	UG/KG	7/10/91	2-Nitroaniline
AB-53-NE-1S	91.05751	99092	< 480.	UG/KG	7/10/91	3-Nitroaniline
AB-53-NE-1S	91.05751	100016	< 480.	UG/KG	7/10/91	4-Nitroaniline
AB-53-NE-1S	91.05751	98953	< 480.	UG/KG	7/10/91	Nitrobenzene
AB-53-NE-1S	91.05751	88755	< 480.	UG/KG	7/10/91	2-Nitrophenol
AB-53-NE-1S	91.05751	100027	< 480.	UG/KG	7/10/91	4-Nitrophenol
AB-53-NE-1S	91.05751	621647	< 480.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NE-1S	91.05751	62759	< 480.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NE-1S	91.05751	86306	< 480.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NE-1S	91.05751	87865	< 480.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NE-1S	91.05751	85018	< 480.	UG/KG	7/10/91	Phenanthrene
AB-53-NE-1S	91.05751	108952	< 480.	UG/KG	7/10/91	Phenol
AB-53-NE-1S	91.05751	129000	< 480.	UG/KG	7/10/91	Pyrene

AB-53-NE-1S	91.05751	120821	< 480.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NE-1S	91.05751	95954	< 480.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NE-1S	91.05751	88062	< 480.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05751

none

Customer Sample Duplicate Results for Sample # 91.05751

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05751

none

Matrix Spike Results for Sample # 91.05751

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1S	91.05751	83329	2416.63	1300.	UG/KG	7/10/91		Acenaphthene
AB-53-NE-1S	91.05751	59507	4833.25	2300.	UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NE-1S	91.05751	95578	4833.25	1600.	UG/KG	7/10/91		o-Chlorophenol
AB-53-NE-1S	91.05751	106467	2416.63	570.	UG/KG	7/10/91		p-Dichlorobenzene (1,4)
AB-53-NE-1S	91.05751	121142	2416.63	1100.	UG/KG	7/10/91		2,4-Dinitrotoluene
AB-53-NE-1S	91.05751	100027	4833.25	2200.	UG/KG	7/10/91		4-Nitrophenol
AB-53-NE-1S	91.05751	621647	2416.63	1100.	UG/KG	7/10/91		N-Nitrosodi-n-propylamine
AB-53-NE-1S	91.05751	87865	4833.25	2800.	UG/KG	7/10/91		Pentachlorophenol
AB-53-NE-1S	91.05751	108952	4833.25	2000.	UG/KG	7/10/91		Phenol
AB-53-NE-1S	91.05751	129000	2416.63	1600.	UG/KG	7/10/91		Pyrene
AB-53-NE-1S	91.05751	120821	2416.63	910.	UG/KG	7/10/91		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 91.05751

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-1S	91.05751	83329	2460.63	1900.	UG/KG	7/10/91		Acenaphthene
AB-53-NE-1S	91.05751	59507	4921.26	3400.	UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NE-1S	91.05751	95578	4921.26	3100.	UG/KG	7/10/91		o-Chlorophenol
AB-53-NE-1S	91.05751	106467	2460.63	1600.	UG/KG	7/10/91		p-Dichlorobenzene (1,4)
AB-53-NE-1S	91.05751	121142	2460.63	1500.	UG/KG	7/10/91		2,4-Dinitrotoluene
AB-53-NE-1S	91.05751	100027	4921.26	3100.	UG/KG	7/10/91		4-Nitrophenol
AB-53-NE-1S	91.05751	621647	2460.63	2100.	UG/KG	7/10/91		N-Nitrosodi-n-propylamine

AB-53-NE-1S	91.05751	87865	4921.26	3900.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NE-1S	91.05751	108952	4921.26	3600.	UG/KG	7/10/91	Phenol
AB-53-NE-1S	91.05751	129000	2460.63	2300.	UG/KG	7/10/91	Pyrene
AB-53-NE-1S	91.05751	120821	2460.63	2000.	UG/KG	7/10/91	1,2,4-Trichlorobenzene

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05752

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-2S	91.05752	83329	< 630.		UG/KG	7/10/91		Acenaphthene
AB-53-NE-2S	91.05752	208968	< 630.		UG/KG	7/10/91		Acenaphthylene
AB-53-NE-2S	91.05752	62533	< 630.		UG/KG	7/10/91		Aniline
AB-53-NE-2S	91.05752	120127	< 630.		UG/KG	7/10/91		Anthracene
AB-53-NE-2S	91.05752	103333	< 630.		UG/KG	7/10/91		Azobenzene
AB-53-NE-2S	91.05752	92875	< 630.		UG/KG	7/10/91		m-Benzidine
AB-53-NE-2S	91.05752	56553	< 630.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NE-2S	91.05752	50328	< 630.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NE-2S	91.05752	205992	< 630.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NE-2S	91.05752	191242	< 630.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NE-2S	91.05752	207089	< 630.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NE-2S	91.05752	65850	< 630.		UG/KG	7/10/91		Benzoic acid
AB-53-NE-2S	91.05752	100516	< 630.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NE-2S	91.05752	111911	< 630.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NE-2S	91.05752	111444	< 630.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NE-2S	91.05752	108601	< 630.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NE-2S	91.05752	117817	< 630.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-2S	91.05752	101553	< 630.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NE-2S	91.05752	85687	< 630.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NE-2S	91.05752	59507	< 630.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NE-2S	91.05752	106478	< 630.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NE-2S	91.05752	91587	< 630.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NE-2S	91.05752	95578	< 630.	UG/KG	7/10/91	o-Chlorophenol
AB-53-NE-2S	91.05752	7005723	< 630.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NE-2S	91.05752	218019	< 630.	UG/KG	7/10/91	Chrysene
AB-53-NE-2S	91.05752	84742	< 630.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NE-2S	91.05752	117840	< 630.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NE-2S	91.05752	53703	< 630.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NE-2S	91.05752	132649	< 630.	UG/KG	7/10/91	Dibenzofuran
AB-53-NE-2S	91.05752	95501	< 630.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NE-2S	91.05752	541731	< 630.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NE-2S	91.05752	106467	< 630.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NE-2S	91.05752	91941	< 630.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NE-2S	91.05752	120832	< 630.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NE-2S	91.05752	84662	< 630.	UG/KG	7/10/91	Diethyl phthalate
AB-53-NE-2S	91.05752	131113	< 630.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-NE-2S	91.05752	105679	< 630.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NE-2S	91.05752	51285	< 630.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NE-2S	91.05752	121142	< 630.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NE-2S	91.05752	606202	< 630.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NE-2S	91.05752	206440	< 630.	UG/KG	7/10/91	Fluoranthene
AB-53-NE-2S	91.05752	86737	< 630.	UG/KG	7/10/91	Fluorene
AB-53-NE-2S	91.05752	118741	< 630.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-NE-2S	91.05752	87683	< 630.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NE-2S	91.05752	77474	< 630.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NE-2S	91.05752	67721	< 630.	UG/KG	7/10/91	Hexachloroethane
AB-53-NE-2S	91.05752	193395	< 630.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-2S	91.05752	78591	< 630.	UG/KG	7/10/91	Isophorone
AB-53-NE-2S	91.05752	534521	< 630.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-2S	91.05752	91576	< 630.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NE-2S	91.05752	95487	< 630.	UG/KG	7/10/91	2-Methylphenol
AB-53-NE-2S	91.05752	106445	< 630.	UG/KG	7/10/91	4-Methylphenol
AB-53-NE-2S	91.05752	91203	< 630.	UG/KG	7/10/91	Naphthalene
AB-53-NE-2S	91.05752	88744	< 630.	UG/KG	7/10/91	2-Nitroaniline
AB-53-NE-2S	91.05752	99092	< 630.	UG/KG	7/10/91	3-Nitroaniline
AB-53-NE-2S	91.05752	100016	< 630.	UG/KG	7/10/91	4-Nitroaniline
AB-53-NE-2S	91.05752	98953	< 630.	UG/KG	7/10/91	Nitrobenzene
AB-53-NE-2S	91.05752	88755	< 630.	UG/KG	7/10/91	2-Nitrophenol
AB-53-NE-2S	91.05752	100027	< 630.	UG/KG	7/10/91	4-Nitrophenol
AB-53-NE-2S	91.05752	621647	< 630.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NE-2S	91.05752	62759	< 630.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NE-2S	91.05752	86306	< 630.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NE-2S	91.05752	87865	< 630.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NE-2S	91.05752	85018	< 630.	UG/KG	7/10/91	Phenanthrene
AB-53-NE-2S	91.05752	108952	< 630.	UG/KG	7/10/91	Phenol
AB-53-NE-2S	91.05752	129000	< 630.	UG/KG	7/10/91	Pyrene

AB-53-NE-2S	91.05752	120821	< 630.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NE-2S	91.05752	95954	< 630.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NE-2S	91.05752	88062	< 630.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05752

none

Customer Sample Duplicate Results for Sample # 91.05752

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05752

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: UM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05753

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NE-3S	91.05753	83329	< 650.		UG/KG	7/10/91		Acenaphthene
AB-53-NE-3S	91.05753	208968	< 650.		UG/KG	7/10/91		Acenaphthylene
AB-53-NE-3S	91.05753	62533	< 650.		UG/KG	7/10/91		Aniline
AB-53-NE-3S	91.05753	120127	< 650.		UG/KG	7/10/91		Anthracene
AB-53-NE-3S	91.05753	103333	< 650.		UG/KG	7/10/91		Azobenzene
AB-53-NE-3S	91.05753	92875	< 650.		UG/KG	7/10/91		m-Benzidine
AB-53-NE-3S	91.05753	56553	< 650.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-NE-3S	91.05753	50328	< 650.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-NE-3S	91.05753	205992	< 650.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-NE-3S	91.05753	191242	< 650.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-NE-3S	91.05753	207089	< 650.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-NE-3S	91.05753	65850	< 650.		UG/KG	7/10/91		Benzoic acid
AB-53-NE-3S	91.05753	100516	< 650.		UG/KG	7/10/91		Benzyl alcohol
AB-53-NE-3S	91.05753	111911	< 650.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-NE-3S	91.05753	111444	< 650.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-NE-3S	91.05753	108601	< 650.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-NE-3S	91.05753	117817	< 650.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-NE-3S	91.05753	101553	< 650.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-NE-3S	91.05753	85687	< 650.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-NE-3S	91.05753	59507	< 650.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-NE-3S	91.05753	106478	< 650.		UG/KG	7/10/91		4-Chloroaniline

AB-53-NE-3S	91.05753	91587	< 650.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-NE-3S	91.05753	95578	< 650.	UG/KG	7/10/91	o-Chlorophenol
AB-53-NE-3S	91.05753	7005723	< 650.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-NE-3S	91.05753	218019	< 650.	UG/KG	7/10/91	Chrysene
AB-53-NE-3S	91.05753	84742	< 650.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-NE-3S	91.05753	117840	< 650.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-NE-3S	91.05753	53703	< 650.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-NE-3S	91.05753	132649	< 650.	UG/KG	7/10/91	Dibenzofuran
AB-53-NE-3S	91.05753	95501	< 650.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-NE-3S	91.05753	541731	< 650.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-NE-3S	91.05753	106467	< 650.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-NE-3S	91.05753	91941	< 650.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-NE-3S	91.05753	120832	< 650.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-NE-3S	91.05753	84662	< 650.	UG/KG	7/10/91	Diethyl phthalate
AB-53-NE-3S	91.05753	131113	< 650.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-NE-3S	91.05753	105679	< 650.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-NE-3S	91.05753	51285	< 650.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-NE-3S	91.05753	121142	< 650.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-NE-3S	91.05753	606202	< 650.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-NE-3S	91.05753	206440	< 650.	UG/KG	7/10/91	Fluoranthene
AB-53-NE-3S	91.05753	86737	< 650.	UG/KG	7/10/91	Fluorene
AB-53-NE-3S	91.05753	118741	< 650.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-NE-3S	91.05753	87683	< 650.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-NE-3S	91.05753	77474	< 650.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-NE-3S	91.05753	67721	< 650.	UG/KG	7/10/91	Hexachloroethane
AB-53-NE-3S	91.05753	193395	< 650.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-NE-3S	91.05753	78591	< 650.	UG/KG	7/10/91	Isophorone
AB-53-NE-3S	91.05753	534521	< 650.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-NE-3S	91.05753	91576	< 650.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-NE-3S	91.05753	95487	< 650.	UG/KG	7/10/91	2-Methylphenol
AB-53-NE-3S	91.05753	106445	< 650.	UG/KG	7/10/91	4-Methylphenol
AB-53-NE-3S'	91.05753	91203	< 650.	UG/KG	7/10/91	Naphthalene
AB-53-NE-3S	91.05753	88744	< 650.	UG/KG	7/10/91	2-Nitroaniline
AB-53-NE-3S	91.05753	99092	< 650.	UG/KG	7/10/91	3-Nitroaniline
AB-53-NE-3S	91.05753	100016	< 650.	UG/KG	7/10/91	4-Nitroaniline
AB-53-NE-3S	91.05753	98953	< 650.	UG/KG	7/10/91	Nitrobenzene
AB-53-NE-3S	91.05753	88755	< 650.	UG/KG	7/10/91	2-Nitrophenol
AB-53-NE-3S	91.05753	100027	< 650.	UG/KG	7/10/91	4-Nitrophenol
AB-53-NE-3S	91.05753	621647	< 650.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-NE-3S	91.05753	62759	< 650.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-NE-3S	91.05753	86306	< 650.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-NE-3S	91.05753	87865	< 650.	UG/KG	7/10/91	Pentachlorophenol
AB-53-NE-3S	91.05753	85018	< 650.	UG/KG	7/10/91	Phenanthrene
AB-53-NE-3S	91.05753	108952	< 650.	UG/KG	7/10/91	Phenol
AB-53-NE-3S	91.05753	129000	< 650.	UG/KG	7/10/91	Pyrene

AB-53-NE-3S	91.05753	120821	< 650.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-NE-3S	91.05753	95954	< 650.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-NE-3S	91.05753	88062	< 650.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05753

none

Customer Sample Duplicate Results for Sample # 91.05753

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05753

none

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05757

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-1S	91.05757	83329	< 660.		UG/KG	7/10/91		Acenaphthene
AB-53-SO-1S	91.05757	208968	< 660.		UG/KG	7/10/91		Acenaphthylene
AB-53-SO-1S	91.05757	62533	< 660.		UG/KG	7/10/91		Aniline
AB-53-SO-1S	91.05757	120127	< 660.		UG/KG	7/10/91		Anthracene
AB-53-SO-1S	91.05757	103333	< 660.		UG/KG	7/10/91		Azobenzene
AB-53-SO-1S	91.05757	92875	< 660.		UG/KG	7/10/91		m-Benzidine
AB-53-SO-1S	91.05757	56553	< 660.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-SO-1S	91.05757	50328	< 660.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-SO-1S	91.05757	205992	< 660.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-SO-1S	91.05757	191242	< 660.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-SO-1S	91.05757	207089	< 660.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-SO-1S	91.05757	65850	< 660.		UG/KG	7/10/91		Benzoic acid
AB-53-SO-1S	91.05757	100516	< 660.		UG/KG	7/10/91		Benzyl alcohol
AB-53-SO-1S	91.05757	111911	< 660.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-SO-1S	91.05757	111444	< 660.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-SO-1S	91.05757	108601	< 660.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-SO-1S	91.05757	117817	< 660.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-1S	91.05757	101553	< 660.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-SO-1S	91.05757	85687	< 660.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-SO-1S	91.05757	59507	< 660.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-SO-1S	91.05757	106478	< 660.		UG/KG	7/10/91		4-Chloroaniline

AB-53-SO-1S	91.05757	91587	< 660.		UG/KG	7/10/91	2-Chloronaphthalene
AB-53-SO-1S	91.05757	95578	< 660.		UG/KG	7/10/91	o-Chlorophenol
AB-53-SO-1S	91.05757	7005723	< 660.		UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-SO-1S	91.05757	218019	< 660.		UG/KG	7/10/91	Chrysene
AB-53-SO-1S	91.05757	84742	1400.	420.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-SO-1S	91.05757	117840	< 660.		UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-SO-1S	91.05757	53703	< 660.		UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-SO-1S	91.05757	132649	< 660.		UG/KG	7/10/91	Dibenzofuran
AB-53-SO-1S	91.05757	95501	< 660.		UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-SO-1S	91.05757	541731	< 660.		UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-SO-1S	91.05757	106467	< 660.		UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-SO-1S	91.05757	91941	< 660.		UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-SO-1S	91.05757	120832	< 660.		UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-SO-1S	91.05757	84662	< 660.		UG/KG	7/10/91	Diethyl phthalate
AB-53-SO-1S	91.05757	131113	< 660.		UG/KG	7/10/91	Dimethyl phthalate
AB-53-SO-1S	91.05757	105679	< 660.		UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-SO-1S	91.05757	51285	< 660.		UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-SO-1S	91.05757	121142	< 660.		UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-SO-1S	91.05757	606202	< 660.		UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-SO-1S	91.05757	206440	< 660.		UG/KG	7/10/91	Fluoranthene
AB-53-SO-1S	91.05757	86737	< 660.		UG/KG	7/10/91	Fluorene
AB-53-SO-1S	91.05757	118741	< 660.		UG/KG	7/10/91	Hexachlorobenzene
AB-53-SO-1S	91.05757	87683	< 660.		UG/KG	7/10/91	Hexachlorobutadiene
AB-53-SO-1S	91.05757	77474	< 660.		UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-SO-1S	91.05757	67721	< 660.		UG/KG	7/10/91	Hexachloroethane
AB-53-SO-1S	91.05757	193395	< 660.		UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-1S	91.05757	78591	< 660.		UG/KG	7/10/91	Isophorone
AB-53-SO-1S	91.05757	534521	< 660.		UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-1S	91.05757	91576	< 660.		UG/KG	7/10/91	2-Methylnaphthalene
AB-53-SO-1S	91.05757	95487	< 660.		UG/KG	7/10/91	2-Methylphenol
AB-53-SO-1S	91.05757	106445	< 660.		UG/KG	7/10/91	4-Methylphenol
AB-53-SO-1S	91.05757	91203	< 660.		UG/KG	7/10/91	Naphthalene
AB-53-SO-1S	91.05757	88744	< 660.		UG/KG	7/10/91	2-Nitroaniline
AB-53-SO-1S	91.05757	99092	< 660.		UG/KG	7/10/91	3-Nitroaniline
AB-53-SO-1S	91.05757	100016	< 660.		UG/KG	7/10/91	4-Nitroaniline
AB-53-SO-1S	91.05757	98953	< 660.		UG/KG	7/10/91	Nitrobenzene
AB-53-SO-1S	91.05757	88755	< 660.		UG/KG	7/10/91	2-Nitrophenol
AB-53-SO-1S	91.05757	100027	< 660.		UG/KG	7/10/91	4-Nitrophenol
AB-53-SO-1S	91.05757	621647	< 660.		UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-SO-1S	91.05757	62759	< 660.		UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-SO-1S	91.05757	86306	< 660.		UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-SO-1S	91.05757	87865	< 660.		UG/KG	7/10/91	Pentachlorophenol
AB-53-SO-1S	91.05757	85018	< 660.		UG/KG	7/10/91	Phenanthrene
AB-53-SO-1S	91.05757	108952	< 660.		UG/KG	7/10/91	Phenol
AB-53-SO-1S	91.05757	129000	< 660.		UG/KG	7/10/91	Pyrene

AB-53-SO-1S	91.05757	120821	< 660.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-SO-1S	91.05757	95954	< 660.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-SO-1S	91.05757	88062	< 660.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05757

none

Customer Sample Duplicate Results for Sample # 91.05757

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05757

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WH54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05758

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-2S	91.05758	83329	< 660.		UG/KG	7/10/91		Acenaphthene
AB-53-SO-2S	91.05758	208968	< 660.		UG/KG	7/10/91		Acenaphthylene
AB-53-SO-2S	91.05758	62533	< 660.		UG/KG	7/10/91		Aniline
AB-53-SO-2S	91.05758	120127	< 660.		UG/KG	7/10/91		Anthracene
AB-53-SO-2S	91.05758	103333	< 660.		UG/KG	7/10/91		Azobenzene
AB-53-SO-2S	91.05758	92875	< 660.		UG/KG	7/10/91		m-Benzidine
AB-53-SO-2S	91.05758	56553	< 660.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-SO-2S	91.05758	50328	< 660.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-SO-2S	91.05758	205992	< 660.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-SO-2S	91.05758	191242	< 660.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-SO-2S	91.05758	207089	< 660.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-SO-2S	91.05758	65850	< 660.		UG/KG	7/10/91		Benzoic acid
AB-53-SO-2S	91.05758	100516	< 660.		UG/KG	7/10/91		Benzyl alcohol
AB-53-SO-2S	91.05758	111911	< 660.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-SO-2S	91.05758	111444	< 660.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-SO-2S	91.05758	108601	< 660.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-SO-2S	91.05758	117817	< 660.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-2S	91.05758	101553	< 660.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-SO-2S	91.05758	85687	< 660.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-SO-2S	91.05758	59507	< 660.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-SO-2S	91.05758	106478	< 660.		UG/KG	7/10/91		4-Chloroaniline

AB-53-SO-2S	91.05758	91587	< 660.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-SO-2S	91.05758	95578	< 660.	UG/KG	7/10/91	o-Chlorophenol
AB-53-SO-2S	91.05758	7005723	< 660.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-SO-2S	91.05758	218019	< 660.	UG/KG	7/10/91	Chrysene
AB-53-SO-2S	91.05758	84742	< 660.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-SO-2S	91.05758	117840	< 660.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-SO-2S	91.05758	53703	< 660.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-SO-2S	91.05758	132649	< 660.	UG/KG	7/10/91	Dibenzofuran
AB-53-SO-2S	91.05758	95501	< 660.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-SO-2S	91.05758	541731	< 660.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-SO-2S	91.05758	106467	< 660.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-SO-2S	91.05758	91941	< 660.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-SO-2S	91.05758	120832	< 660.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-SO-2S	91.05758	84662	< 660.	UG/KG	7/10/91	Diethyl phthalate
AB-53-SO-2S	91.05758	131113	< 660.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-SO-2S	91.05758	105679	< 660.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-SO-2S	91.05758	51285	< 660.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-SO-2S	91.05758	121142	< 660.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-SO-2S	91.05758	606202	< 660.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-SO-2S	91.05758	206440	< 660.	UG/KG	7/10/91	Fluoranthene
AB-53-SO-2S	91.05758	86737	< 660.	UG/KG	7/10/91	Fluorene
AB-53-SO-2S	91.05758	118741	< 660.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-SO-2S	91.05758	87683	< 660.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-SO-2S	91.05758	77474	< 660.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-SO-2S	91.05758	67721	< 660.	UG/KG	7/10/91	Hexachloroethane
AB-53-SO-2S	91.05758	193395	< 660.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-2S	91.05758	78591	< 660.	UG/KG	7/10/91	Isophorone
AB-53-SO-2S	91.05758	534521	< 660.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-2S	91.05758	91576	< 660.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-SO-2S	91.05758	95487	< 660.	UG/KG	7/10/91	2-Methylphenol
AB-53-SO-2S	91.05758	106445	< 660.	UG/KG	7/10/91	4-Methylphenol
AB-53-SO-2S	91.05758	91203	< 660.	UG/KG	7/10/91	Naphthalene
AB-53-SO-2S	91.05758	88744	< 660.	UG/KG	7/10/91	2-Nitroaniline
AB-53-SO-2S	91.05758	99092	< 660.	UG/KG	7/10/91	3-Nitroaniline
AB-53-SO-2S	91.05758	100016	< 660.	UG/KG	7/10/91	4-Nitroaniline
AB-53-SO-2S	91.05758	98953	< 660.	UG/KG	7/10/91	Nitrobenzene
AB-53-SO-2S	91.05758	88755	< 660.	UG/KG	7/10/91	2-Nitrophenol
AB-53-SO-2S	91.05758	100027	< 660.	UG/KG	7/10/91	4-Nitrophenol
AB-53-SO-2S	91.05758	621647	< 660.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-SO-2S	91.05758	62759	< 660.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-SO-2S	91.05758	86306	< 660.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-SO-2S	91.05758	87865	< 660.	UG/KG	7/10/91	Pentachlorophenol
AB-53-SO-2S	91.05758	85018	< 660.	UG/KG	7/10/91	Phenanthrene
AB-53-SO-2S	91.05758	108952	< 660.	UG/KG	7/10/91	Phenol
AB-53-SO-2S	91.05758	129000	< 660.	UG/KG	7/10/91	Pyrene

AB-53-SO-2S	91.05758	120821	< 660.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-SO-2S	91.05758	95954	< 660.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-SO-2S	91.05758	88062	< 660.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05758

none

Customer Sample Duplicate Results for Sample # 91.05758

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05758

none

REPORT NUMBER: 10818

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WW54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

Customer Sample Results, Sample # 91.05759

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/06/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-SO-3S	91.05759	83329	< 490.		UG/KG	7/10/91		Acenaphthene
AB-53-SO-3S	91.05759	208968	< 490.		UG/KG	7/10/91		Acenaphthylene
AB-53-SO-3S	91.05759	62533	< 490.		UG/KG	7/10/91		Aniline
AB-53-SO-3S	91.05759	120127	< 490.		UG/KG	7/10/91		Anthracene
AB-53-SO-3S	91.05759	103333	< 490.		UG/KG	7/10/91		Azobenzene
AB-53-SO-3S	91.05759	92875	< 490.		UG/KG	7/10/91		m-Benzidine
AB-53-SO-3S	91.05759	56553	< 490.		UG/KG	7/10/91		Benzo[a]anthracene
AB-53-SO-3S	91.05759	50328	< 490.		UG/KG	7/10/91		Benzo[a]pyrene
AB-53-SO-3S	91.05759	205992	< 490.		UG/KG	7/10/91		Benzo[b]fluoranthene
AB-53-SO-3S	91.05759	191242	< 490.		UG/KG	7/10/91		Benzo[g,h,i]perylene
AB-53-SO-3S	91.05759	207089	< 490.		UG/KG	7/10/91		Benzo[k]fluoranthene
AB-53-SO-3S	91.05759	65850	< 490.		UG/KG	7/10/91		Benzoic acid
AB-53-SO-3S	91.05759	100516	< 490.		UG/KG	7/10/91		Benzyl alcohol
AB-53-SO-3S	91.05759	111911	< 490.		UG/KG	7/10/91		Bis(2-chloroethoxy)methane
AB-53-SO-3S	91.05759	111444	< 490.		UG/KG	7/10/91		Bis(2-chloroethyl)ether
AB-53-SO-3S	91.05759	108601	< 490.		UG/KG	7/10/91		Bis(2-chloroisopropyl)ether
AB-53-SO-3S	91.05759	117817	< 490.		UG/KG	7/10/91		Bis(2-ethylhexyl)phthalate
AB-53-SO-3S	91.05759	101553	< 490.		UG/KG	7/10/91		4-Bromophenylphenyl ether
AB-53-SO-3S	91.05759	85687	< 490.		UG/KG	7/10/91		Butylbenzyl phthalate
AB-53-SO-3S	91.05759	59507	< 490.		UG/KG	7/10/91		4-Chloro-3-methylphenol
AB-53-SO-3S	91.05759	106478	< 490.		UG/KG	7/10/91		4-Chloroaniline

AB-53-SO-3S	91.05759	91587	< 490.	UG/KG	7/10/91	2-Chloronaphthalene
AB-53-SO-3S	91.05759	95578	< 490.	UG/KG	7/10/91	o-Chlorophenol
AB-53-SO-3S	91.05759	7005723	< 490.	UG/KG	7/10/91	4-Chlorophenylphenyl ether
AB-53-SO-3S	91.05759	218019	< 490.	UG/KG	7/10/91	Chrysene
AB-53-SO-3S	91.05759	84742	< 490.	UG/KG	7/10/91	Di-n-butyl phthalate
AB-53-SO-3S	91.05759	117840	< 490.	UG/KG	7/10/91	Di-n-octyl phthalate
AB-53-SO-3S	91.05759	53703	< 490.	UG/KG	7/10/91	Dibenzo[a,h]anthracene
AB-53-SO-3S	91.05759	132649	< 490.	UG/KG	7/10/91	Dibenzofuran
AB-53-SO-3S	91.05759	95501	< 490.	UG/KG	7/10/91	o-Dichlorobenzene (1,2)
AB-53-SO-3S	91.05759	541731	< 490.	UG/KG	7/10/91	m-Dichlorobenzene (1,3)
AB-53-SO-3S	91.05759	106467	< 490.	UG/KG	7/10/91	p-Dichlorobenzene (1,4)
AB-53-SO-3S	91.05759	91941	< 490.	UG/KG	7/10/91	3,3'-Dichlorobenzidine
AB-53-SO-3S	91.05759	120832	< 490.	UG/KG	7/10/91	2,4-Dichlorophenol
AB-53-SO-3S	91.05759	84662	< 490.	UG/KG	7/10/91	Diethyl phthalate
AB-53-SO-3S	91.05759	131113	< 490.	UG/KG	7/10/91	Dimethyl phthalate
AB-53-SO-3S	91.05759	105679	< 490.	UG/KG	7/10/91	2,4-Dimethylphenol
AB-53-SO-3S	91.05759	51285	< 490.	UG/KG	7/10/91	2,4-Dinitrophenol
AB-53-SO-3S	91.05759	121142	< 490.	UG/KG	7/10/91	2,4-Dinitrotoluene
AB-53-SO-3S	91.05759	606202	< 490.	UG/KG	7/10/91	2,6-Dinitrotoluene
AB-53-SO-3S	91.05759	206440	< 490.	UG/KG	7/10/91	Fluoranthene
AB-53-SO-3S	91.05759	86737	< 490.	UG/KG	7/10/91	Fluorene
AB-53-SO-3S	91.05759	118741	< 490.	UG/KG	7/10/91	Hexachlorobenzene
AB-53-SO-3S	91.05759	87683	< 490.	UG/KG	7/10/91	Hexachlorobutadiene
AB-53-SO-3S	91.05759	77474	< 490.	UG/KG	7/10/91	Hexachlorocyclopentadiene
AB-53-SO-3S	91.05759	67721	< 490.	UG/KG	7/10/91	Hexachloroethane
AB-53-SO-3S	91.05759	193395	< 490.	UG/KG	7/10/91	Indeno[1,2,3-cd]pyrene
AB-53-SO-3S	91.05759	78591	< 490.	UG/KG	7/10/91	Isophorone
AB-53-SO-3S	91.05759	534521	< 490.	UG/KG	7/10/91	2-Methyl-4,6-dinitrophenol
AB-53-SO-3S	91.05759	91576	< 490.	UG/KG	7/10/91	2-Methylnaphthalene
AB-53-SO-3S	91.05759	95487	< 490.	UG/KG	7/10/91	2-Methylphenol
AB-53-SO-3S	91.05759	106445	< 490.	UG/KG	7/10/91	4-Methylphenol
AB-53-SO-3S	91.05759	91203	< 490.	UG/KG	7/10/91	Naphthalene
AB-53-SO-3S	91.05759	88744	< 490.	UG/KG	7/10/91	2-Nitroaniline
AB-53-SO-3S	91.05759	99092	< 490.	UG/KG	7/10/91	3-Nitroaniline
AB-53-SO-3S	91.05759	100016	< 490.	UG/KG	7/10/91	4-Nitroaniline
AB-53-SO-3S	91.05759	98953	< 490.	UG/KG	7/10/91	Nitrobenzene
AB-53-SO-3S	91.05759	88755	< 490.	UG/KG	7/10/91	2-Nitrophenol
AB-53-SO-3S	91.05759	100027	< 490.	UG/KG	7/10/91	4-Nitrophenol
AB-53-SO-3S	91.05759	621647	< 490.	UG/KG	7/10/91	N-Nitrosodi-n-propylamine
AB-53-SO-3S	91.05759	62759	< 490.	UG/KG	7/10/91	N-Nitrosodimethylamine
AB-53-SO-3S	91.05759	86306	< 490.	UG/KG	7/10/91	N-Nitrosodiphenylamine
AB-53-SO-3S	91.05759	87865	< 490.	UG/KG	7/10/91	Pentachlorophenol
AB-53-SO-3S	91.05759	85018	< 490.	UG/KG	7/10/91	Phenanthrene
AB-53-SO-3S	91.05759	108952	< 490.	UG/KG	7/10/91	Phenol
AB-53-SO-3S	91.05759	129000	< 490.	UG/KG	7/10/91	Pyrene

AB-53-SO-3S	91.05759	120821	< 490.	UG/KG	7/10/91	1,2,4-Trichlorobenzene
AB-53-SO-3S	91.05759	95954	< 490.	UG/KG	7/10/91	2,4,5-Trichlorophenol
AB-53-SO-3S	91.05759	88062	< 490.	UG/KG	7/10/91	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.05759

none

Customer Sample Duplicate Results for Sample # 91.05759

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05759

none

****

********** HSE-9 QUALITY ASSURANCE REPORT **********

Prepared by: LAT on 10-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11673 MATRIX: C ANALYST: Matthew Monagle PROGRAM CODE: WM54

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20227	91.05774	83329	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Acenaphthene
00.20227	91.05774	208968	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Acenaphthylene
00.20227	91.05774	62533	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Aniline
00.20227	91.05774	120127	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Anthracene
00.20227	91.05774	103333	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Azobenzene
00.20227	91.05774	92875	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	m-Benzidine
00.20227	91.05774	56553	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[a]anthracene
00.20227	91.05774	50328	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[a]pyrene
00.20227	91.05774	205992	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[b]fluoranthene
00.20227	91.05774	191242	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	91.05774	207089	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	91.05774	65850	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzoic acid
00.20227	91.05774	100516	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Benzyl alcohol
00.20227	91.05774	111911	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	91.05774	111444	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	91.05774	108601	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	91.05774	117817	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	91.05774	101553	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	91.05774	85687	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Butylbenzyl phthalate
00.20227	91.05774	59507	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	91.05774	106478	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	4-Chloroaniline
00.20227	91.05774	91587	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	2-Chloronaphthalene
00.20227	91.05774	95578	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	o-Chlorophenol
00.20227	91.05774	7005723	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	91.05774	218019	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Chrysene
00.20227	91.05774	84742	600.	180.	UG/KG	0.0		7/10/91	OUT OF CONTROL	Di-n-butyl phthalate
00.20227	91.05774	117840	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Di-n-octyl phthalate
00.20227	91.05774	53703	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	91.05774	132649	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	Dibenzofuran
00.20227	91.05774	95501	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.05774	541731	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.05774	106467	< 330.		UG/KG	0.0		7/10/91	UNDER CONTROL	p-Dichlorobenzene (1,4)

00.20227	91.05774	91941	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	91.05774	120832	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4-Dichlorophenol
00.20227	91.05774	84662	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Diethyl phthalate
00.20227	91.05774	131113	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Dimethyl phthalate
00.20227	91.05774	105679	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4-Dimethylphenol
00.20227	91.05774	51285	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4-Dinitrophenol
00.20227	91.05774	121142	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	91.05774	606202	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	91.05774	206440	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Fluoranthene
00.20227	91.05774	86737	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Fluorene
00.20227	91.05774	118741	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Hexachlorobenzene
00.20227	91.05774	87683	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Hexachlorobutadiene
00.20227	91.05774	77474	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Hexachlorocyclopentadiene
00.20227	91.05774	67721	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Hexachloroethane
00.20227	91.05774	193395	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	91.05774	78591	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Isophorone
00.20227	91.05774	534521	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	91.05774	91576	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2-Methylnaphthalene
00.20227	91.05774	95487	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2-Methylphenol
00.20227	91.05774	106445	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	4-Methylphenol
00.20227	91.05774	91203	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Naphthalene
00.20227	91.05774	88744	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2-Nitroaniline
00.20227	91.05774	99092	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	3-Nitroaniline
00.20227	91.05774	100016	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	4-Nitroaniline
00.20227	91.05774	98953	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Nitrobenzene
00.20227	91.05774	88755	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2-Nitrophenol
00.20227	91.05774	100027	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	4-Nitrophenol
00.20227	91.05774	621647	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	91.05774	62759	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	91.05774	86306	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	91.05774	87865	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Pentachlorophenol
00.20227	91.05774	85018	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Phenanthrene
00.20227	91.05774	108952	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Phenol
00.20227	91.05774	129000	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	Pyrene
00.20227	91.05774	120821	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	91.05774	95954	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	91.05774	88062	< 330.	UG/KG	0.0	7/10/91	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91,05773

Date Collected: 7/01/91 Date Received: 7/02/91 Date Extracted: 7/03/91 Date Analyzed: 7/05/91

SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.05773	83329	3.3	0.99	MG/KG	5.8	0.6	7/10/91	WARNING 2-3 SIG	Acenaphthene
91.05773	208968	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Acenaphthylene
91.05773	62533	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Aniline
91.05773	120127	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Anthracene
91.05773	103333	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Azobenzene
91.05773	92875	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	m-Benzidine
91.05773	56553	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[a]anthracene
91.05773	50328	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[a]pyrene
91.05773	205992	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[b]fluoranthene
91.05773	191242	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[g,h,i]perylene
91.05773	207089	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzo[k]fluoranthene
91.05773	65850	0.35	0.105	MG/KG	0.0		7/10/91	OUT OF CONTROL	Benzoic acid
91.05773	100516	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Benzyl alcohol
91.05773	111911	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
91.05773	111444	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroethyl)ether
91.05773	108601	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
91.05773	117817	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
91.05773	101553	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Bromophenylphenyl ether
91.05773	85687	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Butylbenzyl phthalate
91.05773	59507	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Chloro-3-methylphenol
91.05773	106478	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Chloroaniline
91.05773	91587	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Chloronaphthalene
91.05773	95578	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	o-Chlorophenol
91.05773	7005723	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Chlorophenylphenyl ether
91.05773	218019	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Chrysene
91.05773	84742	0.6	0.18	MG/KG	0.0		7/10/91	OUT OF CONTROL	Di-n-butyl phthalate
91.05773	117840	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Di-n-octyl phthalate
91.05773	53703	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Dibenzo[a,h]anthracene
91.05773	132649	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Dibenzofuran
91.05773	95501	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.05773	541731	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	m-Dichlorobenzene (1,3)

91.05773	106467	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.05773		< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	3,3'-Dichlorobenzidine
91.05773		< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4-Dichlorophenol
91.05773	84662	3.3	0.99	MG/KG	5.6	0.6	7/10/91	UNDER CONTROL	Diethyl phthalate
91.05773	131113	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Dimethyl phthalate
91.05773	105679	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4-Dimethylphenol
91.05773	51285	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4-Dinitrophenol
91.05773	121142	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4-Dinitrotoluene
91.05773	606202	3.8	1.14	MG/KG	5.8	0.6	7/10/91	UNDER CONTROL	2,6-Dinitrotoluene
91.05773	206440	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Fluoranthene
91.05773	86737	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Fluorene
91.05773	118741	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Hexachlorobenzene
91.05773	87683	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Hexachlorobutadiene
91.05773	77474	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Hexachlorocyclopentadiene
91.05773	67721	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Hexachloroethane
91.05773	193395	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Indeno(1,2,3-cd)pyrene
91.05773	78591	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Isophorone
91.05773	534521	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
91.05773	91576	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Methylnaphthalene
91.05773	95487	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Methylphenol
91.05773	106445	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Methylphenol
91.05773	91203	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Naphthalene
91.05773	88744	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Nitroaniline
91.05773	99092	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	3-Nitroaniline
91.05773	100016	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Nitroaniline
91.05773	98953	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Nitrobenzene
91.05773	88755	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2-Nitrophenol
91.05773	100027	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	4-Nitrophenol
91.05773	621647	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
91.05773	62759	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	N-Nitrosodimethylamine
91.05773	86306	3.4	1.02	MG/KG	5.4	0.5	7/10/91	UNDER CONTROL	N-Nitrosodiphenylamine
91.05773	87865	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Pentachlorophenol
91.05773	85018	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Phenanthrene
91.05773	108952	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Phenol
91.05773	129000	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	Pyrene
91.05773	120821	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	1,2,4-Trichlorobenzene
91.05773	95954	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4,5-Trichlorophenol
91.05773	88062	< 0.33		MG/KG	0.0		7/10/91	UNDER CONTROL	2,4,6-Trichlorophenol

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)

Bromobenzene (CAS # = 108861); EPA Range Limits: None established

SAMPLE NUMBER	RESULT	UNITS	COMPLETION DATE	COMMENT
91.14176	0.0	NOSURR	1/13/92	
91.14177	0.0	NOSURR	1/13/92	
91.14178	0.0	%	[redacted]	SURR ON BACK
91.14179	0.0	NOSURR	[redacted]	
91.14180	0.0	NOSURR	1/13/92	
91.14181	0.0	NOSURR	1/13/92	
91.14182	0.0	NOSURR	1/13/92	
91.14183	0.0	NOSURR	1/13/92	
91.14184	6.6667	%	1/13/92	SURR ON BACK

REPORT NUMBER: 12718

Analyst	Reviewer	Section Leader	QA Officer
1/27/92	1/27/92	1/27/92	1/30/92
Date	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

REPORT NUMBER: 10770

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: EAJ on 9-Jul-1991

ANALYSIS: AG REQUEST NUMBER: 11674 MATRIX: WW ANALYST: Michael Bell PROGRAM CODE: WP5

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-53-NW-1W	91.05740	23.	10.	UG/L	7/09/91	
AB-53-NW-2W	91.05741	< 10.		UG/L	7/09/91	
AB-53-NW-3W	91.05742	< 10.		UG/L	7/09/91	
AB-53-NW-1S	91.05743	18.	10.	UG/L	7/09/91	
AB-53-NW-2S	91.05744	< 10.		UG/L	7/09/91	
AB-53-NW-3S	91.05745	< 10.		UG/L	7/09/91	
AB-53-NW-4SQ	91.05746	< 10.		UG/L	7/09/91	
AB-53-NE-1W	91.05747	< 10.		UG/L	7/09/91	
AB-53-NE-2W	91.05748	< 10.		UG/L	7/09/91	
AB-53-NE-3W	91.05749	< 10.		UG/L	7/09/91	
AB-53-NE-4WQ	91.05750	< 10.		UG/L	7/09/91	
AB-53-NE-1S	91.05751	< 10.		UG/L	7/09/91	
AB-53-NE-2S	91.05752	15.	10.	UG/L	7/09/91	
AB-53-NE-3S	91.05753	11.	10.	UG/L	7/09/91	
AB-53-SO-1W	91.05754	< 10.		UG/L	7/09/91	
AB-53-SO-2W	91.05755	< 10.		UG/L	7/09/91	
AB-53-SO-3W	91.05756	< 10.		UG/L	7/09/91	
AB-53-SO-1S	91.05757	14.	10.	UG/L	7/09/91	
AB-53-SO-2S	91.05758	10.	10.	UG/L	7/09/91	
AB-59-SO-3S	91.05759	< 10.		UG/L	7/09/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-53-NW-1W	91.05740	15.	10.	UG/L	7/09/91	
AB-53-NE-4WQ	91.05750	< 10.		UG/L	7/09/91	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
AB-53-NW-1W	91.05740	100.	105.	UG/L	7/09/91	

AB-53-NW-2W	91.05741	100.	107.	UG/L	7/09/91
AB-53-NW-3W	91.05742	100.	118.	UG/L	7/09/91
AB-53-NW-1S	91.05743	100.	97.	UG/L	7/09/91
AB-53-NW-2S	91.05744	100.	104.	UG/L	7/09/91
AB-53-NW-3S	91.05745	100.	103.	UG/L	7/09/91
AB-53-NW-4SQ	91.05746	100.	105.	UG/L	7/09/91
AB-53-NE-1W	91.05747	100.	114.	UG/L	7/09/91
AB-53-NE-2W	91.05748	100.	110.	UG/L	7/09/91
AB-53-NE-3W	91.05749	100.	111.	UG/L	7/09/91
AB-53-NE-4WQ	91.05750	100.	108.	UG/L	7/09/91
AB-53-NE-1S	91.05751	100.	105.	UG/L	7/09/91
AB-53-NE-2S	91.05752	100.	101.	UG/L	7/09/91
AB-53-NE-3S	91.05753	100.	104.	UG/L	7/09/91
AB-53-SO-1W	91.05754	100.	107.	UG/L	7/09/91
AB-53-SO-2W	91.05755	100.	102.	UG/L	7/09/91
AB-53-SO-3W	91.05756	100.	109.	UG/L	7/09/91
AB-53-SO-1S	91.05757	100.	110.	UG/L	7/09/91
AB-53-SO-2S	91.05758	100.	106.	UG/L	7/09/91

****

REPORT NUMBER: 10770 (continued)

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: EAJ on 9-Jul-1991

REQUEST NUMBER: 11674 MATRIX: WW ANALYST: Michael Bell

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820 PROGRAM CODE: WH54

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
00.01160	00.01160	32.	3.	UG/L	32.	2.45	7/09/91	UNDER CONTROL
00.01160	00.01160	29.	3.	UG/L	32.	2.45	7/09/91	UNDER CONTROL
00.01160	00.01160	31.	3.	UG/L	32.	2.45	7/09/91	UNDER CONTROL
00.01160	00.01160	31.	3.	UG/L	32.	2.45	7/09/91	UNDER CONTROL
00.98805	00.98805	0.495	0.05	MG/L	0.5	0.05	7/09/91	UNDER CONT
00.98805	00.98805	0.496	0.05	MG/L	0.5	0.05	7/09/91	UNDER CONT
00.98805	00.98805	0.499	0.05	MG/L	0.5	0.05	7/09/91	UNDER CONTROL
00.98805	00.98805	0.496	0.05	MG/L	0.5	0.05	7/09/91	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
91.05801	0.926	0.093	MG/L	1.	0.1	7/09/91	UNDER CONTROL
91.05801	0.927	0.093	MG/L	1.	0.1	7/09/91	UNDER CONTROL
91.05802	0.934	0.093	MG/L	1.	0.1	7/09/91	UNDER CONTROL
91.05802	0.932	0.093	MG/L	1.	0.1	7/09/91	UNDER CONTROL

