File LANL 91 RED

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

JUL 25 1991

Ms. Judith M. Espinosa, Secretary
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Dear Ms. Espinosa:

Pursuant to 40 CFR 270.73, enclosed is the Department of Energy's and the University of California's Part B application for three surface impoundments at Technical Area 53. The impoundments were identified as mixed waste storage units in the Part A application submitted to the New Mexico Environment Department on January 25, 1991. The application was prepared in accordance with the requirements of 40 CFR Part 270, Subpart B.

Please contact Steve Slaten of my staff at 665-5050 if you have any questions regarding this permit application.

Sincerely,

Jerry L. Bellows
Area Manager

Enclosure

cc w/enclosure:
A. Davis, EPA Region 6
J. Themelis, EPD, AL
K. Carlson, WMOSD, AL

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cc w/o enclosure:
A. Tiedman, ADO, LANL, MS-A120

4269

RCRA Part B Permit Application

Surface Impoundments
Technical Area 53

Los Alamos National Laboratory
' os Alamos, New Mexico 87545

Los Alamos National Laboratory
Environmental Protection Group EM-2
Los Alamos, New Mexico 87545

July 1991

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1.0 INTRODUCTION

This application is submitted to the New Mexico Environment Department (NMED) and the Environmental Protection Agency (EPA) to meet the requirements of the Resource Conservation and Recovery Act (RCRA) for a Part B Permit Application. This permit application addresses only storage of possible mixed waste in the surface impoundments located at Technical Area (TA) 53. These impoundments were identified as mixed waste storage units in the RCRA Part A Permit Application for mixed waste submitted to the NMED on January 25, 1991. Mixed waste contains both a hazardous waste, as defined by and regulated under RCRA, and radioactive waste. The mixed waste in the sludge deposited at the bottoms of the impoundments may include metals, organic compounds, and low-level radionuclides.

The format of the Part B application generally follows an outline provided in "A Guide for Preparing RCRA Permit Applications for Existing Storage Facilities", U.S. EPA, 1982. An outline of the permit application with citations of the regulations covered by each section is shown in Table 1-1. The New Mexico Hazardous Waste Management Regulations-6 (HWMR-6) has incorporated the 1990 Code of Federal Regulations (CFR), Title 40, Parts 260-270; thus, all regulatory citations in this application will be referenced to the 1990 40 CFR.

Los Alamos National Laboratory (LANL) was issued a Hazardous Waste Facility (HWF) Permit (Permit Number NM 0890010515-1) by the NMED on November 8, 1989, for hazardous waste management. The general permitting requirements applicable to hazardous waste management units are identical to those for mixed waste units; thus, this permit application references those sections of the operating permit in lieu of resubmitting the information. The general facility information contained in Section 2.0 of this application was extracted from Volume 1, Revision 4.1, RCRA Part B Permit Application, November 1988, for Los Alamos National Laboratory.

LANL is a multidisciplinary laboratory. The mission of LANL is the application of science and technology to solve national problems including weapons development, energy supply, and conservation programs, while basic scientific research complements and strengthens its fundamental technical capabilities. LANL is owned by the U.S. Department of Energy (DOE), and co-operated by DOE and the University of California.

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[1]From Code of Federal Regulations, Title 40, 1990.

TABLE 1-1

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2.0 FACILITY DESCRIPTION

2.1 GENERAL DESCRIPTION

LANL is located in Los Alamos County in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe (Figure 2-1). LANL, which occupies an area of 43 square miles, and the associated residential areas of Los Alamos and White Rock are situated on the Pajarito Plateau. The plateau consists of a series of finger-like mesas separated by deep east-west trending canyons; intermittent streams lie at the bottoms of all of the canyons. The mesa tops range in elevation from approximately 7,800 feet at the flank of the Jemez Mountains (located to the west of Los Alamos) to about 6,200 feet at their eastern extent where they terminate above the Rio Grande Valley.

LANL is divided into 51 TAs; 34 of these TAs are developed (Figure 2-2). RCRA-regulated waste can be generated in many of these areas; however, the only waste management units addressed in this permit application are the surface impoundments at TA-53.

2.1.1 TA-53 Surface Impoundments

The three surface impoundments located in TA-53 are collectively identified with LANL Structure No. TA-53-166; in this document, the three impoundments will be distinguished as TA-53-166 Northeast (NE), TA-53-166 Northwest (NW), and TA-53-166 South (S) (Figure 2-3). The largest impoundment, TA-53-166 S, was constructed in 1985. It is approximately 305 feet in length by 148 feet in width and is 6 feet deep. It is lined with Hypalon (36 mil thick) and has a liquid storage capacity of 2,580,000 gallons. The two north surface impoundments, constructed in 1969, are 210 feet in length by 210 feet in width and are 6 feet deep. Both have Gunite sides and bentonite clay bottoms. The north impoundments have liquid storage capacities of 1,629,144 gallons each. The three surface impoundments, which are all currently in operation, may contain mixed waste in the sludge deposited at the bottoms of the impoundments. The mixed waste may include metals, organic compounds, and low-level radionuclides. Sections 3.0 and 4.0 of this document describe waste characterization and waste management practices, respectively, for the TA-53 surface impoundments.

2.1.2 Topographic Maps

The TA-53 surface impoundments are shown in Figure 2-3. Contour lines on this figure are at intervals of ten feet, which are sufficient to detail natural drainage in the vicinity of the surface impoundments. The legal boundaries of LANL are presented in Figure 2-4. Figures 2-3 and 2-4 are topographic maps at scales of 1″ = 400′ and 1″ = 2,500′, respectively. As provided in 40 CFR 270.14(b)(19), LANL requests that the NMED accept the maps at these scales due to the size of the waste management units and the area of LANL.

2.1.3 Wells

The municipal and industrial water supply for LANL and the surrounding community is from 15 deep wells in three well fields and one gallery (industrial use). The wells are located on the Pajarito Plateau and in canyons east of LANL. Water is pumped from the main aquifer, the surface of which ranges from approximately 850 to 1,150 feet below the surface of the plateau. The gallery collects spring discharge from a perched water zone in the volcanics on the flanks of the mountains located west of Los Alamos. The locations of supply wells and the gallery, as well as the locations of test wells, springs, observation holes, and surface water sampling stations are shown on Figure 2-5.

Surface, well, and spring waters are routinely sampled and analyzed for radionuclides as well as heavy metals, fluorides, nitrates, carbonates, bicarbonates, silica, sodium, magnesium, and conductivity. Analytical results are published annually by the Los Alamos Environmental Protection Group, Environmental Management 2 (EM-2), formerly Health, Safety, and Environment 8 (HSE-8). Copies of this publication are submitted annually to the NMED and the EPA Regional Administrator.

There is one injection well in the vicinity of Los Alamos. This well is located in TA-57 (the Fenton Hill Site) and discharges through a National Pollutant Discharge Elimination System (NPDES) outfall, NPDES Serial No. 001 (Figure 2-6).

2.1.4 Wind Rose

An annual wind rose (1983 data) for TA-59, which is located approximately three miles west of TA-53, is shown in Figure 2-7. The irregular terrain at Los Alamos produces a distinct daily wind pattern. At night, winds tend to flow down the Pajarito Plateau, generally out of the northwest and west-northwest in a southwesterly direction. During the day, the pattern reverses and light, up-slope winds flow predominantly from the southeast and south-southeast. Los Alamos is generally a light wind site with an annual average wind speed of 2.8 meters per second. Only 12 percent of wind speeds in 1983 were greater than five meters per second and 38 percent were less than 2.5 meters per second.

2.1.5 Land Use

The communities located closest to LANL are Los Alamos, located just north of LANL, and White Rock, located east-southeast of LANL (Figure 2-1). The total population of Los Alamos County is approximately 19,000. Most of Los Alamos County, as well as adjoining portions of neighboring Sandoval, Rio Arriba, and Santa Fe Counties, is undeveloped. The only significant developments in Los Alamos County are the LANL facilities and the associated residential communities. Large tracts of land in the Jemez Mountains, which lie to the north, west, and south of Los Alamos, are held by the U.S. Forest Service and the National Park Service. This land is largely occupied by pine, fir, and aspen forests. Agriculture in the vicinity of LANL is limited to home gardens and some cattle grazing. In the river valleys to the east, agriculture is limited to the cultivation of relatively small, irrigated plots. Primary crops are corn, chili, tree fruits, and alfalfa.

2.2 LOCATION INFORMATION

2.2.1 Seismic Standard

Consistent with the definitions presented in 40 CFR Part 270.2 and the criteria provided in Parts 270.14(b)(11)(i) and 264.18, the TA-53 surface impoundments are existing units and, thus, seismic design standards are not applicable.

2.2.2 Floodplain Standard

In accordance with 40 CFR 270.14(b)(11)(iii), it can be stated that the TA-53 surface impoundments are not located within the 100-year floodplain boundary. As required under the Hazardous and Solid Waste Amendments (HSWA) Module VIII of the HWF permit, LANL has mapped all 100-year floodplain boundaries within the LANL complex. The mapping procedure utilized techniques that comply with 40 CFR 270.14(b)(11)(iii).

A report documenting these floodplain mapping procedures is currently in press (McLin, 1991). Actual floodplain boundary location maps are being finalized which will supplement the floodplain report. The floodplain boundary maps will reside on LANL's computer-based Autometric™

Geographic Information System — Mapping Overlay Statistical System (AUTOGIS-MOSS), a graphic information system database. Final floodplain maps will be plotted at a 1:4,800 scale, and should be available and submitted to NMED in early September 1991.

2.2.3 Soils

A comprehensive soil survey of Los Alamos County was prepared by Nyhan et al., 1978. This soil survey classifies the soils according to the soil series, soil type, and soil phase.

The principal parent materials of about 95 percent of the Los Alamos soils are Bandelier Tuff, volcanic rocks of the Tschicoma Formation, volcaniclastic sedimentary rocks of the Puye Formation, basaltic rocks of Chino Mesa, and remnants of the El Cajete pumice. The remaining five percent of the soils were formed from colluvium, alluvium, andesitic rocks of the Paliza Canyon Formation, Cerro Rubio Quartz Latites, and tuffs associated with sediments of Cerro Toledo Rhyolite. Textures of these soils range from very fine sandy loams and clay loams to gravelly, sandy loams and stony, silty clay loams.

The soils in TA-53 are classified as mesic rock outcrop. This land type is found on moderately sloping to steep mesa tops and edges and consists of about 65% tuff rock outcrop (Figure 2-8). Included in this unit are about five percent very shallow, undeveloped soils on tuff bedrock, five percent Hackroy soils, and 25% narrow escarpments. Native vegetation is blue grama, piñon pine, and one-seed juniper (Nyhan et al., 1978).

The Bandelier Tuff is formed by a series of ash flows and ash falls which are described as nonwelded, moderately welded, and welded tuff. The nonwelded, moderately welded, and welded tuff grade vertically one into the other.

The soils are classified in the Unified Soil Classification System as SM, SM-SC, ML, and CL-ML. The Hackroy soils range from a sandy loam (SM) in the top eight centimeters of depth to a clay loam (CL) in depths of from eight to 30 centimeters. Permeability rates range from five to 15 centimeters per hour in the top layers down to 0.5-0.15 centimeters per hour or less in the lower layers. The shrink-swell potential is low. The available water holding capacity is 0.11 to 0.21 centimeters per centimeter and the soil pH is 6.6 to 7.8.

2.2.4 Geology

2.2.4.1 Regional Geology

LANL is located on the east-central edge of the Jemez Mountains. The Jemez Mountains are formed by a complex pile of volcanic rocks along the northwest margin of the Rio Grande rift in north-central New Mexico (Figure 2-9). The immense volume of Pliocene and Quaternary extrusive rocks that represents the Jemez volcanic field covers an area of over 30 miles east-to-west and 50 miles north-to-south and is over 4,000 feet in thickness near the center.

The Jemez volcanic field unconformably overlies the eastern part of the Nacimiento uplift and the southern Chama Basin. The Chama Basin, the San Juan Basin, and the Gallina-Archuleta arch are part of the Colorado Plateau, whereas the Brazos and Nacimiento uplifts (Figure 2-9) are generally included with the southern Rocky Mountains (Woodward, 1974). These features attained their present structural outlines during the Laramide orogeny of Late Cretaceous and early Tertiary time. Superimposed on these Laramide structures is the Rio Grande rift that began to form during the Miocene. Volcanism in the Jemez area began in Pliocene time after initial development of the rift with extrusive rocks accumulating along the western margin of the rift contemporaneously with late stages of rifting (Woodward, 1974). Initial eruptions were dominantly mafic to intermediate flows, which probably formed low, coalescing shields. Eruptive activity culminated in the early Pleistocene with explosive, caldera-forming eruptions of ash-flow tuffs, which covered most of the shields and formed two calderas, the largest and youngest of which is the Valles caldera located seven to ten miles west of Los Alamos (Kudo, 1974). Extensive studies of the Jemez volcanism have been performed by Ross et al. (1961), Bailey et al. (1969), Smith and Bailey (1966, 1968), and Smith et al. (1970).

Major tectonic features here are dominated by vertical movements. Minor horizontal shift and compressional features, however, occur in parts of the Colorado Plateau and southern Rocky Mountain structures. The stratigraphy, structure, and tectonics of the Jemez Mountains and surrounding area have been the topics of a large number of reconnaissance and detailed studies (c.f., Dane, 1948; Kelley, 1954, 1955; Griggs, 1964; Woodward et al., 1972, 1973, 1974).

2.2.4.2 Site-Specific Geology

TA-53 is located on the western part of the Pajarito Plateau (Figure 2-10), which forms an apron of volcanic and sedimentary rocks around the eastern flanks of the Jemez Mountains. The plateau is aligned approximately north-south and is about 20 to 25 miles in length and five to ten miles wide. It is bounded on the east by White Rock Canyon (which contains the Rio Grande), on the north and northeast by the Puye escarpment and on the west by Sierra de los Valles. The Pajarito Plateau slopes gently eastward from an elevation of about 7,500 feet near the mountains toward the Rio Grande where it terminates at an elevation of about 5,400 feet in steep slopes and cliffs formed by down cutting of the river. The plateau has been dissected into a number of narrow mesas by southeastward-trending intermittent streams. The stratigraphy and structural features of the Pajarito Plateau are described in the following sections.

Stratigraphy

The Pajarito Plateau is underlain by a sequence of sedimentary and volcanic rocks and is typical of a terrain produced by concurrent sedimentation and volcanism (Figure 2-11). The oldest unit exposed around the margins of the Pajarito Plateau and penetrated by drill holes on the plateau is the Miocene Santa Fe Group. The Santa Fe in this area consists of friable to moderately-well cemented siltstone and sandstones that contains lenses of conglomerate and clay (Purtymun and Johansen, 1974). Some basalt flows are interbedded with the sediments in the unit. The lower part of the Santa Fe is comprised of fine arkosic sand and the upper part is composed of very coarse arkosic sand, latitic gravels, and volcanic detritus.

Overlying the Santa Fe Group are the volcanic rocks of the Tschicoma Formation, which consist of latite, quartz-latite flows, and pyroclastic rocks. The Tschicoma was extruded through the Santa Fe Group west of Los Alamos, forming the lower part of the Jemez volcanic pile. The thickness of the Tschicoma is unknown since the base of the unit is not exposed in the Pajarito Plateau area.

Interfingering with the Tschicoma and overlying the Santa Fe Group are the conglomerate and fanglomeratic rocks of the Puye Formation. The Puye contains a thin basal conglomerate composed of pebble through small boulder-size clasts of quartzite, quartz, granite, and volcanic debris in a matrix of coarse sand (Griggs, 1964). Overlying the conglomerate is a thicker fanglomerate comprised of debris that was washed eastward from the volcanic rocks of the Tschicoma Formation. The fanglomerate consists of a series of conglomerates and siltstones with up-to-boulder size clasts in a matrix of silt and sand. Beds of volcanic ash that were water-lain or possibly represent air fall materials are also present within the Puye Formation. The overall thickness of the Puye ranges from about 725 feet in the north-central part of the Pajarito Plateau to 220 to 270 feet along the east edge of the Puye escarpment to 60 to 80 feet at the north end of White Rock Canyon (Griggs, 1964).

Overlying and interfingering with the conglomerate of the Puye Formation are the basaltic rocks of Chino Mesa. The basalt, which is over 1,300 feet thick near the volcanic vents near Chino Mesa (Figure 2-11), thickens southward along the river and thins westward (Griggs, 1964).

The Pajarito Plateau is capped for the most part by the Bandelier Tuff, which ranges in thickness from about 1,050 feet along the western edge of the plateau to about 260 feet just west of White Rock. The Bandelier is composed of a basal unit of pebble-size pumice, overlain by a poorly sorted rhyolite tuff breccia and capped by a cliff-forming welded rhyolite tuff.

Structural Geology

The description of the geologic structure presented here was taken primarily from Griggs (1964). The geologic structure of surface rocks in the Los Alamos area is simple, although the structure of underlying rocks may be complex. The regional dip of surface rocks of the Pajarito Plateau is one to two degrees east. Beds of the Santa Fe Group in the easternmost part of the area dip gently to the west.

The rocks of the Pajarito Plateau are broken by several northward-trending normal faults (Figure 2-12). The Pajarito fault zone lies near the western edge of the plateau in the southern part of the area. The Bandelier Tuff at the southern edge of the area and on the east side of the Pajarito fault is downthrown about 300 feet in relation to the tuff on the west side of the fault. The fault further north splits into two smaller subparallel faults, both downthrown to the east. Displacement decreases northward until both faults die out. The fault planes dip steeply to the east.

Two other normal faults, the Rendija Canyon and Guaje Mountain faults, are en echelon to the Pajarito fault zone and are located to the northeast. These faults are downthrown to the west and the fault planes dip to the west. The northern most of the faults extends southward for a short distance subparallel to the northern extension of the Pajarito fault zone. The Bandelier Tuff is displaced about 50 feet across the en echelon faults. The older Tschicoma Formation, however, may be displaced as much as 500 feet along the easternmost fault. This difference in displacement tends to indicate recurring movement along a pre-Bandelier fault.

There are no faults or fault traces with Holocene displacements that have been located within 200 feet of the TA-53 surface impoundments. This information is provided to demonstrate compliance with 40 CFR 264.18(a).

2.2.5 Ground Water[1]

The only aquifer of the Pajarito Plateau capable of providing municipal and industrial water supply is in rocks of the Santa Fe Group and Puye Formation. The upper surface of this aquifer rises

[1] The discussion of ground water conditions in the Los Alamos area was extracted primarily from Purtymun and Johansen (1978) and Griggs (1964).

westward from the Rio Grande through the Santa Fe Group and into the lower part of the Puye Formation beneath the central and western parts of the plateau (Figure 2-11). The water in the aquifer moves from the major recharge area of the intermountain basins of the Valles Caldera (the apparent western boundary of the aquifer) eastward toward the Rio Grande where a part is discharged into the river through seeps and springs (Figure 2-13). The ground water flow rate in the upper part of the aquifer is estimated to be about 100 feet per year. The intermountain basins are filled with deposits of clay, sand, and gravels which are underlain by volcanic debris resulting from the collapse of the caldera. The sediments and volcanics in the basins are highly permeable and saturated and recharge the main aquifer in the Santa Fe Group.

Minor amounts of recharge may occur in the deep canyons containing perennial streams on the flanks of the mountains. The intermittent streams in canyons which are cut into the plateau add little if any recharge to the main aquifer. Water balance calculations for the area of LANL indicate that the annual evapotranspiration rate exceeds the annual precipitation rate. Additionally, field investigations have shown that infiltration of precipitation into the Bandelier Tuff is essentially zero. At depths below ten feet, the volumetric moisture content of the tuff at LANL varies from about 4 to 6% on the mesas and from approximately 6% to saturation in the canyons with perched aquifers. In canyons where no perched aquifers are present, the volumetric moisture content of the tuff at depths below ten feet ranges from about 4 to 10%. If sufficient moisture is present to permit migration of moisture, unsaturated flow would be the predominant mechanism of movement in the Bandelier Tuff.

Figure 2-13 shows the locations of a number of wells completed in the Santa Fe Group and Puye Formation. Also shown are the contours drawn to depict the elevation of the top of the main aquifer and the depths at which water was encountered in the main aquifer at each well location. The gradient on the surface of the aquifer averages about 60 feet per mile beneath the plateau in the Puye Formation with the depth to water decreasing along with the gentle slope of the surface of the plateau from about 1,200 feet to the west to about 600 feet to the east. The depth to the water table under LANL ranges from about 900 to 1,200 feet except in the deeper canyons. The gradient of the aquifer steepens to about 100 feet per mile along the eastern edge of the plateau because of the lesser permeability of the Santa Fe Group sediments. The aquifer is under water table conditions in the western margin of the plateau and is artesian along the eastern edge and along the Rio Grande.

As expected, wells completed into the high permeability sediments and volcanics of the Santa Fe Group and Puye Formation are very productive. Wells located in the eastern well field, which penetrate about 1,600 feet of the fine-grained sediments of the Santa Fe Group, yield an average of 500 gallons per minute with a specific capacity of eight gallons per minute per foot of drawdown. Wells in the central part of the plateau, which are completed in the Puye Formation and coarser sediments of the Santa Fe Group, are higher yielding and average 1,000 gallons per minute with a specific capacity of about 35 gallons per minute per foot of drawdown.

The chemical quality of water varies among wells due to local conditions within the aquifer. In general, the quality of water is good; total dissolved solids (TDS) range from about 200 milligrams per liter to almost 500 milligrams per liter.

The Tschicoma Formation and the Bandelier Tuff, west of the Pajarito Plateau on the flank of the mountains, contain localized, small bodies of perched water. The Bandelier Tuff contains no perched water beneath the Pajarito Plateau. Additional information on Los Alamos ground water and vadose zone characteristics is presented in Hydrogeologic Assessment of Technical Area 54, Areas G and L, Los Alamos National Laboratory (IT Corporation, 1987).

2.3 TRAFFIC PATTERNS

2.3.1 General

The rugged topography of alternating mesas and canyons present at LANL limits traffic circulation to only a few major arterial roads. This road system is shown in Figure 2-2. There are 19 miles of main highway, 22 miles of TA access roads, and 44 miles of roads in LANL's technical areas. A total of 85 miles of paved roads are present within LANL (Pan Am World Services Asphalt Road Maintenance Report, 1986).

The main access route to Los Alamos is State Road 502 (formerly State Road 4). The majority of traffic to Los Alamos approaches from the east on State Road 502. Alternate access routes are available on State Roads 4 and 501 from the southeast and southwest, respectively.

The pattern of east-west trending canyons at LANL prohibits north-south automobile travel in nearly all portions of the laboratory with the exception of Diamond Drive. Los Alamos Canyon is spanned at Diamond Drive by an 820-feet-long steel arch bridge which was completed in 1951 (Los Alamos National Laboratory, 1984). This bridge provides the main access between LANL facilities located on either side of Los Alamos Canyon.

Currently, over 9,000 people are employed at LANL (including LANL personnel and contractors). Roughly 3,500 people commute to the laboratory daily from communities other than Los Alamos and White Rock (Los Alamos National Laboratory, 1982).

2.3.2 Waste Collection Areas

Sanitary sewage stored in the TA-53 surface impoundments is generated at many of the technical areas throughout LANL. This waste is transported to TA-53 by truck on an as-needed basis. Transport of sanitary liquid waste occurs on nearly all of the roads located within LANL. Liquid waste generated on-site is transferred to the impoundments via sanitary and radioactive liquid waste sewer lines, shown in Figure 2-14. There are no storm sewers in the vicinity of the impoundments.

2.3.3 Routes of Travel

Sanitary liquid waste will be taken from the point of origin to the TA-53 surface impoundments. Traffic routes which may be used to transport sanitary sewage include Pajarito Road, East Jemez Road, State Road 4, and West Jemez Road (State Road 501). Transfer of liquid waste generated within TA-53 is accomplished via sanitary and radioactive liquid waste sewer lines and, therefore, does not require transport over road surfaces.

2.3.4 Traffic Volumes

According to a report entitled "TA-3 Traffic Study", January 10, 1985, the peak traffic periods are between 7:15 and 8:15 in the morning and 4:15 and 5:30 in the afternoon. Although the report is limited to the TA-3 area, a few intersections outside the TA-3 area were examined. Approximately 5,100 people work in the TA-3 area. Consequently, the data presented in the study should reflect the existing traffic conditions at LANL. However, the data for TA-3 will have higher vehicular volumes than the rest of LANL. Maps depicting vehicular traffic count movements at various intersections in the vicinity of TA-3 from the cited document are included in Appendix A.

Based on 1984 traffic counts, the Diamond Drive and Jemez Road intersection had a volume of 3,255 cars during the morning and 2,824 in the afternoon. At the intersection of Diamond Drive and Pajarito Road, the 1984 afternoon volume was 1,284 cars.

2.3.5 Traffic Control Signals

Traffic flow at LANL is controlled by traffic lights, stop signs, and yield signs. Access to the high-security technical areas is controlled by security guards and is restricted to vehicles having specific identification. Only personnel having appropriate security clearance and identification, or escorted visitors are allowed access to the secured technical areas. Vehicles and personnel entering these technical areas are subject to periodic search by security personnel. Traffic signals and signs are located in the vicinity of the hazardous waste management units.

Traffic lights are in place at all major intersections. Traffic signs are used at "T"s throughout Los Alamos.

2.3.6 Road Load-Bearing Capacity

Roads at Los Alamos carrying the greatest traffic volumes include Diamond Drive, Pajarito Road, and East and West Jemez Drive. These roads were constructed with a ten-inch-thick base overlain with a five-inch-thick asphaltic concrete surface. These roads were designed and built in conformance with American Association of State Highway Transportation Officials (AASHTO) specification HS-20. This specification is intended to accommodate truck loading capacities of 32,000 pounds per axle. Roads within technical areas are two-lane roads with asphalt surfaces.

LIST OF TABLES

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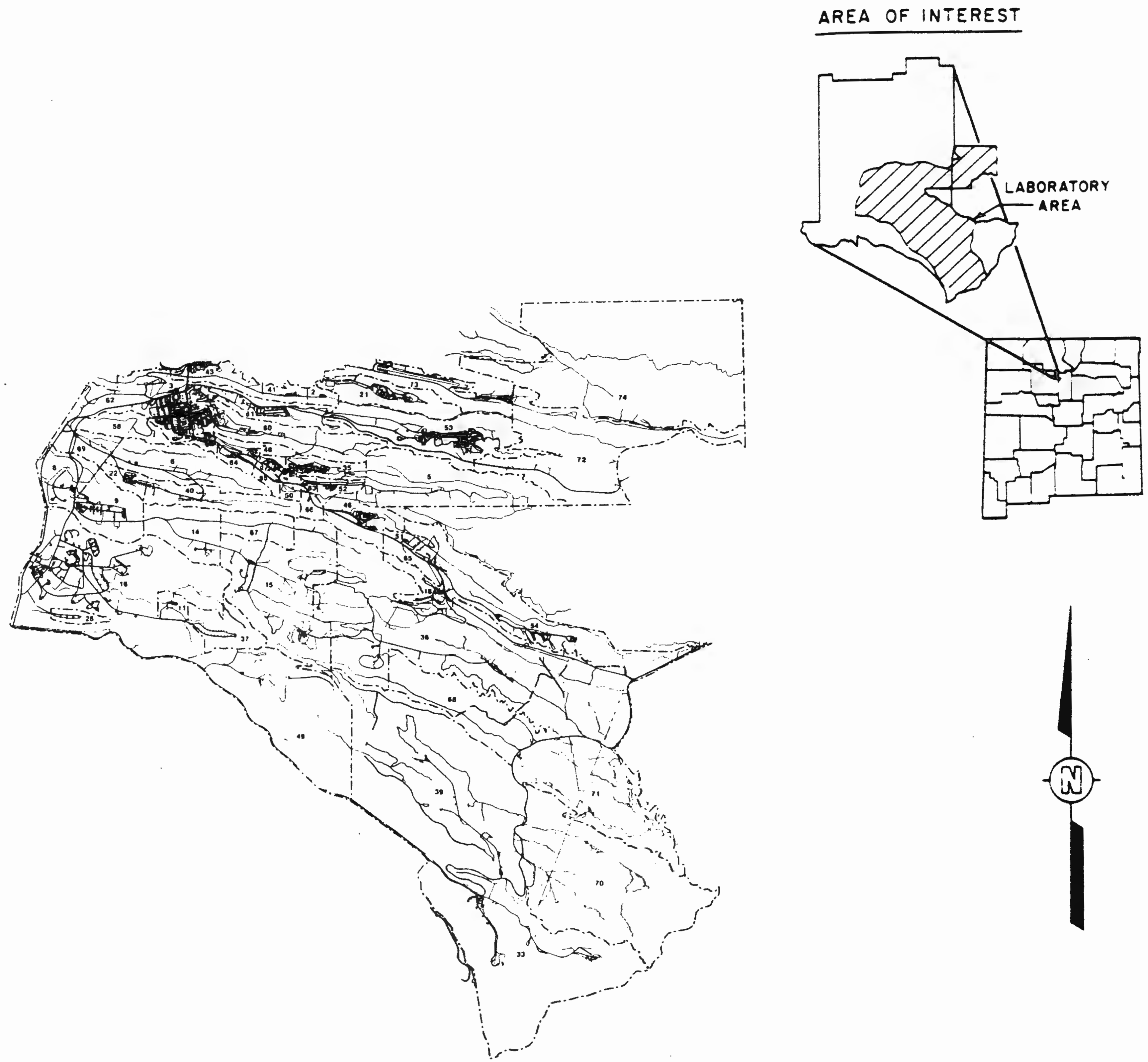

FIGURE 2-1

LOCATION MAP

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LOS ALAMOS, NEW MEXICO

IT CORPORATION

19 1253 HERCULENE ABB SMITH CO PGH PA

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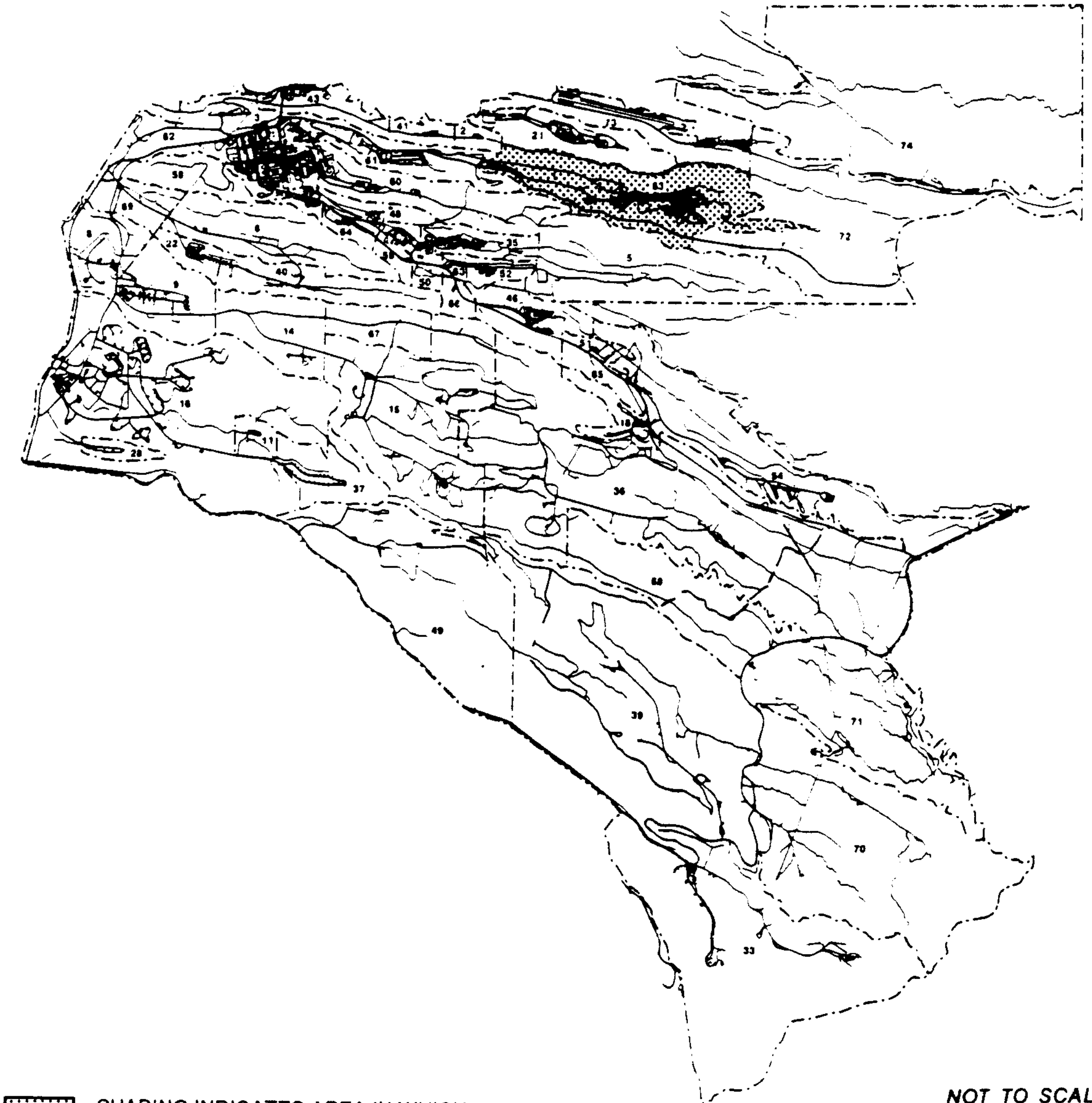

SHADING INDICATES AREA IN WHICH WASTE MANAGEMENT UNITS ARE LOCATED

NOT TO SCALE

FIGURE 2-2

LOS ALAMOS TECHNICAL AREAS

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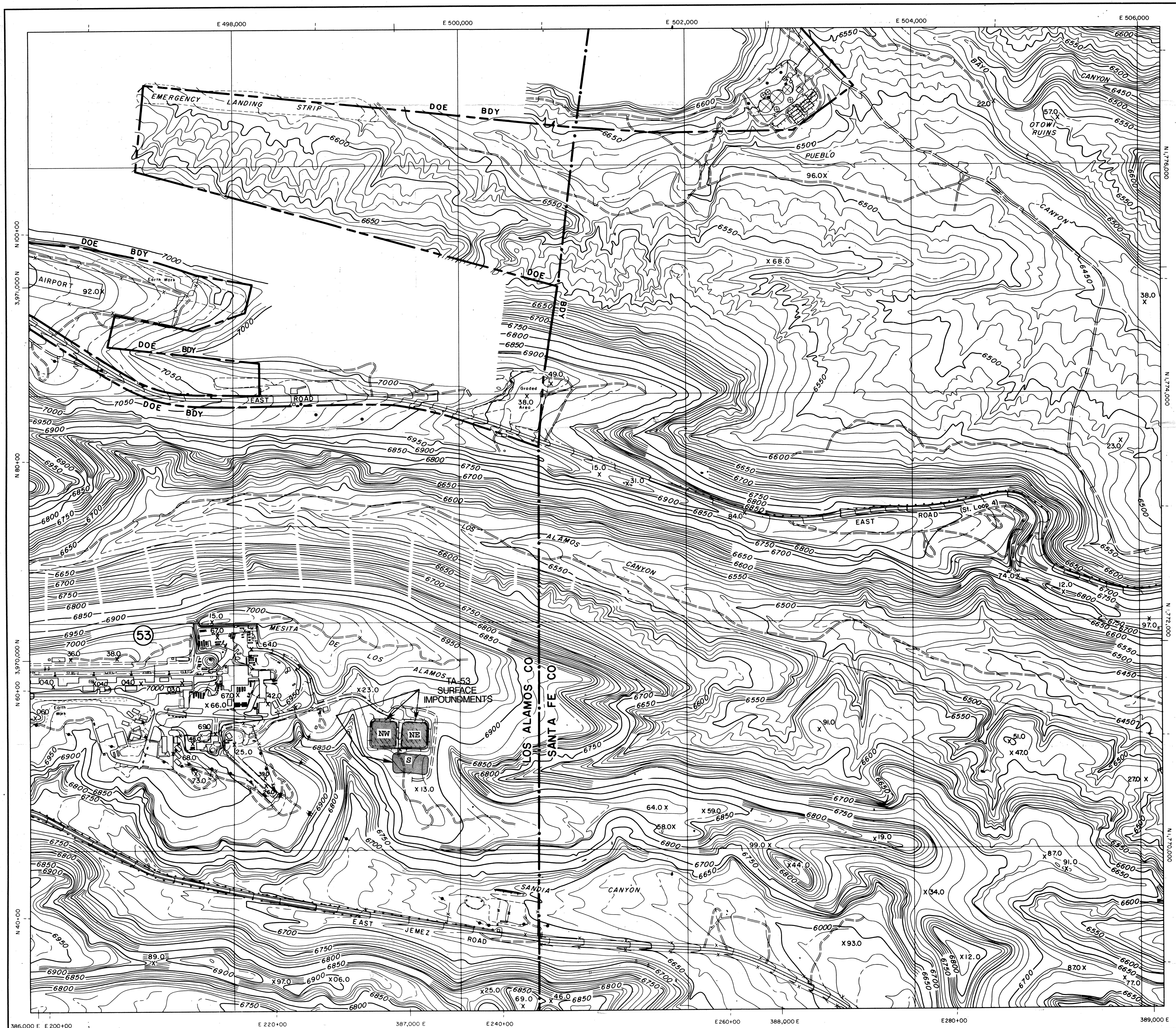
LOS ALAMOS, NEW MEXICO

INTERNATIONAL TECHNOLOGY CORPORATION

"Do Not Scale This Drawing"



LEGEND

- X 93.0 SPOT ELEVATION
- 6900 INDEX CONTOUR
- INTERMEDIATE CONTOUR 10ft.
- SUPPLEMENTARY CONTOUR 5ft.
- CONTOURS THROUGH HEAVY VEGETATION
- COUNTY LINES – TRANSFERRED FROM USGS 1:24,000 QUADRANGLES.
- DOE BOUNDARY – X & Y COORDINATE DATA PROVIDED BY LASL.
- DOE BOUNDARY – SURVEY DESCRIPTIONS OR RECORD PLATS PROVIDED BY LASL.
- DOE BOUNDARY – TRANSFERRED FROM USGS 1:24,000 QUADRANGLES BASED ON PROJECTED COUNTY LINES.
- N 1,768,000 NMSP GRID
- 3,989,000 N UTM GRID
- N 240+00 LASL GRID
- (35) TECHNICAL AREA NO.
- BUILDING
- FENCE
- PAVED ROAD
- DIRT ROAD
- JEEP TRAIL
- CULVERT
- GUARD RAIL
- TUNNEL
- EARTHEN BUNKERS
- POWER POLE
- TOWER
- PIPE LINE
- CUT LINE OR POWER LINE CLEARANCE SCAR
- WATER TOWER
- TANK
- POND
- RETAINING WALL
- EARTH DIKES OR BLASTING SHIELDS
- EARTH WORK OR GRADED AREAS
- GATE

SHEET LAYOUT

NORTH

GRID NMSP NORTH

MAPPING COMPLETED BY PHOTOGRAMMETRIC METHODS, UTILIZING 1:30,000, 1:12,000 & 1:13,200 PHOTOGRAPHY, OBTAINED IN NOV. 1976 & JUNE 1980 WITH ZEISS RMK A 15/23 CAMERAS OF 153.42 & 152.43mm C.F.L. RESPECTIVELY. MAPPING BASED ON CONTROL SURVEYS TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM (CENTRAL ZONE). MAPPING COMPLETED IN ACCORDANCE WITH NATIONAL MAP ACCURACY SPECIFICATIONS.

GRAPHIC SCALE: 1 in.=400 ft.

CONTOUR INTERVAL 10 ft

TECHNICAL AREAS

(53) MPF–SITE

4269-A

LOS ALAMOS SCIENTIFIC LABORATORY

FIGURE 2-3

CONTOUR MAP SHOWING THE LOCATIONS OF THE SURFACE IMPOUNDMENTS AT TA-53

LAB JOB NO. 5682

1"=400' SCALE

PLAN / TOPO

SHEET 14 OF 25

LANL

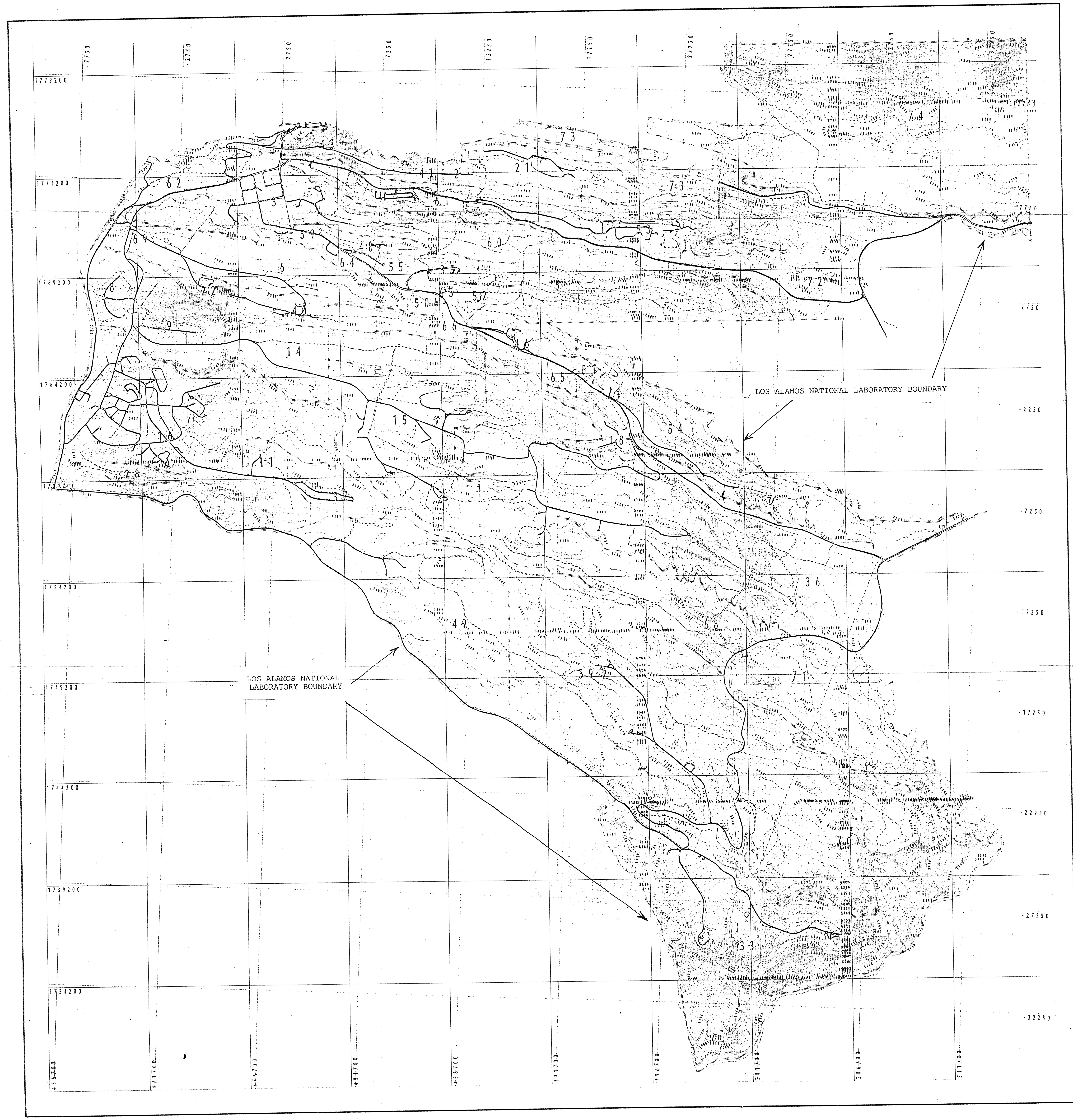


FIGURE 2-4
LOS ALAMOS NATIONAL
LABORATORY BOUNDARY

SCALE

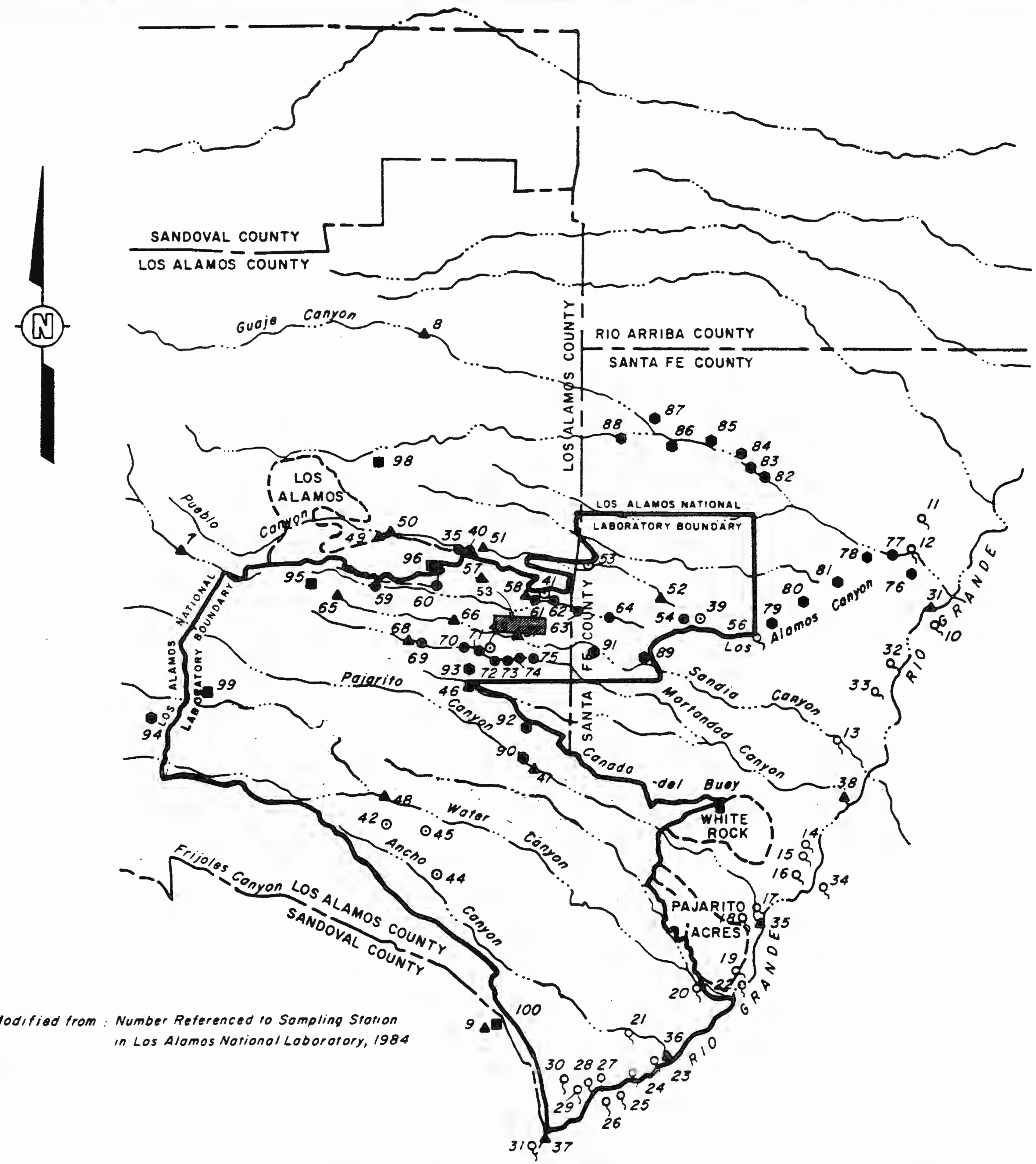
1" = 2500'

10-FOOT CONTOUR INTERVALS

4276-C

University of California
Los Alamos National Laboratory
Earth & Environmental Sciences Division
FIMAD Facility for Information Management, Analysis and Display
Produced by: Marcia Jones
Date: 91-02-19

Plotted on a CALCOMP 5825 Electrostatic Color System. Plot Data from Imbedded Controller with Mirror Image OFF, Negative Image OFF, Dot Expansion OFF, Conditioning Pass OFF, Plot Speed at 100% of max.



