Versar INC.

93 OCT 15 AM 9:00

October 15, 1993

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

Subject: Underground Storage Tank Closure Report - FINAL
for the 3080 Broadway Site, Oakland, California.
Versar Project Number 2082-001

Dear Ms. Chu:

Please find enclosed one copy of the Underground Storage Tank Closure Report - FINAL for the subject site.

If you have any questions or require additional information regarding this report, please call me at (916) 962-1612.

Sincerely,

Lawrence J. Kleinecke
Senior Geohydrologist

10/19/93 what about stockpiled soil - Lawrence says he has lab analysis and bill of lading. He will fax copies to me.

LK:bmk
Enclosure

cc: Mr. Gerald Shirar, no enclosure

WESTERN REGIONAL OFFICE • TECHNICAL SERVICES GROUP
1255 HARBOR BAY PARKWAY, SUITE 100 • ALAMEDA, CALIFORNIA 94501 • TELEPHONE: (415) 748-6444

Versar INC.

UNDERGROUND STORAGE TANK CLOSURE REPORT FOR THE 3080 BROADWAY SITE OAKLAND, CALIFORNIA

Prepared for:

MR. GERALD SHIRAR
7215 PLEASANT VALLEY ROAD
VACAVILLE, CALIFORNIA 95688

Prepared by:

VERSAR, INC.
1255 HARBOR BAY PARKWAY, SUITE 100
ALAMEDA, CALIFORNIA 94501

Versar Project Number: 2082-001

October 15, 1993

Versar INC.

EXECUTIVE SUMMARY

Versar, Inc. (Versar) was retained by Mr. Gerald Shirar to remove a 350 gallon underground storage tank (UST) from the property located at 3080 Broadway in the City of Oakland, California. This property is currently owned by Mr. Shirar and leased to Roy Anderson Paints, a retail provider of paint and paint supplies. Excavation and removal of the UST was conducted on May 10, 1993. At the time of the excavation, the tank contained approximately 270 gallons of waste which was removed by Recovery System using a vacuum truck and transported off-site for recycling. During removal, a pin-hole and a 3/4-inch diameter hole were observed on the west end and on the bottom center of the tank, respectively. In addition, stained soils were observed above, adjacent to, and below the former UST. These soils were bluish in color and emanated a petroleum-like odor. The UST was removed by Dillard Environmental Services and transported under hazardous waste manifest to Erickson Tank for decontamination and destruction.

Soil samples were collected from beneath the former tank location, at depths of approximately 6 and 8 feet below ground surface (bgs). Halogenated Volatile Organic Compounds (VOCs), Semivolatile organic compounds (BNAs), benzene, and toluene were not detected in either of the two samples analyzed. The following six constituents were reported to occur at very low levels in the samples collected from six feet bgs:

- Ethylbenzene
- Total xylenes
- Chromium
- Nickel
- Lead
- Zinc

In addition, total oil and grease (TOG) was detected at concentrations of 130 and 140 milligram per kilogram (mg/kg) in the soil samples from 6 feet and 8 feet bgs, respectively. The reported concentrations of ethylbenzene, xylenes, and metals are not considered to be of concern, however, additional investigation to determine the extend of TOG in soils beneath the former UST location is recommended.

Approved for Release
Lawrence Kleinecke
Senior Geohydrologist

Michael Sellens
Registered Geologist. R04714

REGISTERED GEOLOGIST
Michael P. Sellens
No. 4714
STATE OF CALIFORNIA

Versar INC.

DISCLAIMER

The purpose of this Underground Storage Tank Closure was to remove an underground storage tank (UST) and to determine if volatile organic compounds, semi-volatile organic compounds, petroleum hydrocarbons, or heavy metals were present in soils beneath the UST location. Versar does not assume responsibility for the elimination of hazards that could possibly cause accidents, injuries or damage. Compliance with Versar's suggestions does not assure elimination of hazards or the fulfillment of a property owner's obligation under any local, state, or federal laws, or any modifications or changes thereto. It is the responsibility of the property owner to notify authorities of any conditions that are in violation of the current legal standards.

Factual information regarding operations, conditions, and test data were obtained, in part, from the client, outside agents and third parties and have been assumed by Versar to be correct and complete. Because the facts stated in this report are subject to professional interpretation, they could result in differing conclusions. In addition, the findings and conclusions contained in this report are based on various quantitative and qualitative factors as they existed on or near the date of the survey.

It should be recognized that this study was not intended to be a definitive investigation of contamination at the subject property. Given that the scope of services for this investigation was limited, it is possible that currently unrecognized contamination may exist at the site and that the levels of this potential contamination may vary across the site.

Versar has prepared this report at the request of its client. Versar is responsible for the accuracy of the report's contents, subject to what is stated elsewhere in this Disclaimer, but recommends the report be used only for the purposes intended by the client and Versar when the report was prepared. Versar makes no warranty and assumes no liability with respect to the use of information contained in this report. The report may be unsuitable for other uses, and Versar assumes no liability for such uses. No changes to the form or content of the report may be made without Versar's express written approval. This report reflects conditions, operations, and practices as observed on the date of the site visit. Changes or modifications to procedures and /or facilities made after the site visit are not included.

Versar INC.