REPORT NUMBER: 10770

BH for MHB
Analyst

7/10/91
Date

Section Leader

7/10/91
Date

QA Officer

7/10/91
Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 10810

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: MAB on 10-Jul-1991

ANALYSIS: HG REQUEST NUMBER: 11674 MATRIX: WW ANALYST: Malti Bhatia PROGRAM CODE: WM5

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE : 7470

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-53-NW-1W	91.05740	< 0.2		UG/L	7/10/91	
AB-53-NW-2W	91.05741	< 0.2		UG/L	7/10/91	
AB-53-NW-3W	91.05742	< 0.2		UG/L	7/10/91	
AB-53-NW-1S	91.05743	< 0.2		UG/L	7/10/91	
AB-53-NW-2S	91.05744	< 0.2		UG/L	7/10/91	
AB-53-NW-3S	91.05745	< 0.2		UG/L	7/10/91	
AB-53-NW-4SQ	91.05746	< 0.2		UG/L	7/10/91	
AB-53-NE-1W	91.05747	< 0.2		UG/L	7/10/91	
AB-53-NE-2W	91.05748	< 0.2		UG/L	7/10/91	
AB-53-NE-3W	91.05749	< 0.2		UG/L	7/10/91	
AB-53-NE-4WQ	91.05750	< 0.2		UG/L	7/10/91	
AB-53-NE-1S	91.05751	< 0.2		UG/L	7/10/91	
AB-53-NE-2S	91.05752	< 0.2		UG/L	7/10/91	
AB-53-NE-3S	91.05753	< 0.2		UG/L	7/10/91	
AB-53-SO-1W	91.05754	< 0.2		UG/L	7/10/91	
AB-53-SO-2W	91.05755	< 0.2		UG/L	7/10/91	
AB-53-SO-3W	91.05756	< 0.2		UG/L	7/10/91	
AB-53-SO-1S	91.05757	< 0.2		UG/L	7/10/91	
AB-53-SO-2S	91.05758	< 0.2		UG/L	7/10/91	
AB-53-SO-3S	91.05759	< 0.2		UG/L	7/10/91	

****

AB-53-NW-2W	91.05741	100.	107.	UG/L	7/09/91
AB-53-NW-3W	91.05742	100.	118.	UG/L	7/09/91
AB-53-NW-1S	91.05743	100.	97.	UG/L	7/09/91
AB-53-NW-2S	91.05744	100.	104.	UG/L	7/09/91
AB-53-NW-3S	91.05745	100.	103.	UG/L	7/09/91
AB-53-NW-4SQ	91.05746	100.	105.	UG/L	7/09/91
AB-53-NE-1W	91.05747	100.	114.	UG/L	7/09/91
AB-53-NE-2W	91.05748	100.	110.	UG/L	7/09/91
AB-53-NE-3W	91.05749	100.	111.	UG/L	7/09/91
AB-53-NE-4WQ	91.05750	100.	108.	UG/L	7/09/91
AB-53-NE-1S	91.05751	100.	105.	UG/L	7/09/91
AB-53-NE-2S	91.05752	100.	101.	UG/L	7/09/91
AB-53-NE-3S	91.05753	100.	104.	UG/L	7/09/91
AB-53-SO-1W	91.05754	100.	107.	UG/L	7/09/91
AB-53-SO-2W	91.05755	100.	102.	UG/L	7/09/91
AB-53-SO-3W	91.05756	100.	109.	UG/L	7/09/91
AB-53-SO-1S	91.05757	100.	110.	UG/L	7/09/91
AB-53-SO-2S	91.05758	100.	106.	UG/L	7/09/91

****

REPORT NUMBER: 10866

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: EAJ on 12-Jul-1991

REQUEST NUMBER: 11674 MATRIX: WW ANALYST: Janet Montoya

OWNER: Alice Barr GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0820 PROGRAM CODE: WH5

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-53-NW-1W	91.05740	AS	< 0.02		MG/L	7/11/91	
AB-53-NW-1W	91.05740	BA	0.06	0.006	MG/L	7/11/91	
AB-53-NW-1W	91.05740	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-1W	91.05740	CR	< 0.01		MG/L	7/11/91	
AB-53-NW-1W	91.05740	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-1W	91.05740	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-2W	91.05741	AS	< 0.02		MG/L	7/11/91	
AB-53-NW-2W	91.05741	BA	0.07	0.007	MG/L	7/11/91	
AB-53-NW-2W	91.05741	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-2W	91.05741	CR	< 0.01		MG/L	7/11/91	
AB-53-NW-2W	91.05741	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-2W	91.05741	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-3W	91.05742	AS	< 0.02		MG/L	7/11/91	
AB-53-NW-3W	91.05742	BA	0.07	0.007	MG/L	7/11/91	
AB-53-NW-3W	91.05742	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-3W	91.05742	CR	< 0.01		MG/L	7/11/91	
AB-53-NW-3W	91.05742	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-3W	91.05742	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-1S	91.05743	AS	0.02	0.02	MG/L	7/11/91	
AB-53-NW-1S	91.05743	BA	0.5	0.05	MG/L	7/11/91	
AB-53-NW-1S	91.05743	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-1S	91.05743	CR	< 0.01		MG/L	7/11/91	
AB-53-NW-1S	91.05743	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-1S	91.05743	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-2S	91.05744	AS	0.03	0.003	MG/L	7/11/91	
AB-53-NW-2S	91.05744	BA	0.57	0.057	MG/L	7/11/91	
AB-53-NW-2S	91.05744	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-2S	91.05744	CR	< 0.01		MG/L	7/11/91	
AB-53-NW-2S	91.05744	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-2S	91.05744	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-3S	91.05745	AS	0.03	0.02	MG/L	7/11/91	
AB-53-NW-3S	91.05745	BA	0.56	0.056	MG/L	7/11/91	
AB-53-NW-3S	91.05745	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-3S	91.05745	CR	0.01	0.01	MG/L	7/11/91	
AB-53-NW-3S	91.05745	PB	< 0.05		MG/L	7/11/91	
AB-53-NW-3S	91.05745	SE	< 0.02		MG/L	7/11/91	
AB-53-NW-4SQ	91.05746	AS	0.03	0.02	MG/L	7/11/91	
AB-53-NW-4SQ	91.05746	BA	0.63	0.063	MG/L	7/11/91	
AB-53-NW-4SQ	91.05746	CD	< 0.01		MG/L	7/11/91	
AB-53-NW-4SQ	91.05746	CR	< 0.01		MG/L	7/11/91	

AB-53-NW-4SQ	91.05746	PB	< 0.05		MG/L	7/11/91
AB-53-NW-4SQ	91.05746	SE	0.03	0.02	MG/L	7/11/91
AB-53-NE-1W	91.05747	AS	< 0.02		MG/L	7/11/91
AB-53-NE-1W	91.05747	BA	0.08	0.008	MG/L	7/11/91
AB-53-NE-1W	91.05747	CD	< 0.01		MG/L	7/11/91
AB-53-NE-1W	91.05747	CR	< 0.01		MG/L	7/11/91
AB-53-NE-1W	91.05747	PB	< 0.05		MG/L	7/11/91
AB-53-NE-1W	91.05747	SE	< 0.02		MG/L	7/11/91
AB-53-NE-2W	91.05748	AS	< 0.02		MG/L	7/11/91
AB-53-NE-2W	91.05748	BA	0.08	0.008	MG/L	7/11/91
AB-53-NE-2W	91.05748	CD	< 0.01		MG/L	7/11/91
AB-53-NE-2W	91.05748	CR	< 0.01		MG/L	7/11/91
AB-53-NE-2W	91.05748	PB	< 0.05		MG/L	7/11/91
AB-53-NE-2W	91.05748	SE	< 0.02		MG/L	7/11/91
AB-53-NE-3W	91.05749	AS	< 0.02		MG/L	7/11/91
AB-53-NE-3W	91.05749	BA	0.08	0.008	MG/L	7/11/91
AB-53-NE-3W	91.05749	CD	< 0.01		MG/L	7/11/91
AB-53-NE-3W	91.05749	CR	< 0.01		MG/L	7/11/91
AB-53-NE-3W	91.05749	PB	< 0.05		MG/L	7/11/91
AB-53-NE-3W	91.05749	SE	< 0.02		MG/L	7/11/91

To: Alice Barr
Thru: Chris Leibman
From: Laura Tsiagkouris

Enclosed is the final report for the sludge samples of request 11673. As Matthew Monagle has previously indicated, the samples submitted contained a number of Tentatively Identified Compounds (TIC's) at a significant level. Typically, TIC's are not reported on the final report unless specified by the client. If a detailed listing of the TIC's detected are required, please call me at 5-4993.

HSE-9 SEMI-VOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
Thru: Chris Leibman CL for CL
From: Matthew Monagle

Request Number: 11673
Matrix: Sludge
Summary Date: 08 July 1991

Sample ID	Target Compounds Found	Amount (ug/kg)	Level of Quantitation (ug/kg)	TIC's
Blank (03-Jul.-1991)	Di-n-butyl-phthalate	600	330	Yes
91.05743	Di-n-butyl-phthalate	1400	640	Yes
	Benzidine	3900		
	Bis-2-ethyl-hexylphthalate	1200		
91.05744	Benzidine	1900	490	Yes
	Bis-2-ethyl-hexylphthalate	1100		
91.05745	Di-n-butyl-phthalate	1400	640	Yes
91.05746	NONE		650	Yes
91.05751	NONE		480	Yes
91.05752	NONE		630	Yes
91.05753	NONE		650	Yes
91.05757	Di-n-butyl-phthalate	1400	660	Yes
91.05758	NONE		660	Yes
91.05759	NONE		490	Yes

c:\wp51\m2\qnt11673

VM

NPDES DATA

HSE-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Mike Saladen
From: Martin Koby

Request Number: 11735
Matrix: Water
Summary Date: 8/1/91

Sample ID	Target Compounds Found	Amount (ug/L)	LOQ (ug/L)	TICs (Y/N)
Blank 7/25	None	<10	10.0	Y
91.07078	None	<22	22.0	Y

Sample preparation was performed by extracting approximately 1.0 L of sample with 180 ml methylene chloride per acid and base/neutral fractions by separatory funnel shakeout. Appropriate surrogate standards were added prior to extraction as a check of method efficiency. Initial extracts were concentrated to a final volume of 1.0 ml by Kuderna-Danish and nitrogen evaporation techniques. Analysis was performed by capillary column GC/MS methods. These methods are consistent with EPA SW-846 protocol.

Sample 91.07078 contained an appreciable amount of algae as received. Consequently, the extract was colored a deep green due to the coextracted chlorophyll and/or other pigments. This condition required the extract to be diluted by 50% prior to analysis by GC/MS. No HSL (Hazardous Substance List) target compounds were detected above the practical quantitation limit listed above. Significant concentrations of coextracted non-target compounds were detected in this sample. These were tentatively identified by comparison of spectra to a mass spectral data base. Identification, in most instances, was limited to chemical class. If you require more comprehensive information regarding these unknowns I will be happy to provide it.

All analytical holding times were satisfied regarding this request. If you have any questions concerning this data, please do not hesitate to call either myself or Laura Tsiagkouris at 667-5889.

8/14/91

[illegible] NATIONAL [illegible]
HEALTH, SAFETY AND ENVIRONMENT [illegible]
[illegible]
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN WATER

REQUEST #: [illegible]

NUMBER OF SAMPLES: 5
MATRIX: W
ANALYST: [illegible]
Date: [illegible]

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (6)	NITRO-BENZENE (D)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (14)
1	[illegible] BLANK		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible] SAMPLE		[illegible] *	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible] MATRIX SPIK		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
4	[illegible] MATRIX SPIK		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] *
5	[illegible] SAMPLE		[illegible]	[illegible]	[illegible] *	[illegible]	[illegible]	[illegible]
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

Average % Surrogate Recovery [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Lower Control Limits [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Defined Upper Control Limits [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Observed Lower Control Limits [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Observed Upper Control Limits [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(*) Surrogate recovery is outside control limits.

Form [illegible]

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL (G OR ML)		AMOUNT SPIKED (50 OR 100 ug/mL) IN UG/KG OR UG/L		
REQUEST #:	11725					
NUMBER OF SAMPLES:	5					
SPIKE ID: (STARTS W OR B):	M91.1574-0	SPIKE	0.33	114	57	11
SPIKE DUP ID: (STARTS D OR P):	DP1.1574-0	SPIKE-DUP	0.32	115	54	10
RAW DATA WITH:	11673					
ANALYST:	MWD					

	SPIKE RES.	SPIKE-DUP RES.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
[illegible]-PHENOL	35	37	75%	82%	9%	18	89	48
[illegible]-CHLORO-PHENOL	5[illegible]	55	5[illegible]%	51%	1%	27	123	40
[illegible]-DICHLOROBENZENE	46	48	51%	77%	3%	36	97	38
N-NITROSO-DI-N-PROPYLAMINE	48	4[illegible]	51%	7[illegible]%	1[illegible]%	41	116	18
1,2,4-TRICHLOROBENZENE	47	49	79%	83%	4%	39	98	38
4-CHLORO-3-METHYL-PHENOL	187	93	11[illegible]+	93%	15%	33	97	48
ACENAPHTHENE	41	36	71%	65%	9%	46	118	31
2,4-DINITROPHENOL	130	110	114%+	110%+	18%	13	91	[illegible]
4,6-DINITRO-2-METHYL-PHENOL	95	97	181%+	1[illegible]%+	11%	54	96	33
PENTACHLOROPHENOL	111	130	97%	111%+	17	9	1[illegible]3	50
PYRENE	33	36	41%	45%	17%	36	157	[illegible]

[illegible] OF A MATRIX RECOVERY IS FOUND BY A TEST, IT IS DUE TO OTHER CAUSES.

REVIEWED BY [illegible]

REPORT NUMBER: 11240

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 14-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Martin Koby PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

Customer Sample Results, Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME

Tentatively Identified Compounds in Customer Sample # 91.05740

none

Customer Sample Duplicate Results for Sample # 91.05740

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.05740

none

Matrix Spike Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05[illegible]	83329	56.82	41.	UG/L	8/14/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	113.64	120.	UG/L	8/14/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	113.64	91.	UG/L	8/14/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	56.82	46.	UG/L	8/14/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	56.82	69.	UG/L	8/14/91		2,4-Dinitrotoluene

AB-53-NW-1W	91.05740	100027	113.64	130.	UG/L	8/14/91		4-Nitrophenol
AB-53-NW-1W	91.05740	621647	56.82	46.	UG/L	8/14/91		N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	113.64	110.	UG/L	8/14/91		Pentachlorophenol
AB-53-NW-1W	91.05740	108952	113.64	85.	UG/L	8/14/91		Phenol
AB-53-NW-1W	91.05740	129000	56.82	23.	UG/L	8/14/91		Pyrene
AB-53-NW-1W	91.05740	120821	56.82	45.	UG/L	8/14/91		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 91.05740

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-53-NW-1W	91.05740	83329	54.35	36.	UG/L	8/14/91		Acenaphthene
AB-53-NW-1W	91.05740	59507	108.7	98.	UG/L	8/14/91		4-Chloro-3-methylphenol
AB-53-NW-1W	91.05740	95578	108.7	88.	UG/L	8/14/91		o-Chlorophenol
AB-53-NW-1W	91.05740	106467	54.35	42.	UG/L	8/14/91		p-Dichlorobenzene (1,4)
AB-53-NW-1W	91.05740	121142	54.35	59.	UG/L	8/14/91		2,4-Dinitrotoluene
AB-53-NW-1W	91.05740	100027	108.7	110.	UG/L	8/14/91		4-Nitrophenol
AB-53-NW-1W	91.05740	621647	54.35	40.	UG/L	8/14/91		N-Nitrosodi-n-propylamine
AB-53-NW-1W	91.05740	87865	108.7	120.	UG/L	8/14/91		Pentachlorophenol
AB-53-NW-1W	91.05740	108952	108.7	89.	UG/L	8/14/91		Phenol
AB-53-NW-1W	91.05740	129000	54.35	26.	UG/L	8/14/91		Pyrene
AB-53-NW-1W	91.05740	120821	54.35	45.	UG/L	8/14/91		1,2,4-Trichlorobenzene

REPORT NUMBER: 11240

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LAT on 14-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Martin Koby PROGRAM CODE: WW54

OWNER: Mike T. Saladen GROUP: NSE-8 MAIL-STOP: K490 PHONE: 5-6085

Customer Sample Results, Sample # 91.07078

Date Collected: 7/24/91 Date Received: 7/24/91 Date Extracted: 7/25/91 Date Analyzed: 7/25/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.02343	91.07078	83329	< 22.		UG/L	8/14/91	LAGOON	Acenaphthene
91.02343	91.07078	208968	< 22.		UG/L	8/14/91	LAGOON	Acenaphthylene
91.02343	91.07078	62533	< 22.		UG/L	8/14/91	LAGOON	Aniline
91.02343	91.07078	120127	< 22.		UG/L	8/14/91	LAGOON	Anthracene
91.02343	91.07078	103333	< 22.		UG/L	8/14/91	LAGOON	Azobenzene
91.02343	91.07078	92875	< 22.		UG/L	8/14/91	LAGOON	m-Benzidine
91.02343	91.07078	56553	< 22.		UG/L	8/14/91	LAGOON	Benzo[a]anthracene
91.02343	91.07078	50328	< 22.		UG/L	8/14/91	LAGOON	Benzo[a]pyrene
91.02343	91.07078	205992	< 22.		UG/L	8/14/91	LAGOON	Benzo[b]fluoranthene
91.02343	91.07078	191242	< 22.		UG/L	8/14/91	LAGOON	Benzo[g,h,i]perylene
91.02343	91.07078	207089	< 22.		UG/L	8/14/91	LAGOON	Benzo[k]fluoranthene
91.02343	91.07078	65850	< 22.		UG/L	8/14/91	LAGOON	Benzoic acid
91.02343	91.07078	100516	< 22.		UG/L	8/14/91	LAGOON	Benzyl alcohol
91.02343	91.07078	111911	< 22.		UG/L	8/14/91	LAGOON	Bis(2-chloroethoxy)methane
91.02343	91.07078	111444	< 22.		UG/L	8/14/91	LAGOON	Bis(2-chloroethyl)ether
91.02343	91.07078	108601	< 22.		UG/L	8/14/91	LAGOON	Bis(2-chloroisopropyl)ether
91.02343	91.07078	117817	< 22.		UG/L	8/14/91	LAGOON	Bis(2-ethylhexyl)phthalate
91.02343	91.07078	101553	< 22.		UG/L	8/14/91	LAGOON	4-Bromophenylphenyl ether
[illegible]	91.07078	85687	< 22.		UG/L	8/14/91	LAGOON	Butylbenzyl phthalate
[illegible]	91.07078	59507	< 22.		UG/L	8/14/91	LAGOON	4-Chloro-3-methylphenol
[illegible]	91.07078	106478	< 22.		UG/L	8/14/91	LAGOON	4-Chloroaniline

91.02343	91.07078	91587	< 22.	UG/L	8/14/91	LAGOON	2-Chloronaphthalene
91.02343	91.07078	95578	< 22.	UG/L	8/14/91	LAGOON	o-Chlorophenol
91.02343	91.07078	7005723	< 22.	UG/L	8/14/91	LAGOON	4-Chlorophenylphenyl ether
91.02343	91.07078	218019	< 22.	UG/L	8/14/91	LAGOON	Chrysene
91.02343	91.07078	84742	< 22.	UG/L	8/14/91	LAGOON	Di-n-butyl phthalate
91.02343	91.07078	117840	< 22.	UG/L	8/14/91	LAGOON	Di-n-octyl phthalate
91.02343	91.07078	53703	< 22.	UG/L	8/14/91	LAGOON	Dibenzo[a,h]anthracene
91.02343	91.07078	132649	< 22.	UG/L	8/14/91	LAGOON	Dibenzofuran
91.02343	91.07078	95501	< 22.	UG/L	8/14/91	LAGOON	o-Dichlorobenzene (1,2)
91.02343	91.07078	541731	< 22.	UG/L	8/14/91	LAGOON	m-Dichlorobenzene (1,3)
91.02343	91.07078	106467	< 22.	UG/L	8/14/91	LAGOON	p-Dichlorobenzene (1,4)
91.02343	91.07078	91941	< 22.	UG/L	8/14/91	LAGOON	3,3'-Dichlorobenzidine
91.02343	91.07078	120832	< 22.	UG/L	8/14/91	LAGOON	2,4-Dichlorophenol
91.02343	91.07078	84662	< 22.	UG/L	8/14/91	LAGOON	Diethyl phthalate
91.02343	91.07078	131113	< 22.	UG/L	8/14/91	LAGOON	Dimethyl phthalate
91.02343	91.07078	105679	< 22.	UG/L	8/14/91	LAGOON	2,4-Dimethylphenol
91.02343	91.07078	51285	< 22.	UG/L	8/14/91	LAGOON	2,4-Dinitrophenol
91.02343	91.07078	121142	< 22.	UG/L	8/14/91	LAGOON	2,4-Dinitrotoluene
91.02343	91.07078	606202	< 22.	UG/L	8/14/91	LAGOON	2,6-Dinitrotoluene
91.02343	91.07078	206440	< 22.	UG/L	8/14/91	LAGOON	Fluoranthene
91.02343	91.07078	86737	< 22.	UG/L	8/14/91	LAGOON	Fluorene
91.02343	91.07078	118741	< 22.	UG/L	8/14/91	LAGOON	Hexachlorobenzene
91.02343	91.07078	87683	< 22.	UG/L	8/14/91	LAGOON	Hexachlorobutadiene
91.02343	91.07078	77474	< 22.	UG/L	8/14/91	LAGOON	Hexachlorocyclopentadiene
91.02343	91.07078	67721	< 22.	UG/L	8/14/91	LAGOON	Hexachloroethane
91.02343	91.07078	193395	< 22.	UG/L	8/14/91	LAGOON	Indeno[1,2,3-cd]pyrene
91.02343	91.07078	78591	< 22.	UG/L	8/14/91	LAGOON	Isophorone
91.02343	91.07078	534521	< 22.	UG/L	8/14/91	LAGOON	2-Methyl-4,6-dinitrophenol
91.02343	91.07078	91576	< 22.	UG/L	8/14/91	LAGOON	2-Methylnaphthalene
91.02343	91.07078	95487	< 22.	UG/L	8/14/91	LAGOON	2-Methylphenol
91.02343	91.07078	106445	< 22.	UG/L	8/14/91	LAGOON	4-Methylphenol
91.02343	91.07078	91203	< 22.	UG/L	8/14/91	LAGOON	Naphthalene
91.02343	91.07078	88744	< 22.	UG/L	8/14/91	LAGOON	2-Nitroaniline
91.02343	91.07078	99092	< 22.	UG/L	8/14/91	LAGOON	3-Nitroaniline
91.02343	91.07078	100016	< 22.	UG/L	8/14/91	LAGOON	4-Nitroaniline
91.02343	91.07078	98953	< 22.	UG/L	8/14/91	LAGOON	Nitrobenzene
91.02343	91.07078	88755	< 22.	UG/L	8/14/91	LAGOON	2-Nitrophenol
91.02343	91.07078	100027	< 22.	UG/L	8/14/91	LAGOON	4-Nitrophenol
91.02343	91.07078	621647	< 22.	UG/L	8/14/91	LAGOON	N-Nitrosodi-n-propylamine
91.02343	91.07078	62759	< 22.	UG/L	8/14/91	LAGOON	N-Nitrosodimethylamine
91.02343	91.07078	86306	< 22.	UG/L	8/14/91	LAGOON	N-Nitrosodiphenylamine
91.02343	91.07078	87865	< 22.	UG/L	8/14/91	LAGOON	Pentachlorophenol
91.02343	91.07078	85018	< 22.	UG/L	8/14/91	LAGOON	Phenanthrene
91.02343	91.07078	108952	< 22.	UG/L	8/14/91	LAGOON	Phenol
91.02343	91.07078	129000	< 22.	UG/L	8/14/91	LAGOON	Pyrene

91.02343	91.07078	120821	< 22.	UG/L	8/14/91	LAGOON	1,2,4-Trichlorobenzene
91.02343	91.07078	95954	< 22.	UG/L	8/14/91	LAGOON	2,4,5-Trichlorophenol
91.02343	91.07078	88062	< 22.	UG/L	8/14/91	LAGOON	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.07078

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS		RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.02343	91.07078	31	TI	150.		UG/L	8/14/91	LAGOON	Adipic ester
91.02343	91.07078	167	TI	43.		UG/L	8/14/91	LAGOON	Cyclic Hydrocarbons
91.02343	91.07078	167	TI	130.		UG/L	8/14/91	LAGOON	Cyclic Hydrocarbons
91.02343	91.07078	167	TI	94.		UG/L	8/14/91	LAGOON	Cyclic Hydrocarbons
91.02343	91.07078	167	TI	69.		UG/L	8/14/91	LAGOON	Cyclic Hydrocarbons
91.02343	91.07078	170	TI	45.		UG/L	8/14/91	LAGOON	Halogenated Hydrocarbon
91.02343	91.07078	172	TI	30.		UG/L	8/14/91	LAGOON	Nitrogenous Hydrocarbon
91.02343	91.07078	172	TI	540.		UG/L	8/14/91	LAGOON	Nitrogenous Hydrocarbon
91.02343	91.07078	150867	TI	85.		UG/L	8/14/91	LAGOON	3,7,11,15-Tetramethyl-2-hexadecen-1-ol
91.02343	91.07078	168	TI	58.		UG/L	8/14/91	LAGOON	Unknown Ketone
91.02343	91.07078	105	TI	86.		UG/L	8/14/91	LAGOON	Unknown organic acid
91.02343	91.07078	105	TI	88.		UG/L	8/14/91	LAGOON	Unknown organic acid
91.02343	91.07078	100	TI	130.		UG/L	8/14/91	LAGOON	Unknown organic compound
91.02343	91.07078	100	TI	160.		UG/L	8/14/91	LAGOON	Unknown organic compound
91.02343	91.07078	100	TI	47.		UG/L	8/14/91	LAGOON	Unknown organic compound
91.02343	91.07078	166	TI	24.		UG/L	8/14/91	LAGOON	Unsaturated Hydrocarbons

Customer Sample Duplicate Results for Sample # 91.07078

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.07078

none

****

REPORT NUMBER: 11240 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: LAT on 14-Aug-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Martin Koby PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20226	91.07421	83329	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Acenaphthene
00.20226	91.07421	208968	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Acenaphthylene
00.20226	91.07421	62533	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Aniline
00.20226	91.07421	120127	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Anthracene
00.20226	91.07421	103333	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Azobenzene
00.20226	91.07421	92875	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	m-Benzidine
00.20226	91.07421	56553	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzo[a]anthracene
00.20226	91.07421	50328	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzo[a]pyrene
00.20226	91.07421	205992	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzo[b]fluoranthene
00.20226	91.07421	191242	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzo[g,h,i]perylene
00.20226	91.07421	207089	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzo[k]fluoranthene
00.20226	91.07421	65850	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzoic acid
00.20226	91.07421	100516	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Benzyl alcohol
00.20226	91.07421	111911	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20226	91.07421	111444	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20226	91.07421	108601	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20226	91.07421	117817	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20226	91.07421	101553	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	4-Bromophenylphenyl ether
00.20226	91.07421	85687	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Butylbenzyl phthalate
00.20226	91.07421	59507	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	4-Chloro-3-methylphenol
00.20226	91.07421	106478	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	4-Chloroaniline
00.20226	91.07421	91587	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	2-Chloronaphthalene
00.20226	91.07421	95578	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	o-Chlorophenol
00.20226	91.07421	7005723	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20226	91.07421	218019	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Chrysene
00.20226	91.07421	84742	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Di-n-butyl phthalate
00.20226	91.07421	117840	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Di-n-octyl phthalate
00.20226	91.07421	53703	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20226	91.07421	132649	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	Dibenzofuran
00.20226	91.07421	95501	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.07421	541731	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.07421	106467	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.07421	91941	< 10.		UG/L	0.0		8/14/91	UNDER CONTROL	3,3'-Dichlorobenzidine

00.20226	91.07421	120832	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4-Dichlorophenol
00.20226	91.07421	84662	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Diethyl phthalate
00.20226	91.07421	131113	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Dimethyl phthalate
00.20226	91.07421	105679	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4-Dimethylphenol
00.20226	91.07421	51285	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4-Dinitrophenol
00.20226	91.07421	121142	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4-Dinitrotoluene
00.20226	91.07421	606202	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,6-Dinitrotoluene
00.20226	91.07421	206440	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Fluoranthene
00.20226	91.07421	86737	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Fluorene
00.20226	91.07421	118741	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Hexachlorobenzene
00.20226	91.07421	87683	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Hexachlorobutadiene
00.20226	91.07421	77474	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Hexachlorocyclopentadiene
00.20226	91.07421	67721	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Hexachloroethane
00.20226	91.07421	193395	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20226	91.07421	78591	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Isophorone
00.20226	91.07421	534521	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20226	91.07421	91576	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2-Methylnaphthalene
00.20226	91.07421	95487	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2-Methylphenol
00.20226	91.07421	106445	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	4-Methylphenol
00.20226	91.07421	91203	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Naphthalene
00.20226	91.07421	88744	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2-Nitroaniline
00.20226	91.07421	99092	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	3-Nitroaniline
00.20226	91.07421	100016	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	4-Nitroaniline
00.20226	91.07421	98953	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Nitrobenzene
00.20226	91.07421	88755	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2-Nitrophenol
00.20226	91.07421	100027	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	4-Nitrophenol
00.20226	91.07421	621647	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20226	91.07421	62759	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	N-Nitrosodimethylamine
00.20226	91.07421	86306	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	N-Nitrosodiphenylamine
00.20226	91.07421	87865	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Pentachlorophenol
00.20226	91.07421	85018	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Phenanthrene
00.20226	91.07421	108952	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Phenol
00.20226	91.07421	129000	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	Pyrene
00.20226	91.07421	120821	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20226	91.07421	95954	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4,5-Trichlorophenol
00.20226	91.07421	88062	< 10.	UG/L	0.0	8/14/91	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results

none

Blank Spike Duplicate Results

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Open (non-blind) QC samples run with this sample batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
91.05740	%	65.03	79.07	88.4	79.58	111.25	21.5	14-Aug-1991
91.05740	%	65.4	82.7	89.	75.12	117.54	23.58	14-Aug-1991
91.07078	%	20.24	33.82	54.72	80.92	16.16	88.88	14-Aug-1991
91.07421	%	49.39	40.01	77.44	83.78	71.73	110.44	14-Aug-1991
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 11240

Analyst 8/14/91

Reviewer

Section Leader 8/15/91

QA Officer 8/15/91

Date Date Date Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

HSE-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Mike Saladen
From: Martin Koby

Request Number: 11735
Matrix: Water
Summary Date: 8/1/91

Sample ID	Target Compounds Found	Amount (ug/L)	LOQ (ug/L)	TICs (Y/N)
Blank 7/25	None	<10	10.0	Y
91.07078	None	<22	22.0	Y

Sample preparation was performed by extracting approximately 1.0 L of sample with 180 ml methylene chloride per acid and base/neutral fractions by separatory funnel shakeout. Appropriate surrogate standards were added prior to extraction as a check of method efficiency. Initial extracts were concentrated to a final volume of 1.0 ml by Kuderna-Danish and nitrogen evaporation techniques. Analysis was performed by capillary column GC/MS methods. These methods are consistent with EPA SW-846 protocol.

Sample 91.07078 contained an appreciable amount of algae as received. Consequently, the extract was colored a deep green due to the coextracted chlorophyll and/or other pigments. This condition required the extract to be diluted by 50% prior to analysis by GC/MS. No HSL (Hazardous Substance List) target compounds were detected above the practical quantitation limit listed above. Significant concentrations of coextracted non-target compounds were detected in this sample. These were tentatively identified by comparison of spectra to a mass spectral data base. Identification, in most instances, was limited to chemical class. If you require more comprehensive information regarding these unknowns I will be happy to provide it.

All analytical holding times were satisfied regarding this request. If you have any questions concerning this data, please do not hesitate to call either myself or Laura Tsiagkouris at 667-5889.

SEMI-VOA SAMPLE WORKSHEET FOR WATER

REQUEST#:	[illegible]	Sample# Naming Scheme
SAMPLE# [illegible]	[illegible]	----------
SAMPLE VOL. (Liters):	[illegible]	Alphabetic letter
		S = regular Sample
		A = Spike
FINAL VOL. (ml):	[illegible]	D = Spike Dup.
DATE EXTRACTED (dd-mmm-yyyy):	[illegible]	B = Blank
NOTEBOOK:	[illegible]	C = Blank Spike
NOTEBOOK PAGE:	[illegible]	F = Blank Spike Dup
DATE+#(MANALYST-DA REQUEST#):	[illegible]	
ANALYSIS #1		
DATE ANAL. (dd-mmm-yyyy):	[illegible]	
FILE ID:	[illegible]	
DILN. FACT. (if final extr.):	[illegible]	
ANALYSIS #2 (if done)		
DATE ANAL. (dd-mmm-yyyy):		
FILE ID:		
DILN. FACT. (if final extr.):	[illegible]	
DATE.....	[illegible]	
MATRIX:	[illegible]	
ANAL BY:	[illegible]	
ANALYTICAL PROCEDURE:	EPA [illegible]	
SOLATION FOR DAC: [illegible]	[illegible]	
SALID DEVIANT [illegible]	[illegible]	

SURROGATE #1 REQUIRED	QUANT. FOUND AMT. (ug/L)	REQ. (ug/L)	% REC.
2-FLUOROPHENOL	[illegible]	[illegible]	[illegible] %
PHENOL [illegible]	[illegible]	[illegible]	[illegible] %
NITROBENZENE [illegible]	[illegible]	[illegible]	[illegible] %
2-FLUOROBIPHENYL	[illegible]	[illegible]	[illegible] %
2,4,6-TRIBROMOPHENOL	[illegible]	[illegible]	[illegible] %
TERPHENYL [illegible]	[illegible]	[illegible]	[illegible] %
Spiked Sample [illegible]	Y		

COMPOUND	CAS #	DEF DIVI, AMT. SAMPLE (UG L)	ANAL DILUTION, FACTOR	DEF VALUE AMT. REQ (UG L)
N-NITROSODIMETHYLAMINE	[illegible]	[illegible]	[illegible]	[illegible]
ANILINE	[illegible]	[illegible]	[illegible]	[illegible]
PHENOL	[illegible]	[illegible]	[illegible]	[illegible]
BIS 2-CHLOROETHYL ETHER	[illegible]	[illegible]	[illegible]	[illegible]
2-CHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
1,3-DICHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
1,4-DICHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
BENZYL ALCOHOL	[illegible]	[illegible]	[illegible]	[illegible]
1,2-DICHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
2-METHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
BIS 2-CHLOROISOPROPYL ETHER	[illegible]	[illegible]	[illegible]	[illegible]
4-METHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
N-NITROSO-DI-N-PROPYLAMINE	[illegible]	[illegible]	[illegible]	[illegible]
HEXACHLOROETHANE	[illegible]	[illegible]	[illegible]	[illegible]
NITROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
ISOPHORONE	[illegible]	[illegible]	[illegible]	[illegible]
2-NITROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
2,4-DIMETHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
BENZOIC ACID	[illegible]	[illegible]	[illegible]	[illegible]
BIS 2-CHLOROETHOXYMETHANE	[illegible]	[illegible]	[illegible]	[illegible]
2,4-DICHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
1,2,4-TRICHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
NAPHTHALENE	[illegible]	[illegible]	[illegible]	[illegible]
4-CHLOROANILINE	[illegible]	[illegible]	[illegible]	[illegible]
HEXACHLOROBUTADIENE	[illegible]	[illegible]	[illegible]	[illegible]
4-CHLORO-3-METHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
2-METHYLNAPHTHALENE	[illegible]	[illegible]	[illegible]	[illegible]
HEXACHLOROCYCLOPENTADIENE	[illegible]	[illegible]	[illegible]	[illegible]
2,4,6-TRICHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
2,4,5-TRICHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
2-CHLORONAPHTHALENE	[illegible]	[illegible]	[illegible]	[illegible]
2-NITROANILINE	[illegible]	[illegible]	[illegible]	[illegible]
DIMETHYLPHTHALATE	[illegible]	[illegible]	[illegible]	[illegible]
ACENAPHTHYLENE	[illegible]	[illegible]	[illegible]	[illegible]
3-NITROANILINE	[illegible]	[illegible]	[illegible]	[illegible]
ACENAPHTHENE	[illegible]	[illegible]	[illegible]	[illegible]
2,4-DINITROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
4-NITROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
DIBENZOFURAN	[illegible]	[illegible]	[illegible]	[illegible]
2,4-DINITROTOLUENE	[illegible]	[illegible]	[illegible]	[illegible]
2,6-DINITROTOLUENE	[illegible]	[illegible]	[illegible]	[illegible]
DIETHYLPHTHALATE	[illegible]	[illegible]	[illegible]	[illegible]
4-CHLOROPHENYL-PHENYL ETHER	[illegible]	[illegible]	[illegible]	[illegible]
FLUORENE	[illegible]	[illegible]	[illegible]	[illegible]
4-NITROANILINE	[illegible]	[illegible]	[illegible]	[illegible]
4,6-DINITRO-2-METHYLPHENOL	[illegible]	[illegible]	[illegible]	[illegible]
N-NITROSODIPHENYLAMINE	[illegible]	[illegible]	[illegible]	[illegible]
AZOBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
4BROMOPHENYL-PHENYL ETHER	[illegible]	[illegible]	[illegible]	[illegible]
HEXACHLOROBENZENE	[illegible]	[illegible]	[illegible]	[illegible]
PENTACHLOROPHENOL	[illegible]	[illegible]	[illegible]	[illegible]

PHENANTHRENE	85-01	0	22	0 0.0E+00
ANTHRACENE	120127	[illegible]	22	0 0.0E+00
DI-N-BUTYLPHTHALATE	84742	0	22	0 0.0E+00
FLUORANTHENE	206-44	[illegible]	22	0 0.0E+00
BENZIDINE	92875	0	22	0 0.0E+00
PYRENE	129000	[illegible]	22	0 0.0E+00
BUTYLBENZYLPHTHALATE	85687	0	22	0 0.0E+00
3,3'-DICHLOROBENZIDINE	91941	[illegible]	22	0 0.0E+00
BENZO(A)ANTHRACENE	56553	[illegible]	22	0 0.0E+00
BIS-2-ETHYLHEXYLPHTHALATE	117817	0	22	0 0.0E+00
CHRYSENE	218019	0	22	0 0.0E+00
DI-N-OCTYLPHTHALATE	117840	[illegible]	22	0 0.0E+00
BENZO(B)FLUORANTHENE	205992	[illegible]	22	0 0.0E+00
BENZO(K)FLUORANTHENE	207089	0	22	0 0.0E+00
BENZO(A)PYRENE	50328	0	22	0 0.0E+00
INDENO-(1,2,3,-CD)-PYRENE	193395	0	22	0 0.0E+00
DIBENZ A+ ANTHRACENE	5703	0	22	0 0.0E+00
BENZO(GHI)PERYLENE	191242	[illegible]	22	0 0.0E+00

* = Values Taken from Second Analysis.

TENTATIVELY IDENTIFIED COMPOUNDS	CAS NUMBERS	CONC. (ug/L)	RET. TIME	MENU OF VALID CAS NUMBERS
NITROGENOUS HYDROCARBON	172	20	21.63	100-Unknown
NITROGENOUS HYDROCARBON	172	241	21.54	105-Saturated HC
CHLORINATED HYDROCARBON	[illegible]	45	22.72	106-Unsaturated HC
CYCLIC HYDROCARBON	167	120	22.43	167-Cyclic HC
CYCLIC HYDROCARBON	167	41	22.95	169-Unknown Ketone
UNSATURATED HYDROCARBON	106	24	25.75	169-Unknown Alcohol
CYCLIC HYDROCARBON	167	34	25.81	170-Halogenated HC
CYCLIC HYDROCARBON	167	69	25.87	171-Oxygenated HC
UNKNOWN KETONE	169	58	26.34	172-Nitrogenous HC
[illegible]	1302637	35	26.9	105-Unknown Carboxylic Acid
PHTHALATE ESTER	31	130	28.47	173-Unknown PAH
UNKNOWN	100	88	35.35	175-Substituted Benzene
CARBOXYLIC ACID ESTER	105	39	37.22	181-Aromatic HC
UNKNOWN	100	160	39.55	
UNKNOWN	100	120	40.60	
CARBOXYLIC ACID ESTER	105	85	40.[illegible]	
UNKNOWN	100	47	35.65	
---	---	---	---	
---	---	---	---	
---	---	---	---	
---	---	---	---	

A Tentatively Identified Compound (TIC) is one which is present in a sample extract but is not included in a specific target compound list. The identification is based solely upon the comparison of the spectra of interest to that of a mass spectral database. The correlation is made to an actual standard reference material for which a specific instrument has been calibrated. Identification is frequently limited to compounds close rather than a specific chemical name. Thus, the use of data in this tentatively identified compound should be interpreted as being tentative.

TO: MIKE T. SALADEN
THRU: CHRIS LEIBMAN
FROM: TONEY BEGAY
REQUEST: 11735

extra copy

The following water sample was analyzed for Volatile Organic Components (VOC'S) using SW 846 Purge and Trap (P/T) GC/MS method 8260 of analysis:

91.05078

The sample was received in two 40 mL capacity vials. 5 mL of the sample was spiked with matrix spike mix and analyzed. Since the sample was not blank subtracted, a copy of the method blank results have been included in the report. **The 7 day holding time <u>was</u> satisfied.**

<u>RESULTS</u>:

This particular sample had no target or tentatively identified compounds present.

<u>QC SUMMARY:</u>

All matrix spike recoveries were within the control limits.

The surrogate recoveries were within the control limits.