Modified from: Number Referenced to Sampling Station in Los Alamos National Laboratory, 1984

EXPLANATION

- ▲ SURFACE WATER STATION
- ⬢ SUPPLY WELL OR GALLERY
- ■ WATER SUPPLY DISTRIBUTION
- ● OBSERVATION HOLE
- ⊙ TEST WELL
- SPRING
- 53 TECHNICAL AREA OF INTEREST

1 0 1 2 MILES

SCALE

FIGURE 2-5

LOCATIONS OF TEST WELLS, SPRINGS, OBSERVATION HOLES, SURFACE WATER SAMPLING STATIONS, AND SUPPLY WELLS

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LOS ALAMOS, NEW MEXICO

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301215 02 01 A28

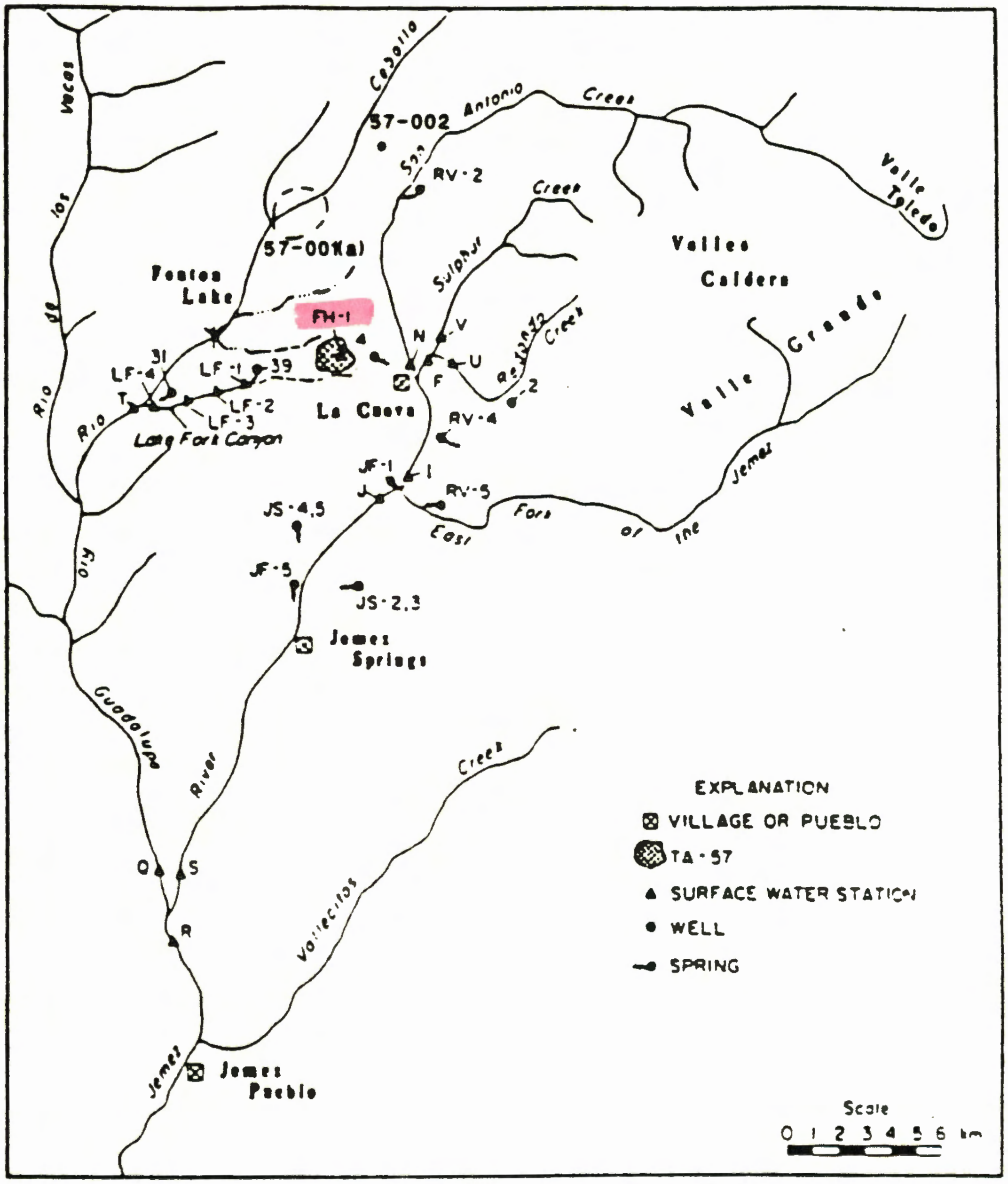
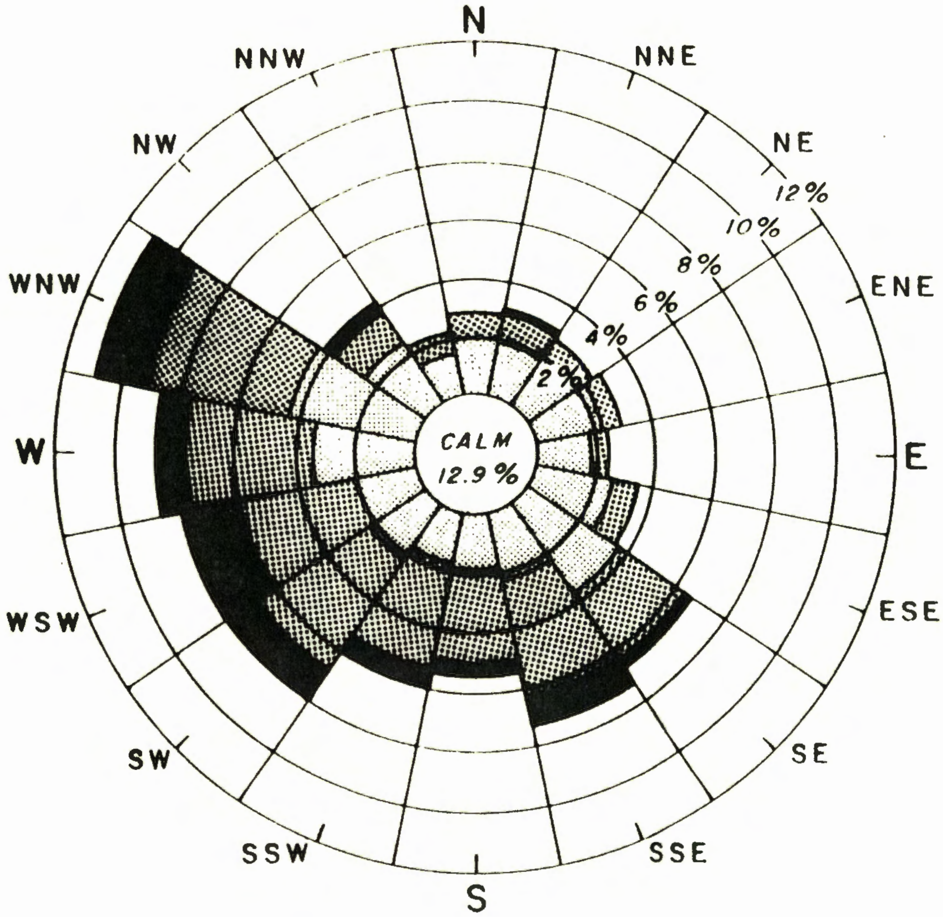


FIGURE 2-6

LOCATION OF

TECHNICAL AREA 57



SPEED (m/sec)

1-2.5

2.5-5

5+

(AVG. SPEED = 2.8)

FIGURE 2-7

ANNUAL SURFACE WIND SPEED
AND DIRECTION, 1983,
TECHNICAL AREA 59

PREPARED FOR

LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

Modified from. Los Alamos National Laboratory, 1984

IT CORPORATION

DRAWING NUMBER 32803

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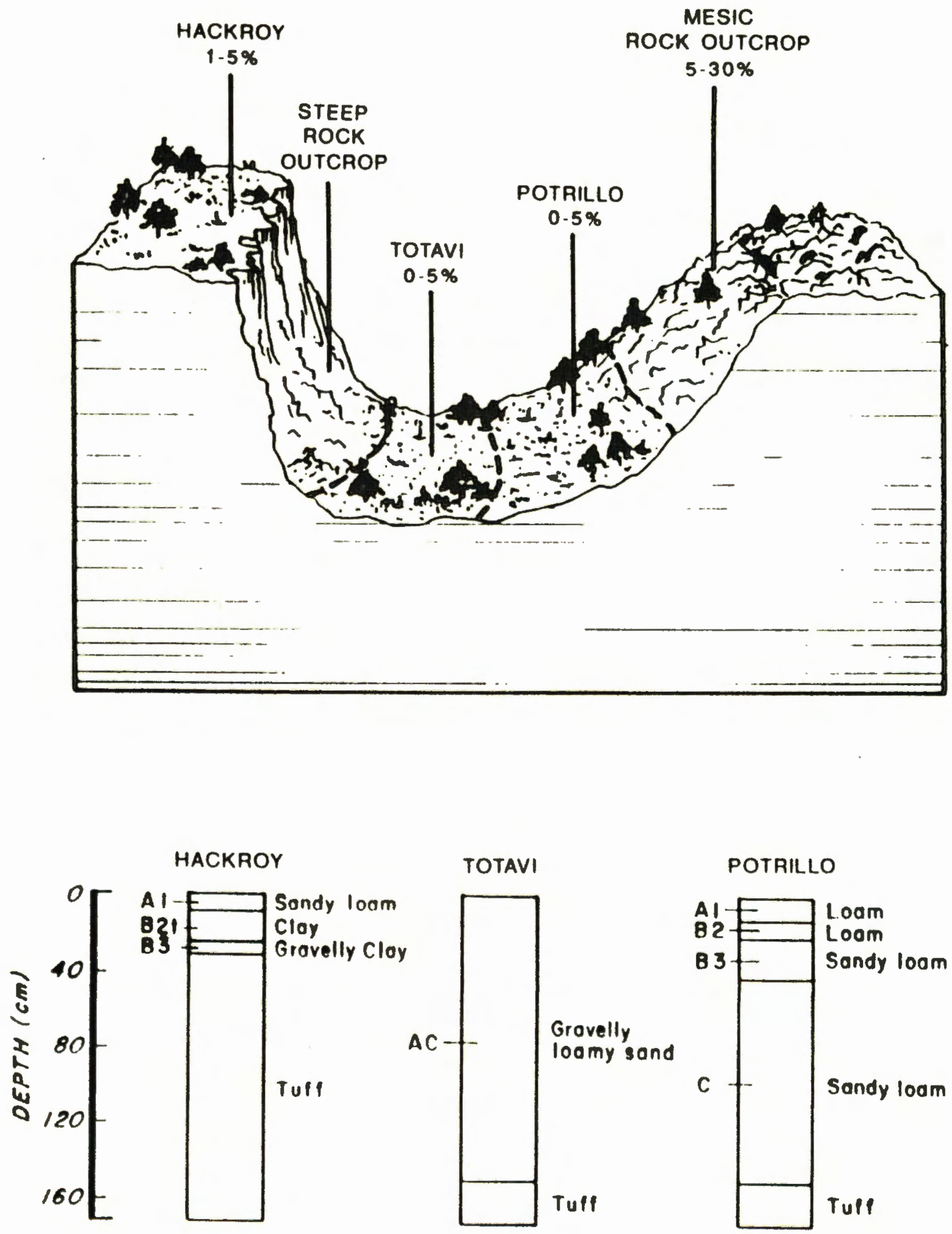
9/7/84



Reference; USDOE, 1978

FIGURE 2-8

RELATIONSHIPS OF SLOPE, VEGETATION, AND PARENT MATERIAL TO HACKROY, TOTAVI, AND POTRILLO SOILS

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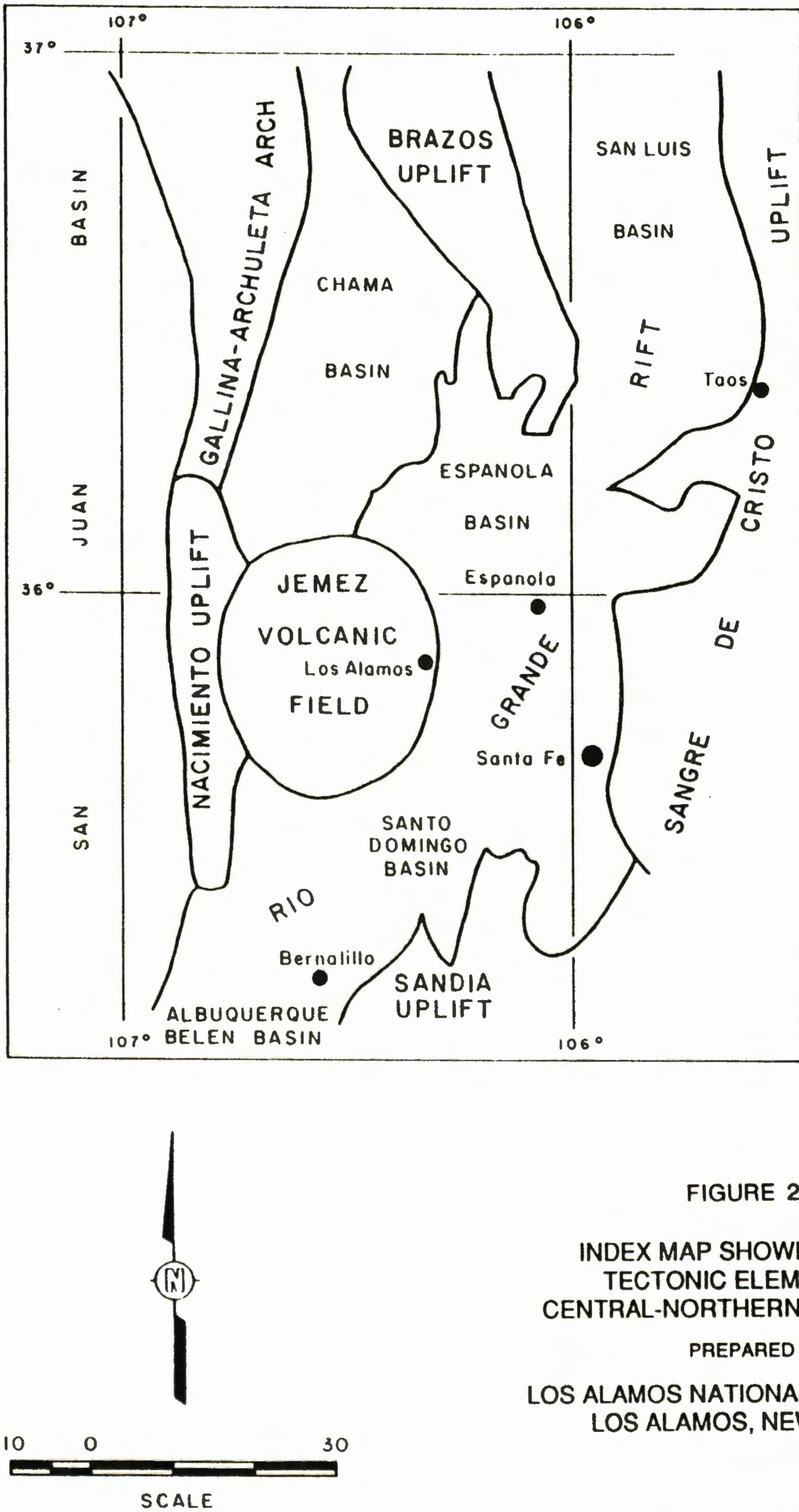

FIGURE 2-9

INDEX MAP SHOWING MAJOR TECTONIC ELEMENTS OF CENTRAL-NORTHERN NEW MEXICO

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LOS ALAMOS, NEW MEXICO

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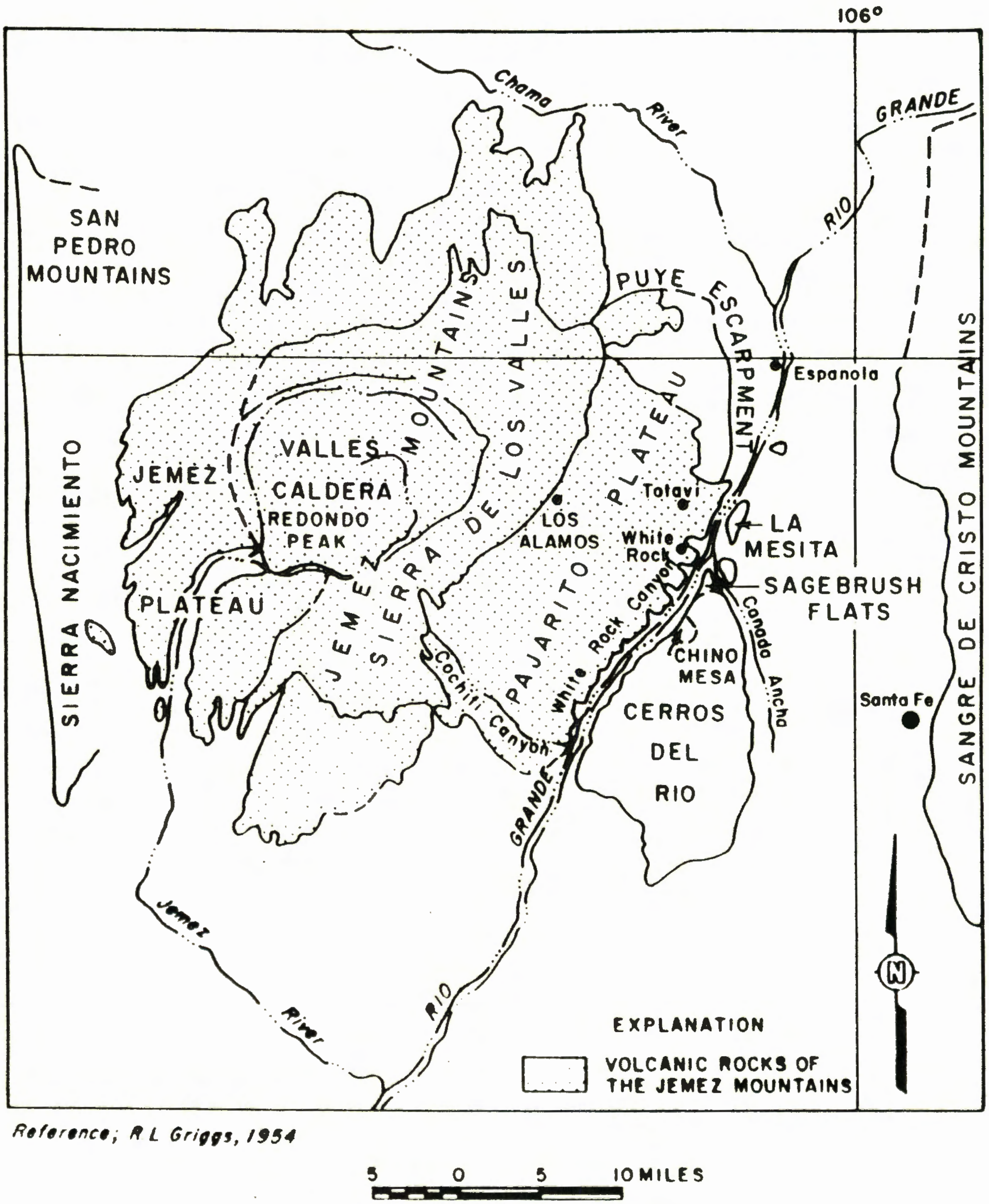

FIGURE 2-10

PHYSIOGRAPHIC FEATURES OF THE JEMEZ MOUNTAINS

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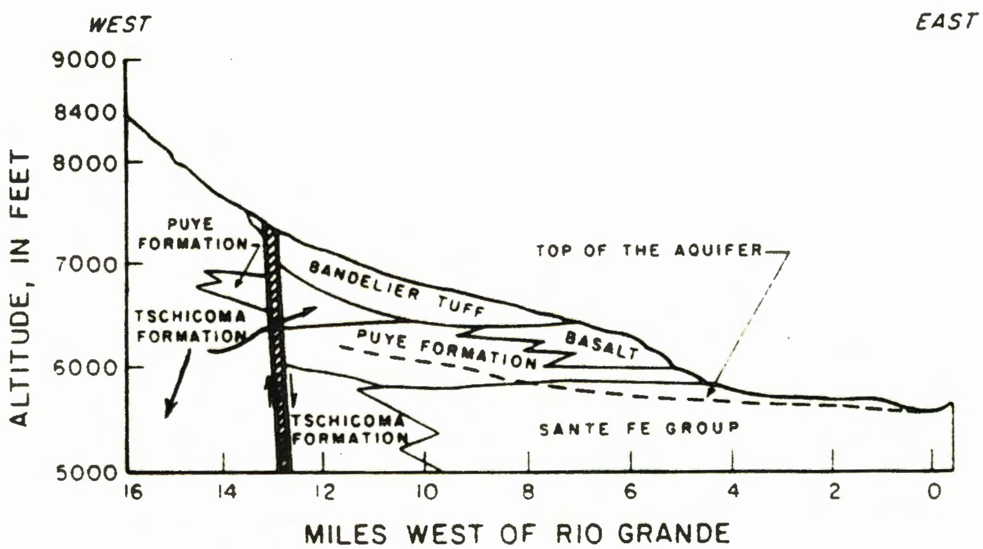

FIGURE 2-11

EAST-WEST GEOLOGIC SECTION
THROUGH THE PAJARITO PLATEAU

PREPARED FOR

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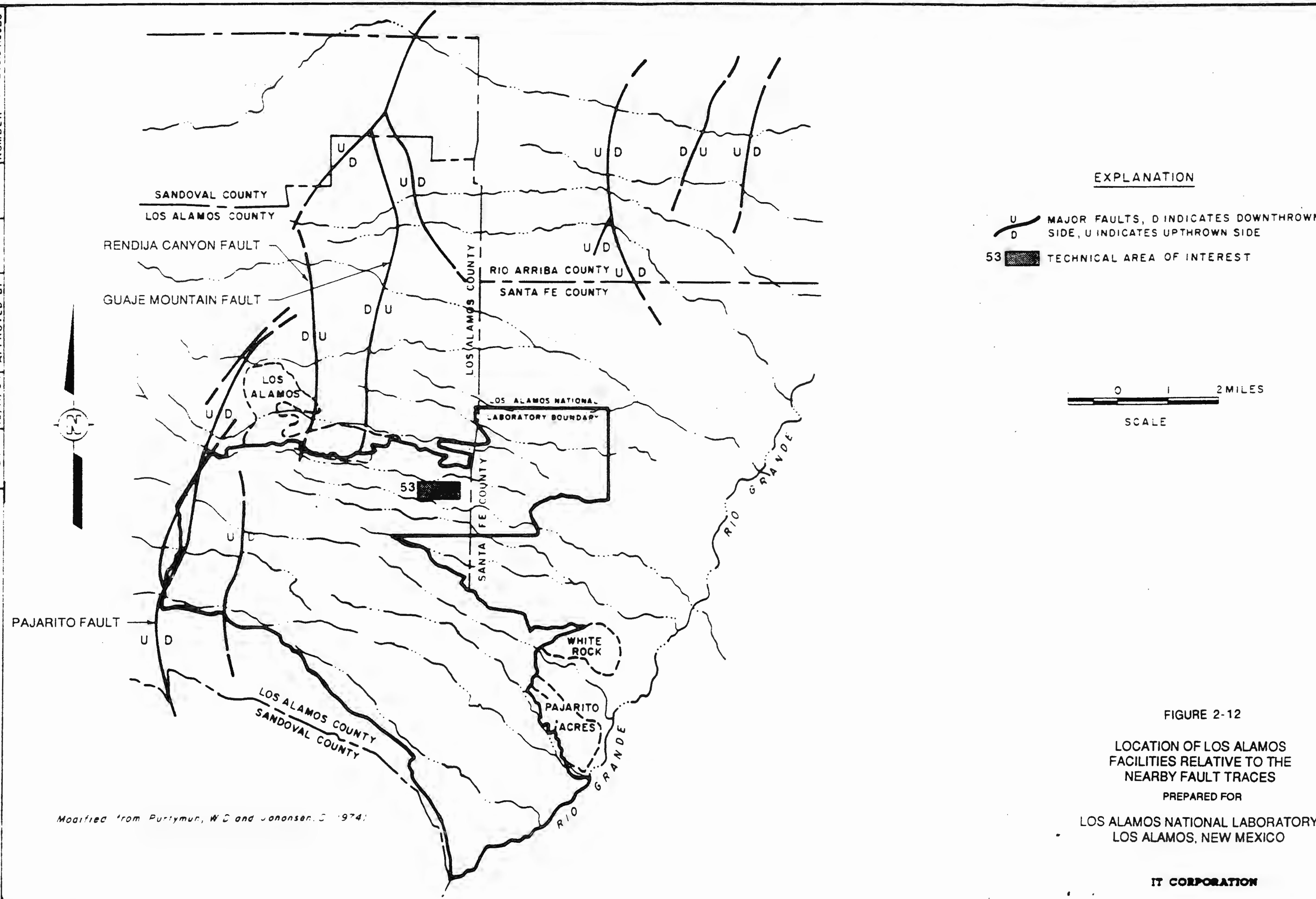

FIGURE 2-12

LOCATION OF LOS ALAMOS FACILITIES RELATIVE TO THE NEARBY FAULT TRACES

PREPARED FOR

LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

IT CORPORATION

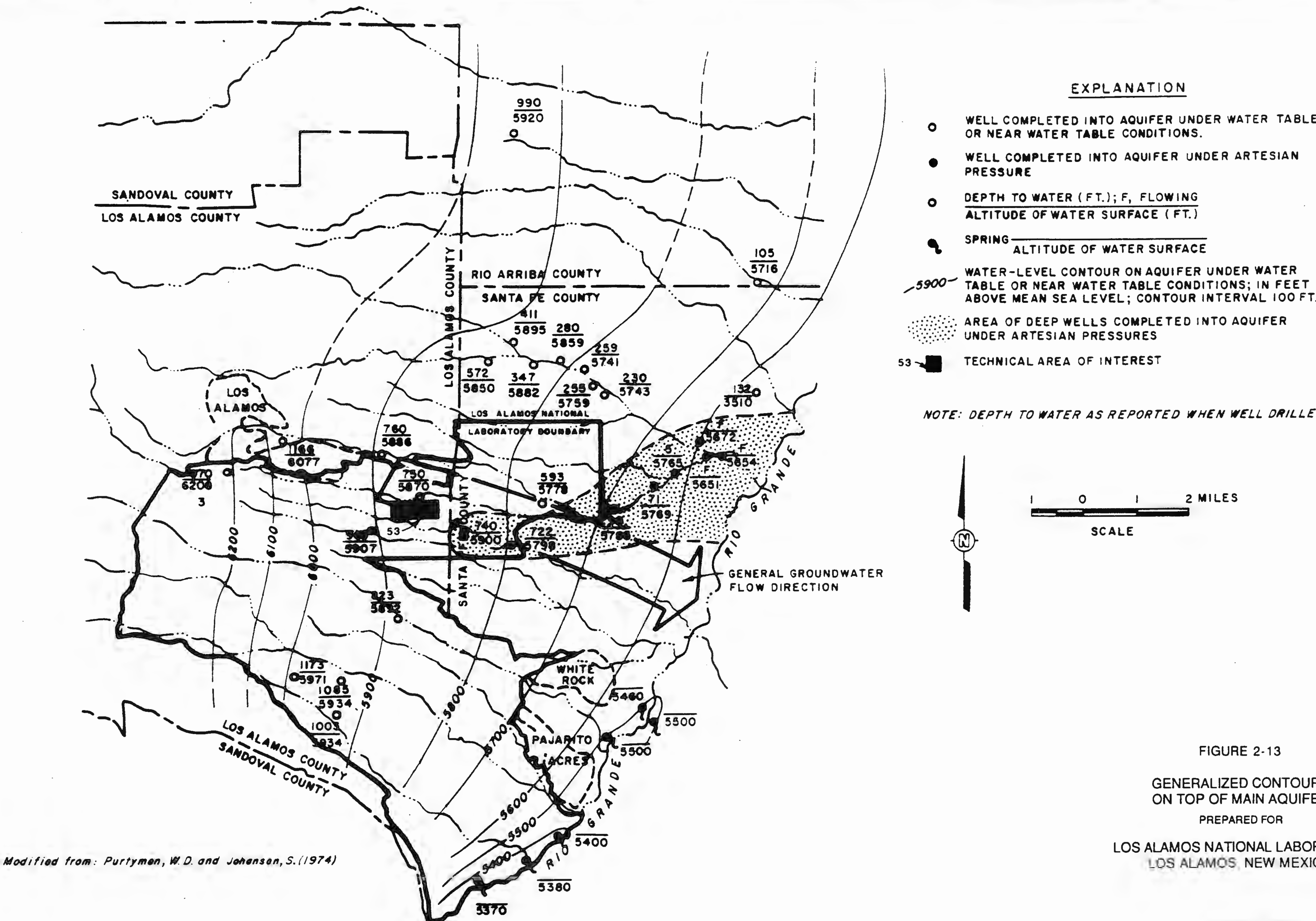

FIGURE 2-13

GENERALIZED CONTOURS ON TOP OF MAIN AQUIFER

PREPARED FOR

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LOS ALAMOS, NEW MEXICO

IT CORPORATION

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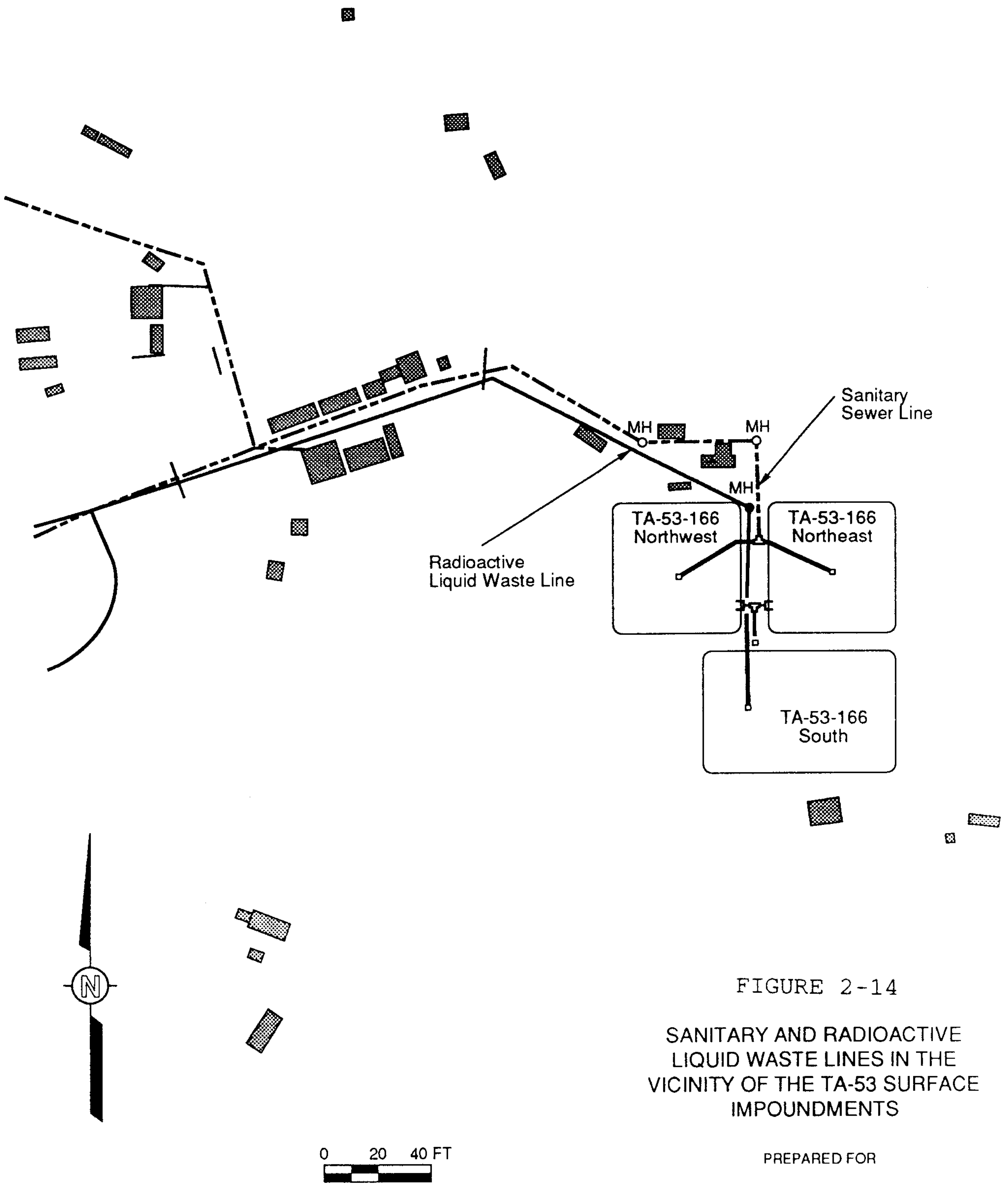


FIGURE 2-14

SANITARY AND RADIOACTIVE LIQUID WASTE LINES IN THE VICINITY OF THE TA-53 SURFACE IMPOUNDMENTS

PREPARED FOR

LOS ALAMOS NATIONAL LABORATORY

INTERNATIONAL TECHNOLOGY CORPORATION

"Do Not Scale This Drawing"

3.0 WASTE CHARACTERIZATION

Waste characterization requirements for the Part B permit application, specified in 40 CFR Part 270.14(b)(2) and (3), include chemical and physical analyses of the waste and a waste analysis plan. Waste characterization and waste analysis must fulfill the requirements of 40 CFR Part 264.13, which requires a detailed chemical and physical analyses of a representative sample of the waste.

The waste of concern in the impoundments is the sludge contained in the bottom of the impoundments. The TA-53-166 NE and NW impoundments have been receiving sanitary waste since their construction in 1969; they also received radioactive waste until 1989. The TA-53-166 S impoundment received sanitary and radioactive waste from the time of its construction in 1985 until 1989, at which time the influent to the impoundment was modified so that it became the only impoundment to receive radioactive waste. It periodically may receive sanitary waste from the other impoundments to maintain appropriate liquid levels and weigh down the liner. As a result of past disposal practices, mixed waste may have been introduced into the impoundments. Based on results of past sampling activities, mixed waste in the sludge in the impoundments may include metals and organic compounds. Administrative controls have been implemented at TA-53 to prevent mixed waste from entering the influent to the impoundments.

The sampling and analysis plan which will be conducted for the three surface impoundments is included in this section. This initial sampling and analysis effort is intended to fulfill the requirements for a detailed chemical and physical analysis of representative samples of the waste, as specified in 40 CFR 264.13(a)(1). The three surface impoundments are not intended to receive mixed waste; to ensure that mixed waste is not being introduced, the initial waste characterization will be verified annually through sampling and analysis of a representative sample of the influent to the NW surface impoundment. Because ... influent to the NW surface impoundment is the only possible influent source of mixed waste, this sample will be sufficient to characterize each of the three impoundments. The annual sample will be a grab sample collected and analyzed for the same liquid sample parameters discussed in Section 3.1 to ensure that the initial characterization is accurate and up to date. The sample and sampling equipment will be handled in accordance with the applicable portions of Sections 3.2, 3.3 and 3.4. A grab sample is considered representative because of the administrative controls which have been implemented to prevent mixed waste from entering the influent.

3.1 SAMPLING AND ANALYSIS STRATEGY

Samples will be collected using a simple random sample strategy. The procedure for using this strategy is outlined in SW-846, Volume II, Part III. In accordance with this strategy, each surface impoundment will be subdivided into a grid of (approximately) 10-foot by 10-foot blocks. TA-53-166 NW and NE will contain 21 rows of 21 blocks, totalling 441 blocks. TA-53-166 S will contain 18 rows of 36 blocks, totalling 648 blocks. The blocks in each surface impoundment will be uniquely numbered and 15 blocks will be randomly selected from each surface impoundment using a random number table or pseudo-random number generator. To maintain random ordering, these blocks will be sequentially assigned letter designations A through O as they are randomly selected; i.e., the first block selected is designated Block A, the second Block B, and so forth to Block O. Figures 3-1 and 3-2 are example schematics. These figures may be used to locate randomly selected sampling locations.

At the first randomly selected block (Block A) in each surface impoundment, a liquid sample will be collected at mid-depth of the water column prior to the collection of any sludge samples. These samples will be taken in addition to the three liquid samples per impoundment collected and analyzed as part of an initial sampling effort in 1991. Analytical results for all samples will be reported upon completion of this sampling and analysis program. The water samples will be analyzed for target analyte list (TAL) metals and total volatile organic (VOA) and base/neutral/acid (BNA) extractable compounds. The TAL metals include the TCLP metals, as well as other metals designated for analysis in the EPA's Contract Laboratory Program Statement of Work (TAL metals analysis constitutes total Appendix IX metals analysis).

Sludge samples will be collected within each of the selected blocks, as near to the center of the block as can be achieved. The depth of the water and approximate depth of the sludge will be recorded at each sampling location. If insufficient sludge is found at a selected block for the collection of an adequate sample volume, the absence of sufficient volume will be recorded in the Field Activity Daily Log (see Figure 3-4), and sampling will proceed to the next location. Sample collection procedures are described in Section 3.2. Sludge samples will be analyzed for TCLP metals and total VOA and BNA extractable compounds.

At each of the three surface impoundments, an additional confirmatory sludge sample will be collected at field-designated locations nearest the surface impoundment influents or at areas where sludge deposition is thickest. These samples will be analyzed for TCLP metals and organics, total VOA and BNA extractable compounds, and PCBs.

Field quality assurance samples will be prepared in accordance with the following schedule: one trip blank will accompany each shipping cooler of water samples (containing VOA samples) to the analytical laboratory. One field blank sample from each surface impoundment will be collected for the water analysis parameters. At one of the first five sludge sampling locations in each surface impoundment (Blocks A through E) selected by random process prior to sampling, a field duplicate sample will be collected in addition to the normal sample. This duplicate pair will be designated for TCLP and organic matrix spike/matrix spike duplicate. If insufficient volume is found at that location, the duplicate will be collected at the next location where sufficient sample material is found. Field quality control samples are discussed in detail in Section 3.4.

3.2 SAMPLING PROCEDURES

3.2.1 Field Logistics

The sampling site will be examined prior to the start of field sampling to ensure that all required items are available. Coordination with the responsible group personnel at TA-53 for the use of storage and staging areas is required. Access is generally unimpeded to the site; however, access may be restricted to TA-53 at any time during the Meson Physics Facility operations. All personnel entering TA-53 must sign for a radiation monitoring film badge to be worn while within TA-53. Site workers must also have received all required radiation worker protection training as well as appropriate Occupational Safety and Health Administration (OSHA) and RCRA training.

Exact locations for electrical power, "clean zones," and drinking water must be identified prior to sampling. The waters of the surface impoundments are exclusion zones, and protective clothing must be worn if contact with surface impoundment waters or sludges is possible. Protective clothing requirements will be determined by the health and safety officer assigned to the project. Exclusion zones, access, staging, and decontamination areas will be designated adjacent to each surface impoundment. Protective clothing shall be donned by personnel within the exclusion zones. The areas will be selected for ease of ingress and egress to watercraft used for sampling, monitoring, water sample collection, and for initial sample processing.

A decontamination area will be designated for decontamination of tools, equipment, and personnel. (Decontamination procedures are discussed in detail in Section 3.2.8 of this plan.) All decontamination materials must be stored in drums with proper labels and identifying information. Efforts will be made to keep the volume of decontamination materials at a minimum. Persons involved in doing the actual decontamination will generally be dressed in protective clothing one level below what the exclusion zone workers are required to wear. All personnel and equipment will be monitored for radioactive contamination prior to leaving an exclusion zone, central decontamination area, and the surface impoundment field site.

Field measurements for radioactivity and organic vapors shall be made and documented prior to, during, and after sampling activities at each surface impoundment each day that sampling is in progress. Qualified radiation protection and health and safety personnel (or designees) are responsible for this monitoring. Results of monitoring will be used to evaluate possible hazards existing at the site, evaluate current conditions, and specify personal protective equipment. All personnel will visually monitor for extreme weather conditions, lightning, or other physical or environmental hazards which may develop. Personnel will notify the project manager when unanticipated physical or environmental hazards develop.

3.2.2 Surface Impoundment Ingress/Egress

Ingress and egress to watercraft and the surface impoundments shall occur in exclusion zones established for that and supporting purposes. Ingress/egress via the slope of the surface impoundment dike will be aided by installation of a rope or chain and lumber-rung ladder constructed for that purpose. This ladder will be firmly anchored to the top of the dike surface by driving 18-inch steel stakes into the dike, one per ladder support. An equivalent device may be used for ingress/egress if it provides adequate footing and protection for personnel. Anchors and rigging shall be inspected prior to each descent or ascent of the ladder. Sampling personnel shall load equipment and supplies sufficient to collect samples from one designated location into the watercraft via the ingress/egress ladder within the exclusion zone.

3.2.3 Sampling Point Location

Two persons, in addition to two samplers in the watercraft, are required to assist with sample point location and provide support from the surface impoundment dike. Sample point locations will be randomly selected on the imaginary grid of the surface impoundment described in Section 3.1. Personnel, one on each perpendicular leg of the surface impoundment dikes, shall assist the sample crew in maneuvering the boat to specified sample collection locations. Using a tape measure or calibrated pace, these sighting personnel will travel from a common corner of the surface impoundment (a point predetermined to be relative zero feet, northing, and zero feet, easting, for example) to the correct distance corresponding to the sample location in their direction. Using hand-held sighting compasses, the sighting personnel shall take a bearing along the dike-line just walked and then sight a line perpendicular to the dike-line. When the sampling crew is aligned with each sighting from the dike, the sighting personnel shall hand or verbally signal. When the sampling crew is within both sighting lines, they will be at the correct sampling location where they shall anchor and commence sampling. The type of anchoring device used must be such that it will not damage the impoundment liner.

3.2.4 Sludge Sampling Procedures

Surface impoundment sludge samples will be collected at the randomly selected sampling locations. Sludge depth and consistency cannot be known in advance, because the sludge is underwater and not directly visible. Consequently, the exact method of sample collection cannot be specified in advance. Rather, the following alternative sampling methods are proposed which can be evaluated as site conditions allow. The project mana[illegible] shall specify which sampling method to use.

At each sampling location, depth of water and approximate depth of sludge will be recorded prior to sludge sample collection. Every attempt shall be made to collect vertical sections of surface impoundment sludges for representative samples. Three methods are proposed for collection of sludge samples: the first is using a core tip sampler, the second is using a peristaltic pump, and the third is a grab sample method.

By the first method, samples may be collected using a stainless-steel sludge sampler with core tip (requires hammer attachment) or auger tip (requires T-handle) lowered to depth of threaded extensions. This sampler employs a butterfly valve to prevent sludge escape. The unit can be fitted with a stainless steel liner, to be capped with removable aluminum foil-lined plastic caps, for collection of undisturbed core.

Procedure for sludge sample collection using the sludge sampler with core tip:

1. Insert the stainless steel liner into the core barrel and assemble the sludge sampler with coring tip. Add appropriate length of extension handles and the hammer attachment.

2. Lower the sludge sampler through the surface impoundment water and sludge to rest on the bentonite clay bottom. Using the hammer attachment, drive the coring approximately 1 inch into the bentonite clay bottom. (Do not drive the coring tip into the Hypalon liner of TA-53-166 S). Activate the butterfly valve to prevent sludge escape.

3. Extract the sludge sampler and retrieve to the boat.

4. Disassemble the core barrel and cap the stainless steel core liner.

5. Extract the stainless steel core liner from the stainless-steel core barrel. Measure and record length of the core.

6. Remove the bentonite plug (optional) from the bottom of the core and transfer the entire contents, or split of the contents, to a wide-mouth, 2-liter volume (minimum) amber-glass sample jar. Samples will be split if requested by the NMED.
7. Securely cap the container and carefully rinse with deionized water. Label the sample container, then place the container in a ziplock bag and custody-tape the bag.

The second alternative method for collecting representative vertical sections of the surface impoundment sludges involves vacuuming the sludges from the bottom, and separating the liquids from solids at the surface. Materials required include a 4- or 6-inch diameter stainless steel pipe; 12-volt, direct-current (DC) peristaltic (or vacuum) pump and tubing; 2-liter vacuum flask or bucket container; and small diameter (less that 3/4 inch, approximate) glass or stainless-steel tubing (or flexible plastic tubing internally coated with Teflon™ affixed to a pipe or pole).

Procedure for sludge sample collection using a peristaltic pump:

1. Lower the wide-diameter stainless steel pipe through the surface impoundment water and sludge to rest on the bentonite bottom. One member of the sampling team shall hold the pipe in place.
2. Assemble the peristaltic pump tubing, flask, and 12-volt power connections.
3. Lower the rigid tubing (or flexible tubing attached to a pipe or pole) into the stainless steel pipe until the bottom is encountered.
4. Turn on the peristaltic pump and vacuum sludge into a vacuum flask trap or directly into a bucket container. Continue vacuuming until sludge no longer remains in the stainless steel pipe.
5. Allow sludge solids to settle and decant supernatant fluid off the sludge. For analysis other than volatile organic analysis, separate the liquid from sludge by gravity filtration through coarse filter paper.
6. Transfer sludge to a 2-liter, wide-mouth amber-glass sample jar.
7. Securely cap the container and carefully rinse with deionized water. Label the sample container, and place the container in a ziplock bag and custody-tape the bag.

If sample team members are unable to collect vertical stratum samples of the sludge due to the consistency of the sludge or conditions at the site, a third method of sludge sample collection may be used. This a grab sample method using a Teflon™, glass, or stainless-steel beaker attached to a pole. This method ignores vertical representation of the sludge stratum and should only be used when the preferred methods fail.

Sample collection methods will be indicated on the Field Activity Daily Log forms (Figure 3-4) for every sample collected.

3.2.5 Water Sampling Procedure

Water samples will be collected at mid-depth of the randomly selected sampling location. Water samples may be collected by using a peristaltic pump and tubing (preferred), a discreet interval (zone) sampler, or double check valve bailer. Samples should be collected at the midpoint of the fluid column. Samples should be placed directly in the appropriate containers and handled with procedures previously described for the sludges.

3.2.6 Sample Preservation and Handling

Samples will require cooling with ice or other chemical preservation at the time of collection or during laboratory preparation prior to analysis. All samples require field preservation as soon after collection as is practical. Sample containers which are prepared with appropriate preservative at the analytical laboratory may be used to simplify field preservation. Sample preservation will conform to requirements of SW-846, Volume II, Part III. Sample containers will be precleaned (typically by the original supplier) using EPA quality assurance protocols appropriate for the intended use of the sample container. Sample container requirements, preservation, and holding times are listed in Table 3-1.

Following sample collection, sample container lids shall be fixed tightly to the containers and the outside of the container carefully rinsed with deionized water. The purpose of the rinse is to minimize the spreading of radioactive materials via the sample container surfaces. Sealed and labeled sample containers will be placed in polyethylene ziplock bags as secondary confinement in the event of leakage or breakage. The secondary sample containers (ziplock bags) will be sealed with custody tape so that evidence of opening is immediately obvious. Custody tape will be initialed and dated by a member of the field team. The outside surfaces of the secondary sample containers will be monitored for radioactivity prior to packaging for transportation to the analytical laboratory.

Samples will be packaged in shipping coolers, cooled to approximately 4 degrees Celsius (4°C), with adequate cushioning and absorbent materials to reduce the likelihood of breakage and to contain fluids should breakage occur. Sample custody, analytical request documentation, and any additional laboratory-required documentation will be placed in ziplock bags and taped inside the cooler lid. Any sample with suspect hazardous constituents or with radioactive contamination greater than or equal to 2 nanocuries per gram must be accompanied by a completed Hazardous Materials Transfer Form (Figure 3-3a). If analyzed off site, placards bearing the word "RADIOACTIVE" shall be placed inside the cooler, on top of the packing materials, so as to be obvious when opening the cooler. All coolers not shipped off site will have placards on the outside of the coolers. Sample coolers will be sealed with packing tape and radioactivity measurements will be taken at the cooler. Results of this radiation screening will be clearly indicated on the outside of the cooler. The project manager is responsible for packaging and placarding in accordance with Department of Transportation (DOT) regulations (when samples are transported via ground transportation) or International Air Transport Association (IATA) regulations (when transported by commercial cargo aircraft). Appropriate waybills will be affixed to the shipping coolers for off-site shipment and the samples will be transported to the analytical laboratory as quickly as is practical.

3.2.7 Field Sample Documentation

Figures 3-3b through 3-8 are examples of the documentation appropriate for field sampling activities. Preprinted forms which prompt the user for specific information may be used (forms equivalent to those shown in the figures) and the project manager will keep a field file box for retaining pertinent information. The purpose of each field document is described below.

Tailgate Safety Meeting Documentation Form (Figure 3-3b). A Tailgate Safety Meeting will be conducted and documented on the form each morning prior to the start of field activities and any time changes in site conditions, work scope, or site hazards warrant. The form details location of the work site, work-site hazards, personal protective clothing to be used, location of emergency medical facilities, and special equipment or procedures to be used. Each member of the field team and all personnel on site must sign the form, as well as the person conducting the meeting. The Tailgate Safety Meeting form is signed by the field supervisor and that supervisor's manager.

Field Activity Daily Log (Figure 3-4). The Field Activity Daily Log is used to record any pertinent information concerning activities at the site. User of the form is prompted to identify the project and activity, describe the field activities, note visitors on the site, weather conditions, changes to plans or specifications, telephone calls, etc. The Field Activity Daily Log is signed and dated by the person making the entries. More than one field team member may keep Field Activity Daily Log records.

Sample Label (Figure 3-5). Each sample collected shall have a unique sample identification number assigned and recorded on an attached sample label. The sampling number scheme will be determined prior to start of field work. Sample numbers will contain unique identifiers of sample location, date, etc. Sample numbers will be recorded on the sample labels with waterproof, indelible ink (except for VOA samples, which will be labelled using ball point or other nonsolvent-containing ink). Labels will be of a waterproof material, not plain paper. The sample label must be completed to include the project name, sample number, collection date/time, collector's name, sample location, sample media description, preservative, and analysis requested. For samples analyzed on site, preprinted sample labels containing only the sample numbers and initials of sample collector may be used.

Sample Collection Log (Figure 3-6). The sample collection log documents sample number, type, location, and other general descriptive information about each sample taken.

Chain-of-Custody Record (Figure 3-7). The Chain-of-Custody Record documents a sample's history from collection through analysis and disposal. Upon collection in the field, every sample shall be recorded on a Chain-of-Custody Record using the unique sample identification number. The person(s) collecting the sample must be identified on the form. A sample is considered to be in a person's custody when it is in his actual possession, in view after being in his physical possession, locked so that no one can tamper with it after being in his physical possession, or in a secured area restricted to authorized personnel. When custody of the sample(s) is passed from the sample collector to other personnel, the person relinquishing and receiving custody must sign, date and time-stamp the form so that the custody record remains unbroken. When samples are consigned to a commercial shipper, the person having custody at that time signs as relinquisher; the shipper's waybill then becomes part of the custody record, and the receiving laboratory signs for receipt upon opening the sample cooler. Chain-of-Custody Records must remain part of the permanent documentation for field sampling activities.

Request for Analysis Form (Figure 3-8). The Request for Analysis form corresponds to the Chain-of-Custody Record in that both record information concerning the same group of samples. The Request for Analysis form provides information for the analytical laboratory on sample size, type, volume, and preservative; project identification and contact information; analytical tests to perform; project-specific quality control required; possible sample hazards, if known; and the requested disposition of the sample following analysis. The Request for Analysis form becomes part of the permanent project documentation.

3.2.8 Decontamination

Sampling equipment will be cleaned with a nonphosphate detergent before use for each sample and at the end of sampling. All decontamination procedures shall take place within an exclusion zone or centralized decontamination designated for that purpose. Methanol or acetone rinses will not be used in order to not compromise samples taken for volatile organic analyses. Following wash with detergent, sampling equipment will be rinsed three times with deionized water. The final deionized water rinse will be collected in a separate container and sampled as a rinsate blank for the surface impoundment water sample parameters. Following decontamination, sampling equipment will be monitored for radioactivity. Additional decontamination procedures to prevent the spread of radioactive contamination may be mandated by the project manager. Sampling equipment will be decontaminated prior to collecting every sample.

3.2.9 Waste Disposal

Waste generated during field sampling activities is expected to consist of used personal protective equipment (gloves, booties, clothing, etc.), paper and packaging type waste, excess sample fluids and materials, and decontamination solutions. Excess sample fluids and materials and decontamination solutions may be returned to the surface impoundments. Other waste must be bagged in polyethylene lined drums and contained on site. All waste generated within an exclusion zone or designated decontamination area must remain segregated from other wastes and the contents marked on the outside of the container. All waste will be screened for radioactivity prior to leaving the sampling site for storage or disposal.

3.3 ANALYTICAL REQUIREMENTS

Test methods for chemical analysis will be performed according to procedures documented in SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, U.S. EPA, Office of Solid Waste and Emergency Response, Third Edition, November 1986.

Minimum calibration, operation, and quality control (bias, precision, blank, and matrix effects) requirements for laboratory analyses shall be performed as listed in the individual analytical methods of SW-846.

Mass spectra library searches for Tentatively Identified Compounds (TICs) will be performed. Analytical methods to be used in the analysis of sludge and water samples and target detection limits are listed in Table 3-2 (TCLP and total metals) and Table 3-3 (organics). Detection limits are laboratory-determined based upon instrumentation and sample matrix. Sample detection limits may be greater than the target values indicated in the tables; however, all detection limits must be below any corresponding regulatory compliance limit.

3.3.1 Analytical Methods

Summary descriptions of the analytical methods required for this sampling and analysis plan are provided below:

Toxicity Characteristic Leaching Procedure (TCLP) - Method 1311 (40 CFR Part 261, Appendix II) determines the mobility of organic and inorganic analytes present in liquid, solid, or multiphasic wastes. The procedure is a preparatory to chemical analysis by a variety of conventional techniques, which then determines analyte concentrations in the TCLP leachate. Analyte concentrations in TCLP leachate determine if wastes exhibit the toxicity characteristic. One-hundred-gram minimum solid samples are recommended for the analysis; if a smaller sample is used, the proper ratio of extraction liquid volume to sample weight must be maintained. Liquid or sludge-type samples are collected in a 2-liter (approximate) amber-glass, wide-mouth jar. Separate leaching procedures are required for volatiles than for extractable organics and metals.

Inductively Coupled Plasma Emission Spectroscopy (ICP/ES) - Method 6010 and EPA CLP Inorganic Statement of Work describes the simultaneous or sequential determination of elements in solution using this instrumentation. Most metallic analytes can be determined using this method; however, detection limits vary between elements due to their emission characteristics.

Atomic Absorption Spectroscopy - The 7000 Series Methods and EPA CLP Inorganic Statement of Work describe single element determinations of analytes in solution using these techniques. The elements of arsenic, selenium, lead, thallium, and several others can routinely be determined at much lower levels of detection using graphite furnace atomic absorption (GFAA) than is possible using ICP. Solid samples for metals analysis require preliminary digestions by EPA methods which are referenced and detailed in SW-846.

Gas Chromatography/Mass Spectrometry (GC/MS) - Methods 8240 (or 8260) and 8270 determine volatile and extractable organic compounds, respectively, using chromatographic sample separation and mass spectrometric compound identification. Samples for volatiles may be directly purged onto absorbent materials, then desorbed and introduced into a chromatography column; or first extracted. Extraction methods are referenced and detailed in SW-846.

Gas Chromatography - Method 8080 determines aroclors of PCBs in liquid or solid matrices. Samples are extracted using a referenced SW-846 procedure, chromatographically separated, and the resulting chromatogram compared to known standards for analyte concentration determination.

3.3.2 Laboratory Documentation

Documentation of sample acceptance at the laboratory must be provided to the project manager following sample screening and log-in. This documentation may consist of signed copies of the chain of custody, or a letter detailing the field sample numbers accepted. Corresponding laboratory sample identification numbers should be provided to the project manager. The laboratory is required to have procedures for minimizing cross contamination of samples and securing sample custody within the laboratory.

All laboratory analyst notebooks, log sheets, instrument printouts, charts, calculations, etc., relevant to analyses of these samples shall be identified and remain retrievable. This information may be requested by the project manager or quality assurance officer for independent review and validation.

The analytical laboratory shall be required to submit summary reports of analytical results to the project manager. At a minimum the summary reports shall contain (1) laboratory review/approval date and signature; (2) date sample received; (3) sample preparation date; (4) sample analysis date; (5) preparation and analysis method reference; (6) field sample identification number; (7) laboratory sample identification number; (8) sample reporting or detection limit; (9) laboratory quality control sample results including calculated percent recoveries, relative percent differences, and self-imposed control limits, if applicable; and (10) dilution factors, if required for sample analysis.

3.4 QUALITY ASSURANCE/QUALITY CONTROL

The project manager is responsible for implementation of quality assurance (QA) policies and quality control (QC) procedures. A QA/QC officer, independent of this sampling and analysis task, will assume a quality assurance function and report to the project manager. The independent QA/QC officer is responsible for conducting quality assurance reviews to include second-level approvals of nonconformances and variances, primary approval of corrective actions, and audits of field and laboratory activities and documentation. Reports of all quality assurance review will be reported to the project manager. Quality assurance review may be requested by the project manager, or higher level management, or initiated by the individual responsible for the quality assurance function.