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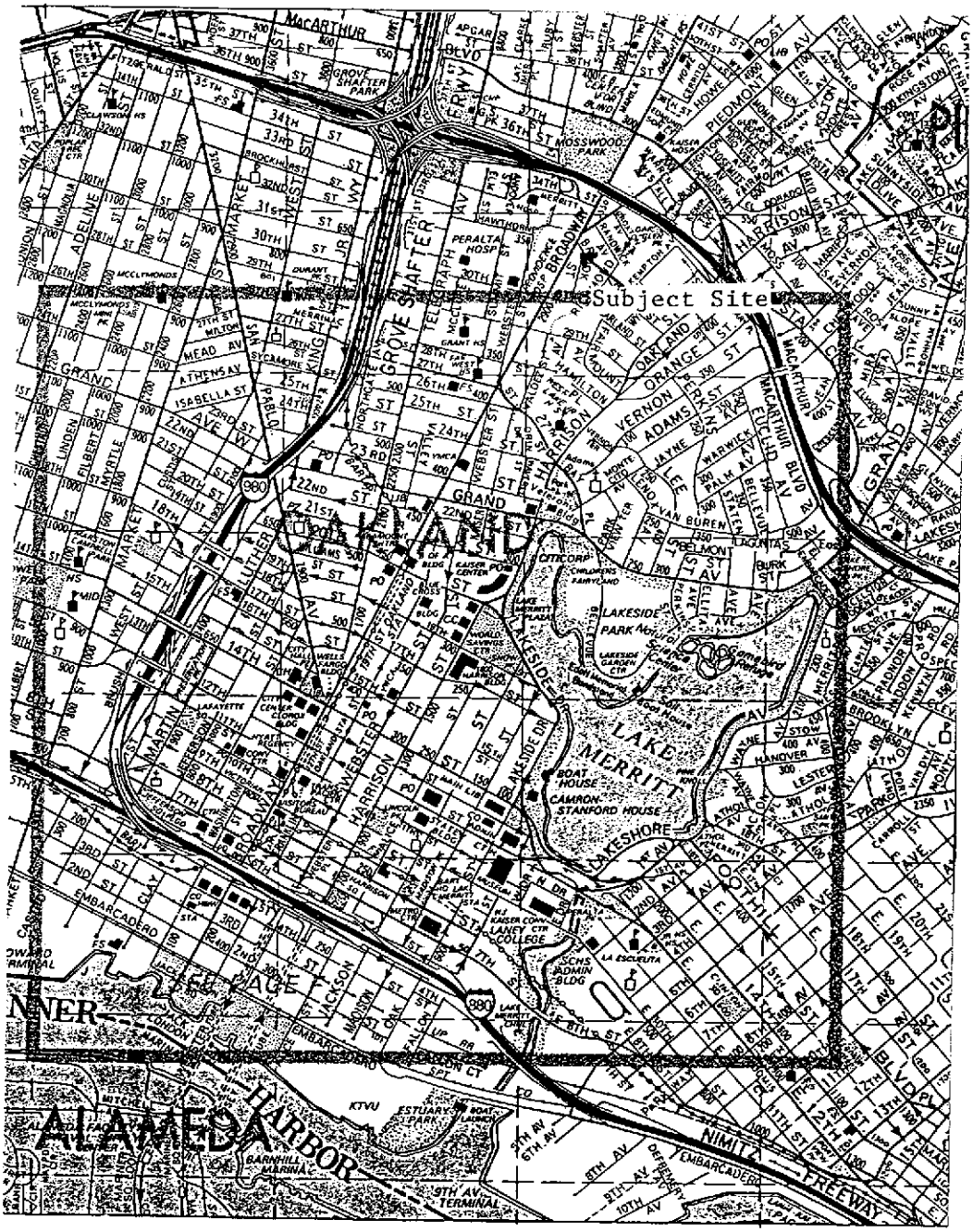
1.0 INTRODUCTION

1.1 Purpose of Report

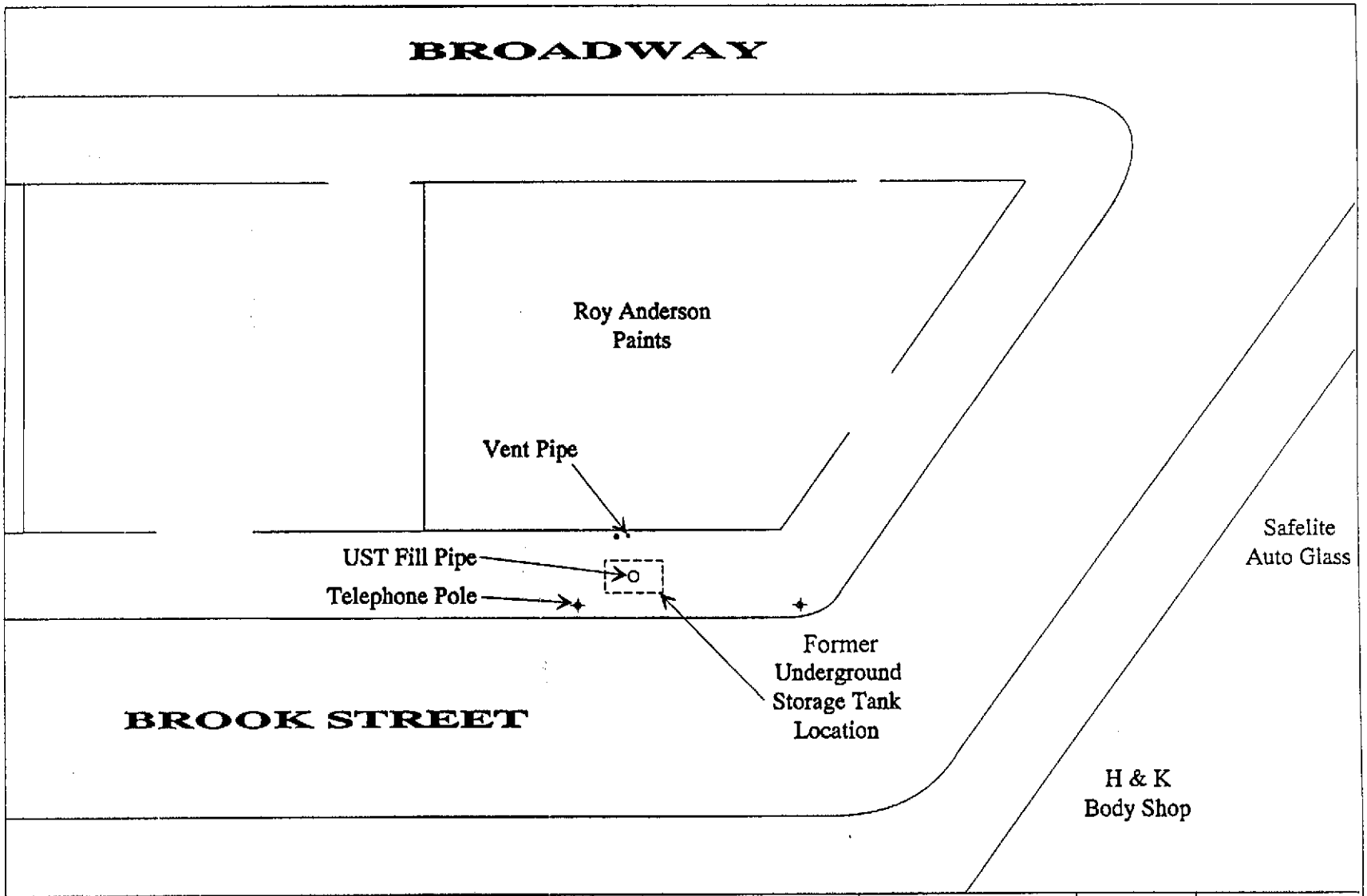
Versar, Inc. (Versar) was retained by Mr. Gerald Shirar to remove a 350 gallon underground storage tank (UST) from the property located at 3080 Broadway in the City of Oakland, California. The actual size and contents of the UST were unknown prior to this investigation. However, it was known that the UST was installed during the 1920 or 30's and had not been used for some time. Because the UST was not planned to be used in the future, it was removed in accordance with current California Water Resource Control Board (CWRCB) UST Closure requirements. All closure activities were performed in accordance with approved scope of work for tank closure (Versar Quotation Number Q93-9262) dated January 26, 1993. The scope of this investigation included: 1) UST closure permitting; 2) UST removal and disposal; 3) sampling of soils beneath the former UST in accordance with San Francisco Bay Regional Water Quality Control Board (RWQCB) requirements and the directives of Ms. Eva Chu of the Alameda County Department of Health Services (ACDHS); and 4) submittal of an UST closure report presenting the findings of the tank removal and soil sampling activities. The purpose of this report is to present a summary of all field activities, soil sample analytical results, and certification of tank destruction in accordance with CWRCB and ACDHS closure requirements.