7-26-91

REPORT NUMBER: 11062

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: SCB on 26-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

Customer Sample Results, Sample # 91.06507

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME

Tentatively Identified Compounds in Customer Sample # 91.06507

none

Customer Sample Duplicate Results for Sample # 91.06507

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06507

none

Matrix Spike Results for Sample # 91.06507

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
RAW INFLUENT	91.06507	71432	50.	38.	UG/L	7/26/91		Benzene
RAW INFLUENT	91.06507	108907	50.	43.	UG/L	7/26/91		Chlorobenzene
RAW INFLUENT	91.06507	75343	50.	47.	UG/L	7/26/91		1,1-Dichloroethane
RAW INFLUENT	91.06507	108883	50.	51.	UG/L	7/26/91		Toluene
RAW INFLUENT	91.06507	79016	50.	45.	UG/L	7/26/91		Trichloroethene

Matrix Spike Duplicate Results for Sample # 91.06507

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
RAW INFLUENT	91.06507	71432	50.	43.	UG/L	7/26/91		Benzene
RAW INFLUENT	91.06507	108907	50.	42.	UG/L	7/26/91		Chlorobenzene
RAW INFLUENT	91.06507	75343	50.	48.	UG/L	7/26/91		1,1-Dichloroethane
RAW INFLUENT	91.06507	108883	50.	45.	UG/L	7/26/91		Toluene
RAW INFLUENT	91.06507	79016	50.	44.	UG/L	7/26/91		Trichloroethene

REPORT NUMBER: 11062

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: SCB on 26-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

Customer Sample Results, Sample # 91.07078

Date Collected: 7/24/91 Date Received: 7/24/91 Date Extracted: 7/24/91 Date Analyzed: 7/24/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.02343	91.07078	67641	< 20.		UG/L	7/26/91	N	Acetone
91.02343	91.07078	107028	< 100.		UG/L	7/26/91	N	Acrolein
91.02343	91.07078	107131	< 100.		UG/L	7/26/91	N	Acrylonitrile
91.02343	91.07078	71432	< 5.		UG/L	7/26/91	N	Benzene
91.02343	91.07078	108861	< 5.		UG/L	7/26/91	N	Bromobenzene
91.02343	91.07078	74975	< 5.		UG/L	7/26/91	N	Bromochloromethane
91.02343	91.07078	75274	< 5.		UG/L	7/26/91	N	Bromodichloromethane
91.02343	91.07078	75252	< 5.		UG/L	7/26/91	N	Bromoform
91.02343	91.07078	74839	< 10.		UG/L	7/26/91	N	Bromomethane
91.02343	91.07078	78933	< 20.		UG/L	7/26/91	N	2-Butanone
91.02343	91.07078	104518	< 5.		UG/L	7/26/91	N	n-Butylbenzene
91.02343	91.07078	135988	< 5.		UG/L	7/26/91	N	sec-Butylbenzene
91.02343	91.07078	98066	< 5.		UG/L	7/26/91	N	tert-Butylbenzene
91.02343	91.07078	75150	< 5.		UG/L	7/26/91	N	Carbon disulfide
91.02343	91.07078	56235	< 5.		UG/L	7/26/91	N	Carbon tetrachloride
91.02343	91.07078	108907	< 5.		UG/L	7/26/91	N	Chlorobenzene
91.02343	91.07078	124481	< 5.		UG/L	7/26/91	N	Chlorodibromomethane
91.02343	91.07078	75003	< 10.		UG/L	7/26/91	N	Chloroethane
91.02343	91.07078	110758	< 50.		UG/L	7/26/91	N	2-Chloroethylvinyl ether
91.02343	91.07078	67663	< 5.		UG/L	7/26/91	N	Chloroform
91.02343	91.07078	74873	< 10.		UG/L	7/26/91	N	Chloromethane

91.02343	91.07078	95498	< 5.	UG/L	7/26/91	N	o-Chlorotoluene
91.02343	91.07078	106434	< 5.	UG/L	7/26/91	N	p-Chlorotoluene
91.02343	91.07078	96128	< 10.	UG/L	7/26/91	N	1,2-Dibromo-3-chloropropane
91.02343	91.07078	106934	< 5.	UG/L	7/26/91	N	1,2-Dibromoethane
91.02343	91.07078	74953	< 5.	UG/L	7/26/91	N	Dibromomethane
91.02343	91.07078	95501	< 5.	UG/L	7/26/91	N	o-Dichlorobenzene (1,2)
91.02343	91.07078	541731	< 5.	UG/L	7/26/91	N	m-Dichlorobenzene (1,3)
91.02343	91.07078	106467	< 5.	UG/L	7/26/91	N	p-Dichlorobenzene (1,4)
91.02343	91.07078	75718	< 10.	UG/L	7/26/91	N	Dichlorodifluoromethane
91.02343	91.07078	75343	< 5.	UG/L	7/26/91	N	1,1-Dichloroethane
91.02343	91.07078	107062	< 5.	UG/L	7/26/91	N	1,2-Dichloroethane
91.02343	91.07078	75354	< 5.	UG/L	7/26/91	N	1,1-Dichloroethene
91.02343	91.07078	156605	< 5.	UG/L	7/26/91	N	trans-1,2-Dichloroethene
91.02343	91.07078	156592	< 5.	UG/L	7/26/91	N	cis-1,2-Dichloroethylene
91.02343	91.07078	78875	< 5.	UG/L	7/26/91	N	1,2-Dichloropropane
91.02343	91.07078	142289	< 5.	UG/L	7/26/91	N	1,3-Dichloropropane
91.02343	91.07078	594207	< 5.	UG/L	7/26/91	N	2,2-Dichloropropane
91.02343	91.07078	563586	< 5.	UG/L	7/26/91	N	1,1-Dichloropropene
91.02343	91.07078	10061015	< 5.	UG/L	7/26/91	N	cis-1,3-Dichloropropene
91.02343	91.07078	10061026	< 5.	UG/L	7/26/91	N	trans-1,3-Dichloropropene
91.02343	91.07078	100414	< 5.	UG/L	7/26/91	N	Ethylbenzene
91.02343	91.07078	591786	< 20.	UG/L	7/26/91	N	2-Hexanone
91.02343	91.07078	98828	< 5.	UG/L	7/26/91	N	Isopropylbenzene
91.02343	91.07078	99876	< 5.	UG/L	7/26/91	N	4-Isopropyltoluene
91.02343	91.07078	74884	< 5.	UG/L	7/26/91	N	Methyl iodide
91.02343	91.07078	108101	< 20.	UG/L	7/26/91	N	4-Methyl-2-pentanone
91.02343	91.07078	75092	< 5.	UG/L	7/26/91	N	Methylene chloride
91.02343	91.07078	103651	< 5.	UG/L	7/26/91	N	Propylbenzene
91.02343	91.07078	100425	< 5.	UG/L	7/26/91	N	Styrene
91.02343	91.07078	630206	< 5.	UG/L	7/26/91	N	1,1,1,2-Tetrachloroethane
91.02343	91.07078	79345	< 5.	UG/L	7/26/91	N	1,1,2,2-Tetrachloroethane
91.02343	91.07078	127184	< 5.	UG/L	7/26/91	N	Tetrachloroethylene
91.02343	91.07078	108883	< 5.	UG/L	7/26/91	N	Toluene
91.02343	91.07078	76131	< 5.	UG/L	7/26/91	N	1,1,2-Trichloro-1,2,2-trifluoroethane
91.02343	91.07078	71556	< 5.	UG/L	7/26/91	N	1,1,1-Trichloroethane
91.02343	91.07078	79005	< 5.	UG/L	7/26/91	N	1,1,2-Trichloroethane
91.02343	91.07078	79016	< 5.	UG/L	7/26/91	N	Trichloroethene
91.02343	91.07078	75694	< 5.	UG/L	7/26/91	N	Trichlorofluoromethane
91.02343	91.07078	96184	< 5.	UG/L	7/26/91	N	1,2,3-Trichloropropane
91.02343	91.07078	95636	< 5.	UG/L	7/26/91	N	1,2,4-Trimethylbenzene
91.02343	91.07078	108678	< 5.	UG/L	7/26/91	N	1,3,5-Trimethylbenzene
91.02343	91.07078	108054	< 10.	UG/L	7/26/91	N	Vinyl acetate
91.02343	91.07078	75014	< 10.	UG/L	7/26/91	N	Vinyl chloride
91.02343	91.07078	1330207	< 5.	UG/L	7/26/91	N	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.07078

none

Customer Sample Duplicate Results for Sample # 91.07078

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.07078

none

****

********** HSE-9 QUALITY ASSURANCE REPORT **********

Prepared by: SCB on 26-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11735 MATRIX: WW ANALYST: Toney Begay PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.20226	91.05076	67641	< 20.		UG/L	0.0		7/26/91	UNDER CONTROL	Acetone
00.20226	91.05076	107028	< 100.		UG/L	0.0		7/26/91	UNDER CONTROL	Acrolein
00.20226	91.05076	107131	< 100.		UG/L	0.0		7/26/91	UNDER CONTROL	Acrylonitrile
00.20226	91.05076	71432	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Benzene
00.20226	91.05076	108861	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Bromobenzene
00.20226	91.05076	74975	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Bromochloromethane
00.20226	91.05076	75274	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Bromodichloromethane
00.20226	91.05076	75252	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Bromoform
00.20226	91.05076	74839	< 10.		UG/L	0.0		7/26/91	UNDER CONTROL	Bromomethane
00.20226	91.05076	78933	< 20.		UG/L	0.0		7/26/91	UNDER CONTROL	2-Butanone
00.20226	91.05076	104518	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	n-Butylbenzene
00.20226	91.05076	135988	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	sec-Butylbenzene
00.20226	91.05076	98066	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	tert-Butylbenzene
00.20226	91.05076	75150	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Carbon disulfide
00.20226	91.05076	56235	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Carbon tetrachloride
00.20226	91.05076	108907	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Chlorobenzene
00.20226	91.05076	124481	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Chlorodibromomethane
00.20226	91.05076	75003	< 10.		UG/L	0.0		7/26/91	UNDER CONTROL	Chloroethane
00.20226	91.05076	110758	< 50.		UG/L	0.0		7/26/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20226	91.05076	67663	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Chloroform
00.20226	91.05076	74873	< 10.		UG/L	0.0		7/26/91	UNDER CONTROL	Chloromethane
00.20226	91.05076	95498	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	o-Chlorotoluene
00.20226	91.05076	106434	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	p-Chlorotoluene
00.20226	91.05076	96128	< 10.		UG/L	0.0		7/26/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20226	91.05076	106934	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	1,2-Dibromoethane
00.20226	91.05076	74953	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	Dibromomethane
00.20226	91.05076	95501	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	91.05076	541731	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	91.05076	106467	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	91.05076	75718	< 10.		UG/L	0.0		7/26/91	UNDER CONTROL	Dichlorodifluoromethane
00.20226	91.05076	75343	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	1,1-Dichloroethane
00.20226	91.05076	107062	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	1,2-Dichloroethane
00.20226	91.05076	75354	< 5.		UG/L	0.0		7/26/91	UNDER CONTROL	1,1-Dichloroethene

00.20226	91.05076	156605	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20226	91.05076	156592	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20226	91.05076	78875	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,2-Dichloropropane
00.20226	91.05076	142289	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,3-Dichloropropane
00.20226	91.05076	594207	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	2,2-Dichloropropane
00.20226	91.05076	563586	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1-Dichloropropene
00.20226	91.05076	10061015	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20226	91.05076	10061026	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20226	91.05076	100414	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Ethylbenzene
00.20226	91.05076	591786	< 20.	UG/L	0.0	7/26/91	UNDER CONTROL	2-Hexanone
00.20226	91.05076	98828	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Isopropylbenzene
00.20226	91.05076	99876	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	4-Isopropyltoluene
00.20226	91.05076	74884	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Methyl iodide
00.20226	91.05076	108101	< 20.	UG/L	0.0	7/26/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20226	91.05076	75092	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Methylene chloride
00.20226	91.05076	103651	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Propylbenzene
00.20226	91.05076	100425	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Styrene
00.20226	91.05076	630206	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20226	91.05076	79345	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20226	91.05076	127184	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Tetrachloroethylene
00.20226	91.05076	108883	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Toluene
00.20226	91.05076	76131	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20226	91.05076	71556	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20226	91.05076	79005	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20226	91.05076	79016	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Trichloroethene
00.20226	91.05076	75694	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Trichlorofluoromethane
00.20226	91.05076	96184	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20226	91.05076	95636	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20226	91.05076	108678	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20226	91.05076	108054	< 10.	UG/L	0.0	7/26/91	UNDER CONTROL	Vinyl acetate
00.20226	91.05076	75014	< 10.	UG/L	0.0	7/26/91	UNDER CONTROL	Vinyl chloride
00.20226	91.05076	1330207	< 5.	UG/L	0.0	7/26/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Open (non-blind) QC samples run with this sample batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

SURROGATE RESULTS FOR EPA VOLATILES

Surrogate 1 = 1,2-Dichloroethane d4 (CAS # = 17060070)
Surrogate 2 = Toluene d8 (CAS # = 2037265)
Surrogate 3 = 4-Bromofluorobenzene (CAS # = 460004)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	COMPLETION DATE
91.05076	%	85.4	90.6	96.2	26-Jul-1991
91.06507	%	51.8	85.8	100.4	26-Jul-1991
91.06507	%	99.2	86.2	95.6	26-Jul-1991
91.07078	%	85.6	90.	97.6	26-Jul-1991
EPA Limits:					
Water	%	76 - 114	88 - 110	86 - 115	
Soil	%	70 - 121	81 - 117	74 - 121	

REPORT NUMBER: 11062

Analyst	Reviewer	Section Leader	QA Officer
for TRB			
7-26-91	7-26-91	7/26/91	
Date	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 11122

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 31-Jul-1991

ANALYSIS: AG REQUEST NUMBER: 11734 MATRIX: W ANALYST: Barbara Hemberger PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	< 10.		UG/L	7/31/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	< 10.		UG/L	7/31/91	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	50.	55.	UG/L	7/31/91	

****

REPORT NUMBER: 11122 (continued)

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: BHEMBERGER on 31-Jul-1991

REQUEST NUMBER: 11734 MATRIX: W ANALYST: Barbara Hemberger PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.01160	33.	3.	UG/L	32.	2.45	7/31/91	UNDER CONTROL
00.98805	0.497	0.05	MG/L	0.5	0.05	7/31/91	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.07179	0.962	0.1	MG/L	1.	0.1	7/31/91	UNDER CONTROL

REPORT NUMBER: 11122

Analyst	Section Leader	QA Officer
7/31/91	7/31/91	7/31/91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

REPORT NUMBER: 11174

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: MAB on 5-Aug-1991

ANALYSIS: HG REQUEST NUMBER: 11734 MATRIX: W ANALYST: Malti Bhatia PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE: 7470

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	< 0.2		UG/L	8/05/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	< 0.2		UG/L	8/05/91	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	1.	1.	UG/L	8/05/91	

****

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: MAB on 5-Aug-1991

REQUEST NUMBER: 11734 MATRIX: W ANALYST: Malti Bhatia PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.20087	4.4	0.5	UG/L	4.	0.4	8/05/91	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.07180	< 0.2		UG/L	0.0		8/05/91	UNDER CONTROL

REPORT NUMBER: 11174

Analyst	Section Leader	QA Officer
8/5/91	8/5/91	8/5/91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

REPORT NUMBER: 11081

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: JDM on 29-Jul-1991

REQUEST NUMBER: 11734 MATRIX: W ANALYST: Janet Montoya PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	AS	< 0.02		MG/L	7/29/91	
91.02343	91.07078	BA	0.08	0.01	MG/L	7/29/91	
91.02343	91.07078	CD	< 0.01		MG/L	7/29/91	
91.02343	91.07078	CR	< 0.01		MG/L	7/29/91	
91.02343	91.07078	PB	< 0.05		MG/L	7/29/91	
91.02343	91.07078	SE	< 0.02		MG/L	7/29/91	

****

REPORT NUMBER: 11081 (continued)

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: JDM on 29-Jul-1991

REQUEST NUMBER: 11734 MATRIX: W ANALYST: Janet Montoya PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.22757	AS	15.	1.5	MG/L	15.	1.5	7/29/91	UNDER CONTROL
00.22757	BA	2.6	0.3	MG/L	2.5	0.25	7/29/91	UNDER CONTROL
00.22757	CD	1.6	0.2	MG/L	1.5	0.15	7/29/91	UNDER CONTROL
00.22757	CR	3.	0.3	MG/L	3.	0.3	7/29/91	UNDER CONTROL
00.22757	PB	11.	1.1	MG/L	10.	1.	7/29/91	UNDER CONTROL
00.22757	SE	14.	1.4	MG/L	15.	1.5	7/29/91	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.07178	AS	9.3	0.9	MG/L	10.	1.	7/29/91	UNDER CONTROL
91.07178	BA	1.7	0.2	MG/L	1.6	0.2	7/29/91	UNDER CONTROL
91.07178	CD	1.	0.1	MG/L	1.	0.1	7/29/91	UNDER CONTROL
91.07178	CR	1.5	0.2	MG/L	1.5	0.2	7/29/91	UNDER CONTROL
91.07178	PB	20.	2.	MG/L	20.	2.	7/29/91	UNDER CONTROL
91.07178	SE	27.	3.	MG/L	30.	3.	7/29/91	UNDER CONTROL

REPORT NUMBER: 11081

Analyst	Section Leader	QA Officer
7/29/91	7/29/91	7/29/91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 11054

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: YIG on 25-Jul-1991

REQUEST NUMBER: 11733 MATRIX: WW ANALYST: George Brooks PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

ANALYTICAL TECHNIQUE: G ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	ALPHA	25.	6.	PCI/L	7/25/91	
91.02343	91.07078	BETA	290.	30.	PCI/L	7/25/91	
91.02343	91.07078	GAMMA	1300.	300.	PCI/L	7/24/91	

****

REPORT NUMBER: 11051

********** HSE-9 ANALYTICAL REPORT **********

Prepared by: B BATES on 24-Jul-1991

ANALYSIS: H-3 REQUEST NUMBER: 11733 MATRIX: WW ANALYST: Richard Peters PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
91.02343	91.07078	23000.	2000.	PCI/L	7/24/91	

****

REPORT NUMBER: 11054 (continued)

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: YIG on 25-Jul-1991

REQUEST NUMBER: 11733 MATRIX: WW ANALYST: George Brooks PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.00760	GAMMA	1200.	300.	PCI/L	1360.	68.	7/25/91	UNDER CONTROL
00.00760	GAMMA	1400.	300.	PCI/L	1360.	68.	7/25/91	UNDER CONTROL
00.98008	ALPHA	7.	2.	PCI/L	11.	5.	7/25/91	UNDER CONTROL
00.98008	ALPHA	13.	3.	PCI/L	11.	5.	7/25/91	UNDER CONTROL
00.98008	BETA	11.	1.	PCI/L	11.	5.	7/25/91	UNDER CONTROL
00.98008	BETA	6.9	0.8	PCI/L	11.	5.	7/25/91	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

K Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within HSE-9

REPORT NUMBER: 11054

Analyst	Section Leader	QA Officer
7/25/91	7-25-91	7/25/91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 11051 (continued)

********** HSE-9 QUALITY ASSURANCE REPORT *********

Prepared by: B BATES on 24-Jul-1991

REQUEST NUMBER: 11733 MATRIX: WW ANALYST: Richard Peters PROGRAM CODE: WH54

OWNER: Mike T. Saladen GROUP: HSE-8 MAIL-STOP: K490 PHONE: 5-6085

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons

____ Only qualitative data requested

____ Only Blind QC samples run with this sample batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Open (non-blind) QC samples run with this sample batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within HSE-9

REPORT NUMBER: 11051

RJP	C Kuck	mag
Analyst	Section Leader	QA Officer
24 July 91	7-25-91	7-25-91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

APPENDIX V

MASS BALANCE DATA FOR THE TA-53 WASTEWATER PONDS
FROM JULY 1986 THRU SEPTEMBER 1988
(All Values are in Acre-Feet)

MONTH	INFLUENT	PRECIP	TOTAL INFLOW	STORAGE CHANGE	STORAGE AVAIL	EFFLUENT	EVAP+ INFIL
JUL86	1.07	0.55	1.62	0.2	0.2	0.9	0.92
	0.65	0.83	1.48	0.5	0.7	0	1.98
SEP	0.71	0.51	1.22	0.1	0.8	0	1.32
	1.41	0.74	2.15	-0.7	0.1	0	1.45
NOV	1.04	0.56	1.6	-0.1	0	0.39	1.11
	0.74	0.11	0.85	0	0	0.44	0.41
JAN87	0.56	0.61	1.17	0	0	0.68	0.49
	0.8	0.7	1.5	0	0	0.78	0.72
MAR	1.31	0.22	1.53	1.8	1.8	1.85	1.48
	0.6	0.27	0.87	0.7	2.5	0	1.57
MAY	0.55	0.54	1.09	0.4	2.9	0	1.49
	0.54	0.16	0.7	0.4	3.3	0	1.1
JUL	1.06	0.26	1.32	0.7	4	0	2.02
	0.81	0.73	1.54	0	4	0	1.54
SEP	0.58	0.3	0.88	-0.1	3.9	0	0.78
	0.83	0.11	0.94	-0.4	3.5	0	0.54
NOV	0.63	0.29	0.92	-0.5	3	0	0.42
	0.86	0.24	1.1	-0.7	2.6	0	0.4
JAN88	0.55	0.21	0.76	-0.6	1.7	0	0.16
	0.58	0.14	0.72	-0.5	1.2	0	0.22
MAR	0.69	0.15	0.84	-0.7	0.5	0	0.14
	0.94	0.36	1.3	1	1.5	0.64	1.66
MAY	0.49	0.47	0.96	0	1.5	0	0.96
	1.26	0.66	1.92	0.4	1.9	0	2.32
JUL	1.01	0.9	1.91	0.1	2	0	2.01
	1.46	0.82	2.28	-0.6	1.4	0	1.68
SEP	1.1	0.91	2.01	-1	0.4	0	1.01
	22.83	12.35	35.18			5.68	29.9

APPENDIX VI

Table I

Hydrograph peaks (cfs) corresponding to individual 6-hour Los Alamos design storm events at east DOE-LANL boundary. See Table II for description of exact locations.

Watershed Name	Basin Area	Recurrence Interval Hydrograph Peaks (cfs) 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Guaje[1]	26.27[2]	20	149	286	504	708	941
Barrancas	2.12	<1	7	16	35	51	70
Bayo	3.92	1	14	30	59	87	118
Pueblo	8.40	20	93	159	261	352	456
Los Alamos	10.38	8	61	125	223	314	426
Los Alamos	24.66	28	147	270	464	641	847
Sandia	2.65	<1	6	14	28	41	56
Mortandad	1.72	<1	1	2	6	10	14
Canada del Buey	2.10	<1	5	12	24	36	50
Pajarito	11.36	1	27	71	153	232	327
2-Mile	3.28	<1	3	11	31	51	75
3-Mile	1.70	<1	7	16	32	46	63
Fence	1.03	<1					38
Potrillo	2.78	<1					77
Potrillo	4.77	<1	8	20	40	60	81
Canon de Valle	4.28	2	18	36	67	94	127
Water	12.40	5	71	144	262	370	496
Ancho	4.67	3	31	62	113	160	211
Chaquehui	1.50	<1	5	13	32	49	69
Frijoles[1]	18.02	33	160	284	479	654	853

[1]Watershed boundary is outside DOE-LANL complex.
[2]Drainage basin area in square miles.

Table II

Channel locations of hydrograph peaks listed in Table I; also see USGS 7.5 minute topographic maps.

Watershed Name	Stream-channel locations of hydrograph peaks
Guaje[1]	Above Barrancas Canyon confluence.
Barrancas	Tributary confluence below east DOE-LANL boundary.
Bayo	Tributary confluence above east DOE-LANL boundary.
Pueblo	Above Los Alamos Canyon confluence at HW-4.
Los Alamos	Above Pueblo Canyon confluence at HW-4.
Los Alamos	Above Bayo Canyon confluence at Totavi.
Sandia	At DOE-LANL eastern boundary.
Mortandad	At DOE-LANL eastern boundary.
Canada del Buey	At DOE-LANL eastern boundary.
Pajarito	At DOE-LANL eastern boundary.
2-Mile	Above Pajarito Canyon confluence.
3-Mile	Above Pajarito Canyon confluence.
Fence	Above Potrillo Canyon confluence at gravel pit.
Potrillo	Above Fence Canyon confluence.
Potrillo	Above Water Canyon confluence.
Canon de Valle	Above Water Canyon confluence.
Water	Stream crossing at HW-4.
Ancho	Stream crossing at HW-4.
Chaquehui	At DOE-LANL eastern boundary.
Frijoles[1]	At USGS gaging station above Rio Grande.

[1]Watershed boundary is outside DOE-LANL complex.

Table III

Hydrograph peaks (cfs) corresponding to individual 6-hour Los Alamos design storm events at the Rio Grande confluence.

Watershed Name	Basin[1] Area	Recurrence Interval Hydrograph Peaks (cfs) 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Los Alamos	58.67	47	300	564	986	1377	1825
Sandia	5.57	<1	6	14	29	49	73
Canada del Buey	10.42	31	49	77	136	192	257
Pajarito	13.60	24	41	71	152	231	326
Water	19.46	5	77	160	298	423	569
Ancho	7.01	3	33	70	128	184	242
Chaquehui	1.50	<1	5	13	32	49	69
Frijoles[2]	18.02	33	160	284	479	654	853

[1]Drainage basin area in square miles.

[2]At USGS gaging station above Rio Grande confluence.

APPENDIX VII

ATTACHMENT 1

A Reasonable Worst-Case Water Balance for LANL Hazardous Waste Disposal Areas, With Emphasis on TA-54

The water balance for LANL's hazardous waste disposal areas submitted to EID by LANL on November 1, 1984, did not adequately estimate the potential for infiltration at those areas. Since this submittal was LANL's second attempt at a water balance, the EID drew up the following water balance.

1. Precipitation

The EID is aware of four precipitation stations relevant to LANL hazardous waste disposal areas. The data we currently have available from these stations is shown on page two.

These records show that winters at White Rock - and, presumably, at TA-54, which is only two miles away - are significantly drier than at Los Alamos or TA-59/TA-3. Since the non-summer months are the ones most likely to experience precipitation in excess of evapotranspiration (ET) requirements, applying precipitation data from TA-59/3 or from Los Alamos to TA-54 will tend to overestimate both annual precipitation at TA-54 and the proportion of that precipitation that may be available for infiltration.

For the Los Alamos station, a LANL employee has estimated the frequencies of occurence of annual precipitation totals that equal or exceed given values (Lane, 1981). These are:

RETURN PERIOD	ANNUAL PRECIPITATION IN INCHES
2 years	17.99 (i.e., 17.99 is the median annual precipitation)
5	24.06
10	25.79
25	27.93
50	29.03
100	30.24

To round out this picture, it is desirable to gain some idea of past rainfall from the interpretation of local tree-ring data. In one careful recent study, the authors found no reason to discard their initial premise that the quantity of annual precipitation for the Santa Fe area has remained roughly the same for the last 1000 years (Rose, Dean, and Robinson, 1981). Their work showed that excursions in 10-year averages of annual precipitation at Arroyo Hondo have not exceeded about three inches in the 1000-year record they examined.

Precipitation Data Relevant to a Water Balance at LANL Disposal Areas

Location	Average Precipitation by Month in Inches												Annual Total
	J	F	M	A	M	J	J	A	S	O	N	D	
White Rock (9 years of record here; elevation circa 6700')	0.25	0.24	0.24	0.32	1.20	1.50	2.29	3.68	1.73	1.02	0.39	0.67	13.50
TA-59/TA-3 (33 years combined record; elevation circa 7400')	0.82	0.67	1.14	0.82	1.16	1.10	3.20	3.86	1.73	1.47	0.99	0.97	17.93
Los Alamos (60 years of record; elevation 7410')	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	0.70	0.93	18.37
TA-54 (5 years of record; annual total based on 75% of TA-59/3, as per Appendix II, p. 41; elevation circa 6700')													(13.45)

(Data from Appendix II, Gabin and Lesperance, and

LANL's water balance cites an article which apparently throws a dark cloud on all of dendroclimatalogy, but we have not yet been able to access this article. Only note that, if rising CO_2 levels in the air are a competent cause of decreased tree ring response to moisture, even on semi-arid sites low in other plant nutrients, the effect will be to bias dendro-climatologists toward over-estimating past rainfall. LANL's water balance analyzes possible infiltration from a synthetic rainfall year composed of each of the highest monthly precipitation totals recorded at TA-59/3. This gives an annual total of 57.47 inches, almost twice the estimated 100-year annual precipitation. This figure is roughly equal to the average annual precipitation in Vancouver, B.C.; it is not clear that such a precipitation year could ever occur at Los Alamos without the climatic conditions that may have prevailed here in the Pleistocene. Hence, EID believes LANL's precipitation scenarios to be overly conservative.

A recent LANL study (Abeele, Wheeler, and Burton, 1981) used methods which were not explicit to study Los Alamos tree rings. In the period examined (which apparently extended at least back to 1523), the maximum annual precipitation indicated by the tree ring data was roughly 40 inches, in 1597.

A more reasonable approach than that of the LANL water balance might be to analyze the water balance under a suite of reasonable worst-case assumptions. If significant infiltration could occur under any of these regimes, one must determine both the robustness of this result and where this infiltrated water would be likely to go. The synthetic precipitation regimes that will be examined for TA-54 are shown on page 4.

For LANL disposal areas at roughly the elevation of TA-59/3, the first scenario on page 4 represents typical, rather than worst-case, conditions. The remaining sections of this report will focus on TA-54; generalizations to wetter areas are left to the reader. Note that the second and third synthetic records shown on page 4 slightly exceed the 100-year annual rainfall at Los Alamos.

2. <u>Runoff</u>

The LANL water balance estimates runoff at a flat 20% of incident precipitation, ostensibly based on an SCS Curve Number of 82. There are at least four reasons why this approach will overestimate runoff:

a. Precipitation is assumed to occur as rainfall only. The months of greatest interest experience significant snowfall; snow is less likely to produce runoff than rain.

b. To apply the SCS method, the frequency spectrum of individual storm magnitudes must be known in detail. Appendix II assumes storms deposit an average of roughly 1.25" of rain per storm; this is far too great.

c. What is locally runoff may become infiltration elsewhere, e.g. by running down a ramp into an active pit.

"Worst-Case" Precipitation Scenarios for TA-54

Scenario	Precipitation by Month												Annual Total
	J	F	M	A	M	J	J	A	S	O	N	D	
1. Wet decade at TA-54; data shown is the average recorded for Los Alamos.	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	0.70	0.93	18.37
2. Wet single year at TA-54; data shown are monthly autumn maxima from TA-59/3; balance of year is average TA-59/3 data.	0.82	0.67	1.14	0.82	1.16	1.10	3.20	3.86	4.55	6.77	6.60	2.85	33.54
3. Wet single year at TA-54; data shown are monthly spring maxima from TA-59/3; balance of year is average TA-59/3 data.	2.81	1.87	4.11	3.23	3.50	3.40	3.20	3.86	1.73	1.47	0.99	0.97	31.14

d. Moist (neither wet nor dry) antecedent moisture conditions are assumed in the LANL water balance. Most storms will occur with dry antecedent conditions.

A reasonable worst case analysis would assume that the precipitation of greatest interest (that is, precipitation with the greatest potential for infiltration) falls either as slow-melting snow or as individual storms of less than 0.5" in magnitude. These conditions will produce little or no runoff from TA-54, and no abstraction for runoff will be made in the water balances to follow.

3. Interception and Depression Storage

To the extent that evapotranspiration (ET) figures are computed from data for crops or natural vegetation that receive water from rain, snow, or artifical sprinkling, these ET figures already include interception losses. While in forested areas or other situations involving a high leaf area index, or in situations involving roofs, interception is important, it is not likely to be very important at TA-54 due to the sparse plant cover. The potential interception from a 2" grass lawn has been estimated to be only 0.01" (Lull and Sopper, 1969); other estimates and references can be found in Dunne and Leopold (1978). In the following analyses, an interception of zero will be assumed.

In order for depression storage to be significant in preventing infiltration, impervious depressions must be present. These conditions are not, to our knowledge, present at TA-54 to any significant extent.

4. Evapotranspiration

Discussions of evapotranspiration (ET) are often lent an unnecessarily abstract quality by the use of the "potential" ET (PET) concept. PET cannot be measured either directly or indirectly; nevertheless several traditional formulae exist to predict what it would be if it could be measured. What can be measured is the actual ET of a site, and this has unfortunately not been measured at any of the LANL disposal areas.

Observation of low moisture levels in the tuff at TA-54, and the apparent invariance of this low level with depth beyond a certain depth, lend credence to the idea that infiltration is small at TA-54 (e.g., Abrahams, Weir, and Purtymun, date unknown). Since runoff is not large either, except perhaps in summer thunderstorm events, a close upper bound for the average annual actual ET is simply the precipitation that falls on the site.

In a wet year, transpiration by plants, as well as evaporation from bare soil and snow, will increase above this average value. Winter transpiration alone will not increase very much, however, and will hardly increase at all if only winter-dormant species are involved. Summer transpiration will also increase in a wet year, but not indefinitely and not to the extent that would be possible in denser vegetation communities. The upshot is that while ET will be greater in wet years, there is no guarantee that it will increase sufficiently to prevent infiltration. The

incontrovertible evidence that infiltration does occasionally occur is discussed in a later section.

The Blaney-Criddle method for computing the consumptive use of an irrigated perennial crop will be used to predict the maximum ET that could be experienced in a given month (i.e., the PET). This empirical formula uses day length and mean air temperature to calculate PET. The version of this formula used here (Soil Conservation Service, 1970, cited in Dunne and Leopold, 1978) is more recent, and significantly different, than that used in Appendix II (Cruff and Thompson, 1967). The table below gives the PET for mature alfalfa (a highly water-intensive crop) grown in Los Alamos. That is, these values purport to predict consumptive water use by freely-irrigated alfalfa in Los Alamos.

Month	k	PET
J	0.63	0.39 in.
F	0.73	0.49 in.
M	0.86	0.91 in.
A	0.99	1.89 in.
M	1.08	3.68 in.
J	1.13	5.84 in.
J	1.11	6.53 in.
A	1.06	5.42 in.
S	0.99	3.63 in.
O	0.91	1.99 in.
N	0.78	0.70 in.
D	0.64	0.42 in.
Annual Total:		31.86 in.

Here PET = $0.3937(0.142T_a + 1.095)(T_a + 17.8)kd$ when T_a 3^oC, and PET = $0.3937(T_a + 17.8)kd$ when T_a 3^oC. Here PET is in inches, k is the crop coefficient for alfalfa shown above, and d is a day length variable (Dunn and Leopold, 1978).

The potential ET for bare crushed tuff backfill, or with a cover of sparse grass and widely spaced trees, will be less than the PET for alfalfa shown above. Note that the annual PET computed for TA-54 in LANL's water balance was 41.89", using an earlier version of the Blaney-Criddle formula. This is unreasonably high.

Regional actual ET values have been measured for vegetation types that may approximate in some cases, and bracket, in other cases, the LANL situation. The following actual ETs show, in a broad way, that ETs for forested land tend to be greater than those for brush or grass and are in every case less than that for the alfalfa discussed above (cases cited in Rich and Thompson, 1974):

Cover Type	Location	Season	ET for Season
grassland	CO	June-Sept.	9.5 inches
grassland	UT	May-Nov.	10.0
brush	UT	May-Nov.	13.9
pine	AZ	May-Oct.	23.6
aspen	CO	June-Sept.	18.8

The following annual values for ET have been obtained in three instrumented watersheds south of Flagstaff on the Mogollon Rim. These watersheds lie in elevations between 5000' and 8000' and have soils derived from basalt and volcanic cinders which range from clay to clay

loams and which restrict infiltration. Actual ET figures were obtained by subtracting streamflow from precipitation, and so contain interception, snow sublimation, and any ground water recharge (this last is believed to be very small) (Baker, 1982).

	Dominant Vegetation Type		
	Utah Juniper (lower elevation)	Alligator Juniper (medium elevation)	Ponderosa Pine (highest elevation)
Annual Precip.	18.03 in.	20.71 in.	25.50 in.
Annual ET	16.97	15.94	19.94
Basal area per acre	60 ft^2	20 ft^2	125 ft^2

These watersheds are located at approximately the latitude and elevation of Los Alamos and receive annual precipitation, on the average, that is at least that received at LANL's disposal areas. Although the basal areas shown do not define dense forests, these ET values include whatever brush and herbaceous species that may be present in the understory, and the transpiratory ability of these associations is probably at least that present at TA-54.

At LANL, deep-rooting plants (including all trees) are prevented from growing on backfilled areas at Area G, and at any other areas where hazardous materials (such as tritium) may be drawn to the surface by transpiration. Trees will certainly send roots preferentially into disposal pits, both because it is mechanically easier to grow there and because increased infiltration in those areas may create a more favorable moisture environment for plant growth. Studies cited in a LANL report (Rogers, 1977) document tritium uptake by plants at Area G.

It follows that the Arizona watersheds provide a reasonable high estimate of actual ET for LANL disposal areas. ET at TA-54 could not reasonably be expected to be greater than 20" except in the wettest years, and on the average would be somewhat less than the 16-17" experienced in the juniper-dominated watersheds. It is reassuring that these numbers are at least in the same range as the incident precipitation at LANL.

Unfortunately, the only way to a priori distribute, without actual measurement, these annual estimates of ET among the 12 months of the year is to refer to the estimates of PET we have made above. Assuming these estimates are good ones, and assuming we are happy with a 12-interval discretization of the year's hydrology, we must then translate PET into actual ET.

If the soil is thoroughly penetrated by roots, and if the plants involved are actively transpiring, ET will proceed at the PET rate until the soil moisture tension reaches some threshold level, after which it will fall off according to some (unknown) relationship. The ratio of ET/PET when

moisture is limiting has been investigated by many researchers, with conflicting results that apparently depend on factors unique to the particular experiments. Reviews of this work along with the results of experiments in New Mexico can be found in the bibliography (Sammis, et.al., 1979; Gregory and Hanson, 1976; Al-Khafaf, et.al., 1979; Spurr and Barnes, 1973; Dunne and Leopold, 1978).

In the dormant season, when ET is of most interest to us (and of least interest to the agricultural researchers), ET/PET apparently falls off more quickly than when roots are active. According to one review, soil evaporation falls off to an "insignificant value" after 0.2 to 0.4 inches of water has evaporated, due to the formation of a dry soil mulch at the surface (Dunne and Leopold, 1973).

It follows from the above discussion that it is crucial to know the species, active seasons, rooting depths, and cover densities of vegetation both now and in the future at LANL's disposal areas, if we are to understand the present and future water balance at those areas. Even though the native vegetation appears to have been capable of establishing an ET regime that has led to a constant and low moisture content in the tuff at depth, the treeless shallow-rooted vegetation that has been described as present at TA-54 now may not either be able to extract water as efficiently, or for as many months of the year, as the original vegetation.

In the present rough-and-ready analysis, vegetative dormancy (and the "dry-soil-mulch" effect) are not considered beyond the extent they may already be incorporated into the Blaney-Criddle formula. The present analysis may, therefore, overestimate winter ET and underestimate winter infiltation, to some extent.

Actual ET for the ith month is computed as follows:

$$ET = (PET/AWC)(SM_{i-1} + SM_i)/2$$

where: PET is potential evapotranspiration in inches
AWC is the available water capacity of the soil in inches
SM_{i-1} is the soil moisture at the end of the previous month in inches, and
SM_i is the soil moisture at the end of the current month in inches.

SM_i is, in turn,

$$SM_i = SM_i' \text{ if } 0 \leq SM_i' \leq AWC, \text{ and}$$
$$= AWC \text{ if } SM_i' > AWC$$

where $SM_i' = SM_{i-1} + P - ET$.

Eliminating ET gives $SM_i' = [SM_{i-1} (1 - PET/2AWC) + P] / (1 + PET/2AWC)$.

This is the linear assumption of Thornthwaite applied to discrete monthly intervals, i.e., ET/PET when soil moisture is limiting is proportional to the difference between soil moisture level and field capacity. Other

assumptions could be used, but the main conclusions that will be reached are, we believe, robust with respect to the functional form of the ET/soil moisture relationship.

5. Soil Moisture Storage

In the interest of time, the approach used in Appendix II to model moisture storage in the soil is provisionally applied here. Note that the discharge and storage of soil moisture is assumed to take place evenly throughout the soil profile in this approach, and soil and tuff beneath the average rooting depth is assumed to not contribute to ET. It almost certainly does contribute to ET, as will be discussed later.

In the water balances below, the value for available water capacity (AWC) given in Appendix II of 4.96 inches (for crushed tuff) is used. By comparison Appendix II uses an AWC value of 5.43 for undisturbed soil.

6. Water Balances

The water balance which obtains from Scenario 1 precipitation is shown as Case 1 in the following table and graphically on page 12. The soil moisture cycle represented by case 1 is quickly reached from a variety of initial conditions, as shown in Cases 3 and 4, and perturbations, such as a very wet month as shown in Case 2, quickly die out. Under Scenario 1, April arrives with the soil just reaching field capacity, and no infiltration ever occurs; actual ET is equivalent to precipitation.* Recall that this represents a fairly wet year at TA-54, and represents a typical year at the Los Alamos weather station (or at TA-59/3, which has a similar elevation and precipitation record).

If a single wet month occurs in the fall, or if the soil should enter the fall nearly saturated due to unusually heavy rains in September, infiltration will occur in every subsequent month until April. As can be seen in Case 2, the total amounts of infiltration can be significant under these assumptions.

Scenarios 2 and 3 result in very large amounts of infiltration in several months, giving up to 7 months of infiltration in the case of Scenario 2. These scenarios, which have long return periods (>>100 years at TA-54) will not be discussed further.

At TA-54, winters (and April) are significantly drier than at Los Alamos, on the average. Nevertheless, it is hard to see why infiltration would not occasionally occur there, as it does at Los Alamos, during periods of wet weather. Unlike at the Los Alamos station, however, PET exceeds rainfall in every month except December, and the propect of several months of infiltration occurring after a wet fall month does not seem to be very likely, unless those following months are also unusually wet.

*Actually, in a soil at field capacity, slow drainage does in fact occur. Note that we have essentially assumed, in the above, that a dense crop of mature alfalfa is ready, all the time, to transpire moisture at TA-54. In

LANL Water Balance: Case 1: Steady-State

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip.	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	0.70	0.93
PET	0.39	0.49	0.91	1.89	3.68	5.84	6.53	5.42	3.63	1.99	0.70	0.41
Soil Moisture	4.61	4.84	4.95	4.22	2.85	1.52	2.30	3.06	2.89	3.27	3.49	4.11
ET	0.34	0.47	0.90	1.75	2.62	2.57	2.51	2.93	2.17	1.23	0.48	0.31
Potential Infiltration	0	0	0	0	0	0	0	0	0	0	0	0

Case 2: Very Wet November

Precip.	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	6.60	0.93
PET	0.39	0.49	0.91	1.89	3.68	5.84	6.53	5.42	3.63	1.99	0.70	0.41
Soil Moisture	4.96	4.96	4.96	4.22	2.85	1.52	2.30	3.06	2.89	3.27	4.96	4.96
ET	0.39	0.49	0.91	1.75	2.62	2.57	2.51	2.93	2.17	1.23	0.58	0.41
Potential Infiltration	0.45	0.21	0.10	0	0	0	0	0	0	0	4.33	0.52

LANL Water Balance: Case 3: Beginning from the wilting point in May

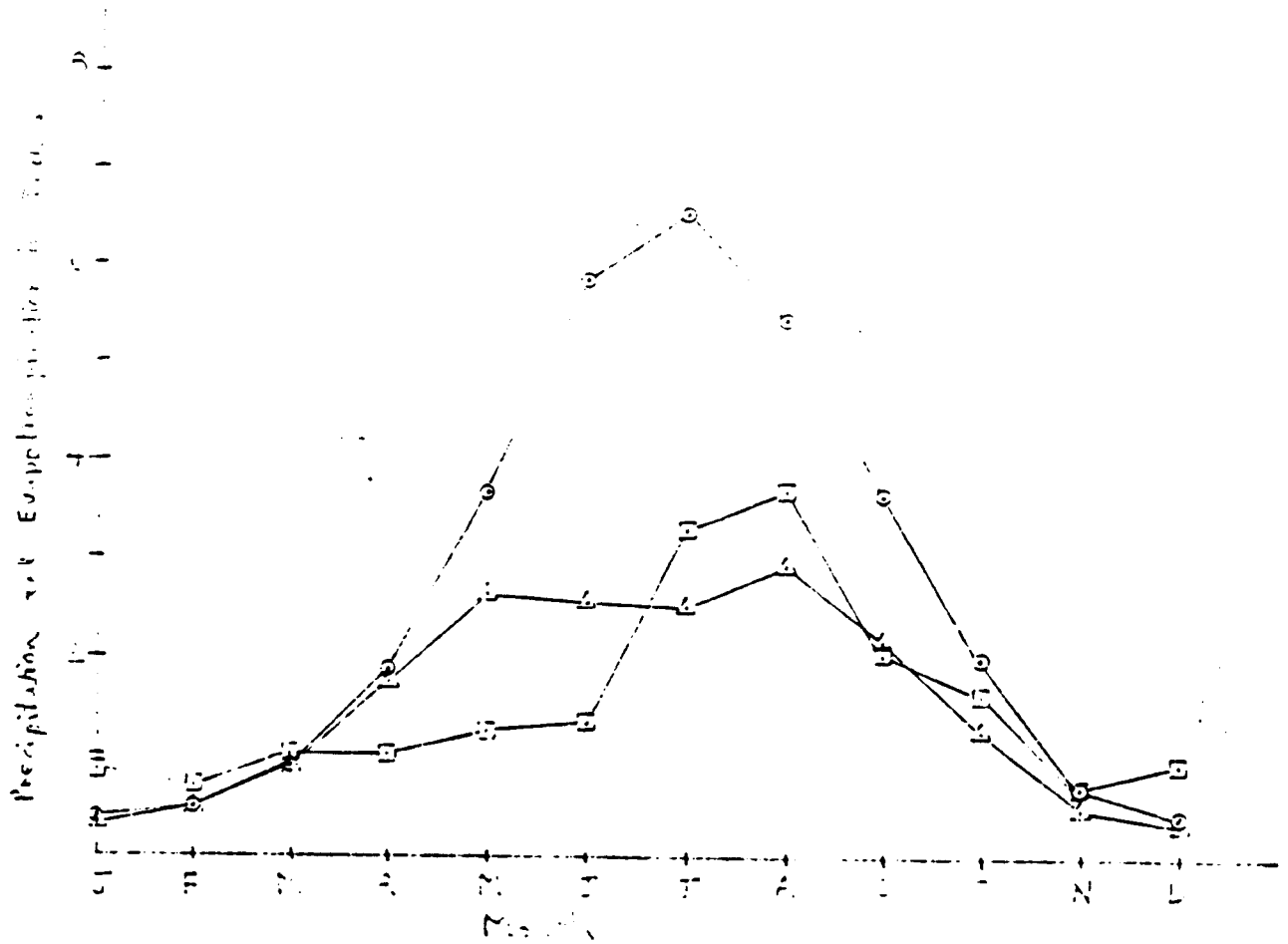
	Jan	Feb	Mar	Arp	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip.	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	0.70	0.93
PET	0.39	0.49	0.91	1.89	3.68	5.84	6.53	5.42	3.63	1.99	0.70	0.41
Soil Moisture	4.60	4.83	4.94	4.21	0*	0.84	2.16	3.02	2.87	3.25	3.48	4.10
ET	0.34	0.23	0.90	1.74		0.49	1.97	2.83	2.16	1.23	0.47	0.31
Potential Infiltration	0	0	0	0	0	0	0	0	0	0	0	0

Case 4: Beginning with soil at field capacity in January

Precip	0.84	0.70	1.01	1.01	1.25	1.33	3.29	3.69	2.01	1.61	0.70	0.93
PET	0.39	0.49	0.91	1.89	3.68	5.84	6.53	5.42	3.63	1.99	0.70	0.41
Soil Moisture	4.96	4.96	4.96	4.22	2.85	0.84	2.16	3.02	2.87	3.25	3.48	4.10
ET	0.39	0.49	0.91	1.75	2.62	0.49	1.97	2.83	2.16	1.23	0.47	0.31
Potential Infiltration	0.45	0.21	0.10	0	0	0	0	0	0	0	0	0

*initial month

Potential Evapotranspiration, Computed Average Actual Transpiration, and Precipitation at Los Alamos, NM



⊙ potential ET (Blaney-Criddle alfalfa). See text for assumptions.
△ average actual ET under Los Alamos precipitation (Scenario 1). See text for assumptions.
⊡ average Los Alamos precipitation.

the case of bare or nearly-bare soil, actual ET values will be lower, and infilitration higher, than the figures given.

7. Evidence of Infiltration

The average relative humidity at Los Alamos is circa 40% (DOE, 1979). The soil moisture tension which will equilibrate with this humidity is more than 1000 bars (for pure water) (Hillel, 1980). The circa 4% wetness found in the tuff in some investigations (Abrahams, Weir, and Purtymun, date unknown) is, presumably, much greater than the wetness which would produce 1000 bars of tension. (Unfortunately, moisture tensions do not appear to have been measured in the field at LANL to date). This high wetness must either be a "fossil" wetness remaining from past climates (presumably > 1000 years ago; see section 1) or a quasi-equilbrium established in the present infiltration, percolation, and ET regime. Even the 1% wetness reported for tuff at depth (30-80 meters) at TA-49 (Abeele, Wheeler, and Burton, 1981) appears to result in a suction that is less than the wilting point (see the calculated moisture characteristic curve in this same publication).

One of the papers cited above (Abrahams, Weir, and Purtymun, date unknown) measured little infiltration below ten feet with most infiltration not sinking below a depth of six feet. Unfortunately, these results cannot be applied directly to TA-54 because: 1) the degree of welding in the tuff may not be the same; 2) the clayey layer which was so effective in preventing infiltration may not be continuous at the experimental site, let alone at TA-54, where soil cover is not continuous; and 3) disposal pits have no developed clay layer to impede infiltration. Note that if moisture tension is constant with depth, a net downward water flux is occurring, assuming the osmotic tension is constant with depth. Therefore the constant soil-moisture-with-depth curves shown in the above publications are consistent with the existence of net infiltration. Soil moisture tensions would have to increase roughly 3 bars every 100 ft to counteract the effect of gravity.

Measurements at a neutron probe hole in backfilled material in Area G (location unknown to us) showed a total of 9.44 inches of infiltration in 1978 and 1979, due at least in part to an extemely wet November in 1978. Prompt infiltration to 25 meters was also observed at Area C (Abeele, Wheeler, and Burton, 1981). It is unfortunate that LANL has not installed (to our knowledge) a set of comparable long-term soil moisture holes that would allow construction of a wetness spectrum from the "high"-infiltration areas at LANL's western boundary to the low-infiltration areas on its eastern boundary.

One detailed LANL report (Rogers, 1977) shows photographic evidence of wet patches alternating with dry patches in tuff following a large storm event. In addition, water was observed to issue into an open disposal pit from the soil/tuff interface during this storm event, and to run out from open joints into the pit. These processes will presumably occur with or without crushed tuff backfill and suggest that flow patterns in the tuff will focus in excavated (higher permeability) areas, as would be predicted theoretically.