3.4.1 Field Quality Control

Field quality control activities will include collection of quality control samples in addition to the field documentation requirements previously discussed in Section 3.2.7. Quality control samples to be collected include duplicate samples, trip blanks, field blanks, and rinsate blanks. Table 3-4 summarizes field quality control samples discussed in this project plan.

One field duplicate sludge sample will be collected from a randomly selected location of the first five samples at each surface impoundment. The field duplicate will be collected using the same approximate location and analyzed for TCLP metals and total volatile and extractable organics. Frequency of duplicate field samples will be no more than 1 per 20 samples, or the total number of samples collected per surface impoundment. Acceptance limits for field duplicate analyses are 0 to 20 percent relative difference (RPD) per analyte. Due to the suspected heterogeneous nature of surface impoundment sludges, corrective action is not required for analyte RPDs exceeding 20 percent. However, poor total precision may indicate poor analytical precision, and reanalysis may be requested.

Representative organic compounds may be used by the laboratory in matrix spikes for total organic analysis. Acceptance criteria are not applied to matrix spike percent recoveries for total organic compounds; however, extreme bias shown by either very high or very low percent recoveries may indicate matrix interferences.

Confirmatory TCLP organics samples collected from the designated location in the northwest surface impoundment and nearest the influents of the other surface impoundments will be requested for full-compound TCLP matrix spikes. Acceptance criteria are not applied to these matrix spikes, but the percent recoveries can be used to correct the analytical data.

Blank samples collected in the field will include trip blanks and field rinsate blanks. Frequency of blank samples shall be no less than 1 in 20 samples, or 1 per surface impoundment.

Trip blanks will be prepared by the analytical laboratory from organic-free, deionized water. Two 40 ml volume VOA vials will be prepared per trip blank sample. Trip blanks will be taken to the sampling site and packed one pair per shipping cooler containing VOA samples. Trip blanks should be assigned a unique sample identification number for tracking purposes, but should not be identified as blanks to the analytical laboratory. Trip blanks are used to assess VOA sample integrity and contamination which can occur during handling and transportation due to the permeable nature of the septa cap.

Field blanks will be prepared from organic-free, deionized water prepared in bulk from an analytical laboratory. Field blanks are used to assess sample contamination resulting from poor field techniques or poor ambient conditions at the site. One container of field-blank water should be taken to the field each sampling day that water samples are collected. Field-blank water is used to simulate sampling and should be collected and poured directly into sample containers for the water analysis parameters. Equipment rinsate blanks are used to assess sample contamination from improperly cleaned sample equipment.

Instrument calibration and maintenance are field activities subject to quality control procedures. Field equipment requiring calibration will be limited to radioactivity detection devices and organic vapor monitoring. Radiation monitoring equipment is the responsibility of field personnel and will be calibrated and maintained using the manufacturer's instructions and appropriate SOPs.

Field personnel will monitor for organic vapors in the surface impoundment area and may prescribe additional personal protective devices based upon these measurements. Monitoring shall be conducted for nonspecific organic vapors using either an HNU Photoionization Detector, Foxboro Organic Vapor Analyzer, or equivalent instrument. Prior to field activities the organic vapor will be calibrated by a trained technician using a calibration gas to check instrument response and ensure proper operation. Each day prior to monitoring at the site, the organic vapor analyzer shall be zeroed, set in an area free from organic vapors, response-checked using a commercially available calibration gas, and then taken to the surface impoundment site for monitoring.

Field documentation is an integral part of quality assurance and quality control. Field documentation requirements and procedures are discussed in detail in Section 3.2.7 of this sampling plan.

3.4.2 Laboratory Quality Control

The analytical laboratory shall operate under a quality assurance program plan which meets the requirements of SW-846. Quality control procedures in the analytical laboratory are guided by the laboratory's quality assurance plan. Laboratory quality control issues, which are specific to this sampling and analysis plan and are addressed here, include laboratory quality control samples, documentation, and reporting requirements.

Laboratory quality control samples are required to establish the accuracy and precision of analytical data in order to determine the quality of the data. Laboratory performance indicated by laboratory quality control sample results gives indication of the need for corrective action and allows for evaluation of their effectiveness. Table 3-4 lists laboratory quality control procedures.

For the TCLP parameters, one matrix spike is required per Method 1311 to represent the waste in any single surface impoundment. Results for the matrix spike are used to correct the analytical data for comparison to regulatory limits. Acceptance limits are not applied to TCLP matrix spikes; however, spike percent recoveries which exceed the range 50 to 150 percent recovery may indicate matrix interferences. Corrective actions in the form of alternate analytical procedures may be requested.

At a minimum, the laboratory shall analyze calibration materials, method blank samples, organic surrogate blanks, and check standards, replicates, and matrix spike samples at the frequency indicated in Chapter 1 of SW-846. Acceptance criteria for organic surrogate spike analyses and organic laboratory performance sample analyses will be as specified in the appropriate analytical methods of SW-846. Additional laboratory quality control samples for determining bias (analytical accuracy) and precision for inorganic analyses conducted under this project plan are discussed below:

Accuracy. Analytical accuracy will be determined by analysis of duplicate laboratory control samples, with each analytical batch containing samples generated under this plan. Laboratory control samples are blank spikes containing the analytes of interest in a deionized-water matrix. Accuracy will be calculated as percent recovery or percent deviation from true value. Acceptance criteria for inorganic control samples are within 75 to 125 percent recovery or historical laboratory limits of plus or minus three standard deviations about the mean, whichever is more stringent.

Precision. Analytical precision will be determined by calculating the relative percent difference for parameters analyzed in the duplicate control samples. Relative percent difference is calculated as the absolute difference between the two results, divided by their mean, times 100. Precision is not mandated by SW-846, but this project will impose advisory precision limits of less than 20 RPD. Precision measurements exceeding that value may indicate corrective action.

The analytical laboratory will be notified of the quality control requirements for this sampling and analysis plan following the decision to proceed with the plan.

3.5 VARIANCES, NONCONFORMANCES, AND CORRECTIVE ACTIONS

Variances are deviations from approved work plans or procedures which are anticipated. Variance requests and approvals will be documented using a Variance Log (Figure 3-9). All items recorded on the Variance Log require approval of the project manager and the quality assurance coordinator. Telephone or verbal approval from the project manager is sufficient to proceed with the variance. All variances must be documented.

Nonconformances are uncontrolled and unapproved deviations from approved procedures or project requirements. Nonconformances may be detected and identified by project personnel, laboratory personnel, or quality assurance personnel. Every nonconformance affecting quality will be documented on a Nonconformance Report Form (Figure 3-10). Documentation shall include identification of the person detecting the nonconformance, description of the nonconformance, methods for correcting the nonconformance or description of the variance granted, and schedule for completing corrective action, if any. Nonconformances must be communicated to the project manager and the quality assurance coordinator. Nonconformance report approvals are required by the project manager by the quality assurance coordinator.

Corrective actions involving nonconformances which seriously affect data quality produced at the analytical laboratory and which are identified by project personnel must be transmitted in writing to the laboratory quality assurance director. The laboratory will be requested to develop a corrective action plan which address the nonconformances identified. Corrective actions proposed by the laboratory are subject to the project manager and quality assurance coordinator's approvals prior to implementation.

Table 3-1

Sample Containers, Preservation, and Holding Times

Analyte Group	Water			Sediment/Soil/Sludge		
	Container	Preservative	Holding Time	Container	Preservative	Holding Time
Target Analyte Metals	1 liter P	HNO_3 to pH <2	180 days (Hg - 26 days)	8 oz. WM-G	Cool 4°C	6 months (Hg - 26 days)
Target Compound Volatile Organics	2 x 40 ml AG septa vials	HCL, Cool 4° C	14 days	2 x 120 ml G vial teflon-lined cap No headspace	Cool 4°C	14 days
Target Compound Semi-volatile Organics	2 x 1 liter AG	Cool 4° C	7 days extraction, plus 40 days for analysis	8 oz. WM-G	Cool 4°C	7 days extraction plus 40 days for analysis
PCBs	2 x 1 liter AG	Cool 4° C	5 days extraction, plus 35 days for analysis	8 oz. WM-G	Cool 4°C	14 days extraction plus 40 days for analysis
Radioactivity Screening	40 ml G vial, no septa	None	Analyze upon receipt	120 ml G vial	None	Analyze upon receipt
TCLP Metals	NA	NA	NA	2 L AG-WM, 100 gram	None	180 days extraction plus 180 days for analysis (except Hg - 28 days to extraction plus 28 days for analysis)
TCLP Organics	NA	NA	NA	2 L AG-WM	None	VOA - 14 day extraction plus 14 days for analysis; BNA - 14 day extraction plus 7 days to extraction plus 40 days for analysis

P - polyethylene WM-G - wide-mouth glass AG - amber glass G - glass AG-WM - amber glass, wide-mouth

Table 3-2

Toxicity Characteristic Metals, Target Analyte Metals, Target Detection Limits, Analytical Methods, And Instrumentation

Analyte	Target Detection[b] Limit (µg/L)	EPA SW-846 Analytical Method	Instrumentation[c]
Aluminum	200	6010	ICP
Antimony	60	6010, 7041	ICP, GFAA
Arsenic[a]	10	6010, 7060	ICP, GFAA
Barium[a]	200	6010	ICP
Beryllium	5	6010, 7091	ICP, GFAA
Cadmium[a]	2	6010, 7131	ICP, GFAA
Calcium	5,000	6010, 7140	ICP, FAA
Chromium[a]	10	6010, 7191	ICP, GFAA
Cobalt	50	6010	ICP
Copper	25	6010	ICP
Iron	100	6010	ICP
Lead[a]	5	6010, 7420, 7421	ICP, FAA, GFAA
Magnesium	5,000	6010, 7450	ICP, FAA
Manganese	15	6010	ICP
Mercury[a]	0.2	7470, 7471	CVAA
Nickel	40	6010	ICP
Potassium	5,000	6010, 7610	ICP, FAA
Selenium[a]	5	6010, 7740	ICP, GFAA
Silver[a]	10	6010, 7760	ICP, FAA
Sodium	5,000	6010, 7770	ICP, FAA
Thallium	10	6010, 7841	ICP, GFAA
Vanadium	50	6010	ICP
Zinc	20	6010	ICP
TCLP	NA	1311	NA

(a) Toxicity characteristic metal.

(b) Detection limits listed are for clean water. Actual detection limits may be higher depending on sample composition and matrix type.

(c) ICP - Inductively Coupled Plasma Emission Spectroscopy
GFAA - Graphite Furnace Atomic Absorption Spectroscopy
FAA - Flame Atomic Absorption Spectroscopy
CVAA - Cold Vapor Atomic Absorption Spectroscopy

Table 3-3

Organic Compound Lists, Target Detection Limits[a], Analytical Methods, and Instrumentation

Analyte (Group)	Target Detection Limits	EPA SW-846 Analytical Method	Instrumentation
Target Compound List Volatiles + 10 Tentatively Identified Compounds (TICs)	10 µg/l water 10-120 µg/kg sediment	8240, or 8260	GC/MS
Target Compound List Semi-Volatiles + 20 TICs	10 µg/l water 330-50,000 µg/kg sediment	8270	GC/MS
PCBs	0.5 - 2.0 µg/l water 1.7 - 170 µg/kg sediment	8080	GC/EC

[a] Detection limits expressed as practical quantitation limits.

Table 3-4

Summary of Field Quality Control Samples

QC Sample Type	Sample Matrix	Applicable Analyses	Frequency	Purpose	Acceptance Criteria	Corrective[a] Action
Trip Blank	Water	Volatiles	Two per shipping cooler containing samples	Monitor sample contamination in field and lab	(b)	Advisory--no action required
Field Blank	Water	Semi-volatiles Pesticides/PCBs Metals, Radionuclides	One sample daily per analysis (can prepare and hold pending sample results)	Monitor field sample contamination/air contamination	(b) (c)	Advisory--no action required
Field Duplicate	Soil/Water	Volatiles	One per impoundment	Monitor sample variability	Analytical method criteria, if applicable	Advisory--no action required
Equipment Rinsate Blank	Water	Volatiles Semi-volatiles Pesticides/PCBs Metals, Radionuclides	One composite per impoundment (can prepare and hold pending sample results)	Monitor decontamination effectiveness and sample cross contamination	(b) (c)	Advisory--no action required

[a]EPA Functional Guidelines for Data Validation may apply.

[b]For volatiles and semi-volatiles analysis, if blank shows detectable levels of any common laboratory contaminant (methylene chloride, acetone, 2-butanone, toluene, any phthalate ester), sample must exhibit that contaminant at a level ≥10x the quantitation limit to be considered detectable. For all other contaminants, sample must exhibit the contaminant at a level ≥5x the quantitation level to be considered detectable.

[c]For pesticides analysis, if blank shows detectable level of any contaminant, sample must exhibit that contaminant at a level ≥5x the quantitation limit to be considered detectable.

Table 3-5

Summary of Laboratory Quality Control Procedures[a] By Analytical Method

Parameter	EPA SW-846 Analytical Method	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Target Compound Volatile Organics	8240 or 8260	Instrument performance: mass calibration/ion abundance pattern	Every 12 hours of analysis time	Per method	Repeat until acceptance criteria satisfied
		Initial calibration: instrument sensitivity and linearity of response	Five concentration levels; after each instrument performance, check prior to sample analysis	Relative response factors (RRF) within method limits	Repeat calibration
		Continuing calibration	Every 12 hours of analysis time	Average RRFs <25% difference	Repeat calibration
		Internal standards	All calibration standards, samples, and blanks	Extracted ion current profile (EICP); Δ -50% to +100% Retention time shifts <0.50 minutes	Correct malfunction; re-analyze sample per method criteria
		Method blank	Every 12 hours of analysis time	< 5 times quantitation limit for methylene chloride, acetone, 2-butanone; all other compounds < or = to quantitation limit	Determine source of contamination, and document corrective action; re-extract and re-analyze samples

Table 3-5, Continued

Summary of Laboratory Quality Control Procedures[a] By Analytical Method

Parameter	EPA SW-846 Analytical Method	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Target Compound Volatile Organics (cont'd)	8240 or 8260	System monitoring compounds	Every method blank, sample, matrix spike, matrix spike duplicate; matrix specific, per method limits	Check instrument and calculations; re-analyze per method criteria	
Target Compound Semi-Volatile Organics	8270	Instrument performance: mass calibration/ion abundance pattern	Every 12 hours	Per method	Repeat until acceptance criteria satisfied
		Initial calibration: instrument sensitivity and linearity of response	Five concentration levels. After each performance, check prior to sample analysis	RRFs within method limits	Repeat calibration
		Continuing calibration	Every 12 hours	Average RRFs <25% difference	Repeat calibration
		Internal standards	All calibration standards, samples and blanks	EICP Δ -50% to +100% Retention time shifts < 0.50 minutes	Correct malfunction; re-analyze sample per method criteria
		Method blank	Each group of samples of similar matrix and concentration level (soils)	< 5 times quantitation limit for phthalate esters; all other compounds < or o= to quanitation limit	Determine source of contamination; document corrective action; re-extract and re-analyze samples

Table 3-5, Continued

Summary of Laboratory Quality Control Procedures[a] By Analytical Method

Parameter	EPA SW-846 Analytical Method	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Target Compound Semi-Volatile Organics (cont'd)	8270	Surrogate Compounds	Each sample, blank	Matrix specific per method limits	Re-extract and re-analyze per method criteria
Organochlorine Pesticides and PCBs	8080	GC Column Resolution	Prior to each initial calibration, or each column and instrument	Per method criteria	Change column, detector, clean system, etc.; repeat procedure
		Initial calibration	Three concentration levels calibration sequence prior to sample analysis after resolution check	Calibration factors and retention times must meet method criteria	Repeat calibration
		Continuing calibration	Every 12 hours	Calibration factors and retention times must meet method criteria	Repeat calibration
		Method blank	One per field batch, every 20 samples, every 14 days, or whenever similar extraction method used; whichever more frequent	All analytes less than quantitation limits, retention times within windows	Re-extract and re-analyze all associated samples

Table 3-5, Continued

Summary of Laboratory Quality Control Procedures[a] By Analytical Method

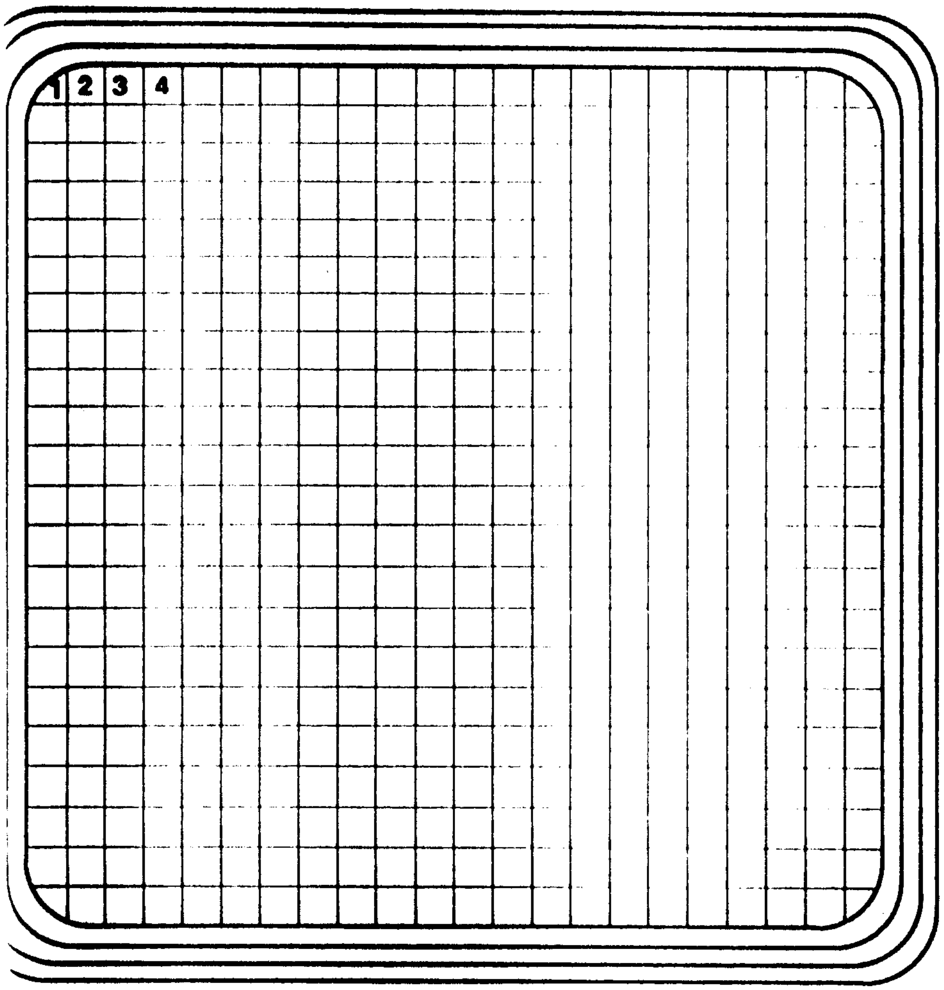
Parameter	EPA SW-846 Analytical Method	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Organochlorine Pesticides and PCBs (cont'd)	8080	Instrument blank	First analysis every 12 hours following calibration	Less than 0.5 times quantitation limits, retention times within windows; surrogates acceptable	Correct malfunction; repeat calibration sequence, re-analyze blank, re-inject all associated samples
		Sulfur clean-up blank	Each sample set requiring sulfur clean-up	All analytes less than quantitation limits; surrogate retention times within windows	Re-extract and re-analyze all associated samples
		Surrogate compounds	Each sample and blank	60% - 150% recovery	Advisory only--no action
Metals	6010	Instrument calibration	Daily, or each setup	±5% true value	Repeat calibration
		Initial/continuing calibration	After instrument calibration, 10% or every two hours	±10% true value	Correct problem, re-calibrate and re-analyze previous ten samples
		Initial/continuing calibration blank	Every calibration, 10% or two hours	< contract required detection limits	Correct problem; re-calibrate and re-analyze all samples since last blank
		Preparation blank	Each batch of digested samples	< contract required detection limits	Re-digest and re-analyze all associated samples per method criteria
		Interference check sample	Each run or twice per eight-hour shift	±20% of true value	Correct problem; re-calibrate, re-analyze all samples since last ICS

Table 3-5, Continued

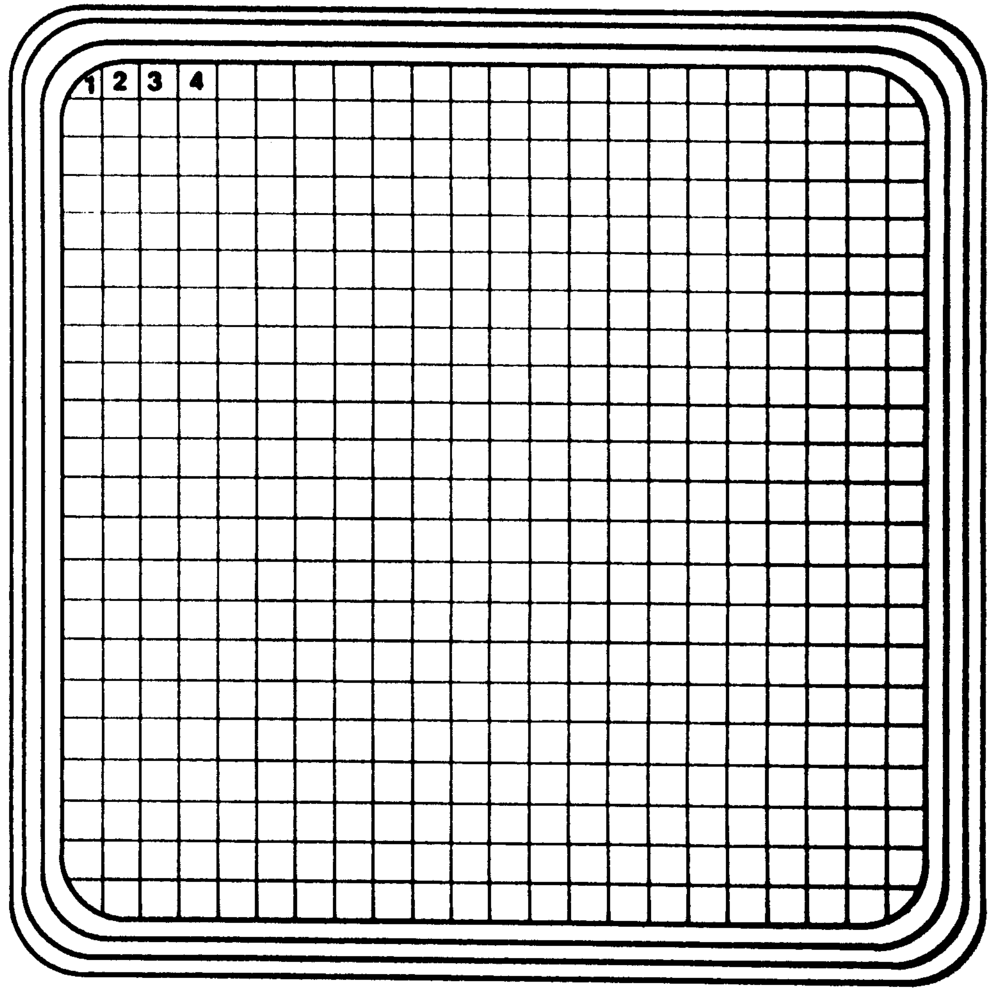
Summary of Laboratory Quality Control Procedures[a] By Analytical Method

Parameter	EPA SW-846 Analytical Method	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
Metals (cont'd)	6010	Duplicate sample analysis	Once per field batch per matrix	0%-20% RPD when < five times detection limit; ± detection limit otherwise	Flag data
		Laboratory control sample	Once per field batch or each digest group	80% - 120% percent recovery (except Ag, Sb)	Correct problem; re-digest and re-analyze all samples since last LCS
		Serial dilution analysis	Once per field batch per matrix	± 10% original determination	Flag data
		Instrument detection limit	Quarterly	As determined	Not applicable
		Inter-element corrections	Annually	As determined	Not applicable
		linear range analysis	Quarterly	± 5% true value	Re-analyze
TCLP Metals and Organics	1311 6010 7000-Series 8260 8270	Per analytical methods	Per analytical methods	Per analytical methods	Per analytical methods

[a]Source: EPA Contract Laboratory Program Statement of Work for Inorganic and Organic Analysis (3/90). Not all listed procedures may be applicable to SW-846 protocols.



NORTHWEST LAGOON

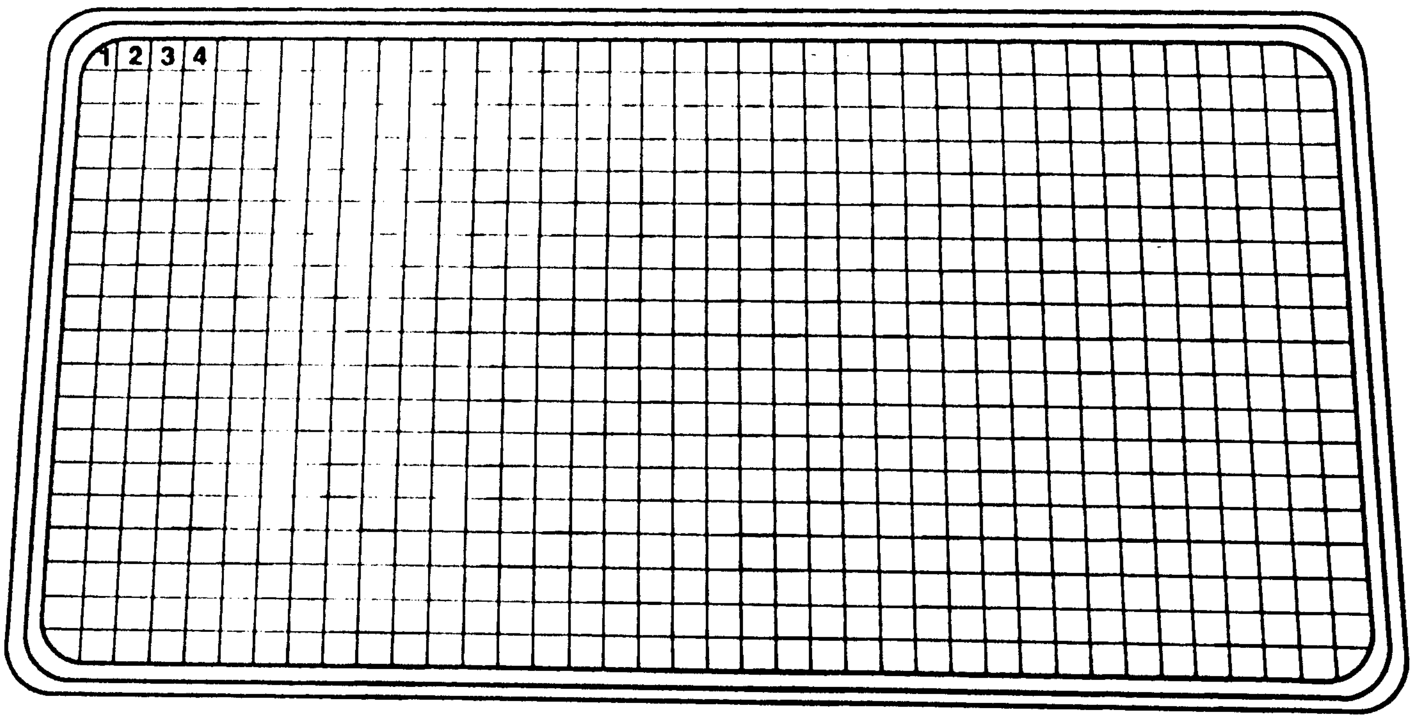


NORTHEAST LAGOON

FIGURE 3-1

SCHEMATIC 10-FOOT-SQUARE GRID, NORTHWEST AND NORTHEAST SURFACE IMPOUNDMENTS, FOR DETERMINING RANDOM SAMPLE LOCATIONS

301219.01.10 A3



SOUTH LAGOON

FIGURE 3-2

SCHEMATIC 10-FOOT-SQUARE GRID, SOUTH SURFACE
IMPOUNDMENT, FOR DETERMINING RANDOM SAMPLE LOCATIONS

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

HAZARDOUS MATERIALS TRANSFER FORM

HM No. 37551	SM No.	Date

Complete entire form. Please type or print. UPON DELIVERY, FORWARD THIS FORM TO THE HAZPACT OFFICE, MS: G726

FROM	Name				
	Telephone	Group	TA	Build.	Room

TO	Name				
	Telephone	Group	TA	Build.	Room

Check all that apply. Refer to 49 CFR 173.50 for hazard class definitions.

- ☐ 1.1 Explosives
- ☐ 1.2 Explosives
- ☐ 1.3 Explosives
- ☐ 1.4 Explosives
- ☐ 1.5 Very Insensitive Explosives:Blasting Agents
- ☐ 1.6 Extremely Insensitive Detonating Substances
- ☐ 2.1 Flammable Gas
- ☐ 2.2 Non-Flammable Compressed Gas
- ☐ 2.3 Poisonous Gas
- ☐ 3 Flammable and Combustible Liquid
- ☐ 4.1 Flammable Solid
- ☐ 4.2 Spontaneously Combustible Material
- ☐ 4.3 Dangerous When Wet
- ☐ 5.1 Oxidizer
- ☐ 5.2 Organic Peroxide
- ☐ 6.1 Poisonous Materials
- ☐ 6.2 Infectious Substance (Etiologic Agent)
- ☐ 7 Radioactive Material
- ☐ 8 Corrosive Material
- ☐ 9 Miscellaneous Hazardous Material
- ☐ Other Regulated Material

Form of Material

- ☐ Solid
- ☐ Liquid
- ☐ Compressed Gas
- ☐ Uncompressed Gas
- ☐ Cyrogenic Material
- ☐ Metal
- ☐ Powder

Chemical Name

Quantity per Container

Is this material a limited quantity? ☐ Yes ☐ No *If you do not know the definition of a limited quantity for the hazard class of your material, contact HAZPACT at 7-4127.* If your answer is yes complete and prepare your transfer per the instructions in 49 CFR for limited quantities. If your answer is no, and you do not have a Standard Operating Procedure approved by the HAZPACT Office for this category of material, then contact a HAZPACT Operations Representative at 7-4127 Radioactive shipments must include the identification of radionuclide, packaging identification, activity, transport index, and type of label applied.

No. of Pkgs.	Packaging Used	Proper Shipping Name	Hazard Class & Division	UN/NA Number	Packaging Group	Qty. or Residue	Gross Weight

TRANSPORTATION: THIS MATERIAL IS TO BE TRANSPORTED ONLY IN GOVERNMENT VEHICLES!

I certify that the above information is correct and that this transfer contains no hazardous materials other than those listed. This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Signature:

Delivered By (Nuclear Material Handler) Signature	Received By (Receiving Custodian) Signature	Date

Placard(s) Required ☐ Yes ☐ No   Label(s) Required ☐ Yes ☐ No

ADDITIONAL RADIOACTIVE MATERIAL INFORMATION REQUIRED

Transport Index:	Chemical Form:	Physical Form:

Radionuclide(s) ____

Curies ____

Grams ____

Type Of Label
…ired:

Radiation Levels	Contact	At 1 Meter
	____ mR/hr	____ mR/hr
	____ mrem/hr	____ mrem/hr
Total	____	Total ____

…rior surfaces are free from remova… …tamination.

Tamper ID.

Nuclear Material ☐ Yes ☐ No

Health Physics Representative	…te	Pro-Force Signature	Date

Form 1468 (4/91)   ST 5052

FIGURE 3-3a HAZARDOUS MATERIALS TRANSFER FORM

TAILGATE SAFETY MEETING

·ision/Subsidiary ______________________ Facility ______________________

·te ______________ Time ______________ Job Number ______________

Customer ______________________ Address: ______________________

Specific Location ____

Type of Work ____

Chemicals Used ____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment ____

____

Chemical Hazards ____

____

Physical Hazards ____

____

Emergency Procedures ____

____

Hospital / Clinic ______________ Phone (   ) ______________ Paramedic Phone (   ) ______________

·spital Address ____

·pecial Equipment ____

____

Other ____

____

ATTENDEES

NAME PRINTED	SIGNATURE

Meeting conducted by:

______________________ NAME PRINTED ______________________ SIGNATURE

Supervisor ______________________ Manager ______________________

FIGURE 3-3b

36-8-85

TAILGATE SAFETY MEETING DOCUMENTATION FORM

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD ACTIVITY DAILY LOG

DAILY LOG			
DATE			
NO.			
SHEET	OF		

PROJECT NAME	PROJECT NO.
FIELD ACTIVITY SUBJECT:	
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:	
VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
IT PERSONNEL ON SITE:	
SIGNATURE	DATE:

327A 7-86

FIGURE 3-4 FIELD ACTIVITY DAILY LOG FORM

INTERNATIONAL TECHNOLOGY CORPORATION

F

H R

Project Name ____________________

Project No ____________________

Sample No ____________________

Collection Date/Time ____________________

Collector's Name ____________________

Sample Location ____________________

Sample Type/Depth/Description ____________________

Analyze For __________ Preservative __________

Bottle _______ of _______ _______ Filtered _______ Nonfiltered

23-8-85

FIGURE 3-5

SAMPLE LABEL

INTERNATIONAL TECHNOLOGY CORPORATION

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

SAMPLE COLLECTION LOG

PROJECT NAME ______________________________

SAMPLE NO. ______________________________

SAMPLE LOCATION ______________________________

SAMPLE TYPE ______________________________

COMPOSITE ______ YES ______ NO

COMPOSITE TYPE ______________________________

DEPTH OF SAMPLE ______________________________

WEATHER ______________________________

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS:

FIGURE 3-6

SAMPLE COLLECTION LOG

PREPARED BY: ______________________________

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

PREPARED BY: ______________________

LEGEND

1 A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE

2 ALWAYS COMPLETE BOTH SIDES IF SECOND SIDE IS NOT USED DRAW A LINE THROUGH IT AND MARK N/A FILL IN CONTROL BLOCK AND PREPARED BY

3. ALL ENTRIES ON LOG ARE TO BE COMPLETED. IF NOT APPLICABLE MARK N/A.

4 DATE: USE MONTH/DAY/YEAR. I.E., 10/30/85

5. TIME: USE 24-HOUR CLOCK I.E., 1835 FOR 6:35 P.M.

6 PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE ______ OF ______ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E. IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.

7 SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.

8 SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS, OIL, VEGETATION, WIPE, SEDIMENT.

9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.

10 DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".

11 WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.

12 CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL, 1 - 400 ML PLASTIC, 1 - 3 INCH STEEL TUBE, 1 - 8 OZ. GLASS JAR)

13 AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

125-10-85

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. ____________

C/C Control No. 158108

PROJECT NAME/NUMBER ____________ LAB DESTINATION ____________

SAMPLE TEAM MEMBERS ____________ CARRIER/WAYBILL NO. ____________

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.

Special Instructions: ____________

Possible Sample Hazards: ____________

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: ____________

   Received By: ____________

2. Relinquished By: ____________

   Received By: ____________

3. Relinquished By: ____________

   Received by: ____________

4. Relinquished By: ____________

   Received By: ____________

WHITE - To accompany samples
YELLOW - Field copy

FIGURE 3-7

CHAIN-OF-CUSTODY RECORD

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 208161

C/C Control No. ________

PROJECT NAME ________

PROJECT NUMBER ________

PROFIT CENTER NUMBER ________

PROJECT MANAGER ________

BILL TO ________

PURCHASE ORDER NO. ________

DATE SAMPLES SHIPPED ________

LAB DESTINATION ________

LABORATORY CONTACT ________

SEND LAB REPORT TO ________

DATE REPORT REQUIRED ________

PROJECT CONTACT ________

PROJECT CONTACT PHONE NO. ________

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions

TURNAROUND TIME REQUIRED: (Rush must be approved by the Laboratory Project Manager.)

Normal ________ **Rush** ________ (Subject to rush surcharge.)

QC LEVEL: (Levels II and III subject to surcharge; project-specific requirements must be submitted to lab before beginning work.)

I ________ **II** ________ **III** ________ **Project Specific** ________

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

Non-hazard ________ **Flammable** **Skin Irritant** ________ **Highly Toxic** ________ **Other** ________ **(Please Specify)**

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, archive and disposal.)

Return to Client ________ **Disposal by Lab** ________ **Archive** ________ **(Indicate number of months.)**

FOR LAB USE ONLY

Received by ________ **Date/Time** ________

WHITE - Original, to accompany samples
YELLOW - Field copy

FIGURE 3-8

REQUEST FOR ANALYSIS FORM

INTERNATIONAL TECHNOLOGY CORPORATION

VARIANCE NO.__________

VARIANCE LOG

PROJECT NO.__________ PAGE ___ OF ___

PROJECT NAME ____________________ DATE: ________

VARIANCE (INCLUDE JUSTIFICATION)

APPLICABLE DOCUMENT:

CC:

REQUESTED BY: ____________________ Date: ________

Approved By: ____________________ Date: ________
Project Manager

____________________ Date: ________
Quality Assurance Officer

____________________ Date: ________

FIGURE 3-9

VARIANCE LOG

INTERNATIONAL TECHNOLOGY CORPORATION

NONCONFORMANCE REPORT

PROJECT NO. ______________ PAGE ___ OF ___

PROJECT NAME ______________________________ DATE: ________

NONCONFORMANCE:

IDENTIFIED BY: ____________________ DATE: ________

CORRECTIVE ACTION REQUIRED:

TO BE PERFORMED BY: ______________________________ DATE: ________

MUST CORRECTION BE VERIFIED? YES ____ NO ____

TO BE VERIFIED BY: __________ PREPARED BY: ______________ DATE: ________

CORRECTIVE ACTION TAKEN:

PERFORMED BY: ______________________ DATE: ________

VERIFIED BY: ______________________ DATE: ________

CC: Approved By: ______________________ Date: ________

______________________ Date: ________

FIGURE 3-10

NONCONFORMANCE REPORT

4.0 WASTE MANAGEMENT PRACTICES

4.1 SURFACE IMPOUNDMENTS TA-53-166 NORTHEAST AND NORTHWEST

4.1.1 Design Standards

TA-53-166 NE and NW were constructed in 1969. These impoundments are lined with bentonite clay bottoms and Gunite sides. They are both 210 feet in length by 210 feet in width and 6 feet deep with liquid storage capacities of 1,629,144 gallons each. Figures 4-1 and 4-2 show the "as-built" details for these two impoundments.

4.1.1.1 Dike and Impoundment Design and Construction

The surface impoundments dikes were constructed of materials obtained on-site by excavating and pulverizing the welded volcanic tuff bedrock (Bandelier Tuff). The Bandelier Tuff in this area is an ashfall and ashflow tuff which was welded to varying degrees. The pulverized tuff is essentially a cohesionless soil (Boyd, 1966) which was placed in layers and compacted to 90% of the maximum density as defined by the Modified Proctor (ASTM D1557).

The impoundments were built with side slopes of 2:1 (horizontal:vertical). The base elevation of both impoundments is 6,916 feet above sea level (a.s.l.), with maximum water elevations of 6,920 feet a.s.l. The elevation at the top of the berms ranges from a minimum of 6,922 feet a.s.l. on the south, east, and west sides to 6,927 feet a.s.l. on the north side. There is a 32-foot-wide berm separating the two impoundments.

4.1.1.2 Liner Design

The liners in the two north impoundments consist of a four-inch layer of bentonite clay on the base of the impoundment and a Gunite liner on the sidewalls. The clay liners were compacted to 95% of the maximum density as defined by the Modified Proctor (ASTM D1557). Typically, bentonite clay liners compacted to 95% of the Modified Proctor should yield a permeability of less than the standard 1 X 10^{-7} cm/sec. However, no documentation has been found which confirms the hydraulic conductivity meets the standard of 1 X 10^{-7} cm/sec. The Gunite liners consist of approximately four to six inches of cement slurry without aggregate (shotcrete) which was sprayed onto the sides of the impoundments.

4.1.2 Structural Integrity

4.1.2.1 Stability Analysis of Dikes

A search for design/construction quality control information and literature regarding the two north surface impoundments has been performed. However, little information was available. LANL is currently pursuing a contract for geotechnical evaluation of dike integrity of all three impoundments. The information to be collected will include the results of geotechnical testing performed to determine the physical properties of the impoundment dikes, soils and foundation materials, construction quality control records, and geologic maps. This information will be used in performing a stability analysis of the impoundment dikes. Geotechnical characterization will most likely include soils/rock testing of foundation materials (i.e. volcanic tuff) and fill materials used to construct the impoundment dikes and bentonite clay liners. The soils/rock testing will probably consist of laboratory tests for:

- Sieve analyses, Atterberg limits (plasticity),

- Permeability tests,
- Consolidation tests,
- Triaxial tests and strength testing,
- Direct shear,
- Density and in situ moisture content,
- Standard penetration testing-blow counts (field testing during borings),
- Maximum laboratory density (Proctor),
- Compaction testing,
- Material compliance-sieve analysis, Atterberg limits, etc.,
- Construction observation records, and
- As-built plans.

It is anticipated that stability analysis will be completed within six months from the date of this submittal.

4.1.2.2 Bearing Capacity

The information required to determine the bearing capacity of the foundation materials can be obtained through either cone penetrometer tests (CPT), classification tests, strength tests, or geotechnical correlations. A site investigation will be conducted to obtain the necessary information for bearing capacity analysis as part of the proposed geotechnical investigation.

4.1.2.3 Settlement Potential

An engineering evaluation of consolidation, strength, and classification tests will be performed to evaluate the potential for differential settlement of the foundation materials due to the loads imposed by the impoundments. The indicated tests will be conducted prior to the evaluation of differential settlement potential as part of the proposed geotechnical investigation.

4.2 SURFACE IMPOUNDMENT TA-53-166 SOUTH

4.2.1 Design Standards

TA-53-166 S was constructed in 1985 and is lined with Hypalon (36 mil thick). This impoundment is approximately 305 feet in length and 148 feet in width and is 6 feet deep with a liquid storage capacity of 2,580,000 gallons. No "as-built" drawings are available; however, the initial design drawings provided in Figures 4-3, 4-4, and 4-5 represent the final construction. The engineering certification is included as Appendix B.

4.2.1.1 Dike and Impoundment Design and Construction

The surface impoundment dikes were constructed of soils obtained on-site by excavating and pulverizing the welded volcanic tuff bedrock (Bandelier Tuff). The tuff is described in Section 4.1.1.1. The pulverized tuff was placed in layers up to eight inches in loose thickness. Each layer was then compacted to at least 90% of the maximum density Modified Proctor (ASTM D1557). The top layer consisted of twelve inches of pulverized tuff and was compacted to at least 95% of the maximum density Modified Proctor (ASTM D1557). A six-inch sand cushion layer was placed over the compacted soils in the bottom of the impoundment. This material was compacted to at least 85% of the maximum density Modified Proctor (ASTM D1557). The surface of the cushion layer was to be free of all sharp points and edges so that the liner could be placed on a smooth and uniform surface. The specifications required that the compacted soils be tested for compaction and confirmed to the specification at least once for every 2,000 square feet of area and at least three times. Results of nuclear density tests performed at various locations in and around this impoundment are given in Appendix C. Nuclear density tests are used to determine the compaction of soil fill materials.

The impoundment was built with side slopes of 2:1 (horizontal:vertical). The base elevation of the impoundment is 6,910.5 feet a.s.l., with a maximum water elevation of 6,914.5 feet a.s.l. The elevation at the top of the berms ranges from a minimum of 6,917 feet a.s.l. on the south side to 6,922 feet a.s.l. on the north side.

4.2.1.2 Liner Design

The south surface impoundment is lined with a thermoplastic elastomeric lining material consisting of one ply of fabric reinforcement encapsulated by two plies of Hypalon rubber sheeting. The reinforcing fabric is a 10 X 10 - 1000 denier polyester scrim with a plain weave. The rubber sheeting is compounded using Dupont Hypalon 45 rubber polymer specifically formulated for low water absorption. The liner originally had a twenty-year design life.

The Hypalon liner is 0.036 inches (36 mils) thick. The construction specifications were as follows. The breaking and tear strength, using Test Methods ASTM D751-Grab Method and Tongue Tear, were 200 pounds and 80 pounds, respectively. The hydrostatic resistance specifications of the liner was 250 pounds per square inch (psi) using Test Method ASTM D751, Method A, Procedure 1. The water absorption specifications, from Test Method ASTM D471, is 2% maximum (U.S. Department of Energy, 1985).

The liner was installed in panels which were a minimum of 14,000 square feet and a maximum of 25,000 square feet to minimize the number of field seams required. For the field seams, a minimum overlap of six inches was required. All field seams were sealed with a bodied solvent adhesive and inspected after a 24-hour curing period to ensure the quality of the seaming. The liner anchor trench details, as well as the field seam and structural steel details, are shown in Appendix D (Liner Details).

4.2.2 Structural Integrity

See Sections 4.1.2.1, 4.1.2.2, and 4.1.2.3.

4.3 SURFACE IMPOUNDMENT OPERATION AND MAINTENANCE

The NE and NW impoundments were originally planned as retention impoundments. After their construction, however, the impoundments were frequently at a capacity which required discharges to be made. Growth in the contributing population meant that a third impoundment would need to be constructed to allow the system to continue as retention/evaporation impoundments. The south impoundment was constructed but was then diverted into service as a total retention radioactive liquid waste storage impoundment.

The two-impoundment system is rated at 120,000 gallons per day on a flow-through treatment basis. Although the piping is arranged to operate the impoundments in any configuration, normal operation is for flow to proceed through the system from the northwest impoundment to the northeast impoundment. The system is operated in a batch mode, with discharges occurring two or three times a year to Los Alamos Canyon through a National Pollutant Discharge Elimination System (NPDES) outfall, NPDES Serial No. 09S. (Historical information indicates that before the south impoundment was constructed, discharges from the north impoundments due to overfilling occurred on a fairly frequent basis.) When the decision is made to discharge to the outfall, effluent is sampled according to EPA Form 2C (NPDES) instructions. Parameters include biological oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), and total suspended solids (TSS), as well as pollutants specified in the NPDES permit. Chlorine is sometimes added to the impoundments to reduce the TSS and BOD below the NPDES limits before discharge.

The NE and NW impoundments are each equipped with two AquaAerobics surface turbine aerators for purposes of aeration and enhanced evaporation. This minimizes the volume of water discharged to the outfall. In the winter, ice forms on these impoundments and the aerators are turned off. The aerators are also turned off when a discharge to the outfall is occurring to prevent unnecessary disturbance of sludge and other bottom sediments.

On occasion, water from the north impoundments is diverted to the adjacent south impoundment to prevent the latter from drying out, to keep the liner weighted down, and to maintain appropriate liquid levels in the north impoundments. To accomplish a diversion, the gate between the northwest and northeast impoundments is closed, and the gate in the distribution box which leads to the south impoundment is opened for as long as necessary to divert the desired amount of water.

In the past, liquid radioactive wastewater was discharged to the two north impoundments. Special provisions have therefore been adopted for working in the area of the impoundments. This includes treating all equipment associated with the impoundments as radioactive, and working in close coordination with the Health Physics Operations Group, HS-1, when disposing of this equipment or working in the area of the impoundments.

4.3.1 Overtopping Controls

The maximum water level in the impoundments was set to allow for at least two feet of freeboard. The 100-year, 24-hour storm event for the region is approximately three inches. Therefore, in the event of a 100-year, 24-hour storm, multiplied by 1.3 to account for run-off from the dikes, the freeboard would be at 20.1 inches, or 1.675 feet. The freeboard is visually inspected on a daily basis.

There is a pipe in the NE impoundment that would allow discharge out the permitted NPDES outfall in the event the impoundment reached high levels. However, it is still necessary to perform inspections for freeboard since there is a potential for overtopping if influent or precipitation exceeds the flow capacity of the NPDES discharge.

4.3.2 Erosion Controls

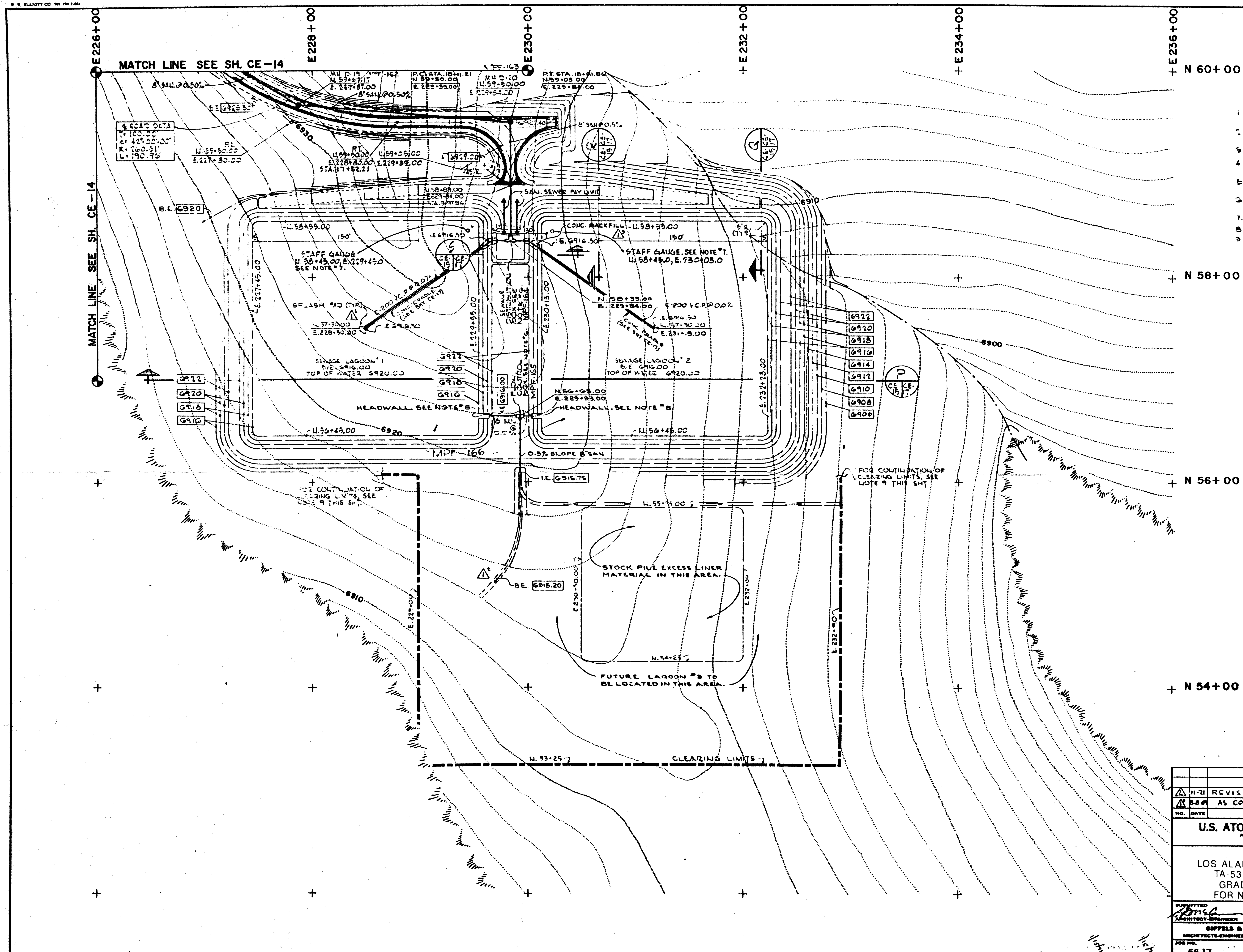
The mechanism for causing erosion of the dike slope is direct rainfall on the dikes. The site is located in a semi-arid region. The average annual rainfall in the region is less than 18 inches, most of which comes during the months of April through October. The slopes were seeded to encourage vegetation growth; therefore, erosion of the dike material is not expected to be significant.

4.4 EXISTING MONITORING SYSTEMS

There are existing monitoring systems in place at the site. See Section 5.0, Ground-Water Monitoring Program, for information regarding monitoring systems installed at the site.

4.5 CERTIFICATION

As previously mentioned, a stability analysis will be completed within 6 months. An engineer's certification attesting to the as-built design stability of the impoundment dikes will be made after the geotechnical investigation, described in Section 4.1.2.1, is performed.



1. FOR LEGEND & GENERAL NOTES SEE DWG. CE-1
2. FOR SEWER PROFILE SEE DRAWING CE-6
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.

J. S. Parsons
Unclassified DATE 11/1/71

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

NO.	DATE	REVISIONS	BY	CH.		
2	11-71	REVISED TO AS-BUILT STATUS 7-27-71	HEW			
1	8-8-69	AS CONSTRUCTED	J.P.	R.N.	B.M.	