1.2 Site Description

The subject site is located approximately 4.5 miles east of the San Francisco Bay at the intersection of Broadway and Brook Street, in the City of Oakland, California (See Figure 1). Mr. Gerald Shirar is the current property owner and currently leases the 4,500 square foot retail space which occupies the entire site to Roy Anderson Paints, a retail paint supplier. Surrounding business consist of various private enterprises, including automotive dealerships, automotive glass and mechanical repair shops, and medical office buildings. The UST is located behind the paint store beneath the sidewalk adjacent to Brook Street (See Figure 2).



Versar INC. ENVIRONMENTAL RISK MANAGEMENT	LOCATION MAP 3080 Broadway Oakland, California	October, 1993 Versar Project: 2082-001	N	**FIGURE** 1 Not To Scale



Versar INC. ENVIRONMENTAL RISK MANAGEMENT	FACILITY MAP	3080 Broadway Oakland, California	October, 1993 Versar Project: 2082-001	N	FIGURE 2 Scale: 1" = 25'

1.3 Hydrogeologic Conditions

The regional geologic conditions in the vicinity of the subject site consists of dissected, semi- to unconsolidated Pleistocene alluvial deposits of sand, silt, and clay with occasional gravels, underlain by consolidated Cenozoic marine and continental deposits, and the Franciscan Formation. The consolidated Cenozoic deposits are comprised of predominantly sandstone, shale and mudstone. Many of the formations are restricted in areal extent, and exhibit marked changes in composition over short distances (Page, 1966). The Franciscan Formation forms the regional bedrock in the area and is comprised of a melange of sedimentary, igneous, and metamorphic rock units which have been extensively deformed by regional tectonic activity associated with the San Andreas Fault zone. The subject site is located approximately 2.5 miles southwest of the historically active Hayward Fault.

Ground water is reported to occur at a depth of approximately 14 to 19 feet bgs in the vicinity of the site and flows to the south-southeast (verbal communication:ACDHS,1993). However, due to the high variability of the subsurface sediments, ground water levels in the area are site specific and are known to vary significantly over short distances.

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2.0 SCOPE OF WORK

2.1 Underground Storage Tank Removal

Prior to any field activities, a traffic encroachment permit was obtained from the City of Oakland and an Underground Tank Closure Permit was issued by the ACDHS. Tank removal activities were conducted on May 10, 1993. Recovery Systems (RS) was contracted to evacuate the contents of the tank in preparation for excavation and removal. Dillard Environmental Services (DES) of Byron, California was contracted to perform the UST removal and to transport the tank to Erickson Tank of Richmond, California, for decontamination and disposal. Prior to any excavation activities, all sources of ignition were eliminated from the designated work zone and all piping and electrical wiring associated with the tank were disconnected and secured. A vacuum truck was used by RS to remove 270 gallons of a waste oil-like substance from the UST. This petroleum product was transported under Uniform Hazardous Waste Manifest off-site for recycling. A copy of all manifests are presented in Appendix A. DES proceeded to expose the top of the tank by removing all concrete and soil overburden with a John Deere 710B Turbo backhoe equipped with a 24-inch bucket. Upon removal of the overburden, the tank was observed to have at diameter and length of approximately 4-feet by 4-feet, and a 350 gallon capacity. Oil staining was observed in soils near the fillport, and adjacent to the west end of the tank. In preparation for removal and transport to the disposal facility, 50 pounds of "dry ice" was placed into the tank through the fill port to displace the contained vapors, rendering the tank inert. Oxygen and lower explosive limits (LEL) were monitored to confirm the innerting process. Once zero percent LEL and oxygen was achieved, the tank was determined "safe" for removal and transport by Mr. Gary Collins, Inspector for the City of Oakland, Fire Prevention Bureau; and Ms. Eva Chu, Hazardous Materials Specialist of the ACDHS. The 350 gallon tank was removed from the trench and inspected for areas of deterioration. One pin-sized and one three-quarter inch hole were identified at the west end and at the bottom of

the tank, respectively. Soil staining was observed on the four walls and bottom of the excavation. After completing the tank inspection, the UST was loaded onto a flat-bed truck, and transported under Uniform Hazardous Waste Manifests to Erickson Tank in Richmond, California. A copy of the completed manifest, a copy of the Alameda County Department of Environmental Health Hazardous Materials Inspection form and Certificate of Tank Destruction are presented in Appendix A.

All soils removed from the excavation were placed adjacent to the UST excavation and covered with visqueen pending receipt of the soil sample analytical results. The excavation was covered with plywood and the work zone was secured with 6 feet steel fencing and caution tape pending ACDHS approval to backfill the hole.

2.2 Soil Sampling

At the direction of Ms. Eva Chu, a disturbed soil sample was collected using the backhoe bucket from the bottom of the excavation at the depth of approximately 6 feet, immediately below the center of the former UST. Additional soil was removed from the sidewalls and the base of the excavation in an attempt to remove all obvious stained soil. A second soil sample was then obtained from the base of the excavation at a depth of approximately 8 feet. During all excavation activities, soils removed were monitored for volatile organic headspace emissions and explosive atmosphere. Stained soils were observed to be bluish in color with a petroleum like odor. Both soil samples were immediately placed in the appropriate pre-cleaned brass and/or glass containers, labeled, placed in a cooler on ice at approximately 4^0C, and shipped under chain-of-custody protocol to Superior Precision Analytical, Inc. (SPA) of San Francisco, California, a California hazardous waste certified laboratory (Certificate Number 1332), for the chemical analysis listed in Table 1. No ground water was encountered during the UST removal action.