GM:egr

References

Abeele, W.V., Wheeler, M.L., and Burton, B.W., 1981. Geohydrology of Bandelier Tuff. LA-8962-MS.

Abrahams, J.H., Weir, J.E., and Purtymun, W.D., date unknown. Distribution of moisture in soil and near-surface tuff on the Pajarito Plateau, Los Alamos County, New Mexico. MS. published in an unknown publication, in files of New Mexico Environmental Improvment Division, Santa Fe, NM.

Al-Khafaf, S., Wierenga, D.J., and Williams, B.C., 1979. Improved method of estimating crop consumptive use and distribution of soil water in irrigated soil profiles. New Mexico Water Resources Research Institute Report No. 103, Las Cruces, NM.

Baker, M.B., 1981. Hydrologic regimes of forested areas in the Beaver Creek watershed. USDA Forest Service General Technical Report RM-90, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, CO.

Cruff, R.W., and Thompson, T.H., 1967. A comparison of methods of estimating potential evapotranspiration from climatological data in arid and subhumid environments. US Geological Survey Water-Supply Paper 1339-M.Dunne, T., and Leopold, L.B., 1978. Water in Environmental Planning. W.H. Freeman and Co., San Francisco.

Gabin, V.L., and Lesperance, L.E., 1977. New Mexico Climatological Data: Precipitation, Temperature, Evaporation, and Wind: Monthly and Annual Means. W.K. Summers and Assoc., Socorro, NM.

Gregory, E.J., and Hanson, E.G., 1976. Predicting comsumptive use with climatological data. New Mexico Water Resources Research Institute Report No. 066, Las Cruces, NM.

Hillel, D., 1980. Fundamentals of Soil Physics. Academic Press, NY.

Lane, Leonard, 1981. August 11 memorandum to Brent Bowen, LANL, titled "Estimated Rainfall Frequencies for Los Alamos". LANL LSG-81-285.

Lull, H.W., and Sopper, W.E., 1969. Hydrolic effects from urbanization of forested watersheds in the northeast. USDA Forest Service Research Paper NE-146, Northeastern Forest Experiment Station, Upper Darby, PA.

Rich, L.R., and Thompson, J.R., 1974. Watershed management in Arizona's mixed conifer forests: the status of our knowledge. USDA Forest Service Research Paper RM-130.

Rogers, M.A., 1977. History and environmental setting of LASL near-surface land disposal facilities for radioactive wastes (Areas A, B, C, D, E, F, G, and T). LA-6848-MS.

Rose, M.R., Dean, J.S., and Robinson, W.J., 1981. The Past Climate of Arroyo Hondo, New Mexico, Reconstructed from Tree Rings. School of American Research Press, Santa Fe, NM.

Sammis, T.W., et.al., 1979. Consumptive use and yields of crops in New Mexico. New Mexico Water Resources Research Institute Report No. 115, Las Cruces, NM.

Spurr, S.H., and Barnes, B.V., 1973. Forest Ecology, 2nd edition. Ronald Press, NY.

US Department of Energy, 1979. Final Environmental Impact Statement: Los Alamos Scientific Laboratory Site. US DOE, Washington, DC.

APPENDIX VIII

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2850

BRUCE KING
GOVERNOR

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 24, 1991

Mr. Jerry Bellows
Area Manager
DOE Los Alamos Area Office
Los Alamos, New Mexico 87544

RE: Notice of Violation
NM0890010515

Dear Mr. Bellows:

On April 29-May 3, 1991, the New Mexico Environment Department (NMED) conducted a hazardous waste inspection of your facility, Los Alamos National Laboratory (LANL). This letter is NMED's notice that, based on our review of the information obtained, NMED has determined that LANL has violated the New Mexico Hazardous Waste Management Regulations (HWMR-6). The purpose of this letter is to delineate the violations in writing and to require LANL to comply with HWMR-6.

The violations are:

1. At the TA 35-85 less than ninety day container storage area, one container of hazardous waste was being stored in excess of the allowable storage time limit. This is a violation of HWMR-6, Part III, 40 CFR §262.34.

2. At the same TA 35-85 location, a container had no date upon which accumulation of hazardous waste began. This is a violation of HWMR-6, Pt. III, §262.34(a)(2).

3. Also at the same TA 35-85 location, a drum of rags contaminated with freon solvent was labelled "Non-Regulated Waste". This is a violation of HWMR-6, Pt. III, §262.34(a)(3). This drum contained hazardous waste and should be labelled and handled as such.

4. At the TA 50-1 less than ninety day mixed waste container storage area, several drums either had no date upon which accumulation of hazardous waste began or such dates were faded to the extent that they were

not legible. This is a violation of HWMR-6, Pt. III, §262.34(a)(2).

d. At the same TA 50-1 location, several drums either had no hazardous waste label or labels were faded to the extent that they were not legible. This is a violation of HWMR-6, Pt. III, §262.34(a)(3).

e. At TA 3-1819, a shed outside the building is being managed as a satellite accumulation point, but it receives hazardous waste from more than one satellite point inside the building which are under the control of different operators. Therefore, this area should be managed as a less than ninety day storage area. Several containers had no dates upon which accumulation of waste began. This is a violation of HWMR-6, Pt. III, §262.34(a)(2).

f. At the same TA 3-1819 location, no evidence that the required inspections were being conducted could be provided. This is a violation of HWMR-6, Pt. III, §262.34(a)(1).

g. At a TA 21-210 satellite accumulation point, a rusted can of unknown solid waste was unsealed and unlabelled. This is a violation of HWMR-6, Pt. III, §262.34(c)(1). Until an adequate hazardous waste determination of the material is performed, it is presumed hazardous.

At the TA 53 mixed waste lagoon, an inspection schedule and inspection logs are not being maintained. This is a violation of HWMR-6, Pt. VI, §265.15.

In accordance with §74-4-10 NMSA 1978, you have thirty (30) calendar days from the receipt of this notice to correct the violations and provide documentation that the violations have been corrected. Within this thirty day period you may request a meeting to discuss the violations, the required corrective actions, and/or a settlement agreement. Such a meeting must be held within this thirty day period and will not suspend the thirty day deadline for compliance or settlement. Any settlement agreement made shall be signed by representatives of LANL and NMED, and formalized by issuance of a Consent Order requiring compliance with the terms of the agreement.

If you fail to correct the violations cited in this Notice of Violation (NOV) within the specified time frame, you shall be subject to one or more of the following:

- an order requiring compliance within a specified period, pursuant to §74-4-10 NMSA 1978.

- a civil action in district court for appropriate relief, including a temporary or permanent injunction, pursuant to §74-4-10 NMSA 1978.

In addition to the violations mentioned above, apparent violations of the land disposal restriction (LDR) regulations (40 CFR Part 268) were also found during the inspection. At the TA 54 Area G mixed waste container storage area, at least four drums were missing waste codes or other marking to identify their contents regarding the type of hazardous waste being stored. Concerning restricted waste notification, an LDR notice along with a manifest had the incorrect waste code assigned to the waste, therefore causing the incorrect constituent to be identified on the notice. Also, one manifest was missing an LDR notice, indicating that a notice did not accompany the shipment of restricted waste. Regarding the TA 53 mixed waste lagoons, which are surface impoundments, solvent contamination has been found, and F-solvents are suspected. However, these units do not meet minimum technology requirements for a hazardous waste disposal unit. The authorized State program does not include the HSWA regulations which became effective November 8, 1986. Therefore, the U.S. EPA implements and enforces the LDR regulations. This notice is a courtesy, and does not preclude future formal or informal enforcement action which EPA may consider to be appropriate regarding the apparent LDR violations mentioned above.

Also, an area of concern was noted. At least one manifest had incorrect hazardous waste codes identified on it. Such misclassification of wastes could possibly lead to improper waste management, such as inappropriate treatment of a restricted waste. If hazardous waste codes are to be identified on manifests, every attempt should be made to assign them accurately.

Compliance with the requirements of this NOV does not relieve LANL of its obligation to comply with HWMR-6 in other activities which it carries on, nor does it relieve LANL of its obligation to comply with any other applicable laws and regulations.

If you have any questions regarding this notice, please contact me at (505)827-2929 or at our address. Please also address to my attention the information you provide in response to this letter.

Sincerely,

Coby Muckelroy
Water Resource Specialist
Hazardous and Radioactive Waste Bureau

cc: Mickey Flowers, U.S. EPA Region VI (6H-HS)
NMED District II Office

JUN 28 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Coby Muckelroy
New Mexico Environment Department
Hazardous and Radioactive Waste Bureau
Harold Runnels Building
1190 St. Francis Drive, P. O. Box 26110
Santa Fe, New Mexico 87502

Dear Mr. Muckelroy:

This letter constitutes the response of the Department of Energy (DOE) and the University of California (UC) to the Notice of Violation (NOV) dated May 24, 1991. In accordance with Section 74-4-10 (A) (NMSA -1978), all alleged violations have been corrected within the 30 days allowed by statute. The violations, response, and actions taken are set forth below.

Violation number 1: At Technical Area (TA)-35-85 less than ninety day container storage area, one container of hazardous waste was being stored in excess of the allowable time limit. This is a violation of HWMR-6, Part III, 40 CFR 262.34.

Response: The referenced hazardous waste storage container has been shipped to Los Alamos National Laboratory's (LANL) permitted storage facility at TA-54, Area L, for storage and off-site shipment. Additionally, on June 3, 1991, a review of the generator waste management training was given to TA-35-85 waste management personnel, on conducting inspections at their less than 90 day storage area, and on the allowable accumulation time limit requirements. Enclosure A shows the waste disposal request form used to transfer the hazardous waste container to LANL's permitted storage facility.

Violation number 2: At the same TA-35-85 location, a container had no date upon which accumulation of hazardous waste began. This is a violation of HWMR-6, Part III, 262.34(a)(2).

Response: The accumulation date has been placed on the container. The above referenced training review provided to TA-35-85 waste management personnel on June 3, 1991, included instructions regarding the accumulation start date requirement.

Violation number 3: Also at the same TA-35-85 location, a drum of rags contaminated with freon solvent was labelled "Non-Regulated Waste". This is a violation of HWMR-6, Part III, 262.34(a)(3). This drum contains hazardous waste and should be labelled and handled as such.

JUN 28 1991

Response: The drum which contained freon contaminated rags has been labeled with the words "Hazardous Waste". The June 3, 1991, TA-35-85 training review included instructions on proper waste determination. Enclosure B shows that the freon solvent container is labeled properly.

Violation number 4: At TA-50-1 less than ninety day mixed waste container storage area, several drums either had no date upon which accumulation of hazardous waste began or such dates were faded to the extent that they were not legible. This is a violation of HWMR-6, Part III, 262.34(a)(2).

Response: All mixed waste container labels have been inspected to ensure that all labels are legible and all drums contain accumulation start dates. A memorandum will be distributed by HSE-8, to all waste management personnel that have noted hazardous waste deficiencies in their areas. The memorandum will reiterate proper waste management procedures.

Violation number 5: At the same TA-50-1 location, several drums either had no hazardous waste label or labels were faded to the extent that they were not legible. This is a violation of HWMR-6, Part III, 262.34(a)(3).

Response: All hazardous waste container labels have been inspected to ensure that all labels are legible. Enclosure C, shows one of the containers in question with the label affixed properly.

Violation number 6: At TA-3-1819, a shed outside the building is being managed as a satellite accumulation point, but it received hazardous waste from more than one satellite point inside the building. These satellite points are under the control of the different operators. Therefore, this area should be managed as a less than ninety day storage area. Several containers had no dates upon which accumulation of waste began. This is a violation of HWMR-6, Part III, 262.34(a)(2).

Response: The State has incorrectly identified the satellite accumulation point mentioned in the violation. The correct location is TA-3-1767. This satellite accumulation point is now closed, and will no longer receive hazardous waste. All hazardous waste at this accumulation point has been shipped to LANL's permitted storage facility at TA-54, Area L, for storage and off-site shipment. Enclosure D is a copy of a memorandum giving notification of the closure of the area.

Violation number 7: At the same TA-3-1819 location, no evidence that the required inspections were being conducted could be provided. This is a violation of HWMR-6, Part III, 262.34 (a)(1).

Response: Same response as provided for violation number 6.

Violation number 8: At a TA-21-210 satellite accumulation point, a rusted can of unknown solid waste was unsealed and unlabeled. This

is a violation of HWMR-6, Part III, 262.34 (c)(1). Until an adequate hazardous waste determination of the material is performed, it is presumed hazardous.

Response: The State has incorrectly identified the satellite accumulation point mentioned in the violation. The correct location is TA-21-3N outside Room 360. The material in question has been identified as hazardous waste and has been shipped to LANL's permitted storage facility at TA-54, Area L, for storage and off-site shipment (see enclosure E).

Violation number 9: At a TA-53 mixed waste lagoon, an inspection schedule and inspection logs are not being maintained. This is a violation of HWMR-6, Part VI, 265.15.

Response: Facility inspection schedules and logs are being maintained by Johnson Controls World Services INC. (JCI) and HSE-8. Training was given to JCI on June 7, 1991, on the requirements for conducting a facility inspection, maintaining appropriate documentation and submitting inspections logs to HSE-8.

DOE/UC appreciates NM ED's comments regarding the Land Disposal Restriction (LDR) matters noted in your May 24, 1991, letter. I can assure you that DOE/UC is making every effort to comply with all LDR requirements.

Based on this submittal, the DOE and UC believes that all the issues referenced in notice of violation have been addressed. If you have any questions regarding this response, contact Mr. Steve Slaten of my staff at 665-5050 (FTS/843-5050) to arrange a meeting between DOE, UC and State personnel.

Sincerely,

Original Signed By
Donna C. Hosking

Jerry L. Bellows
Area Manager

Enclosure

cc w/enclosure:
Kenneth Hargis, HSE-8, LANL, MS-K490
Anthony Drypolcher, HSE-7, LANL, MS-E517
Mickey Flowers, US EPA Region VI (6H-HS), Dallas, Texas

cc w/o enclosure:
John Themelis, EPD, AL
John Puckett, HSE-DO, MS-K491
Tom Gunderson, HSE-DO, MS-K491

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. Coby Mukelroy
New Mexico Environemental Dept
Hazardous & Radioactive Waste
Bureau
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, NM 87502

4. Article Number
P 347-53-093

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X HRWB

6. Signature — Agent
X Veronica Dragon

7. Date of Delivery
1-1-91

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Apr. 1989 ★U.S.G.P.O. 1989-238-815

DOMESTIC RETURN RECEIPT

APPENDIX IX

DOMESTIC WASTE DEVIATIONS

EPA ID	TECH AREA LOCATION	DATE	PARAMETER	RESULTS/LIMIT	UNITS
09S	TA-53	03/08/83	pH	10.7/9.0	su
09S	TA-53	03/08/83	BOD	71.7/45.0	mg/l
09S	TA-53	03/17/83	pH	10.1/9.0	su
09S	TA-53	03/17/83	BOD	143.3/45.0	mg/l
09S	TA-53	03/25/83	pH	10.3/9.0	su
09S	TA-53	03/25/83	BOD	118.9/45.0	mg/l
09S	TA-53	03/31/83	pH	10.1/9.0	su
09S	TA-53	03/31/83	BOD	141.1/45.0	mg/l
09S	TA-53	04/13/83	pH	10.0/9.0	su
09S	TA-53	04/13/83	BOD	129.4/45.0	mg/l
09S	TA-53	04/22/83	pH	10.2/9.0	su
09S	TA-53	04/22/83	BOD	91.7/45.0	mg/l
09S	TA-53	04/28/83	pH	9.6/9.0	su
09S	TA-53	04/28/83	BOD	283.4/45.0	mg/l
09S	TA-53	07/20/83	pH	9.7/9.0	su
09S	TA-53	08/04/83	pH	9.9/9.0	su
09S	TA-53	08/17/83	pH	9.4/9.0	su
09S	TA-53	09/21/83	pH	10.1/9.0	su
09S	TA-53	09/21/83	TSS	142.0/90.0	mg/l
09S	TA-53	09/28/83	pH	10.2/9.0	su
09S	TA-53	09/28/83	BOD	52.8/45.0	mg/l
09S	TA-53	10/07/83	pH	10.1/9.0	su
09S	TA-53	10/19/83	pH	10.4/9.0	su
09S	TA-53	11/16/83	pH	9.8/9.0	su
09S	TA-53	11/22/83	pH	10.1/9.0	su
09S	TA-53	11/30/83	pH	10.1/9.0	su
09S	TA-53	12/13/83	pH	9.6/9.0	su
09S	TA-53	12/22/83	pH	9.4/9.0	su
09S	TA-53	01/04/84	pH	9.7/9.0	su
09S	TA-53	01/04/84	BOD	56.6/45.0	mg/l
09S	TA-53	01/18/84	pH	9.3/9.0	su
09S	TA-53	02/15/84	BOD	52.8/45.0	mg/l
09S	TA-53	02/29/84	pH	9.2/9.0	su
09S	TA-53	04/17/84	BOD	53.1/45.0	mg/l
09S	TA-53	04/17/84	pH	9.5/9.0	su
09S	TA-53	07/18/84	pH	10.0/9.0	su
09S	TA-53	07/18/84	TSS	108.0/90.0	mg/l
09S	TA-53	08/17/84	pH	9.5/9.0	su
09S	TA-53	08/17/84	TSS	134.5/90.0	mg/l
09S	TA-53	09/14/84	pH	10.0/9.0	su
09S	TA-53	09/14/84	TSS	120.0/90.0	mg/l
09S	TA-53	10/19/84	pH	9.7/9.0	su
09S	TA-53	10/31/84	pH	9.9/9.0	su
09S	TA-53	11/09/84	pH	10.2/9.0	su
09S	TA-53	11/27/84	pH	9.1/9.0	su
09S	TA-53	12/11/84	pH	9.6/9.0	su
09S	TA-53	12/21/84	pH	9.3/9.0	su

EPA ID	TECH AREA LOCATION	DATE	PARAMETER	RESULTS/LIMIT	UNITS
09S	TA-53	01/15/85	pH	9.1/9.0	su
09S	TA-53	03/05/85	pH	9.1/9.0	su
09S	TA-53	07/02/86	pH	9.1/9.0	su
09S	TA-53	07/02/86	TSS	313.0/9.0	mg/l
09S	TA-53	12/11/86	pH	10.0/9.0	su
09S	TA-53	03/11/87	pH	10.2/9.0	su
09S	TA-53	05/06/88	BOD	58.3/45.0	mg/l
09S	TA-53	05/06/88	pH	9.2/9.0	su

APPENDIX X

UNOFFICIAL COPY
OCCURRENCE REPORT

Notification Report
(Submitted)

"... large" or Balance of Plant

(Name of Facility)

Balance-of-Plant

(Facility Function Involved)

LOS ALAMOS NATIONAL LABORATORY

(Name of Laboratory, Site or Organization)

Name: Elliott, Alverton A.
Title: Occurrence Report Section Leader
Telephone No.: (505)667-6211 (FTS)843-6211

(Facility Manager/Designee)

Name: Steve Ray
Title: Environmental Protection EM-8
Telephone No.: (505)665-1859 (FTS)843-1859

(Originator)

- OCCURRENCE REPORT NUMBER: ALO-LA-LANL-BOP-1991-1084

REPORT TYPE AND DATE:

	Date	Time
[X] Notification Report	08/31/91	837 (MTZ)
[ ] 10 Day Report		
[ ] 10 Day Update (latest)		
[ ] Final Report		

- OCCURRENCE CATEGORY :

[ ] Emergency
[ ] Unusual
[X] Off-Normal

- DIVISION OR PROJECT :

JCI Utilities

- DOE PROGRAM OFFICE :

ER - Energy Research

UNOFFICIAL COPY
OCCURRENCE REPORT

Notification Report
(Submitted)

SYSTEM, BLDG., OR EQUIPMENT :

Outfall -09S

7. UCNI? :

No

8. PLANT AREA :

TA-53

. DATE AND TIME DISCOVERED :

08/29/91 1145

10. DATE AND TIME CATEGORIZED :

08/30/91 1700

1. DOE NOTIFICATION :

08/29/91 1700 N/A N/A

2. OTHER NOTIFICATIONS :

08/29/91 1700 N/A N/A

3. SUBJECT OR TITLE OF OCCURRENCE :

Compliance Issue Reported to New Mexico EID

4. NATURE OF OCCURRENCE :

2) Environmental
E. Agreement/Compliance Activities

5. DESCRIPTION OF OCCURRENCE :

During an inspection involving NMEID personnel, a red, milky liquid was observed in the influent of the sanitary waste lagoons. It is assumed that the substance is non-compliant for dischagres to this lagoon. No source of the substance was found.
THE NAME APPEARING AS FACILITY MANAGER IN THIS REPORT IS AUTHORIZED TO ACT AS FACILITY MANAGER DESIGNEE FOR THE PURPOSE OF DATA TRANSMITTAL ONLY. THE ACCOUNTABLE FACILITY MANAGER FOR RESOLUTION IS DAVID POST, FTS 843-0648.

6. OPERATING CONDITIONS OF FACILITY AT TIME OF OCCURRENCE :

Normal

7 ACTIVITY CATEGORY :

Normal Operations

---

8. IMMEDIATE ACTIONS TAKEN AND RESULTS :

Discharge was noted by JCI Utilities, ENG-8. Follow-up assigned to ENG-8 Group Leader.

APPENDIX XI

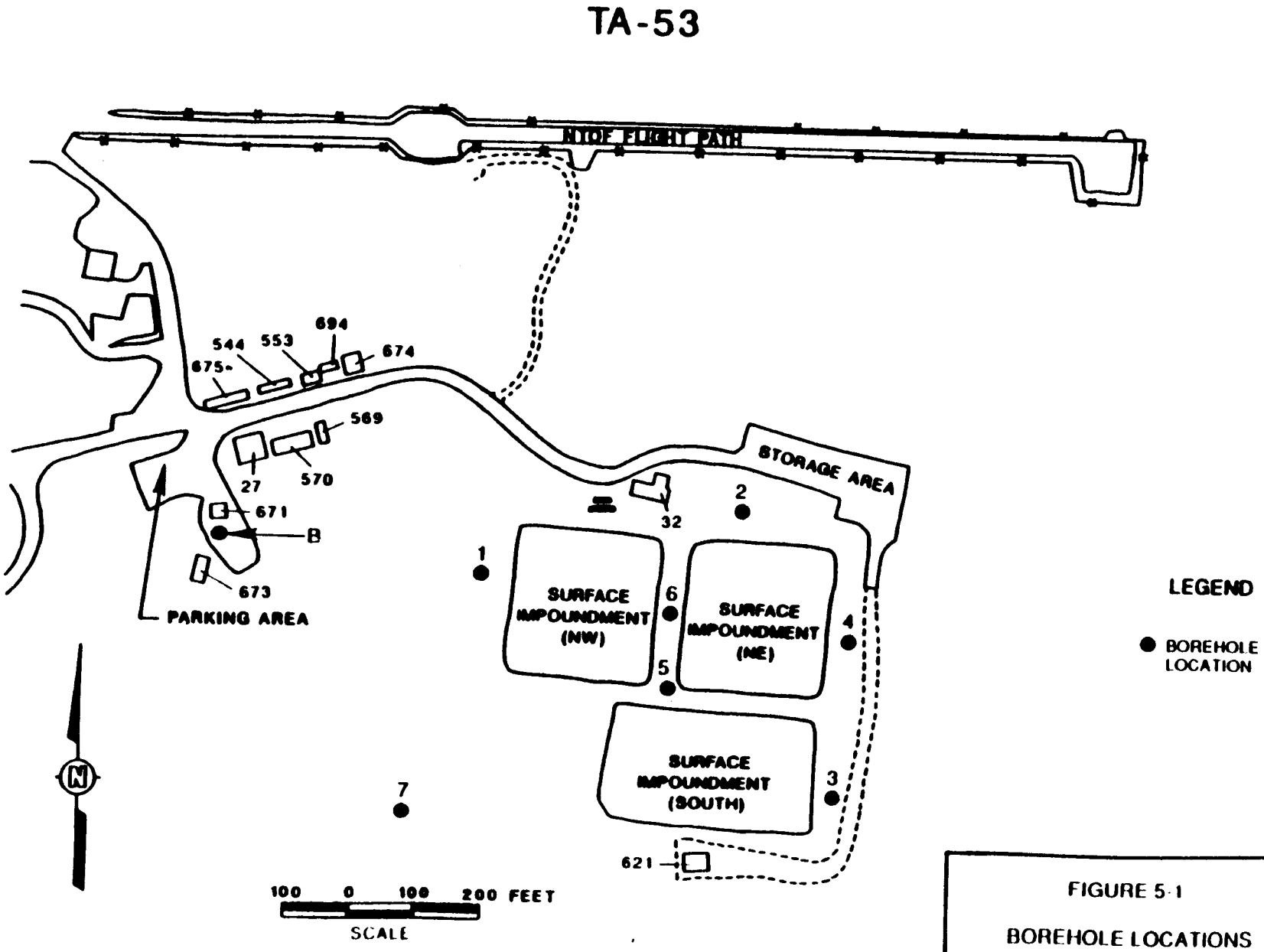
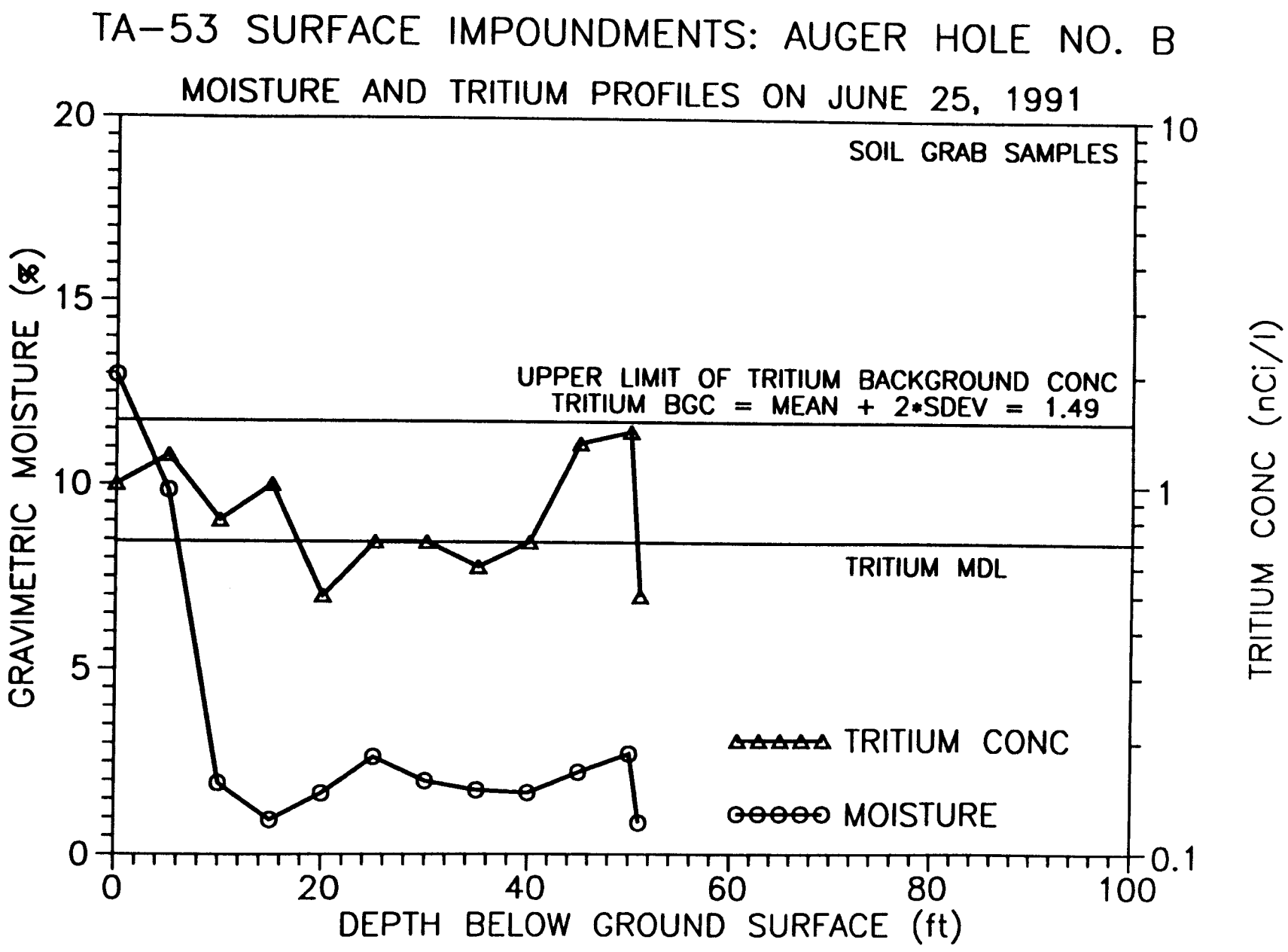
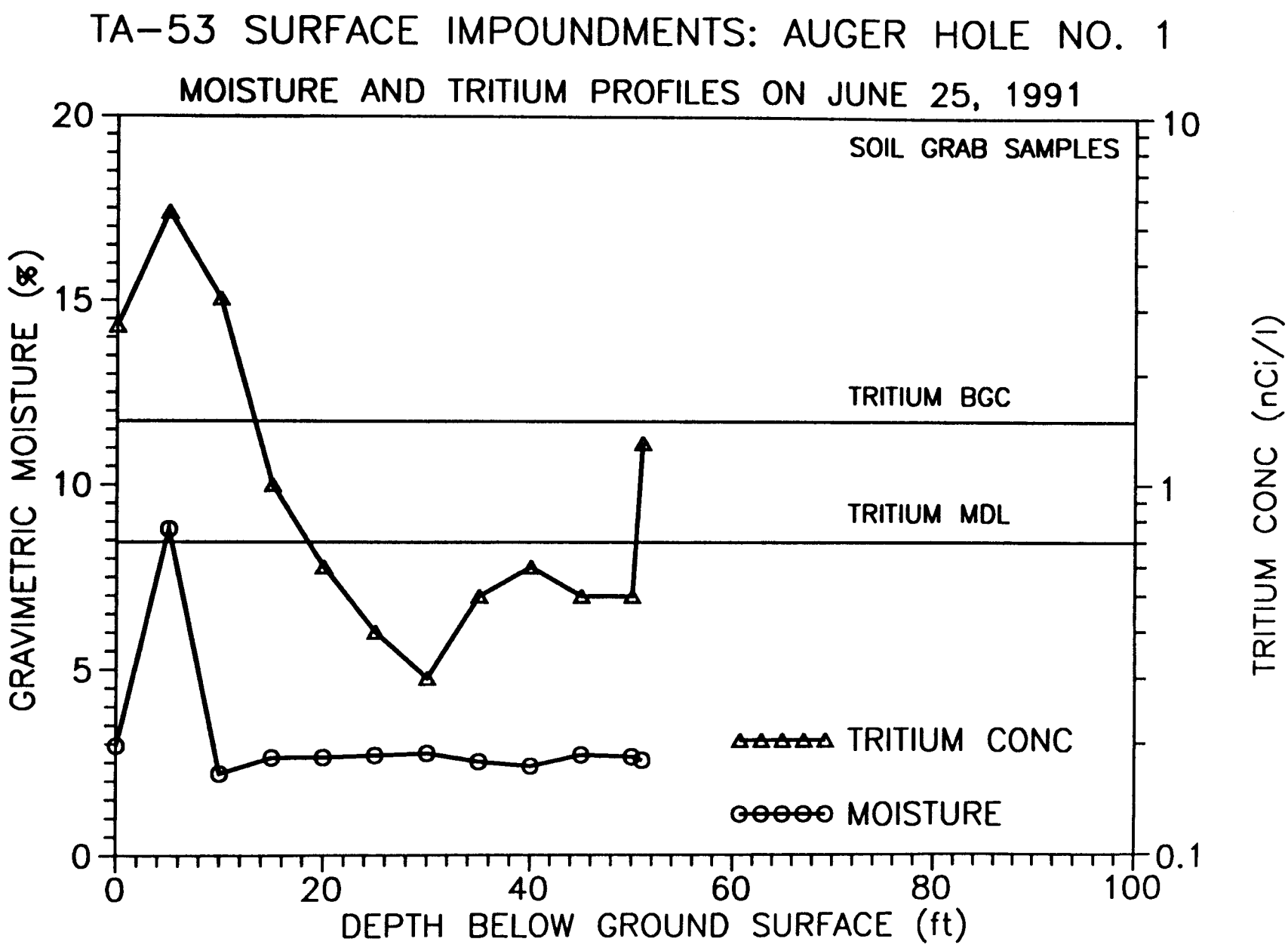
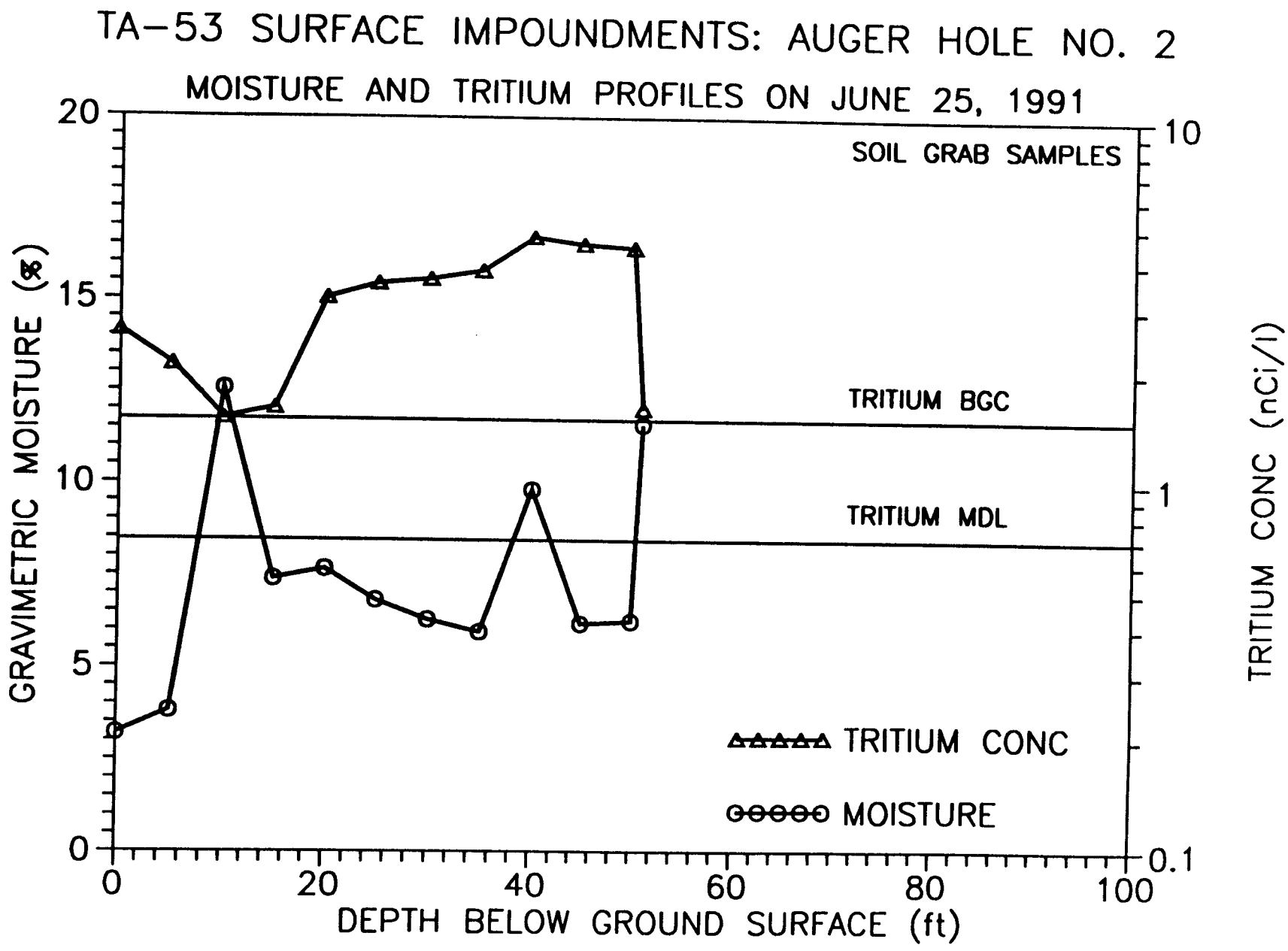


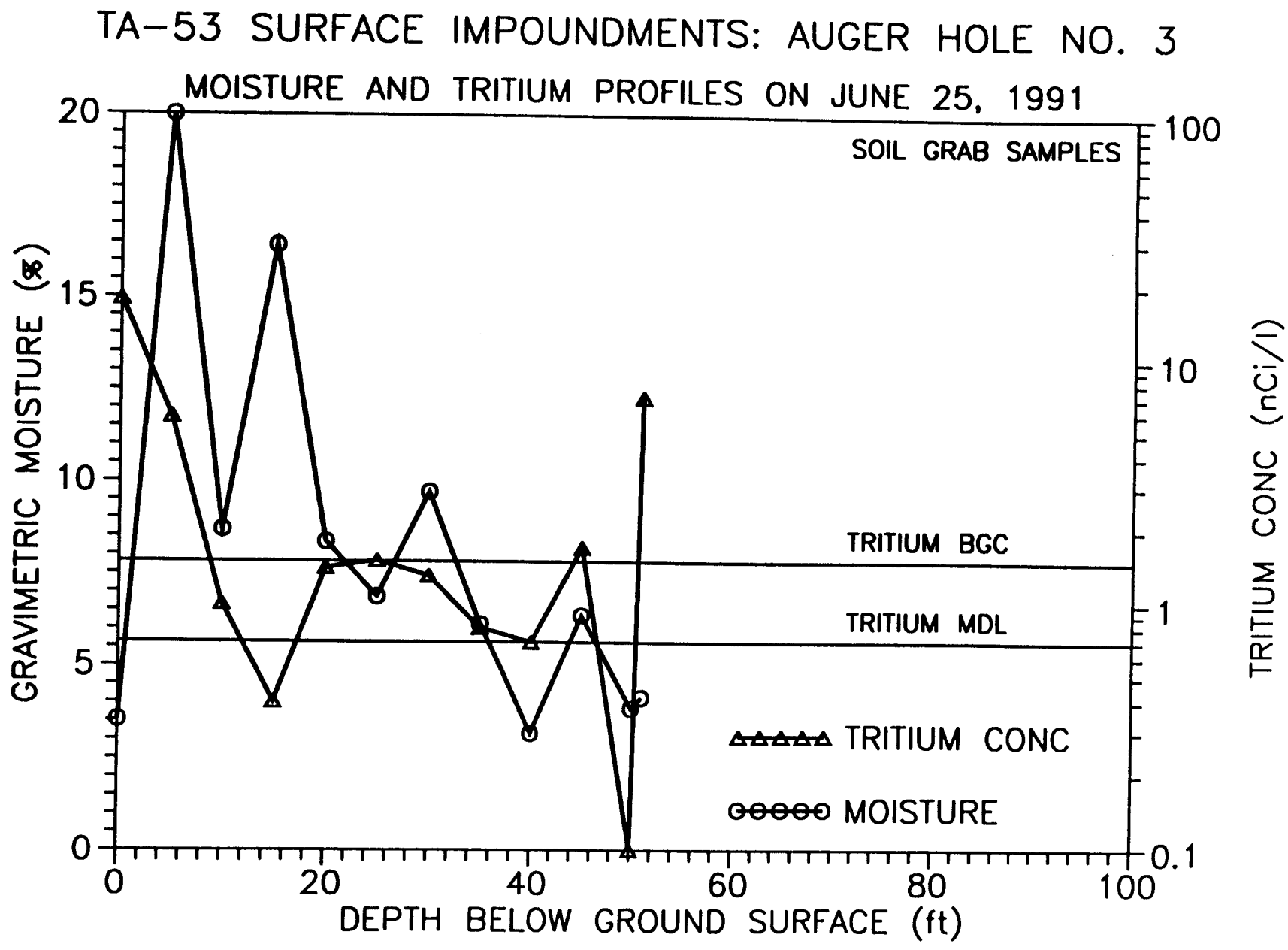
FIGURE 5-1

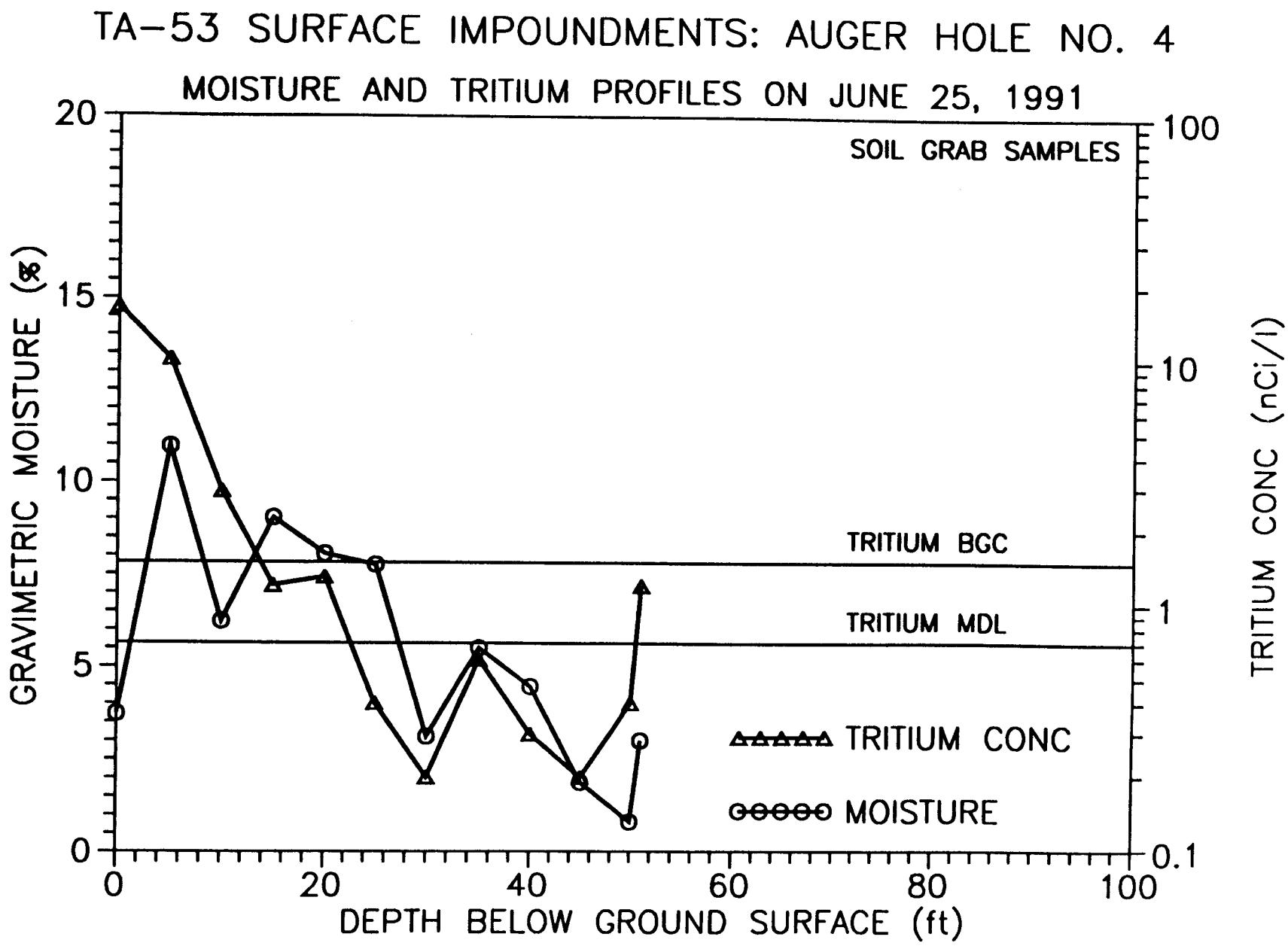
BOREHOLE LOCATIONS NEAR THE TA-53-166 SURFACE

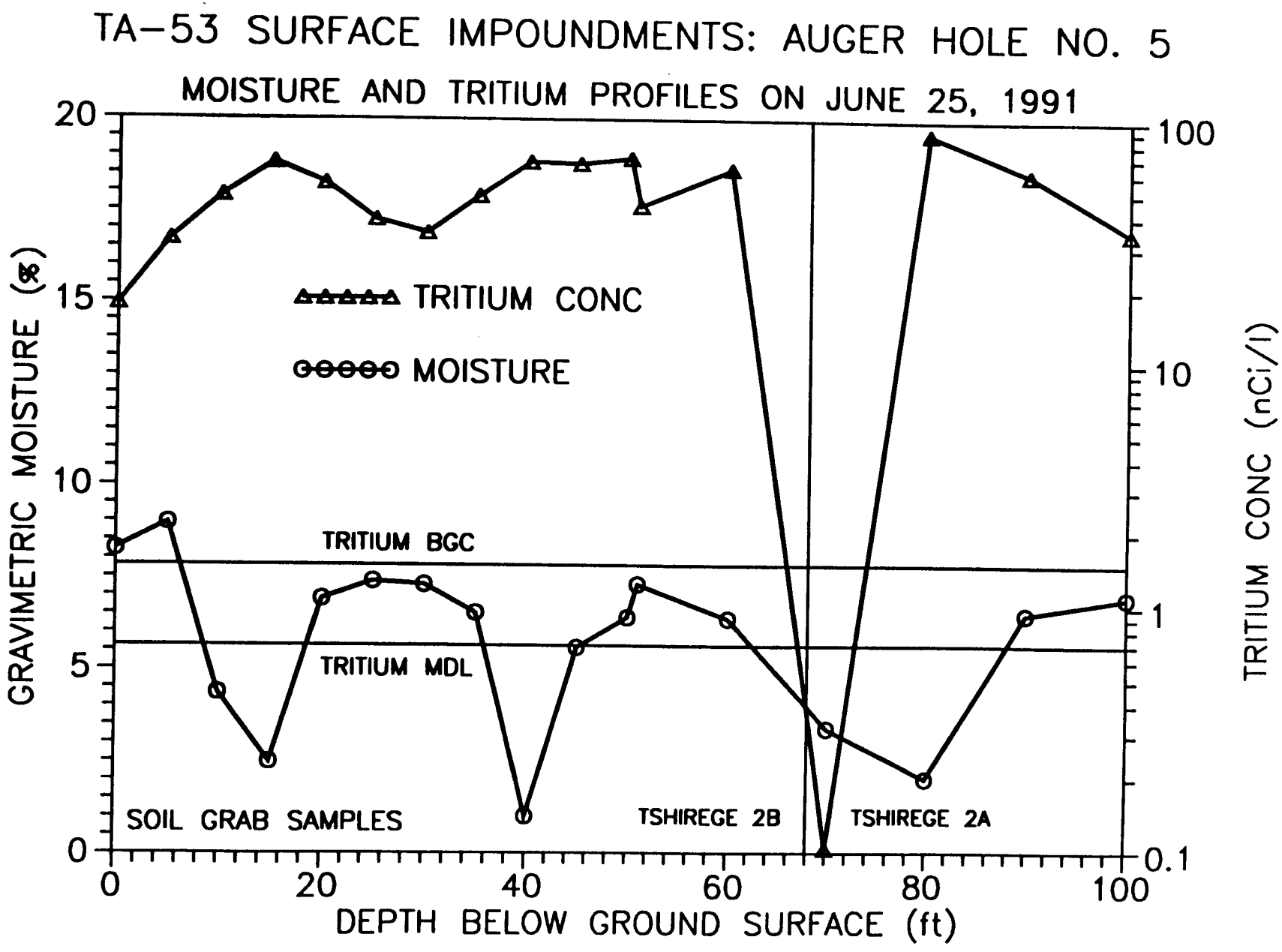

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. B
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
SOIL GRAB SAMPLES
UPPER LIMIT OF TRITIUM BACKGROUND CONC
TRITIUM BGC = MEAN + 2*SDEV = 1.49
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
0
20
40
60
80
100