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

FIGURE 4-1
LOS ALAMOS NATIONAL LABORATORY
TA-53 SURFACE IMPOUNDMENTS
GRADING AND UTILITIES PLAN
FOR NORTHERN IMPOUNDMENTS

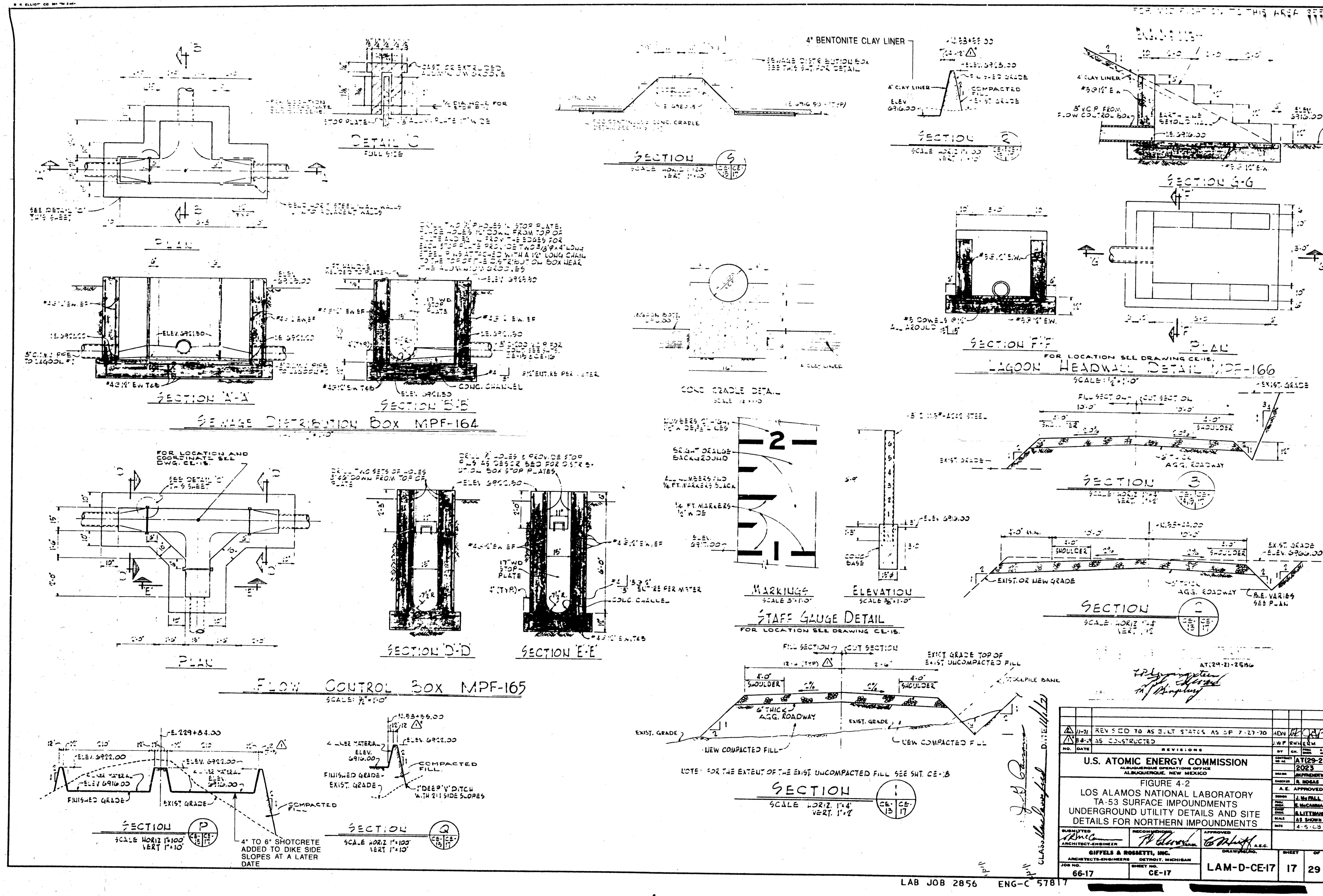
CONTRACT NO. AT: AT(29-2)-2023
DRAWN: P BERNABEI
CHECKED: J. McFALL
A.E. APPROVED
DESIGN: J. McFALL
E. McCANNAN
S.A. LITTMANN
SCALE: AS SHOWN
DATE: 4-5-68

SUBMITTED ARCHITECT-ENGINEER
RECOMMENDED
APPROVED

GIFFELS & ROSSETTI, INC.
ARCHITECTS-ENGINEERS DETROIT, MICHIGAN
JOB NO. 66-17
SHEET NO. CE-15
DRAWING NO. LAM-D-CE-15
SHEET 15 OF 29

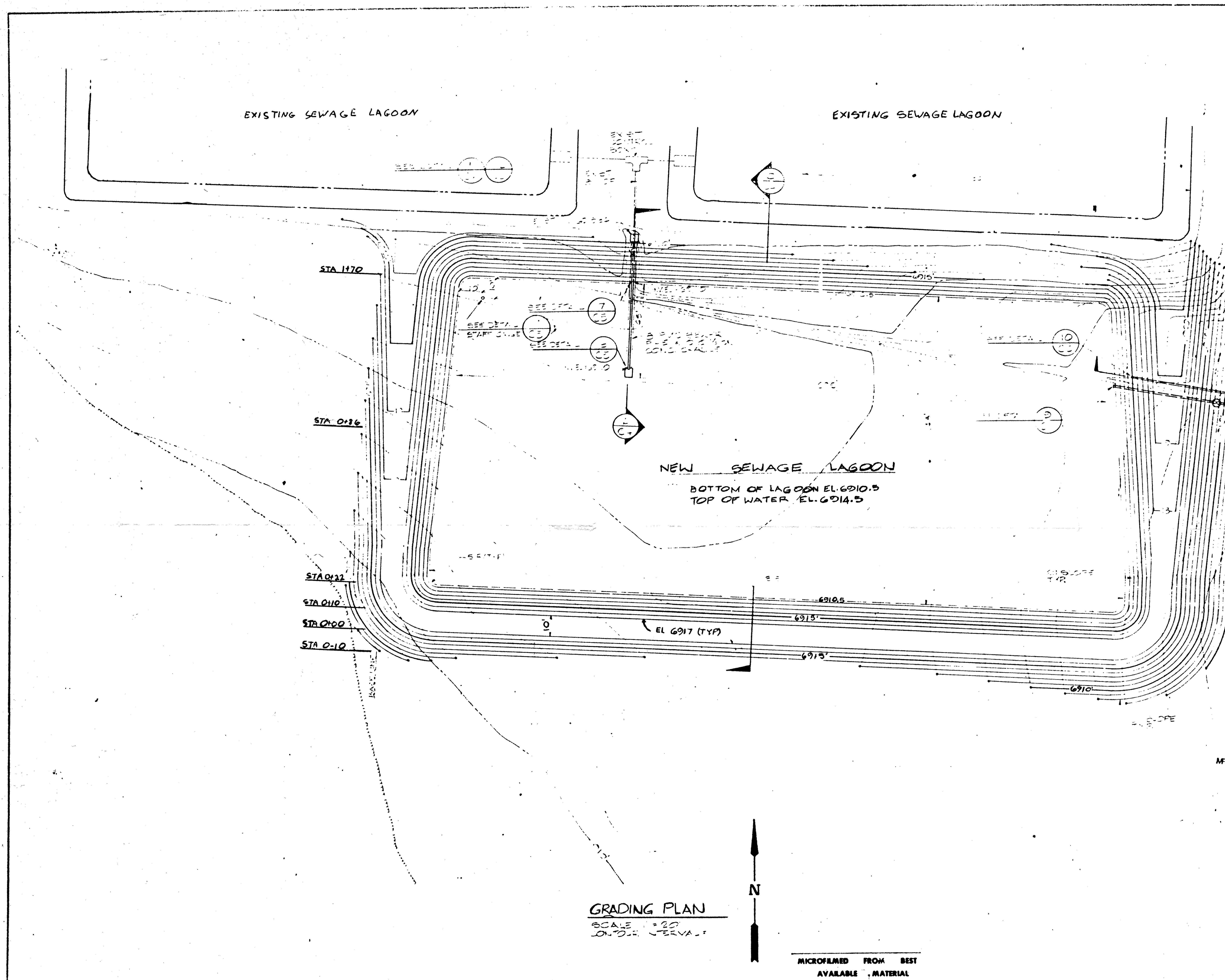
LAB JOB 2856 ENG-C 57815 [redacted] [redacted]

4269-C



[redacted]

4269-D



THE ZIA CO. FACILITIES ENGINEERING DEPT.

FIGURE 4-3

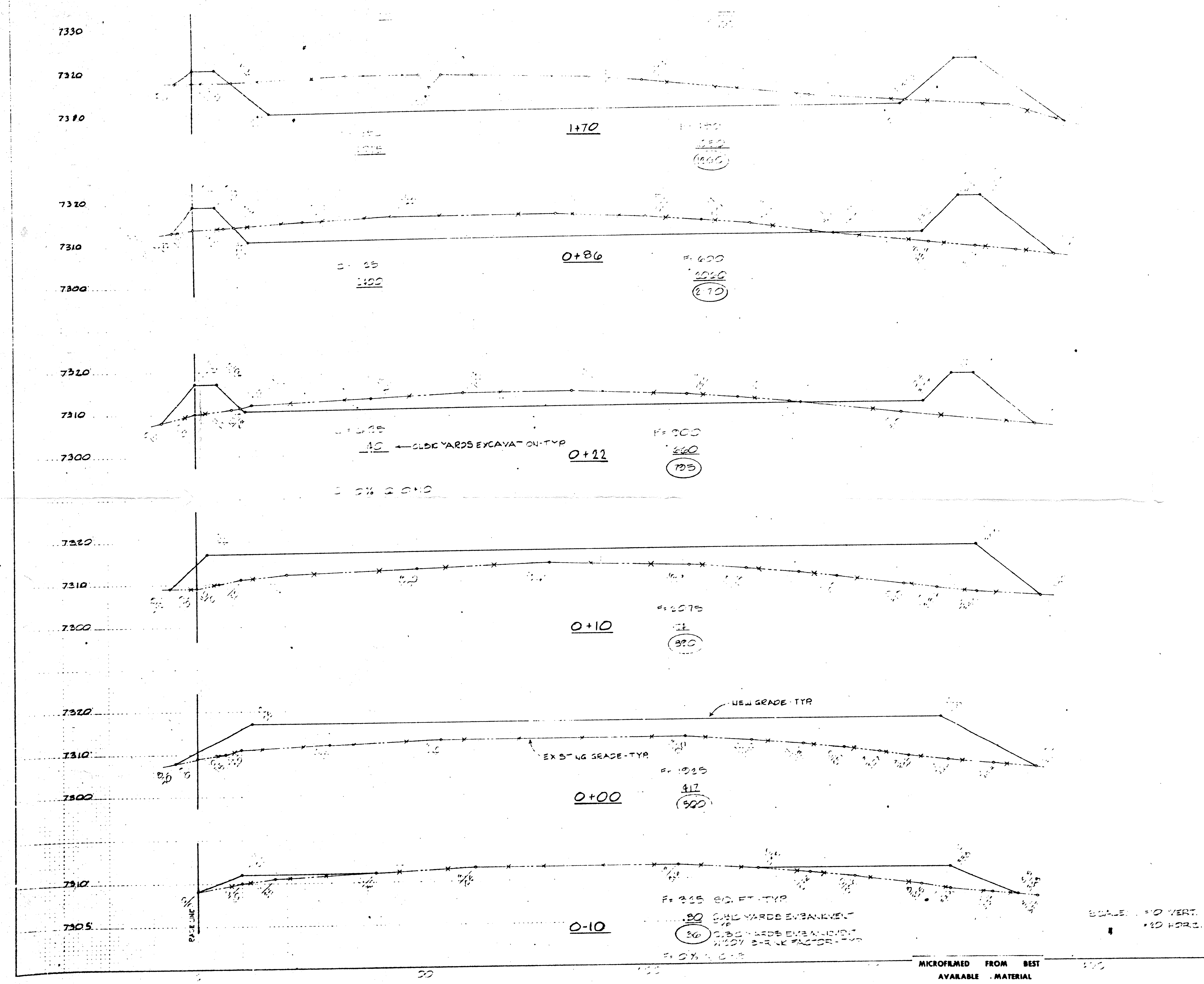
LOS ALAMOS NATIONAL LABORATORY
TA-53 SURFACE IMPOUNDMENTS
GRADING PLAN FOR SOUTH IMPOUNDMENT

SUBMITTED	RECOMMENDED	APPROVED

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

LAB JOB NO.	LAB DWG NO.	DOE DWG NO.
	ENG-C 44772	LA-RDT-AE-C20

4269-E



LEGEND

EXISTING GRADE

NEW GRADE

EXISTING GRADE TO BE REMOVED

MICROFILMED FROM BEST AVAILABLE MATERIAL

THE ZIA CO. FACILITIES ENGINEERING DEPT.

FIGURE 4-4

LOS ALAMOS NATIONAL LABORATORY
TA-53 SURFACE IMPOUNDMENTS
CROSS SECTIONS FOR SOUTH IMPOUNDMENT

DRAWN	
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

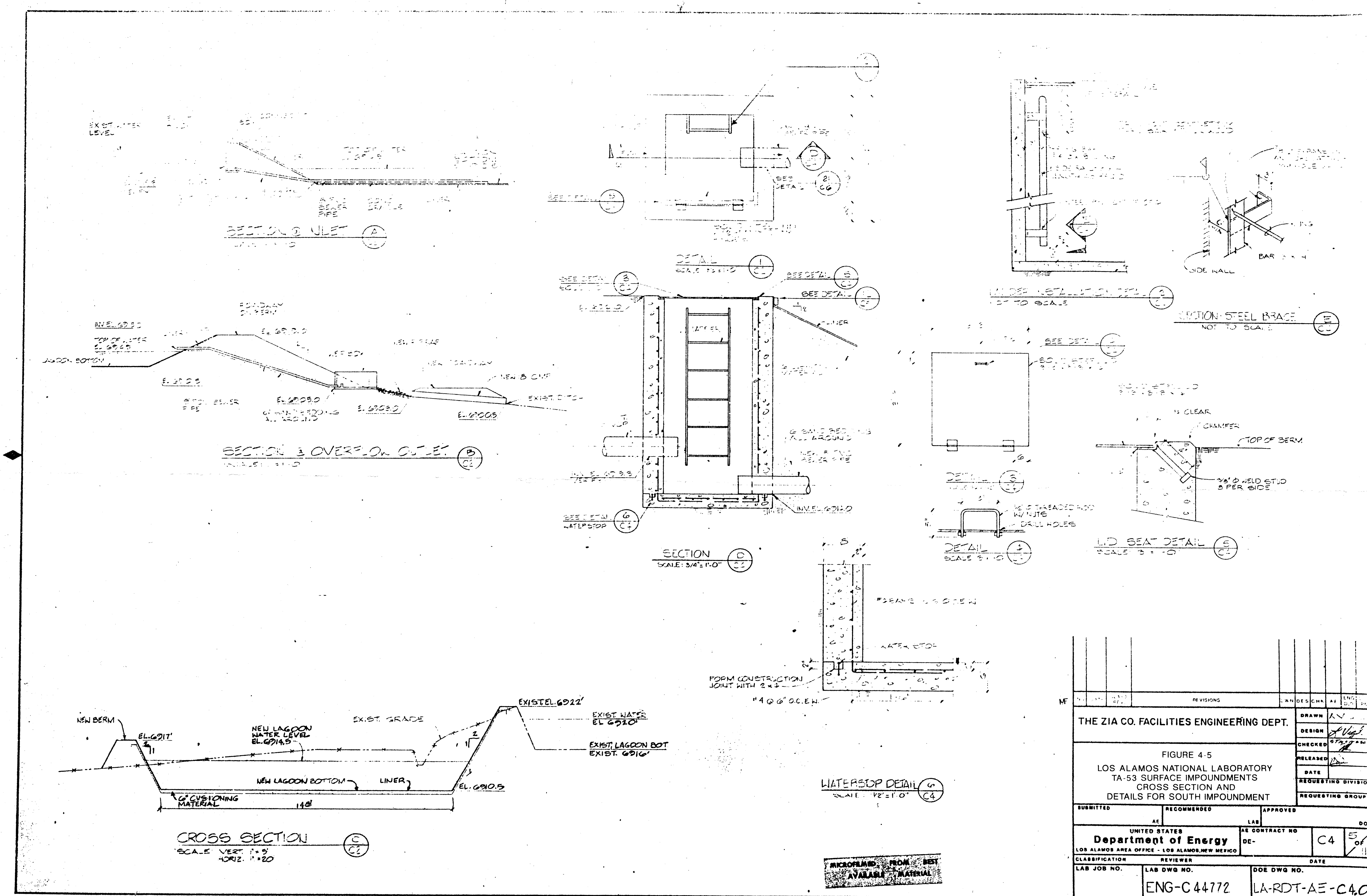
AE CONTRACT NO DE-

CLASSIFICATION | REVIEWER | DATE

LAB JOB NO	LAB DWG NO	DOE DWG NO
	ENG-C 44772	LA-RDT-AE-C3.0

ZT-5217

4269-F



SECTION @ INLET
DETAIL
SECTION @ OVERFLOW OUTLET
LAGOON BOTTOM
TOP OF WATER
NEW 8 CMP
EXIST. DITCH
SEE DETAIL
LADDER
LINER
INV. EL. 6914.0
SEE DETAIL WATERSTOP
SECTION
SCALE: 3/4"=1'-0"
LADDER INSTALLATION DETAIL
NOT TO SCALE
SECTION: STEEL BRACE
NOT TO SCALE
SIDE WALL
BAR
1/2" CLEAR
CHAMFER
TOP OF BERM
3/8" Ø WELD STUD 3 PER SIDE
LID SEAT DETAIL
1/2" Ø THREADED ROD W/ NUTS
DRILL HOLES
DETAIL
WATER STOP
FORM CONSTRUCTION JOINT WITH 2x4
#4 @ 6" O.C.E.W.
WATERSTOP DETAIL
SCALE: 1/2"=1'-0"
NEW BERM
EL. 6917'
NEW LAGOON WATER LEVEL EL. 6914.5
EXIST. GRADE
EXIST. EL. 6922'
EXIST. WATER EL 6920'
EXIST. LAGOON BOT EXIST. 6916'
NEW LAGOON BOTTOM
LINER
EL. 6910.5
6" CUSHIONING MATERIAL
148'
CROSS SECTION
SCALE VERT. 1"=5' HORIZ. 1"=20
REVISIONS
THE ZIA CO. FACILITIES ENGINEERING DEPT.
DRAWN
DESIGN
CHECKED
RELEASED
DATE
REQUESTING DIVISION
REQUESTING GROUP
FIGURE 4-5
LOS ALAMOS NATIONAL LABORATORY
TA-53 SURFACE IMPOUNDMENTS
CROSS SECTION AND
DETAILS FOR SOUTH IMPOUNDMENT
SUBMITTED
RECOMMENDED
APPROVED
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-C4.0
ZT-5217
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5.0 GROUND-WATER MONITORING F..ᴗ..RAM

The ground-water monitoring program for the TA-53 surface impoundments consists of the following activities based on the absence of ground water in quantities sufficient to sample in ground-water monitoring wells.

Four 50′ boreholes have been drilled adjacent to the impoundments to determine if a saturated zone is present and if any contamination has resulted from the placement of liquid in the impoundments. The locations of these boreholes are identified as Boreholes 1-4 on Figure 5-1. An additional 50′ borehole, identified as "B" on Figure 5-1, was drilled away from the impoundments to confirm expected background moisture and tritium levels. Grab samples of cuttings were collected every five feet in all five 50′ boreholes and analyzed for tritium, gravimetric moisture, and a gamma scan (see Appendix E for data). No saturated zone was encountered and the boreholes will be completed as neutron-moisture access wells.

A 100′ borehole (Borehole 5 on Figure 5-1) was drilled between the three impoundments to better identify the likelihood of a release. Grab samples of cuttings every five feet for the first 50′ and every 10′ thereafter were collected and analyzed for tritium, gravimetric moisture, and a gamma scan (see Appendix E). This borehole was completed with a pore-gas monitoring system.

Two additional boreholes have been drilled to collect subsurface core samples. Borehole 6 was placed between the NW and NE impoundments to evaluate the potential impact of these impoundments beyond the influence of an historic outfall near Borehole 5. Samples were collected at five foot intervals for the first 30′ and at 10′ intervals thereafter to a depth of 150′.

These cores were analyzed for the following: tritium and gravimetric moisture at each sampling depth; volatile organics at 5′-30′, 50′, 80′, 100′, 110′, 140′, and 150′ depths; semi-volatile organics at 5′-30′, 50′, 80′, 100′, and 150′ depths; and total metals at 20′ and 100′ depths (see Appendix E). Samples were also collected at 10′ intervals for unsaturated permeability testing. Results of this testing are not yet available; they will be submitted to the NMED when finalized.

Borehole 7 was drilled near the head of a small canyon directly adjacent to and southwest of the impoundments (see Figure 5-1) to identify impact from the impoundments at depths beyond Boreholes 1-6 and "B". Samples were collected at five foot intervals for the first 35′ and at 10′ intervals thereafter to a depth of 80′. These samples were analyzed for tritium and gravimetric moisture. Three samples, at five foot, 20′, and 80′ depths, were submitted for volatile and semi-volatile organic analysis. These analyses have not yet been completed; however, confirmation that no volatile hazardous constituents were detected has been received. The analyses will be submitted to the NMED. This borehole has been completed as a neutron-moisture access well with a cup lysimeter.

In summary, the results of the chemical, moisture, and radiological analyses indicated that some leakage has apparently occurred from the impoundments, but would not be expected to migrate to ground water or surface water. In fact, in the samples that indicated leakage based on elevated levels of tritium, no organic hazardous constituents and no levels of metals above expected background were detected.

Additional boreholes may be drilled to further delineate the extent of release around the impoundments. However, it is anticipated that more samples will support LANL's conjecture that, based on sample analysis, design and operating practices, together with location characteristics, the likelihood of hazardous constituents migrating to ground water or surface water would not be lessened by retrofitting the impoundments.

LANL's proposed "point of compliance," as required in 40 CFR 270.14(c)(3), is delineated as the outside limit of the outer dikes surrounding the three impoundments, as shown in Figure 5-2.

Future plans for the monitoring systems in place around the impoundments include the following activities. The neutron-moisture access wells will be monitored quarterly until such time as two consecutive years indicate no significant increase in moisture. At that time, monitoring will be performed semi-annually until closure. If moisture levels begin to increase prior to closure, quarterly monitoring will resume until no significant increase is detected. Semi-annual monitoring will resume at that time.

The pore-gas monitoring system and lysimeter will be sampled quarterly for one year and, if no organic hazardous constituents are detected, semi-annually thereafter until closure. If organic constituents are detected prior to closure, quarterly sampling will resume until no significant increase is detected. Semi-annual sampling will resume at that time.

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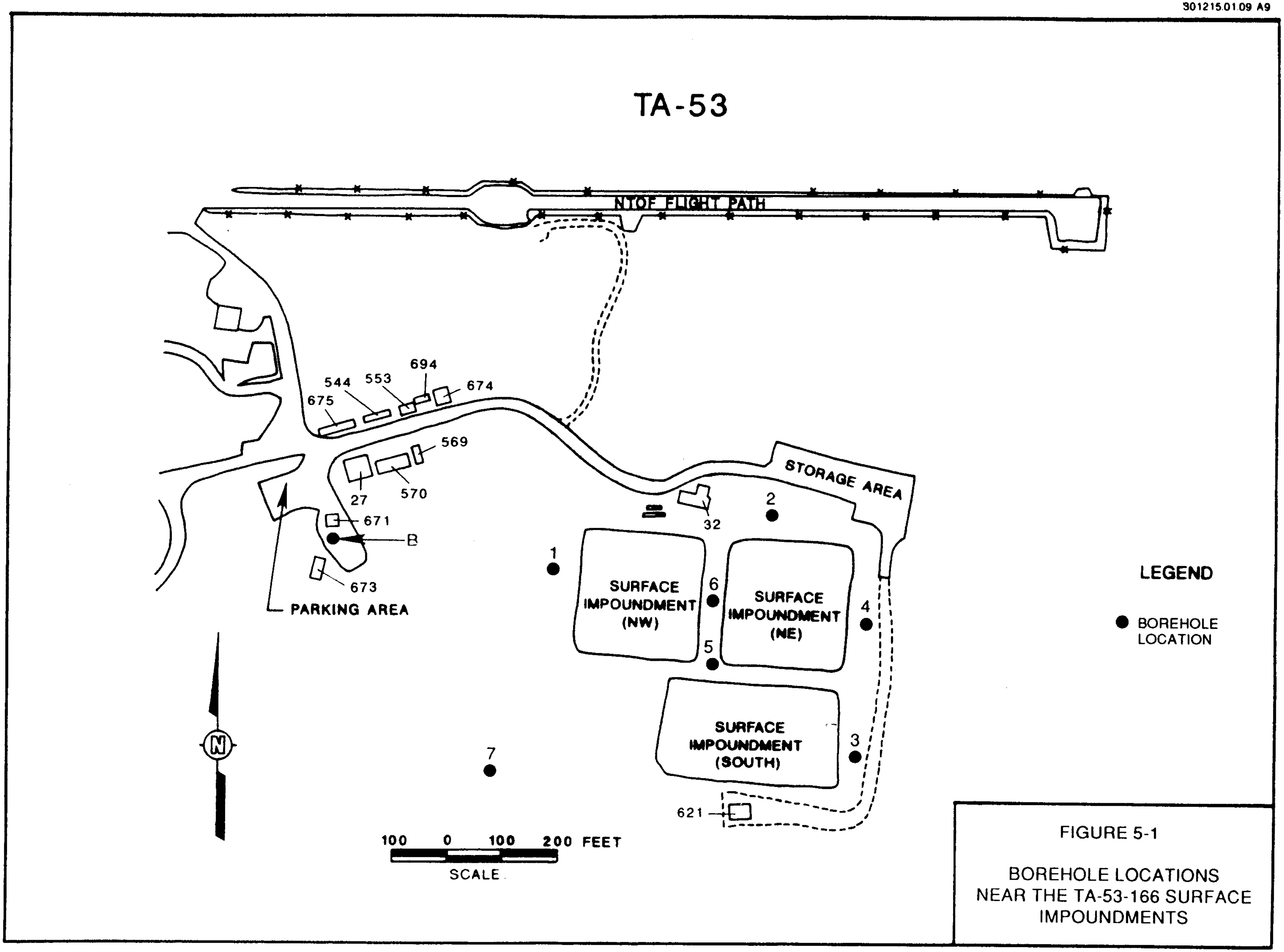

FIGURE 5-1

BOREHOLE LOCATIONS NEAR THE TA-53-166 SURFACE IMPOUNDMENTS

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TA-53

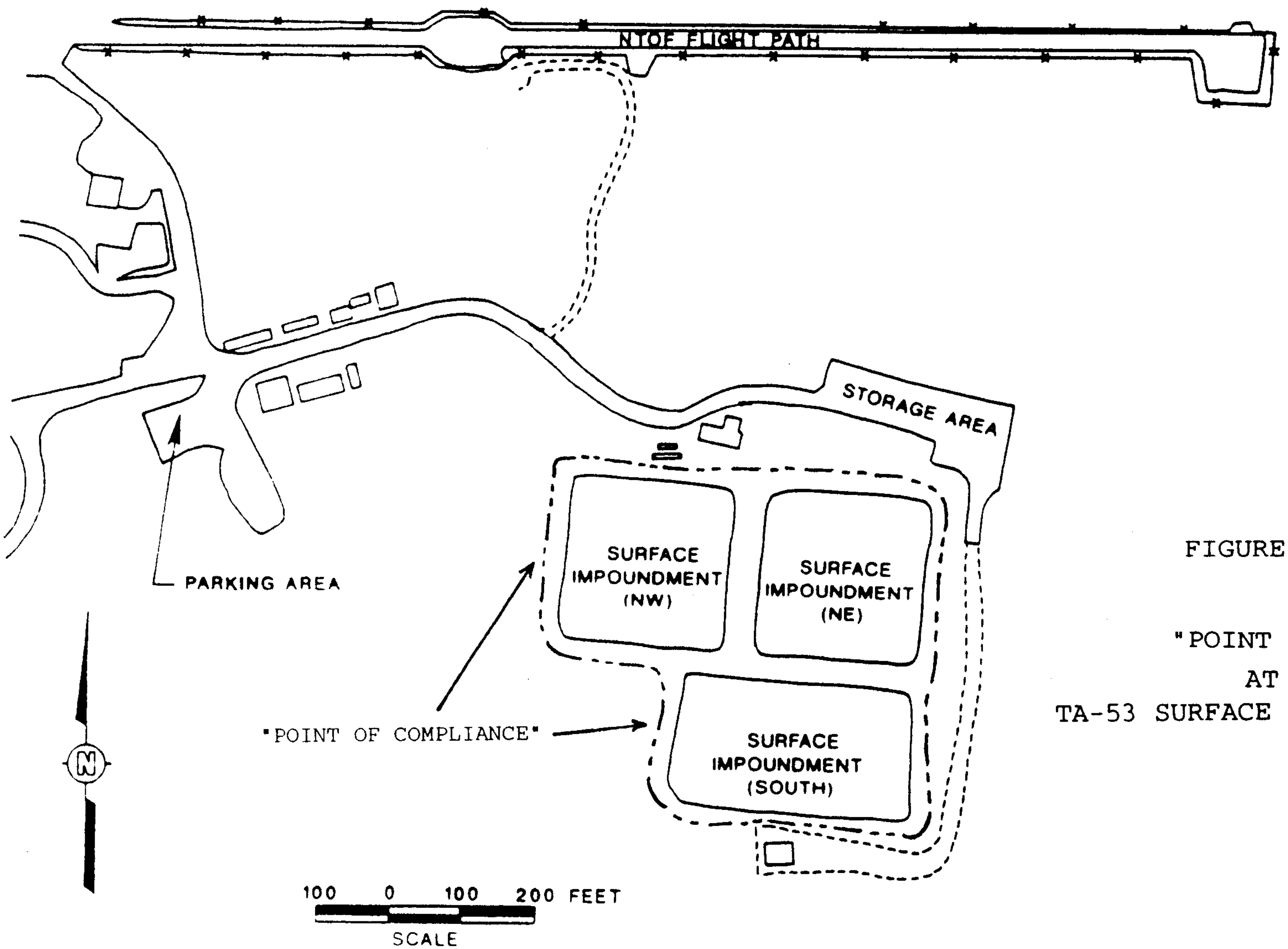

FIGURE 5-2

"POINT OF COMPLIANCE"
AT THE
TA-53 SURFACE IMPOUNDMENTS

INTERNATIONAL TECHNOLOGY CORPORATION

6.0 PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the requirements of 40 CFR Part 270.14. The following subject areas are addressed in this section: security, inspection schedules and requirements, and preparedness and prevention requirements.

6.1 SECURITY

Security at the TA-53 surface impoundments is accomplished with both artificial and natural barriers. These barriers satisfy the requirements of 40 CFR 264.14(b)(2). The access road to the impoundments is blocked by a gate and fences extend outward from this gate to the edge of the mesa (Figure 6-1). In addition to this artificial barrier, cliffs surrounding the surface impoundments serve as natural barriers to discourage unauthorized entry. LANL is currently in the process of installing a fence around the entire technical area.

6.2 INSPECTION SCHEDULES AND REQUIREMENTS

The inspection schedule for the TA-53 surface impoundments has been developed to identify situations that might lead to a release and pose a threat to human health and the environment. The following areas are addressed for the TA-53 surface impoundments according to requirements specified in 40 CFR Part 264.15(b) and 40 CFR Part 264.226(b). While the surface impoundments are in operation, they must be inspected weekly and after storms for deterioration, malfunctions, or improper operation of overtopping controls; sudden drops in the level of the impoundment liquid; and severe erosion or other signs of deterioration in the dikes. Specifically, the surface impoundments, dikes, and vegetation surrounding the dikes, will be inspected visually on the first working day of each week and after storms for the following items:

- Surface impoundment level, containment, and pipe connections
- Run on/off control
- Warning signs - bilingual signs must be posted and readable
- Security - fences, locks, gates, alarms
- Site lighting
- Communication equipment - present and in good working order
- Radiation safety - radiation screening for gross alpha, beta, gamma and tritium is an inspection requirement directed by LANL policy.

Inspection frequencies may be increased at the discretion of the operating group or the Environmental Protection Group (EM-2, formerly HSE-8).

6.3 INSPECTION RECORDS

Inspections are conducted by assigned personnel from the operating group that manages the surface impoundments. A log book retaining originals of the inspection records will be maintained by the responsible group for a minimum of three years from the date of inspection. Copies of inspection records must be sent to EM-2 at the end of each work week. EM-2 will maintain a copy of the inspection records for a minimum of three years from the time the copy is received. The inspection records must be available in the event that the NMED, the U.S. EPA, or the DOE inspects the facility for compliance with inspection requirements.

An example of the Inspection Record Form (IRF) used at LANL is provided as Figure 6-2. The form may be modified, or an equivalent form developed by EM-2, if necessary. The IRF is a comprehensive form which applies to all categories of both hazardous and mixed waste units; thus, not all sections of the IRF apply to all units. The form encompasses 40 CFR Part 264 requirements for permitted hazardous waste units, 40 CFR Part 265 interim status requirements, and additional requirements directed by LANL policy. All 40 CFR Part 264 inspection requirements will be addressed at the surface impoundments during each weekly inspection. The IRF must be completed on the first working day of each week for the surface impoundments. In the event that the primary inspector is not available to complete the IRF, an alternate will be responsible for its completion.

For every item requiring inspection (shown in Section 6.1), a response must be entered in the "Condition" column. The two responses are "OK" and "AR" (action required). Either "OK" or "AR" must be entered for each inspected item. If the response is "AR", the action required must be noted in Part II of the IRF. If more than one "AR" is listed, "ARs" should be numbered. The date any corrective action is taken and a description of the action taken must be entered in the "Action/Date" column on the IRF. Only after corrective action has been completed and recorded on an IRF can an "OK" be entered in the "Condition" column on the IRF.

6.4 REMEDIAL ACTIONS

If any defects, deterioration, damage, or potential hazards at the surface impoundments are discovered during inspection, appropriate remedial action will be completed promptly to minimize further damage and prevent the need for emergency response. Any preventative action taken in response to an inspection will be noted on the IRF.

If a condition is found in which a release is imminent or has already occurred, the condition will be assessed by the group leader (or his designee) responsible for the surface impoundments. If this assessment indicates that human health and the environment may be adversely affected, the HWF Contingency Plan (see Section 7.0) will be implemented immediately. Section 7.0

discusses the appropriate emergency measures that will be followed in the event of an actual release. Whenever possible, Section 7.0 refers to equivalent sections in Appendix D of the permit. In the event the Contingency Plan is needed, any sampling, decontamination, and verification will be conducted as specified in the plan. If the surface impoundments must be removed from service or emptied, requirements in Section 7.5.1 and procedures in Section 9.2.2.1 of this document will be met and followed.

6.5 PREPAREDNESS AND PREVENTION REQUIREMENTS

The communication, alarm, and emergency equipment available at LANL to provide emergency instructions for evacuation or initiate an emergency response is discussed in Appendix D of the permit issued to LANL. Communication equipment is laboratory-wide and allows personnel to contact emergency coordinators in all areas of the laboratory. Emergency equipment available at TA-53 is presented in Section 7.2.2. of this document.

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.

6.6 PREVENTATIVE PROCEDURES AND EQUIPMENT

Precautions will be taken to prevent hazards which may occur during unloading operations of transported sanitary waste and to prevent releases to the atmosphere. The impoundment dikes are designed to prevent runoff from waste handling areas to other areas of the facility or to the environment.

Minimum requirements for safety clothing and apparatus to be used for routine operations are specified in the facilities' "Utilities Operating Instructions for Wastewater Operations" (JCI, 1991). Maintenance work may only be performed in the presence of a LANL HS-1 monitor and only with appropriate personal protective equipment.

The only electrically powered equipment at the TA-53 surface impoundments are the evaporators, so an electrical power failure would not affect the operations at the impoundments. The four evaporators and the mechanical flow meter are the only pieces of equipment at the surface impoundments that are subject to failure. Should the flow meter fail, replacement meters are available at the JCI mechanical utilities shop. Failure of a flow meter is not considered an emergency.

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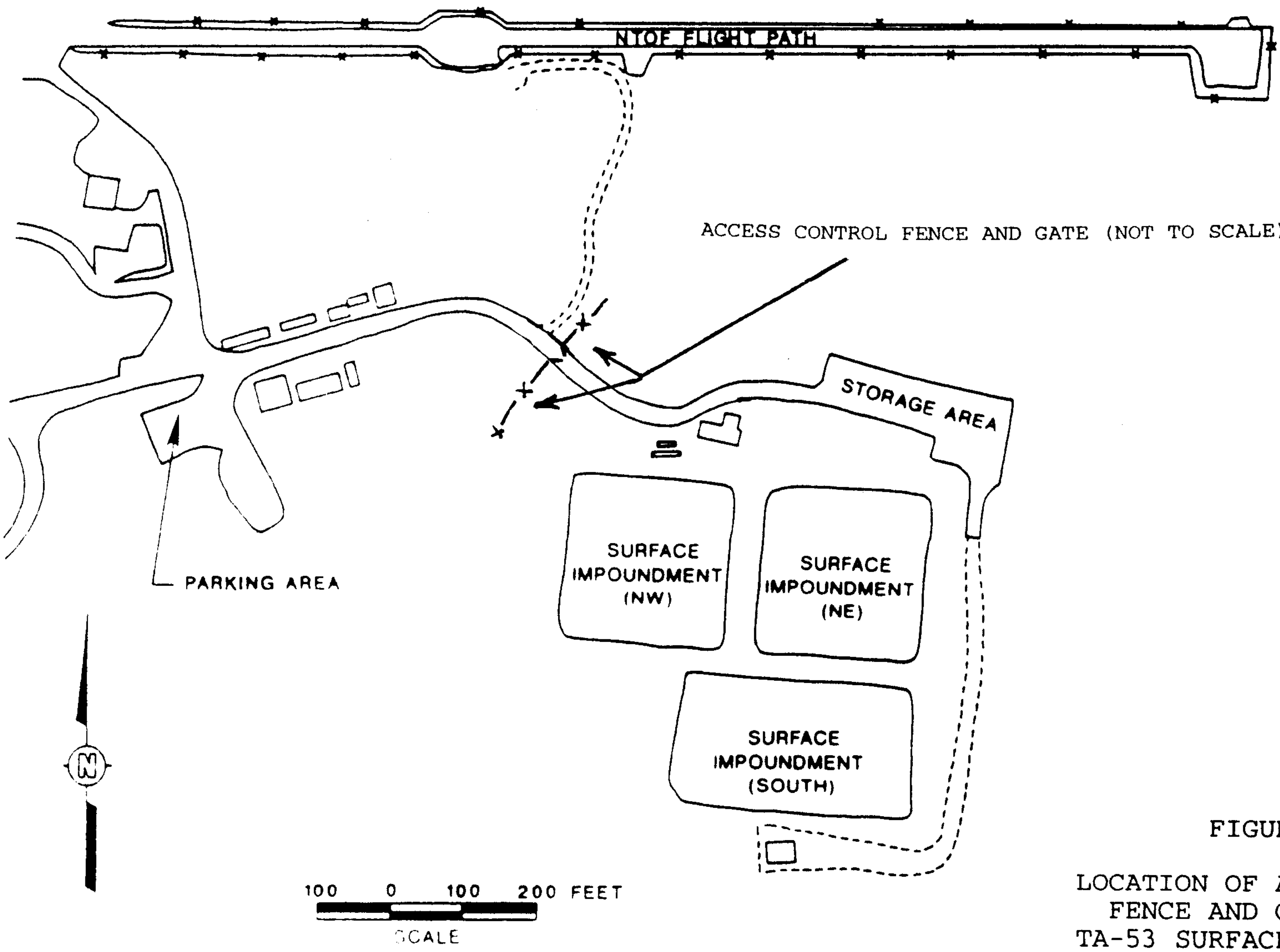

FIGURE 6-1

LOCATION OF ACCESS CONTROL FENCE AND GATE AT THE TA-53 SURFACE IMPOUNDMENTS

INTERNATIONAL TECHNOLOGY CORPORATION

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

1 FACILITY	2 ☐ <90 DAY, GENERATOR STORAGE ☐ TREATMENT, STORAGE, DISPOSAL	3 START DATE	4 END DATE

5 ☐ Containers ☐ Landfill ☐ Surface Impoundment ☐ Waste Pile ☐ Thermal Treatment ☐ Chem/Phys/Bio. Treat.
☐ Incinerator ☐ Misc. Unit ☐ Tank ☐ UST ☐ Land Treatment ☐ Underground Inj.

PART I - Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
6 NO USE	CHECK IF NO WASTE IS PRESENT							
7 (UN)LOADING AREA TANKS/CONTAINERS	SPILLS AND DETERIORATION							
8 COMMUNICATION EQUIPMENT (PHONE/RADIO/ALARMS)	PROPERLY FUNCTIONING							
9 TANKS (ALL ABOVE GROUND PORTIONS) MONITORING DATA	DISCHARGE CONTROLS CONDITION, LEAKS, LEVEL (6" FREEBOARD), CORROSION							
10 SURFACE IMPOUNDMENTS AND CONTAINMENT	FREEBOARD (2 ft) SUDDEN DROPS IN LEVEL							
11 PORTA BERM	LEAKS CONDITION							
12 EYE WASH SAFETY SHOWERS	LEAKS, FUNCTIONING							
13 STRUCTURAL INTEGRITY OF CONTAINERS/TANKS, VALVES, PIPES, AND FLANGES	DETERIORATION AND LEAKS, CORROSION, DAMAGE							
14 COVER/LID OF CONTAINERS	CLOSED AND SECURED							
15 WARNING SIGNS	POSTED & READABLE (BILINGUAL)							
16 LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS							
17 ACCUMULATION START DATE (<90 DAY STORAGE)	PRESENT ON ALL CONTAINERS, TANKS, NONE EXCEED 90 DAYS							
18 RUN ON/OFF CONTROL (AREA L, G, H, P) LANDFILLS, DETONATION PADS	INTEGRITY, EROSION PONDING							
19 COVER INTEGRITY (AREA L, G, H, P) LANDFILLS	EROSION, SUBSIDENCE WATER INTRUSION							
20 SECURITY	CONDITION, FENCE/GATES/LOCKS							
21 SITE LIGHTING	FUNCTIONS PROPERLY							

FIGURE 6-2

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
22 CONTAINMENT STRUCTURES	INTEGRITY, STANDING WATER VEGETATION, EROSION							
MANAGEMENT OF CONTAINERS	SEGREGATED ACCORDING TO COMPATIBILITY, 2 FT AISLE SPACE							
24 HOSE BIBS, WATER SUPPLY	LEAKS, FUNCTIONING							
25 STORAGE SHED (AREA L)	FLOOR DAMAGE, LIQUID							
26 ROAD/WORK SURFACES	CRACKS/POTHOLES							
27 WIND SOCK	DAMAGE, FUNCTIONING							
28 SHAFT COVER AND RAIL	PRESENT, DAMAGE							
29 PALLETS	INTEGRITY, DAMAGE							
30 TREATMENT TANKS	PROPER OPERATION, LEAKS							
31 REFRIGERATOR	DAMAGED CONTAINERS							
32 SPILL CONTROL, FIRE, AND EMERGENCY EQUIPMENT	PRESENT, AND IN GOOD WORKING ORDER							
33 INCINERATOR EMERGENCY WASTE FEED CUTOFF/ALARMS	PROPER OPERATING CONDITION OF ALL SHUTDOWN CONTROLS							
INCINERATOR PUMPS VALVES, PIPES. MONITORING CONTROLS	LEAKS/SPILLS/TAMPERING OPERATING WITHIN SPECS.							
35 PRESSURE VESSELS (S-SITE)	DETERIORATION AND SAND CONDITION							
36 OIL BURN PANS (S-SITE)	DETERIORATION & LEAKS							
37 HE BURN PADS (S-SITE)	DETERIORATION VEGETATION, SAND COND., EROSION							
38 RADIATION SAFETY	SIGNS, MONITORING (α β γ ^3H)							
39 DATE	DATE OF INSPECTION							
40 TIME	TIME OF INSPECTION							
41 INSPECTOR	INITIALS OF INSPECTOR							

PART II - For any AR (Action Required) in PART I above, describe below: action required, action taken, date of action. Attach additional sheets if necessary.

42 INSPECTOR	43 GROUP	44 DATE	45 TIME

FIGURE 6-2, CONTINUED

7.0 HAZARDOUS WASTE FACILITY CONTINGENCY PLAN

This section presents the HWF Contingency Plan for LANL. The plan is written in accordance with 40 CFR Part 264, Sections 32(a)-(d), 50-55 (i.e. Subpart D), and 227(a)-(d), and 40 CFR Part 270, Sections 14(b)(7) and 17(e). The provisions of this plan will be carried out immediately whenever there is a fire, explosion, or release of mixed waste or hazardous constituents that could threaten human health or the environment.

Information included in this section is relevant only to the surface impoundments at TA-53. This section is intended to supplement the existing Contingency Plan in Appendix D of LANL's permit. Together, the contents of Appendix D in the existing permit and this section satisfy the requirements of 40 CFR Part 264, Subpart D, and 40 CFR Part 270.14(b)(7).

Subsections in this section are organized in the same manner as in the existing permit. Reference to the permit is made whenever there is no change to the permit text.

7.1 INTRODUCTION

See Section D.1 in the permit.

7.1.1 Hazardous Wastes

See Section D.1.1 in the permit.

7.1.2 Hazardous Waste Units

See Section D.1.2 in the permit.

The waste units addressed in this section are the three surface impoundments in TA-53 (Figure 2-2). These impoundments store liquid waste and sludge. The sludge at the bottoms of these impoundments may contain metals, organic compounds, and low-level radionuclides.

7.2 HAZARDOUS WASTE EMERGENCY RESPONSE RESOURCES

See Section D.2 in the permit.

7.2.1 Response Groups

See Section D.2.1 in the permit.

7.2.1.1 Medical Facilities

See Section D.2.1.1 in the permit.

7.2.1.2 HS-3 Safety and Risk Assessment

See Section D.2.1.2, HSE-3 Safety, in the permit.

7.2.1.3 HS-5 Industrial Hygiene

See Section D.2.1.3, in the permit.

7.2.1.4 EM-1 Waste Management

See Section D.2.1.4, HSE-7 Waste Management, in the permit.

7.2.1.5 EM-2 Environmental Protection

See Section D.2.1.5, HSE-8 Environmental Surveillance, in the permit.

7.2.1.6 Fire Department

See Section D.2.1.6 in the permit.

7.2.1.7 Mason & Hanger Protective Force (Pro-Force)

See Section D.2.1.7 in the permit.

7.2.1.8 Johnson Controls World Services Inc. (JCI)

See Section D.2.1.8, PAWS, in the permit.

7.2.1.9 Los Alamos County Police

See Section D.2.1.9 in the permit.

7.2.1.10 WX and M Division Personnel

See Section D.2.1.10 in the permit.

7.2.1.11 Operational Management Group I (Emergency Management)

See Section D.2.1.11 in the permit.

7.2.2 Emergency Equipment

See Section D.2.2 in the permit.

In addition to the emergency equipment listed in Table 7-3 of the permit, telephones are available at TA-53 for internal and external communication. In the event of an emergency at the TA-53 surface impoundments, a HazMat emergency response trailer stationed at TA-59-1 may be transported to the site. The trailer is equipped with safety and emergency equipment, personal protective clothing, and other supplies which include, but are not limited to: assorted coveralls and gloves, safety goggles and glasses, booties, totally encapsulating suits and boots, self-contained breathing apparatus (SCBA), and SCBA bottles, reference materials, shovels, assorted spill kits and sorbents, communication radios, leak repair kits, respirators and cartridges, sponges and cleaners, warning signs, traffic control barriers, flashlights, warning horns, portable emergency oxygen, and assorted tools and supplies.

7.2.3 Communications

See Section D.2.3 in the permit

7.3 NONSUDDEN RELEASES

Nonsudden releases include those incidents which, if uncontrolled, may impact the environment over a long period of time. At the TA-53 surface impoundments, such an incident may result from minor leaks of the dikes surrounding the impoundments or breaches in the impoundment lining resulting in a release.

In the event that a leak in the outside dike surrounding the three impoundments is detected, the impoundment(s) nearest the leak will be removed from service until repairs can be made.

7.3.1 Responsibility

See Section D.3.1 in the permit.

7.3.2 Credible Nonsudden Releases

See Section D.3.2 in the permit.

Minor leaks in the dikes surrounding the TA-53 surface impoundments may result in credible nonsudden releases. Detection of nonsudden releases will be accomplished by visual inspection of the dikes for leaks. If leaks are detected, maintenance of the surrounding dikes will be performed.

7.3.3 Nonsudden Release Surveillance

See Section D.3.3 in the permit.

7.4 SUDDEN RELEASES

See Section D.4 in the permit.

7.4.1 Hazardous Waste Emergency Coordination

See Section D.4.1 in the permit.

7.4.2 HWF Emergency Contingency Plan

See Section D.4.2 in the permit.

7.4.2.1 Guidelines for Implementation

See Section D.4.2.1 in the permit.

7.4.2.2 Emergency Notification

See Section D.4.2.2 in the permit.

7.4.2.3 Emergency Management Coordinator (EMC) Actions

See Section D.4.2.3, EPODO Actions, in the permit.

7.5 SPECIFIC EMERGENCY RESPONSE PROCEDURES FOR HAZARDOUS WASTE UNITS

Sections 7.5.1 through 7.6.2 summarize or reference the guidelines for handling emergencies.

7.5.1 Chemical Spills

See Section D.5.1 in the permit.

If the structural integrity of the TA-53 surface impoundments is breached, a sudden drop in the level of liquids may result. Should failure occur in the dikes surrounding an impoundment, the surface impoundment will be removed from service and the flow of influent will be stopped immediately. Temporary dikes will be constructed to contain any surface spills. Emergency measures will be implemented to stop a leak and prevent catastrophic failure of the surface impoundment dikes. The impoundments will be emptied if a dike failure cannot be controlled. The NMED will be notified verbally and in writing of any problems involving dike failure or sudden drops in the levels of surface impoundment liquids within seven days after detection.

If a surface impoundment is removed from service, it will not be restored to service until the failure has been repaired. The structural integrity of the dike will be recertified in accordance with 40 CFR Part 264.226(c) whenever imminent or actual dike failure occurs. Should a sudden drop in the liquid level of a surface impoundment occur and result in the impoundment's removal from service, the repaired liner will be certified by a qualified engineer and meet approved design specifications.

7.5.1.1 Spill Control Procedures

See Section D.5.1.1 in the permit.

7.5.2 Fire

See Section D.5.2 in the permit.

7.5.3 Explosion

See Section D.5.3 in the permit.

7.5.4 Exposure

See Section D.5.4 in the permit.

7.5.5 Flood

See Section D.5.5 in the permit.

7.6 EVACUATION

See Section D.6 in the permit.

7.6.1 Evacuation Plan

Emergency situations may warrant the shutdown and evacuation of an area(s) or building(s) in order to protect personnel and property, to anticipate the emergency condition, or to enhance the appropriate response.

Figure 7-1 shows the evacuation route at the TA-53 surface impoundments. See Section D.6.1 in the permit for the remainder of this subsection.

7.6.2 Process Shutdown

Process shutdown procedures discussed in the permit do not apply to the TA-53 surface impoundments since they are used solely for storage. However, if the impoundment dikes threaten failure or have failed, influent to the surface impoundments will be discontinued.

7.7 SALVAGE AND CLEANUP

See Section D.7 in the permit.

7.8 POST-EMERGENCY ASSESSMENT

See Section D.8 in the permit.

7.9 EMERGENCY RECORDS

See Section D.9 in the permit.

7.10 EMERGENCY REPORTS

See Section D.10 in the permit.

7.11 CONTINGENCY PLAN AMENDMENT

See Section D.11 in the permit.