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Table 1
Chemical Analyses and Analytical Methods for Soil
3080 Broadway, Oakland, California

Chemical Analysis	Analytical Method
Total Petroleum Hydrocarbon as Gasoline (TPH-G)	EPA 8015/LUFT 5030
Total Petroleum Hydrocarbon as Diesel (TPH-D)	EPA 8015/LUFT 3550
Total Oil and Grease (TOG)	LUFT 5520 F
Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)	EPA 8020
Halogenated Volatile Organic Compounds (VOC)	EPA 8010
Selected Semi-Volatile Organic Compounds (Semi-VOC)	EPA 8270
Cadmium, Chromium, Nickel, Lead, and Zinc (Metals)	EPA 6000/7000 series

EPA = United States Environmental Protection Agency
LUFT = California Department of Toxic Substances Control LUFT Manual

3.0 DISCUSSION OF SOIL SAMPLE ANALYTICAL RESULTS

Halogenated VOCs, Semi-VOCs, benzene and toluene were not detected in either of the two soil samples analyzed. Petroleum hydrocarbons were detected in both samples and four heavy metals were detected in the 6 feet sample from immediately below the former UST. A summary of the soil sample analytical results for petroleum hydrocarbons and metals are presented in Tables 2 and 3, respectively. The laboratory analytical data sheets and Chain-of-Custody form are presented in Appendix B. A discussion of the soil sample analytical results is presented below.

Table 2
Summary of Petroleum Hydrocarbon Soil Sample Analytical Results
3080 Broadway Street, Oakland, California

Constituent	3080-CTR2 Sample from 6 feet bgs	3080-CTR3 Sample from 8 feet bgs
TOG	**130**	**140**
TPH-G	**1**	<1
TPH-D	<10	**23***
Benzene	<0.003	<0.003
Toluene	<0.003	<0.003
Ethyl Benzene	**0.004**	<0.003
Total Xylenes	**0.023**	<0.009

All results are in milligrams per kilograms (mg/kg), unless otherwise indicated.
*** = Atypical Diesel pattern, laboratory indicated more representative of oil and grease.**

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Table 3
Summary of Heavy Metal Soil Sample Analytical Results
3080 Broadway Street, Oakland, California

Constituent	Sample Depth (Feet) 6	8	Mean concentration for conterminous Western USA	TTLC	STLC (mg/L)
Cadmium	<1.0	<1.0	<1	100	1.0
Chromium	31	<5	41	2500	560
Nickel	53	<10	15	5000	20
Lead	17	<5	17	1000	5.0
Zinc	23	<20	55	5000	250

All results are in mg/kg unless otherwise indicated.
Mean concentrations obtained from USGS Professional Paper 1270, 1984, except for Cadmium.
Cadmium value from W.L. Lindsay, "Chemical Equilibria in Soils," 1979, Wiley.
TTLC = Total Threshold Limit Concentration, CCR Title 22.
STLC = Soluble Threshold Limit Concentration, CCR Title 22.

3.1 Petroleum Hydrocarbons

The petroleum hydrocarbons detected in soil samples from the UST excavation included TPH-G, TPH-D, ethylbenzene, total xylenes and TOG. Neither benzene nor toluene were reported to occur in either of the two samples, and except for TOG, the reported concentrations of all petroleum hydrocarbon compounds detected in the two soil samples were comparatively low. TPH-G was reported to occur in the sample from 6 feet at the detection limit of 1.0 mg/kg but was not detected in the sample from 8 feet. TPH-D was not detected at above the reporting limit of 10 mg/kg in the sample collected from 6 feet. TPH-D was reported to occur in the sample from 8 feet at a concentration of 23 mg/kg. However, the TPH-D chromatogram pattern for the sample (3080-CTR3) was determined to not match a typical diesel pattern, and was reported by SPA to be more indicative of petroleum hydrocarbons in the oil and grease range. The aromatic hydrocarbons ethylbenzene and total xylenes were reported to occur at a concentration of 0.004 and 0.023 mg/kg, respectively, in the sample from 6 feet. However, neither compound was detected in the sample from 8 feet. The concentrations of TOG detected in the soil samples from 6 and 8 feet were 130 and 140 mg/kg, respectively.

3.2 Heavy Metals

Cadmium was not detected in either soil sample above a concentration of 1 mg/kg. The metals chromium, nickel, lead, and zinc were reported to occur at concentrations of 31, 53, 17, and 26 mg/kg, respectively, in the soil sample from 6 feet. None of these metals were detected in the sample from 8 feet. The reported concentrations of these five metals do not exceed the Total Threshold Limit Concentration (TTLC) and are less than ten times the Soluble Threshold Limit Concentrations (STLC) established by the State of California as the criteria for a hazardous waste. The reported concentrations are typical of naturally occurring levels found in soils of the western United States.

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4.0 CONCLUSIONS

Based upon the age and condition of the former UST, the reported occurrence of oil and grease in both soil samples collected, the observed staining of soils around the UST, and the two holes noted in the tank wall during removal, it is evident that petroleum hydrocarbons have been released to the ground at the site. The extent of these compounds in soil has not been defined; however, with the exception of TOG, the reported concentrations of petroleum hydrocarbons are not considered to be of concern. In addition, the reported concentrations of four metals detected in soils immediately below the former UST are also not considered to be of concern.

Based upon conditions observed in the UST excavation and the analytical results obtained during tank removal, Versar recommends that an additional soils investigation be conducted to determine the lateral and vertical extent of TOG in the soil and groundwater beneath the former UST.

Versar INC.

5.0 REFERENCES

Barclays Official California Code of Regulations (CCR), 1991. Title 22 Social Security, Division 45 Environmental Health, Chapter 11, Article 3.

California State Water Resources Control Board, 1989. Leaking Underground Fuel Tank (LUFT) Field Manual.

Howard, P.H., 1990. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Lewis Publishers.

Lindsey, W.L., 1979. "Chemical Equilibria in Soils," Wiley.

Page, B.M., 1966. "Coast Ranges Province" in Geology of Northern California; California Division of Mines and Geology, Bulletin 190.