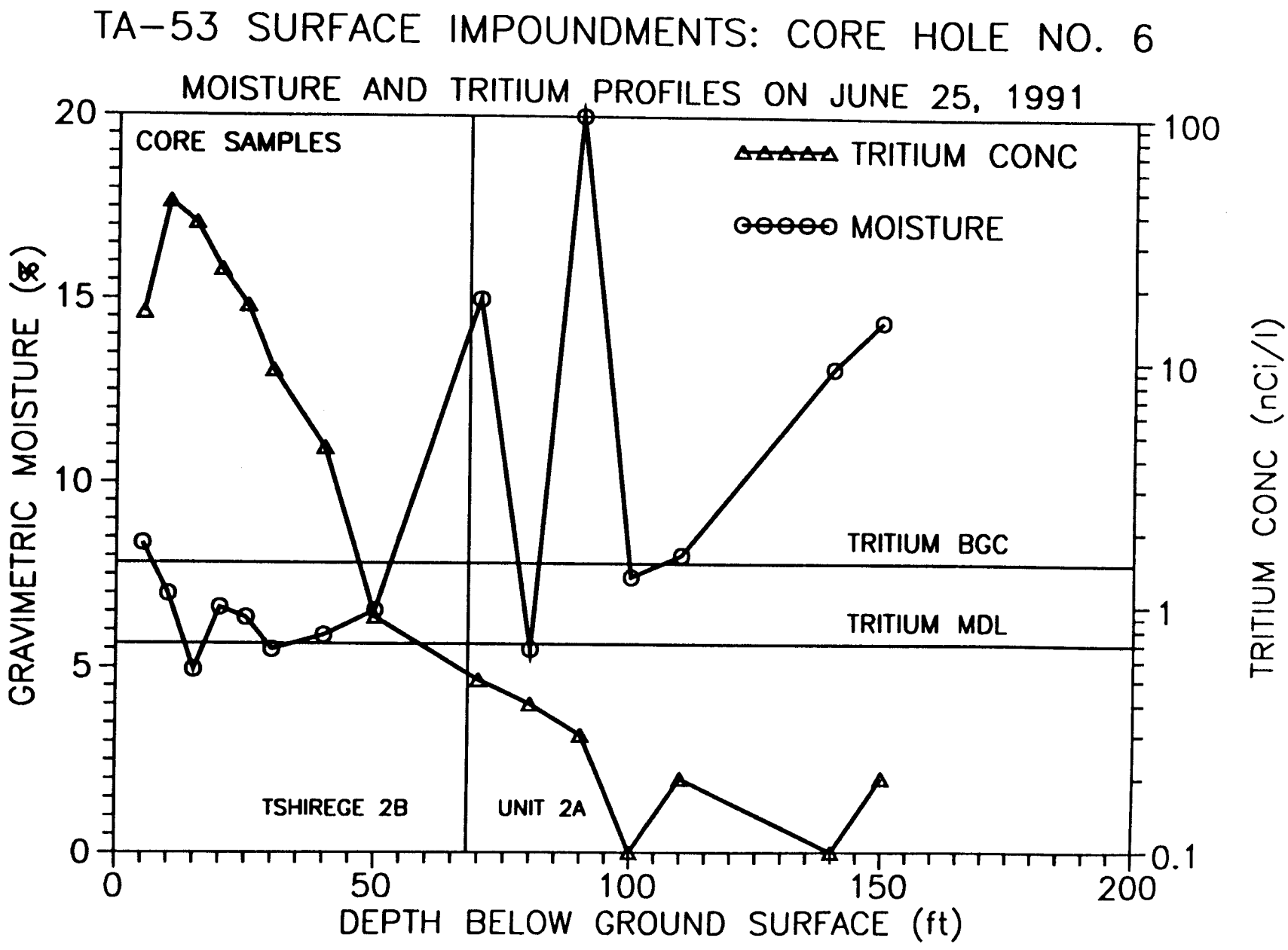

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 1
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
SOIL GRAB SAMPLES
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
0
20
40
60
80
100

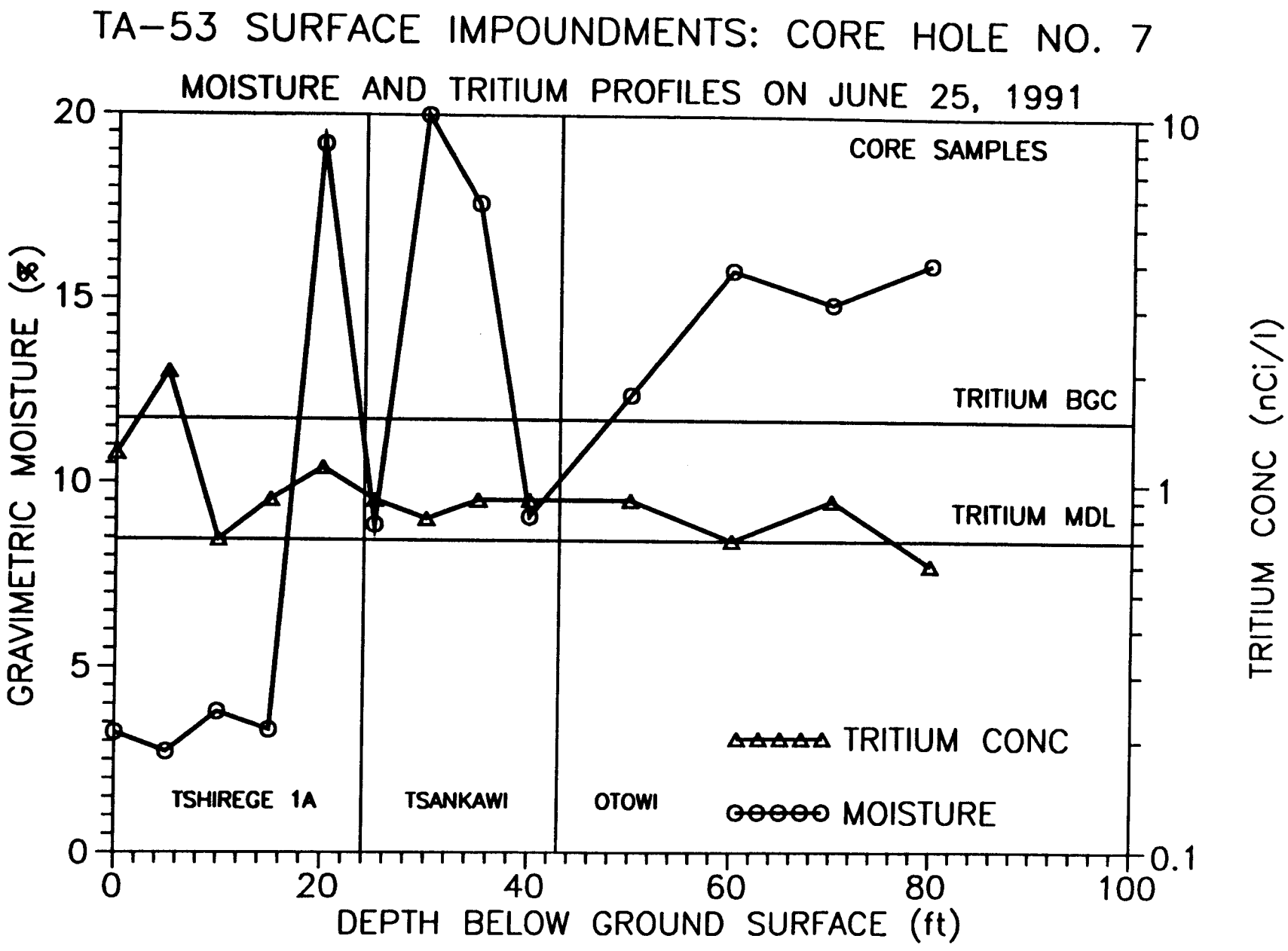

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 2
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
SOIL GRAB SAMPLES
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
0
20
40
60
80
100

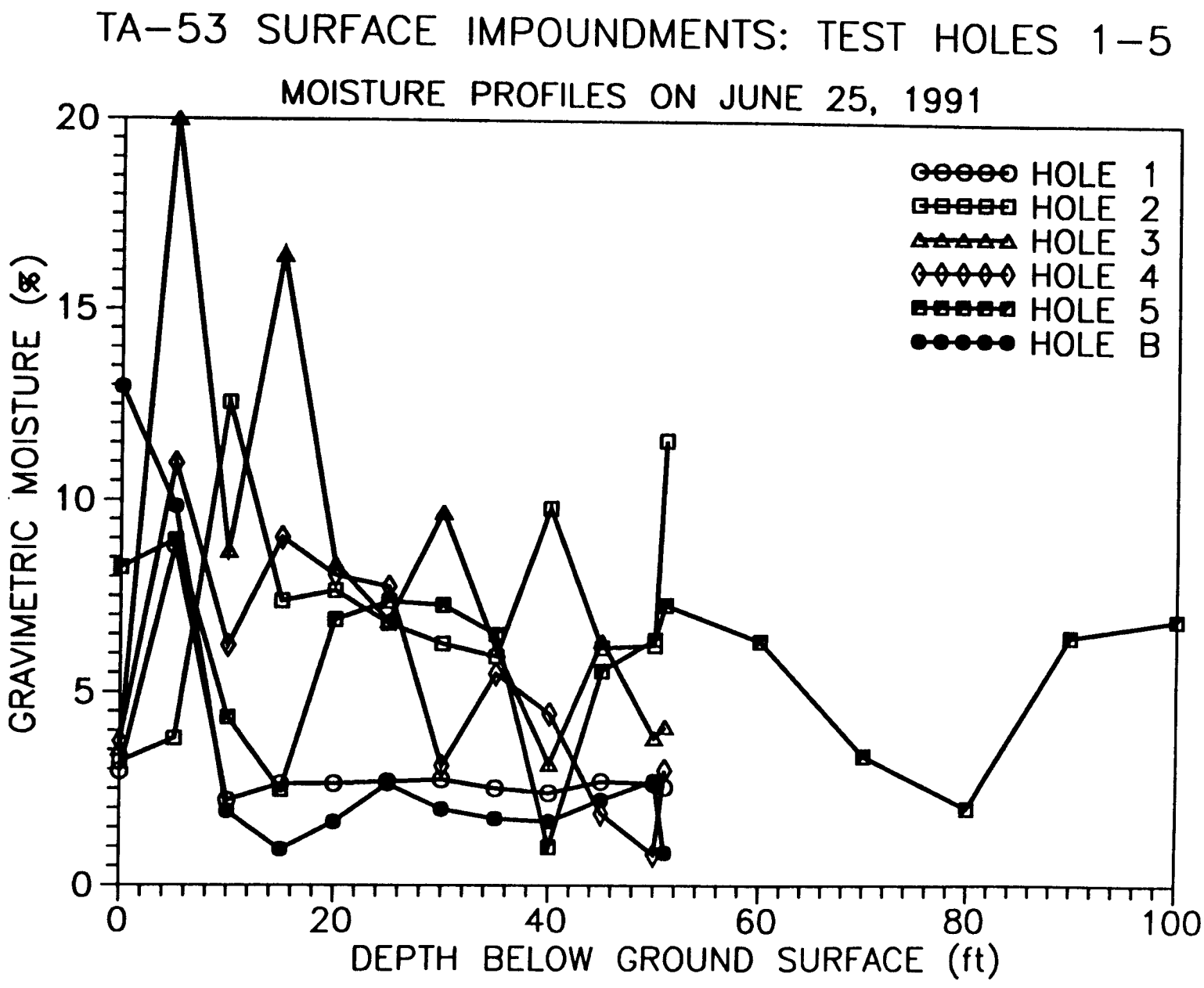

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 3
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
SOIL GRAB SAMPLES
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
100
0
20
40
60
80
100

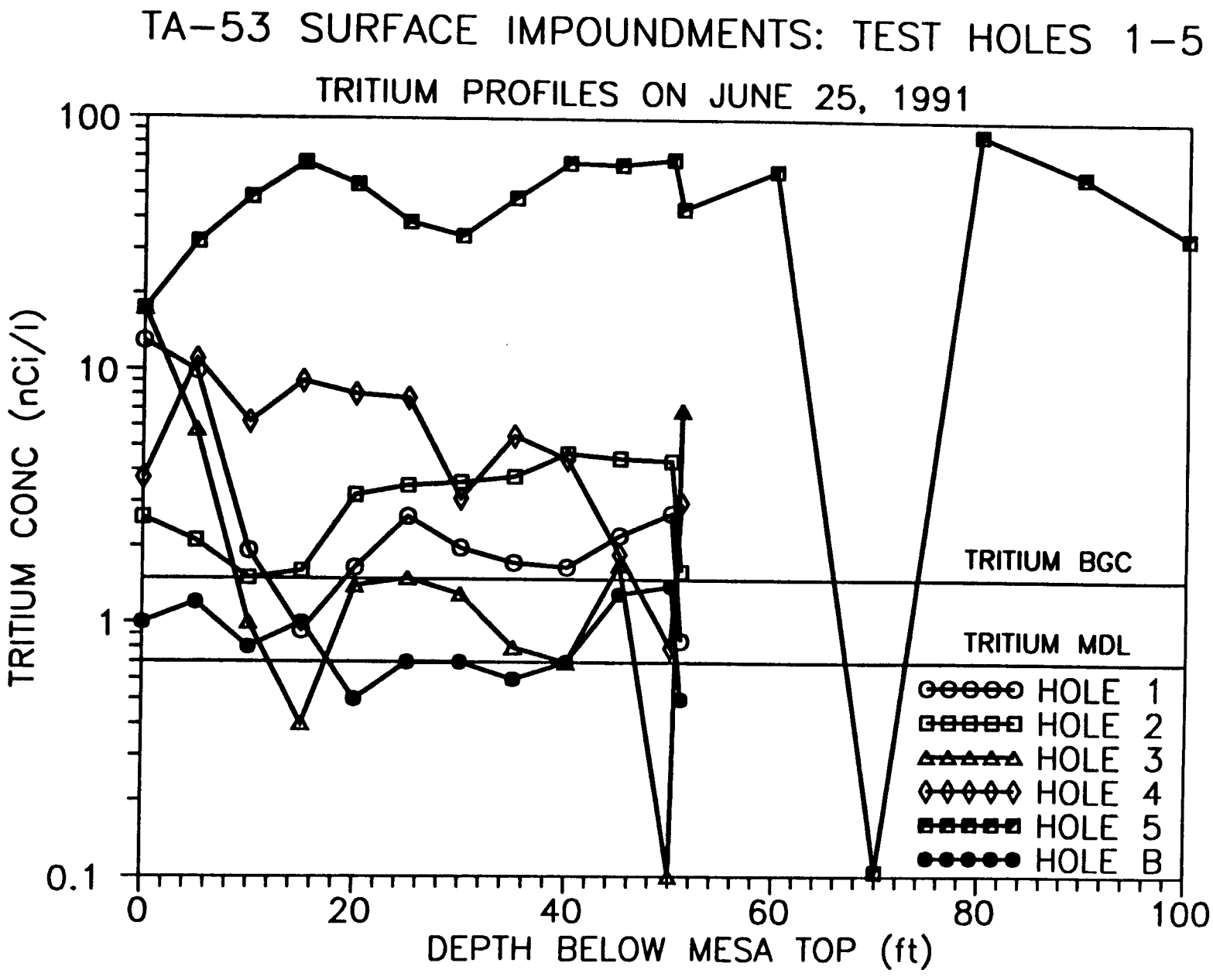

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 4
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
SOIL GRAB SAMPLES
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
100
0
20
40
60
80
100

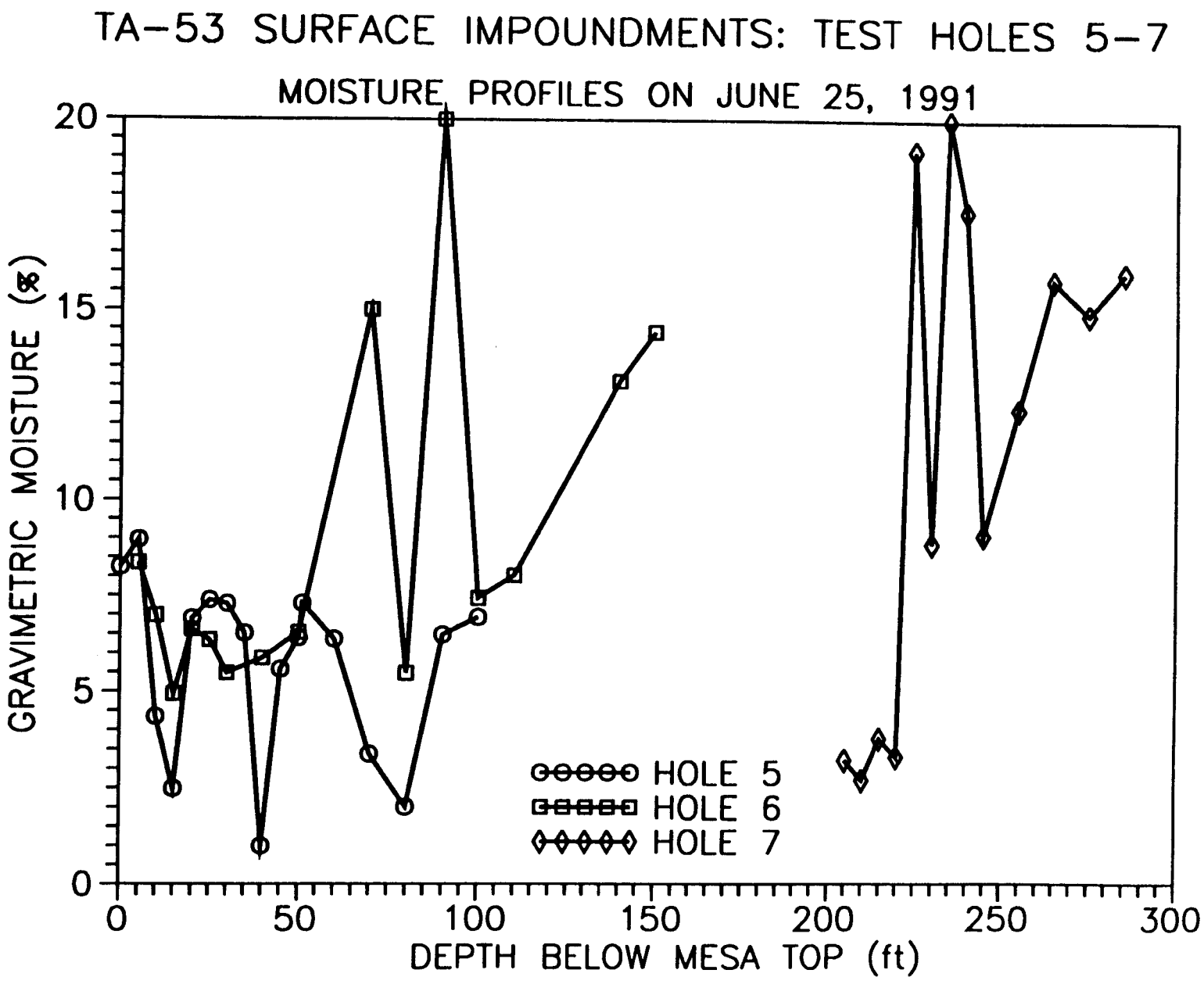

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 5
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
TRITIUM CONC
MOISTURE
TRITIUM BGC
TRITIUM MDL
SOIL GRAB SAMPLES
TSHIREGE 2B
TSHIREGE 2A
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
20
40
60
80
100
0.1
1
10
100

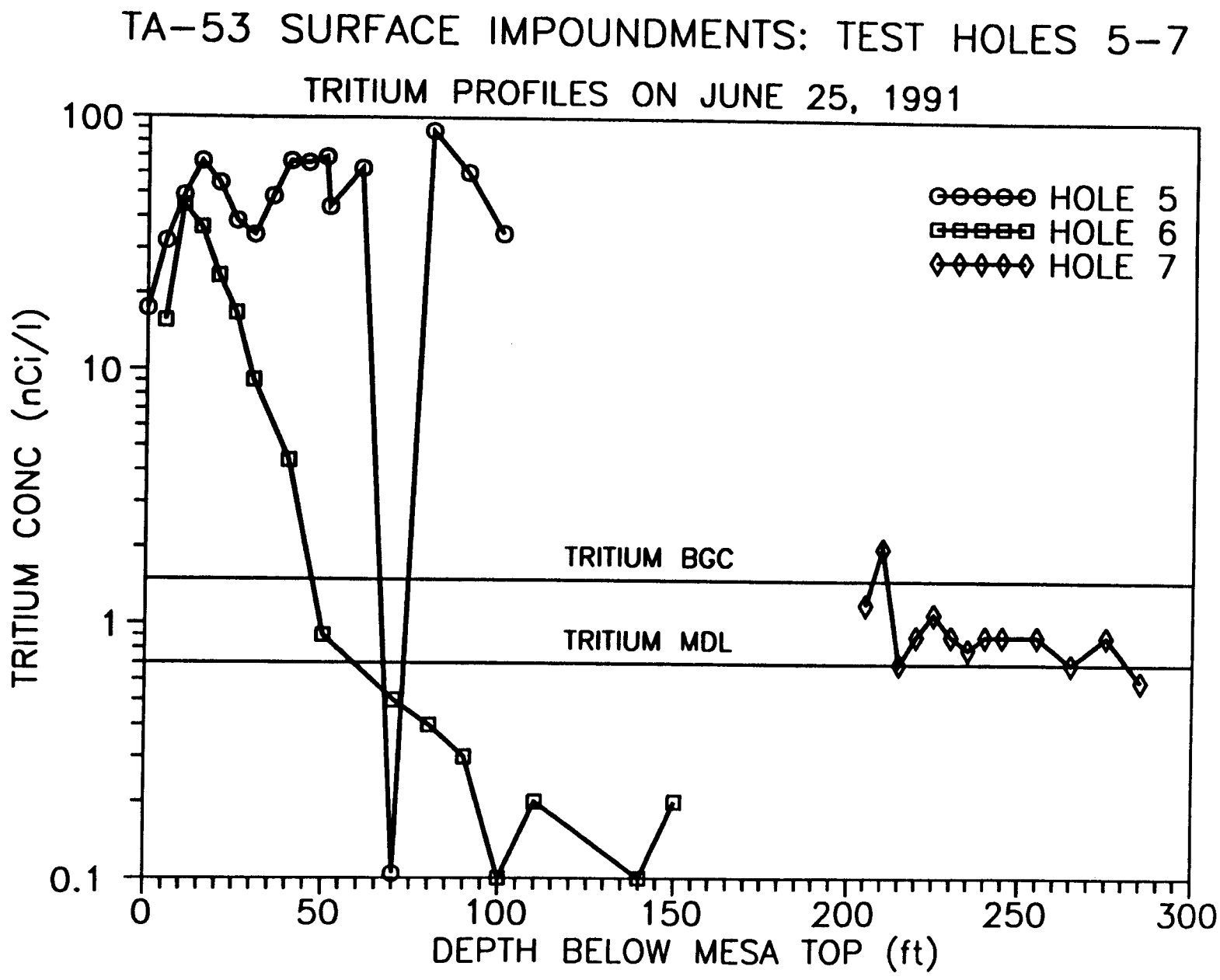

TA-53 SURFACE IMPOUNDMENTS: CORE HOLE NO. 6
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
CORE SAMPLES
TRITIUM CONC
MOISTURE
TRITIUM BGC
TRITIUM MDL
TSHIREGE 2B
UNIT 2A
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
100
0
50
100
150
200

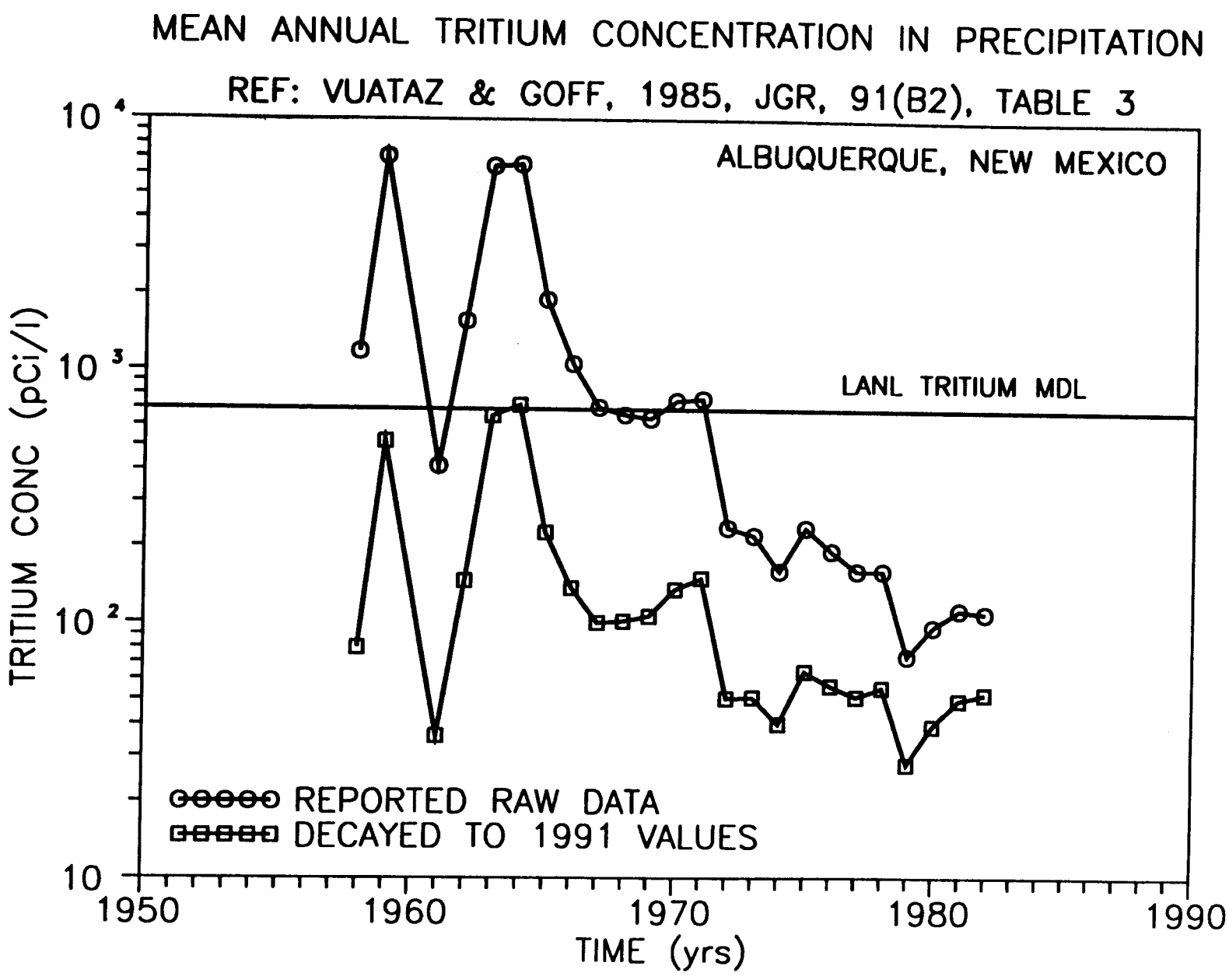

TA-53 SURFACE IMPOUNDMENTS: CORE HOLE NO. 7
MOISTURE AND TRITIUM PROFILES ON JUNE 25, 1991
CORE SAMPLES
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC
MOISTURE
TSHIREGE 1A
TSANKAWI
OTOWI
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
20
40
60
80
100
0.1
1
10

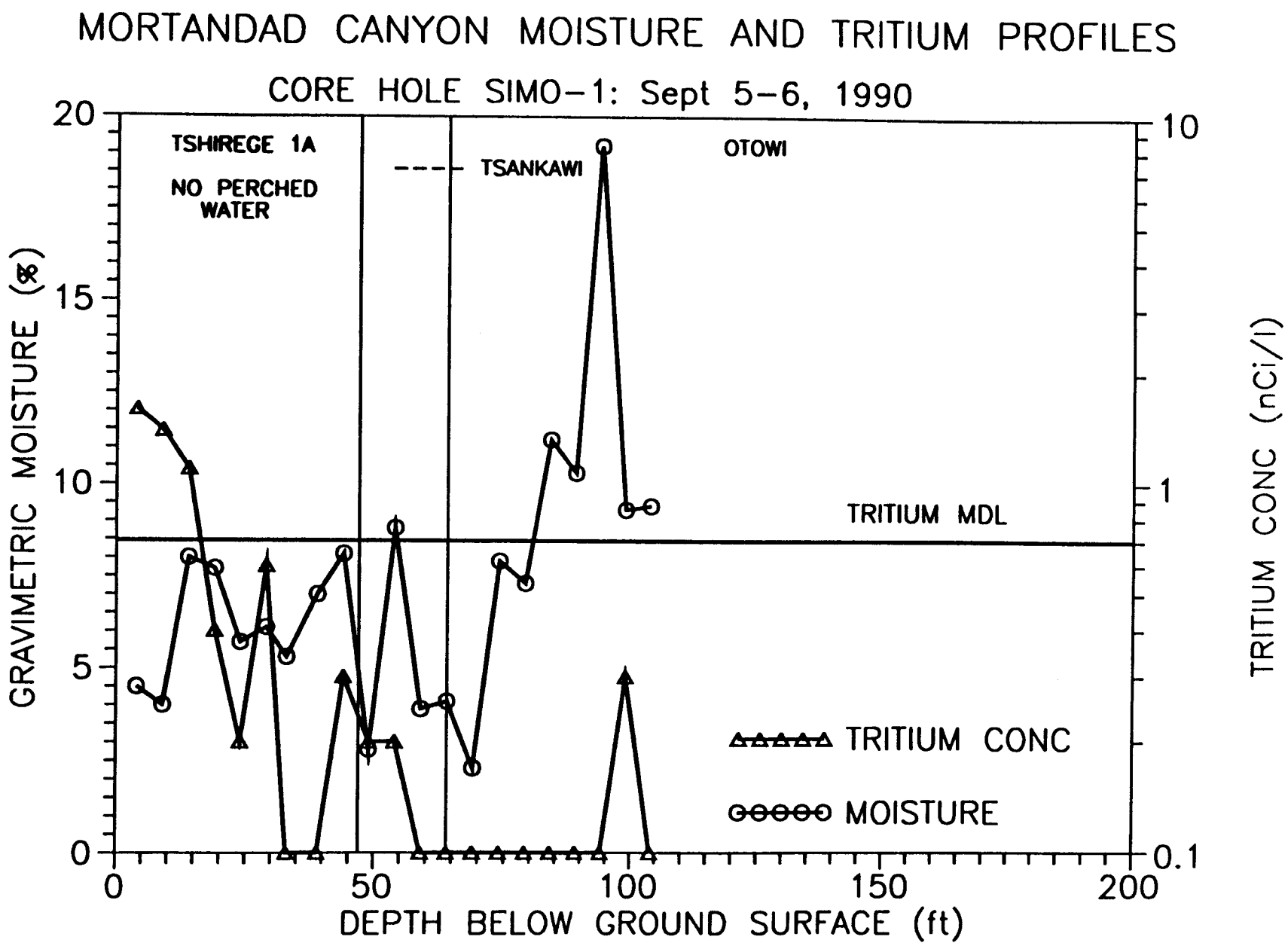

TA-53 SURFACE IMPOUNDMENTS: TEST HOLES 1-5
MOISTURE PROFILES ON JUNE 25, 1991
HOLE 1
HOLE 2
HOLE 3
HOLE 4
HOLE 5
HOLE B
GRAVIMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
20
40
60
80
100


TA-53 SURFACE IMPOUNDMENTS: TEST HOLES 1-5
TRITIUM PROFILES ON JUNE 25, 1991
TRITIUM CONC (nCi/l)
100
10
1
0.1
0
20
40
60
80
100
DEPTH BELOW MESA TOP (ft)
TRITIUM BGC
TRITIUM MDL
HOLE 1
HOLE 2
HOLE 3
HOLE 4
HOLE 5
HOLE B


TA-53 SURFACE IMPOUNDMENTS: TEST HOLES 5-7
MOISTURE PROFILES ON JUNE 25, 1991
GRAVIMETRIC MOISTURE (%)
DEPTH BELOW MESA TOP (ft)
0
5
10
15
20
0
50
100
150
200
250
300
HOLE 5
HOLE 6
HOLE 7


TA-53 SURFACE IMPOUNDMENTS: TEST HOLES 5-7
TRITIUM PROFILES ON JUNE 25, 1991
HOLE 5
HOLE 6
HOLE 7
TRITIUM BGC
TRITIUM MDL
TRITIUM CONC (nCi/l)
100
10
1
0.1
0
50
100
150
200
250
300
DEPTH BELOW MESA TOP (ft)


MEAN ANNUAL TRITIUM CONCENTRATION IN PRECIPITATION
REF: VUATAZ & GOFF, 1985, JGR, 91(B2), TABLE 3
ALBUQUERQUE, NEW MEXICO
LANL TRITIUM MDL
REPORTED RAW DATA
DECAYED TO 1991 VALUES
TRITIUM CONC (pCi/l)
10 4
10 3
10 2
10
1950
1960
1970
1980
1990
TIME (yrs)


MORTANDAD CANYON MOISTURE AND TRITIUM PROFILES
CORE HOLE SIMO-1: Sept 5-6, 1990
TSHIREGE 1A
NO PERCHED WATER
TSANKAWI
OTOWI
TRITIUM MDL
TRITIUM CONC
MOISTURE
GRAVIMETRIC MOISTURE (%)
TRITIUM CONC (nCi/l)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0.1
1
10
0
50
100
150
200

APPENDIX XII

DRILLING LOG

BOREHOLE : B-53
GEOLOGIST : Stoker & Gallaher
DATE DRILLED: June 20, 1991
LOCATION : TA-53 Impoundments

ELEVATION : Not Surveyed
TOTAL DEPTH : 50 feet
DIAMETER : 4.00 in Auger
CASING MATERIAL: Aluminum

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Surface fill materials
1-50	Tuff; Tshirege Unit 2b; low moisture; not cored

NEUTRON ACCESS WELL COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 2B TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 44.9 FT
                                |C|<-- TOTAL DEPTH AT 50 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL............B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 1-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 50 feet
DATE DRILLED	: June 17, 1991	**DIAMETER**	: 4.00 in Auger
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Aluminum

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Surface fill materials
1-50	Tuff; Tshirege Unit 2b; low moisture; not cored

NEUTRON ACCESS WELL COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 2B TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 45.8 FT
                                |C|<-- TOTAL DEPTH AT 50 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL...........B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 2-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 50 feet
DATE DRILLED	: June 17, 1991	**DIAMETER**	: 4.00 in Auger
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Aluminum

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Surface fill materials
1-50	Tuff; Tshirege Unit 2b; low moisture; not cored

NEUTRON ACCESS WELL COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 2B TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 46.0 FT
                                |C|<-- TOTAL DEPTH AT 50 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL...........B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 3-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 50 feet
DATE DRILLED	: June 18, 1991	**DIAMETER**	: 4.00 in Auger
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Aluminum

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Surface fill materials
1-50	Tuff; Tshirege Unit 2b; low moisture; not cored

NEUTRON ACCESS WELL COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 2B TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 47.5 FT
                                |C|<-- TOTAL DEPTH AT 50 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL............B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 4-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 50 feet
DATE DRILLED	: June 18, 1991	**DIAMETER**	: 4.00 in Auger
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Aluminum

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Surface fill materials
1-50	Tuff; Tshirege Unit 2b; low moisture; not cored

NEUTRON ACCESS WELL COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 2B TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 47.3 FT
                                |C|<-- TOTAL DEPTH AT 50 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL............B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 5-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 100 feet
DATE DRILLED	: June 18, 1991	**DIAMETER**	: 4.00 in Auger
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Pore Gas Well

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 3	Surface fill materials
3- 68	Tuff; Tshirege Unit 2b; low moisture; not cored
68-100	Tuff; Tshirege Unit 2a; low moisture; not cored

PORE GAS MONITORING SYSTEM COMPLETION SUMMARY

```
LOCKING STEEL CAP/2 FT CEMENT>LB|  |
4 FT ALUMINUM CASING TO 1 FT->AS|  |<-- TSHIREGE 2B TUFF AT 3 FT
2 FT BENTONITE PELLETS -------->S|  |
ANNULUS FILLED WITH SAND ----->S|  |
                               S|  |
                               S|  |
PORE GAS SAMPLE PORT 20 FT -->GS|  |
                               S|  |
                               S|  |
                               S|  |
PORE GAS SAMPLE PORT 40 FT -->GS|  |
                               S|  |
                               S|  |
                               S|  |
PORE GAS SAMPLE PORT 60 FT -->GS|  |
                               S|  |
                               S|  |<-- TSHIREGE 2A CONTACT AT 68 FT
                               S|  |
                               S|  |
PORE GAS SAMPLE PORT 80 FT -->GS|  |
                               S|  |
                               S|  |
                               S|  |
PORE GAS SAMPLE PORT 93.5 FT->GS|  |
                               S|  |<-- COMPLETION DEPTH AT 94 FT
                                |C|<-- TOTAL DEPTH AT 100 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
----------------------------
STEEL LOCKING CAP...........L
CEMENT GROUT SEAL...........B
ALUMINUM SURFACE CASING.....A
MEDIUM GRAIN SILICA SAND....S
PORE GAS SAMPLE PORT........G
HOLE CAVED IN...............C
----------------------------
```

DRILLING LOG

BOREHOLE	: 6-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & Gallaher	**TOTAL DEPTH**	: 150 feet
DATE DRILLED	: July 10, 1991	**DIAMETER**	: 6.875 in Core
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Open Hole

DEPTH **DESCRIPTION** (all depths in feet below ground surface)

0- 3 Surface fill materials

3- 68 Tuff; Tshirege Unit 2b; low moisture; cored

68-113 Tuff; Tshirege Unit 2a; low moisture; cored

113-133 Tuff; Tshirege Unit 1b; low moisture; cored

133-150 Tuff; Tshirege Unit 1a; low moisture; cored

SUBSURFACE SUMMARY

```
NO WELL COMPLETION TO DATE ---->|X|<-- 3 FT OF FILL COVER
(OPEN HOLE WITH TOP COVER)      | |<-- TSHIREGE 2B TUFF AT 3 FT
                                | |
                                | |
                                | |
                                | |
                                | |
                                | |<-- TSHIREGE 2A TUFF AT 68 FT
                                | |
                                | |
                                | |
                                | |
                                | |
                                | |<-- TSHIREGE 1B TUFF AT 113 FT
                                | |
                                | |
                                | |<-- TSHIREGE 1A TUFF AT 133 FT
                                | |
                                | |
                                |C|<-- TOTAL DEPTH AT 150 FT
```

COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL............B
MEDIUM GRAIN SILICA SAND....S
END-CAP PLUG.................X
HOLE CAVED IN................C
-----------------------------
```

DRILLING LOG

BOREHOLE	: 7-53	**ELEVATION**	: Not Surveyed
GEOLOGIST	: Stoker & McLin	**TOTAL DEPTH**	: 80 feet
DATE DRILLED	: July 17, 1991	**DIAMETER**	: 6.875 in Core
LOCATION	: TA-53 Impoundments	**CASING MATERIAL**	: Al+Lysimeter

DEPTH	**DESCRIPTION** (all depths in feet below ground surface)
0- 1	Light brown sandy soil cover
1-24	Tuff; Tshirege Unit 1a; low moisture; cored
24-43	Tuff; Tsankawi; low moisture; cored
43-80	Tuff; Otowi; low moisture; cored

NEUTRON ACCESS WELL & LYSIMETER COMPLETION SUMMARY

```
LOCKING STEEL CAP IN CEMENT->LBA|X|<-- 1 FT OF TOPSOIL COVER
0.5 FT BENTONITE PELLETS ---->SA| |<-- TSHIREGE 1A TUFF AT 1 FT
ANNULUS FILLED WITH SAND ---->SA| |
                              SA| |
                              SA| |<-- TSANKAWI TUFF AT 24 FT
                              SA| |
BENTONITE SEAL 35-37 FT ----->BA| |
                              FA| |
LYSIMETER PORT AT 38 FT ---->FVA| |
 (Lysimeter in Annulus)       FA| |
BENTONITE SEAL 39-40 FT ----->BA| |
                              SA| |<-- OTOWI TUFF AT 43 FT
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA| |
                              SA|X|<-- COMPLETION DEPTH AT 77 FT
                                |C|<-- TOTAL DEPTH AT 80 FT
```

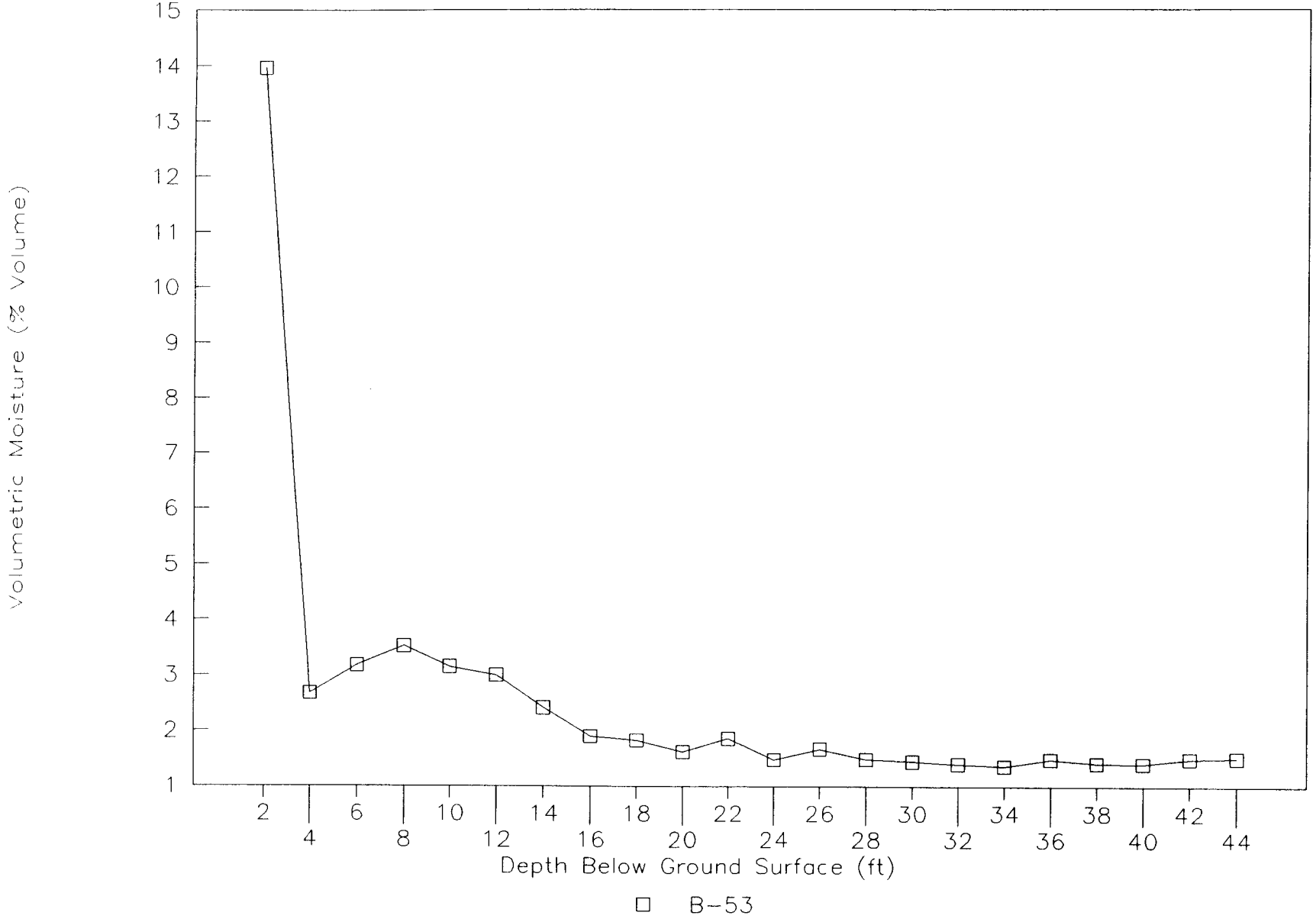
COMPLETION DIAGRAM IS NOT TO SCALE