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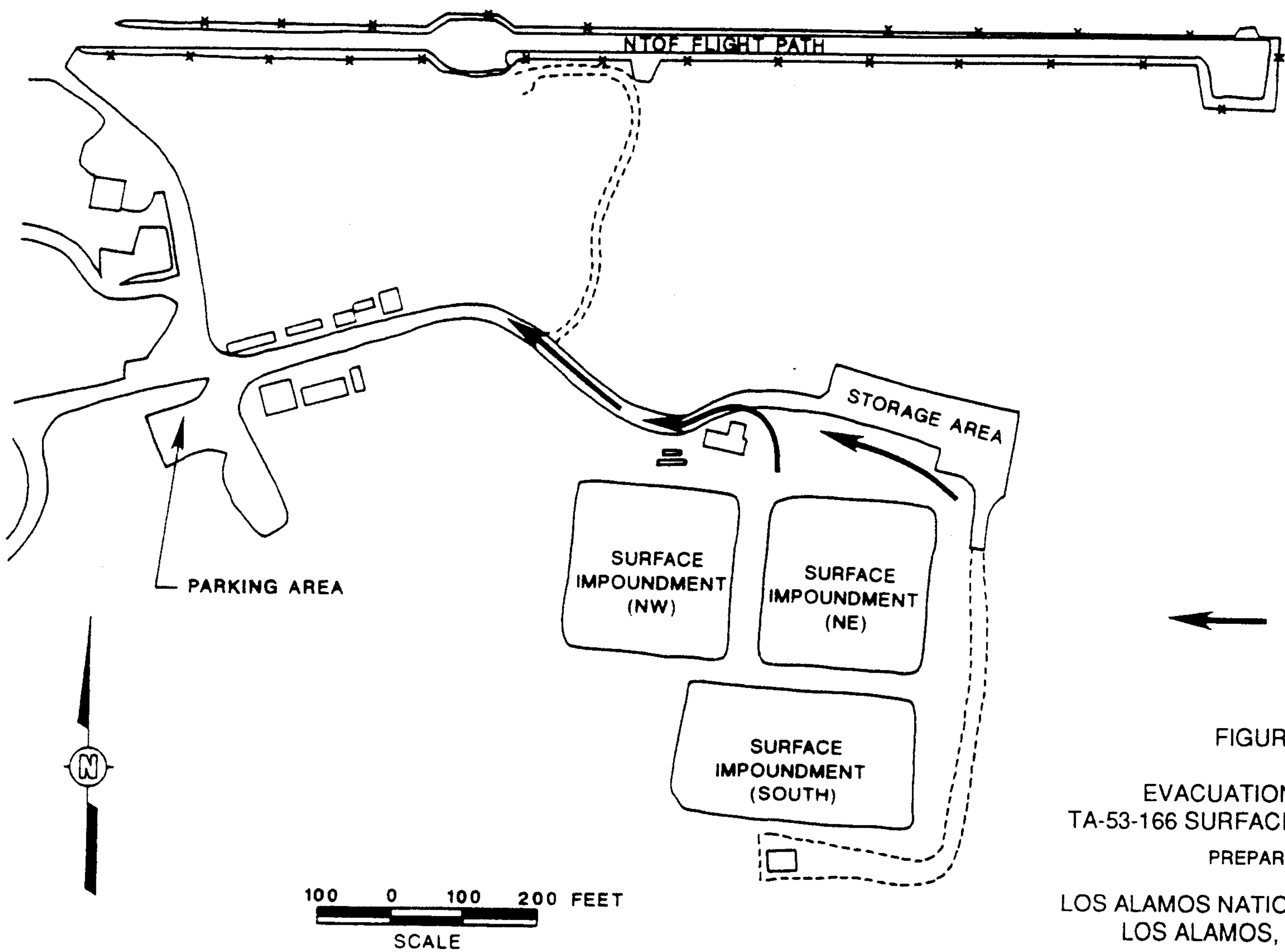

LEGEND

EVACUATION ROUTE

FIGURE 7-1

EVACUATION ROUTE AT
TA-53-166 SURFACE IMPOUNDMENTS

PREPARED FOR

LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

INTERNATIONAL TECHNOLOGY CORPORATION

8.0 PERSONNEL TRAINING

The personnel training program for LANL has not changed from that given in Attachment C of the Hazardous Waste Facility Permit issued to LANL in November 1989 (Permit Number 0890010515-1).

9.0 CLOSURE AND POST-CLOSURE PLAN

9.1 INTRODUCTION

This section is prepared in accordance with 40 CFR Part 264, Subpart G, Closure and Post-Closure. The plan identifies all steps that will be necessary to close the TA-53 surface impoundments at the end of their operating period.

LANL intends to close the TA-53 surface impoundments in accordance with clean closure requirements. To meet these requirements, LANL proposes to remove liquids and sludge from the impoundments, decontaminate the liner materials, and remove underlying and surrounding contaminated soil, if any, to levels acceptable to the NMED.

9.1.1 Estimate Of Maximum Waste In Storage

The three surface impoundments provide a maximum liquid storage capacity of 5,838,288 gallons. The south impoundment, predominantly used now for radioactive cooling water, has a maximum liquid storage capacity of 2,580,000 gallons. The NE and NW impoundments, used for sanitary waste treatment and storage, have a maximum liquid storage capacity of 1,629,144 gallons each. The total quantity of sludge in the bottoms of the impoundments is unknown; in the two sanitary waste impoundments, the sludge layer may be a few inches to 18" thick. There is expected to be far less sludge in the radioactive cooling water impoundment.

9.1.2 Description of Waste Handled

Mixed waste is suspected to be present in the sludge at the bottoms of the impoundments. The mixed waste may consist of organic compounds, metals, and low-level radionuclides.

9.2 CLOSURE PROCEDURES AND DECONTAMINATION

Closure plans are designed to meet the following performance standards:

- Protect human health and the environment
- Prevent the escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or atmosphere
- Minimize future maintenance

The procedures discussed below provide for removal of standing liquids, sludge, and other contaminated materials to meet the requirements of clean closure in accordance with these performance standards.

9.2.1 Partial Closure

Partial closure would consist of closing one or more of the surface impoundments, while leaving the other(s) in service. In the event of a partial closure, the procedures described in the following sections would apply to the unit(s) to be closed.

9.2.2 Final Closure

Final closure of the surface impoundments will consist of removal of all liquids, sludge, and contaminated soil and residue, as well as decontamination and verification sampling. Procedures to be followed are outlined in the remaining sections of this plan.

9.2.2.1 Liquids Removal

Prior to removal of liquids from the surface impoundments, one random sample of the liquid from each impoundment will be collected using a composite liquid waste sampler (Coliwasa) to obtain a vertical composite of fluids. The samples will be taken in accordance with procedures outlined in Section 9.3.1. The liquid samples will be analyzed for total metals, total volatile organics, and total BNA extractable organics.

Following sampling, liquids will be pumped from the surface impoundments into containers approved to store liquid mixed waste. The containers will be stored at an approved area until sample results are received and proper storage, treatment, or disposal methods are determined and available. The waste liquid will either be treated at LANL facilities or disposed of off-site. All mixed or hazardous waste shipped off-site will be manifested in accordance with 40 CFR Part 262, Subpart B. The waste transporter will have an EPA identification number in accordance with 40 CFR Part 263.11.

9.2.2.2 Sludge Removal

Sludge remaining in the impoundments after liquid removal will be sampled to determine appropriate storage, treatment, or disposal methods. Sampling points will be determined using a simple random sample strategy. The procedure for using this strategy is outlined in SW-846, Volume II, Part III. Figures 3-1 and 3-2 are example schematics of sampling grids. Additional samples may be collected at areas suspected of being contaminated. Samples will be taken in accordance with procedures outlined in Section 9.3.2. Sludge will be analyzed for TCLP metals and organics, total volatile organics, and total BNA extractable organics.

Following sampling, sludge will be physically removed from the impoundment by pumping or excavation. The methods used for sampling and removal will depend on the physical characteristics of the sludge after liquid removal. Sludge and other solid residue will be stored in drums or containers approved to receive mixed waste until sample results are received and proper storage, treatment, or disposal methods can be determined and are available. All mixed or hazardous wastes shipped off-site will be manifested in accordance with 40 CFR Part 262, Subpart B. The waste transporter will have an EPA identification number in accordance with 40 CFR Part 263.11.

9.2.2.3 Hazard Protection

Personnel involved with removing liquids and sludge from the impoundments, sampling, and decontamination will use the proper protective clothing and equipment. The Industrial Hygiene Group (HS-5) and the Health Physics Operations Group (HS-1) will be responsible for assessing hazards and determining personal protective clothing and equipment requirements. Good industrial hygiene practices shall be followed during all phases of closure and post-closure to protect employees from exposure to mixed waste. Contaminated protective clothing and protection equipment shall either be decontaminated or managed as a mixed waste.

9.2.2.4 Equipment Decontamination

All equipment used in sampling and removal of liquids and sludge will be scraped and brushed to remove waste residue. The residue collected will be placed in drums for storage, treatment, or disposal. The equipment will be decontaminated by washing with surfactants and steam cleaning. Rinsate will be collected and handled in the same manner as liquid from the surface impoundments.

9.2.2.5 Liner Decontamination Procedures

The Hypalon liner in the surface impoundment storing radioactive cooling water will be pre-washed using pressurized hot water to remove any remaining residue. Rinsate will be collected and handled in the same manner as liquid from the surface impoundment. Following the pre-wash, the liner will be scrubbed using a surfactant and rinsed with pressurized hot water. Steam will not be used as it may damage the liner. Rinsate from the second wash will be collected and handled in the same manner as liquid from the impoundment.

A representative sample of the rinsate will be collected and preserved in accordance with procedures presented in Section 9.3.1. The sample will be analyzed for total metals, total volatile organics, and total BNA extractables. Methods for storage, treatment, or disposal of the rinsate will depend on the results of the sampling. It is expected that rinsate from the second wash will not be mixed waste. A determination that the rinsate from the second wash is not mixed waste will indicate that the liner does not contain hazardous constituents which are leachable in quantities sufficient for the liner to be determined a mixed waste. The washing procedures will be repeated, as necessary, utilizing appropriate surfactant solutions until the rinsate is no longer a mixed waste.

9.3 SAMPLING AND ANALYTICAL PROCEDURES

This section outlines the procedures and methods to be used for sampling and analysis of the TA-53 surface impoundment waste. While the procedures and methods are specific, any applicable procedure or method prescribed in SW-846 may be used if found to be more appropriate. All sampling and analytical procedures used will be annotated in the final closure report.

9.3.1 Waste Liquid and Rinsate Sampling

A Coliwasa sampler or similar device will be used to sample the liquid stored in the surface impoundments and to sample the rinsate used in cleaning equipment. The Coliwasa is recommended for the sampling; however, as an alternative to the Coliwasa, disposable glass sampler tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be used only once, thus eliminating the potential for cross contamination.

9.3.1.1 Cleaning of Sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use; the used sampler must be washed with warm detergent solution (wash water solution should be analyzed for volatile and semi-volatile organics and TCLP metals prior to and after washing), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the Coliwasa is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Improper cleaning of sample equipment will cause cross contamination of samples. Clean samplers should be stored in polyethylene plastic tubes or bags in a clean and protected area.

9.3.1.2 Sampling Procedures

The sampling procedure for waste liquid and rinsate using a Coliwasa is outlined below.

- Assemble the Coliwasa sampler.
- Make sure that the Coliwasa sampler is clean.

- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the Coliwasa sampler into the liquid at a rate that permits the level of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.

- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

9.3.2 Sludge Sampling

Sludge samples from the impoundment bottoms will be obtained using the most appropriate sampler for the physical characteristics of the sludge. Sampling may be performed using either a core sampler, such as the Veihmeyer sampler, or simply a trowel or scoop if coring cannot be accomplished.

9.3.2.1 Cleaning of Sampling Equipment

The sampling equipment must be cleaned prior to use, unless .. .s still factory-sealed. Sampling equipment will be washed with a warm detergent solution, rinsed several times with tap water, rinsed with distilled water, and wiped or air-dried.

9.3.2.2 Sludge Sampling Procedures

Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the ground/material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
- Rotate the sampler at least two revolutions to shear off the sample at the bottom.
- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use the puller jack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

9.3.3 Soil Sampling

After removal of liquids, sludge, and liner materials, soil at the site of the impoundments will be sampled to determine horizontal and vertical extent of contamination. Soil samples will be analyzed for the same parameters as the sludge and liquid samples. Sampling points will be determined using the simple random sample strategy introduced in Section 9.2.2.2.

Contaminated soils removed from the unit during closure activities will be packed in DOT-approved open head drums, covered trucks, or other appropriate transportation containers, and transported to TA-54 for placement in storage, or sent directly to a permitted treatment, storage, and disposal (TSD) facility.

9.3.3.1 Cleaning of Sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry.

9.3.3.2 Sampling Procedures

Soil sampling will be conducted using the same procedures as for sludge sampling (see Section 9.3.2.2).

9.3.4 Sample Handling and Documentation

Samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and sample analysis request form. Figures 3-3 through 3-8 are examples of the documentation to be used for field sampling activities.

Sample containers appropriate for the requested analyses will be used for all samples. Sample containers, preservation, and holding times are provided in Table 3-1. Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required, an insulated container with ice.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The sample label, if sent to an outside laboratory, must be completed to include the project name, sample number, collection date/time, collector's name, sample location, sample media description, preservative, and analysis requested. The field information in the case of soil sampling shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. It is a two-page record with the original accompanying shipment and the copy retained by LANL, or, if analyzed at LANL, the original will be retained by LANL.

A field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/2 by 11-inch format. Minimum entries should include:

a. Purpose of sample (routine sampling, special sampling)
b. Location of sampling (coordinates referenced to staked field points, if soil sample)
c. Name and business address of person making log entry
d. Number and volume of sample
e. Description of each sampling location, sampling methodology, equipment used, etc.
f. Date and time of sample collection
g. Sample destination and transporter's name (name of laboratory, UPS, etc.)
h. Map or photograph of the sampling site, if any
i. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc.)
j. Field measurements, if any (pH, conductivity, etc.)
k. Collector's sample identification number(s), and
l. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody documentation must be accompanied by a Request for Analysis Form. The Request for Analysis Form can provide information such as sample size, type, volume, and preservative, contact information, analytical tests to perform, QA/QC requirements, and requested disposition of the sample following analysis.

9.3.5 Sample Analysis

All sample analyses will be conducted using methods prescribed in SW-846, including those for quality assurance and quality control. The analytical methods expected to be employed for analysis of samples collected during closure activities are presented in Tables 3-2 and 3-3.

9.3.6 Field and Laboratory Quality Assurance/Quality Control

Field quality control activities will include collection of the following quality control samples: duplicate samples, trip blanks, field blanks, and rinsate blanks. Table 3-4 summarizes field quality control sample requirements.

One field duplicate sample will be collected for every 20 samples, or for the total number of samples collected per impoundment. Duplicate samples are two or more samples collected simultaneously into separate containers from the same source under identical conditions. Acceptance limits for field duplicate analyses are 0 to 20 relative percent difference (RPD) per analyte. Blank samples collected in the field will include trip blanks, field blanks, and equipment rinsate blanks. Frequency of blank samples will be no less than one in 20 samples, or one for the total number of samples collected per impoundment. Blank samples will be prepared from organic-free, deionized water that is taken into the field in sealed containers and poured into appropriate sample containers at pre-designated locations. Blank samples and duplicate samples of liquid and soil will be analyzed for total volatile organics, and total BNA extractables. Duplicate samples of sludge will be analyzed for TCLP metals, total volatile organics, and total BNA extractables.

In the laboratory, quality control samples are required to establish the accuracy and precision of the analytical data. Laboratory quality control procedures are presented in Table 3-5.

9.4 DECONTAMINATION VERIFICATION

If soil removal is deemed necessary, decontamination of the surface impoundments will be verified by additional sampling. Because removal of contaminated soil will leave an exposed surface, the surface will be resampled in the same locations. Analysis will be conducted only for those constituents that caused the area to be contaminated.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or
2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused wash water or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of unit closure as circumstances indicate. The Secretary, NMED, will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate the alternative by closure plan modification.

9.5 CLOSURE SCHEDULE

An estimated 180 days will be required to accomplish closure procedures and reporting requirements. The proposed year of partial closure of the NE and NW impoundments is 1995, and final closure for all impoundments is 2100. Closure will proceed by the schedule given in Table 9-1.

9.6 CLOSURE CERTIFICATION

An independent registered professional engineer and a LANL representative shall ensure that the closure follows the closure plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the Secretary, NMED. One copy shall be maintained at the DOE office and one copy maintained by EM-2.

9.7 QUALITY ASSURANCE/QUALITY CONTROL

A qualified individual or individuals shall be designated to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed, and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

9.8 FINAL CLOSURE REPORT

Upon completion of the closure activities, a Final Closure Report shall be submitted to the Secretary, NMED. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in Section 9.6.
B. Any variance from the approved activities and the reason for the variance.
C. A tabular summary of all sampling results, showing:
   1. Sample identification
   2. Sampling location
   3. The datum reported
   4. Detection limit for each datum
   5. A measure of analytical precision (e.g., uncertainty, range, variance)
   6. Identification of analytical procedure
   7. Identification of analytical laboratory
D. A QA/QC statement on the adequacy of the analyses and the decontamination demonstration.
E. The location of the file of supporting documentation:
   1. Field log books
   2. Laboratory sample analysis reports
   3. The QA/QC documentation
   4. Chain of custody records
F. Disposition location of all regulated and nonregulated residues.
G. A certification of accuracy of the report.

9.9 POST-CLOSURE PLAN

LANL's intent is clean closure for the TA-53 surface impoundments; thus, a post-closure plan has not been prepared at this time. If, during the course of sampling and waste removal activities it is found that clean closure cannot be achieved, a post-closure care plan will be submitted.

TABLE 9-1

CLOSURE SCHEDULE

ACTIVITY	MAXIMUM TIME REQUIRED
Notify the NMED	-90 Days
Advertise for proposals	-90 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Begin closure activities	Day 0
Characterize liquid and sludge waste in impoundments through sampling and analysis	Day 30
Removal of wastes and impoundment liners	Day 60
Soil sampling and analysis	Day 120
Final cleanup, including any soil removal	Day 130
Decontamination verification	Day 150
Submit final report to NMED	Day 180

NOTE:

The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously.

10.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(By this certification, the undersigned representatives of DOE and the University of California certify that all the information contained in this application is, to the best of their knowledge, complete. However, as noted in Sections 2.0 and 4.0 of the application, some information required by 40 CFR 270.17, is currently unavailable, but will be provided to the New Mexico Environment Department within six months of the submission of the application.)

Jane E. Sharp

for Allen J. Tiedman
Associate Director for Support
Los Alamos National Laboratory
Operator

7/25/91
Date Signed

Jerry Bellows

Jerry Bellows
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

7/25/91
Date Signed

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APPENDIX A

MAPS FROM "TA-3 TRAFFIC STUDY" DEPICTING VEHICULAR COUNT MOVEMENTS AT VARIOUS INTERSECTIONS

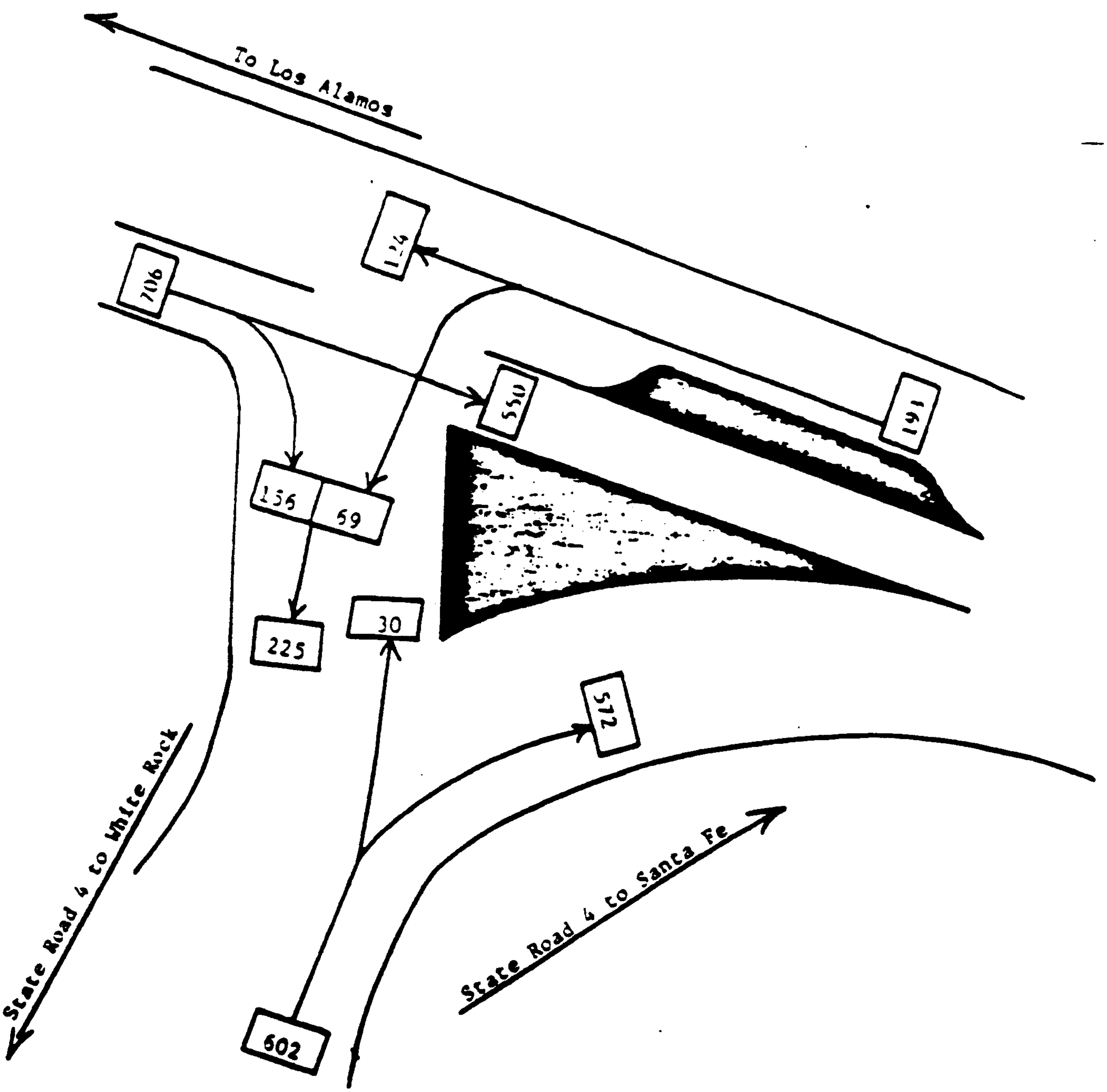
1/14/85
7B

TRAFFIC ENGINEERING DEPARTMENT
OF LOS ALAMOS COUNTY

Vehicular traffic count movements at the intersection of the White Rock Wye. Event

Date of Survey: 4/13/83
Taken for 1 hours
from: 4:30 to 5:30 pm
Day of Week Wednesday
Weather: Cloudy
Road surface: dry
Survey taken by:
Holcomb & Haas

Indicate North
by arrow

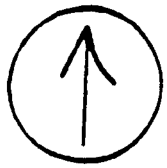


4/21/83

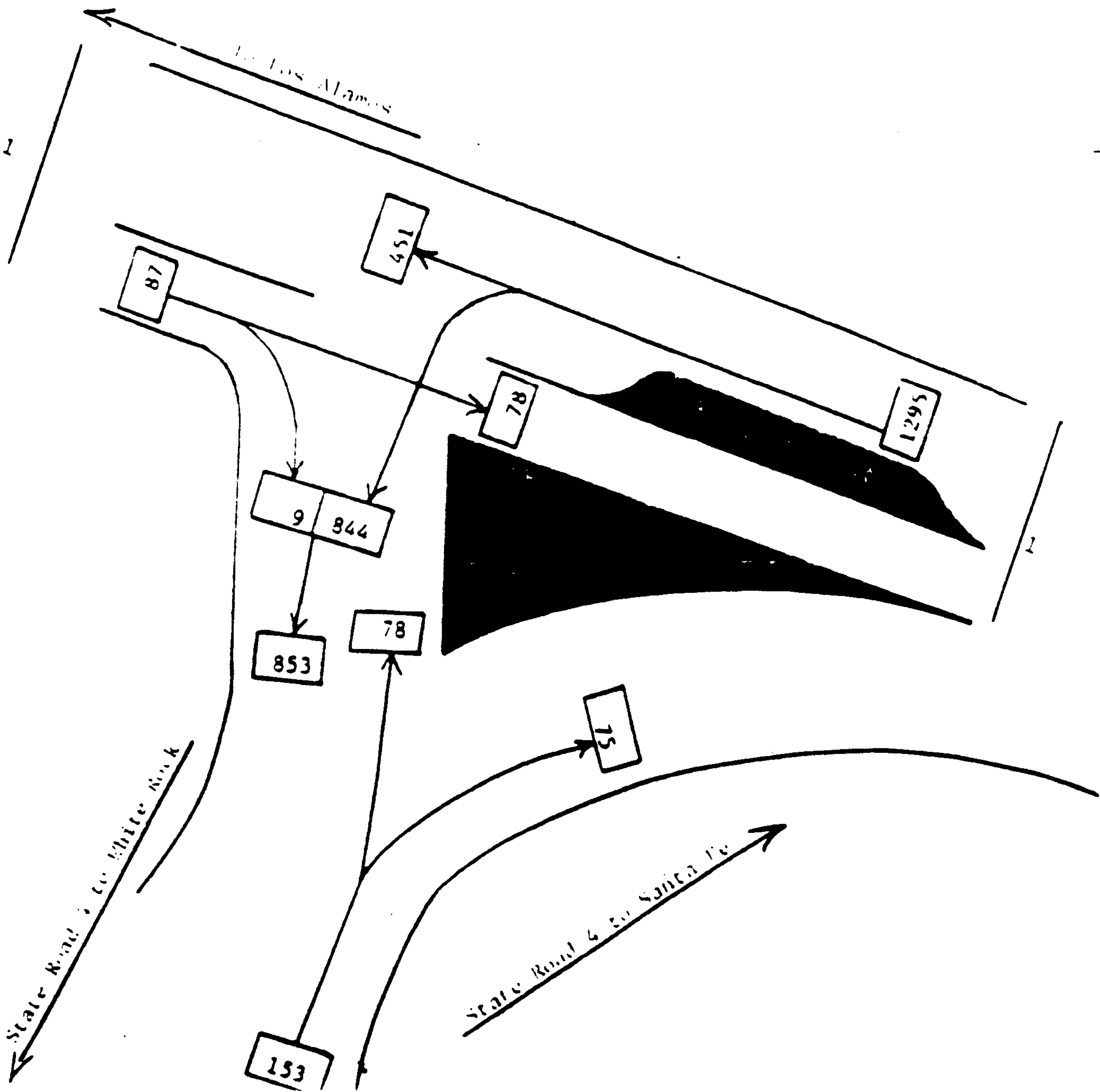
TRAFFIC ENGINEERING DEPARTMENT
OF LOS ALAMOS COUNTY

Vehicular traffic count movements at the intersection of the White Rock Y.

Date of Survey: 4/18/83
Taken for 1 hours
From: 7:15 to 8:15 am
Day of week Monday
Weather: Clear
Road surface: dry
Survey taken by:
Holcomb & Haas



Indicate North by arrow

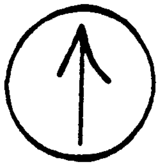


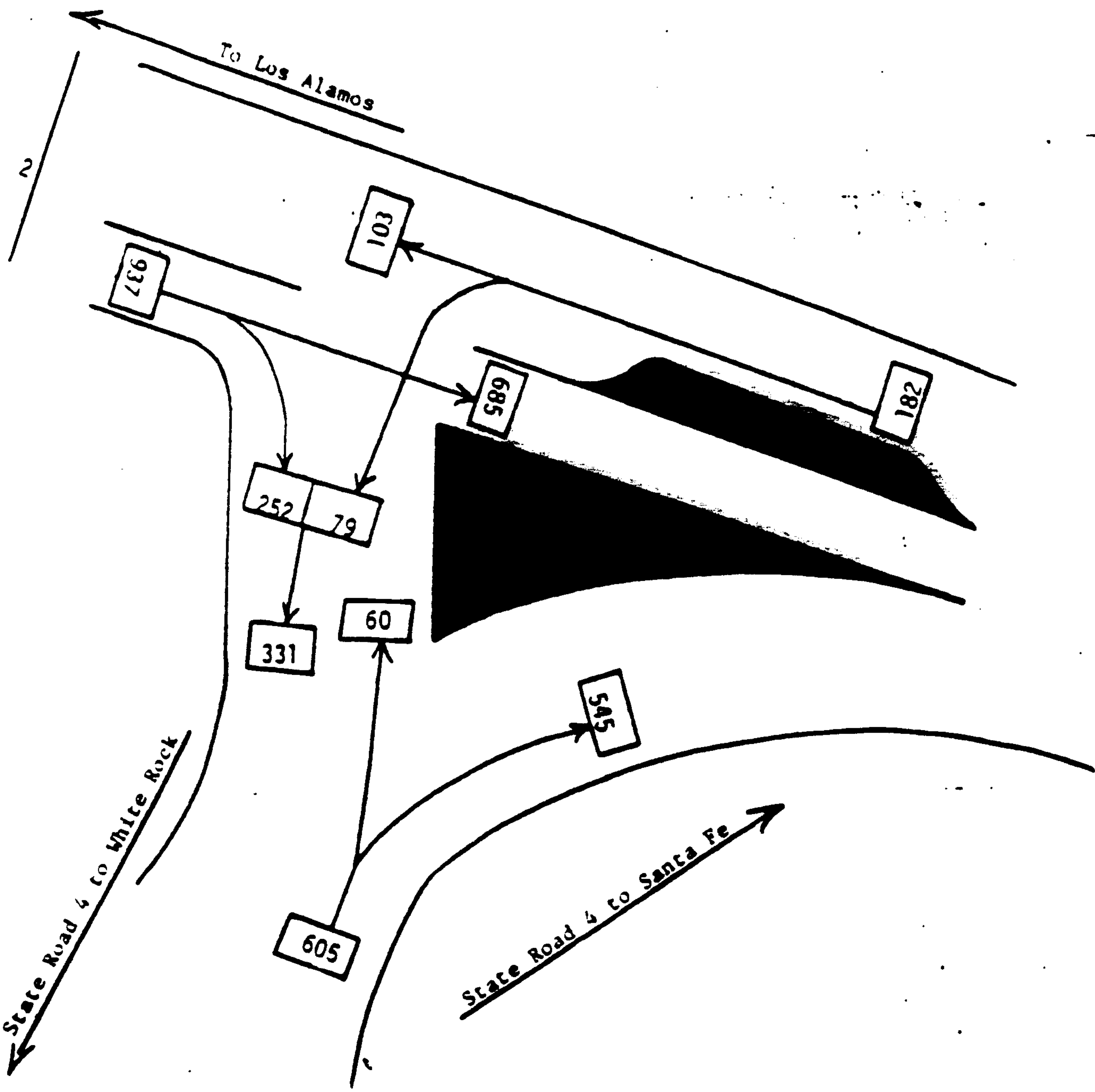
5/10/83
GB

TRAFFIC ENGINEERING DEPA[illegible]NT
OF LOS ALAMOS COUNTY

Vehicular traffic count movements at the intersection of the White Rock Wye.

Date of Survey: 5/6/83
Taken for 1 hours
from: 4:30 to 5:30 pm
Day of Week Friday
Weather: Clear
Road surface: dry
Survey taken by:
Holcomb & Haas



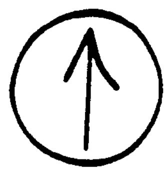


5/12/83

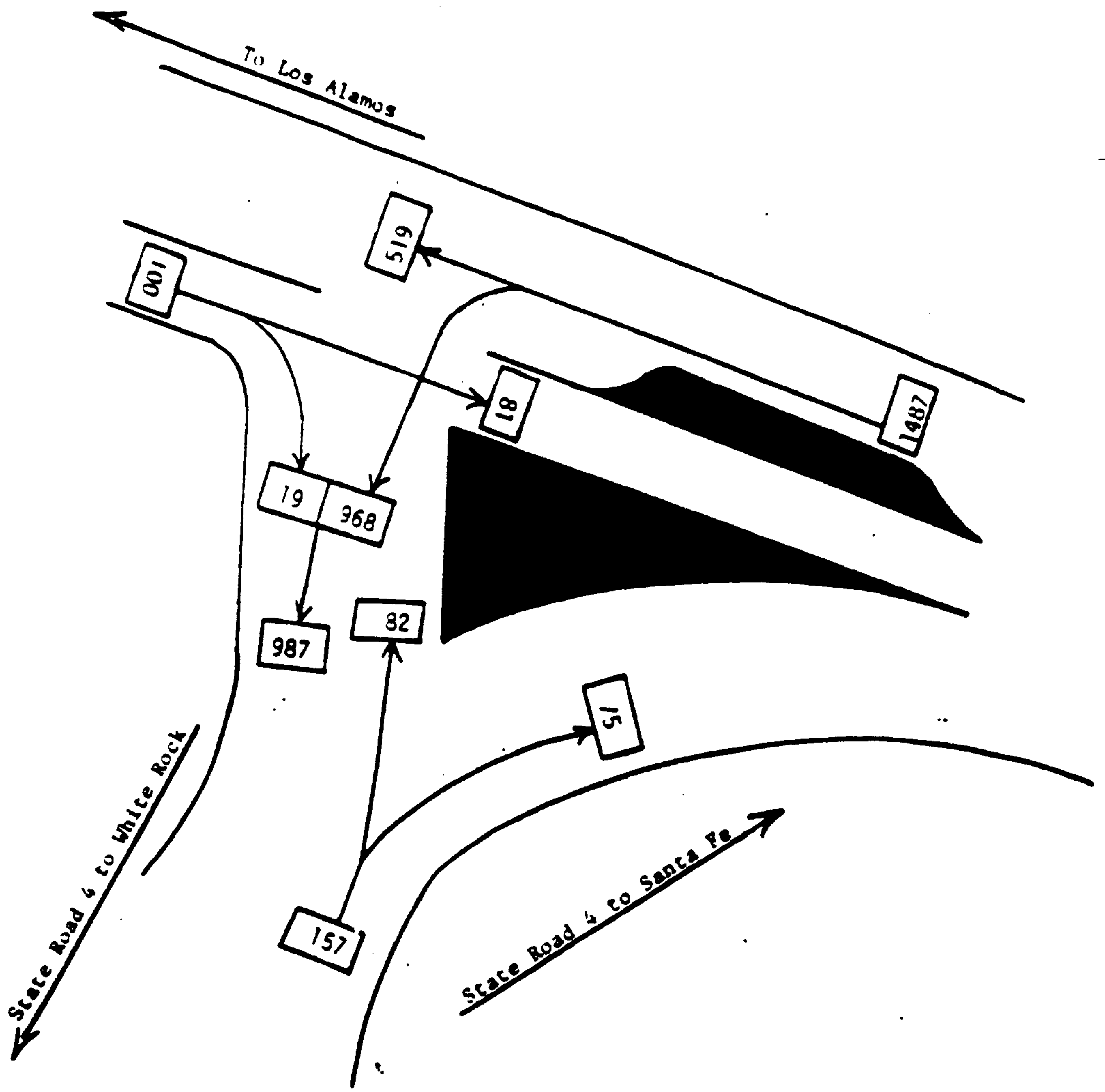
TRAFFIC ENGINEERING DEPARTMENT
OF LOS ALAMOS COUNTY

Vehicular traffic count movements at the intersection of the White Rock Wye.

Date of Survey: 5/9/83
Taken for 1 hours
from: 7:00 to 8:00
Day of Week Monday
Weather: Clear
Road surface: dry
Survey taken by:
Holcomb & Haas



Indicate North by arrow



APPENDIX B

ENGINEERING CERTIFICATION OF CONSTRUCTION

MEMORANDUM TO FILE 24 JULY, 1991

FROM: DAVE SNEESBY, ENG-8

LAGOON UPGRADE TA-53; PID# 8110-53; WO 6-9004-46

SUBJECT: CERTIFICATION OF CONSTRUCTION

As project planner on this job, I can certify that to the best of my knowledge, this project was completed in conformance to the Zia Co. drawings ENG-C 44772 (DOE DWG NO LA-RDT-AE-C). Gordon Foreman was the construction project manager for the Zia Co. He and I were included in the final inspection and punch list resolution, and all deficiencies were satisfied.

The pond constructed on this work order was originally the third of three sanitary sewage treatment ponds which were operated in series for approximately four years. In 1989 the connection to the northern two ponds was valved off, and this third pond was converted to receive radioactive waste, and piping of radioactive liquid waste was permanently diverted to not flow to the northern two ponds.

David F. Sneesby 7-24-91

APPENDIX C

NUCLEAR DENSITY DETERMINATIONS FOR TA-53-166 SOUTH SURFACE IMPOUNDMENT

THE ZIA COMPANY

NUCLEAR DENSITY DETERMINATION

W.O. No.: 9069-45

Date Tested: 9/23/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: Lagoon Bottom, sand Cushion	40' W & 60' S of NE Corner @ f/g	40' W & 60' N of SE Corner @ f/g	12' N & 50' W of SE corner @ f/g	12' N & 125' W of SE Corn[illegible] @ f/g
C. Proctor Max.:	130.5	130.5	130.5	130.5
D. Optimum Moisture:				
E. Wet Density:	134.8	129.7	139.1	134.2
F. Dry Density:	127.1	124.0	131.7	127.4
G. Inplace Moisture:	5.9	4.5	5.5	5.3
H. % Compaction Req :	85	85	85	85
I. Actual % Compaction:	97.4	95.0	100.9	97.6
Tested By: V Penny &	T. Stone	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9019-45 Date Tested: 9/19/75

Project: TA-53 Lagoons ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: Inside Embankment of New Lagoon	45' S. of SW Corner @ E/2	70' S of NW Corner @ E/2	[illegible] @ E/2	50' E [illegible] Corner [illegible]
C. Proctor Max.:	126.7	126.7	126.7	126.7
D. Optimum Moisture:	9.2	9.2	9.2	9.2
E. Wet Density:	122.8	115.2	116.8	[illegible].1
F. Dry Density:	115.1	109.9	99.0	105.0
G. Inplace Moisture:	6.6	7.4	7.7	8.5
H. % Compaction Req :	85	85	85	85
I. Actual % Compaction:	90.8	86.7	78.2	82.9
Tested By: V Penny	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45

Date Tested: 9/18/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: North Embankment Sand Liner	75' E of NW corner @ f/g	110' E of NW corner @ f/g	170' E of NW corner @ f/g	140' W. of NE corner @ f/g
C. Proctor Max.:	126.7	126.7	126.7	126.7
D. Optimum Moisture:	9.2	9.2	9.2	9.2
E. Wet Density:	118.9	104.7	123.4	119.8
F. Dry Density:	110.6	93.1	110.3	108.6
G. Inplace Moisture:	7.5	12.5	11.9	10.4
H. % Compaction Req :	85	85	85	85
I. Actual % Compaction:	87.3	73.5	87.1	85.7
Tested By: V. Penny	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45 | Date Tested: 3/26/95

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:				
B. Test Location: E. Roadway	45' south of N end 5' W ℄ @ f sg	65' North of south end, 5' E of ℄ @ f sg		
C. Proctor Max.:	102.9	102.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	111.6	105.1		
F. Dry Density:	98.3	93.6		
G. Inplace Moisture:	13.4	12.1		
H. % Compaction Req :	95	95		
I. Actual % Compaction:	95.5	91.0		
Tested By: V Penny	✓	✓		

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-13

Date Tested: 8/22/95

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	
B. Test Location: New Lagoon Embankment	30' south of NE corner @ f.s.g.	75' North of SE corner @ f.s.g.	30' W of SE corner @ f.s.g.	
C. Proctor Max.:	102.9	102.9	102.9	
D. Optimum Moisture:	15.5	15.5	15.5	
E. Wet Density:	116.5	120.2	111.1	
F. Dry Density:	100.9	103.2	97.9	
G. Inplace Moisture:	15.5	16.5	13.3	
H. % Compaction Req :	95	95	95	
I. Actual % Compaction:	98.1	100.3	95.2	
Tested By: V. Penny	✓	✓	✓	

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45

Date Tested: 8/[illegible]/85

Project: TA-33 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: New Lagoon Embankment	[illegible] fsg-2.5'	100' south of NE corner fsg-1.5'	30' W of SE corner fsg-0.5'	Retest of No. 1
C. Proctor Max.:	102.9	102.9	102.9	102.9
D. Optimum Moisture:	15.5	15.5	15.5	15.5
E. Wet Density:	106.0	111.6	[illegible]	108.0
F. Dry Density:	92.5	94.0	91.5	94.9
G. Inplace Moisture:	14.[illegible]	18.6	13.7	13.6
H. % Compaction Req :	95	90	95	95
I. Actual % Compaction:	89.9	91.3	88.9	92.2
Tested By: V. Perry	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45

Date Tested: 3/20/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	5				
B. Test Location: New Lagoon Embankment	50' south of NE corner FSG-4'				
C. Proctor Max.:	102.9				
D. Optimum Moisture:	15.5				
E. Wet Density:	115.1				
F. Dry Density:	94.9				
G. Inplace Moisture:	21.1				
H. % Compaction Req :	90				
I. Actual % Compaction:	92.2				
Tested By: V. Penny	✓				

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9269-45 Date Tested: 3/21/[illegible]

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2		
B. Test Location: New Lagoon Embankment	75' south of NE corner, FSG-2'	30' south of NE corner, FSG-2'		
C. Proctor Max.:	102.9	112.9		
D. Optimum Moisture:	[illegible]	15.5		
E. Wet Density:	115.1	109.9		
F. Dry Density:	97.8	95.1		
G. Inplace Moisture:	17.5	15.4		
H. % Compaction Req :	90	90		
I. Actual % Compaction:	95.1	92.5		
Tested By: [illegible]	✓	✓		

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-05

Date Tested: [illegible]

Project: TA-53 Lagoon [illegible]

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: New Lagoon [illegible]	Retest [illegible] [illegible]	Retest of [illegible]	40' [illegible] SE Corner [illegible]	75' South of NE Corner FSG - 4'
C. Proctor Max.:	102.9	102.9	102.9	102.9
D. Optimum Moisture:	15.5	[illegible]	15.5	15.5
E. Wet Density:	112.1	111.5	113.9	112.4
F. Dry Density:	96.3	95.1	99.1	97.8
G. Inplace Moisture:	16.2	17.1	14.8	14.8
H. % Compaction Req :	90	90	90	90
I. Actual % Compaction:	93.6	[illegible]	96.3	95.1
Tested By: V. [illegible]	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-85

Date Tested: 8/10/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	5	6		
B. Test Location: New Lagoon Embankment	50' N of SE Corner fsg-3.5'	30' W of SE Corner fsg-1'		
C. Proctor Max.:	102.9	102.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	108.5	114.0		
F. Dry Density:	93.4	97.2		
G. Inplace Moisture:	16.0	17.1		
H. % Compaction Req :	90	90		
I. Actual % Compaction:	90.8	94.5		
Tested By: V Pennell	✓	✓		

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9769-45

Date Tested: 8/16/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	5	6		
B. Test Location: New Lagoon Em-Bankment	75' N of SE corner Elev -5'	Retest of Test #5		
C. Proctor Max.:	102.9	102.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	105.9	103.7		
F. Dry Density:	92.0	90.8		
G. Inplace Moisture:	17.5	14.0		
H. % Compaction Req :	90%	90%		
I. Actual % Compaction:	87.0	88.3		
Tested By: √ Penny	✓	✓		

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 2019-45 Date Tested: 8/5 [illegible]

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: New Lagoon Embankment	Retest 2 Not Taken 3/25	Retest [illegible] 7/2/85	[illegible] 5 ? -3'	1.0' East of SW Corner @ [illegible]
C. Proctor Max.:	102.9	102.9	102.9	102.9
D. Optimum Moisture:	15.5	15.5	15.5	15.5
E. Wet Density:	112.6	109.7	95.3	114.0
F. Dry Density:	97.0	95.1	84.4	99.5
G. Inplace Moisture:	16.1	15.2	11.?	14.4
H. % Compaction Req :	90	90	90	95
I. Actual % Compaction:	94.3	92.4	91.7	96.7
Tested By: V. Pennell	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Silvia Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9019-45

Date Tested: 5/15/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	5	6	7	
B. Test Location: New Lagoon Embankment	75' N of SE corner [illegible] sg-6.5'	75' south of NE corner [illegible] sg-6.5'	50' W. of SE corner [illegible] sg-3'	
C. Proctor Max.:	102.9	102.9	102.9	
D. Optimum Moisture:	15.5	15.5	15.5	
E. Wet Density:	120.0	118.1	113.8	
F. Dry Density:	101.7	100.2	97.2	
G. Inplace Moisture:	17.8	17.7	17.0	
H. % Compaction Req :	90	90	90	
I. Actual % Compaction:	98.9	97.4	94.5	
Tested By: V. Ferrl	✓	✓	✓	

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-L

Date Tested: 8/16/95

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: New Lagoon Embankment	50' south of NE corner fsg-1'	50' N of SE corner fsg-55'	75' W of SE Corner fsg-1'	75' south of NE corner fsg-5'
C. Proctor Max.:	102.9	102.9	102.9	102.9
D. Optimum Moisture:	15.5	15.5	15.5	15.5
E. Wet Density:	109.4	110.5	111.3	109.2
F. Dry Density:	95.1	96.2	96.2	93.9
G. Inplace Moisture:	14.9	14.7	15.5	16.1
H. % Compaction Req :	90%	90%	90%	90%
I. Actual % Compaction:	92.4	93.5	93.5	91.2
Tested By: V Penny	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45

Project: TA-53 Lagoon Upgrade Date Tested: 8/14/85

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: New Lagoon Embankment	30' N of SE Corner fsg-10'	60' south of NE Corner fsg-10'	12' N of SE Corner fsg-9'	100' south of NE Corner fsg-9'
C. Proctor Max.:	102.9	102.9	102.9	102.9
D. Optimum Moisture:	15.5	15.5	15.5	15.5
E. Wet Density:	104.6	105.7	113.1	114.4
F. Dry Density:	92.4	92.9	96.2	97.3
G. Inplace Moisture:	13.0	13.6	17.6	17.4
H. % Compaction Req :	90%	90%	90%	90%
I. Actual % Compaction:	89.8	90.3	93.5	94.5
Tested By: V. Penny	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45

Date Tested: 3/1[illegible] 95

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	5	6	7	
B. Test Location: New Lagoon Embankment	Retest of [illegible] 5' [illegible]	30' N of SE Corner fsg-55'	60' South of NE Corner fsg-75'	
C. Proctor Max.:	102.9	102.9	102.9	
D. Optimum Moisture:	15.5	15.5	15.5	
E. Wet Density:	115.9	104.8	106.7	
F. Dry Density:	99.7	90.8	91.2	
G. Inplace Moisture:	16.1	15.2	16.8	
H. % Compaction Req :	95	90	90	
I. Actual % Compaction:	96.9	88.3	88.6	
Tested By: V Perry	✓	✓	✓	

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45   Date Tested: 3/13/85

Project: TA-53 Lagoon Upgrade   ASTM Method: D 2922

A. Test Number:	5	6		
B. Test Location: Lagoon Embankment	Retest of Test # 1	Retest of Test #2		
C. Proctor Max.:	102.9	102.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	115.1	107.2		
F. Dry Density:	103.0	94.5		
G. Inplace Moisture:	14.5	13.3		
H. % Compaction Req :	95	95		
I. Actual % Compaction:	100.1	91.9		
Tested By: V. Penny	✓	✓		

Machine Number: M28032221   M22114673

Comments: (Clarify Location, Station/Elevation)

The Retest of test # 2 failed

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45 Date Tested: 8/13/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2	3	4
B. Test Location: Lagoon Embankment	30' South of NW corner @ fsg	90' N of SW corner @ fsg.	50' So. of NE corner fsg-10'	45' N. of SE Corner fsg-10'
C. Proctor Max.:	102.9	[illegible]	102.9	102.9
D. Optimum Moisture:	15.5	15.5	15.5	15.5
E. Wet Density:	103.5	[illegible]	114.1	110.6
F. Dry Density:	90.5	95.2	97.5	97.6
G. Inplace Moisture:	14.2	12.1	16.9	13.7
H. % Compaction Req :	95	95	90	[illegible]
I. Actual % Compaction:	88.0	92.5	94.7	94.8
Tested By: V. Perry	✓	✓	✓	✓

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Tests No. 1 & 2 failed specification requirements. Need to rework & retest.

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPA...

NUCLEAR DENSIT...
DETERMINATION

W.O. No.: 9069-45

Date Tested: 8/12/35

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2		
B. Test Location: East side of Embankment	Retest of test #4	50' N of SE corner & 53-11'		
C. Proctor Max.:	102.9	102.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	116.8	118.6		
F. Dry Density:	99.0	99.1		
G. Inplace Moisture:	17.8	19.5		
H. % Compaction Req :	90	90		
I. Actual % Compaction:	96.3	96.3		
Tested By:	V Penny	~		

Machine Number: M28032221 M22114673

Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

THE ZIA COMPANY

NUCLEAR DENSITY
DETERMINATION

W.O. No.: 9069-45 Date Tested: 8/3/85

Project: TA-53 Lagoon Upgrade

ASTM Method: D 2922

A. Test Number:	1	2		
B. Test Location: Lagoon Emb...	Middle of West side fsg-2'	25' W of SE Corner fsg-7'		
C. Proctor Max.:	101.9	101.9		
D. Optimum Moisture:	15.5	15.5		
E. Wet Density:	93.7	105.1		
F. Dry Density:	93.3	95.3		
G. Inplace Moisture:	11.1	9.6		
H. % Compaction Req :	90%	90%		
I. Actual % Compaction:	91.6	94.0		
Tested By:				

Machine Number: M28032221 M22114673

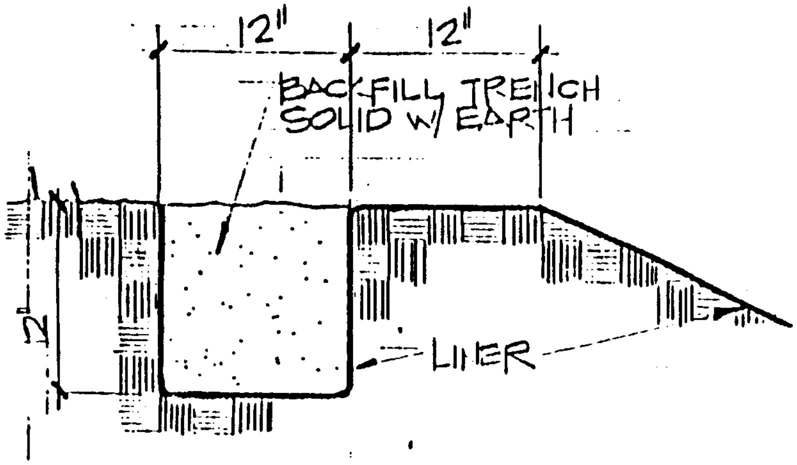
Comments: (Clarify Location, Station/Elevation)

Requested By: QA Plan Requirement or Gloria Gonzales
Name of Requesting Individual

EQAD FORM: SOILS 2

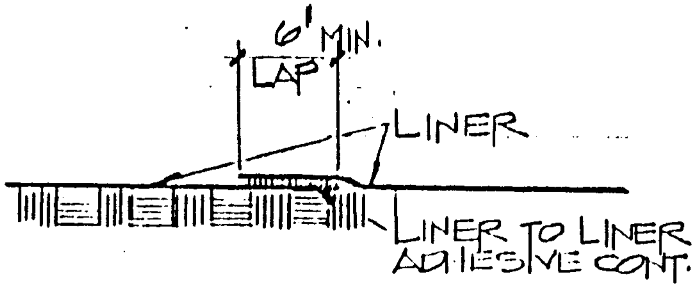
APPENDIX D

LINER DETAILS
FOR TA-53-166 SOUTH
SURFACE IMPOUNDMENT



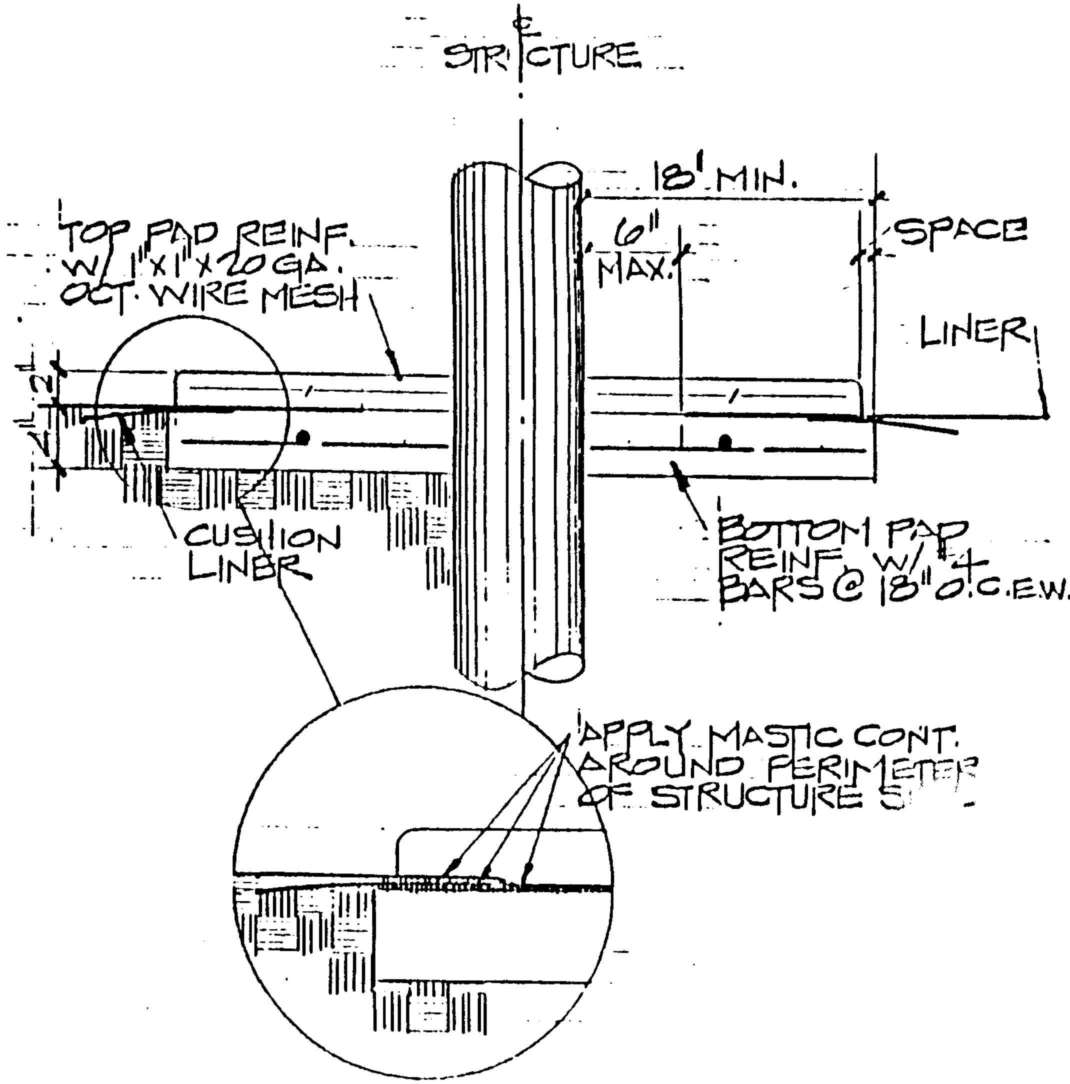
ANCHOR TRENCH
SCALE: 1"=1'-0"

A



FIELD SEAM
SCALE: 1"=1'-0"

B



STRUCTURE SEAL SC. 1"=1'-0"

C

FALCO LININGS, INC.
7571 SANTA RITA CIRCLE
STANTON, CA. 90630
714-893-0367

LINER DETAILS

4-22-80, RAM

APPENDIX E

SAMPLE DATA
FROM BOREHOLES
AT TA-53 SURFACE IMPOUNDMENTS

Tritium Analysis Data
for
Boreholes 1-5 and "B"

Preliminary Data Summary from Auger Samples around LAMPF Lagoons, June 24, 1991

- Typical HSE-9 detection limit for tritium in soil moisture: 0.7 nCi/L

- Background tritium in precipitation in northern NM beyond LANL influence was about 0.065 nCi/L (20 TU) or, in the vicinity of LAMPF, about 0.17 - 0.300 nCi/L (52 -90 TU) in 1990.