Shacklette, H.T. and Boerngen, J.G., 1984. "Element Concentration in Soils and other Surficial Materials of the Conterminous United States." U.S.G.S. Professional Paper 1270.

Verbal Communications, 1993 with Ms. Eva Chu of the Alameda County Department of Health Services.

Verbal Communications, 1993 with Mr. Rich Hyatt of the Regional Water Quality Control Board, San Francisco Bay Region.

Wagner, D.L., Bortugno, E.J., and McJunkin, R.D., 1990. Geologic Map of the San Francisco - San Jose Quadrangle. California Department of Conservation, Division of Mines and Geology.

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APPENDIX A
HAZARDOUS WASTE MANIFESTS, ALAMEDA COUNTY FIELD INSPECTION FORM AND CERTIFICATE OF TANK DESTRUCTION

State of California – Environmental Protection Agency
Form Approved OMB No. 2050–0039 (Expires 9-30-94)
Please print or type. *Form designed for use on elite (12-pitch) typewriter.*

See Instructions on back of page 6.

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAC000787936 — Manifest Document No.: 00011
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number: 92752332

B. State Generator's ID

3. Generator's Name and Mailing Address:
GERALD SHIRAR
7215 PHEASANT VALLEY ROAD, VACCAVILLE, CA 95688

4. Generator's Phone (707) 446-2262

5. Transporter 1 Company Name: DILLARD TRUCKING, INC.
6. US EPA ID Number: CAD981692809

C. State Transporter's ID: 401517
D. Transporter's Phone: (510) 634-6850

7. Transporter 2 Company Name:
8. US EPA ID Number:

E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address:
ERICKSON INC
255 PARR BLVD.
RICHMOND, CA 94801

10. US EPA ID Number: CAD009466392

G. State Facility's ID
H. Facility's Phone: (510) 235-1393

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. WASTE EMPTY STORAGE TANK NON RCRA HAZARDOUS WASTE SOLID	001	TP	01500	P	State: 512 / EPA/Other:
b.					State: / EPA/Other:
c.					State: / EPA/Other:
d.					State: / EPA/Other:

J. Additional Descriptions for Materials Listed Above: [illegible]

K. Handling Codes for Wastes Listed Above: [illegible]

15. Special Handling Instructions and Additional Information:
KEEP AWAY FROM SOURCES OF IGNITION, WEAR PROPER PROTECTIVE EQUIPMENT
EMERGENCY CONTRACT (510) 634-6850

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
Gerald L Shirar	[signature]	05	10	93

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Stacy Pereira	[signature]	05	10	93

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR / TRANSPORTER / FACILITY

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

92752332

DO NOT WRITE BELOW THIS LINE.

DTSC 8022A (7/92)
EPA 8700—22

Blue: GENERATOR SENDS THIS COPY TO DTSC WITHIN 30 DAYS.
To: P.O. Box 400, Sacramento, CA 95812-0400

white -env.health yellow -facility pink -files	

ALAMEDA COUNTY, DEPARTMENT OF ENVIRONMENTAL HEALTH

80 Swan Way, #200
Oakland, CA 94621
(415) 271-4320

Hazardous Materials Inspection Form

II,III

Site ID # ____ Site Name Roy Anderson Today's Date 5/10/93

Site Address 3080 Broadway

City Oakland Zip 94611 Phone ________

____ MAX AMT stored > 500 lbs. 55 gal.. 200 cft.?

Inspection Categories:

____ I. Haz. Mat/Waste GENERATOR/TRANSPORTER
____ II. Business Plans, Acute Hazardous Materials
X III. Underground Tanks Removal

* Calif. Administration Code (CAC) or the Health & Safety Code (HS&C)

Comments:

≈350 gallon W.O. tank - 270 gall on W.O. pumped
some soil staining with mod. odor
LEL 2% O_2 - 0%
Gary Collins (OFD) Tony Morgado
Dillard Trucking

Several holes on bottom of tank and end of tank One bottom hole ~ 3/4" diameter

Overexcavation to 8' depth - one soil sample taken Unable to excavate to west due to sewer & building.
Initial soil sample taken 2' below tank
Excavation about 8'x9'x 8' depth

Soil samples to be analyzed for TPH-G, Total metals, Halogenated VOC, semi-volatiles, TOG

II.A BUSINESS PLANS (Title 19)

	Item	Code
___	1. Immediate Reporting	2703
___	2. Bus. Plan Stds.	25503(b)
___	3. RR Cars > 30 days	25503.7
___	4. Inventory Information	25504(a)
___	5. Inventory Complete	2730
___	6. Emergency Response	25504(b)
___	7. Training	25504(c)
___	8. Deficiency	25505(a)
___	9. Modification	25505(b)

II.B ACUTELY HAZ. MAT'LS

	Item	Code
___	10. Registration Form Filed	25533(a)
___	11. Form Complete	25533(b)
___	12. RMPP Contents	25534(c)
___	13. Implement Sch. Req'd? (Y/N)	___
___	14. OffSite Conseq. Assess.	25524(c)
___	15. Probable Risk Assessment	25534(d)
___	16. Persons Responsible	25534(g)
___	17. Certification	25534(f)
___	18. Exemption Request? (Y/N)	25536(b)
___	19. Trade Secret Requested?	25538

III. UNDERGROUND TANKS (Title 23)

Section		Item	Code
General	___	1. Permit Application	25284 (H&S)
	___	2. Pipeline Leak Detection	25292 (H&S)
	___	3. Records Maintenance	2712
	___	4. Release Report	2651
	___	5. Closure Plans	2670
Monitoring for Existing Tanks	___	6. Method 1) Monthly Test 2) Daily Vadose Semi-annual gndwater One time soils 3) Daily Vadose One time soils Annual tank test 4) Monthly Gndwater One time soils 5) Daily Inventory Annual tank testing Cont pipe leak det Vadose/gndwater mon. 6) Daily Inventory Annual tank testing Cont pipe leak det 7) Weekly Tank Gauge Annual tank tstng 8) Annual Tank Testing Daily Inventory 9) Other ________	
	___	7. Precis Tank Test Date: ________	2643
	___	8. Inventory Rec.	2644
	___	9. Soil Testing .	2646
	___	10. Ground Water.	2647
New Tanks	___	11. Monitor Plan	2632
	___	12. Access. Secure	2634
	___	13. Plans Submit Date: ________	2711
	___	14. As Built Date: ________	2635

Rev 6/88

II, III

Contact: Anthony Mull - EPC
Title: [illegible] Inspector: Eva Chu
Signature: [signature] Signature: [signature]