```
-----------------------------
STEEL LOCKING CAP............L
ALUMINUM CASING, 2 in ID....A
CEMENT GROUT SEAL............B
MEDIUM GRAIN SILICA SAND....S
PRESSURE-VACUUM LYSIMETER...V
FINE SILICA FLOUR............F
END-CAP PLUG................X
HOLE CAVED IN...............C
-----------------------------
```

APPENDIX XIII

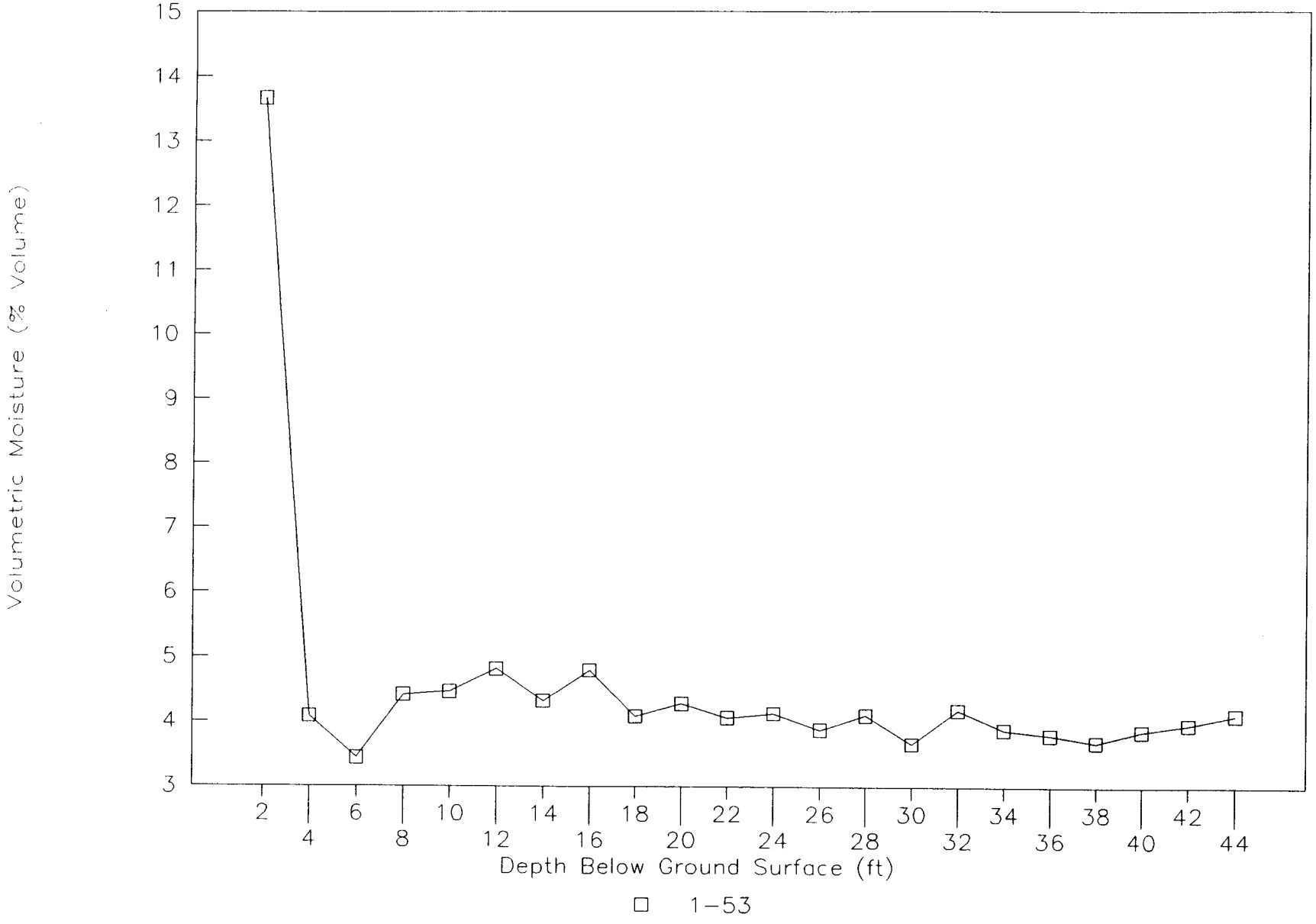
VOLUMETRIC MOISTURE

TA-53, 4/22/92



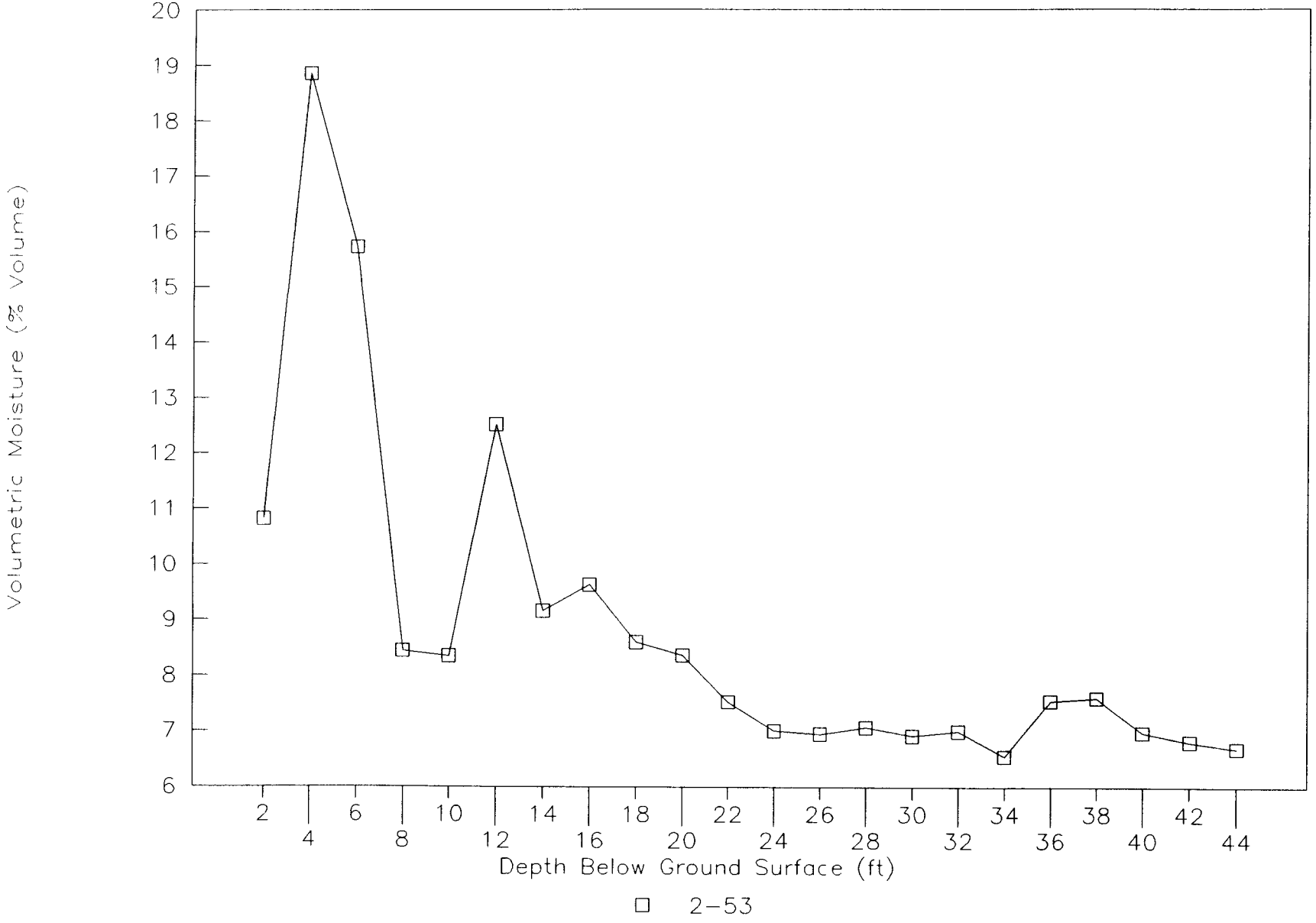
VOLUMETRIC MOISTURE

TA-53, 4/23/92



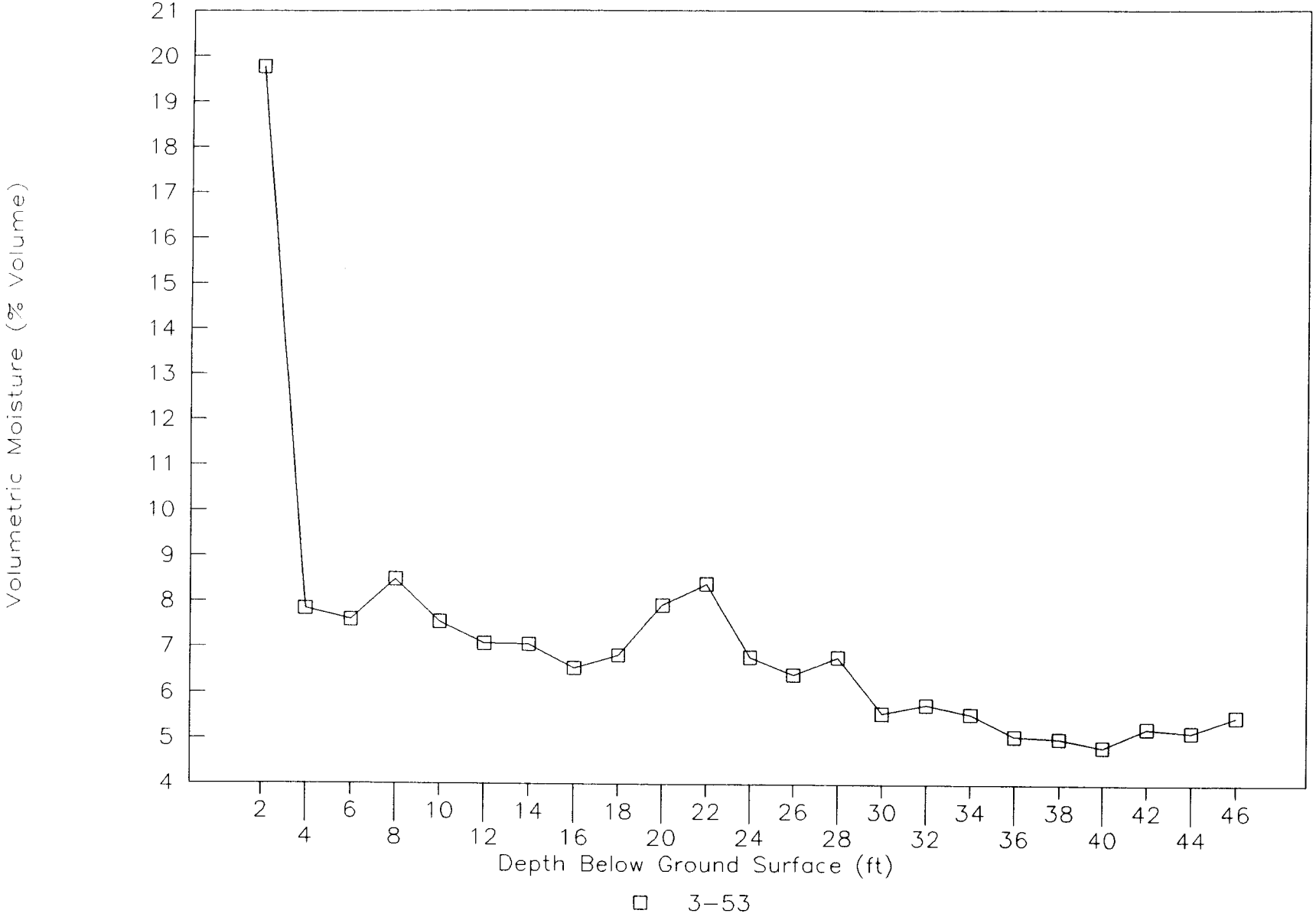
VOLUMETRIC MOISTURE

TA-53, 4/23/92



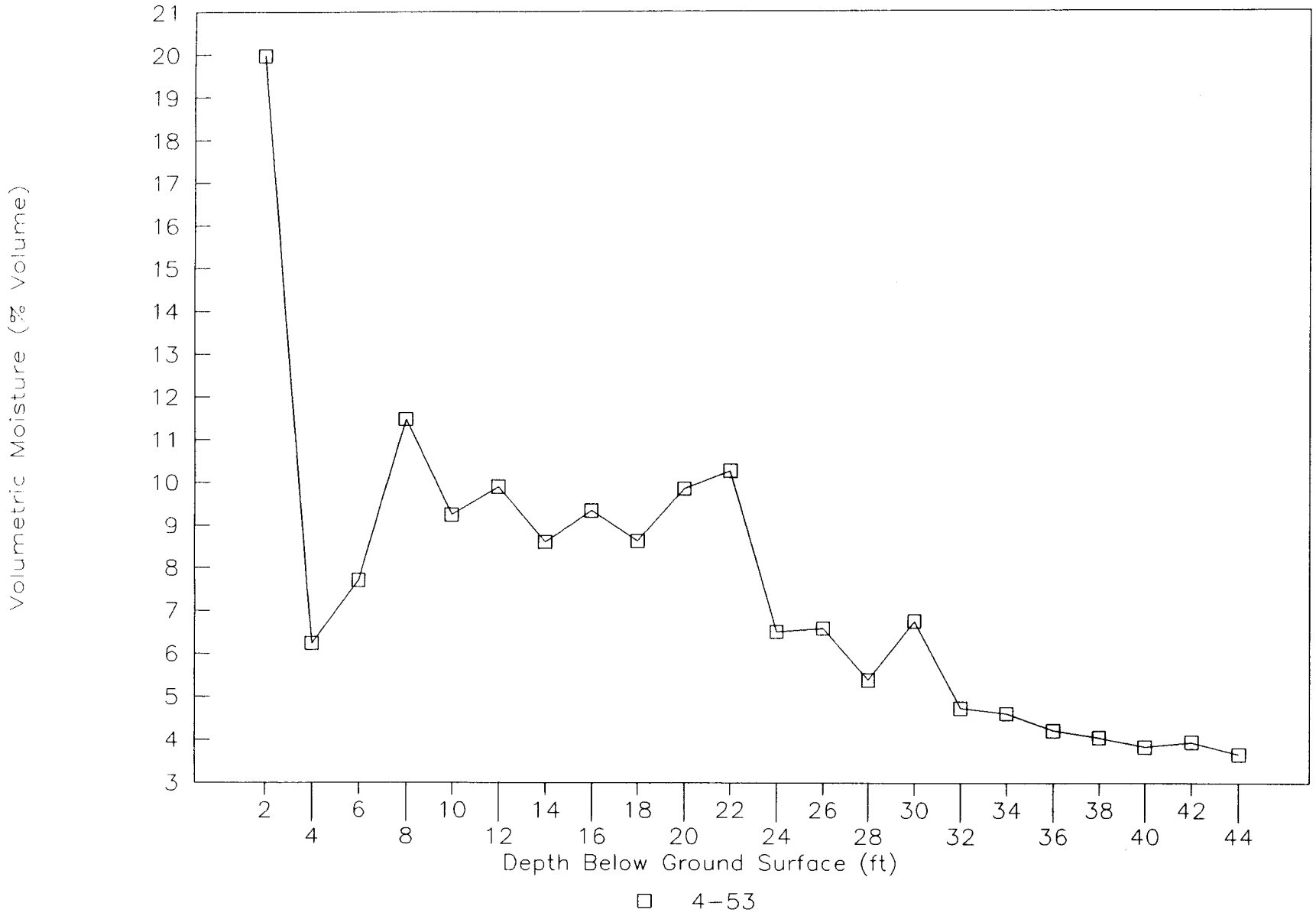
VOLUMETRIC MOISTURE

TA-53, 4/23/92



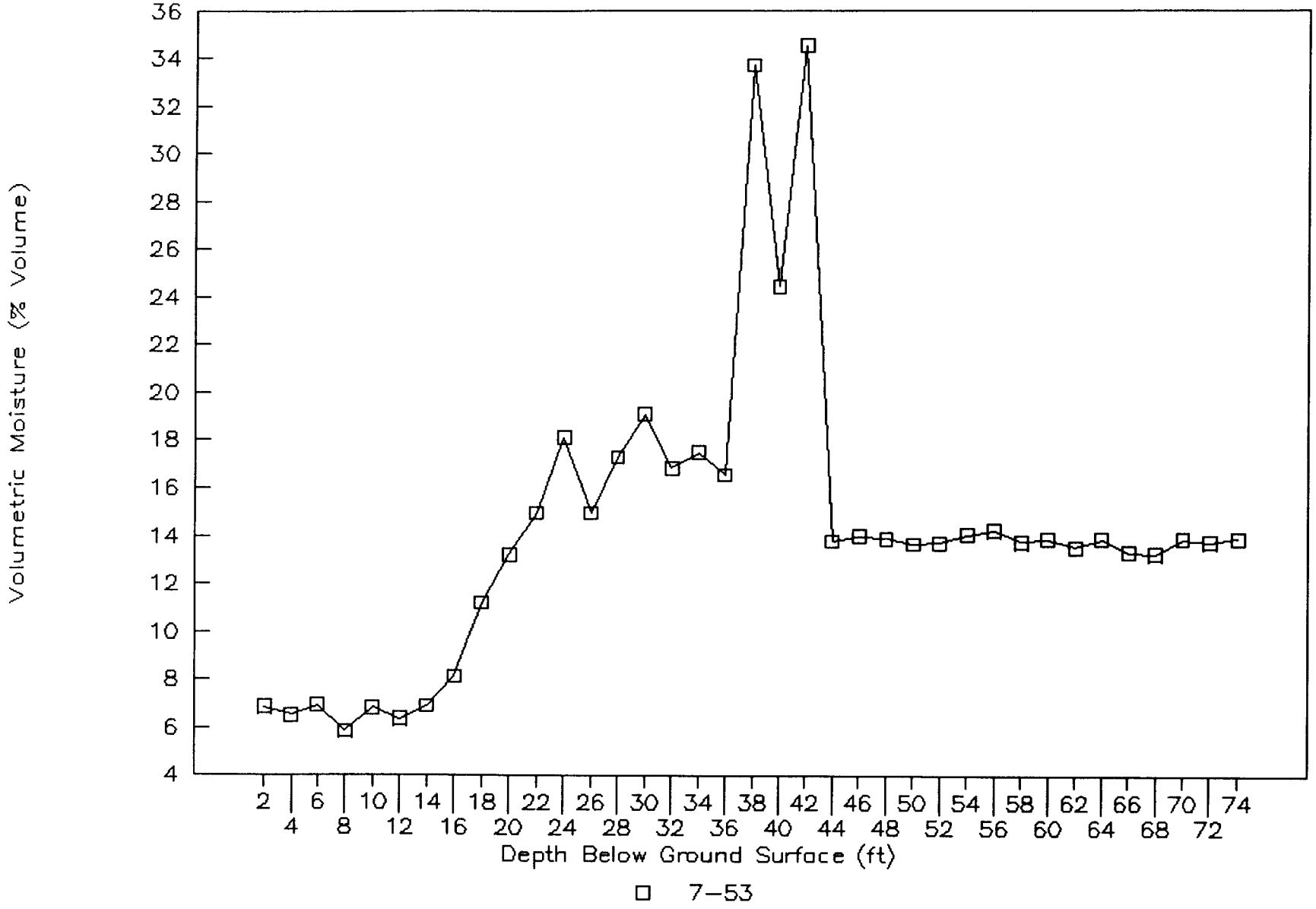
VOLUMETRIC MOISTURE

TA-53, 4/23/92



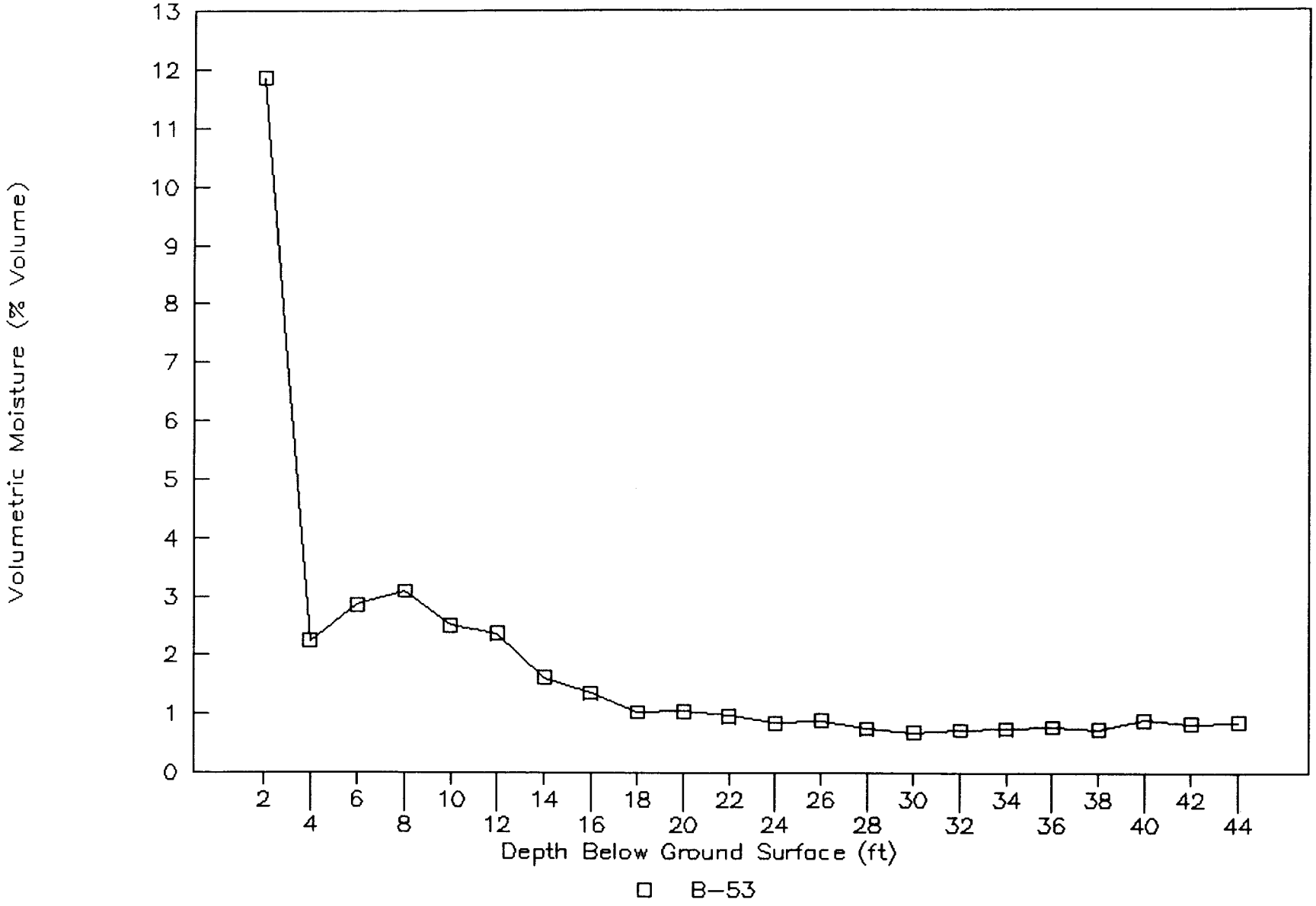
VOLUMETRIC MOISTURE

TA-53, 4/23/92



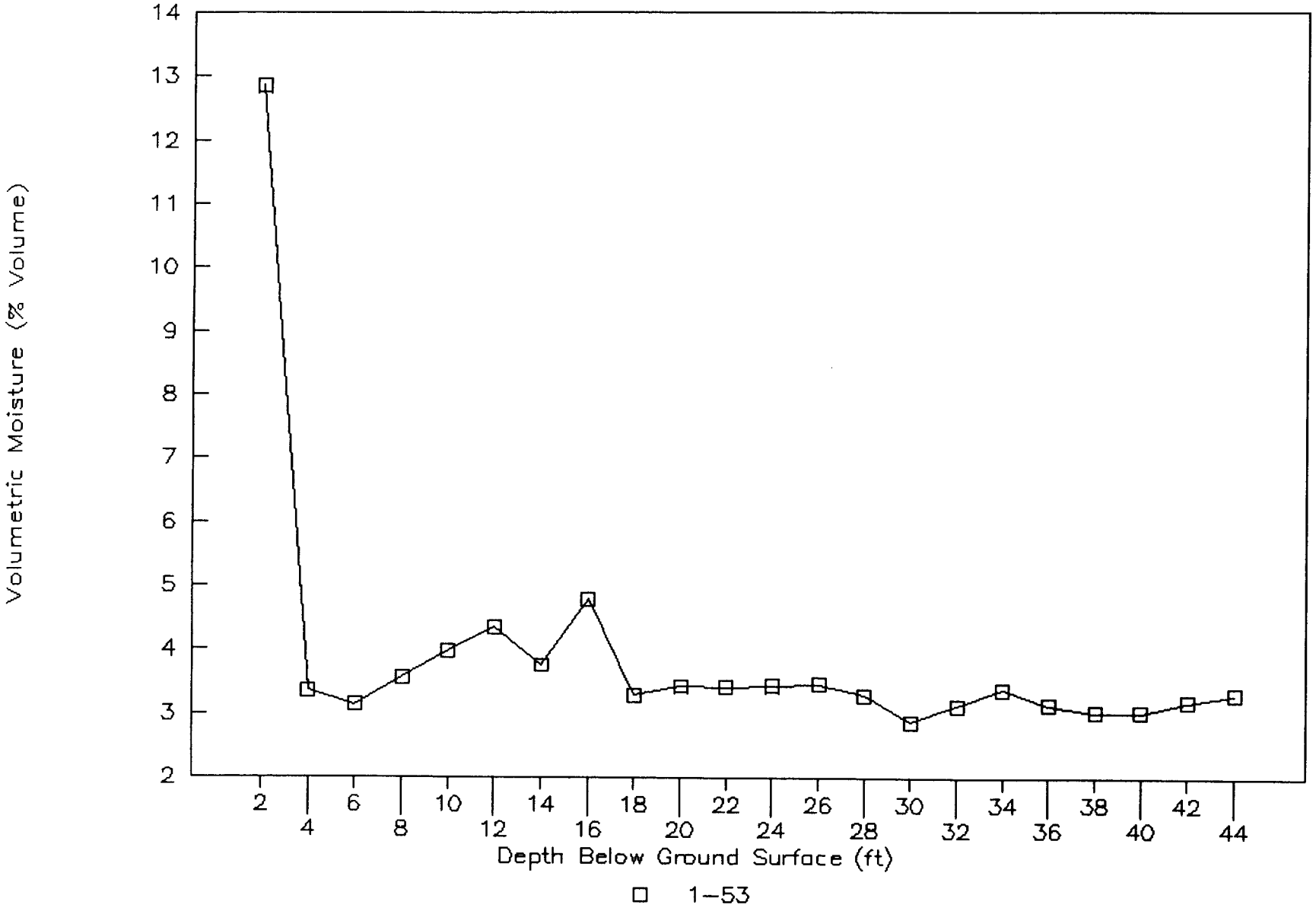
VOLUMETRIC MOISTURE

TA-53, 6/17/92



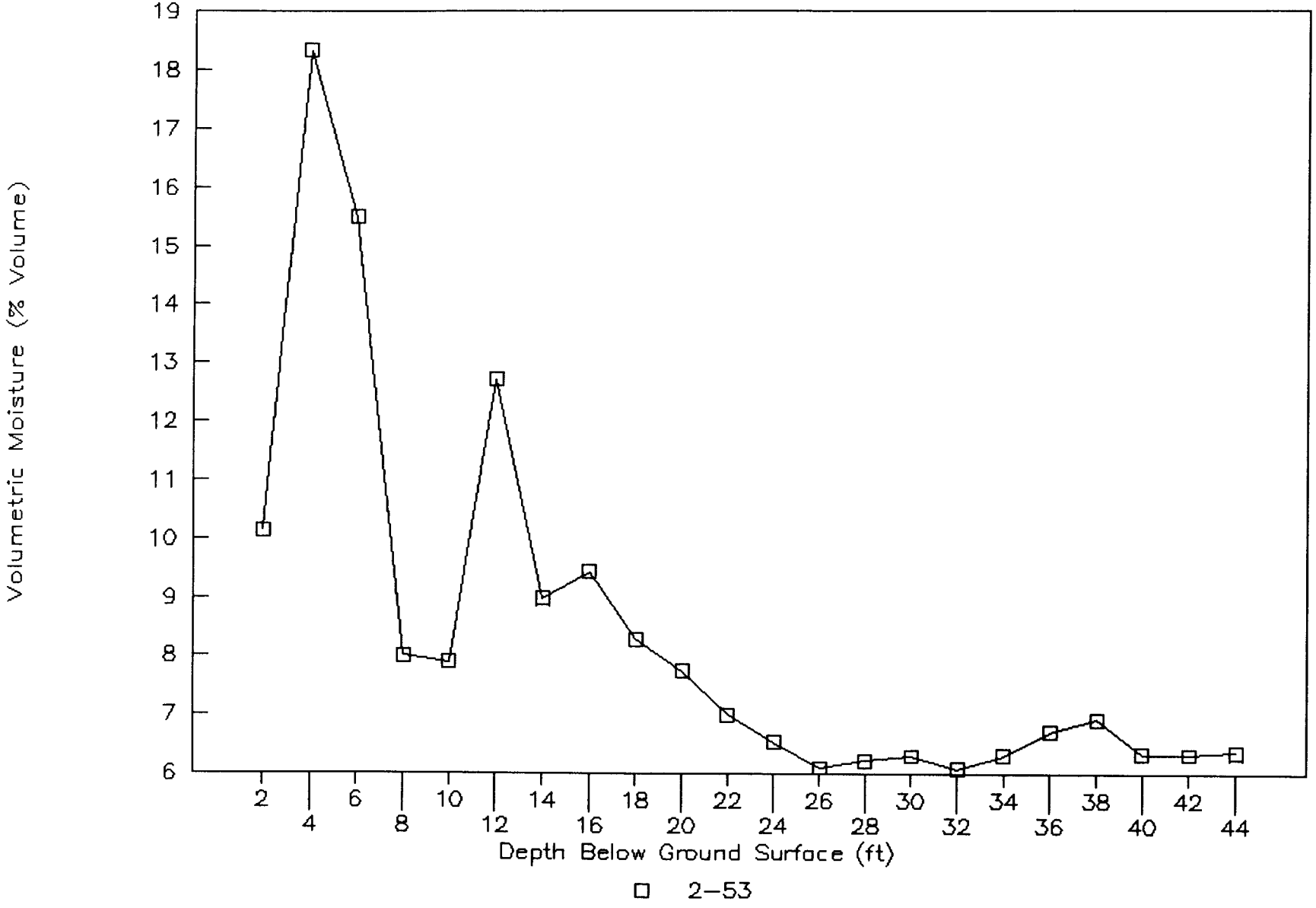
VOLUMETRIC MOISTURE

TA-53, 6/17/92



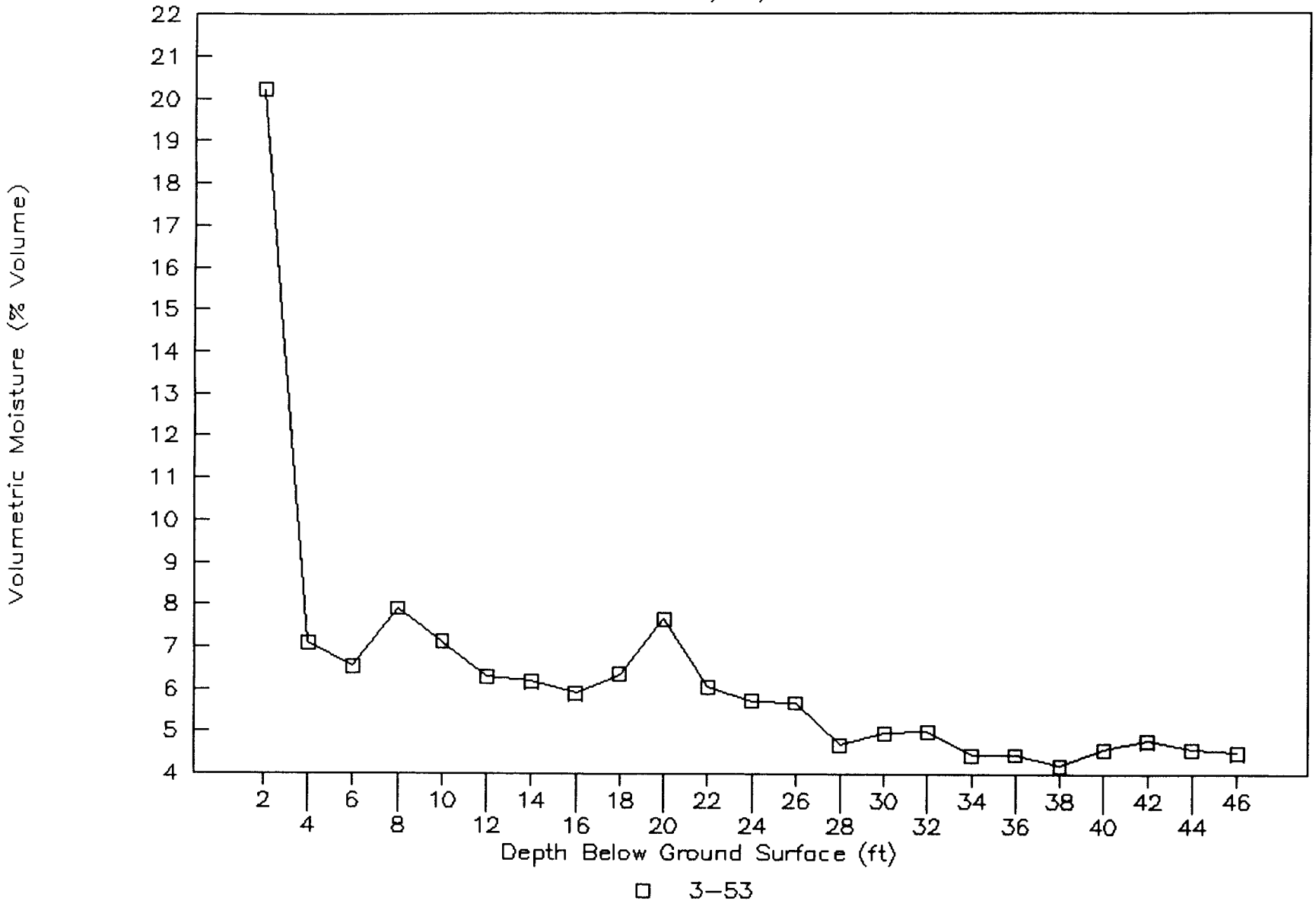
VOLUMETRIC MOISTURE

TA-53, 6/17/92



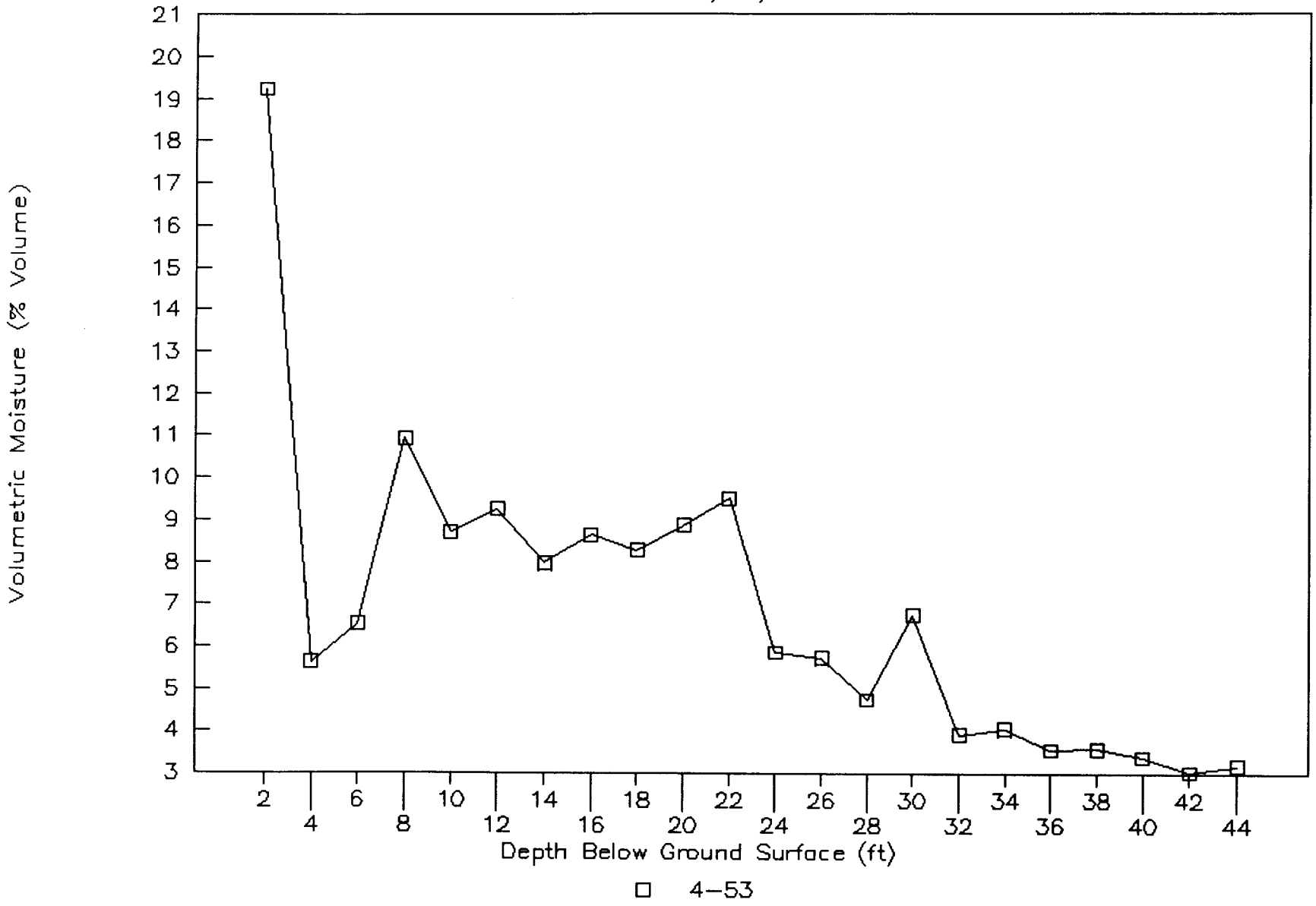
VOLUMETRIC MOISTURE

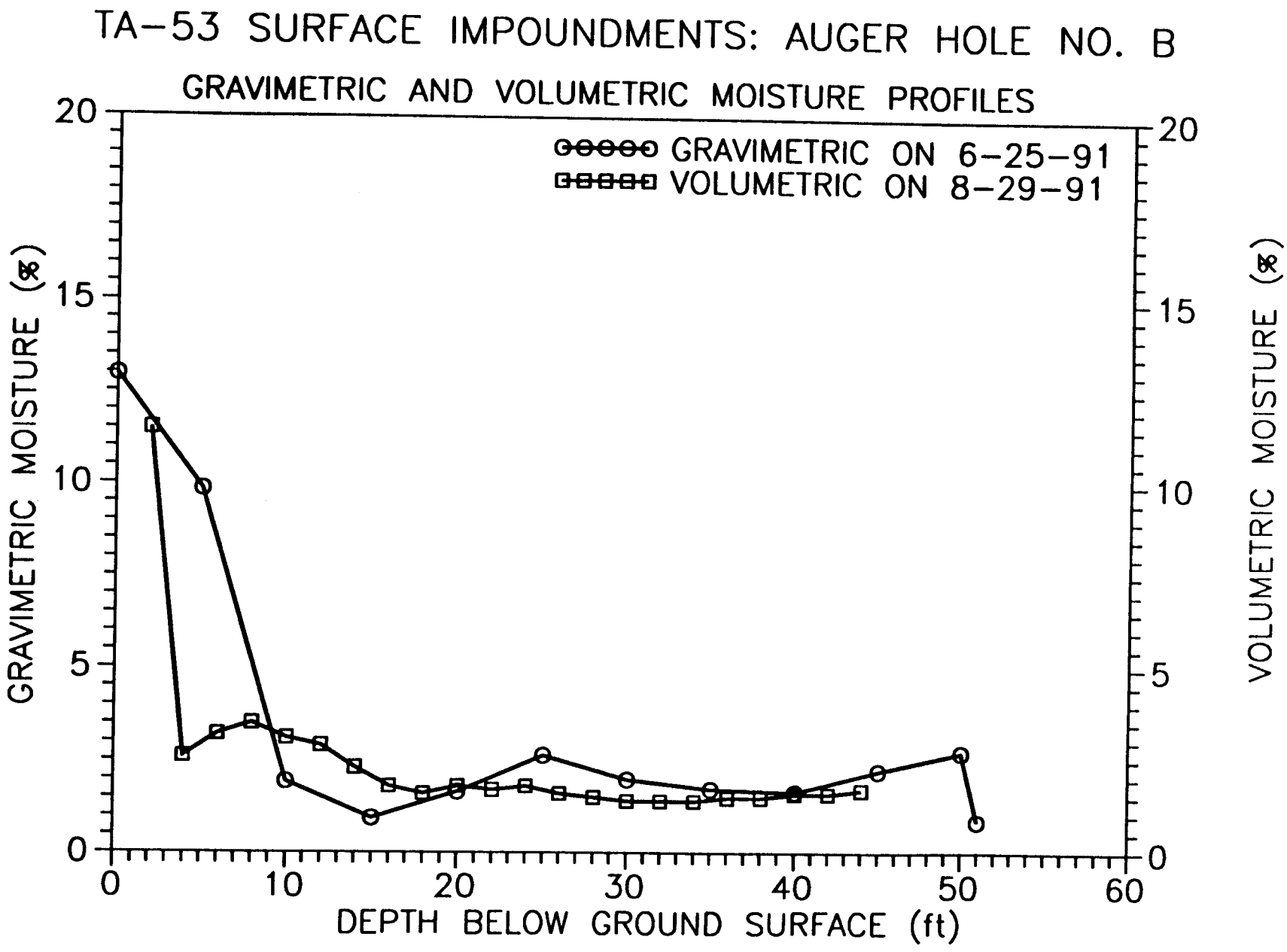
TA-53, 6/17/92

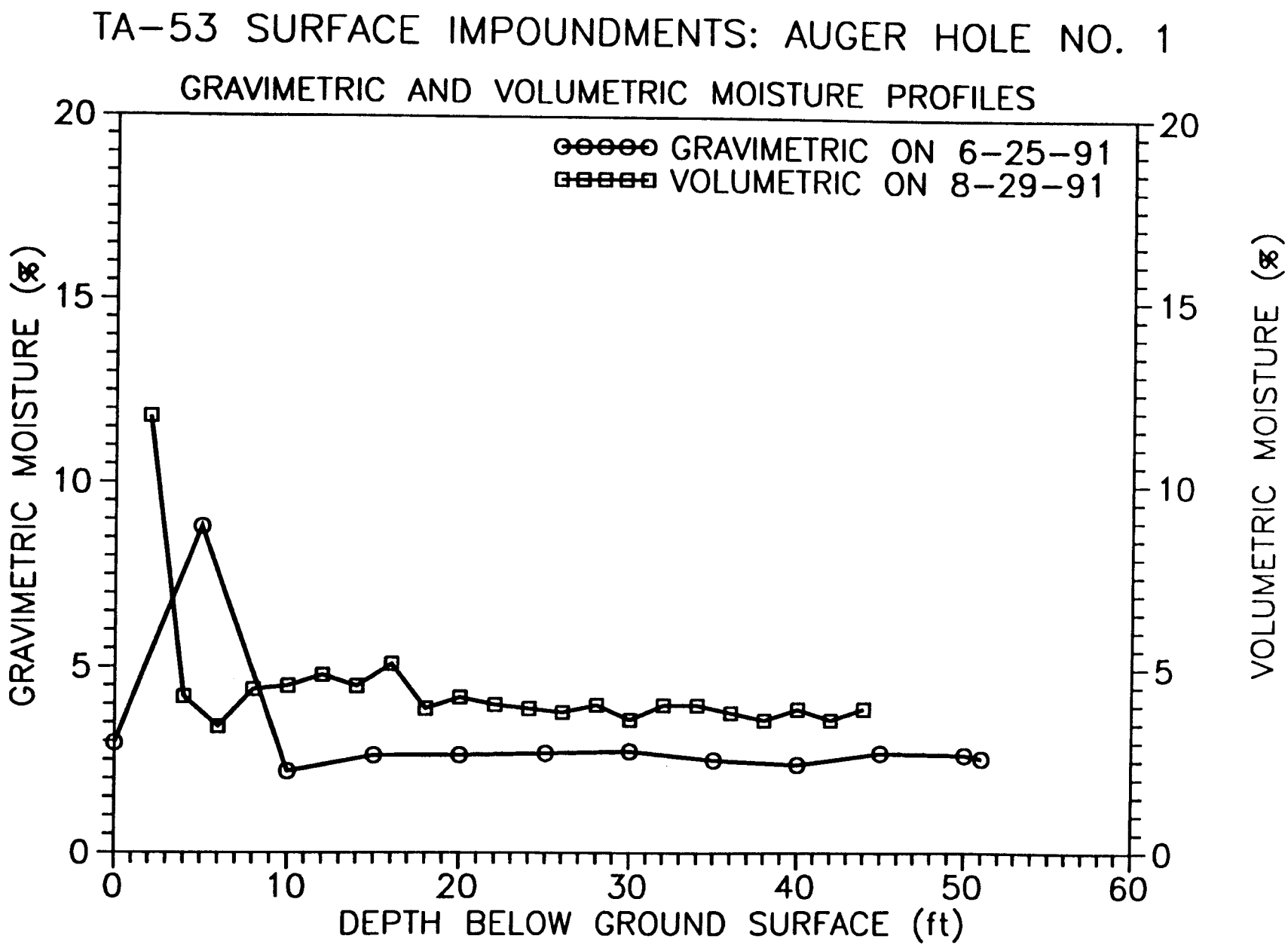


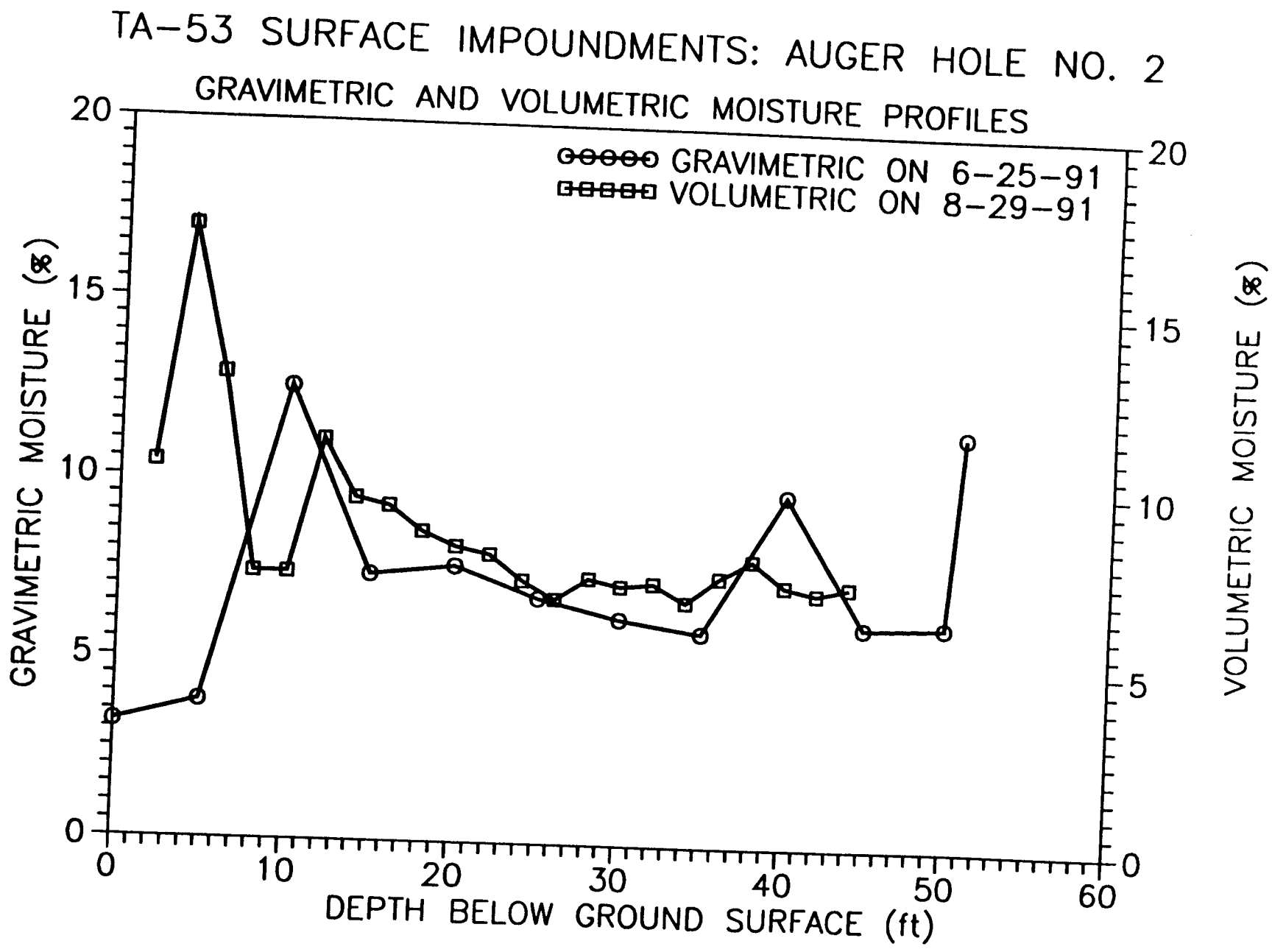
VOLUMETRIC MOISTURE

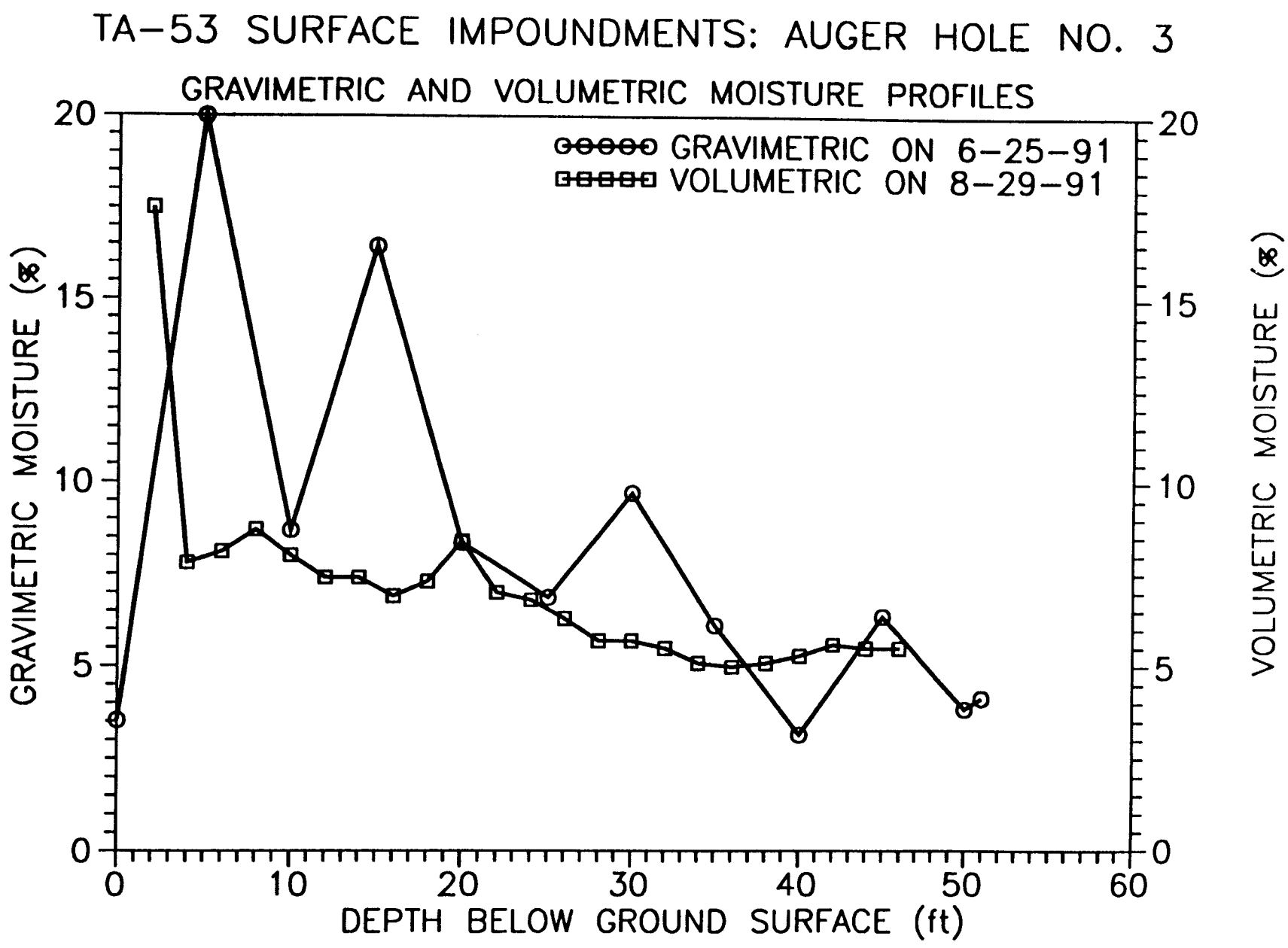
TA-53, 6/17/92

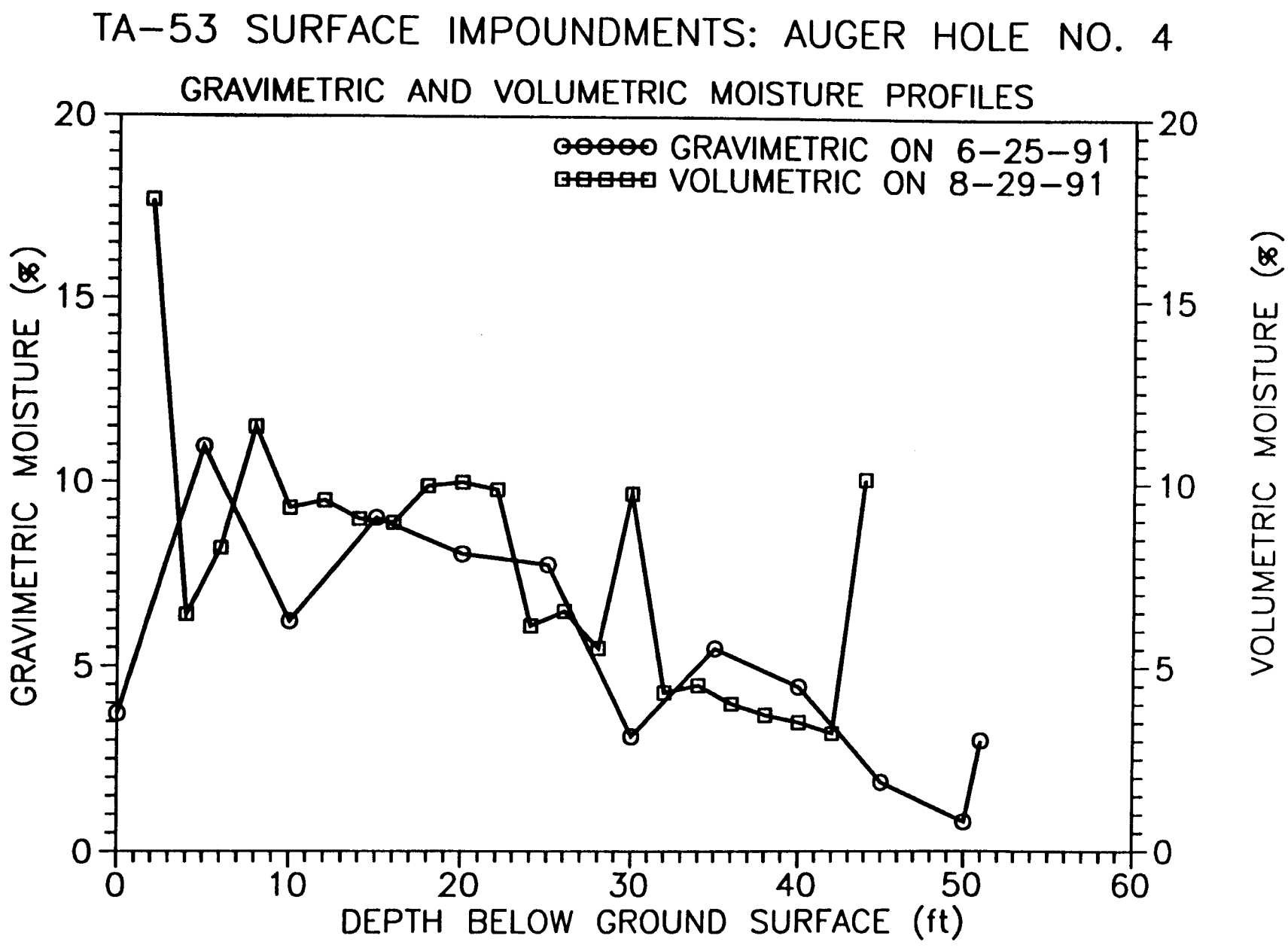


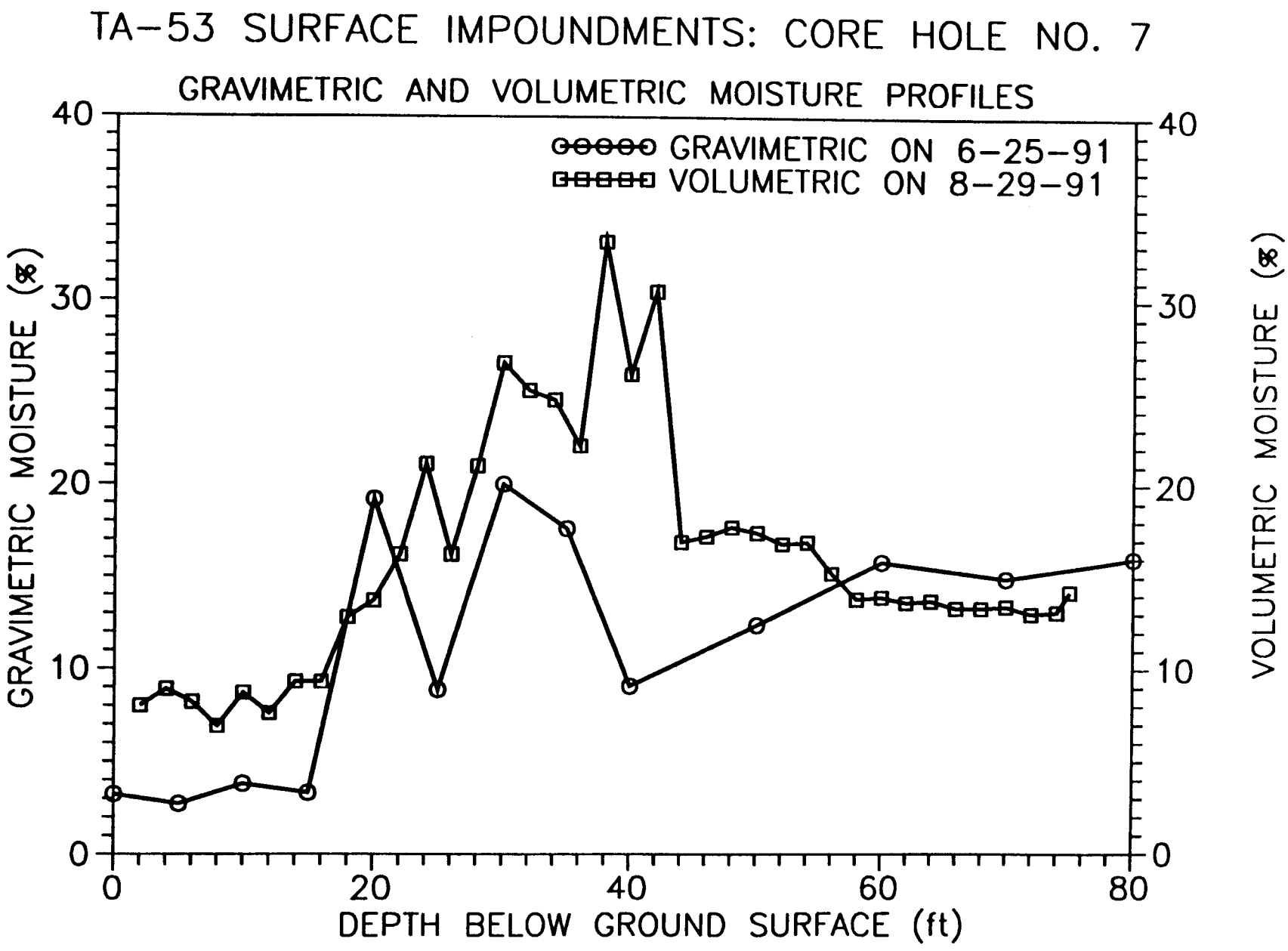

TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. B
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
10
20
30
40
50
60


TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 1
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
10
20
30
40
50
60


TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 2
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
10
20
30
40
50
60


TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 3
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
10
20
30
40
50
60


TA-53 SURFACE IMPOUNDMENTS: AUGER HOLE NO. 4
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
5
10
15
20
0
10
20
30
40
50
60


TA-53 SURFACE IMPOUNDMENTS: CORE HOLE NO. 7
GRAVIMETRIC AND VOLUMETRIC MOISTURE PROFILES
GRAVIMETRIC ON 6-25-91
VOLUMETRIC ON 8-29-91
GRAVIMETRIC MOISTURE (%)
VOLUMETRIC MOISTURE (%)
DEPTH BELOW GROUND SURFACE (ft)
0
10
20
30
40
0
20
40
60
80

APPENDIX XIV

INDUSTRIAL HYGIENE WORK FORM

LOG #: _____

INITIATOR: SKR [redacted] DAS + S.R.R. ; SKR ;

[redacted] 6-17-91 TIME: _____ [redacted] HSE-8

CONTACT/[redacted]R: Mia Barr PHONE: -

[redacted] 53 [redacted] Lagoon System [redacted] OTHER _____

WORK REQUESTED: Provide monitoring support during drilling of 4 - 50' vertical holes around perimeter of 3 lagoons at TA 53.

PRECAUTIONS: Anti C's has Hat, Rafer, Shoes, & Safety glasses as per request of HSE-11 Jim Larkin

URGENCY OF REQUEST: TODAY; THIS WEEK; IN ONE MONTH; ANYTIME; DATE DUE _____

INVESTIGATION SUMMARY

[redacted]

Richard Romero	Z# 081647	Bruce Gallaher	Z# 077152
Alan Stoker	Z# 082204	S. Rector	Z# 106410
		D. Sandoval	Z# 07[redacted]047
		Don Mikelson - HSE-11	

• Solid auger
8:30 HP not ready to go
9:30 Job start
11:00 Break 15 min for beverage intake; cease work activity
12:15 Break for lunch
1:30 - Problems w/ HNU #250 electrical connection AND problem w/ OVA → sporadic flow rate; pump shut down; job shut down
• wait after another HNU & OVA to do holes 3 & 4
2:45 HNU #280 & OVA #70 on-site; job start up
2:50 HP Tech back on site - ~~street~~ clothes only ∴ Issued hi-vis (over) [redacted] drilling
[redacted] 91-425 [redacted]

FOLLOW UP DA[redacted] ACTION REQUIRED/BY WHOM: _____

[redacted] ; [redacted]

[redacted] ;

[redacted] SWMU # ;

FILE UNDER: ____ ; ____ ; ____

[redacted] Jerrel G. Sandoval

rev.#4

to get dressed back into antic's & hard hat.
as per [illegible] PPE level dictated for this job.

3:35 HP Tech back on-site - Had to
ask him to get out of his truck
& do rad survey! (Richard requested)

3:35 HP tech (HSE-11) left job-site.
3:45 Start Hole # 4

6-18-91

~~[illegible]~~ 8:45 am - Job start - finish Hole #4
HP tech here - dressed in Anti-C
9:35 am. - Drilling finished

Checked HNU & OVA Meter Response Intermittently, using field Calibration for positive response, Acetone, ~~Hexane~~, Toluene
Breaks were taken as requested, needed. Water & Beverages plus Shading for cooling off

Sampling Data Sheet # 91-425 Page #1

IHWF # _____

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room: _____ Sampled By: SKR/DAS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[a]	Substance (CAS # if Known)	Media[b]	Direct Reading Results[e] Units[c]	Calc. Results[e] Units[c]	Calc. TWA Units[c]	Detection Limit Units	Standard Guideline Conc. / c	Standard Guideline Type[d]
91 425 ISN5	OVA 1128	081647 082704	Drilling #15	Hole # 1 5' OVA	DR	Combustibles Organics	N	ND A					
2	HNU 250	077152 106410		HNU				ND A					
3	Tritector #02423	078047		Tritector				1 H_2S A					
4				OVA 10'				ND A					
5				HNU				ND A					
6				Tritector				1 H_2S A					
7				OVA 15				ND A					
8				HNU				ND A					
9				Tritector				2 H_2S A					
10				OVA 20				ND A					
11				HNU				ND A					
12				Tritector				NT A					
13				OVA 25				ND A					
14				HNU				ND A					
15				Tritector				NT A					
16				OVA 30				ND A					
17				HNU				ND A					
18				Tritector				NT A					

[a] Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

[b] Media: A = Agar C = Charcoal F = Filter I = Impinger N = Not Applicable O = Organic Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

[c] Units: A = [illegible] B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm² [illegible] fibers/cc I = CFU L = ft-candles P = Percent

[d] Type: [illegible] = PEL TWA C = Ceiling D = STEL E = Other

[e] Results: [illegible] None Detected or a number (carry only 2 decimal places)

* NT - Not Tested

Sampling Data Sheet # 91-425 Page #2

IIWF #

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room:

Sampled By: SKR/DRS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[d]	Substance (CAS # if Known)	Media[b]	Direct Reading Results[e] Units[c]	Calc. Results[e] Units[c]	Calc. IWA Units[c]	Detection Limit Units	Standard Guideline Conc./c	Standard Guideline Type[d]
91 425 19	OVA SN-51128	081647 082704	Drilling #15	Hole # 1 OVA 35'	DR	Combustibles Organics	N	ND A					
20	HNU 250	077152 106410		HNU				ND A					
21	Tritector 02423	078047		Tritector				NT A					
22				OVA 40'				ND A					
23				HNU				ND A					
24				Tritector				NT A					
25				OVA 45'				<0.5 A					
26				HNU				<1.0 A					
27				Tritector				NT A					
28				OVA 50'				ND A					
29				HNU				ND A					
30				Tritector				NT A					
31				Augers Coming Out OVA of Hole				ND A					
32				HNU				ND A					
33				Tritector				NT A					
34				Hole #2 OVA 5'				ND A					
35				HNU				ND A					
36				Tritector				NT A					

Sample Type A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

Media A = C = Charcoal F = Filter I = Impinger N = Not Applicable O = e Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

Units A B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm s/cc I = CFU L = ft candles P = Percent

H = PEL IWA C = Ceiling D = SHL E = Other

* NT = Not Tested

Sampling Data Sheet # 91-425 Page # 3

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room: ____ IHWF # ____

Sampled By: SKR/DAS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[a]	Substance (CAS # if Known)	Media[b]	Direct Reading Results[e] Units[c]	Calc. Results[e] Units[c]	Calc. TWA Units[c]	Detection Limit Units	Standard Guideline Conc./c	Standard Guideline Type[d]
91 425 37	OVA SN-51128	081647 082704	Drilling #15	Hole #2 OVA 10'	DR	Combustibles Organics	N	ND A					
38	HNU 250	077152 106410		HNU				ND A					
39	Tritector 02423	078047		Tritector				NT A					
40				OVA 15'				ND A					
41				HNU				ND A					
42				Tritector				NT A					
43				OVA 20'				ND A					
44				HNU				ND A					
45				Tritector				NT A					
46				OVA 25'				ND A					
47				HNU				ND A					
48				Tritector				NT A					
49				OVA 30'				ND A					
50				HNU				ND A					
51				Tritector				NT A					
52				OVA 35'				ND A					
53				HNU				ND A					
54				Tritector				NT A					

[a] Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

[b] Media: A = [illegible] C = Charcoal F = Filter I = Impinger N = Not Applicable O = [illegible] Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

[c] Units: A [illegible] B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm [illegible] /cc I = CFU J = ft candles P = Percent

[d] [illegible] PEL TWA C = Ceiling D = STEL E = Other

[e] * Not Tested

Sampling Data Sheet # 91-425 Page #4

HWF #

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room:

Sampled By: SKR/DAS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[a]	Substance (CAS # if Known)	Media[b]	Direct Reading Results Units[c]	Calc. Results[e] Units[c]	Calc. TWA Units[c]	Detection Limit Units	Standard Guideline Conc. / c	Type[d]
91 425 55	OVA SN-51129	081647 082704	Drilling #15	Hole # 2 OVA 40'	DR	Combustibles Organics	N	ND A					
56	HNU 256	077152 106410		HNU				ND A					
57	Tritector 02423	078047		Tritector				NT A					
58				45' OVA				ND A					
59				HNU				ND A					
60				Tritector				NT A					
61				50' OVA				ND A					
62				HNU				ND A					
63				Tritector				NT A					
64	OVA #70			Hole #3 OVA 5'				NT A					
65	HNU #289			HNU				NT A					
66	Tritector 02423			Tritector				NT A					
67				OVA 10'				NT A					
68				HNU				NT A					
69				Tritector				NT A					
70				15' OVA				ND A					
71				HNU				ND A					
72				Tritector				NT A					

Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

Media: A = C = Charcoal F = Filter I = Impinger N = Not Applicable O = Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

Units: A = B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm ers/oz I = CFU J = ft candles P = Percent

A = CEIL TWA = PEL TWA C = Ceiling D = STEL E = Other

* NT - Not Tested

Sampling Data Sheet # 91-425 Page #5

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room: ____ II IWF # ____

Sampled By: SKR/DAS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[d]	Substance (CAS # if Known)	Media[f]	Direct Reading Results[e] Units[c]	Calc. Results[e] Units[c]	Calc. TWA Units[c]	Detection Limit Units	Standard Guideline Conc. /c	Standard Guideline Type[d]
91 425 73	OVA #70	081647 082704	Drilling #15	Hole #3 OVA 20'	DR	Combustibles Organics	N	ND A					
74	HNU #280	077152 106410		HNU				ND A					
75	Tritector 02123	078047		Tritector 25'				NT A					
76				OVA				ND A					
77				HNU				ND A					
78				Tritector 30'				NT A					
79				OVA				ND A					
80				HNU				ND A					
81				Tritector 35'				NT A					
82				OVA				ND A					
83				HNU				ND A					
84				Tritector 40'				NT A					
85				OVA				ND A					
86				HNU				ND A					
87				Tritector 45'				NT A					
88				OVA				ND A					
89				HNU				ND A					
90				Tritector				NT A					

Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

Media: A = C = Charcoal F = Filter I = Impinger N = Not Applicable O = Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

Units: A = B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm Vcc I = CFU J = ft candles P = Percent

II IW PH IWA C = Coding D = SHE E = Other

* NT = Not Test

Sampling Data Sheet # 91-425 Page #6

II IWF #

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room:

Sampled By: SKR/DRS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[a]	Substance (CAS # if Known)	Media[b]	Direct Reading Results[e] Units[c]	Calc. Results[e] Units[c]	Calc. TWA Units[c]	Detection Limit Units	Standard Guideline Conc. /[c]	Standard Guideline Type[d]
91 425 91	OVA #70	081647 082704	Drilling #15	Hole #3 OVA 50'	DR	Combustibles Organics	N	ND A					
92	HNU #280	077152 106410		HNU				ND A					
93	Tritector 02123	078047		Tritector				NT A					
94				Hole #4 OVA 5'				ND A					
95				HNU				ND A					
96				Tritector				NT A					
97				10' OVA				ND A					
98				HNU				ND A					
99				Tritector				NT A					
100				15' OVA				ND A					
101				HNU				ND A					
102				Tritector				NT A					
103				20' OVA				ND A					
104				HNU				ND A					
105				Tritector				NT A					
106				25' OVA				ND A					
107				HNU				ND A					
108				Tritector				NT A					

Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Frequency S = Swipe

Media: A = [illegible] C = Charcoal F = Filter I = Impinger N = Not Applicable O = [illegible] c Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

Units: A [illegible] B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm [illegible] ers/cc I = CFU J = ft candles P = Percent

[illegible] B = PEL TWA C = Ceiling D = STEL E = Other

Sampling Data Sheet # 91-425 Page #7

Organization: HSE-8 Location: TA: 53 Bldg: Lagoon System Room: ____ IIIWF # ____

Sampled By: SKR/DAS Date: 6-17-91 6-18-91

Sample #	Instrument or model #	Emp. Z#	Operation	Sample Location	Sample Type[a]	Substance (CAS # if Known)	Media[b]	Direct Reading Results Units[c]	Calc. Results Units[c]	Calc. IWA Units[c]	Detection Limit Units	Standard Guideline Conc. /[c]	Standard Guideline Type[d]
91 425 109	OVA #70	081647 082704	Drilling #15	Hole #4 OVA 30'	DR	Combustibles Organics	N	ND A					
110	HNU #280	077152 106410		HNU				ND A					
111	Tritector 02123	078047		Tritector				NT A					
112				OVA 35'				ND A					
113				HNU				ND A					
114				Tritector				NT A					
115				OVA 40'				ND A					
116				HNU				ND A					
117				Tritector				NT A					
118				OVA 45'				ND A					
119				HNU				ND A					
120				Tritector				NT A					
121				OVA 50'				ND A					
122				HNU				ND A					
123				Tritector				NT A					
				OVA				A					
				HNU				A					
				Tritector				A					

[a] Sample Type: A = Area B = Bulk BA = Bioassay BZ = Breathing Zone DR = Direct Reading DT = Detector Tube G = Grab J = Blank M = Biological RF = Radio Freq S = Swipe

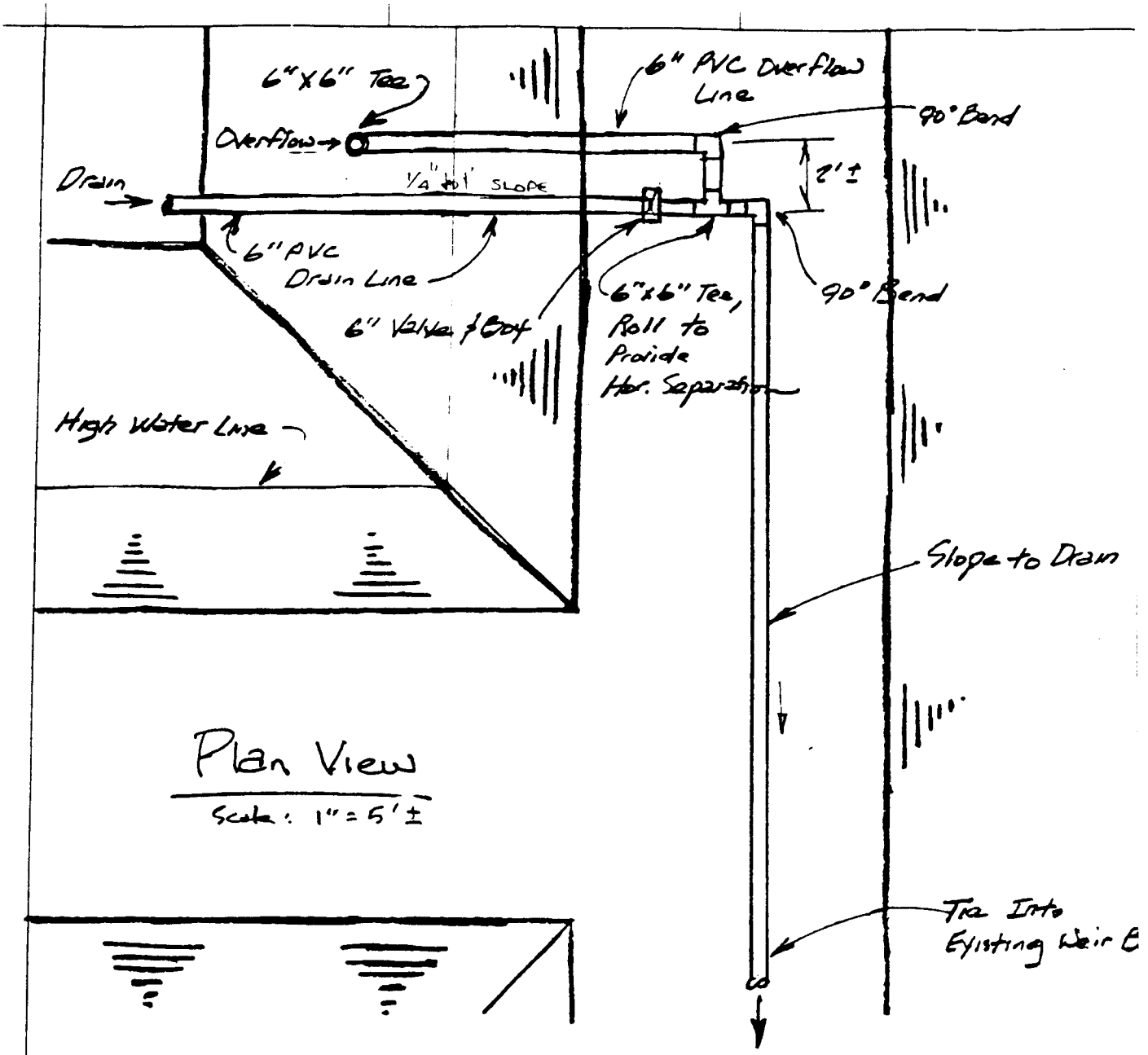
[b] Media: A = C = Charcoal F = Filter I = Impinger N = Not Applicable O = Vapor Monitor S = Silica gel T = Tenax U = Urine X = Other

[c] Units: A = B = mg/m³ C = ug/m³ D = ug/l E = ug/ft² F = ug/100 cm² G = mw/cm² H = LCFU I = ft candles P = Percent

[d] Standard Guideline: IWA C = Ceiling D = STEL E = Other

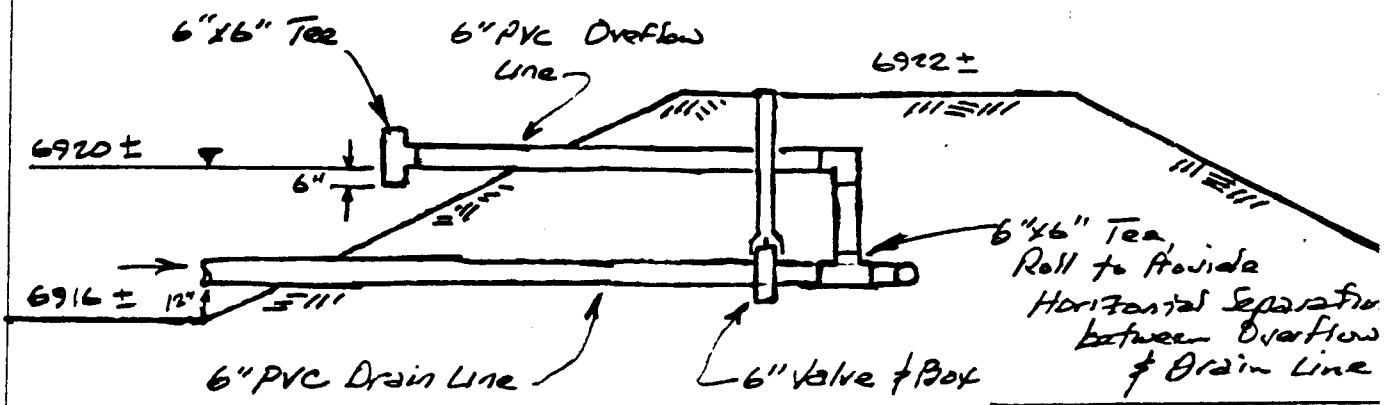
[e] * NT = Not Tested

APPENDIX XV



Plan View

Scale: 1" = 5'±



Section

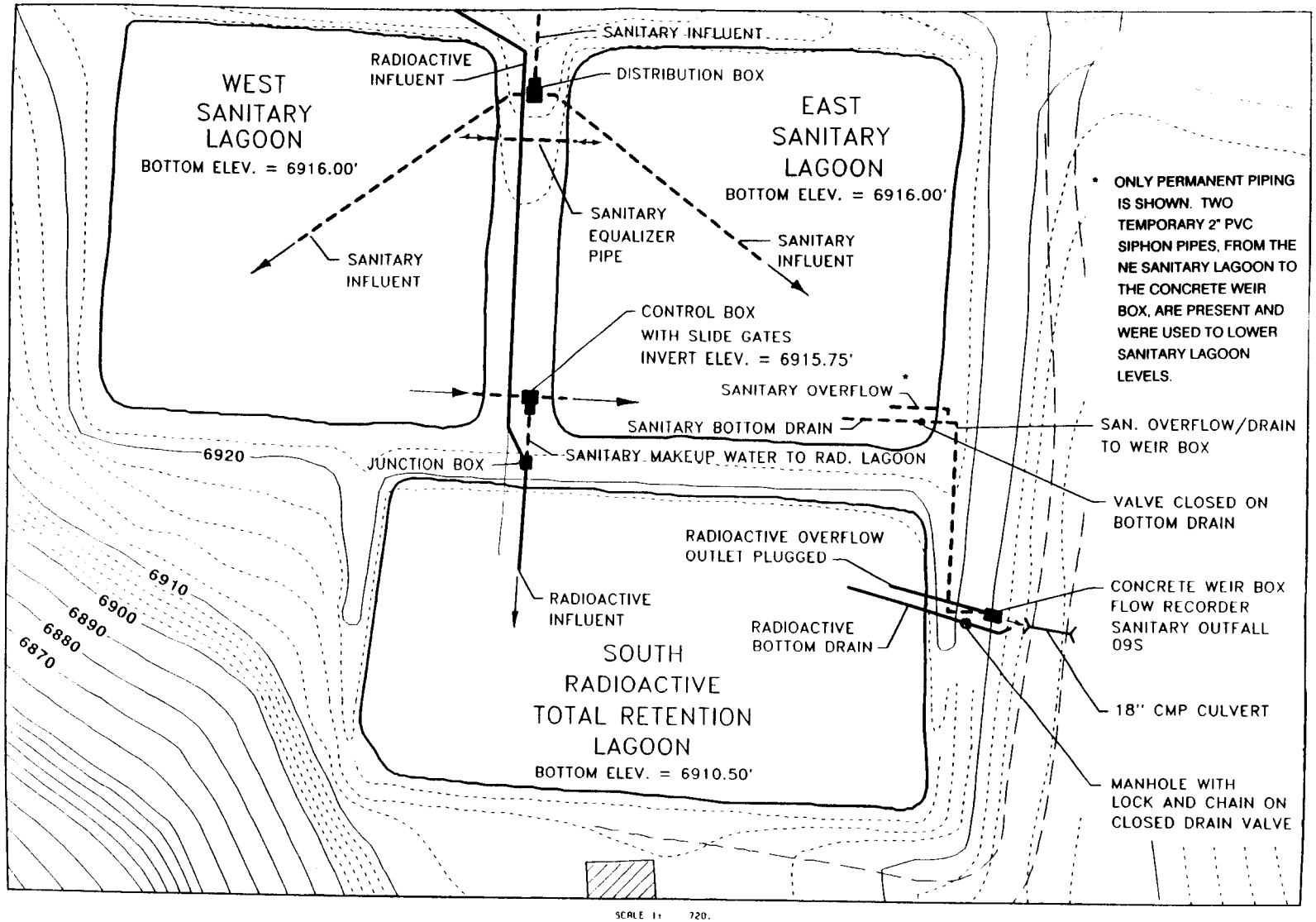
Scale: 1" = 5'±

TA-53 Lagoons

Proposed Outlet

Steve Raan 3-20-89

TA-53 LAGOONS



SHEET 2

AUTOCAD

APPENDIX XVI

PORE GAS ANALYSIS

Cover Letter

Libby 16558

January 13, 1992

To: Mike S. Burkheimer, HSE-8, MS K-490

From: Larry R. Field, HSE-9, MS K-484

Thru: Chris Leibman, HSE-9 Organic Sect. Ldr., MS K-484

This is the cover letter for the 9 samples of Request Sheet Number 12336. Bromofluorobenzene was used as the surrogate in this work. Average Recovery data for the Bromofluorobenzene surrogates used in this sample batch are listed below in Table I:

TABLE I

Request Sheet No.	Average Percent Recovery
12336	7% (Note! Both surrogate containing samples were inadvertently injected onto the back half of the sample tubes and were not recovered.

One Blind QC sample was analyzed with this batch of 8 samples. The QC results are summarized below in Table II:

TABLE II

Request Sheet No.	Sample No.	Comments
12336	91.14184	"All Under Control".

In summary all of the data reported here have been examined and are found to be of high quality. Further, no additional organic compounds were observed at or above our detection limit of 8 ug/tube.

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14176

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03576-MSB	91.14176	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03576-MSB	91.14176	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03576-MSB	91.14176	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03576-MSB	91.14176	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03576-MSB	91.14176	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03576-MSB	91.14176	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03576-MSB	91.14176	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03576-MSB	91.14176	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03576-MSB	91.14176	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03576-MSB	91.14176	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03576-MSB	91.14176	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03576-MSB	91.14176	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03576-MSB	91.14176	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14176

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14177

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03577-MSB	91.14177	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03577-MSB	91.14177	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03577-MSB	91.14177	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03577-MSB	91.14177	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03577-MSB	91.14177	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03577-MSB	91.14177	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03577-MSB	91.14177	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03577-MSB	91.14177	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03577-MSB	91.14177	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03577-MSB	91.14177	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03577-MSB	91.14177	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03577-MSB	91.14177	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03577-MSB	91.14177	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14177

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14178

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03578-MSB	91.14178	71432	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Benzene
91.03578-MSB	91.14178	108861	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Bromobenzene
91.03578-MSB	91.14178	56235	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Carbon tetrachloride
91.03578-MSB	91.14178	108907	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Chlorobenzene
91.03578-MSB	91.14178	67663	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Chloroform
91.03578-MSB	91.14178	100414	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Ethylbenzene
91.03578-MSB	91.14178	127184	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Tetrachloroethylene
91.03578-MSB	91.14178	108883	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Toluene
91.03578-MSB	91.14178	71556	< 8.		UG/TUBE	1/13/92	SURR ON BACK	1,1,1-Trichloroethane
91.03578-MSB	91.14178	79016	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Trichloroethene
91.03578-MSB	91.14178	95636	< 8.		UG/TUBE	1/13/92	SURR ON BACK	1,2,4-Trimethylbenzene
91.03578-MSB	91.14178	95476	< 8.		UG/TUBE	1/13/92	SURR ON BACK	o-Xylene
91.03578-MSB	91.14178	1330207	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14178

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14179

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03579-MSB	91.14179	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03579-MSB	91.14179	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03579-MSB	91.14179	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03579-MSB	91.14179	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03579-MSB	91.14179	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03579-MSB	91.14179	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03579-MSB	91.14179	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03579-MSB	91.14179	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03579-MSB	91.14179	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03579-MSB	91.14179	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03579-MSB	91.14179	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03579-MSB	91.14179	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03579-MSB	91.14179	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14179

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14180

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03580-MSB	91.14180	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03580-MSB	91.14180	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03580-MSB	91.14180	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03580-MSB	91.14180	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03580-MSB	91.14180	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03580-MSB	91.14180	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03580-MSB	91.14180	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03580-MSB	91.14180	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03580-MSB	91.14180	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03580-MSB	91.14180	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03580-MSB	91.14180	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03580-MSB	91.14180	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03580-MSB	91.14180	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14180

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14181

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03581-MSB	91.14181	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03581-MSB	91.14181	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03581-MSB	91.14181	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03581-MSB	91.14181	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03581-MSB	91.14181	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03581-MSB	91.14181	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03581-MSB	91.14181	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03581-MSB	91.14181	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03581-MSB	91.14181	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03581-MSB	91.14181	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03581-MSB	91.14181	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03581-MSB	91.14181	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03581-MSB	91.14181	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14181

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14182

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03582-MSB	91.14182	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03582-MSB	91.14182	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03582-MSB	91.14182	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03582-MSB	91.14182	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03582-MSB	91.14182	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03582-MSB	91.14182	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03582-MSB	91.14182	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03582-MSB	91.14182	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03582-MSB	91.14182	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03582-MSB	91.14182	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03582-MSB	91.14182	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03582-MSB	91.14182	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03582-MSB	91.14182	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14182

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14183

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03583-MSB	91.14183	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03583-MSB	91.14183	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03583-MSB	91.14183	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03583-MSB	91.14183	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03583-MSB	91.14183	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03583-MSB	91.14183	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03583-MSB	91.14183	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03583-MSB	91.14183	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03583-MSB	91.14183	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03583-MSB	91.14183	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03583-MSB	91.14183	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03583-MSB	91.14183	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03583-MSB	91.14183	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14183