- Average annual concentrations discharged from lagoons in recent years:

1985	710 nCi/L
1986	3100
1987	2700
1988	2100
1989	19000

Tritium Concentration (nCi/L)

Depth	Hole 1	Hole 2	Hole 3	Hole 4	Hole 5	Hole B
Surface	4.2	2.4	19.6	16.4	16.3	<0.1
5	8.5	2.4	9.0	9.8	32.1	0.1
10	2.1	1.9	6.1	2.9	48.7	<0.1
15	2.1	3.2	1.6	1.2	66.5	1.0
20	1.5	3.7	1.3	1.3	54.6	0.65
25	0.5	3.2	1.5	0.4	38.6	0.4
30	0.5	6.1	1.3	0.2	34.2	0.4
35	2.6	5.6	0.7	0.5	48.5	0.1
40	2.4	6.1	0.7	0.3	66.9	0.3
45	0.2	5.8	1.6	0.2	65.9	0.5
50	3.4	6.9	0.1	0.3	69.3	0.5
Bit	2.4	3.4	6.9	1.2	26.5	0.0
60					62.4	
70					100.4	
80					88.4	
90					60.3	
100					34.7	

Gravimetric Moisture in Percent

Depth	Hole 1	Hole 2	Hole 3	Hole 4	Hole 5	Hole B
Surface	2.9	3.2	3.5	3.7	8.3	12.7
5	8.8	3.8	20.8	11.	9.	9.8
10	2.2	12.6	8.7	6.2	4.3	1.9
15	2.6	7.4	16.4	9.1	2.5	0.9
20	2.6	7.7	8.4	8.0	6.9	1.7
25	2.7	6.8	6.9	7.8	7.4	2.6
30	2.8	6.3	9.7	3.1	7.3	2.0
35	2.5	5.9	2.7	5.5	6.5	1.7
40	2.4		3.2	4.5	1.	1.7
45	2.7	6.1	6.4	1.9	5.6	2.2
50	2.7	6.3	3.8	8.0	6.4	2.7
Bit	2.6	11.6	4.1	3.	7.3	0.9
60					6.4	
70					3.4	
80					2.	
90					6.5	
100					9.8	

REPORT NUMBER: 10676

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

Prepared by: DK on 25-Jun-1991

ANALYSIS: H-3 REQUEST NUMBER: 11620 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE :

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-1-S	91.05173	2700.	300.	PCI/L	6/25/91	
AB-1-SQAQC	91.05174	3400.	300.	PCI/L	6/25/91	
AB-1-5'	91.05175	5500.	600.	PCI/L	6/25/91	
AB-1-10'	91.05176	3200.	300.	PCI/L	6/25/91	
AB-1-15'	91.05177	1000.	300.	PCI/L	6/25/91	
AB-1-20'	91.05178	600.	300.	PCI/L	6/25/91	
AB-1-25'	91.05179	400.	300.	PCI/L	6/25/91	
AB-1-30'	91.05180	300.	300.	PCI/L	6/25/91	
AB-1-35'	91.05181	500.	300.	PCI/L	6/25/91	
AB-1-40'	91.05182	600.	300.	PCI/L	6/25/91	
AB-1-45'	91.05183	500.	300.	PCI/L	6/25/91	
AB-1-50'	91.05184	500.	300.	PCI/L	6/25/91	
AB-1-BIT	91.05185	1300.	300.	PCI/L	6/25/91	
AB-2-S	91.05186	2600.	300.	PCI/L	6/25/91	
AB-2-5'	91.05187	2100.	300.	PCI/L	6/25/91	
AB-2-10'	91.05188	1500.	300.	PCI/L	6/25/91	
AB-2-15'	91.05189	1600.	300.	PCI/L	6/25/91	
AB-2-20'	91.05190	3200.	300.	PCI/L	6/25/91	
AB-2-25'	91.05191	3500.	400.	PCI/L	6/25/91	
AB-2-30'	91.05192	3600.	400.	PCI/L	6/25/91	
AB-2-35'	91.05193	3800.	400.	PCI/L	6/25/91	
AB-2-40'	91.05194	4700.	500.	PCI/L	6/25/91	
AB-2-45'	91.05195	4500.	500.	PCI/L	6/25/91	
AB-2-50'	91.05196	4400.	400.	PCI/L	6/25/91	
AB-2-BIT	91.05197	1600.	300.	PCI/L	6/25/91	
AB-3-S	91.05198	17500.	2000.	PCI/L	6/25/91	
AB-3-5'	91.05199	5800.	600.	PCI/L	6/25/91	
AB-3-10'	91.05200	1000.	300.	PCI/L	6/25/91	
AB-3-15'	91.05201	400.	300.	PCI/L	6/25/91	
AB-3-20'	91.05202	1400.	300.	PCI/L	6/25/91	
AB-3-25'	91.05203	1500.	300.	PCI/L	6/25/91	
AB-3-30'	91.05204	1300.	300.	PCI/L	6/25/91	
AB-3-35'	91.05205	800.	300.	PCI/L	6/25/91	
AB-3-40'	91.05206	700.	300.	PCI/L	6/25/91	
AB-3-45'	91.05207	1700.	300.	PCI/L	6/25/91	
AB-3-50'	91.05208	100.	300.	PCI/L	6/25/91	
AB-3-BIT	91.05209	7000.	700.	PCI/L	6/25/91	
AB-4-S	91.05210	16400.	2000.	PCI/L	6/25/91	
AB-4-5'	91.05211	10000.	1000.	PCI/L	6/25/91	

AB-4-10'	91.05212	2900.	300.	PCI/L	6/25/91
AB-4-15'	91.05219	1200.	300.	PCI/L	6/25/91
AB-4-20'	91.05220	1300.	300.	PCI/L	6/25/91
AB-4-25'	91.05221	400.	300.	PCI/L	6/25/91
AB-4-30'	91.05222	200.	300.	PCI/L	6/25/91
AB-4-35'	91.05223	600.	300.	PCI/L	6/25/91
AB-4-40'	91.05224	300.	300.	PCI/L	6/25/91
AB-4-45'	91.05225	200.	300.	PCI/L	6/25/91
AB-4-50'	91.05226	400.	300.	PCI/L	6/25/91
AB-4-BIT	91.05227	1200.	300.	PCI/L	6/25/91

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REPORT NUMBER: 10676 (continued)

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

Prepared by: DK on 25-Jun-1991

REQUEST NUMBER: 11620 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
00.22385	00.22385	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22385	00.22385	- 100.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22385	00.22385	400.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22386	00.22386	15800.	2000.	PCI/L	18430.	370.	6/25/91	UNDER CONTROL
00.22386	00.22386	16500.	2000.	PCI/L	18430.	370.	6/25/91	UNDER CONTROL
00.22386	00.22386	14900.	1000.	PCI/L	18430.	370.	6/25/91	OUT OF CONTROL

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

SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
91.05169	700.	300.	PCI/L	0.0		6/25/91	WARNING 2-3 SIG
91.05170	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
91.05171	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
91.05172	19.1	2.	NCI/L	22.	0.6	6/25/91	UNDER CONTROL
91.05521	19.7	2.	NCI/L	18.3	0.5	6/25/91	UNDER CONTROL
91.05522	1100.	400.	PCI/L	0.0		6/25/91	WARNING 2-3 SIG
91.05523	78.4	8.	NCI/L	91.6	2.4	6/25/91	UNDER CONTROL

REPORT NUMBER: 10676

Analyst	Section Leader	QA Officer
OK for RJP	DKnat	[illegible]
6-25-91	6 25-91	6/25/91
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: 10678

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

Prepared by: DK on 25-Jun-1991

ANALYSIS: H-3 REQUEST NUMBER: 11640 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE :

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-5-S	91.05491	17400.	2000.	PCI/L	6/25/91	
AB-5-5′	91.05492	32100.	3000.	PCI/L	6/25/91	
AB-5-10′	91.05493	48700.	5000.	PCI/L	6/25/91	
AB-5-15′	91.05494	66500.	7000.	PCI/L	6/25/91	
AB-5-20′	91.05495	54600.	5000.	PCI/L	6/25/91	
AB-5-25′	91.05496	38700.	4000.	PCI/L	6/25/91	
AB-5-30′	91.05497	34200.	3000.	PCI/L	6/25/91	
AB-5-35′	91.05498	48500.	5000.	PCI/L	6/25/91	
AB-5-40′	91.05499	66900.	7000.	PCI/L	6/25/91	
AB-5-45′	91.05500	65900.	7000.	PCI/L	6/25/91	
AB-5-50′	91.05501	69300.	7000.	PCI/L	6/25/91	
AB-5-BIT	91.05502	44200.	400.	PCI/L	6/25/91	3 ML
AB-5-60′	91.05503	62500.	6000.	PCI/L	6/25/91	
AB-5-70′	91.05504	104.	10.	NCI/L	6/25/91	NOTE UNITS
AB-5-80′	91.05505	88400.	9000.	PCI/L	6/25/91	
AB-5-90′	91.05506	60300.	6000.	PCI/L	6/25/91	
AB-5-100′	91.05507	34700.	3000.	PCI/L	6/25/91	
AB-B-S	91.05508	1000.	300.	PCI/L	6/25/91	
AB-B-S-QA/QC	91.05509	700.	300.	PCI/L	6/25/91	
AB-B-5′	91.05510	1200.	300.	PCI/L	6/25/91	
AB-B-10′	91.05511	800.	300.	PCI/L	6/25/91	3 ML
AB-B-15′	91.05512	1000.	300.	PCI/L	6/25/91	
AB-B-20′	91.05513	500.	300.	PCI/L	6/25/91	
AB-B-25′	91.05514	700.	300.	PCI/L	6/25/91	3 ML
AB-B-30′	91.05515	700.	300.	PCI/L	6/25/91	3 ML
AB-B-35′	91.05516	600.	300.	PCI/L	6/25/91	1 ML
AB-B-40′	91.05517	700.	300.	PCI/L	6/25/91	2 ML
AB-B-45′	91.05518	1300.	400.	PCI/L	6/25/91	2 ML
AB-B-50′	91.05519	1400.	400.	PCI/L	6/25/91	2 ML
AB-B-BIT	91.05520	500.	400.	PCI/L	6/25/91	0.7 ML

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REPORT NUMBER: 10678 (continued)

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

Prepared by: DK on 25-Jun-1991

REQUEST NUMBER: 11640 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
00.22385	00.22385	400.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22385	00.22385	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22385	00.22385	- 100.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
00.22386	00.22386	15800.	2000.	PCI/L	18430.	370.	6/25/91	UNDER CONTROL
00.22386	00.22386	16500.	2000.	PCI/L	18430.	370.	6/25/91	UNDER CONTROL
00.22386	00.22386	14900.	1000.	PCI/L	18430.	370.	6/25/91	OUT OF CONTROL

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

SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	CERTIFIED VALUE	CERTIFIED VALUE UNCERTAINTY	COMPLETION DATE	COMMENT
91.05169	700.	300.	PCI/L	0.0		6/25/91	WARNING 2-3 SIG
91.05170	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
91.05171	200.	300.	PCI/L	0.0		6/25/91	UNDER CONTROL
91.05172	19.1	2.	NCI/L	22.	0.6	6/25/91	UNDER CONTROL
91.05521	19.7	2.	NCI/L	18.3	0.5	6/25/91	UNDER CONTROL
91.05522	1100.	400.	PCI/L	0.0		6/25/91	WARNING 2-3 SIG
91.05523	78.4	8.	NCI/L	91.6	2.4	6/25/91	UNDER CONTROL

REPORT NUMBER: 10678

DK for RJP	D Knab	[illegible]
Analyst	Section Leader	QA Officer
6 25-91	6 25-91	6/25/91
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.

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Gamma Scan
and
Gross Gamma Analysis Data
for
Boreholes 1-5 and "B"

REPORT NUMBER: 10963

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: GSCAN REQUEST NUMBER: 11620 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: G ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-1-S	91.05173	0.0			7/19/91	REQUESTCANCELED
AB-1-SQAQC	91.05174	0.0			7/19/91	REQUESTCANCELED
AB-1-5'	91.05175	0.0			7/19/91	REQUESTCANCELED
AB-1-10'	91.05176	0.0			7/19/91	REQUESTCANCELED
AB-1-15'	91.05177	0.0			7/19/91	REQUESTCANCELED
AB-1-20'	91.05178	0.0			7/19/91	REQUESTCANCELED
AB-1-25'	91.05179	0.0			7/19/91	REQUESTCANCELED
AB-1-30'	91.05180	0.0			7/19/91	REQUESTCANCELED
AB-1-35'	91.05181	0.0			7/19/91	REQUESTCANCELED
AB-1-40'	91.05182	0.0			7/19/91	REQUESTCANCELED
AB-1-45'	91.05183	0.0			7/19/91	REQUESTCANCELED
AB-1-50'	91.05184	0.0			7/19/91	REQUESTCANCELED
AB-1-BIT	91.05185	0.0			7/19/91	REQUESTCANCELED
AB-2-S	91.05186	0.0			7/19/91	REQUESTCANCELED
AB-2-5'	91.05187	0.0			7/19/91	REQUESTCANCELED
AB-2-10'	91.05188	0.0			7/19/91	REQUESTCANCELED
AB-2-15'	91.05189	0.0			7/19/91	REQUESTCANCELED
AB-2-20'	91.05190	0.0			7/19/91	REQUESTCANCELED
AB-2-25'	91.05191	0.0			7/19/91	REQUESTCANCELED
AB-2-30'	91.05192	0.0			7/19/91	REQUESTCANCELED
AB-2-35'	91.05193	0.0			7/19/91	REQUESTCANCELED
AB-2-40'	91.05194	0.0			7/19/91	REQUESTCANCELED
AB-2-45'	91.05195	0.0			7/19/91	REQUESTCANCELED
AB-2-50'	91.05196	0.0			7/19/91	REQUESTCANCELED
AB-2-BIT	91.05197	0.0			7/19/91	REQUESTCANCELED
AB-3-S	91.05198	0.0			7/19/91	REQUESTCANCELED
AB-3-5'	91.05199	0.0			7/19/91	REQUESTCANCELED
AB-3-10'	91.05200	0.0			7/19/91	REQUESTCANCELED
AB-3-15'	91.05201	0.0			7/19/91	REQUESTCANCELED
AB-3-20'	91.05202	0.0			7/19/91	REQUESTCANCELED
AB-3-25'	91.05203	0.0			7/19/91	REQUESTCANCELED
AB-3-30'	91.05204	0.0			7/19/91	REQUESTCANCELED
AB-3-35'	91.05205	0.0			7/19/91	REQUESTCANCELED
AB-3-40'	91.05206	0.0			7/19/91	REQUESTCANCELED
AB-3-45'	91.05207	0.0			7/19/91	REQUESTCANCELED
AB-3-50'	91.05208	0.0			7/19/91	REQUESTCANCELED
AB-3-BIT	91.05209	0.0			7/19/91	REQUESTCANCELED

AB-4-S	91.05210	0.0	7/19/91	REQUESTCANCELED
AB-4-5'	91.05211	0.0	7/19/91	REQUESTCANCELED
AB-4-10'	91.05212	0.0	7/19/91	REQUESTCANCELED
AB-4-15'	91.05219	0.0	7/19/91	REQUESTCANCELED
AB-4-20'	91.05220	0.0	7/19/91	REQUESTCANCELED
AB-4-25'	91.05221	0.0	7/19/91	REQUESTCANCELED
AB-4-30'	91.05222	0.0	7/19/91	REQUESTCANCELED
AB-4-35'	91.05223	0.0	7/19/91	REQUESTCANCELED
AB-4-40'	91.05224	0.0	7/19/91	REQUESTCANCELED
AB-4-45'	91.05225	0.0	7/19/91	REQUESTCANCELED
AB-4-50'	91.05226	0.0	7/19/91	REQUESTCANCELED
AB-4-BIT	91.05227	0.0	7/19/91	REQUESTCANCELED

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The GSCAN DATA from RN 11640 showed nothing but normal background peaks so GSCAN was canceled for the remainder of the samples.

REPORT NUMBER: 10963 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11620 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

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

The following analyst QC's have no CV data for comparison

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
00.99750	91.05169	0.0			7/19/91	NO DATA AVAIL.
00.22545	91.05170	0.0			7/19/91	NO DATA AVAIL.
00.22545	91.05171	0.0			7/19/91	NO DATA AVAIL.
00.21975	91.05172	0.0			7/19/91	NO DATA AVAIL.

REPORT NUMBER: 10963

GB	D Knab	
Analyst	Section Leader	QA Officer
7/22/91	7-19-91	
Date	Date	Date

REPORT NUMBER: 10964

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: GSCAN REQUEST NUMBER: 11640 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: G ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-5-S	91.05491	0.0			7/19/91	COMPLETED
AB-5-5'	91.05492	0.0			7/19/91	COMPLETED
AB-5-10'	91.05493	0.0			7/19/91	COMPLETED
AB-5-15'	91.05494	0.0			7/19/91	COMPLETED
AB-5-20'	91.05495	0.0			7/19/91	COMPLETED
AB-5-25'	91.05496	0.0			7/19/91	COMPLETED
AB-5-30'	91.05497	0.0			7/19/91	COMPLETED
AB-5-35'	91.05498	0.0			7/19/91	COMPLETED
AB-5-40'	91.05499	0.0			7/19/91	COMPLETED
AB-5-45'	91.05500	0.0			7/19/91	COMPLETED
AB-5-50'	91.05501	0.0			7/19/91	COMPLETED
AB-5-BIT	91.05502	0.0			7/19/91	COMPLETED
AB-5-60'	91.05503	0.0			7/19/91	COMPLETED
AB-5-70'	91.05504	0.0			7/19/91	COMPLETED
AB-5-80'	91.05505	0.0			7/19/91	COMPLETED
AB-5-90'	91.05506	0.0			7/19/91	COMPLETED
AB-5-100'	91.05507	0.0			7/19/91	COMPLETED
AB-B-S	91.05508	0.0			7/19/91	COMPLETED
AB-B-S-QA/QC	91.05509	0.0			7/19/91	COMPLETED
AB-B-5'	91.05510	0.0			7/19/91	COMPLETED
AB-B-10'	91.05511	0.0			7/19/91	COMPLETED
AB-B-15'	91.05512	0.0			7/19/91	COMPLETED
AB-B-20'	91.05513	0.0			7/19/91	COMPLETED
AB-B-25'	91.05514	0.0			7/19/91	COMPLETED
AB-B-30'	91.05515	0.0			7/19/91	COMPLETED
AB-B-35'	91.05516	0.0			7/19/91	COMPLETED
AB-B-40'	91.05517	0.0			7/19/91	COMPLETED
AB-B-45'	91.05518	0.0			7/19/91	COMPLETED
AB-B-50'	91.05519	0.0			7/19/91	COMPLETED
AB-B-BIT	91.05520	0.0			7/19/91	COMPLETED

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REPORT NUMBER: 10964 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11640 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

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: 10964	GB	D Knal	
	Analyst	Section Leader	QA Officer
	7/22/91	7-19-91	
	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

REPORT NUMBER: 10961

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: GAMMA REQUEST NUMBER: 11620 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: G ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-1-S	91.05173	9.	1.	PCI/G	7/19/91	
AB-1-SQAQC	91.05174	9.	1.	PCI/G	7/19/91	
AB-1-5'	91.05175	8.	1.	PCI/G	7/19/91	
AB-1-10'	91.05176	9.	1.	PCI/G	7/19/91	
AB-1-15'	91.05177	9.	1.	PCI/G	7/19/91	
AB-1-20'	91.05178	10.	1.	PCI/G	7/19/91	
AB-1-25'	91.05179	9.	1.	PCI/G	7/19/91	
AB-1-30'	91.05180	11.	1.	PCI/G	7/19/91	
AB-1-35'	91.05181	9.	1.	PCI/G	7/19/91	
AB-1-40'	91.05182	10.	1.	PCI/G	7/19/91	
AB-1-45'	91.05183	11.	1.	PCI/G	7/19/91	
AB-1-50'	91.05184	9.	1.	PCI/G	7/19/91	
AB-1-BIT	91.05185	4.	1.	PCI/G	7/19/91	
AB-2-S	91.05186	4.	1.	PCI/G	7/19/91	
AB-2-5'	91.05187	4.	1.	PCI/G	7/19/91	
AB-2-10'	91.05188	7.	1.	PCI/G	7/19/91	
AB-2-15'	91.05189	8.	1.	PCI/G	7/19/91	
AB-2-20'	91.05190	9.	1.	PCI/G	7/19/91	
AB-2-25'	91.05191	8.	1.	PCI/G	7/19/91	
AB-2-30'	91.05192	8.	1.	PCI/G	7/19/91	
AB-2-35'	91.05193	9.	1.	PCI/G	7/19/91	
AB-2-40'	91.05194	9.	1.	PCI/G	7/19/91	
AB-2-45'	91.05195	9.	1.	PCI/G	7/19/91	
AB-2-50'	91.05196	9.	1.	PCI/G	7/19/91	
AB-2-BIT	91.05197	8.	1.	PCI/G	7/19/91	
AB-3-S	91.05198	6.	1.	PCI/G	7/19/91	
AB-3-5'	91.05199	6.	1.	PCI/G	7/19/91	
AB-3-10'	91.05200	7.	1.	PCI/G	7/19/91	
AB-3-15'	91.05201	8.	1.	PCI/G	7/19/91	
AB-3-20'	91.05202	8.	1.	PCI/G	7/19/91	
AB-3-25'	91.05203	8.	1.	PCI/G	7/19/91	
AB-3-30'	91.05204	6.	1.	PCI/G	7/19/91	
AB-3-35'	91.05205	9.	1.	PCI/G	7/19/91	
AB-3-40'	91.05206	7.	1.	PCI/G	7/19/91	
AB-3-45'	91.05207	8.	1.	PCI/G	7/19/91	
AB-3-50'	91.05208	9.	1.	PCI/G	7/19/91	
AB-3-BIT	91.05209	9.	1.	PCI/G	7/19/91	

AB-4-S	91.05210	6.	1.	PCI/G	7/19/91
AB-4-5'	91.05211	6.	1.	PCI/G	7/19/91
AB-4-10'	91.05212	8.	1.	PCI/G	7/19/91
AB-4-15'	91.05219	8.	1.	PCI/G	7/19/91
AB-4-20'	91.05220	8.	1.	PCI/G	7/19/91
AB-4-25'	91.05221	8.	1.	PCI/G	7/19/91
AB-4-30'	91.05222	9.	1.	PCI/G	7/19/91
AB-4-35'	91.05223	10.	1.	PCI/G	7/19/91
AB-4-40'	91.05224	8.	1.	PCI/G	7/19/91
AB-4-45'	91.05225	10.	1.	PCI/G	7/19/91
AB-4-50'	91.05226	11.	1.	PCI/G	7/19/91
AB-4-BIT	91.05227	10.	1.	PCI/G	7/19/91

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REPORT NUMBER: 10961 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11620 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

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
00.00761	190.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
00.00761	200.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
00.00761	190.	20.	PCI/G	219.	11.	7/19/91	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

X 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: 10961

Analyst	Section Leader	QA Officer
GB	D Knal	
Date: 7/22/91	Date: 7-17-91	Date:

ıe 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.

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REPORT NUMBER: 10962

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: GAMMA REQUEST NUMBER: 11640 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: G ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-5-S	91.05491	35.	4.	PCI/G	7/19/91	
AB-5-5'	91.05492	9.	1.	PCI/G	7/19/91	
AB-5-10'	91.05493	7.	1.	PCI/G	7/19/91	
AB-5-15'	91.05494	9.	1.	PCI/G	7/19/91	
AB-5-20'	91.05495	9.	1.	PCI/G	7/19/91	
AB-5-25'	91.05496	48.	5.	PCI/G	7/19/91	
AB-5-30'	91.05497	9.	1.	PCI/G	7/19/91	
AB-5-35'	91.05498	8.	1.	PCI/G	7/19/91	
AB-5-40'	91.05499	8.	1.	PCI/G	7/19/91	
AB-5-45'	91.05500	9.	1.	PCI/G	7/19/91	
AB-5-50'	91.05501	8.	1.	PCI/G	7/19/91	
AB-5-BIT	91.05502	7.	1.	PCI/G	7/19/91	
AB-5-60'	91.05503	7.	1.	PCI/G	7/19/91	
AB-5-70'	91.05504	6.	1.	PCI/G	7/19/91	
AB-5-80'	91.05505	7.	1.	PCI/G	7/19/91	
AB-5-90'	91.05506	8.	1.	PCI/G	7/19/91	
AB-5-100'	91.05507	11.	1.	PCI/G	7/19/91	

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REPORT NUMBER: 10962 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11640 MATRIX: SS ANALYST: George Brooks PROGRAM CODE: WH54

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

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
00.00761	200.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
00.00761	190.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
00.00761	190.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
00.00761	190.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
0.00761	200.	20.	PCI/G	219.	11.	7/19/91	UNDER CONTROL
J.00761	190.	20.	PCI/G	219.	11.	7/19/91	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

X 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: 10962

GB	D Knel	
Analyst	Section Leader	QA Officer
7/22/91	7-17-91	
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.

Gravimetric Moisture Analysis Data
for
Boreholes 1-5 and "B"
(Grab Samples)

REPORT NUMBER: 10934

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

Prepared by: ESG on 17-Jul-1991

ANALYSIS: H2O- REQUEST NUMBER: 11620 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-1-S	91.05173	2.95	0.3	%	7/09/91	
AB-1-SQAQC	91.05174	2.45	0.25	%	7/09/91	
AB-1-5′	91.05175	8.8	0.88	%	7/09/91	
AB-1-10′	91.05176	2.2	0.22	%	7/09/91	
AB-1-15′	91.05177	2.63	0.26	%	7/09/91	
AB-1-20′	91.05178	2.64	0.26	%	7/09/91	
AB-1-25′	91.05179	2.69	0.27	%	7/09/91	
AB-1-30′	91.05180	2.75	0.27	%	7/09/91	
AB-1-35′	91.05181	2.52	0.25	%	7/09/91	
AB-1-40′	91.05182	2.4	0.24	%	7/09/91	
AB-1-45′	91.05183	2.7	0.27	%	7/09/91	
AB-1-50′	91.05184	2.65	0.27	%	7/09/91	
AB-1-BIT	91.05185	2.56	0.26	%	7/09/91	
AB-2-S	91.05186	3.19	0.31	%	7/09/91	
AB-2-5′	91.05187	3.8	0.38	%	7/09/91	
AB-2-10′	91.05188	12.56	1.3	%	7/09/91	
AB-2-15′	91.05189	7.38	0.74	%	7/09/91	
AB-2-20′	91.05190	7.65	0.76	%	7/09/91	
AB-2-25′	91.05191	6.81	0.68	%	7/09/91	
AB-2-30′	91.05192	6.28	0.63	%	7/09/91	
AB-2-35′	91.05193	5.95	0.6	%	7/09/91	
AB-2-40′	91.05194	9.82	0.98	%	7/09/91	
AB-2-45′	91.05195	6.18	0.61	%	7/09/91	
AB-2-50′	91.05196	6.25	0.62	%	7/09/91	
AB-2-BIT	91.05197	11.61	1.1	%	7/09/91	
AB-3-S	91.05198	3.53	0.35	%	7/09/91	
AB-3-5′	91.05199	20.76	2.1	%	7/09/91	
AB-3-10′	91.05200	8.68	0.87	%	7/09/91	
AB-3-15′	91.05201	16.43	1.6	%	7/09/91	
AB-3-20′	91.05202	8.35	0.83	%	7/09/91	
AB-3-25′	91.05203	6.87	0.69	%	7/09/91	
AB-3-30′	91.05204	9.71	0.97	%	7/09/91	
AB-3-35′	91.05205	6.12	0.61	%	7/09/91	
AB-3-40′	91.05206	3.16	0.32	%	7/09/91	
AB-3-45′	91.05207	6.36	0.64	%	7/09/91	
AB-3-50′	91.05208	3.84	0.38	%	7/09/91	
AB-3-BIT	91.05209	4.13	0.41	%	7/09/91	
AB-4-S	91.05210	3.72	0.37	%	7/09/91	
AB-4-5′	91.05211	10.96	1.1	%	7/09/91	
AB-4-10′	91.05212	6.22	0.62	%	7/09/91	
AB-4-15′	91.05219	9.03	0.9	%	7/09/91	
AB-4-20′	91.05220	8.05	0.8	%	7/09/91	
AB-4-25′	91.05221	7.76	0.78	%	7/09/91	
AB-4-30′	91.05222	3.11	0.31	%	7/09/91	
AB-4-35′	91.05223	5.5	0.55	%	7/09/91	
AB-4-40′	91.05224	4.46	0.45	%	7/09/91	
AB-4-45′	91.05225	1.87	0.19	%	7/09/91	
AB-4-50′	91.05226	0.8	0.08	%	7/09/91	
AB-4-BIT	91.05227	3.	0.3	%	7/09/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-4-30′	91.05222	6.32	0.63	%	7/09/91	

AB-4-45'	91.05225	2.99	0.3	%	7/09/91
AB-4-50'	91.05226	3.07	0.31	%	7/09/91

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REPORT NUMBER: 10934 (continued)

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

Prepared by: ESG on 17-Jul-1991

REQUEST NUMBER: 11620 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.05169	4.24	0.42	%	4.76	0.5	7/09/91	UNDER CONTROL
91.05172	3.96	0.4	%	4.76	0.4	7/09/91	UNDER CONTROL
91.05170	3.96	0.4	%	4.74	0.4	7/09/91	UNDER CONTROL
91.05171	3.98	0.4	%	4.74	0.4	7/09/91	UNDER CONTROL

REPORT NUMBER: 10934

RJP	D Knab	mag
Analyst	Section Leader	QA Officer
17 Jul 91	7-19-91	7-19-91
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.

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REPORT NUMBER: 10938

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

Prepared by: ESG on 18-Jul-1991

ANALYSIS: H2O- REQUEST NUMBER: 11640 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-5-S	91.05491	8.25	0.83	%	7/09/91	
AB-5-5'	91.05492	8.96	0.9	%	7/09/91	
AB-5-10'	91.05493	4.35	0.44	%	7/09/91	
AB-5-15'	91.05494	2.48	0.25	%	7/09/91	
AB-5-20'	91.05495	6.9	0.69	%	7/09/91	
AB-5-25'	91.05496	7.38	0.74	%	7/09/91	
AB-5-30'	91.05497	7.29	0.73	%	7/09/91	
AB-5-35'	91.05498	6.52	0.65	%	7/09/91	
AB-5-40'	91.05499	0.99	0.09	%	7/09/91	
AB-5-45'	91.05500	5.58	0.56	%	7/09/91	
AB-5-50'	91.05501	6.4	0.64	%	7/09/91	
AB-5-BIT	91.05502	7.3	0.73	%	7/09/91	
AB-5-60'	91.05503	6.37	0.63	%	7/09/91	
AB-5-70'	91.05504	3.38	0.34	%	7/09/91	
AB-5-80'	91.05505	2.01	0.2	%	7/09/91	
AB-5-90'	91.05506	6.49	0.65	%	7/09/91	
AB-5-100'	91.05507	6.95	0.69	%	7/09/91	
AB-B-S	91.05508	12.69	1.3	%	7/09/91	
AB-B-S-QA/QC	91.05509	7.57	0.76	%	7/09/91	
AB-B-5'	91.05510	9.84	0.98	%	7/09/91	
AB-B-10'	91.05511	1.92	0.19	%	7/09/91	
AB-B-15'	91.05512	0.93	0.09	%	7/09/91	
AB-B-20'	91.05513	1.65	0.17	%	7/09/91	
AB-B-25'	91.05514	2.63	0.26	%	7/09/91	
AB-B-30'	91.05515	1.98	0.2	%	7/09/91	
AB-B-35'	91.05516	1.73	0.17	%	7/09/91	
AB-B-40'	91.05517	1.66	0.17	%	7/09/91	
AB-B-45'	91.05518	2.22	0.22	%	7/09/91	
AB-B-50'	91.05519	2.72	0.27	%	7/09/91	
AB-B-BIT	91.05520	0.85	0.08	%	7/09/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-5-10'	91.05493	7.7	0.77	%	7/09/91	We ran 20 reps
AB-5-15'	91.05494	5.8	0.58	%	7/09/91	
AB-5-40'	91.05499	6.46	0.65	%	7/09/91	All others agreed
AB-5-70'	91.05504	6.16	0.62	%	7/09/91	
AB-5-80'	91.05505	6.44	0.64	%	7/09/91	
AB-B-S-QA/QC	91.05509	9.25	0.93	%	7/09/91	with the 1st analys

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REPORT NUMBER: 10938 (continued)

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

Prepared by: ESG on 18-Jul-1991

REQUEST NUMBER: 11640 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
1.05521	4.47	0.45	%	4.76	0.4	7/09/91	UNDER CONTROL
91.05522	2.71	0.27	%	2.91	0.26	7/09/91	UNDER CONTROL
91.05523	3.34	0.33	%	3.85	0.3	7/09/91	UNDER CONTROL

REPORT NUMBER: 10938

RJP		mag
Analyst	Section Leader	QA Officer
19 July 91	7-19-91	7-19-91
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.

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Tritium Analysis Data
for
Borehole 6

REPORT NUMBER: 10953

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: H-3 REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-5'	91.06217	15600.	1000.	PCI/L	7/15/91	
AB-6-10'	91.06218	44500.	3000.	PCI/L	7/15/91	
AB-6-15'	91.06219	36500.	3000.	PCI/L	7/15/91	
AB-6-20'	91.06220	23500.	2000.	PCI/L	7/15/91	
AB-6-25'	91.06221	16700.	1000.	PCI/L	7/15/91	
AB-6-30'	91.06222	9100.	900.	PCI/L	7/15/91	
AB-6-40'	91.06223	4400.	400.	PCI/L	7/15/91	
AB-6-50'	91.06224	900.	300.	PCI/L	7/15/91	
AB-6-70'	91.06226	500.	300.	PCI/L	7/19/91	
AB-6-80'	91.06227	400.	300.	PCI/L	7/15/91	
AB-6-90'	91.06228	- 300.	300.	PCI/L	7/15/91	
AB-6-100'	91.06229	- 0.0	300.	PCI/L	7/15/91	
AB-6-110'	91.06230	200.	300.	PCI/L	7/15/91	
AB-6-140'	91.06233	- 0.0	300.	PCI/L	7/15/91	
AB-6-150'	91.06234	200.	300.	PCI/L	7/15/91	
AB-6-25'QA	91.06240	10300.	1000.	PCI/L	7/15/91	

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REPORT NUMBER: 10953 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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
00.22385	500.	300.	PCI/L	0.0		7/19/91	UNDER CONTROL
00.22385	- 300.	300.	PCI/L	0.0		7/15/91	UNDER CONTROL
00.22385	- 100.	400.	PCI/L	0.0		7/15/91	UNDER CONTROL
00.22386	16300.	1000.	PCI/L	18430.	370.	7/15/91	UNDER CONTROL
00.22386	16000.	400.	PCI/L	18430.	370.	7/15/91	OUT OF CONTROL
00.22386	16000.	1000.	PCI/L	18430.	370.	7/19/91	WARNING 2-3 SIG

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
91.06389	297.	20.	NCI/L	356.	9.	7/15/91	WARNING 2-3 SIG
91.06390	77.4	5.	NCI/L	89.1	2.3	7/15/91	WARNING 2-3 SIG
91.06592	4.	0.4	NCI/L	3.56	0.09	7/19/91	UNDER CONTROL

REPORT NUMBER: 10953

RJP
Analyst

19 Jul, 91
Date

LD
Section Leader

7/22/91
Date

QA Officer

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: 10995

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

Prepared by: DK on 23-Jul-1991

ANALYSIS: H-3 REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-60'	91.06225	900.	300.	PCI/L	7/23/91	
AB-6-120'	91.06231	600.	300.	PCI/L	7/23/91	
AB-6-130'	91.06232	0.0	300.	PCI/L	7/23/91	

****

REPORT NUMBER: 10995 (continued)

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

Prepared by: DK on 23-Jul-1991

REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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: 10995	[signature]	[signature]	mag
	Analyst	Section Leader	QA Officer
	24 Jul, 91	7-24-91	7/24/91
	Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

Gravimetric Moisture Analysis Data
for
Borehole 6

REPORT NUMBER: 10922

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

Prepared by: B BATES on 17-Jul-1991

ANALYSIS: H2O- REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-5'	91.06217	8.35	0.84	%	7/16/91	
AB-6-10'	91.06218	6.98	0.7	%	7/16/91	
AB-6-15'	91.06219	4.94	0.49	%	7/16/91	
AB-6-20'	91.06220	6.61	0.66	%	7/16/91	
AB-6-25'	91.06221	6.34	0.63	%	7/16/91	
AB-6-30'	91.06222	5.48	0.55	%	7/16/91	
AB-6-40'	91.06223	5.87	0.59	%	7/16/91	
AB-6-50'	91.06224	6.54	0.65	%	7/16/91	
AB-6-70'	91.06226	15.	1.5	%	7/16/91	
AB-6-80'	91.06227	5.79	0.58	%	7/16/91	
AB-6-90'	91.06228 *	20.	27.	%	7/16/91	RANGE-NOT ERROR
AB-6-100'	91.06229	7.45	0.75	%	7/17/91	
AB-6-110'	91.06230	8.04	0.8	%	7/17/91	
AB-6-140'	91.06233	13.13	1.3	%	7/17/91	
AB-6-150'	91.06234	14.42	1.4	%	7/17/91	
AB-6-25'QA	91.06240	6.96	0.7	%	7/16/91	

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file copy

REPORT NUMBER: 10922 (continued)

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

Prepared by: B BATES on 17-Jul-1991

REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.06389	4.59	0.46	%	4.76	0.4	7/16/91	UNDER CONTROL
91.06390	4.58	0.46	%	4.76	0.4	7/16/91	UNDER CONTROL

REPORT NUMBER: 10922

Analyst	Section Leader	QA Officer
R JP	wb	
Date: 18 Jul 91	Date: 7/22/91	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: 11049

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

Prepared by: B BATES on 24-Jul-1991

ANALYSIS: H2O REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-60'	91.06225	5.56	0.56	%	7/24/91	
AB-6-120'	91.06231	8.6	0.86	%	7/24/91	
AB-6-130'	91.06232	10.3	1.	%	7/24/91	

****

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

Prepared by: B BATES on 24-Jul-1991

REQUEST NUMBER: 11698 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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: 11049

RJP	D Knil	mag
Analyst	Section Leader	QA Officer
24 July 91	7-24-91	7/24/91
Date	Date	Date

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in

Metals Analysis Data
for
Borehole 6

REPORT NUMBER: 10966

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

Prepared by: BHEMBERGER on 22-Jul-1991

ANALYSIS: AG REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Barbara Hemberger PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 200.2

C***USTOMER

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-20'	91.06220	< 1.		UG/G	7/22/91	
AB-6-100'	91.06229	< 1.		UG/G	7/22/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-100'	91.06229	< 1.		UG/G	7/22/91	

****

REPORT NUMBER: 10966 (continued)

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

Prepared by: BHEMBERGER on 22-Jul-1991

REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Barbara Hemberger PROGRAM CODE: WH54

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

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	7/22/91	UNDER CONTROL
00.98805	0.501	0.05	MG/L	0.5	0.05	7/22/91	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
91.06392	241.	24.	UG/L	250.	25.	7/22/91	UNDER CONTROL

REPORT NUMBER: 10966

BH	ODA	ODA
Analyst	Section Leader	QA Officer
7/22/91	7/22/91	7/22/91
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: 10959

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

Prepared by: MAB on 19-Jul-1991

ANALYSIS: HG REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Malti Bhatia PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE: 7470

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-20'	91.06220	< 25.		NG/G	7/19/91	
AB-6-100'	91.06229	< 25.		NG/G	7/19/91	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-20'	91.06220	< 25.		NG/G	7/19/91	
AB-6-100'	91.06229	< 25.		NG/G	7/19/91	

MATRIX SPIKES:

CUSTOMER NUM	SAMPLE NUM	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
AB-6-20'	91.06220	1.	0.9	UG/L	7/19/91	
AB-6-100'	91.06229	1.	0.9	UG/L	7/19/91	

****

REPORT NUMBER: 10959 (continued)

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

Prepared by: MAB on 19-Jul-1991

REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Malti Bhatia PROGRAM CODE: WH54

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

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.	0.4	UG/L	4.	0.4	7/19/91	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
91.06391	0.9	0.2	UG/L	1.	0.06	7/19/91	UNDER CONTROL

REPORT NUMBER: 10959

MAB	CTG	CTG
Analyst	Section Leader	QA Officer
7/19/91	7/19/91	7/19/91
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: 10983

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

Prepared by: EAJ on 23-Jul-1991

REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Janet Montoya PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-6-20'	91.06220	AS	< 4.3		UG/G	7/23/91	
AB-6-20'	91.06220	BA	61.	12.	UG/G	7/23/91	
AB-6-20'	91.06220	CD	< 0.3		UG/G	7/23/91	
AB-6-20'	91.06220	CR	3.	0.4	UG/G	7/23/91	
AB-6-20'	91.06220	PB	13.	12.	UG/G	7/23/91	
AB-6-20'	91.06220	SE	< 3.8		UG/G	7/23/91	
AB-6-100'	91.06229	AS	< 4.3		UG/G	7/23/91	
AB-6-100'	91.06229	BA	28.	5.6	UG/G	7/23/91	
AB-6-100'	91.06229	CD	< 0.3		UG/G	7/23/91	
AB-6-100'	91.06229	CR	0.4	1.4	UG/G	7/23/91	
AB-6-100'	91.06229	PB	20.	12.	UG/G	7/23/91	
AB-6-100'	91.06229	SE	< 3.8		UG/G	7/23/91	

****

REPORT NUMBER: 10983 (continued)

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

Prepared by: EAJ on 23-Jul-1991

REQUEST NUMBER: 11697 MATRIX: SS ANALYST: Janet Montoya PROGRAM CODE: WH54

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

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	7/23/91	UNDER CONTROL
00.22757	AS	15.	1.5	MG/L	15.	1.5	7/23/91	UNDER CONTROL
00.22757	BA	2.4	0.2	MG/L	2.5	0.25	7/23/91	UNDER CONTROL
00.22757	BA	2.4	0.2	MG/L	2.5	0.25	7/23/91	UNDER CONTROL
.22757	CD	1.5	0.2	MG/L	1.5	0.15	7/23/91	UNDER CONTROL
.22757	CD	1.6	0.2	MG/L	1.5	0.15	7/23/91	UNDER CONTROL
00.22757	CR	3.1	0.3	MG/L	3.	0.3	7/23/91	UNDER CONTROL
00.22757	CR	3.2	0.3	MG/L	3.	0.3	7/23/91	UNDER CONTROL
00.22757	PB	10.	1.	MG/L	10.	1.	7/23/91	UNDER CONTROL
00.22757	PB	11.	1.1	MG/L	10.	1.	7/23/91	UNDER CONTROL
00.22757	SE	15.	1.5	MG/L	15.	1.5	7/23/91	UNDER CONTROL
00.22757	SE	14.	1.4	MG/L	15.	1.5	7/23/91	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
91.06392	AS	21.	2.1	MG/L	20.	2.	7/23/91	UNDER CONTROL
91.06392	BA	< 16.		MG/L	0.0		7/23/91	UNDER CONTROL
91.06392	CD	3.2	0.3	MG/L	3.	0.3	7/23/91	UNDER CONTROL
91.06392	CR	6.2	0.6	MG/L	6.	0.6	7/23/91	UNDER CONTROL
91.06392	PB	10.	1.	MG/L	10.	1.	7/23/91	UNDER CONTROL
91.06392	SE	2.	0.2	MG/L	2.	0.2	7/23/91	UNDER CONTROL

.PORT NUMBER: 10983

Analyst Section Leader QA Officer

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.

****

Volatile Organic Analysis Data
for
Borehole 6

JULY 16, 1991

TO: ALICE BARR
THRU: CHRIS LEIBMAN
FROM: LAURA TSIAGKOURIS
REQUEST: 11696

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

91.06217	91.06218	91.06219	91.06220
91.06221	91.06222	91.06223	91.06224
91.06227	91.06229	91.06230	91.06233
91.06234	91.06240	91.06393	

A 4 - 6 gram sample aliquot was analyzed. Final results are reported on a wet weight bases. Since the final results are not blank subtracted, the results from the associated method blanks (samples 91.06396 - 91.06398) have been included in the report. **The 14 day holding time for soil samples was met.** It should be noted that a small amount of liquid was in the plastic bag containing the sampling core for samples 91.0218, 91.06223, and sample 91.06227. The sample itself was wet. It is not clear if the liquid in the bag came from the sample, or if the liquid came from ice or condensation as a result of the storage of the samples.

RESULTS:

SAMPLE ID	TARGET COMPOUNDS DETECTED	AMOUNT (ug/kg)	LOQ (ug/kg)
91.06217	NONE	--	--
91.06218	NONE	--	5.0
91.06219	NONE	--	5.0
91.06220	NONE	--	--
91.06221	NONE	--	5.0
91.06223	NONE	--	5.0
91.06224	NONE	--	--
91.06227	NONE	--	5.0
91.06229	Methylene chloride *	77	5.0
91.06230	NONE	--	5.0
91.06233	NONE	--	--
91.06234	Methylene chloride *	72	5.0
91.06240	NONE	--	5.0
91.06393 (TRIP BLANK)	NONE	--	5.0

* - Flagged compound is a result of contamination occurring in the sample storage refrigerator. A vial containing distilled water was place in the sample refrigerator. A 5 mL aliquot was analyzed 5 hours later. Methylene chloride was detected in the water and the results are reported as sample **91.06438.**

It should be noted that the limit of quantitation (LOQ) for the majority of the volatile organic compounds (VOC's) is 5.0 ug/kg. The limit of quantitation for VOC's ranges from 5 - 100 ug/kg as indicated on the final report.

As indicated above, the analysis of samples 91.06217 - 91.06224, 91.06227, 91.06229, 91.06230, 91.06233, 91.06234, 91.06240, and 91.06393 did not detect any target and/or non-target volatile organic compounds at or above the limit of quantitation (LOQ) with the exception of methylene chloride in samples 91.06229 and 91.06234. As previously mention, the detection of methylene chloride is a result of contamination occurring in the sample refrigerator. It should be mentioned that sample 91.06234 had been previously analyzed qualitatively only resulting in the detection of no volatile organic compounds. The data could not be used since the proper tuning and calibrating procedure had not been implemented. Further indicating that the methylene chloride is a result of laboratory contamination and not as a result of actually being in the sample.

QC Summary for RS 11696

The recovery of the surrogate 1,2-dichloroethane-d4 for several samp[illegible]e above the upper control limits.

Sample 91.06224 was used as the matrix spike media by adding 10 uL of the matrix spike mix to two separate 5 gram aliquots. The precision and accuracy for all spiked components were within the control limits for both spiked aliquots.

Samples 91.06394 and 91.06395 were received from the Quality Assurance section to be analyzed with this request group as a "blind" Q.C. sample. The results are included in the final report.