[illegible]
IONE
5-1393

CERTIFICATE

CERTIFIED SERVICES COMPANY

255 Parr Boulevard • Richmond, California 94801

NO. [illegible]

CUSTOMER	[illegible]
JOB NO.	[illegible]

FOR: [illegible] TANK NO. [illegible]

LOCATION: Richmond DATE: [illegible] TIME: 10:10:23

TEST METHOD Visual-Gastech/1314 [illegible] LAST PRODUCT [illegible]

This is to certify that I have personally determined that this tank is in accordance with the American Petroleum Institute and have found the condition to be in accordance with its assigned designation. This certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

TANK SIZE 300 Gallon Tank CONDITION SAFE FOR FIRE

REMARKS: OXYGEN 20.9%

LOWER EXPLOSIVE LIMIT LESS THAN 0.1%

"ERICKSON INC. HEREBY CERTIFIES THAT THE ABOVE NUMBERED TANK HAS BEEN CUT OPEN, PROCESSED, AND THEREFORE DESTROYED AT OUR PERMITTED HAZARDOUS WASTE FACILITY."

In the event of any physical or atmospheric changes affecting the gas-free conditions of the above tanks, or if in any doubt, immediately stop all hot work and contact the undersigned. This permit is valid for 24 hours if no physical or atmospheric changes occur.

STANDARD SAFETY DESIGNATION

SAFE FOR MEN: Means that in the compartment or space so designated (a) The oxygen content of the atmosphere is at least 19.5 percent by volume; and that (b) Toxic materials in the atmosphere are within permissable concentrations; and (c) In the judgment of the Inspector, the residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed on the Inspector's certificate.

SAFE FOR FIRE: Means that in the compartment so designated (a) The concentration of flammable materials in the atmosphere is below 10 percent of the lower explosive limit; and that (b) In the judgment of the Inspector, the residues are not capable of producing a higher concentration that permitted under existing atmospheric conditions in the presence of fire and while maintained as directed on the Inspector's certificate, and further, (c) All adjacent spaces have either been cleaned sufficiently to prevent the spread of fire, are satisfactorily inerted, or in the case of fuel tanks, have been treated as deemed necessary by the Inspector.

The undersigned representative acknowledges receipt of this certificate and understands the conditions and limitations under which it was issued.

[signature]

REPRESENTATIVE TITLE INSPECTOR

CP599

Versar INC.

APPENDIX B
LABORATORY ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

Versar Inc.
Attn: AIMEE M. CHOW

Project 2082-001
Reported 17-May-1993

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKLE, & ZINC
by SW-846 Method 6010

Chronology

Laboratory Number 88554

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
3080-CTR	05/10/93	05/11/93	05/11/93	05/12/93		1
3080-CTR3	05/10/93	05/11/93	05/11/93	05/12/93		2

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

Versar Inc.
Attn: AIMEE M. CHOW

Project 2082-001
Reported 17-May-1993

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKLE, & ZINC

Laboratory Number	Sample Identification	Matrix
88554- 1	3080-CTR	Soil
88554- 2	3080-CTR3	Soil

RESULTS OF ANALYSIS

Laboratory Number:	88554- 1	88554- 2
CADMIUM:	ND<1	ND<1
CHROMIUM:	31	ND<5
NICKEL:	53	ND<10
LEAD:	17	ND<5
ZINC:	26	ND<20
Concentration:	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

Quality Assurance and Control Data - Soil

Laboratory Number 88554

Compound	Method Blank (mg/kg)	PQL (mg/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)
CADMIUM:	ND<1	1	87%	75-125%	7%
CHROMIUM:	ND<10	10	86%	75-125%	6%
NICKEL:	ND<5	5	82%	75-125%	11%
LEAD:	ND<5	5	84%	75-125%	8%
ZINC:	ND<20	20	90%	75-125%	13%

Definitions:

ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

QC File No. 88554

David Speer
Senior Analyst

CHAIN OF CUSTODY RECORD

PROJECT NO. 2082-001 | PROJECT NAME 3080 BROADWAY | PARAMETERS 8270/625 | INDUSTRIAL HYGIENE SAMPLE Y / N

SAMPLERS: (Signature) | (Printed) AIMEE H. CHOW

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH-G	TPH-D	TOG	BETX	VOC	selected semi-VOC	heavy metals	REMARKS
3080-CTR	5/10/93	1125		X	BROOK ST	1							X	8 oz jars
3080-CTR3	↓	1230		X	4	1							X	
3080-CTR	5/10/93	1125		X	BROOK ST	1	X	X	X	X	X	X		3"x6" brass Tubes *
3080-CTR2		1135		X	↓	1	X	X	X	X	X	X		
3080 CTR3		1230		X		1	X	X	X	X	X	X		
3080 CTR4	↓	1235		X		1								*
3080-TB	5/10/93	0925			Travel blank	1					X			* hold for analyses

Please initial: ZB
Samples Stored in ice: Y
Appropriate containers: Y
Samples preserved: Y
VOA's without headspace: Y
Comments:

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
(Printed) AIMEE H. CHOW	5/10/93 1500	(Printed) D. GIST	(Printed) D. GIST	5/10/93 4:33	(Printed)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
(Printed)		(Printed)	5/10/93 4:33P		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

7-15 AM

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 56432-2
CLIENT: VERSAR, INC.
JOB NO.: 2082-001

DATE SAMPLED: 05/10/93
DATE RECEIVED: 05/10/93
DATE ANALYZED: 05/13/93

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 3080-CTR3

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	50	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/kg = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =<15%
MS/MSD average recovery = 100 % :MS/MSD RPD = 4 %

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 56432-3
CLIENT: VERSAR, INC.
JOB NO.: 2082-001

DATE SAMPLED: 05/10/93
DATE RECEIVED: 05/10/93
DATE ANALYZED: 05/13/93

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 3080-CTR2

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	50	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
cis-1,2-Dichloroethene	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/kg = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =<15%
MS/MSD average recovery = 100 % :MS/MSD RPD = 4 %

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 56432-5
CLIENT: VERSAR, INC.
JOB NO.: 2082-001

DATE SAMPLED: 05/10/93
DATE RECEIVED: 05/10/93
DATE ANALYZED: 05/11/93

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 3080-TB

Compound	MDL (ug/L)	RESULTS (ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	5.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	2.0
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	0.9
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	0.8
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/L = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =< 15%
MS/MSD average recovery = 104 % :MS/MSD RPD = 6 %

Richard Srna, Ph.D.