none

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

none

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.14184

Date Collected: 12/10/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.14184	71432	76.	22.8	UG/TUBE	116.	12.	1/13/92	UNDER CONTROL	Benzene
91.14184	108861	64.	19.2	UG/TUBE	91.	9.	1/13/92	UNDER CONTROL	Bromobenzene
91.14184	56235	86.	25.8	UG/TUBE	110.	11.	1/13/92	UNDER CONTROL	Carbon tetrachloride
91.14184	108907	64.	19.2	UG/TUBE	97.	10.	1/13/92	UNDER CONTROL	Chlorobenzene
91.14184	67663	75.	22.5	UG/TUBE	90.	9.	1/13/92	UNDER CONTROL	Chloroform
91.14184	100414	81.	24.3	UG/TUBE	112.	11.	1/13/92	UNDER CONTROL	Ethylbenzene
91.14184	127184	76.	22.8	UG/TUBE	99.	10.	1/13/92	UNDER CONTROL	Tetrachloroethylene
91.14184	108883	67.	20.1	UG/TUBE	94.	9.	1/13/92	UNDER CONTROL	Toluene
91.14184	71556	86.	25.8	UG/TUBE	108.	11.	1/13/92	UNDER CONTROL	1,1,1-Trichloroethane
91.14184	79016	78.	23.4	UG/TUBE	100.	10.	1/13/92	UNDER CONTROL	Trichloroethene
91.14184	95636	< 8.		UG/TUBE	0.0		1/13/92	UNDER CONTROL	1,2,4-Trimethylbenzene
91.14184	95476	< 8.		UG/TUBE	0.0		1/13/92	UNDER CONTROL	o-Xylene
91.14184	1330207	70.	21.	UG/TUBE	97.	10.	1/13/92	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Surrogate results for EM-9 POREGAS

Bromobenzene (CAS # = 108861); EPA Range Limits: None established

SAMPLE NUMBER	RESULT	UNITS	COMPLETION DATE	COMMENT
91.14176	0.0	NOSURR	1/13/92	
91.14177	0.0	NOSURR	1/13/92	
91.14178	0.0	%	1/13/92	SURR ON BACK
91.14179	0.0	NOSURR	1/13/92	
91.14180	0.0	NOSURR	1/13/92	
91.14181	0.0	NOSURR	1/13/92	
91.14182	0.0	NOSURR	1/13/92	
91.14183	0.0	NOSURR	1/13/92	
91.14184	6.6667	%	1/13/92	SURR ON BACK

REPORT NUMBER: 12718

Analyst	Reviewer	Section Leader	QA Officer
			NK for MAG
1/27/92	1/27/92	1/27/92	1/30/92
Date	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

PORE GAS ANALYSIS

Cover Letter

September 26, 1991

To: Mike S. Burkheimer, HSE-8, MS K-490

From: Larry R. Field, HSE-9, MS K-484

Thru: Chris Leibman, HSE-9 Organic Sect. Ldr., MS K-484

This is the cover letter for the 9 samples of Request Sheet Number 11954. Bromofluorobenzene was used as the surrogate in this work. Average Recovery data for the Bromofluorobenzene surrogates used in this sample batch are listed below in Table I:

TABLE I

Request Sheet No.	Average Percent Recovery
11954	101% (Note! 20% of the samples were spiked with the surrogate)

One Blind QC sample was analyzed with this batch of 9 samples. The QC results are summarized below in Table II:

TABLE II

Request Sheet No.	Sample No.	Comments
11954	91.08816	"All Under Control".

In summary all of the data reported here have been examined and are found to be of high quality. It should be noted that a Silane compound, (CyclotetraSiloxane, Octamethyl-), was found in all but three of the nine samples, 91.08814 (Trip Blank), 91.08816 (QC), and 91.08813 (Your Blank?). Moreover, this compound was not observed in our blanks. Since this is a new well with new sampling tubes, this compound is probably coming from the sampling tubing and not from laboratory contamination.

In addition we were asked to look for additional compounds (over and above the normal 13 Pore Gas Analytes) that might be present in these samples. No additional compounds were found. It should be pointed out, however, that due to the limitations of the Poregas Method, low boiling compounds that chromatographically elute before or coelute with our solvent, CS_2, (e.g., Chloromethane and Vinyl Chloride) would not be observed by this procedure.

REPORT NUMBER: 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08808

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02190-MSB	91.08808	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02190-MSB	91.08808	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02190-MSB	91.08808	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02190-MSB	91.08808	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02190-MSB	91.08808	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02190-MSB	91.08808	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02190-MSB	91.08808	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02190-MSB	91.08808	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02190-MSB	91.08808	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02190-MSB	91.08808	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02190-MSB	91.08808	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02190-MSB	91.08808	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02190-MSB	91.08808	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08808

none

REPORT NUMBER: 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08809

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02191-MSB	91.08809	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02191-MSB	91.08809	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02191-MSB	91.08809	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02191-MSB	91.08809	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02191-MSB	91.08809	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02191-MSB	91.08809	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02191-MSB	91.08809	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02191-MSB	91.08809	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02191-MSB	91.08809	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02191-MSB	91.08809	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02191-MSB	91.08809	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02191-MSB	91.08809	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02191-MSB	91.08809	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08809

none

REPORT NUM. . 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08810

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02192-MSB	91.08810	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02192-MSB	91.08810	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02192-MSB	91.08810	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02192-MSB	91.08810	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02192-MSB	91.08810	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02192-MSB	91.08810	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02192-MSB	91.08810	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02192-MSB	91.08810	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02192-MSB	91.08810	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02192-MSB	91.08810	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02192-MSB	91.08810	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02192-MSB	91.08810	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02192-MSB	91.08810	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08810

none

REPORT NUMBER: 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08811

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02193-MSB	91.08811	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02193-MSB	91.08811	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02193-MSB	91.08811	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02193-MSB	91.08811	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02193-MSB	91.08811	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02193-MSB	91.08811	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02193-MSB	91.08811	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02193-MSB	91.08811	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02193-MSB	91.08811	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02193-MSB	91.08811	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02193-MSB	91.08811	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02193-MSB	91.08811	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02193-MSB	91.08811	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08811

none

REPORT NUMBER: 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08812

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02194-MSB	91.08812	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02194-MSB	91.08812	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02194-MSB	91.08812	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02194-MSB	91.08812	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02194-MSB	91.08812	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02194-MSB	91.08812	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02194-MSB	91.08812	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02194-MSB	91.08812	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02194-MSB	91.08812	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02194-MSB	91.08812	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02194-MSB	91.08812	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02194-MSB	91.08812	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02194-MSB	91.08812	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08812

none

REPORT NUMBER: 11550

********** EM-9 ANALYTICAL REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

Customer Sample Results, Sample # 91.08815

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91-02197-MSB	91.08815	71432	< 8.		UG/TUBE	9/09/91		Benzene
91-02197-MSB	91.08815	108861	< 8.		UG/TUBE	9/09/91		Bromobenzene
91-02197-MSB	91.08815	56235	< 8.		UG/TUBE	9/09/91		Carbon tetrachloride
91-02197-MSB	91.08815	108907	< 8.		UG/TUBE	9/09/91		Chlorobenzene
91-02197-MSB	91.08815	67663	< 8.		UG/TUBE	9/09/91		Chloroform
91-02197-MSB	91.08815	100414	< 8.		UG/TUBE	9/09/91		Ethylbenzene
91-02197-MSB	91.08815	127184	< 8.		UG/TUBE	9/09/91		Tetrachloroethylene
91-02197-MSB	91.08815	108883	< 8.		UG/TUBE	9/09/91		Toluene
91-02197-MSB	91.08815	71556	< 8.		UG/TUBE	9/09/91		1,1,1-Trichloroethane
91-02197-MSB	91.08815	79016	< 8.		UG/TUBE	9/09/91		Trichloroethene
91-02197-MSB	91.08815	95636	< 8.		UG/TUBE	9/09/91		1,2,4-Trimethylbenzene
91-02197-MSB	91.08815	95476	< 8.		UG/TUBE	9/09/91		o-Xylene
91-02197-MSB	91.08815	1330207	< 8.		UG/TUBE	9/09/91		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.08815

none

REPORT NUMBER: 11550 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: LARRY R. FIELD on 11-Sep-1991

EM-9 POREGAS

REQUEST NUMBER: 11954 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: WH54

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

✓ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUN
00.22851	91.09302	71432	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Benzene
00.22851	91.09302	108861	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Bromobenzene
00.22851	91.09302	56235	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Carbon tetrachloride
00.22851	91.09302	108907	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Chlorobenzene
00.22851	91.09302	67663	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Chloroform
00.22851	91.09302	100414	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Ethylbenzene
00.22851	91.09302	127184	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Tetrachloroethylene
00.22851	91.09302	108883	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Toluene
00.22851	91.09302	71556	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	1,1,1-Trichloroethane
00.22851	91.09302	79016	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Trichloroethene
00.22851	91.09302	95636	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.22851	91.09302	95476	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	o-Xylene
00.22851	91.09302	1330207	< 8.		UG/TUBE	0.0		9/11/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.08816

Date Collected: 8/29/91 Date Received: 8/30/91 Date Extracted: 9/05/91 Date Analyzed: 9/05/91

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	IND-NAME

91.08816	71432	100.	30.	UG/TUBE	72.	7.	9/09/91	UNDER CONTROL	Benzene
91.08816	108861	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	Bromobenzene
91.08816	56235	130.	39.	UG/TUBE	86.	9.	9/09/91	UNDER CONTROL	Carbon tetrachloride
91.08816	108907	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	Chlorobenzene
91.08816	67663	130.	39.	UG/TUBE	76.	8.	9/09/91	UNDER CONTROL	Chloroform
91.08816	100414	140.	42.	UG/TUBE	96.	10.	9/09/91	UNDER CONTROL	Ethylbenzene
91.08816	127184	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	Tetrachloroethylene
91.08816	108883	130.	39.	UG/TUBE	100.	10.	9/09/91	UNDER CONTROL	Toluene
91.08816	71556	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	1,1,1-Trichloroethane
91.08816	79016	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	Trichloroethene
91.08816	95636	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	1,2,4-Trimethylbenzene
91.08816	95476	< 8.		UG/TUBE	0.0		9/09/91	UNDER CONTROL	o-Xylene
91.08816	1330207	170.	51.	UG/TUBE	120.	12.	9/09/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Surrogate results for EM-9 POREGAS

Bromobenzene (CAS # = 108861); EPA Range Limits: None established

SAMPLE NUMBER	RESULT	UNITS	COMPLETION DATE	COMMENT
91.08808	0.0	NOSURR	9/09/91	
91.08809	0.0	NOSURR	9/09/91	
91.08810	0.0	NOSURR	9/09/91	
91.08811	93.3333	%	9/09/91	
91.08812	0.0	NOSURR	9/09/91	
91.08813	0.0	NOSURR	9/09/91	
91.08814	0.0	NOSURR	9/09/91	
91.08815	0.0	NOSURR	9/09/91	
91.08816	91.3333	%	9/09/91	
91.09302	120.6667	%	9/11/91	

REPORT NUMBER: 11550

Analyst	Reviewer	Section Leader	QA Officer
9/11/91	9/11/91	9/12/91	9/11/91
Date	Date	Date	Date

The control s of the preceeding data was evaluated using the standard statisti iteria set forth in

ality Assurance for Health and Environmental Chemistry: 1986,' LA-11. ,-MS, pp. 3-4.

****

PORE GAS ANALYSIS

Cover Letter

January 13, 1992

To: Mike S. Burkheimer, HSE-8, MS K-490

From: Larry R. Field, HSE-9, MS K-484

Thru: Chris Leibman, HSE-9 Organic Sect. Ldr., MS K-484

This is the cover letter for the 9 samples of Request Sheet Number 12336. Bromofluorobenzene was used as the surrogate in this work. Average Recovery data for the Bromofluorobenzene surrogates used in this sample batch are listed below in Table I:

TABLE I

Request Sheet No.	Average Percent Recovery
12336	7% (Note! Both surrogate containing samples were inadvertently injected onto the back half of the sample tubes and were not recovered.

One Blind QC sample was analyzed with this batch of 8 samples. The QC results are summarized below in Table II:

TABLE II

Request Sheet No.	Sample No.	Comments
12336	91.14184	"All Under Control".

In summary all of the data reported here have been examined and are found to high quality. Further, no additional organic compounds were observed at or above detection limit of 8 ug/tube.

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14176

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03576-MSB	91.14176	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03576-MSB	91.14176	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03576-MSB	91.14176	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03576-MSB	91.14176	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03576-MSB	91.14176	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03576-MSB	91.14176	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03576-MSB	91.14176	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03576-MSB	91.14176	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03576-MSB	91.14176	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03576-MSB	91.14176	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03576-MSB	91.14176	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03576-MSB	91.14176	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03576-MSB	91.14176	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14176

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14177

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03577-MSB	91.14177	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03577-MSB	91.14177	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03577-MSB	91.14177	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03577-MSB	91.14177	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03577-MSB	91.14177	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03577-MSB	91.14177	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03577-MSB	91.14177	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03577-MSB	91.14177	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03577-MSB	91.14177	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03577-MSB	91.14177	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03577-MSB	91.14177	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03577-MSB	91.14177	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03577-MSB	91.14177	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14177

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: NSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14178

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03578-MSB	91.14178	71432	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Benzene
91.03578-MSB	91.14178	108861	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Bromobenzene
91.03578-MSB	91.14178	56235	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Carbon tetrachloride
91.03578-MSB	91.14178	108907	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Chlorobenzene
91.03578-MSB	91.14178	67663	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Chloroform
91.03578-MSB	91.14178	100414	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Ethylbenzene
91.03578-MSB	91.14178	127184	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Tetrachloroethylene
91.03578-MSB	91.14178	108883	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Toluene
91.03578-MSB	91.14178	71556	< 8.		UG/TUBE	1/13/92	SURR ON BACK	1,1,1-Trichloroethane
91.03578-MSB	91.14178	79016	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Trichloroethene
91.03578-MSB	91.14178	95636	< 8.		UG/TUBE	1/13/92	SURR ON BACK	1,2,4-Trimethylbenzene
91.03578-MSB	91.14178	95476	< 8.		UG/TUBE	1/13/92	SURR ON BACK	o-Xylene
91.03578-MSB	91.14178	1330207	< 8.		UG/TUBE	1/13/92	SURR ON BACK	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14178

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14179

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03579-MSB	91.14179	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03579-MSB	91.14179	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03579-MSB	91.14179	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03579-MSB	91.14179	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03579-MSB	91.14179	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03579-MSB	91.14179	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03579-MSB	91.14179	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03579-MSB	91.14179	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03579-MSB	91.14179	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03579-MSB	91.14179	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03579-MSB	91.14179	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03579-MSB	91.14179	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03579-MSB	91.14179	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14179

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14180

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03580-MSB	91.14180	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03580-MSB	91.14180	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03580-MSB	91.14180	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03580-MSB	91.14180	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03580-MSB	91.14180	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03580-MSB	91.14180	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03580-MSB	91.14180	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03580-MSB	91.14180	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03580-MSB	91.14180	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03580-MSB	91.14180	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03580-MSB	91.14180	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03580-MSB	91.14180	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03580-MSB	91.14180	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14180

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14181

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03581-MSB	91.14181	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03581-MSB	91.14181	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03581-MSB	91.14181	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03581-MSB	91.14181	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03581-MSB	91.14181	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03581-MSB	91.14181	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03581-MSB	91.14181	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03581-MSB	91.14181	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03581-MSB	91.14181	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03581-MSB	91.14181	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03581-MSB	91.14181	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03581-MSB	91.14181	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03581-MSB	91.14181	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14181

none

REPORT NUMBER: 12718

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-B MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

Customer Sample Results, Sample # 91.14182

Date Collected: 12/16/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
91.03582-MSB	91.14182	71432	< 8.		UG/TUBE	1/13/92		Benzene
91.03582-MSB	91.14182	108861	< 8.		UG/TUBE	1/13/92		Bromobenzene
91.03582-MSB	91.14182	56235	< 8.		UG/TUBE	1/13/92		Carbon tetrachloride
91.03582-MSB	91.14182	108907	< 8.		UG/TUBE	1/13/92		Chlorobenzene
91.03582-MSB	91.14182	67663	< 8.		UG/TUBE	1/13/92		Chloroform
91.03582-MSB	91.14182	100414	< 8.		UG/TUBE	1/13/92		Ethylbenzene
91.03582-MSB	91.14182	127184	< 8.		UG/TUBE	1/13/92		Tetrachloroethylene
91.03582-MSB	91.14182	108883	< 8.		UG/TUBE	1/13/92		Toluene
91.03582-MSB	91.14182	71556	< 8.		UG/TUBE	1/13/92		1,1,1-Trichloroethane
91.03582-MSB	91.14182	79016	< 8.		UG/TUBE	1/13/92		Trichloroethene
91.03582-MSB	91.14182	95636	< 8.		UG/TUBE	1/13/92		1,2,4-Trimethylbenzene
91.03582-MSB	91.14182	95476	< 8.		UG/TUBE	1/13/92		o-Xylene
91.03582-MSB	91.14182	1330207	< 8.		UG/TUBE	1/13/92		Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.14182

REPORT NUMBER: 12718 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: EAJ-AMENDED on 23-Jan-1992

EM-9 POREGAS

REQUEST NUMBER: 12336 MATRIX: TC ANALYST: Larry Field PROGRAM CODE: W216 NOTEBOOK: Y04166 PAGE: 32-

OWNER: Mike S. Burkheimer GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0813 TECHNIQUE: PTGC ANALYTICAL PROCEDURE: PORE GAS

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results

none

Blank Spike Results

none

Blank Spike Duplicate Results

none

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 91.14184

Date Collected: 12/10/91 Date Received: 12/16/91 Date Extracted: 1/09/92 Date Analyzed: 1/10/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.14184	71432	76.	22.8	UG/TUBE	116.	12.	1/13/92	UNDER CONTROL	Benzene
91.14184	108861	64.	19.2	UG/TUBE	91.	9.	1/13/92	UNDER CONTROL	Bromobenzene