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

REQUEST #: 11696

NUMBER OF SAMPLES: 22
MATRIX: S
ANALYST: JA
Date: 07/17/91

JA 7/17/91

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	d4-1,2-dichloro-ethane	toluene-(d8)	--bromo-fluoro-benzene
1	591.06396	BLANK	105	104	103
2	591.06221	SAMPLE	114	101	105
3	591.06222	SAMPLE	122 *	107	100
4	591.06220	SAMPLE	122 *	102	105
5	591.06240	SAMPLE	134 *	106	103
6	591.06217	SAMPLE	123 *	105	105
7	591.06219	SAMPLE	129 *	106	104
8	591.06223	SAMPLE	120	107	109
9	591.06224	SAMPLE	122 *	108	102
10	591.06212	SAMPLE	122 *	106	105
11	591.06224	MATRIX SPIK	142 *	107	105
12	591.06224	MATRIX SP-D	135 *	109	100
13	591.06397	SAMPLE	149 *	112	107
14	591.06397	BLANK	101	103	99
15	591.06393	SAMPLE	103	102	96
16	591.06394	SAMPLE	122 *	106	97
17	591.06227	SAMPLE	102	97	104
18	591.06234	SAMPLE	111	102	102
19	591.06233	SAMPLE	126 *	99	103
20	591.06229	SAMPLE	125 *	105	102
21	591.06398	BLANK	98	93	92
22	591.06230	SAMPLE	93	87	88

Average % Surrogate Recovery...	122	105	104
Defined Lower QC Limits (%)....	70	81	74
Defined Upper QC Limits (%)....	121	117	121
Observed Lower QC Limits (%)...	108	101	100
Observed Upper QC Limits (%)...	124	108	109

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

Reviewed By:

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

REQUEST #: 11696

NUMBER OF SAMPLES: 1
MATRIX: S
ANALYST: [illegible]
Date: 07/17/91

VAT 7/17/91

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	d4-1,2-dichloro-ethane	toluene-(d8)	4-bromo-fluoro-benzene
1	891.06435	SAMPLE	108	101	117
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Average % Surrogate Recovery...	108	101	117
Defined Lower QC Limits (%)....	70	81	74
Defined Upper QC Limits (%)....	121	117	121
Observed Lower QC Limits (%)...	108	101	117
Observed Upper QC Limits (%)...	108	101	117

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

Reviewed By:

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

				DILUTION FACTOR	AMOUNT SPIKED	LOQ UNITS OF LOQ
REQUEST #:	1167[illegible]	DRY WT. (IF SOIL) [illegible]				
NUMBER OF SAMPLES:	[illegible]					
SPIKE ID: (STARTS W OR S)	[illegible]	SPIKE	[illegible]	1	50	5
SPIKE DUP ID: (STARTS D OR F)	[illegible]	SPIKE-DUP	[illegible]	1	[illegible]	5
RAW DATA WITH:	---					
ANALYST:	LAT					

AT 7/17/91

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW REC. LIM.	UPP REC. LIM.	RPD LIM.
1,1-Dichloroethene	65	66	133%	135%	2%	59	172	22
Benzene	54	57	114%	111%	6%	66	142	21
Trichloroethene	57	56	113%	113%	2%	62	137	24
Toluene	53	54	106%	105%	7%	59	139	21
Chlorobenzene	51	53	99%	103%	5%	60	133	21

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

Reviewed By:

REPORT 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06217

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-5'	91.06217	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-5'	91.06217	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-5'	91.06217	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-5'	91.06217	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-5'	91.06217	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-5'	91.06217	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-5'	91.06217	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-5'	91.06217	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-5'	91.06217	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-5'	91.06217	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-5'	91.06217	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-5'	91.06217	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-5'	91.06217	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-5'	91.06217	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-5'	91.06217	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-5'	91.06217	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-5'	91.06217	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-5'	91.06217	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-5'	91.06217	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-5'	91.06217	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-5'	91.06217	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-5'	[illegible]1.06217	95498	< 5.	UG/KG	[illegible]91	o-Chlorotoluene
AB-6-5'	91.06217	106434	< 5.	UG/KG	[illegible]17/91	p-Chlorotoluene
AB-6-5'	91.06217	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-5'	91.06217	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-5'	91.06217	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-5'	91.06217	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-5'	91.06217	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-5'	91.06217	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-5'	91.06217	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-5'	91.06217	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-5'	91.06217	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-5'	91.06217	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-5'	91.06217	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-5'	91.06217	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-5'	91.06217	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-5'	91.06217	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-5'	91.06217	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-5'	91.06217	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-5'	91.06217	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-5'	91.06217	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-5'	91.06217	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-5'	91.06217	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-5'	91.06217	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-5'	91.06217	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-5'	91.06217	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-5'	91.06217	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-5'	91.06217	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-5'	91.06217	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-5'	91.06217	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-5'	91.06217	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-5'	91.06217	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-5'	91.06217	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-5'	91.06217	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-5'	91.06217	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-5'	91.06217	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-5'	91.06217	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-5'	91.06217	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-5'	91.06217	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-5'	91.06217	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-5'	91.06217	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-5'	91.06217	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-5'	91.06217	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-5'	91.06217	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-5'	91.06217	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06217

none

Customer Sample Duplicate Results for Sample # 91.06217

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06217

none

REPORT : 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06218

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-10'	91.06218	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-10'	91.06218	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-10'	91.06218	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-10'	91.06218	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-10'	91.06218	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-10'	91.06218	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-10'	91.06218	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-10'	91.06218	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-10'	91.06218	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-10'	91.06218	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-10'	91.06218	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-10'	91.06218	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-10'	91.06218	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-10'	91.06218	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-10'	91.06218	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-10'	91.06218	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-10'	91.06218	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-10'	91.06218	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-10'	91.06218	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-10'	91.06218	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-10'	91.06218	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-10'	.06218	95498	< 5.	UG/KG	1	o-Chlorotoluene
AB-6-10'	91.06218	106434	< 5.	UG/KG	7/[illegible]/91	p-Chlorotoluene
AB-6-10'	91.06218	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-10'	91.06218	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-10'	91.06218	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-10'	91.06218	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-10'	91.06218	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-10'	91.06218	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-10'	91.06218	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-10'	91.06218	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-10'	91.06218	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-10'	91.06218	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-10'	91.06218	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-10'	91.06218	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-10'	91.06218	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-10'	91.06218	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-10'	91.06218	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-10'	91.06218	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-10'	91.06218	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-10'	91.06218	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-10'	91.06218	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-10'	91.06218	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-10'	91.06218	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-10'	91.06218	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-10'	91.06218	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-10'	91.06218	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-10'	91.06218	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-10'	91.06218	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-10'	91.06218	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-10'	91.06218	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-10'	91.06218	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-10'	91.06218	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-10'	91.06218	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-10'	91.06218	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-10'	91.06218	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-10'	91.06218	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-10'	91.06218	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-10'	91.06218	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-10'	91.06218	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-10'	91.06218	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-10'	91.06218	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-10'	91.06218	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-10'	91.06218	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-10'	91.06218	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentative[illegible]ntified Compounds in Customer Sample # 91.06218

none

Customer Sample Duplicate Results for Sample # 91.06218

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06218

none

REPORT : 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06219

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-15'	91.06219	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-15'	91.06219	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-15'	91.06219	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-15'	91.06219	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-15'	91.06219	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-15'	91.06219	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-15'	91.06219	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-15'	91.06219	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-15'	91.06219	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-15'	91.06219	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-15'	91.06219	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-15'	91.06219	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-15'	91.06219	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-15'	91.06219	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-15'	91.06219	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-15'	91.06219	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-15'	91.06219	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-15'	91.06219	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-15'	91.06219	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-15'	91.06219	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-15'	91.06219	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-15'	.06219	95498	< 5.	UG/KG	1	o-Chlorotoluene
AB-6-15'	91.06219	106434	< 5.	UG/KG	7/17/91	p-Chlorotoluene
AB-6-15'	91.06219	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-15'	91.06219	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-15'	91.06219	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-15'	91.06219	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-15'	91.06219	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-15'	91.06219	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-15'	91.06219	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-15'	91.06219	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-15'	91.06219	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-15'	91.06219	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-15'	91.06219	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-15'	91.06219	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-15'	91.06219	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-15'	91.06219	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-15'	91.06219	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-15'	91.06219	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-15'	91.06219	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-15'	91.06219	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-15'	91.06219	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-15'	91.06219	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-15'	91.06219	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-15'	91.06219	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-15'	91.06219	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-15'	91.06219	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-15'	91.06219	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-15'	91.06219	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-15'	91.06219	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-15'	91.06219	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-15'	91.06219	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-15'	91.06219	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-15'	91.06219	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-15'	91.06219	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-15'	91.06219	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-15'	91.06219	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-15'	91.06219	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-15'	91.06219	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-15'	91.06219	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-15'	91.06219	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-15'	91.06219	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-15'	91.06219	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-15'	91.06219	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-15'	91.06219	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06219

none

Customer Sample Duplicate Results for Sample # 91.06219

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06219

none

REPORT N 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06220

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-20'	91.06220	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-20'	91.06220	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-20'	91.06220	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-20'	91.06220	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-20'	91.06220	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-20'	91.06220	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-20'	91.06220	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-20'	91.06220	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-20'	91.06220	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-20'	91.06220	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-20'	91.06220	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-20'	91.06220	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-20'	91.06220	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-20'	91.06220	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-20'	91.06220	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-20'	91.06220	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-20'	91.06220	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-20'	91.06220	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-20'	91.06220	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-20'	91.06220	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-20'	91.06220	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-20'	[illegible].06220	95498	< 5.	UG/KG	[illegible]1	o-Chlorotoluene
AB-6-20'	91.06220	106434	< 5.	UG/KG	7/17/91	p-Chlorotoluene
AB-6-20'	91.06220	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-20'	91.06220	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-20'	91.06220	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-20'	91.06220	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-20'	91.06220	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-20'	91.06220	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-20'	91.06220	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-20'	91.06220	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-20'	91.06220	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-20'	91.06220	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-20'	91.06220	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-20'	91.06220	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-20'	91.06220	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-20'	91.06220	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-20'	91.06220	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-20'	91.06220	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-20'	91.06220	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-20'	91.06220	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-20'	91.06220	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-20'	91.06220	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-20'	91.06220	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-20'	91.06220	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-20'	91.06220	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-20'	91.06220	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-20'	91.06220	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-20'	91.06220	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-20'	91.06220	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-20'	91.06220	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-20'	91.06220	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-20'	91.06220	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-20'	91.06220	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-20'	91.06220	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-20'	91.06220	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-20'	91.06220	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-20'	91.06220	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-20'	91.06220	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-20'	91.06220	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-20'	91.06220	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-20'	91.06220	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-20'	91.06220	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-20'	91.06220	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-20'	91.06220	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06220

none

Customer Sample Duplicate Results for Sample # 91.06220

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06220

none

REPORT N 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06221

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-25'	91.06221	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-25'	91.06221	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-25'	91.06221	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-25'	91.06221	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-25'	91.06221	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-25'	91.06221	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-25'	91.06221	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-25'	91.06221	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-25'	91.06221	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-25'	91.06221	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-25'	91.06221	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-25'	91.06221	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-25'	91.06221	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-25'	91.06221	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-25'	91.06221	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-25'	91.06221	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-25'	91.06221	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-25'	91.06221	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-25'	91.06221	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-25'	91.06221	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-25'	91.06221	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-25'	.06221	95498	< 5.	UG/KG	1	o-Chlorotoluene
AB-6-25'	91.06221	106434	< 5.	UG/KG	7/1//91	p-Chlorotoluene
AB-6-25'	91.06221	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-25'	91.06221	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-25'	91.06221	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-25'	91.06221	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-25'	91.06221	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-25'	91.06221	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-25'	91.06221	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-25'	91.06221	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-25'	91.06221	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-25'	91.06221	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-25'	91.06221	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-25'	91.06221	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-25'	91.06221	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-25'	91.06221	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-25'	91.06221	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-25'	91.06221	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-25'	91.06221	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-25'	91.06221	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-25'	91.06221	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-25'	91.06221	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-25'	91.06221	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-25'	91.06221	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-25'	91.06221	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-25'	91.06221	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-25'	91.06221	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-25'	91.06221	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-25'	91.06221	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-25'	91.06221	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-25'	91.06221	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-25'	91.06221	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-25'	91.06221	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-25'	91.06221	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-25'	91.06221	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-25'	91.06221	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-25'	91.06221	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-25'	91.06221	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-25'	91.06221	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-25'	91.06221	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-25'	91.06221	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-25'	91.06221	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-25'	91.06221	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-25'	91.06221	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentative[illegible]ntified Compounds in Customer Sample # 91.06221

none

Customer Sample Duplicate Results for Sample # 91.06221

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06221

none

REPORT NO 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06222

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-30'	91.06222	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-30'	91.06222	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-30'	91.06222	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-30'	91.06222	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-30'	91.06222	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-30'	91.06222	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-30'	91.06222	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-30'	91.06222	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-30'	91.06222	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-30'	91.06222	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-30'	91.06222	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-30'	91.06222	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-30'	91.06222	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-30'	91.06222	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-30'	91.06222	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-30'	91.06222	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-30'	91.06222	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-30'	91.06222	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-30'	91.06222	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-30'	91.06222	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-30'	91.06222	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-30'	[illegible]1.06222	95498	< 5.	UG/KG	[illegible]91	o-Chlorotoluene
AB-6-30'	91.06222	106434	< 5.	UG/KG	[illegible]/91	p-Chlorotoluene
AB-6-30'	91.06222	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-30'	91.06222	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-30'	91.06222	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-30'	91.06222	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-30'	91.06222	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-30'	91.06222	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-30'	91.06222	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-30'	91.06222	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-30'	91.06222	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-30'	91.06222	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-30'	91.06222	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-30'	91.06222	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-30'	91.06222	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-30'	91.06222	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-30'	91.06222	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-30'	91.06222	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-30'	91.06222	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-30'	91.06222	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-30'	91.06222	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-30'	91.06222	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-30'	91.06222	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-30'	91.06222	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-30'	91.06222	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-30'	91.06222	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-30'	91.06222	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-30'	91.06222	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-30'	91.06222	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-30'	91.06222	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-30'	91.06222	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-30'	91.06222	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-30'	91.06222	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-30'	91.06222	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-30'	91.06222	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-30'	91.06222	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-30'	91.06222	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-30'	91.06222	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-30'	91.06222	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-30'	91.06222	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-30'	91.06222	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-30'	91.06222	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-30'	91.06222	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-30'	91.06222	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentativ entified Compounds in Customer Sample # 91.06222

none

Customer Sample Duplicate Results for Sample # 91.06222

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06222

none

REPORT : 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06223

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-40′	91.06223	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-40′	91.06223	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-40′	91.06223	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-40′	91.06223	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-40′	91.06223	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-40′	91.06223	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-40′	91.06223	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-40′	91.06223	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-40′	91.06223	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-40′	91.06223	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-40′	91.06223	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-40′	91.06223	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-40′	91.06223	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-40′	91.06223	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-40′	91.06223	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-40′	91.06223	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-40′	91.06223	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-40′	91.06223	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-40′	91.06223	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-40′	91.06223	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-40′	91.06223	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-40'	[illegible].06223	95498	< 5.	UG/KG	[illegible]1	o-Chlorotoluene
AB-6-40'	91.06223	106434	< 5.	UG/KG	7/17/91	p-Chlorotoluene
AB-6-40'	91.06223	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-40'	91.06223	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-40'	91.06223	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-40'	91.06223	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-40'	91.06223	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-40'	91.06223	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-40'	91.06223	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-40'	91.06223	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-40'	91.06223	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-40'	91.06223	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-40'	91.06223	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-40'	91.06223	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-40'	91.06223	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-40'	91.06223	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-40'	91.06223	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-40'	91.06223	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-40'	91.06223	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-40'	91.06223	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-40'	91.06223	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-40'	91.06223	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-40'	91.06223	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-40'	91.06223	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-40'	91.06223	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-40'	91.06223	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-40'	91.06223	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-40'	91.06223	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-40'	91.06223	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-40'	91.06223	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-40'	91.06223	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-40'	91.06223	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-40'	91.06223	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-40'	91.06223	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-40'	91.06223	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-40'	91.06223	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-40'	91.06223	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-40'	91.06223	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-40'	91.06223	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-40'	91.06223	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-40'	91.06223	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-40'	91.06223	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-40'	91.06223	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-40'	91.06223	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentative ntified Compounds in Customer Sample # 91.06223

none

Customer Sample Duplicate Results for Sample # 91.06223

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06223

none

REPORT : 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06224

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-50'	91.06224	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-50'	91.06224	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-50'	91.06224	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-50'	91.06224	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-50'	91.06224	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-50'	91.06224	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-50'	91.06224	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-50'	91.06224	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-50'	91.06224	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-50'	91.06224	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-50'	91.06224	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-50'	91.06224	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-50'	91.06224	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-50'	91.06224	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-50'	91.06224	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-50'	91.06224	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-50'	91.06224	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-50'	91.06224	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-50'	91.06224	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-50'	91.06224	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-50'	91.06224	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-50'	.06224	95498	< 5.	UG/KG		o-Chlorotoluene
AB-6-50'	[illegible]1.06224	106434	< 5.	UG/KG	7/1[illegible]/91	p-Chlorotoluene
AB-6-50'	91.06224	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-50'	91.06224	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-50'	91.06224	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-50'	91.06224	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-50'	91.06224	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-50'	91.06224	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-50'	91.06224	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-50'	91.06224	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-50'	91.06224	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-50'	91.06224	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-50'	91.06224	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-50'	91.06224	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-50'	91.06224	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-50'	91.06224	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-50'	91.06224	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-50'	91.06224	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-50'	91.06224	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-50'	91.06224	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-50'	91.06224	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-50'	91.06224	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-50'	91.06224	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-50'	91.06224	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-50'	91.06224	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-50'	91.06224	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-50'	91.06224	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-50'	91.06224	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-50'	91.06224	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-50'	91.06224	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-50'	91.06224	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-50'	91.06224	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-50'	91.06224	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-50'	91.06224	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-50'	91.06224	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-50'	91.06224	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-50'	91.06224	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-50'	91.06224	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-50'	91.06224	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-50'	91.06224	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-50'	91.06224	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-50'	91.06224	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-50'	91.06224	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-50'	91.06224	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentative[illegible]tified Compounds in Customer Sample # 91.06224

none

Customer Sample Duplicate Results for Sample # 91.06224

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06224

none

Matrix Spike Results for Sample # 91.06224

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-50'	91.06224	71432	51.98	54.	UG/KG	7/17/91		Benzene
AB-6-50'	91.06224	108907	51.98	51.	UG/KG	7/17/91		Chlorobenzene
AB-6-50'	91.06224	75343	51.98	65.	UG/KG	7/17/91		1,1-Dichloroethane
AB-6-50'	91.06224	108883	51.98	53.	UG/KG	7/17/91		Toluene
AB-6-50'	91.06224	79016	51.98	57.	UG/KG	7/17/91		Trichloroethene

Matrix Spike Duplicate Results for Sample # 91.06224

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-50'	91.06224	71432	51.55	57.	UG/KG	7/17/91		Benzene
AB-6-50'	91.06224	108907	51.55	53.	UG/KG	7/17/91		Chlorobenzene
AB-6-50'	91.06224	75343	51.55	66.	UG/KG	7/17/91		1,1-Dichloroethane
AB-6-50'	91.06224	108883	51.55	54.	UG/KG	7/17/91		Toluene
AB-6-50'	91.06224	79016	51.55	58.	UG/KG	7/17/91		Trichloroethene

REPORT N 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06240

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/12/91 Date Analyzed: 7/12/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-25'QA	91.06240	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-25'QA	91.06240	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-25'QA	91.06240	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-25'QA	91.06240	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-25'QA	91.06240	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-25'QA	91.06240	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-25'QA	91.06240	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-25'QA	91.06240	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-25'QA	91.06240	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-25'QA	91.06240	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-25'QA	91.06240	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-25'QA	91.06240	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-25'QA	91.06240	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-25'QA	91.06240	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-25'QA	91.06240	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-25'QA	91.06240	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-25'QA	91.06240	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-25'QA	91.06240	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-25'QA	91.06240	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-25'QA	91.06240	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-25'QA	91.06240	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-25'	1.06240	95498	< 5.	UG/KG	[illegible]1	o-Chlorotoluene
AB-6-25'Q	91.06240	106434	< 5.	UG/KG	[illegible]/91	p-Chlorotoluene
AB-6-25'QA	91.06240	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-25'QA	91.06240	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-25'QA	91.06240	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-25'QA	91.06240	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-25'QA	91.06240	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-25'QA	91.06240	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-25'QA	91.06240	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-25'QA	91.06240	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-25'QA	91.06240	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-25'QA	91.06240	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-25'QA	91.06240	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-25'QA	91.06240	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-25'QA	91.06240	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-25'QA	91.06240	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-25'QA	91.06240	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-25'QA	91.06240	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-25'QA	91.06240	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-25'QA	91.06240	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-25'QA	91.06240	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-25'QA	91.06240	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-25'QA	91.06240	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-25'QA	91.06240	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-25'QA	91.06240	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-25'QA	91.06240	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-25'QA	91.06240	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-25'QA	91.06240	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-25'QA	91.06240	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-25'QA	91.06240	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-25'QA	91.06240	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-25'QA	91.06240	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-25'QA	91.06240	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-25'QA	91.06240	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-25'QA	91.06240	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-25'QA	91.06240	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-25'QA	91.06240	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-25'QA	91.06240	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-25'QA	91.06240	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-25'QA	91.06240	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-25'QA	91.06240	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-25'QA	91.06240	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-25'QA	91.06240	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-25'QA	91.06240	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06240

none

Customer Sample Duplicate Results for Sample # 91.06240

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06240

none

REPORT N 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06393

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-TB	91.06393	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-TB	91.06393	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-TB	91.06393	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-TB	91.06393	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-TB	91.06393	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-TB	91.06393	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-TB	91.06393	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-TB	91.06393	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-TB	91.06393	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-TB	91.06393	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-TB	91.06393	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-TB	91.06393	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-TB	91.06393	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-TB	91.06393	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-TB	91.06393	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-TB	91.06393	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-TB	91.06393	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-TB	91.06393	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-TB	91.06393	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-TB	91.06393	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-TB	91.06393	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-TB	[illegible].06393	95498	< 5.	UG/KG	[illegible]1	o-Chlorotoluene
AB-6-TB	91.06393	106434	< 5.	UG/KG	7/17/91	p-Chlorotoluene
AB-6-TB	91.06393	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-TB	91.06393	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-TB	91.06393	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-TB	91.06393	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-TB	91.06393	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-TB	91.06393	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-TB	91.06393	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-TB	91.06393	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-TB	91.06393	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-TB	91.06393	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-TB	91.06393	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-TB	91.06393	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-TB	91.06393	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-TB	91.06393	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-TB	91.06393	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-TB	91.06393	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-TB	91.06393	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-TB	91.06393	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-TB	91.06393	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-TB	91.06393	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-TB	91.06393	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-TB	91.06393	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-TB	91.06393	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-TB	91.06393	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-TB	91.06393	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-TB	91.06393	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-TB	91.06393	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-TB	91.06393	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-TB	91.06393	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-TB	91.06393	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-TB	91.06393	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-TB	91.06393	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-TB	91.06393	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-TB	91.06393	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-TB	91.06393	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-TB	91.06393	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-TB	91.06393	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-TB	91.06393	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-TB	91.06393	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-TB	91.06393	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-TB	91.06393	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-TB	91.06393	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06393

none

Customer Sample Duplicate Results for Sample # 91.06393

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06393

none

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris 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 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
00.20227	91.06396	67641	< 20.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acetone
00.20227	91.06396	107028	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrolein
00.20227	91.06396	107131	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrylonitrile
00.20227	91.06396	71432	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Benzene
00.20227	91.06396	108861	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromobenzene
00.20227	91.06396	74975	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromochloromethane
00.20227	91.06396	75274	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.06396	75252	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromoform
00.20227	91.06396	74839	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromomethane
00.20227	91.06396	78933	< 20.		UG/KG	0.0		7/17/91	UNDER CONTROL	2-Butanone
00.20227	91.06396	104518	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.06396	135988	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.06396	98066	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	tert-Butylbenzene
00.20227	91.06396	75150	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Carbon disulfide
00.20227	91.06396	56235	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.06396	108907	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chlorobenzene
00.20227	91.06396	124481	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chlorodibromomethane
00.20227	91.06396	75003	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroethane
00.20227	91.06396	110758	< 50.		UG/KG	0.0		7/17/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20227	91.06396	67663	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroform
00.20227	91.06396	74873	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloromethane
00.20227	91.06396	95498	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.06396	106434	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.06396	96128	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.06396	106934	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.06396	74953	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dibromomethane
00.20227	91.06396	95501	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.06396	541731	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.06396	106467	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.06396	75718	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.06396	75343	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.06396	107062	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.06396	75354	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethene

00.20227	.06397	75150	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon disulfi
00.20227	91.06397	56235	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.06397	108907	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorobenzene
00.20227	91.06397	124481	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorodibromomethane
00.20227	91.06397	75003	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroethane
00.20227	91.06397	110758	< 50.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20227	91.06397	67663	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroform
00.20227	91.06397	74873	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloromethane
00.20227	91.06397	95498	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.06397	106434	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.06397	96128	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.06397	106934	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.06397	74953	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Dibromomethane
00.20227	91.06397	95501	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.06397	541731	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.06397	106467	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.06397	75718	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.06397	75343	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.06397	107062	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.06397	75354	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethene
00.20227	91.06397	156605	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20227	91.06397	156592	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.06397	78875	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.06397	142289	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,3-Dichloropropane
00.20227	91.06397	594207	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	2,2-Dichloropropane
00.20227	91.06397	563586	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloropropene
00.20227	91.06397	10061015	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.06397	10061026	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.06397	100414	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Ethylbenzene
00.20227	91.06397	591786	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Hexanone
00.20227	91.06397	98828	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.06397	99876	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.06397	74884	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Methyl iodide
00.20227	91.06397	108101	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.06397	75092	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Methylene chloride
00.20227	91.06397	103651	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Propylbenzene
00.20227	91.06397	100425	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Styrene
00.20227	91.06397	630206	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.06397	79345	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.06397	127184	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.06397	108883	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Toluene
00.20227	91.06397	76131	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.06397	71556	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.06397	79005	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.06397	79016	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Trichloroethene

00.20227	[illegible].06396	156605	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,2-Dichl[illegible]ene
00.20227	91.06396	156592	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.06396	78875	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.06396	142289	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,3-Dichloropropane
00.20227	91.06396	594207	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	2,2-Dichloropropane
00.20227	91.06396	563586	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloropropene
00.20227	91.06396	10061015	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.06396	10061026	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.06396	100414	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Ethylbenzene
00.20227	91.06396	591786	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Hexanone
00.20227	91.06396	98828	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.06396	99876	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.06396	74884	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Methyl iodide
00.20227	91.06396	108101	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.06396	75092	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Methylene chloride
00.20227	91.06396	103651	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Propylbenzene
00.20227	91.06396	100425	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Styrene
00.20227	91.06396	630206	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.06396	79345	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.06396	127184	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.06396	108883	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Toluene
00.20227	91.06396	76131	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.06396	71556	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.06396	79005	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.06396	79016	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Trichloroethene
00.20227	91.06396	75694	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Trichlorofluoromethane
00.20227	91.06396	96184	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.06396	95636	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.06396	108678	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20227	91.06396	108054	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl acetate
00.20227	91.06396	75014	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl chloride
00.20227	91.06396	1330207	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20227	91.06397	67641	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acetone
00.20227	91.06397	107028	< 100.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acrolein
00.20227	91.06397	107131	< 100.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acrylonitrile
00.20227	91.06397	71432	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Benzene
00.20227	91.06397	108861	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromobenzene
00.20227	91.06397	74975	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromochloromethane
00.20227	91.06397	75274	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.06397	75252	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromoform
00.20227	91.06397	74839	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromomethane
00.20227	91.06397	78933	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Butanone
00.20227	91.06397	104518	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.06397	135988	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.06397	98066	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	tert-Butylbenzene

00.20227	[illegible].06397	75694	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Trichlorofluoro[illegible]e
00.20227	91.06397	96184	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.06397	95636	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.06397	108678	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20227	91.06397	108054	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl acetate
00.20227	91.06397	75014	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl chloride
00.20227	91.06397	1330207	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20227	91.06398	67641	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acetone
00.20227	91.06398	107028	< 100.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acrolein
00.20227	91.06398	107131	< 100.	UG/KG	0.0	7/17/91	UNDER CONTROL	Acrylonitrile
00.20227	91.06398	71432	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Benzene
00.20227	91.06398	108861	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromobenzene
00.20227	91.06398	74975	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromochloromethane
00.20227	91.06398	75274	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.06398	75252	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromoform
00.20227	91.06398	74839	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Bromomethane
00.20227	91.06398	78933	< 20.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Butanone
00.20227	91.06398	104518	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.06398	135988	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.06398	98066	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	tert-Butylbenzene
00.20227	91.06398	75150	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon disulfide
00.20227	91.06398	56235	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.06398	108907	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorobenzene
00.20227	91.06398	124481	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorodibromomethane
00.20227	91.06398	75003	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroethane
00.20227	91.06398	110758	< 50.	UG/KG	0.0	7/17/91	UNDER CONTROL	2-Chloroethylvinyl ether
00.20227	91.06398	67663	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroform
00.20227	91.06398	74873	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Chloromethane
00.20227	91.06398	95498	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.06398	106434	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.06398	96128	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.06398	106934	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.06398	74953	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	Dibromomethane
00.20227	91.06398	95501	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.06398	541731	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.06398	106467	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.06398	75718	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.06398	75343	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.06398	107062	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.06398	75354	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethene
00.20227	91.06398	156605	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20227	91.06398	156592	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.06398	78875	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.06398	142289	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	1,3-Dichloropropane
00.20227	91.06398	594207	< 5.	UG/KG	0.0	7/17/91	UNDER CONTROL	2,2-Dichloropropane

00.20227	.06398	563586	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloropro
00.20227	1.06398	10061015	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.06398	10061026	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.06398	100414	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Ethylbenzene
00.20227	91.06398	591786	< 20.		UG/KG	0.0	7/17/91	UNDER CONTROL	2-Hexanone
00.20227	91.06398	98828	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.06398	99876	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.06398	74884	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Methyl iodide
00.20227	91.06398	108101	< 20.		UG/KG	0.0	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.06398	75092	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Methylene chloride
00.20227	91.06398	103651	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Propylbenzene
00.20227	91.06398	100425	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Styrene
00.20227	91.06398	630206	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.06398	79345	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.06398	127184	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.06398	108883	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Toluene
00.20227	91.06398	76131	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.06398	71556	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.06398	79005	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.06398	79016	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Trichloroethene
00.20227	91.06398	75694	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Trichlorofluoromethane
00.20227	91.06398	96184	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.06398	95636	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.06398	108678	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20227	91.06398	108054	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl acetate
00.20227	91.06398	75014	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl chloride
00.20227	91.06398	1330207	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)
00.20227	91.06438	67641	70.	21.	UG/KG	0.0	7/17/91	OUT OF CONTROL	Acetone
00.20227	91.06438	107028	< 100.		UG/KG	0.0	7/17/91	UNDER CONTROL	Acrolein
00.20227	91.06438	107131	< 100.		UG/KG	0.0	7/17/91	UNDER CONTROL	Acrylonitrile
00.20227	91.06438	71432	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Benzene
00.20227	91.06438	108861	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Bromobenzene
00.20227	91.06438	74975	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Bromochloromethane
00.20227	91.06438	75274	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Bromodichloromethane
00.20227	91.06438	75252	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Bromoform
00.20227	91.06438	74839	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Bromomethane
00.20227	91.06438	78933	< 20.		UG/KG	0.0	7/17/91	UNDER CONTROL	2-Butanone
00.20227	91.06438	104518	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	n-Butylbenzene
00.20227	91.06438	135988	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	sec-Butylbenzene
00.20227	91.06438	98066	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	tert-Butylbenzene
00.20227	91.06438	75150	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon disulfide
00.20227	91.06438	56235	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Carbon tetrachloride
00.20227	91.06438	108907	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorobenzene
00.20227	91.06438	124481	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Chlorodibromomethane
00.20227	91.06438	75003	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroethane

00.20227	1.06438	110758	< 50.		UG/KG	0.0	7/17/91	UNDER CONTROL	2-Chloroethylv[illegible]ther
00.20227	91.06438	67663	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Chloroform
00.20227	91.06438	74873	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Chloromethane
00.20227	91.06438	95498	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	o-Chlorotoluene
00.20227	91.06438	106434	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	p-Chlorotoluene
00.20227	91.06438	96128	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
00.20227	91.06438	106934	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dibromoethane
00.20227	91.06438	74953	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Dibromomethane
00.20227	91.06438	95501	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.06438	541731	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.06438	106467	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.06438	75718	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Dichlorodifluoromethane
00.20227	91.06438	75343	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethane
00.20227	91.06438	107062	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloroethane
00.20227	91.06438	75354	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloroethene
00.20227	91.06438	156605	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,2-Dichloroethene
00.20227	91.06438	156592	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
00.20227	91.06438	78875	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2-Dichloropropane
00.20227	91.06438	142289	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,3-Dichloropropane
00.20227	91.06438	594207	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	2,2-Dichloropropane
00.20227	91.06438	563586	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1-Dichloropropene
00.20227	91.06438	10061015	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
00.20227	91.06438	10061026	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
00.20227	91.06438	100414	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Ethylbenzene
00.20227	91.06438	591786	< 20.		UG/KG	0.0	7/17/91	UNDER CONTROL	2-Hexanone
00.20227	91.06438	98828	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Isopropylbenzene
00.20227	91.06438	99876	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	4-Isopropyltoluene
00.20227	91.06438	74884	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Methyl iodide
00.20227	91.06438	108101	< 20.		UG/KG	0.0	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
00.20227	91.06438	75092	110.	33.	UG/KG	0.0	7/17/91	OUT OF CONTROL	Methylene chloride
00.20227	91.06438	103651	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Propylbenzene
00.20227	91.06438	100425	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Styrene
00.20227	91.06438	630206	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
00.20227	91.06438	79345	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
00.20227	91.06438	127184	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Tetrachloroethylene
00.20227	91.06438	108883	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Toluene
00.20227	91.06438	76131	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroet
00.20227	91.06438	71556	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
00.20227	91.06438	79005	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
00.20227	91.06438	79016	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Trichloroethene
00.20227	91.06438	75694	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	Trichlorofluoromethane
00.20227	91.06438	96184	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
00.20227	91.06438	95636	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
00.20227	91.06438	108678	< 5.		UG/KG	0.0	7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
00.20227	91.06438	108054	< 10.		UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl acetate

00.20227	1.06438	75014	< 10.	UG/KG	0.0	7/17/91	UNDER CONTROL	Vinyl chloride
00.20227	91.06438	1330207	< 5.	UG/KG	0.0	7/17/91	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 # 91.06394

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.06394	67641	76.	22.8	UG/KG	138.	14.	7/17/91	WARNING 2-3 SIG	Acetone
91.06394	107028	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrolein
91.06394	107131	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrylonitrile
91.06394	71432	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Benzene
91.06394	108861	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromobenzene
91.06394	74975	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromochloromethane
91.06394	75274	110.	33.	UG/KG	103.	10.	7/17/91	UNDER CONTROL	Bromodichloromethane
91.06394	75252	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromoform
91.06394	74839	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromomethane
91.06394	78933	71.	21.3	UG/KG	142.	14.	7/17/91	WARNING 2-3 SIG	2-Butanone
91.06394	104518	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	n-Butylbenzene
91.06394	135988	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	sec-Butylbenzene
91.06394	98066	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	tert-Butylbenzene
91.06394	75150	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Carbon disulfide
91.06394	56235	150.	45.	UG/KG	106.	10.	7/17/91	UNDER CONTROL	Carbon tetrachloride
91.06394	108907	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chlorobenzene
91.06394	124481	140.	42.	UG/KG	148.	15.	7/17/91	UNDER CONTROL	Chlorodibromomethane
91.06394	75003	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroethane
91.06394	110758	< 50.		UG/KG	0.0		7/17/91	UNDER CONTROL	2-Chloroethylvinyl ether
91.06394	67663	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroform
91.06394	74873	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloromethane
91.06394	95498	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	o-Chlorotoluene

91.06394	6434	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Chlorotoluene
91.06394	96128	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
91.06394	106934	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromoethane
91.06394	74953	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dibromomethane
91.06394	95501	100.	30.	UG/KG	103.	10.	7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.06394	541731	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.06394	106467	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.06394	75718	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dichlorodifluoromethane
91.06394	75343	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethane
91.06394	107062	150.	45.	UG/KG	131.	13.	7/17/91	UNDER CONTROL	1,2-Dichloroethane
91.06394	75354	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethene
91.06394	156605	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	trans-1,2-Dichloroethene
91.06394	156592	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
91.06394	78875	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dichloropropane
91.06394	142289	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,3-Dichloropropane
91.06394	594207	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	2,2-Dichloropropane
91.06394	563586	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloropropene
91.06394	10061015	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
91.06394	10061026	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
91.06394	100414	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Ethylbenzene
91.06394	591786	< 20.		UG/KG	0.0		7/17/91	UNDER CONTROL	2-Hexanone
91.06394	98828	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Isopropylbenzene
91.06394	99876	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	4-Isopropyltoluene
91.06394	74884	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Methyl iodide
91.06394	108101	130.	39.	UG/KG	143.	14.	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
91.06394	75092	190.	57.	UG/KG	154.	15.	7/17/91	UNDER CONTROL	Methylene chloride
91.06394	103651	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Propylbenzene
91.06394	100425	100.	30.	UG/KG	120.	12.	7/17/91	UNDER CONTROL	Styrene
91.06394	630206	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
91.06394	79345	110.	33.	UG/KG	112.	11.	7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
91.06394	127184	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Tetrachloroethylene
91.06394	108883	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Toluene
91.06394	76131	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
91.06394	71556	160.	48.	UG/KG	142.	14.	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
91.06394	79005	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
91.06394	79016	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Trichloroethene
91.06394	75694	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Trichlorofluoromethane
91.06394	96184	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
91.06394	95636	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
91.06394	108678	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
91.06394	108054	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Vinyl acetate
91.06394	75014	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Vinyl chloride
91.06394	1330207	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

Blind QC Results, Sample # 91.06395

REPORT : 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06227

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-80'	91.06227	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-80'	91.06227	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-80'	91.06227	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-80'	91.06227	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-80'	91.06227	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-80'	91.06227	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-80'	91.06227	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-80'	91.06227	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-80'	91.06227	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-80'	91.06227	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-80'	91.06227	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-80'	91.06227	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-80'	91.06227	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-80'	91.06227	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-80'	91.06227	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-80'	91.06227	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-80'	91.06227	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-80'	91.06227	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-80'	91.06227	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-80'	91.06227	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-80'	91.06227	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-80'	[illegible].06227	95498	< 5.	UG/KG	[illegible]	o-Chlorotoluene
AB-6-80'	[illegible]1.06227	106434	< 5.	UG/KG	7/[illegible]/91	p-Chlorotoluene
AB-6-80'	91.06227	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-80'	91.06227	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-80'	91.06227	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-80'	91.06227	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-80'	91.06227	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-80'	91.06227	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-80'	91.06227	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-80'	91.06227	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-80'	91.06227	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-80'	91.06227	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-80'	91.06227	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-80'	91.06227	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-80'	91.06227	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-80'	91.06227	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-80'	91.06227	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-80'	91.06227	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-80'	91.06227	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-80'	91.06227	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-80'	91.06227	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-80'	91.06227	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-80'	91.06227	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-80'	91.06227	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-80'	91.06227	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-80'	91.06227	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-80'	91.06227	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-80'	91.06227	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-80'	91.06227	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-80'	91.06227	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-80'	91.06227	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-80'	91.06227	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-80'	91.06227	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-80'	91.06227	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-80'	91.06227	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-80'	91.06227	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-80'	91.06227	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-80'	91.06227	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-80'	91.06227	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-80'	91.06227	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-80'	91.06227	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-80'	91.06227	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-80'	91.06227	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-80'	91.06227	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentative[illegible]ntified Compounds in Customer Sample # 91.06227

none

Customer Sample Duplicate Results for Sample # 91.06227

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06227

none

REPORT # 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06229

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-100′	91.06229	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-100′	91.06229	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-100′	91.06229	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-100′	91.06229	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-100′	91.06229	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-100′	91.06229	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-100′	91.06229	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-100′	91.06229	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-100′	91.06229	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-100′	91.06229	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-100′	91.06229	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-100′	91.06229	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-100′	91.06229	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-100′	91.06229	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-100′	91.06229	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-100′	91.06229	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-100′	91.06229	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-100′	91.06229	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-100′	91.06229	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-100′	91.06229	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-100′	91.06229	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-100	1.06229	95498	< 5.		UG/KG	91	o-Chlorotoluene
AB-6-100'	91.06229	106434	< 5.		UG/KG	7/17/91	p-Chlorotoluene
AB-6-100'	91.06229	96128	< 10.		UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-100'	91.06229	106934	< 5.		UG/KG	7/17/91	1,2-Dibromoethane
AB-6-100'	91.06229	74953	< 5.		UG/KG	7/17/91	Dibromomethane
AB-6-100'	91.06229	95501	< 5.		UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-100'	91.06229	541731	< 5.		UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-100'	91.06229	106467	< 5.		UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-100'	91.06229	75718	< 10.		UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-100'	91.06229	75343	< 5.		UG/KG	7/17/91	1,1-Dichloroethane
AB-6-100'	91.06229	107062	< 5.		UG/KG	7/17/91	1,2-Dichloroethane
AB-6-100'	91.06229	75354	< 5.		UG/KG	7/17/91	1,1-Dichloroethene
AB-6-100'	91.06229	156605	< 5.		UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-100'	91.06229	156592	< 5.		UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-100'	91.06229	78875	< 5.		UG/KG	7/17/91	1,2-Dichloropropane
AB-6-100'	91.06229	142289	< 5.		UG/KG	7/17/91	1,3-Dichloropropane
AB-6-100'	91.06229	594207	< 5.		UG/KG	7/17/91	2,2-Dichloropropane
AB-6-100'	91.06229	563586	< 5.		UG/KG	7/17/91	1,1-Dichloropropene
AB-6-100'	91.06229	10061015	< 5.		UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-100'	91.06229	10061026	< 5.		UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-100'	91.06229	100414	< 5.		UG/KG	7/17/91	Ethylbenzene
AB-6-100'	91.06229	591786	< 20.		UG/KG	7/17/91	2-Hexanone
AB-6-100'	91.06229	98828	< 5.		UG/KG	7/17/91	Isopropylbenzene
AB-6-100'	91.06229	99876	< 5.		UG/KG	7/17/91	4-Isopropyltoluene
AB-6-100'	91.06229	74884	< 5.		UG/KG	7/17/91	Methyl iodide
AB-6-100'	91.06229	108101	< 20.		UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-100'	91.06229	75092	77.	23.1	UG/KG	7/17/91	Methylene chloride
AB-6-100'	91.06229	103651	< 5.		UG/KG	7/17/91	Propylbenzene
AB-6-100'	91.06229	100425	< 5.		UG/KG	7/17/91	Styrene
AB-6-100'	91.06229	630206	< 5.		UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-100'	91.06229	79345	< 5.		UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-100'	91.06229	127184	< 5.		UG/KG	7/17/91	Tetrachloroethylene
AB-6-100'	91.06229	108883	< 5.		UG/KG	7/17/91	Toluene
AB-6-100'	91.06229	76131	< 5.		UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-100'	91.06229	71556	< 5.		UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-100'	91.06229	79005	< 5.		UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-100'	91.06229	79016	< 5.		UG/KG	7/17/91	Trichloroethene
AB-6-100'	91.06229	75694	< 5.		UG/KG	7/17/91	Trichlorofluoromethane
AB-6-100'	91.06229	96184	< 5.		UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-100'	91.06229	95636	< 5.		UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-100'	91.06229	108678	< 5.		UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-100'	91.06229	108054	< 10.		UG/KG	7/17/91	Vinyl acetate
AB-6-100'	91.06229	75014	< 10.		UG/KG	7/17/91	Vinyl chloride
AB-6-100'	91.06229	1330207	< 5.		UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06229

none

Customer Sample Duplicate Results for Sample # 91.06229

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06229

none

REPORT : 10957

HSE-9 ANALYTICAL REPORT

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06230

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/16/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-110'	91.06230	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-110'	91.06230	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-110'	91.06230	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-110'	91.06230	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-110'	91.06230	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-110'	91.06230	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-110'	91.06230	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-110'	91.06230	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-110'	91.06230	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-110'	91.06230	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-110'	91.06230	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-110'	91.06230	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-110'	91.06230	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-110'	91.06230	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-110'	91.06230	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-110'	91.06230	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-110'	91.06230	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-110'	91.06230	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-110'	91.06230	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-110'	91.06230	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-110'	91.06230	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-110'	91.06230	95498	< 5.	UG/KG	7/17/91	o-Chlorotoluene
AB-6-110'	91.06230	106434	< 5.	UG/KG	7/17/91	p-Chlorotoluene
AB-6-110'	91.06230	96128	< 10.	UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-110'	91.06230	106934	< 5.	UG/KG	7/17/91	1,2-Dibromoethane
AB-6-110'	91.06230	74953	< 5.	UG/KG	7/17/91	Dibromomethane
AB-6-110'	91.06230	95501	< 5.	UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-110'	91.06230	541731	< 5.	UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-110'	91.06230	106467	< 5.	UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-110'	91.06230	75718	< 10.	UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-110'	91.06230	75343	< 5.	UG/KG	7/17/91	1,1-Dichloroethane
AB-6-110'	91.06230	107062	< 5.	UG/KG	7/17/91	1,2-Dichloroethane
AB-6-110'	91.06230	75354	< 5.	UG/KG	7/17/91	1,1-Dichloroethene
AB-6-110'	91.06230	156605	< 5.	UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-110'	91.06230	156592	< 5.	UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-110'	91.06230	78875	< 5.	UG/KG	7/17/91	1,2-Dichloropropane
AB-6-110'	91.06230	142289	< 5.	UG/KG	7/17/91	1,3-Dichloropropane
AB-6-110'	91.06230	594207	< 5.	UG/KG	7/17/91	2,2-Dichloropropane
AB-6-110'	91.06230	563586	< 5.	UG/KG	7/17/91	1,1-Dichloropropene
AB-6-110'	91.06230	10061015	< 5.	UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-110'	91.06230	10061026	< 5.	UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-110'	91.06230	100414	< 5.	UG/KG	7/17/91	Ethylbenzene
AB-6-110'	91.06230	591786	< 20.	UG/KG	7/17/91	2-Hexanone
AB-6-110'	91.06230	98828	< 5.	UG/KG	7/17/91	Isopropylbenzene
AB-6-110'	91.06230	99876	< 5.	UG/KG	7/17/91	4-Isopropyltoluene
AB-6-110'	91.06230	74884	< 5.	UG/KG	7/17/91	Methyl iodide
AB-6-110'	91.06230	108101	< 20.	UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-110'	91.06230	75092	< 5.	UG/KG	7/17/91	Methylene chloride
AB-6-110'	91.06230	103651	< 5.	UG/KG	7/17/91	Propylbenzene
AB-6-110'	91.06230	100425	< 5.	UG/KG	7/17/91	Styrene
AB-6-110'	91.06230	630206	< 5.	UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-110'	91.06230	79345	< 5.	UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-110'	91.06230	127184	< 5.	UG/KG	7/17/91	Tetrachloroethylene
AB-6-110'	91.06230	108883	< 5.	UG/KG	7/17/91	Toluene
AB-6-110'	91.06230	76131	< 5.	UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-110'	91.06230	71556	< 5.	UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-110'	91.06230	79005	< 5.	UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-110'	91.06230	79016	< 5.	UG/KG	7/17/91	Trichloroethene
AB-6-110'	91.06230	75694	< 5.	UG/KG	7/17/91	Trichlorofluoromethane
AB-6-110'	91.06230	96184	< 5.	UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-110'	91.06230	95636	< 5.	UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-110'	91.06230	108678	< 5.	UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-110'	91.06230	108054	< 10.	UG/KG	7/17/91	Vinyl acetate
AB-6-110'	91.06230	75014	< 10.	UG/KG	7/17/91	Vinyl chloride
AB-6-110'	91.06230	1330207	< 5.	UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06230

none

Customer Sample Duplicate Results for Sample # 91.06230

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06230

none

REPORT # 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06233

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-140'	91.06233	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-140'	91.06233	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-140'	91.06233	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-140'	91.06233	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-140'	91.06233	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-140'	91.06233	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-140'	91.06233	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-140'	91.06233	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-140'	91.06233	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-140'	91.06233	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-140'	91.06233	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-140'	91.06233	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-140'	91.06233	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-140'	91.06233	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-140'	91.06233	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-140'	91.06233	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-140'	91.06233	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-140'	91.06233	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-140'	91.06233	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-140'	91.06233	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-140'	91.06233	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-140'	[illegible].06233	95498	< 5.		UG/KG	[illegible]1	o-Chlorotoluene
AB-6-140'	91.06233	106434	< 5.		UG/KG	7/[illegible]/91	p-Chlorotoluene
AB-6-140'	91.06233	96128	< 10.		UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-140'	91.06233	106934	< 5.		UG/KG	7/17/91	1,2-Dibromoethane
AB-6-140'	91.06233	74953	< 5.		UG/KG	7/17/91	Dibromomethane
AB-6-140'	91.06233	95501	< 5.		UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-140'	91.06233	541731	< 5.		UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-140'	91.06233	106467	< 5.		UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-140'	91.06233	75718	< 10.		UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-140'	91.06233	75343	< 5.		UG/KG	7/17/91	1,1-Dichloroethane
AB-6-140'	91.06233	107062	< 5.		UG/KG	7/17/91	1,2-Dichloroethane
AB-6-140'	91.06233	75354	< 5.		UG/KG	7/17/91	1,1-Dichloroethene
AB-6-140'	91.06233	156605	< 5.		UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-140'	91.06233	156592	< 5.		UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-140'	91.06233	78875	< 5.		UG/KG	7/17/91	1,2-Dichloropropane
AB-6-140'	91.06233	142289	< 5.		UG/KG	7/17/91	1,3-Dichloropropane
AB-6-140'	91.06233	594207	< 5.		UG/KG	7/17/91	2,2-Dichloropropane
AB-6-140'	91.06233	563586	< 5.		UG/KG	7/17/91	1,1-Dichloropropene
AB-6-140'	91.06233	10061015	< 5.		UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-140'	91.06233	10061026	< 5.		UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-140'	91.06233	100414	< 5.		UG/KG	7/17/91	Ethylbenzene
AB-6-140'	91.06233	591786	< 20.		UG/KG	7/17/91	2-Hexanone
AB-6-140'	91.06233	98828	< 5.		UG/KG	7/17/91	Isopropylbenzene
AB-6-140'	91.06233	99876	< 5.		UG/KG	7/17/91	4-Isopropyltoluene
AB-6-140'	91.06233	74884	< 5.		UG/KG	7/17/91	Methyl iodide
AB-6-140'	91.06233	108101	< 20.		UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-140'	91.06233	75092	82.	24.6	UG/KG	7/17/91	Methylene chloride
AB-6-140'	91.06233	103651	< 5.		UG/KG	7/17/91	Propylbenzene
AB-6-140'	91.06233	100425	< 5.		UG/KG	7/17/91	Styrene
AB-6-140'	91.06233	630206	< 5.		UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-140'	91.06233	79345	< 5.		UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-140'	91.06233	127184	< 5.		UG/KG	7/17/91	Tetrachloroethylene
AB-6-140'	91.06233	108883	< 5.		UG/KG	7/17/91	Toluene
AB-6-140'	91.06233	76131	< 5.		UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-140'	91.06233	71556	< 5.		UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-140'	91.06233	79005	< 5.		UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-140'	91.06233	79016	< 5.		UG/KG	7/17/91	Trichloroethene
AB-6-140'	91.06233	75694	< 5.		UG/KG	7/17/91	Trichlorofluoromethane
AB-6-140'	91.06233	96184	< 5.		UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-140'	91.06233	95636	< 5.		UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-140'	91.06233	108678	< 5.		UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-140'	91.06233	108054	< 10.		UG/KG	7/17/91	Vinyl acetate
AB-6-140'	91.06233	75014	< 10.		UG/KG	7/17/91	Vinyl chloride
AB-6-140'	91.06233	1330207	< 5.		UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06233

none

Customer Sample Duplicate Results for Sample # 91.06233

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06233

none

REPORT # 10957

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

Prepared by: EAJ on 19-Jul-1991

EPA VOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Laura Tsiagkouris PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06234

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/13/91 Date Analyzed: 7/13/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-150'	91.06234	67641	< 20.		UG/KG	7/17/91		Acetone
AB-6-150'	91.06234	107028	< 100.		UG/KG	7/17/91		Acrolein
AB-6-150'	91.06234	107131	< 100.		UG/KG	7/17/91		Acrylonitrile
AB-6-150'	91.06234	71432	< 5.		UG/KG	7/17/91		Benzene
AB-6-150'	91.06234	108861	< 5.		UG/KG	7/17/91		Bromobenzene
AB-6-150'	91.06234	74975	< 5.		UG/KG	7/17/91		Bromochloromethane
AB-6-150'	91.06234	75274	< 5.		UG/KG	7/17/91		Bromodichloromethane
AB-6-150'	91.06234	75252	< 5.		UG/KG	7/17/91		Bromoform
AB-6-150'	91.06234	74839	< 10.		UG/KG	7/17/91		Bromomethane
AB-6-150'	91.06234	78933	< 20.		UG/KG	7/17/91		2-Butanone
AB-6-150'	91.06234	104518	< 5.		UG/KG	7/17/91		n-Butylbenzene
AB-6-150'	91.06234	135988	< 5.		UG/KG	7/17/91		sec-Butylbenzene
AB-6-150'	91.06234	98066	< 5.		UG/KG	7/17/91		tert-Butylbenzene
AB-6-150'	91.06234	75150	< 5.		UG/KG	7/17/91		Carbon disulfide
AB-6-150'	91.06234	56235	< 5.		UG/KG	7/17/91		Carbon tetrachloride
AB-6-150'	91.06234	108907	< 5.		UG/KG	7/17/91		Chlorobenzene
AB-6-150'	91.06234	124481	< 5.		UG/KG	7/17/91		Chlorodibromomethane
AB-6-150'	91.06234	75003	< 10.		UG/KG	7/17/91		Chloroethane
AB-6-150'	91.06234	110758	< 50.		UG/KG	7/17/91		2-Chloroethylvinyl ether
AB-6-150'	91.06234	67663	< 5.		UG/KG	7/17/91		Chloroform
AB-6-150'	91.06234	74873	< 10.		UG/KG	7/17/91		Chloromethane