Cecilia G Jorgensen (for)
Laboratory Director

Superior Precision Analytical, Inc.
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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 56432-2
CLIENT: VERSAR INC.

DATE RECEIVED: 05/10/93
DATE REPORTED: 05/18/93
JOB NO.: 2082-001

ANALYSIS FOR BASE/NEUTRAL and ACID EXTRACTABLES
by EPA SW-846 Method 8270
Extraction Method: EPA 3550
Sample Identification: 3080-CTR3

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benzo(a)anthracene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(ghi)perylene	ND	330
Benzo(a)pyrene	ND	330
Benzidine	ND	1600
Butyl benzyl phthalate	ND	330
Bis(2-chloroethoxy)methane	ND	330
Bis(2-chloroethyl)ether	ND	330
Bis (2-chloroisopropyl) ether	ND	330
Bis (2-ethylhexyl) phthalate	ND	2000
4-Bromophenyl phenyl ether	ND	330
4-Chloroanaline	ND	330
2-chloronaphthalene	ND	330
4-chlorophenyl phenyl ether	ND	330
Chrysene	ND	330
Dibenzo(a,h)anthracene	ND	330
Dibenzofuran	ND	330
Di-n-butyl phthalate	ND	2100
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3'-Dichlorobenzidine	ND	660
Diethylphthalate	ND	330
Dimethyl phthalate	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Di-n-octylphthalate	ND	330
Fluoranthene	ND	330

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8270 Certificate

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND	330
Indeno(1,2,3-cd) pyrene	ND	330
Isophorone	ND	330
2-Methylnaphthalene	ND	330
2-Nitroanaline	ND	1600
3-Nitroanaline	ND	1600
4-Nitroanaline	ND	1600
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Phenanthrene	ND	330
Pyrene	ND	330
1,2,4-Trichlorobenzene	ND	330
ACID EXTRACTABLES		
Benzoic acid	ND	1600
Benzyl alcohol	ND	330
4-Chloro-3-methylphenol	ND	330
2-Chlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	1600
2-Methyl-4,6-dinitrophenol	ND	1600
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Nitrophenol	ND	1600
2-Nitrophenol	ND	1600
Pentachlorophenol	ND	1600
Phenol	ND	330
2,4,5 Trichlorophenol	ND	1600
2,4,6-Trichlorophenol	ND	330

ND = Not detected ug/kg = part per billion (ppb)

QC DATA :

Surrogate Recoveries	QC Limits	Surrogate Recoveries	QC Limits
Nitrobenzene-d5	84	(23-120)	Phenol-d5	100	(24-113)
2-Fluorobiphenyl	86	(30-115)	2-Fluorophenol	86	(25-121)
Terphenyl-d14	101	(18-137)	2,4,6-Tribromophenol	108	(19-122)

Richard Srna, Ph.D.

Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 56432-3
CLIENT: VERSAR INC.

DATE RECEIVED: 05/10/93
DATE REPORTED: 05/18/93
JOB NO.: 2082-001

ANALYSIS FOR BASE/NEUTRAL and ACID EXTRACTABLES
by EPA SW-846 Method 8270
Extraction Method: EPA 3550
Sample Identification: 3080-CTR2

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benzo(a)anthracene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(ghi)perylene	ND	330
Benzo(a)pyrene	ND	330
Benzidine	ND	1600
Butyl benzyl phthalate	ND	330
Bis(2-chloroethoxy)methane	ND	330
Bis(2-chloroethyl)ether	ND	330
Bis (2-chloroisopropyl) ether	ND	330
Bis (2-ethylhexyl) phthalate	ND	2000
4-Bromophenyl phenyl ether	ND	330
4-Chloroanaline	ND	330
2-chloronaphthalene	ND	330
4-chlorophenyl phenyl ether	ND	330
Chrysene	ND	330
Dibenzo(a,h)anthracene	ND	330
Dibenzofuran	ND	330
Di-n-butyl phthalate	ND	2100
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3'-Dichlorobenzidine	ND	660
Diethylphthalate	ND	330
Dimethyl phthalate	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Di-n-octylphthalate	ND	330
Fluoranthene	ND	330

Superior Precision Analytical, Inc.
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 Sample# 3080-CTR2

8270 Certificate

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND	330
Indeno(1,2,3-cd) pyrene	ND	330
Isophorone	ND	330
2-Methylnaphthalene	ND	330
2-Nitroanaline	ND	1600
3-Nitroanaline	ND	1600
4-Nitroanaline	ND	1600
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Phenanthrene	ND	330
Pyrene	ND	330
1,2,4-Trichlorobenzene	ND	330
ACID EXTRACTABLES		
Benzoic acid	ND	1600
Benzyl alcohol	ND	330
4-Chloro-3-methylphenol	ND	330
2-Chlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	1600
2-Methyl-4,6-dinitrophenol	ND	1600
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Nitrophenol	ND	1600
2-Nitrophenol	ND	1600
Pentachlorophenol	ND	1600
Phenol	ND	330
2,4,5_Trichlorophenol	ND	1600
2,4,6-Trichlorophenol	ND	330

ND = Not detected ug/kg = part per billion (ppb)

QC DATA :

Surrogate Recoveries	QC Limits	Surrogate Recoveries	QC Limits
Nitrobenzene-d5	85 (23-120)	Phenol-d5	103 (24-113)
2-Fluorobiphenyl	86 (30-115)	2-Fluorophenol	90 (25-121)
Terphenyl-d14	104 (18-137)	2,4,6-Tribromophenol	115 (19-122)

Richard Srna, Ph.D.

(For)
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 56432
CLIENT: VERSAR INC.