91.14184	56235	86.	25.8	UG/TUBE	110.	11.	1/13/92	UNDER CONTROL	Carbon tetrachloride
91.14184	108907	64.	19.2	UG/TUBE	97.	10.	1/13/92	UNDER CONTROL	Chlorobenzene
91.14184	67663	75.	22.5	UG/TUBE	90.	9.	1/13/92	UNDER CONTROL	Chloroform
91.14184	100414	81.	24.3	UG/TUBE	112.	11.	1/13/92	UNDER CONTROL	Ethylbenzene
91.14184	127184	76.	22.8	UG/TUBE	99.	10.	1/13/92	UNDER CONTROL	Tetrachloroethylene
91.14184	108883	67.	20.1	UG/TUBE	94.	9.	1/13/92	UNDER CONTROL	Toluene
91.14184	71556	86.	25.8	UG/TUBE	108.	11.	1/13/92	UNDER CONTROL	1,1,1-Trichloroethane
91.14184	79016	78.	23.4	UG/TUBE	100.	10.	1/13/92	UNDER CONTROL	Trichloroethene
91.14184	95636	< 8.		UG/TUBE	0.0		1/13/92	UNDER CONTROL	1,2,4-Trimethylbenzene
91.14184	95476	< 8.		UG/TUBE	0.0		1/13/92	UNDER CONTROL	o-Xylene
91.14184	13[illegible]	70.	21.	UG/TUBE	97.	[illegible]	1/13/92	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Surrogate results for EM-9 POREGAS

Bromobenzene (CAS # = 108861); EPA Range Limits: None established

SAMPLE NUMBER	RESULT	UNITS	COMPLETION DATE	COMMENT
91.14176	0.0	NOSURR	1/13/92	
91.14177	0.0	NOSURR	1/13/92	
91.14178	0.0	%	[illegible]	SURR ON BACK
91.14179	0.0	NOSURR	[illegible]	
91.14180	0.0	NOSURR	1/13/92	
91.14181	0.0	NOSURR	1/13/92	
91.14182	0.0	NOSURR	1/13/92	
91.14183	0.0	NOSURR	1/13/92	
91.14184	6.6667	%	1/13/92	SURR ON BACK

REPORT NUMBER: 12718

Analyst	Reviewer	Section Leader	QA Officer
1/27/92	1/27/92	1/27/92	1/30/92
Date	Date	Date	Date

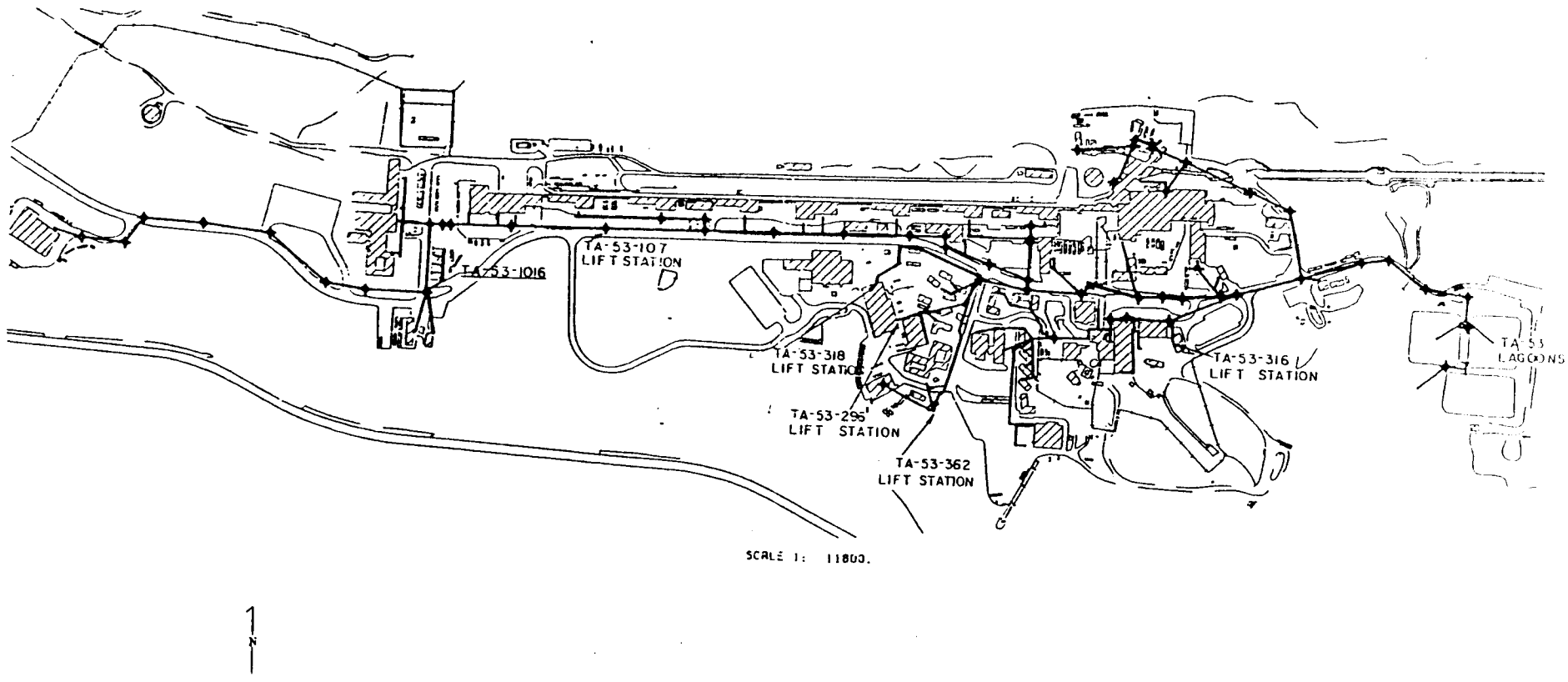
NK for MAG

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

APPENDIX XVII

TA-53 WASTEWATER COLLECTION SYSTEM



AUTOCIS

3/12/91 11:

APPENDIX XVIII

Tell in your own words the accident happens

Was driving north on Ta 53 highway 2 mi. going downhill There was Two Vehicles parked in The middle of The Highway Slowed down & put Truck on low - noticed it would [illegible] So I Started honking So other driver would move Truck did not Stop So I hit him from behind

WAS VEHICLE EQUIPPED WITH SEAT BELTS? ☒ YES ☐ NO If "Yes," were they in use at time of accident? ☒ YES ☐ NO

● Have you answered ALL the questions as completely as possible?

In compliance with the Privacy Act of 1974, the following information is provided: Solicitation of the information requested on this form is authorized by Title 40 U.S.C. Section 491. Disclosure of the information by a Federal employee is mandatory as it is the first step in the Government's investigation of a motor vehicle accident. The principal purposes for which the information is intended to be used are to provide necessary data for use by legal counsel in legal actions resulting from the accident and to provide accident information/statistics for use in analyzing accident causes and developing methods of reducing accidents. Routine use of the information may be by Federal, State or local governments, or agencies, when relevant to civil, criminal, or regulatory investigations or prosecutions. An employee of a Federal agency who fails to report accurately a motor vehicle accident involving a Federal vehicle or who refuses to cooperate in the investigation of an accident may be subject to administrative sanctions.

OPERATOR SIGN HERE ▶ Rosalio Martinez

DATE SIGNED 2/25/91

OPERATOR'S REPORT OF MOTOR VEHICLE ACCIDENT

This form is to be completed by the Government operator at the time and the scene of the accident if possible. See the Privacy Act Statement on page 4.

DEPARTMENT OR AGENCY: Tyson Foods Inc

NAME AND LOCATION OF ORGANIZATION TO WHICH RE ASSIGNED: Tulsa

1. OPERATOR DATA

Print clearly — LAST NAME: Martinez — FIRST NAME: Rosalio — MIDDLE INITIAL: J — AGE: 21

RANK, RATING OR TITLE: Teamster

SERVICE NUMBER OR SOCIAL SECURITY NO.: 525-34-1592

GOVT. MOTOR VEHICLE OPERATOR PERMIT NO.:

HOME ADDRESS (Number, street, city, State, ZIP code): Rt 1 Box 12 [illegible]

HOME TELEPHONE NO.: 251-4431

2. ACCIDENT TIME AND LOCATION

ACCIDENT OCCURRED ▶ DATE: 2/22/91 — DAY OF WEEK: Friday — TIME: 3:20 a.m. p.m.

NUMBER OF HOURS ON DUTY PRIOR TO ACCIDENT: 7 1/2

PLACE OF ACCIDENT (If in city, give number, street, city and State, if outside city limits, indicate mileage to nearest city, or other landmark.): TA 53 Mason Bu Entrance To [illegible]

ORIGIN OF TRIP: Empty Sludge

DESTINATION: Sm 223

PURPOSE OF TRIP: Empty Sludge

3. FEDERAL VEHICLE (Including privately owned Federally operated)

MAKE: Chevrolet — TYPE: GMC — REGISTRATION NUMBER OR OTHER IDENTIFICATION: G82796

PARTS OF VEHICLE DAMAGED (Describe): Front Bumper

OPERATOR'S ESTIMATED AMOUNT OF DAMAGE: $ 50.00

IF THIS WAS A BACKING ACCIDENT, WAS A GUIDE AVAILABLE? ☐ YES ☒ NO If "Yes," was guide used? ☐ YES ☐ NO

4. OTHER VEHICLE INVOLVED (If more than one, show in item 12, page 3)

MAKE: — TYPE: — YEAR:

OPERATOR'S STATE PERMIT NUMBER:

VEHICLE LICENSE NUMBER AND STATE: G42 50120

OPERATED BY — NAME: Robert Estrada

HOME ADDRESS (Number, street, city, State, ZIP code):

OWNED BY — NAME: Gov. Vehicle

ADDRESS (Number, street, city, State, ZIP code):

PARTS OF VEHICLE DAMAGED (Describe): Rear Bumper

OPERATOR'S ESTIMATED AMOUNT OF DAMAGE: $

OTHER PROPERTY DAMAGED (Explain. If more space is needed, continue in item 12, page [illegible]

6. PERSONS INJURED

one

7. OCCUPANTS IN YOUR VEHICLE

Sam Barela

OCCUPANTS IN OTHER VEHICLE(S)

Robert Estrada

9. WITNESSES AND POLICE

Richard Salazar

POLICE OFFICER	BADGE NUMBER	PRECINCT OR HEADQUARTERS
none		

10. ACCIDENT CONDITION

INDICATE:	FEDERAL VEHICLE (Includes privately owned Federally operated)	OTHER VEHICLE (2)
DIRECTION OF TRAVEL	north	north
SIDE OF STREET OR HIGHWAY	right side	right side
APPROXIMATE SPEED	10 mph MILES PER HOUR	Stopped MILES PER HOUR

CONDITION OF ROADWAY (Wet or dry, icy, etc.)	WEATHER (Clear, foggy, rain, snow, etc.)	TYPE OF ROADWAY (concrete, macadam, etc.)
dry	Clear	Dirt

OTHER INFORMATION (Explain stop signs, traffic signals, obstructions, etc.)

11. EVENTS AFTER ACCIDENT

none

CONDITION OF OTHER DRIVER

OK

If other driver or persons injured made statements as to cause of accident and extent of personal or property damage, relate conversation, also, give names and addresses of others hearing such statements.

none

12. OTHER VEHICLE OR PROPERTY INVOLVED CONTINUATION—If more than one vehicle involved

MAKE	TYPE	YEAR

OPERATOR'S STATE PERMIT NUMBER	VEHICLE LICENSE NUMBER AND STATE

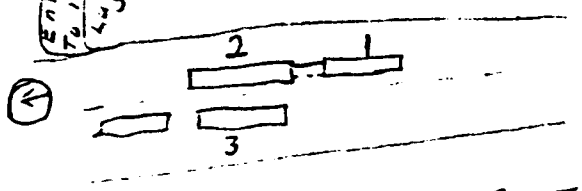
OPERATED BY	NAME: none
	HOME ADDRESS (Number, street, city, State, ZIP code)
OWNED BY	NAME
	ADDRESS (Number, street, city, State, ZIP code)

PARTS OF VEHICLE DAMAGED (Describe)	OPERATOR'S ESTIMATED AMOUNT OF DAMAGE
	$

OTHER PROPERTY DAMAGED (Explain)

13. DIAGRAM WHAT HAPPENED BY USING THESE SYMBOLS, BELOW

1. Number Federal vehicle as 1—other vehicle as 2—additional vehicle as 3, and show direction of travel by arrow (Example → 1 ← 2)
2. Use solid line to show path before accident ——— 2
   Broken line after accident - - - - - 2
3. Show pedestrian by ——→ ○
4. Show railroad by +++++++++++
5. Give names or numbers of streets or highways
6. Indicate north by arrow as this circle ○



TA-53 –
LA Mesita Rd
Near Manuel Lujan Bldg
Intersection

14. OPERATO ATEMENT OF ACCIDENT AND USE OF SAFETY EQUIPMENT

Tell in your own way how the accident happened: I was traveling back to Meson IW shop + had just passed through a heavy const. area, which has a rather sharp transition to the old road alignment. I slowed down to about 10 M.P.H. The utility sludge truck was behind me + was unable to stop + hit my rear bumper. I was not stopped in the road.

RECEIVED 11-1-91

WAS VEHICLE EQUIPPED WITH SEAT BELTS? ☑ YES ☐ NO If "Yes," were they in use at time of accident? ☐ YES ☐ NO

● Have you answered ALL the questions as completely as possible?

In compliance with the Privacy Act of 1974, the following information is provided: Solicitation of the information requested on this form is authorized by Title 40 U.S.C. Section 491. Disclosure of the information by a Federal employee is mandatory as it is the first step in the Government's investigation of a motor vehicle accident. The principal purposes for which the information is intended to be used are to provide necessary data for use by legal counsel in legal actions resulting from the accident and to provide accident information/statistics for use in analyzing accident causes and developing methods of reducing accidents. [illegible] use of the information may be by Federal, State or local governments, or agenci[illegible] when relevant [illegible] criminal, or regulatory investigations or prosecutions. An employee of a Fed[illegible] agency who f[illegible]port accurately a motor vehicle accident involving a Federal vehicle or who ref[illegible] to cooperate in [illegible]vestigation of an accident may be subject to administrative sanctions.

OPERATOR [illegible] DATE SIGNED

OPERATOR'S REPORT OF MOTOR VEHICLE ACCIDENT

This form is to be completed by the Government operator at the time and the scene of the accident if possible. See the Privacy Act Statement on page 4.

DEPARTMENT OR AGENCY: JOHNSON CONTROLS

NAME AND LOCATION OF ORGANIZATION TO WHICH YOU ARE ASSIGNED: CAZD MESON

1. OPERATOR DATA

Print clearly — LAST NAME: ESTRADA — FIRST NAME: ROBERT — MIDDLE INITIAL: — AGE: 2[illegible]

RANK, RATING OR TITLE: IW APPRENT. — SERVICE NUMBER OR SOCIAL SECURITY NO.: 525-06-7742 — GOVT. MOTOR VEHICLE OPERATOR PERMIT NO: 39575[illegible]

HOME ADDRESS (Number, street, city, State, ZIP code): Rt 5 Box 210X Sp. 134 Santa Fe 87501 — HOME TELEPHONE NO: 455-2408

2. ACCIDENT TIME AND LOCATION

ACCIDENT OCCURRED — DATE: 02/22/91 — DAY OF WEEK: Friday — TIME: 3:40 a.m. p.m. — NUMBER OF HOURS ON DUTY PRIOR TO ACCIDENT: 7.5

PLACE OF ACCIDENT (If in city, give number, street, city and State, if outside city limits, indicate mileage to nearest city, or other landmark.): Meson, by Manual Lujan Bldg

ORIGIN OF TRIP: Meson IW Shop — DESTINATION: Meson IW Shop

PURPOSE OF TRIP: PROJECT WORK

3. FEDERAL VEHICLE (Including privately owned Federally operated)

MAKE: ~~GMC~~ DODGE RAM G 42-50120 — TYPE: PICKUP — REGISTRATION NUMBER OR OTHER IDENTIFICATION: G 42-50120

PARTS OF VEHICLE DAMAGED (Describe): REAR BUMPER — OPERATOR'S ESTIMATED AMOUNT OF DAMAGE: $ 50.00

IF THIS WAS A BACKING ACCIDENT, WAS A GUIDE AVAILABLE? ☐ YES ☑ NO — If "Yes," was guide used? ☐ YES ☐ NO

4. OTHER VEHICLE INVOLVED (If more than one, show in item 12, page 3)

MAKE: Chev. — TYPE: GMC — YEAR:

OPERATOR'S STATE PERMIT NUMBER: — VEHICLE LICENSE NUMBER AND STATE: G82746

OPERATED BY — NAME: Rosalie Martinez — HOME ADDRESS (Number, street, city, State, ZIP code): Rt. 1

OWNED BY — NAME: Johnson Controls — ADDRESS (Number, street, city, State, ZIP code):

PARTS OF VEHICLE DAMAGED (Describe): FRONT BUMPER — OPERATOR'S ESTIMATED AMOUNT OF DAMAGE: 50.00

5. OTHER PROPERTY DAMAGED (Explain. If more space is needed, continue in item [illegible])

NAMES	HOME ADDRESSES
Robert Estrada	
Richard Salazar	
Sam Barela	

POLICE OFFICER	BADGE NUMBER	PRECINCT OR HEADQUARTERS
N/A		

INDICATE:	FEDERAL VEHICLE (Includes privately owned Federally operated)	OTHER VEHICLE (2)
DIRECTION OF TRAVEL	North	
SIDE OF STREET OR HIGHWAY	right side	
APPROXIMATE SPEED	10 MPH MILES PER HOUR	10 MPH MILES PER HOUR

CONDITION OF ROADWAY (Wet or dry, icy, etc.)	WEATHER (Clear, foggy, rain, snow, etc.)	TYPE OF ROADWAY (concrete, macadam, etc.)
dry	clear	paved

OTHER INFORMATION (Explain stop signs, traffic signals, obstructions, etc.)

11. EVENTS AFTER ACCIDENT

STATE WHO GAVE MEDICAL AID, IF ANY WAS GIVEN: JI

WHERE WAS INJURED TAKEN: H-2

CONDITION OF OTHER DRIVER: OK

If other driver or persons injured made statements as to cause of accident and extent of personal or property damage, relate conversation, also, give names and addresses of others hearing such statements.

Robert felt no ill effects until 2/25/91, at which time he experienced some muscle spasms + was sent home by H-2.

12. OTHER VEHICLE OR PROPERTY INVOLVED CONTINUATION—If more than one vehicle involved

MAKE	TYPE	YEAR

OPERATOR'S STATE PERMIT NUMBER	VEHICLE LICENSE NUMBER AND STATE

OPERATED BY — NAME:

HOME ADDRESS (Number, street, city, State, ZIP code)

OWNED BY — NAME:

ADDRESS (Number, street, city, State, ZIP code)

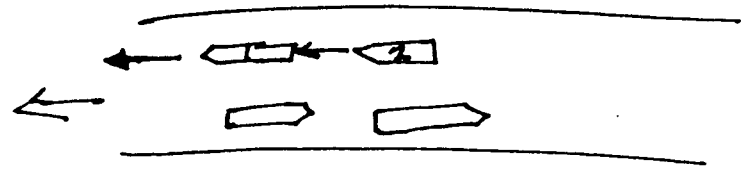
PARTS OF VEHICLE DAMAGED (Describe)

OPERATOR'S ESTIMATED AMOUNT OF DAMAGE: $

OTHER PROPERTY DAMAGED (Explain)

13. DIAGRAM WHAT HAPPENED BY USING THESE SYMBOLS, BELOW

1. Number Federal vehicle as 1—other vehicle as 2—additional vehicle as 3, and show direction of travel by arrow (Example ⟶ 1 ⟵ 2)
2. Use solid line to show path before accident ———
   Broken line after accident - - - - -
3. Show pedestrian by ⟶ ○
4. Show railroad by +++++++++
5. Give names or numbers of streets or highways
6. Indicate north by arrow or the circle ○



APPENDIX XIX

File
xc Larkin
Dorak
Howe
R. Hokes MP-DO
D Cochran MP-HSO
12/2/87

LIQUID SCINTILLATION COUNTER

LYSIS FOR TRITIUM 11/25/87

ATE COUNTED

ANALYST R. Rodriguez

SAMPLE DATE	LOG NUMBER	Z NUMBER	GROUP	NAME	CTS/10/418	uCi/liter
STD				STANDARD	14.61	34.1
B1				BLANK	0	
11/23/87	87 09347		TA 53	MDF-3	0	<0.05
	87 09348			South Lagoon	0.70	1.6
	87 09349			West Lagoon	2.79	6.5
	87 09350			East Lagoon	1.02	2.4
	87 01351			XU-2	58.99	136.5

TABLE I

Sample ID	Sample Date	Sample Time	Date Counted	Time Counted	Isotope(s)	Concentration (μCi/l)
X02	11/23/87	0830	11/25/87	1219	Co-58	2.1E+01
					Co-57	1.2E+01
					Co-56	5.6E+00
					Be-7	6.6E+02
					Na-22	1.1E-01
					Na-24	1.9E+00
					Mn-52	9.8E+00
					Mn-54	4.9E+00
					Zn-65	4.1E-01

*No detectable activity

cy: J. Larkin, HSE-11, MS/H815
R. Dvorak, HSE-11, MS/H815
HSE-1 HPAL File

PHSE

Non-Reportable Category Accident/Incident Report

DATE: 12-1-87 TIME: 12:30 p.m.

LOCATION: TA-53 BLDG manhole ROOM outside

OTHER: Overflow of mh 161 on north side of LaMesita road to wastewater plant.

REPORTED BY: Glenn Bryant, UWGW

REPORTED BY:

REPORTED - TIME: 11:00 a.m. DATE: 11-30-87 by operator

DESCRIPTION OF ACCIDENT/INCIDENT: Line plugged and backed sanitary sewer which caused manhole to over flow. Wastewater was radiation contaminated.

PERSONNEL INVOLVED: Marke Talley-PENV, Dick Danforth-PSFT, Dick Richards-UWGW Jim Larkin-HSE-11

CAUSE: Apparently, debris settled in line over Thanksgiving weekend-4 days.

CORRECTIVE ACTION: On 12-2-87 a trench was dig around the contaminated soil to prevent runoff. After the soil dried to ease in removal, the soil was excavated on 12-7-87. New fill was added and the area was leveled.

LANL PERSONNEL NOTIFIED: Jim Larkin and Tony Drypoulcher via Jim Larkin.

FOLLOW-UP: None-all contaminated soil removed ≅ 20'X 40'X 6"

INVESTIGATED BY: Marke Talley and Charlie Barnett DATE: 12-8-87

Mark Talley

ATTACHMENT 1

Personnel Involved:

Andy Gonzales - Pan Am Utilities

Glenn Bryant - Pan Am Utilities

Charlie Barnett - Pan Am Environment

Marke Talley - Pan Am Environment

Richard Danforth - Pan Am Safety

James Walton - HSE-11

Wilfred Griego - HSE-11

ATTACHMENT 2

Description of Occurrence:

On Monday, November 30, 1987, the first day after the Thanksgiving holiday, Andy Gonzales, Pan Am Utilities, was making a routine inspection trip to the LAMPF lagoons when he noticed that the manhole just east of the gate was overflowing onto the road. He notified his supervisor at approximately 1100 hrs and Pan Am made internal arrangements with fitters and operators to clear the sewer. HSE-11 was notified at 1300 hrs that work would be done in one of the sewer manholes. W. Griego went to cover the job and was joined shortly thereafter by J. Walton. The manhole where the snake would enter the sewer was a few feet east of the AMO storage building. Background reading inside the manhole was 30.0 mR/h, with maximum reading 50.0 mR/h at sewer pipe opening. Personnel handling the snake wore coveralls and gloves (either work gloves or rubber gloves). One of the Fitters alerted Walton to the fact that a manhole up the road toward the gate had overflowed across the road. Investigation showed the water to be radioactive. The stream crossing the road was reading 0.1 to 0.2 mR/h and was collecting on the south side of the road in a puddle approximately 10 x 60 feet. The puddle was part of a marsh/swamp area of melting snow; however, it appeared to remain the same size due to the slow flow. The sewer was cleared at approximately 1400 hrs and the overflow stopped. The snake was removed in 12 foot sections and wrapped in plastic. Contamination level on the bundle was 1.0 mR/h. All personnel checked clean. The following morning, December 1, 1987, a survey of the area was made at 1000 hrs. The ground where the water had soaked in was contaminated up to 4.0 mR/h. The road had no removable contamination; however, the top of the flowing manhole and one other had mud residue reading 0.2 to 0.3 mR/h. The ground area was roped off (10'x60') pending removal of the topsoil. Maximum reading on the dirt was 4.0 mR/h. The lagoon gate was locked pending decon operations.

Decon on the road and manholes commenced at approximately 1330 hrs. The road and manholes were swept and washed with fresh water, and the lagoon gate was then unlocked. The site was visited by R. Danforth, Pan Am Safety, and Charlie Barnett and Marke Talley, Pan Am Environment. The ground area was left roped off and a trench was dug around the roped off area to contain the soil. On December 4, 1987, a sheet of plastic was placed on the ground area to stabilize the moisture content of the soil.

On Monday, December 7, 1987, excavation of the topsoil was done in a precise and clean manner, mostly due to the effort of Charlie Barnett as coordinator. Laborers, a front-loader, a tandem dump truck and a water truck commenced removing topsoil and cleaning the area. Approximately 20 m^3 soil was removed and transported to the pit at TA-54. After the soil was removed, the front-loader operator, Doug Barnes, moved in new soil and leveled the area. The operation was complete at 1430 hrs, and the area looked better than it did before the spill.

ATTACHMENT 3

HSE-11 is having signs made that state that sewers and manholes east of MPF-3, Sector M are contaminated with radioactive material and that HSE-11 must be contacted prior to beginning work on any part of the LAMPF/TA-53 sewer system east of Sector M. These permanent metal signs will be posted at each manhole location.

This is a case where no work orders were written since a Pan Am utilities person noted the overflowing manhole and simply reported the matter to the Pan Am Fitters directly. There was no work order written by LANL Engineering 5 personnel - in fact they knew nothing of the sewer problem until notified of such by HSE-11. The fact of the matter is that, although backhandly, the health physics surveillance system worked since the Fitters knew to report to Health Physics (HSE-11) prior to working on any system (sewer in this case). Pan Am Fitters are to be commended for taking precaution that they ordinarally wouldn't be expected to exercise in this case.

A. J. Miller

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

RADIATION OCCU ENCE REPORT

Report Number
LAMPF 87-12

OCCURRENCE INFORMATION

Location (Tech Area, Building, Room Number)	Time	Date
TA-53, Lagoon area	Unknown	11/26-29/87

Personnel Involved: List Name(s), Z Number(s), and Group(s) only in attachment.
(Attachment 1)

Describe the occurrence.
(Attachment 2)

Describe the material involved.
Radioactive sewer water - contaminated soil

Occurrence Reported By	Date
Andy Gonzales, Pan Am Utilities	11/30/87

CAUSE
(Specify criteria codes as indicated on reverse side of this form.)

☐ Equipment Failed _____ ☐ Equipment Inadequate _____ ☐ Procedures Inadequate _____

☐ Operator Error _____ ☐ Failure to Comply with Administrative Controls _____

☒ For Documentation Only (No criteria exceeded.)

☒ Other (Describe briefly) Area-A sewer line, containing radioactive water, clogged during four day holiday and overflowed across road onto open dirt lot. Cause: slow flow.

CLEANUP INFORMATION

Completion of Cleanup Operation (Time and Date)
1430 hrs, Dec. 7, 1987

Type of Respiratory Protective Equipment Used During Occurrence	Type of Respiratory Protective Equipment Used During Cleanup
n/a	n/a

DETAILED INCIDENT INFORMATION

Personnel Exposure ☒ N/A ☐ Positive	Attachment	Skin Contamination ☐ No ☐ Yes ☒ N/A	Attachment
Bioassay Results ☒ N/A ☐ Positive	Attachment	Injury ☐ No ☐ Yes ☒ N/A	Attachment
In Vivo Count ☐ <MDTA ☐ Positive ☒ N/A	Attachment	Wound Count ☐ <MDA ☐ Positive ☒ N/A	Attachment
Nose Swipe ☐ NDA ☐ Positive ☒ N/A	Attachment	Air Test ☒ N/A ☐ Positive	Attachment
Room or Area Sketch		Remarks	

SUPERVISOR'S REPORT

Corrective Actions to be Taken by Responsible Supervisor
(Attachment 3)

Health Physics Collaboration	Corrective Actions Completed
☒ Yes ☐ No	☒ Yes ☐ No

Name of Supervisor	Signature	Date
A. J. Miller	A J Miller	1/3/88
Name of Health Physics Representative	**Signature**	**Date**
James A. Walton	James A Walton	

HS Form Number 3-1B (6/84)

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: J. Aragon/W. Hansen, HSE-DO, MS K491 DATE: December 1, 1987

FROM: A. J. Miller, HSE-11 Group Leader MAIL STOP/TELEPHONE: H815/7-5890

SYMBOL: HSE-11, 87-211

SUBJECT: INCIDENT REPORT

1. WHAT HAPPENED: Radioactive contaminated water overflowed a manhole in sewer line leading to LAMPF lagoons. Overflow crossed road leading to lagoons and pooled in parking area south of road. NO OVERFLOW ESCAPED OVER CANYON EDGE.

2. WHERE: TA-53, approximately 300 feet west of TA-53 lagoons.

3. WHEN: Late over Thanksgiving holiday period, i.e., November 28 or 29, 1987. Reported to Pan Am Fitters by Pan Am Utilities sometime between 1100 and 1300 hours on November 30.

4. WHO: Believe this to be a Pan Am Utilities responsibility since sewer utilities are handled by Pan Am.

5. PROBABLE CAUSE: Sewer line stopped up somewhere between manhole where contaminated water overflowed and lagoons - a distance of approximately 300 feet.

6. WHAT NEEDS TO BE DONE AND BY WHOM: Soil where overflow water pooled needs to be cleaned up. Soil will be removed via loader and dump truck to TA-54 area. Believe, since this is a Pan Am responsibility, Pan Am will be responsible for work with HSE-11 radiological surveillance support.

Cy: HSE-11 Incident File
Tony Drypolcher, HSE-8, K490

APPENDIX XX

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Alice R. Barr, EM-8, MS K490

DATE: September 4, 1991

FROM: Paula D. Whitehead P. Whitehead

MAIL STOP/TELEPHONE: K489/5-5651

SYMBOL: HS-3-91-S-359

SUBJECT: **TA-53 LAGOONS INJURIES/ILLNESSES FOR CY 1986 THROUGH 1990 AND YTD 1991**

Attached is the report requested for all injuries and illnesses that occurred in the proximity of the TA-53 Lagoons. Incidents were found only in 1987 and 1989.

If I can be of further assistance, please contact me at 665-5651.

PW:seg

Att. a/s

Cy: James O. Jackson, HS-DO, w/o att., MS K491
Hillard H. Howard, HS-3, w/o att, MS K489
George D. Heindel, HS-3, w/o att., MS K489
HS-3/OS Reading File, w/o att., MS K489

TA-53 LAGOONS INJURIES/ILLNESSES FOR 1989

Page No. 1
09/04/91

DIVISION	GROUP	ACCIDENT DATE	LOCATION SITE	AREA	BUILDING	INJURY TYPE	CAUSE AGENT	BODY PART	DAYS LOST	DAYS RESTRICTED	RECORDABLE CASE
MEC-DIV	MEC-5	05/09/89	SHOP	TA-53	MPF-43	LACERATION	STRUCK AGAINST	FINGER	0	0	Y
HSE DIV	HSE-11	09/11/89	LABORATORY	TA-53	MPF-43	STRAIN	LIFTING	BACK	2	8	Y
									2	8	

TA-53 INJURIES/ILLNESSES FOR 1987

Page No. 1
09/03/91

DIVISION	GROUP	ACCIDENT DTE	LOCATION SITE	AREA	BUILDING	INJURY TYPE	CAUSE AGENT	BODY PART	DAYS LOST	DAYS RESTRICTED	RECORDABLE CASE
MP DIV	MP-7	07/22/87	LABORATORY	TA-53	MPF-43	BITE/STING	PHYSICAL AGENT	HAND	0	0	N
									0	0	