AB-6-150′	[illegible].06234	95498	< 5.		UG/KG	[illegible]1	o-Chlorotoluene
AB-6-150′	91.06234	106434	< 5.		UG/KG	7/17/91	p-Chlorotoluene
AB-6-150′	91.06234	96128	< 10.		UG/KG	7/17/91	1,2-Dibromo-3-chloropropane
AB-6-150′	91.06234	106934	< 5.		UG/KG	7/17/91	1,2-Dibromoethane
AB-6-150′	91.06234	74953	< 5.		UG/KG	7/17/91	Dibromomethane
AB-6-150′	91.06234	95501	< 5.		UG/KG	7/17/91	o-Dichlorobenzene (1,2)
AB-6-150′	91.06234	541731	< 5.		UG/KG	7/17/91	m-Dichlorobenzene (1,3)
AB-6-150′	91.06234	106467	< 5.		UG/KG	7/17/91	p-Dichlorobenzene (1,4)
AB-6-150′	91.06234	75718	< 10.		UG/KG	7/17/91	Dichlorodifluoromethane
AB-6-150′	91.06234	75343	< 5.		UG/KG	7/17/91	1,1-Dichloroethane
AB-6-150′	91.06234	107062	< 5.		UG/KG	7/17/91	1,2-Dichloroethane
AB-6-150′	91.06234	75354	< 5.		UG/KG	7/17/91	1,1-Dichloroethene
AB-6-150′	91.06234	156605	< 5.		UG/KG	7/17/91	trans-1,2-Dichloroethene
AB-6-150′	91.06234	156592	< 5.		UG/KG	7/17/91	cis-1,2-Dichloroethylene
AB-6-150′	91.06234	78875	< 5.		UG/KG	7/17/91	1,2-Dichloropropane
AB-6-150′	91.06234	142289	< 5.		UG/KG	7/17/91	1,3-Dichloropropane
AB-6-150′	91.06234	594207	< 5.		UG/KG	7/17/91	2,2-Dichloropropane
AB-6-150′	91.06234	563586	< 5.		UG/KG	7/17/91	1,1-Dichloropropene
AB-6-150′	91.06234	10061015	< 5.		UG/KG	7/17/91	cis-1,3-Dichloropropene
AB-6-150′	91.06234	10061026	< 5.		UG/KG	7/17/91	trans-1,3-Dichloropropene
AB-6-150′	91.06234	100414	< 5.		UG/KG	7/17/91	Ethylbenzene
AB-6-150′	91.06234	591786	< 20.		UG/KG	7/17/91	2-Hexanone
AB-6-150′	91.06234	98828	< 5.		UG/KG	7/17/91	Isopropylbenzene
AB-6-150′	91.06234	99876	< 5.		UG/KG	7/17/91	4-Isopropyltoluene
AB-6-150′	91.06234	74884	< 5.		UG/KG	7/17/91	Methyl iodide
AB-6-150′	91.06234	108101	< 20.		UG/KG	7/17/91	4-Methyl-2-pentanone
AB-6-150′	91.06234	75092	72.	21.6	UG/KG	7/17/91	Methylene chloride
AB-6-150′	91.06234	103651	< 5.		UG/KG	7/17/91	Propylbenzene
AB-6-150′	91.06234	100425	< 5.		UG/KG	7/17/91	Styrene
AB-6-150′	91.06234	630206	< 5.		UG/KG	7/17/91	1,1,1,2-Tetrachloroethane
AB-6-150′	91.06234	79345	< 5.		UG/KG	7/17/91	1,1,2,2-Tetrachloroethane
AB-6-150′	91.06234	127184	< 5.		UG/KG	7/17/91	Tetrachloroethylene
AB-6-150′	91.06234	108883	< 5.		UG/KG	7/17/91	Toluene
AB-6-150′	91.06234	76131	< 5.		UG/KG	7/17/91	1,1,2-Trichloro-1,2,2-trifluoroethane
AB-6-150′	91.06234	71556	< 5.		UG/KG	7/17/91	1,1,1-Trichloroethane
AB-6-150′	91.06234	79005	< 5.		UG/KG	7/17/91	1,1,2-Trichloroethane
AB-6-150′	91.06234	79016	< 5.		UG/KG	7/17/91	Trichloroethene
AB-6-150′	91.06234	75694	< 5.		UG/KG	7/17/91	Trichlorofluoromethane
AB-6-150′	91.06234	96184	< 5.		UG/KG	7/17/91	1,2,3-Trichloropropane
AB-6-150′	91.06234	95636	< 5.		UG/KG	7/17/91	1,2,4-Trimethylbenzene
AB-6-150′	91.06234	108678	< 5.		UG/KG	7/17/91	1,3,5-Trimethylbenzene
AB-6-150′	91.06234	108054	< 10.		UG/KG	7/17/91	Vinyl acetate
AB-6-150′	91.06234	75014	< 10.		UG/KG	7/17/91	Vinyl chloride
AB-6-150′	91.06234	1330207	< 5.		UG/KG	7/17/91	Mixed-Xylenes (o ± m ± p)

Tentatively Identified Compounds in Customer Sample # 91.06234

none

Customer Sample Duplicate Results for Sample # 91.06234

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06234

none

Date Col[illegible]: 7/11/91   Date Received: 7/12/91   Date Extracted: 7/13/9[illegible] [illegible]e Analyzed: 7/13/91

91.06395	67641	76.	22.8	UG/KG	101.	10.	7/17/91	UNDER CONTROL	Acetone
91.06395	107028	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrolein
91.06395	107131	< 100.		UG/KG	0.0		7/17/91	UNDER CONTROL	Acrylonitrile
91.06395	71432	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Benzene
91.06395	108861	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromobenzene
91.06395	74975	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromochloromethane
91.06395	75274	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromodichloromethane
91.06395	75252	190.	57.	UG/KG	136.	14.	7/17/91	UNDER CONTROL	Bromoform
91.06395	74839	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Bromomethane
91.06395	78933	63.	18.9	UG/KG	104.	10.	7/17/91	UNDER CONTROL	2-Butanone
91.06395	104518	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	n-Butylbenzene
91.06395	135988	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	sec-Butylbenzene
91.06395	98066	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	tert-Butylbenzene
91.06395	75150	12.	3.6	UG/KG	0.0		7/17/91	OUT OF CONTROL	Carbon disulfide
91.06395	56235	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Carbon tetrachloride
91.06395	108907	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chlorobenzene
91.06395	124481	140.	42.	UG/KG	108.	11.	7/17/91	UNDER CONTROL	Chlorodibromomethane
91.06395	75003	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroethane
91.06395	110758	< 50.		UG/KG	0.0		7/17/91	UNDER CONTROL	2-Chloroethylvinyl ether
91.06395	67663	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloroform
91.06395	74873	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Chloromethane
91.06395	95498	140.	42.	UG/KG	125.	12.	7/17/91	UNDER CONTROL	o-Chlorotoluene
91.06395	106434	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Chlorotoluene
91.06395	96128	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromo-3-chloropropane
91.06395	106934	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dibromoethane
91.06395	74953	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dibromomethane
91.06395	95501	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.06395	541731	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.06395	106467	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.06395	75718	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Dichlorodifluoromethane
91.06395	75343	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethane
91.06395	107062	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2-Dichloroethane
91.06395	75354	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloroethene
91.06395	156605	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	trans-1,2-Dichloroethene
91.06395	156592	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	cis-1,2-Dichloroethylene
91.06395	78875	150.	45.	UG/KG	133.	13.	7/17/91	UNDER CONTROL	1,2-Dichloropropane
91.06395	142289	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,3-Dichloropropane
91.06395	594207	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	2,2-Dichloropropane
91.06395	563586	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1-Dichloropropene
91.06395	10061015	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	cis-1,3-Dichloropropene
91.06395	10061026	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	trans-1,3-Dichloropropene
91.06395	100414	150.	45.	UG/KG	132.	13.	7/17/91	UNDER CONTROL	Ethylbenzene
91.06395	591786	120.	36.	UG/KG	119.	12.	7/17/91	UNDER CONTROL	2-Hexanone

91.06395	[illegible]28	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Isopropylbenzene
91.06395	[illegible]9876	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	4-Isopropyltoluene
91.06395	74884	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Methyl iodide
91.06395	108101	130.	39.	UG/KG	105.	10.	7/17/91	UNDER CONTROL	4-Methyl-2-pentanone
91.06395	75092	150.	45.	UG/KG	113.	11.	7/17/91	UNDER CONTROL	Methylene chloride
91.06395	103651	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Propylbenzene
91.06395	100425	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Styrene
91.06395	630206	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,1,2-Tetrachloroethane
91.06395	79345	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,2,2-Tetrachloroethane
91.06395	127184	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Tetrachloroethylene
91.06395	108883	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Toluene
91.06395	76131	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,1,2-Trichloro-1,2,2-trifluoroethane
91.06395	71556	150.	45.	UG/KG	104.	10.	7/17/91	UNDER CONTROL	1,1,1-Trichloroethane
91.06395	79005	170.	51.	UG/KG	131.	13.	7/17/91	UNDER CONTROL	1,1,2-Trichloroethane
91.06395	79016	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Trichloroethene
91.06395	75694	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Trichlorofluoromethane
91.06395	96184	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2,3-Trichloropropane
91.06395	95636	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,2,4-Trimethylbenzene
91.06395	108678	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	1,3,5-Trimethylbenzene
91.06395	108054	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Vinyl acetate
91.06395	75014	< 10.		UG/KG	0.0		7/17/91	UNDER CONTROL	Vinyl chloride
91.06395	1330207	< 5.		UG/KG	0.0		7/17/91	UNDER CONTROL	Mixed-Xylenes (o ± m ± p)

<u>SURROGATE RESULTS FOR EPA VOLATILES</u>

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
91.06217	%	123.06	104.88	105.48	17-Jul-1991
91.06218	%	128.14	105.74	105.24	17-Jul-1991
91.06219	%	128.32	105.8	103.62	17-Jul-1991
91.06220	%	122.24	102.48	105.42	17-Jul-1991
91.06221	%	114.34	101.44	102.48	17-Jul-1991
91.06222	%	121.66	107.3	99.82	17-Jul-1991
91.06223	%	119.64	106.56	108.7	17-Jul-1991
91.06224	%	124.82	108.38	102.08	17-Jul-1991
91.06224	%	141.6	107.28	104.5	17-Jul-1991
91.06224	%	134.52	108.94	99.88	17-Jul-1991
91.06227	%	102.28	97.28	104.16	17-Jul-1991
91.06229	%	125.	104.56	102.34	17-Jul-1991
91.06230	%	92.7	87.12	88.08	17-Jul-1991

91.06233		125.58	99.32	102.6	17-Jul-1991
91.06234		111.34	101.62	101.82	17-Jul-1991
91.06240	%	134.32	105.88	102.76	17-Jul-1991
91.06393	%	102.56	102.32	95.74	17-Jul-1991
91.06394	%	122.14	105.72	97.48	17-Jul-1991
91.06395	%	149.02	111.56	106.98	17-Jul-1991
91.06396	%	108.16	103.94	103.44	17-Jul-1991
91.06397	%	101.32	102.76	99.4	17-Jul-1991
91.06398	%	97.7	87.9	91.52	17-Jul-1991
91.06438	%	107.9	100.82	116.7	17-Jul-1991

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

REPORT NUMBER: 10957

Analyst	Reviewer	Section Leader	QA Officer
7/19/91	7/19/91	7/19/91	7/22/91
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.

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Semi-Volatile Organic Analysis Data
for
Borehole 6

HSE-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Alice Barr
From: Martin Koby

Request Number: 11696
Matrix: Soil
Summary Date: 7/19/91

Sample ID	Target Compounds Found	Amount (ug/Kg)	LOQ (ug/Kg)	TICs (Y/N)
91.06217	None	<330	330	N
91.06218	None	<330	330	N
91.06219	None	<330	330	N
91.06220	None	<330	330	N
91.06221	None	<330	330	N
91.06222	None	<330	330	N
91.06223	None	<330	330	N
91.06224	None	<330	330	N
91.06227	None	<330	330	N
91.06229	None	<330	330	N
91.06234	None	<330	330	N
91.06240	None	<330	330	N

The samples were extracted by mixing approximately 30 g of sample with 60 g sodium sulfate and sonicating with 100 ml of methylene chloride. This was repeated two more times. Sample extracts were combined, centifuged, and concentrated to a 1.0 ml final volume. Appropriate surrogate standards were added prior to extraction as a check of method efficiency. Analysis was performed by capillary column GC/MS methods. These methods are consistent with EPA SW-846 protocol.

No target compounds were detected above the practical limit of quantitation. 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.

REPORT NUMBER: 10958

HSE-9 ANALYTICAL REPORT

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06217

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-5'	91.06217	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-5'	91.06217	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-5'	91.06217	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-5'	91.06217	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-5'	91.06217	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-5'	91.06217	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-5'	91.06217	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-5'	91.06217	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-5'	91.06217	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-5'	91.06217	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-5'	91.06217	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-5'	91.06217	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-5'	91.06217	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-5'	91.06217	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-5'	91.06217	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-5'	91.06217	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-5'	91.06217	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-5'	91.06217	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-5'	91.06217	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-5'	91.06217	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-5'	91.06217	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-5'	91.06217	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-5'	91.06217	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-5'	91.06217	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-5'	91.06217	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-5'	91.06217	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-5'	91.06217	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-5'	91.06217	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-5'	91.06217	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-5'	91.06217	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-5'	91.06217	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-5'	91.06217	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-5'	91.06217	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-5'	91.06217	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-5'	91.06217	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-5'	91.06217	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-5'	91.06217	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-5'	91.06217	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-5'	91.06217	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-5'	91.06217	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-5'	91.06217	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-5'	91.06217	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-5'	91.06217	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-5'	91.06217	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-5'	91.06217	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-5'	91.06217	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-5'	91.06217	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-5'	91.06217	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-5'	91.06217	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-5'	91.06217	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-5'	91.06217	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-5'	91.06217	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-5'	91.06217	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-5'	91.06217	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-5'	91.06217	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-5'	91.06217	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-5'	91.06217	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-5'	91.06217	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-5'	91.06217	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-5'	91.06217	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-5'	91.06217	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-5'	91.06217	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-5'	91.06217	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-5'	91.06217	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-5'	91.06217	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-5'	91.06217	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-5'	91.06217	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-5'	91.06217	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-5'	91.06217	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06217

none

Customer Sample Duplicate Results for Sample # 91.06217

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06217

none

Matrix Spike Results for Sample # 91.06217

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-5'	91.06217	83329	1880.94	1200.	UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-5'	91.06217	59507	3761.87	2500.	UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-5'	91.06217	95578	3761.87	1100.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-5'	91.06217	106467	1880.94	1100.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-5'	91.06217	121142	1880.94	1300.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-5'	91.06217	100027	3761.87	2400.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-5'	91.06217	621647	1880.94	1100.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-5'	91.06217	87865	3761.87	3200.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-5'	91.06217	108952	3761.87	2400.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-5'	91.06217	129000	1880.94	1600.	UG/KG	7/19/91	PRIORITY 1	Pyrene
AB-6-5'	91.06217	120821	1880.94	1100.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 91.06217

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-5'	91.06217	83329	1897.8	770.	UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-5'	91.06217	59507	3795.61	2300.	UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-5'	91.06217	95578	3795.61	430.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-5'	91.06217	106467	1897.8	330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-5'	91.06217	121142	1897.8	1200.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-5'	91.06217	100027	3795.61	2200.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-5'	91.06217	621647	1897.8	330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine

AB-6-5'	91.06217	87865	3795.61	3300.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-5'	91.06217	108952	3795.61	740.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-5'	91.06217	129000	1897.8	1600.	UG/KG	7/19/91	PRIORITY 1	Pyrene
AB-6-5'	91.06217	120821	1897.8	330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene

REPOR. ..JMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06218

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-10'	91.06218	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-10'	91.06218	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-10'	91.06218	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-10'	91.06218	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-10'	91.06218	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-10'	91.06218	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-10'	91.06218	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-10'	91.06218	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-10'	91.06218	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-10'	91.06218	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-10'	91.06218	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-10'	91.06218	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-10'	91.06218	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-10'	91.06218	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-10'	91.06218	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-10'	91.06218	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-10'	91.06218	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-10'	91.06218	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-10'	91.06218	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-10'	91.06218	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-10'	91.06218	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-10'	91.06218	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-10'	91.06218	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-10'	91.06218	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-10'	91.06218	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-10'	91.06218	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-10'	91.06218	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-10'	91.06218	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-10'	91.06218	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-10'	91.06218	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-10'	91.06218	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-10'	91.06218	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-10'	91.06218	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-10'	91.06218	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-10'	91.06218	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-10'	91.06218	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-10'	91.06218	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-10'	91.06218	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-10'	91.06218	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-10'	91.06218	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-10'	91.06218	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-10'	91.06218	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-10'	91.06218	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-10'	91.06218	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-10'	91.06218	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-10'	91.06218	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-10'	91.06218	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-10'	91.06218	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-10'	91.06218	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-10'	91.06218	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-10'	91.06218	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-10'	91.06218	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-10'	91.06218	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-10'	91.06218	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-10'	91.06218	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-10'	91.06218	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-10'	91.06218	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-10'	91.06218	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-10'	91.06218	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-10'	91.06218	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-10'	91.06218	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-10'	91.06218	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-10'	91.06218	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-10'	91.06218	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-10'	91.06218	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-10'	91.06218	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-10'	91.06218	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-10'	91.06218	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-10'	91.06218	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06218

none

Customer Sample Duplicate Results for Sample # 91.06218

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06218

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06219

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-15'	91.06219	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-15'	91.06219	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-15'	91.06219	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-15'	91.06219	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-15'	91.06219	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-15'	91.06219	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-15'	91.06219	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-15'	91.06219	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-15'	91.06219	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-15'	91.06219	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-15'	91.06219	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-15'	91.06219	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-15'	91.06219	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-15'	91.06219	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-15'	91.06219	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-15'	91.06219	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-15'	91.06219	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-15'	91.06219	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-15'	91.06219	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-15'	91.06219	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-15'	91.06219	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-15'	91.06219	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-15'	91.06219	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-15'	91.06219	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-15'	91.06219	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-15'	91.06219	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-15'	91.06219	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-15'	91.06219	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-15'	91.06219	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-15'	91.06219	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-15'	91.06219	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-15'	91.06219	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-15'	91.06219	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-15'	91.06219	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-15'	91.06219	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-15'	91.06219	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-15'	91.06219	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-15'	91.06219	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-15'	91.06219	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-15'	91.06219	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-15'	91.06219	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-15'	91.06219	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-15'	91.06219	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-15'	91.06219	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-15'	91.06219	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-15'	91.06219	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-15'	91.06219	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-15'	91.06219	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-15'	91.06219	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-15'	91.06219	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-15'	91.06219	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-15'	91.06219	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-15'	91.06219	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-15'	91.06219	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-15'	91.06219	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-15'	91.06219	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-15'	91.06219	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-15'	91.06219	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-15'	91.06219	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-15'	91.06219	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-15'	91.06219	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-15'	91.06219	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-15'	91.06219	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-15'	91.06219	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-15'	91.06219	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-15'	91.06219	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-15'	91.06219	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-15'	91.06219	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-15'	91.06219	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06219

none

Customer Sample Duplicate Results for Sample # 91.06219

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06219

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06220

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-20'	91.06220	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-20'	91.06220	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-20'	91.06220	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-20'	91.06220	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-20'	91.06220	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-20'	91.06220	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-20'	91.06220	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-20'	91.06220	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-20'	91.06220	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-20'	91.06220	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-20'	91.06220	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-20'	91.06220	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-20'	91.06220	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-20'	91.06220	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-20'	91.06220	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-20'	91.06220	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-20'	91.06220	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-20'	91.06220	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-20'	91.06220	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-20'	91.06220	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-20'	91.06220	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-20'	91.06220	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-20'	91.06220	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-20'	91.06220	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-20'	91.06220	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-20'	91.06220	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-20'	91.06220	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-20'	91.06220	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-20'	91.06220	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-20'	91.06220	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-20'	91.06220	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-20'	91.06220	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-20'	91.06220	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-20'	91.06220	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-20'	91.06220	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-20'	91.06220	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-20'	91.06220	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-20'	91.06220	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-20'	91.06220	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-20'	91.06220	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-20'	91.06220	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-20'	91.06220	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-20'	91.06220	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-20'	91.06220	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-20'	91.06220	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-20'	91.06220	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-20'	91.06220	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-20'	91.06220	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-20'	91.06220	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-20'	91.06220	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-20'	91.06220	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-20'	91.06220	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-20'	91.06220	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-20'	91.06220	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-20'	91.06220	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-20'	91.06220	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-20'	91.06220	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-20'	91.06220	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-20'	91.06220	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-20'	91.06220	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-20'	91.06220	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-20'	91.06220	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-20'	91.06220	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-20'	91.06220	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-20'	91.06220	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-20'	91.06220	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-20'	91.06220	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-20'	91.06220	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-20'	91.06220	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06220

none

Customer Sample Duplicate Results for Sample # 91.06220

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06220

none

REPOR. ..JMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06221

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-25'	91.06221	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-25'	91.06221	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-25'	91.06221	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-25'	91.06221	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-25'	91.06221	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-25'	91.06221	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-25'	91.06221	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-25'	91.06221	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-25'	91.06221	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-25'	91.06221	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-25'	91.06221	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-25'	91.06221	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-25'	91.06221	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-25'	91.06221	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-25'	91.06221	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-25'	91.06221	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-25'	91.06221	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-25'	91.06221	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-25'	91.06221	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-25'	91.06221	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-25'	91.06221	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-25'	91.06221	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-25'	91.06221	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-25'	91.06221	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-25'	91.06221	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-25'	91.06221	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-25'	91.06221	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-25'	91.06221	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-25'	91.06221	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-25'	91.06221	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-25'	91.06221	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-25'	91.06221	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-25'	91.06221	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-25'	91.06221	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-25'	91.06221	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-25'	91.06221	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-25'	91.06221	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-25'	91.06221	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-25'	91.06221	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-25'	91.06221	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-25'	91.06221	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-25'	91.06221	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-25'	91.06221	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-25'	91.06221	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-25'	91.06221	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-25'	91.06221	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-25'	91.06221	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-25'	91.06221	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-25'	91.06221	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-25'	91.06221	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-25'	91.06221	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-25'	91.06221	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-25'	91.06221	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-25'	91.06221	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-25'	91.06221	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-25'	91.06221	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-25'	91.06221	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-25'	91.06221	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-25'	91.06221	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-25'	91.06221	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-25'	91.06221	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-25'	91.06221	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-25'	91.06221	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-25'	91.06221	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-25'	91.06221	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-25'	91.06221	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-25'	91.06221	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-25'	91.06221	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-25'	91.06221	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06221

none

Customer Sample Duplicate Results for Sample # 91.06221

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06221

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06222

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/15/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-30'	91.06222	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-30'	91.06222	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-30'	91.06222	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-30'	91.06222	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-30'	91.06222	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-30'	91.06222	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-30'	91.06222	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-30'	91.06222	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-30'	91.06222	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-30'	91.06222	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-30'	91.06222	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-30'	91.06222	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-30'	91.06222	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-30'	91.06222	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-30'	91.06222	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-30'	91.06222	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-30'	91.06222	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-30'	91.06222	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-30'	91.06222	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-30'	91.06222	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-30'	91.06222	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-	91.06222	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-30′	91.06222	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-30′	91.06222	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-30′	91.06222	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-30′	91.06222	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-30′	91.06222	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-30′	91.06222	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-30′	91.06222	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-30′	91.06222	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-30′	91.06222	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-30′	91.06222	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-30′	91.06222	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3′-Dichlorobenzidine
AB-6-30′	91.06222	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-30′	91.06222	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-30′	91.06222	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-30′	91.06222	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-30′	91.06222	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-30′	91.06222	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-30′	91.06222	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-30′	91.06222	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-30′	91.06222	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-30′	91.06222	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-30′	91.06222	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-30′	91.06222	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-30′	91.06222	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-30′	91.06222	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-30′	91.06222	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-30′	91.06222	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-30′	91.06222	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-30′	91.06222	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-30′	91.06222	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-30′	91.06222	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-30′	91.06222	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-30′	91.06222	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-30′	91.06222	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-30′	91.06222	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-30′	91.06222	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-30′	91.06222	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-30′	91.06222	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-30′	91.06222	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-30′	91.06222	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-30′	91.06222	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-30′	91.06222	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-30′	91.06222	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-30′	91.06222	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-3	91.06222	120821	< 330.	UG/KG	/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-30'	91.06222	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-30'	91.06222	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06222

none

Customer Sample Duplicate Results for Sample # 91.06222

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06222

none

REPOR. ..MBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06223

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-40'	91.06223	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-40'	91.06223	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-40'	91.06223	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-40'	91.06223	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-40'	91.06223	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-40'	91.06223	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-40'	91.06223	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-40'	91.06223	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-40'	91.06223	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-40'	91.06223	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-40'	91.06223	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-40'	91.06223	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-40'	91.06223	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-40'	91.06223	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-40'	91.06223	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-40'	91.06223	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-40'	91.06223	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-40'	91.06223	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-40'	91.06223	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-40'	91.06223	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-40'	91.06223	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-4.	91.06223	91587	< 330.	UG/KG	/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-40'	91.06223	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-40'	91.06223	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-40'	91.06223	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-40'	91.06223	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-40'	91.06223	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-40'	91.06223	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-40'	91.06223	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-40'	91.06223	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-40'	91.06223	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-40'	91.06223	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-40'	91.06223	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-40'	91.06223	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-40'	91.06223	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-40'	91.06223	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-40'	91.06223	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-40'	91.06223	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-40'	91.06223	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-40'	91.06223	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-40'	91.06223	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-40'	91.06223	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-40'	91.06223	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-40'	91.06223	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-40'	91.06223	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-40'	91.06223	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-40'	91.06223	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-40'	91.06223	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-40'	91.06223	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-40'	91.06223	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-40'	91.06223	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-40'	91.06223	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-40'	91.06223	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-40'	91.06223	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-40'	91.06223	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-40'	91.06223	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-40'	91.06223	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-40'	91.06223	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-40'	91.06223	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-40'	91.06223	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-40'	91.06223	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-40'	91.06223	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-40'	91.06223	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-40'	91.06223	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-40'	91.06223	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-40'	91.06223	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-4(	91.06223	120821	< 330.	UG/KG	(/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-40'	91.06223	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-40'	91.06223	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

<u>Tentatively Identified Compounds in Customer Sample # 91.06223</u>

none

<u>Customer Sample Duplicate Results for Sample # 91.06223</u>

none

<u>Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06223</u>

none

REPOR. .MBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06224

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-50'	91.06224	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-50'	91.06224	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-50'	91.06224	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-50'	91.06224	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-50'	91.06224	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-50'	91.06224	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-50'	91.06224	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-50'	91.06224	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-50'	91.06224	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-50'	91.06224	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-50'	91.06224	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-50'	91.06224	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-50'	91.06224	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-50'	91.06224	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-50'	91.06224	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-50'	91.06224	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-50'	91.06224	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-50'	91.06224	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-50'	91.06224	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-50'	91.06224	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-50'	91.06224	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-	91.06224	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-50'	91.06224	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-50'	91.06224	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-50'	91.06224	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-50'	91.06224	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-50'	91.06224	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-50'	91.06224	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-50'	91.06224	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-50'	91.06224	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-50'	91.06224	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-50'	91.06224	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-50'	91.06224	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-50'	91.06224	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-50'	91.06224	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-50'	91.06224	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-50'	91.06224	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-50'	91.06224	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-50'	91.06224	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-50'	91.06224	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-50'	91.06224	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-50'	91.06224	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-50'	91.06224	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-50'	91.06224	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-50'	91.06224	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-50'	91.06224	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-50'	91.06224	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-50'	91.06224	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-50'	91.06224	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-50'	91.06224	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-50'	91.06224	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-50'	91.06224	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-50'	91.06224	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-50'	91.06224	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-50'	91.06224	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-50'	91.06224	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-50'	91.06224	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-50'	91.06224	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-50'	91.06224	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-50'	91.06224	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-50'	91.06224	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-50'	91.06224	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-50'	91.06224	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-50'	91.06224	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-50'	91.06224	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-50'	91.06224	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-50-	91.06224	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-50'	91.06224	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-50'	91.06224	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06224

none

Customer Sample Duplicate Results for Sample # 91.06224

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06224

none

REPOR. NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06227

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-80'	91.06227	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-80'	91.06227	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-80'	91.06227	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-80'	91.06227	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-80'	91.06227	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-80'	91.06227	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-80'	91.06227	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-80'	91.06227	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-80'	91.06227	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-80'	91.06227	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-80'	91.06227	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-80'	91.06227	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-80'	91.06227	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-80'	91.06227	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-80'	91.06227	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-80'	91.06227	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-80'	91.06227	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-80'	91.06227	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-80'	91.06227	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-80'	91.06227	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-80'	91.06227	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-80'	91.06227	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-80'	91.06227	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-80'	91.06227	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-80'	91.06227	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-80'	91.06227	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-80'	91.06227	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-80'	91.06227	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-80'	91.06227	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-80'	91.06227	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-80'	91.06227	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-80'	91.06227	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-80'	91.06227	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-80'	91.06227	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-80'	91.06227	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-80'	91.06227	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-80'	91.06227	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-80'	91.06227	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-80'	91.06227	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-80'	91.06227	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-80'	91.06227	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-80'	91.06227	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-80'	91.06227	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-80'	91.06227	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-80'	91.06227	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-80'	91.06227	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-80'	91.06227	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-80'	91.06227	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-80'	91.06227	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-80'	91.06227	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-80'	91.06227	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-80'	91.06227	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-80'	91.06227	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-80'	91.06227	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-80'	91.06227	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-80'	91.06227	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-80'	91.06227	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-80'	91.06227	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-80'	91.06227	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-80'	91.06227	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-80'	91.06227	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-80'	91.06227	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-80'	91.06227	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-80'	91.06227	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-80'	91.06227	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-80'	91.06227	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-[illegible]	91.06227	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-80'	91.06227	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-80'	91.06227	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06227

none

Customer Sample Duplicate Results for Sample # 91.06227

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06227

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06229

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-100'	91.06229	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-100'	91.06229	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-100'	91.06229	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-100'	91.06229	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-100'	91.06229	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-100'	91.06229	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-100'	91.06229	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-100'	91.06229	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-100'	91.06229	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-100'	91.06229	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-100'	91.06229	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-100'	91.06229	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-100'	91.06229	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-100'	91.06229	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-100'	91.06229	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-100'	91.06229	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-100'	91.06229	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-100'	91.06229	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-100'	91.06229	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-100'	91.06229	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-100'	91.06229	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-100'	91.06229	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-100'	91.06229	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-100'	91.06229	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-100'	91.06229	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-100'	91.06229	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-100'	91.06229	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-100'	91.06229	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-100'	91.06229	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-100'	91.06229	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-100'	91.06229	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-100'	91.06229	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-100'	91.06229	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-100'	91.06229	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-100'	91.06229	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-100'	91.06229	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-100'	91.06229	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-100'	91.06229	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-100'	91.06229	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-100'	91.06229	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-100'	91.06229	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-100'	91.06229	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-100'	91.06229	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-100'	91.06229	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-100'	91.06229	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-100'	91.06229	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-100'	91.06229	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-100'	91.06229	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-100'	91.06229	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-100'	91.06229	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-100'	91.06229	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-100'	91.06229	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-100'	91.06229	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-100'	91.06229	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-100'	91.06229	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-100'	91.06229	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-100'	91.06229	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-100'	91.06229	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-100'	91.06229	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-100'	91.06229	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-100'	91.06229	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-100'	91.06229	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-100'	91.06229	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-100'	91.06229	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-100'	91.06229	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-100'	91.06229	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-100'	91.06229	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-100'	91.06229	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-100'	91.06229	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06229

none

Customer Sample Duplicate Results for Sample # 91.06229

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06229

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06234

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-150'	91.06234	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-150'	91.06234	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-150'	91.06234	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-150'	91.06234	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-150'	91.06234	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-150'	91.06234	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-150'	91.06234	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-150'	91.06234	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-150'	91.06234	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-150'	91.06234	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-150'	91.06234	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-150'	91.06234	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-150'	91.06234	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-150'	91.06234	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-150'	91.06234	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-150'	91.06234	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-150'	91.06234	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-150'	91.06234	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-150'	91.06234	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-150'	91.06234	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-150'	91.06234	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-150'	91.06234	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-150'	91.06234	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-150'	91.06234	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-150'	91.06234	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-150'	91.06234	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-150'	91.06234	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-150'	91.06234	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-150'	91.06234	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-150'	91.06234	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-150'	91.06234	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-150'	91.06234	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-150'	91.06234	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-150'	91.06234	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-150'	91.06234	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-150'	91.06234	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-150'	91.06234	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-150'	91.06234	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-150'	91.06234	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-150'	91.06234	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-150'	91.06234	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-150'	91.06234	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-150'	91.06234	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-150'	91.06234	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-150'	91.06234	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-150'	91.06234	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-150'	91.06234	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-150'	91.06234	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-150'	91.06234	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-150'	91.06234	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-150'	91.06234	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-150'	91.06234	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-150'	91.06234	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-150'	91.06234	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-150'	91.06234	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-150'	91.06234	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-150'	91.06234	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-150'	91.06234	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-150'	91.06234	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-150'	91.06234	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-150'	91.06234	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-150'	91.06234	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-150'	91.06234	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-150'	91.06234	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-150'	91.06234	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-150'	91.06234	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-150'	91.06234	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-150'	91.06234	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-150'	91.06234	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06234

none

Customer Sample Duplicate Results for Sample # 91.06234

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06234

none

REPORT NUMBER: 10958

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby PROGRAM CODE: WH54

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

Customer Sample Results, Sample # 91.06240

Date Collected: 7/11/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AB-6-25'QA	91.06240	83329	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthene
AB-6-25'QA	91.06240	208968	< 330.		UG/KG	7/19/91	PRIORITY 1	Acenaphthylene
AB-6-25'QA	91.06240	62533	< 330.		UG/KG	7/19/91	PRIORITY 1	Aniline
AB-6-25'QA	91.06240	120127	< 330.		UG/KG	7/19/91	PRIORITY 1	Anthracene
AB-6-25'QA	91.06240	103333	< 330.		UG/KG	7/19/91	PRIORITY 1	Azobenzene
AB-6-25'QA	91.06240	92875	< 330.		UG/KG	7/19/91	PRIORITY 1	m-Benzidine
AB-6-25'QA	91.06240	56553	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]anthracene
AB-6-25'QA	91.06240	50328	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[a]pyrene
AB-6-25'QA	91.06240	205992	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[b]fluoranthene
AB-6-25'QA	91.06240	191242	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[g,h,i]perylene
AB-6-25'QA	91.06240	207089	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzo[k]fluoranthene
AB-6-25'QA	91.06240	65850	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzoic acid
AB-6-25'QA	91.06240	100516	< 330.		UG/KG	7/19/91	PRIORITY 1	Benzyl alcohol
AB-6-25'QA	91.06240	111911	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethoxy)methane
AB-6-25'QA	91.06240	111444	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroethyl)ether
AB-6-25'QA	91.06240	108601	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-chloroisopropyl)ether
AB-6-25'QA	91.06240	117817	< 330.		UG/KG	7/19/91	PRIORITY 1	Bis(2-ethylhexyl)phthalate
AB-6-25'QA	91.06240	101553	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Bromophenylphenyl ether
AB-6-25'QA	91.06240	85687	< 330.		UG/KG	7/19/91	PRIORITY 1	Butylbenzyl phthalate
AB-6-25'QA	91.06240	59507	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloro-3-methylphenol
AB-6-25'QA	91.06240	106478	< 330.		UG/KG	7/19/91	PRIORITY 1	4-Chloroaniline

AB-6-25'QA	91.06240	91587	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Chloronaphthalene
AB-6-25'QA	91.06240	95578	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Chlorophenol
AB-6-25'QA	91.06240	7005723	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Chlorophenylphenyl ether
AB-6-25'QA	91.06240	218019	< 330.	UG/KG	7/19/91	PRIORITY 1	Chrysene
AB-6-25'QA	91.06240	84742	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-butyl phthalate
AB-6-25'QA	91.06240	117840	< 330.	UG/KG	7/19/91	PRIORITY 1	Di-n-octyl phthalate
AB-6-25'QA	91.06240	53703	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzo[a,h]anthracene
AB-6-25'QA	91.06240	132649	< 330.	UG/KG	7/19/91	PRIORITY 1	Dibenzofuran
AB-6-25'QA	91.06240	95501	< 330.	UG/KG	7/19/91	PRIORITY 1	o-Dichlorobenzene (1,2)
AB-6-25'QA	91.06240	541731	< 330.	UG/KG	7/19/91	PRIORITY 1	m-Dichlorobenzene (1,3)
AB-6-25'QA	91.06240	106467	< 330.	UG/KG	7/19/91	PRIORITY 1	p-Dichlorobenzene (1,4)
AB-6-25'QA	91.06240	91941	< 330.	UG/KG	7/19/91	PRIORITY 1	3,3'-Dichlorobenzidine
AB-6-25'QA	91.06240	120832	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dichlorophenol
AB-6-25'QA	91.06240	84662	< 330.	UG/KG	7/19/91	PRIORITY 1	Diethyl phthalate
AB-6-25'QA	91.06240	131113	< 330.	UG/KG	7/19/91	PRIORITY 1	Dimethyl phthalate
AB-6-25'QA	91.06240	105679	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dimethylphenol
AB-6-25'QA	91.06240	51285	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrophenol
AB-6-25'QA	91.06240	121142	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4-Dinitrotoluene
AB-6-25'QA	91.06240	606202	< 330.	UG/KG	7/19/91	PRIORITY 1	2,6-Dinitrotoluene
AB-6-25'QA	91.06240	206440	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluoranthene
AB-6-25'QA	91.06240	86737	< 330.	UG/KG	7/19/91	PRIORITY 1	Fluorene
AB-6-25'QA	91.06240	118741	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobenzene
AB-6-25'QA	91.06240	87683	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorobutadiene
AB-6-25'QA	91.06240	77474	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachlorocyclopentadiene
AB-6-25'QA	91.06240	67721	< 330.	UG/KG	7/19/91	PRIORITY 1	Hexachloroethane
AB-6-25'QA	91.06240	193395	< 330.	UG/KG	7/19/91	PRIORITY 1	Indeno[1,2,3-cd]pyrene
AB-6-25'QA	91.06240	78591	< 330.	UG/KG	7/19/91	PRIORITY 1	Isophorone
AB-6-25'QA	91.06240	534521	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methyl-4,6-dinitrophenol
AB-6-25'QA	91.06240	91576	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylnaphthalene
AB-6-25'QA	91.06240	95487	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Methylphenol
AB-6-25'QA	91.06240	106445	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Methylphenol
AB-6-25'QA	91.06240	91203	< 330.	UG/KG	7/19/91	PRIORITY 1	Naphthalene
AB-6-25'QA	91.06240	88744	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitroaniline
AB-6-25'QA	91.06240	99092	< 330.	UG/KG	7/19/91	PRIORITY 1	3-Nitroaniline
AB-6-25'QA	91.06240	100016	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitroaniline
AB-6-25'QA	91.06240	98953	< 330.	UG/KG	7/19/91	PRIORITY 1	Nitrobenzene
AB-6-25'QA	91.06240	88755	< 330.	UG/KG	7/19/91	PRIORITY 1	2-Nitrophenol
AB-6-25'QA	91.06240	100027	< 330.	UG/KG	7/19/91	PRIORITY 1	4-Nitrophenol
AB-6-25'QA	91.06240	621647	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodi-n-propylamine
AB-6-25'QA	91.06240	62759	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodimethylamine
AB-6-25'QA	91.06240	86306	< 330.	UG/KG	7/19/91	PRIORITY 1	N-Nitrosodiphenylamine
AB-6-25'QA	91.06240	87865	< 330.	UG/KG	7/19/91	PRIORITY 1	Pentachlorophenol
AB-6-25'QA	91.06240	85018	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenanthrene
AB-6-25'QA	91.06240	108952	< 330.	UG/KG	7/19/91	PRIORITY 1	Phenol
AB-6-25'QA	91.06240	129000	< 330.	UG/KG	7/19/91	PRIORITY 1	Pyrene

AB-6-25'QA	91.06240	120821	< 330.	UG/KG	7/19/91	PRIORITY 1	1,2,4-Trichlorobenzene
AB-6-25'QA	91.06240	95954	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,5-Trichlorophenol
AB-6-25'QA	91.06240	88062	< 330.	UG/KG	7/19/91	PRIORITY 1	2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 91.06240

none

Customer Sample Duplicate Results for Sample # 91.06240

none

Tentatively Identified Compounds in Customer Sample Duplicates for Sample # 91.06240

none

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

Prepared by: LAT on 19-Jul-1991

EPA SEMIVOLATILES

REQUEST NUMBER: 11696 MATRIX: SS ANALYST: Martin Koby 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 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
00.20227	91.06400	83329	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Acenaphthene
00.20227	91.06400	208968	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Acenaphthylene
00.20227	91.06400	62533	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Aniline
00.20227	91.06400	120127	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Anthracene
00.20227	91.06400	103333	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Azobenzene
00.20227	91.06400	92875	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	m-Benzidine
00.20227	91.06400	56553	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[a]anthracene
00.20227	91.06400	50328	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[a]pyrene
00.20227	91.06400	205992	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[b]fluoranthene
00.20227	91.06400	191242	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	91.06400	207089	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	91.06400	65850	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzoic acid
00.20227	91.06400	100516	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Benzyl alcohol
00.20227	91.06400	111911	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	91.06400	111444	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	91.06400	108601	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroi[illegible]ther
00.20227	91.06400	117817	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-ethylh[illegible]ate
00.20227	91.06400	101553	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	4-Bromopheny[illegible]ner
00.20227	91.06400	85687	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Butylbenzyl phthalate
00.20227	91.06400	59507	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	91.06400	106478	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	4-Chloroaniline
00.20227	91.06400	91587	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	2-Chloronaphthalene
00.20227	91.06400	95578	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	o-Chlorophenol
00.20227	91.06400	7005723	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	91.06400	218019	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Chrysene
00.20227	91.06400	84742	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Di-n-butyl phthalate
00.20227	91.06400	117840	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Di-n-octyl phthalate
00.20227	91.06400	53703	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	91.06400	132649	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	Dibenzofuran
00.20227	91.06400	95501	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	91.06400	541731	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	91.06400	106467	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	91.06400	91941	< 330.		UG/KG	0.0		7/19/91	UNDER CONTROL	3,3′-Dichlorobenzidine

00.20227	91.06400	120832	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,4-Dichlorophenol
00.20227	91.06400	84662	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Diethyl phthalate
00.20227	91.06400	131113	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Dimethyl phthalate
00.20227	91.06400	105679	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,4-Dimethylphenol
00.20227	91.06400	51285	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,4-Dinitrophenol
00.20227	91.06400	121142	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	91.06400	606202	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	91.06400	206440	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Fluoranthene
00.20227	91.06400	86737	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Fluorene
00.20227	91.06400	118741	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Hexachlorobenzene
00.20227	91.06400	87683	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Hexachlorobutadiene
00.20227	91.06400	77474	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Hexachlorocyclopentadiene
00.20227	91.06400	67721	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Hexachloroethane
00.20227	91.06400	193395	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	91.06400	78591	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Isophorone
00.20227	91.06400	534521	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	91.06400	91576	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2-Methylnaphthalene
00.20227	91.06400	95487	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2-Methylphenol
00.20227	91.06400	106445	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	4-Methylphenol
00.20227	91.06400	91203	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Naphthalene
00.20227	91.06400	88744	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2-Nitroaniline
00.20227	91.06400	99092	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	3-Nitroaniline
00.20227	91.06400	100016	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	4-Nitroaniline
00.20227	91.06400	98953	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Nitrobenzene
00.20227	91.06400	88755	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2-Nitrophenol
00.20227	91.06400	100027	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	4-Nitrophenol
00.20227	91.06400	621647	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	91.06400	62759	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	91.06400	86306	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	91.06400	87865	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Pentachlorophenol
00.20227	91.06400	85018	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Phenanthrene
00.20227	91.06400	108952	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Phenol
00.20227	91.06400	129000	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	Pyrene
00.20227	91.06400	120821	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	91.06400	95954	< 330.	UG/KG	0.0	7/19/91	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	91.06400	88062	< 330.	UG/KG	0.0	7/19/91	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 # 91.06399

Date Collected: 7/10/91 Date Received: 7/12/91 Date Extracted: 7/15/91 Date Analyzed: 7/16/91

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
91.06399	83329	2.9	0.87	MG/KG	4.7	0.5	7/19/91	UNDER CONTROL	Acenaphthene
91.06399	208968	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Acenaphthylene
91.06399	62533	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Aniline
91.06399	120127	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Anthracene
91.06399	103333	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Azobenzene
91.06399	92875	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	m-Benzidine
91.06399	56553	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[a]anthracene
91.06399	50328	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[a]pyrene
91.06399	205992	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[b]fluoranthene
91.06399	191242	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[g,h,i]perylene
91.06399	207089	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzo[k]fluoranthene
91.06399	65850	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzoic acid
91.06399	100516	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Benzyl alcohol
91.06399	111911	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroethoxy)methane
91.06399	111444	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroethyl)ether
91.06399	108601	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-chloroisopropyl)ether
91.06399	117817	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
91.06399	101553	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Bromophenylphenyl ether
91.06399	85687	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Butylbenzyl phthalate
91.06399	59507	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Chloro-3-methylphenol
91.06399	106478	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Chloroaniline
91.06399	91587	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Chloronaphthalene
91.06399	95578	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	o-Chlorophenol
91.06399	7005723	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Chlorophenylphenyl ether
91.06399	218019	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Chrysene
91.06399	84742	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Di-n-butyl phthalate
91.06399	117840	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Di-n-octyl phthalate
91.06399	53703	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Dibenzo[a,h]anthracene
91.06399	132649	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Dibenzofuran
91.06399	95501	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	o-Dichlorobenzene (1,2)
91.06399	541731	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	m-Dichlorobenzene (1,3)
91.06399	106467	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	p-Dichlorobenzene (1,4)
91.06399	91941	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	3,3'-Dichlorobenzidine

91.06399	120832	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2,4-Dichlorophenol
91.06399	84662	3.1	0.93	MG/KG	4.5	0.4	7/19/91	UNDER CONTROL	Diethyl phthalate
91.06399	131113	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Dimethyl phthalate
91.06399	105679	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2,4-Dimethylphenol
91.06399	51285	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2,4-Dinitrophenol
91.06399	121142	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2,4-Dinitrotoluene
91.06399	606202	3.2	0.96	MG/KG	4.7	0.5	7/19/91	UNDER CONTROL	2,6-Dinitrotoluene
91.06399	206440	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Fluoranthene
91.06399	86737	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Fluorene
91.06399	118741	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Hexachlorobenzene
91.06399	87683	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Hexachlorobutadiene
91.06399	77474	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Hexachlorocyclopentadiene
91.06399	67721	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Hexachloroethane
91.06399	193395	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
91.06399	78591	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Isophorone
91.06399	534521	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
91.06399	91576	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Methylnaphthalene
91.06399	95487	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Methylphenol
91.06399	106445	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Methylphenol
91.06399	91203	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Naphthalene
91.06399	88744	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Nitroaniline
91.06399	99092	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	3-Nitroaniline
91.06399	100016	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Nitroaniline
91.06399	98953	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Nitrobenzene
91.06399	88755	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2-Nitrophenol
91.06399	100027	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	4-Nitrophenol
91.06399	621647	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	N-Nitrosodi-n-propylamine
91.06399	62759	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	N-Nitrosodimethylamine
91.06399	86306	3.4	1.02	MG/KG	4.4	0.4	7/19/91	UNDER CONTROL	N-Nitrosodiphenylamine
91.06399	87865	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Pentachlorophenol
91.06399	85018	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Phenanthrene
91.06399	108952	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Phenol
91.06399	129000	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	Pyrene
91.06399	120821	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	1,2,4-Trichlorobenzene
91.06399	95954	< 0.33		MG/KG	0.0		7/19/91	UNDER CONTROL	2,4,5-Trichlorophenol
91.06399	88062	< 0.33		MG/KG	0.0		7/19/91	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
91.06217	%	54.75	63.55	57.08	62.88	79.19	84.7	19-Jul-1991
91.06217	%	5.33	19.84	4.24	29.64	75.8	81.3	19-Jul-1991
91.06217	%	59.02	66.49	57.7	62.9	66.68	86.18	19-Jul-1991
91.06218	%	60.12	66.66	58.54	68.08	66.45	88.64	19-Jul-1991
91.06219	%	57.97	68.48	58.92	66.5	70.89	81.7	19-Jul-1991
91.06220	%	60.29	67.92	57.46	66.78	63.36	76.8	19-Jul-1991
91.06221	%	65.27	72.14	63.7	72.56	69.85	79.82	19-Jul-1991
91.06222	%	21.13	25.32	17.3	29.6	37.19	47.5	19-Jul-1991
91.06223	%	70.21	74.49	67.08	75.72	70.37	84.28	19-Jul-1991
91.06224	%	52.13	58.54	50.08	61.26	65.31	71.42	19-Jul-1991
91.06227	%	44.24	50.72	35.66	56.02	53.28	79.68	19-Jul-1991
91.06229	%	60.72	68.92	57.8	71.16	69.79	83.32	19-Jul-1991
91.06234	%	67.41	73.64	65.	74.84	71.33	86.96	19-Jul-1991
91.06240	%	41.73	52.24	35.42	57.62	56.3	67.42	19-Jul-1991
91.06399	%	60.77	74.08	63.16	72.94	58.89	86.78	19-Jul-1991
91.06400	%	58.14	63.88	56.92	64.36	59.99	82.88	19-Jul-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: 10958

Analyst	Reviewer	Section Leader	QA Officer
7/22/91	7-22-91		
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.

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Tritium Analysis Data
for
Borehole 7

REPORT NUMBER: 10952

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

Prepared by: DK on 19-Jul-1991

ANALYSIS: H-3 REQUEST NUMBER: 11731 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-7-0'	91.06578	1200.	300.	PCI/L	7/19/91	
AB-7-5'	91.06579	2000.	300.	PCI/L	7/19/91	
AB-7-5'QA	91.06580	1000.	300.	PCI/L	7/19/91	
AB-7-10'	91.06581	700.	300.	PCI/L	7/19/91	
AB-7-15'	91.06582	900.	300.	PCI/L	7/19/91	
AB-7-20'	91.06583	1100.	300.	PCI/L	7/19/91	
AB-7-25'	91.06584	900.	300.	PCI/L	7/19/91	
AB-7-30'	91.06585	800.	300.	PCI/L	7/19/91	
AB-7-40'	91.06586	900.	300.	PCI/L	7/19/91	
AB-7-50'	91.06587	900.	300.	PCI/L	7/19/91	
AB-7-60'	91.06588	700.	300.	PCI/L	7/19/91	
AB-7-70'	91.06589	900.	300.	PCI/L	7/19/91	
AB-7-80'	91.06590	600.	300.	PCI/L	7/19/91	
AB-7-35'	91.06591	900.	300.	PCI/L	7/19/91	

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REPORT NUMBER: 10952 (continued)

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

Prepared by: DK on 19-Jul-1991

REQUEST NUMBER: 11731 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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
00.22385	500.	300.	PCI/L	0.0		7/19/91	UNDER CONTROL
00.22386	16000.	1000.	PCI/L	18430.	370.	7/19/91	WARNING 2-3 SIG

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
91.06592	4.	0.4	NCI/L	3.56	0.09	7/19/91	UNDER CONTROL

REPORT NUMBER: 10952

Analyst	Section Leader	QA Officer
RJP	D Kraal	mag
19 Jul 91	7-19-91	7-19-91
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.

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Gravimetric Moisture Analysis Data
for
Borehole 7
(Core Samples)

REPORT NUMBER: 10949

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

Prepared by: B BATES on 18-Jul-1991

ANALYSIS: H2O- REQUEST NUMBER: 11731 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

ANALYTICAL TECHNIQUE: LS ANALYTICAL PROCEDURE:

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	RESULT	UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
AB-7-0'	91.06578	3.23	0.32	%	7/18/91	
AB-7-5'	91.06579	2.71	0.27	%	7/18/91	
AB-7-5'QA	91.06580	2.7	0.27	%	7/18/91	
AB-7-10'	91.06581	3.79	0.38	%	7/18/91	
AB-7-15'	91.06582	3.31	0.33	%	7/18/91	
AB-7-20'	91.06583	19.2	1.9	%	7/18/91	
AB-7-25'	91.06584	8.87	0.89	%	7/18/91	
AB-7-30'	91.06585	20.	2.	%	7/18/91	
AB-7-40'	91.06586	9.09	0.91	%	7/18/91	
AB-7-50'	91.06587	12.4	1.2	%	7/18/91	
AB-7-60'	91.06588	15.8	1.6	%	7/18/91	
AB-7-70'	91.06589	14.9	1.5	%	7/18/91	
AB-7-80'	91.06590	16.	1.6	%	7/18/91	
AB-7-35'	91.06591	17.6	1.8	%	7/18/91	

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

Prepared by: B BATES on 18-Jul-1991

REQUEST NUMBER: 11731 MATRIX: SS ANALYST: Richard Peters PROGRAM CODE: WH54

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

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

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
91.06592	4.58	0.46	%	4.76	0.4	7/18/91	UNDER CONTROL

REPORT NUMBER: 10949

RJP	[illegible]	mag
Analyst	Section Leader	QA Officer
19 Jul 91	7-19-91	7-19-91
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.

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