DATE RECEIVED: 05/10/93
DATE REPORTED: 05/18/93
JOB NO.: 2082-001

ANALYSIS FOR BASE/NEUTRAL and ACID EXTRACTABLES
by EPA SW-846 Method 8270
Extraction Method: EPA 3550
Sample Identification: SOIL METHOD BLANK

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benzo(a)anthracene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Benzo(ghi)perylene	ND	330
Benzo(a)pyrene	ND	330
Benzidine	ND	1600
Butyl benzyl phthalate	ND	330
Bis(2-chloroethoxy)methane	ND	330
Bis(2-chloroethyl)ether	ND	330
Bis (2-chloroisopropyl) ether	ND	330
Bis (2-ethylhexyl) phthalate	ND	2000
4-Bromophenyl phenyl ether	ND	330
4-Chloroanaline	ND	330
2-chloronaphthalene	ND	330
4-chlorophenyl phenyl ether	ND	330
Chrysene	ND	330
Dibenzo(a,h)anthracene	ND	330
Dibenzofuran	ND	330
Di-n-butyl phthalate	ND	2100
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3'-Dichlorobenzidine	ND	660
Diethylphthalate	ND	330
Dimethyl phthalate	ND	330
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Di-n-octylphthalate	ND	330
Fluoranthene	ND	330

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 Sample# SOIL METHOD BLANK

8270 Certificate

Analyte	Result (ug/kg)	Quantitation Limit (ug/kg)
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND	330
Indeno(1,2,3-cd) pyrene	ND	330
Isophorone	ND	330
2-Methylnaphthalene	ND	330
2-Nitroanaline	ND	1600
3-Nitroanaline	ND	1600
4-Nitroanaline	ND	1600
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Phenanthrene	ND	330
Pyrene	ND	330
1,2,4-Trichlorobenzene	ND	330
ACID EXTRACTABLES		
Benzoic acid	ND	1600
Benzyl alcohol	ND	330
4-Chloro-3-methylphenol	ND	330
2-Chlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	1600
2-Methyl-4,6-dinitrophenol	ND	1600
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Nitrophenol	ND	1600
2-Nitrophenol	ND	1600
Pentachlorophenol	ND	1600
Phenol	ND	330
2,4,5 Trichlorophenol	ND	1600
2,4,6-Trichlorophenol	ND	330

ND = Not detected ug/kg = part per billion (ppb)

QC DATA :

Surrogate Recoveries	QC Limits	Surrogate Recoveries	QC Limits
Nitrobenzene-d5	95 (23-120)	Phenol-d5	93 (24-113)
2-Fluorobiphenyl	92 (30-115)	2-Fluorophenol	90 (25-121)
Terphenyl-d14	94 (18-137)	2,4,6-Tribromophenol	102 (19-122)

Richard Srna, Ph.D.

Laboratory Director

Superior Precision Analytical, Inc.
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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.:56432
CLIENT: VERSAR INC.

DATE RECEIVED: 05/10/93
DATE REPORTED: 05/18/93
JOB NO.: 2082-001

ANALYSIS FOR BASE/NEUTRAL and ACID EXTRACTABLES
by EPA SW-846 Method 8270
Extraction Method: EPA 3510
MATRIX SPIKE SUMMARY REPORT

Sample Identification: SOIL LAB CONTROL

Date analysed: 15 May 1993 6:48 am and 7:55 am

SURROGATE COMPOUND RECOVERIES

Spiked at 100ug/L final for base neutrals and 200 ug/L for Acid Surrogates

	MS % RECOVERY	MSD % RECOVERY
2-Fluorophenol	87	93
Phenol-d5	85	91
Nitrophenol-d5	89	96
2-Flourobiphenyl	89	96
2,4,6-Tribromophenol	95	97
Terphenyl-d14	103	112

MATRIX SPIKE/SPIKE DUPLICATE RECOVERIES

	MS% REC.	MSD % REC.	RPD	LIMITS RECOVERY	LIMITS RPD
1,4-Dichlorobenzene	69	60	14	36-97	28
n-Nitroso-di-n-propylamine	107	106	2	41-116	38
1,2,4-Trichlorobenzene	76	71	7	39-98	28
Acenaphthene	84	82	5	46-188	31
2,4-Dinitrotoluene	77	81	5	24-96	38
Pyrene	95	91	5	26-127	31
Phenol	80	72	10	12-110	42
4-Nitrophenol	76	84	9	10-80	50
2-Chlorophenol	74	67	11	27-123	40
4-Chloro-3-methylphenol	79	77	3	9-103	42

ALL SPIKE COMPOUNDS WITHIN LIMITS

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

VERSAR, INC.
Attn: AIMEE CHOW

Project 2082-001
Reported 05/17/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
56432- 2	3080-CTR3	05/10/93	05/12/93	Soil
56432- 3	3080-CTR2	05/10/93	05/12/93	Soil

RESULTS OF ANALYSIS

Laboratory Number: 56432- 2 56432- 3

Gasoline:	ND<1	1
Benzene:	ND<.003	ND<.003
Toluene:	ND<.003	ND<.003
Ethyl Benzene:	ND<.003	0.004
Xylenes:	ND<.009	0.023
Diesel:	23*	ND<10
Oil and Grease:	140	130
Concentration:	mg/kg	mg/kg

*Does not match typical Diesel pattern. Pattern of peaks observed in the chromatogram are indicative of hydrocarbons heavier than diesel.

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 56432

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.003mg/kg

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	95/93	2%	75-111
Benzene:	100/100	0%	75-114
Toluene:	103/103	0%	78-114
Ethyl Benzene:	107/107	0%	76-120
Xylenes:	97/97	0%	71-117
Diesel:	82/79	4%	46-121
Oil and Grease:	76/80	5%	56-132

Richard Srna, Ph.D.
Laboratory Director

Versar INC.

CHAIN OF CUSTODY RECORD

T6432

PROJECT NO.	PROJECT NAME
2082-001	3080 BROADWAY

SAMPLERS: (Signature) (Printed) AIMEE M. CHOW

PARAMETERS: 8270/625

INDUSTRIAL HYGIENE SAMPLE: Y / N

FIELD SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH-G	TPH-D	TOG	BETX	VOC	selected semi-VOC	heavy metals	REMARKS
1 3080-CTR	5/10/93	1125		X	BROOK ST	1							X	8 oz jars
2 3080-CTR3	↓	1230		X	"	1							X	
3080-CTR	5/10/93	1125		X	BROOK ST	1	X	X	X	X	X	X		3" x 6" brass tubes *
3080-CTR2		1135		X	↓	1	X	X	X	X	X	X		
3080 CTR3		1230		X		1	X	X	X	X	X	X		
3080 CTR4	↓	1235		X		1								*
3080-TB	5/10/93	0925			travel blank	1				X				* hold for analyses

Please initial: RB

Samples Stored in Ice: Y

Appropriate containers: Y

Samples preserved: Y

VOA's without headspace: Y

Comments:

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
A. M. Chow	5/10/93 1507	D. Gist	D. Gist	5/10/93 1633	
(Printed) AIMEE M. CHOW		(Printed) D. GIST	(Printed) D. GIST		(Printed)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
			5/10/93 1733	
(Printed)		(Printed)		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).