



PORT OF OAKLAND

August 20, 1991

Dennis Byrne
Alameda County Hazardous
Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Byrne:

Re: Transmittal of Phase I Property Transaction
Environmental Assessment and II Site Investigation
Reports - Hanger 9, North Field Oakland Airport

Please find the enclosed site investigation report for the above-mentioned site. The Port conducted Phase I and II audits at this site in preparation for a potential property transaction. Several materials samples were collected in locations in and adjacent to the hangar and ancillary buildings. Results from the analysis of these samples are contained in the enclosed Phase II report. Some of these samples showed elevated levels of mainly Total Extraction Hydrocarbons and Total Volatile Hydrocarbons.

The Port is currently requesting proposals from environmental consultants to further characterize those locations that yielded samples with elevated hydrocarbons. The future work will be the subject of a work plan that will be submitted to you for your review. This consultant remove the contents of the sumps and dispose of the material properly.

If you have any questions regarding this issue, please call me at 272-1373.

Sincerely,

Patricia Murphy
Assistant Environmental
Planner

Enclosures

TC 4601-33

**PHASE II SITE INVESTIGATION
HANGAR 9, NORTHFIELD
OAKLAND AIRPORT**

Prepared for

Port of Oakland
530 Water Street
Oakland, CA 94604-2064

July 1991

Prepared by

Tetra Tech
120 Howard Street, Suite 475
San Francisco, CA 94105

**TETRA
TECH**



TETRA TECH, INC.

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July 31, 1991

Ms. Patricia Murphy
Port of Oakland
Environmental Compliance Department
530 Water Street
Oakland, CA 94607

Subject: Hangar 9 Phase II Site
Investigation Final Report
TC-4601-33

Dear Ms. Murphy:

Enclosed is a copy of the Hangar 9 Phase II Site Investigation final report. Please do not hesitate to call me if you have any questions.

Very truly yours,

Elina R. Halstrum

Elina R. Halstrum
Project Manager

ERH:jth

Enclosure

TC 4601-33

FINAL

**PHASE II SITE INVESTIGATION
HANGAR 9, NORTH FIELD
METROPOLITAN OAKLAND
INTERNATIONAL AIRPORT**

Prepared for

Port of Oakland
530 Water Street
Oakland, CA 94604-2064

July 1991

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1.0 INTRODUCTION

A Phase I site assessment for Hangar 9 indicated that environmental contamination may exist due to past activities of the site (McLaren/Hart 1991a). In order to further characterize the extent of contamination Tetra Tech performed a Phase II Site Investigation at the Hangar 9 complex located in the North Field area of the Metropolitan Oakland International Airport (MOIA). The investigation included borehole soil sampling and collection of sludge and aqueous samples from sumps and subsurface vaults. Samples were collected in accordance with the sampling plan for the Hangar 9 site (McLaren/Hart 1991b). Any deviations from the sampling plan are noted in the report.

1.1 SITE DESCRIPTION

The Hangar 9 site consists of two parcels: 1) the 6.7 acre Hangar 9 parcel, including Hangar 9 (Building L-820) and nearby service buildings (L-807, L-808, L-809, and L-811); and 2) an approximately 1 acre vacant parking area on the east side of Earhart Road. Both parcels are identified in Figure 1.

The Hangar 9 building (L-820) includes approximately 45,000 square feet of hangar space, with 30,000 square feet of workshop space (level one), crew's quarters and storage (level two) along the east side of the structure; and 30,000 square feet of office space on two levels along the west side of the structure. Ancillary buildings include a paint and oil storage building which includes a welding shop and a machine shop (L-807), a paint shop (L-808), a metal cleaning shop (L-809), and a garage and shop area (L-811) all to the north of Hangar 9. All buildings are vacant except for the metal cleaning shop building (L-809) which is currently occupied by Tower Avionics.

Apart from the existing structures, the entire surface area of Parcel 1 is paved with concrete with small patches of asphalt. Parcel 2 is a vacant parking lot covered entirely with asphalt. A transformer is located on a concrete pad and surrounded by a chain-link fence midway along the western edge of Parcel 2. An electrical utility vault with standing water at the bottom is located immediately south of the transformer.

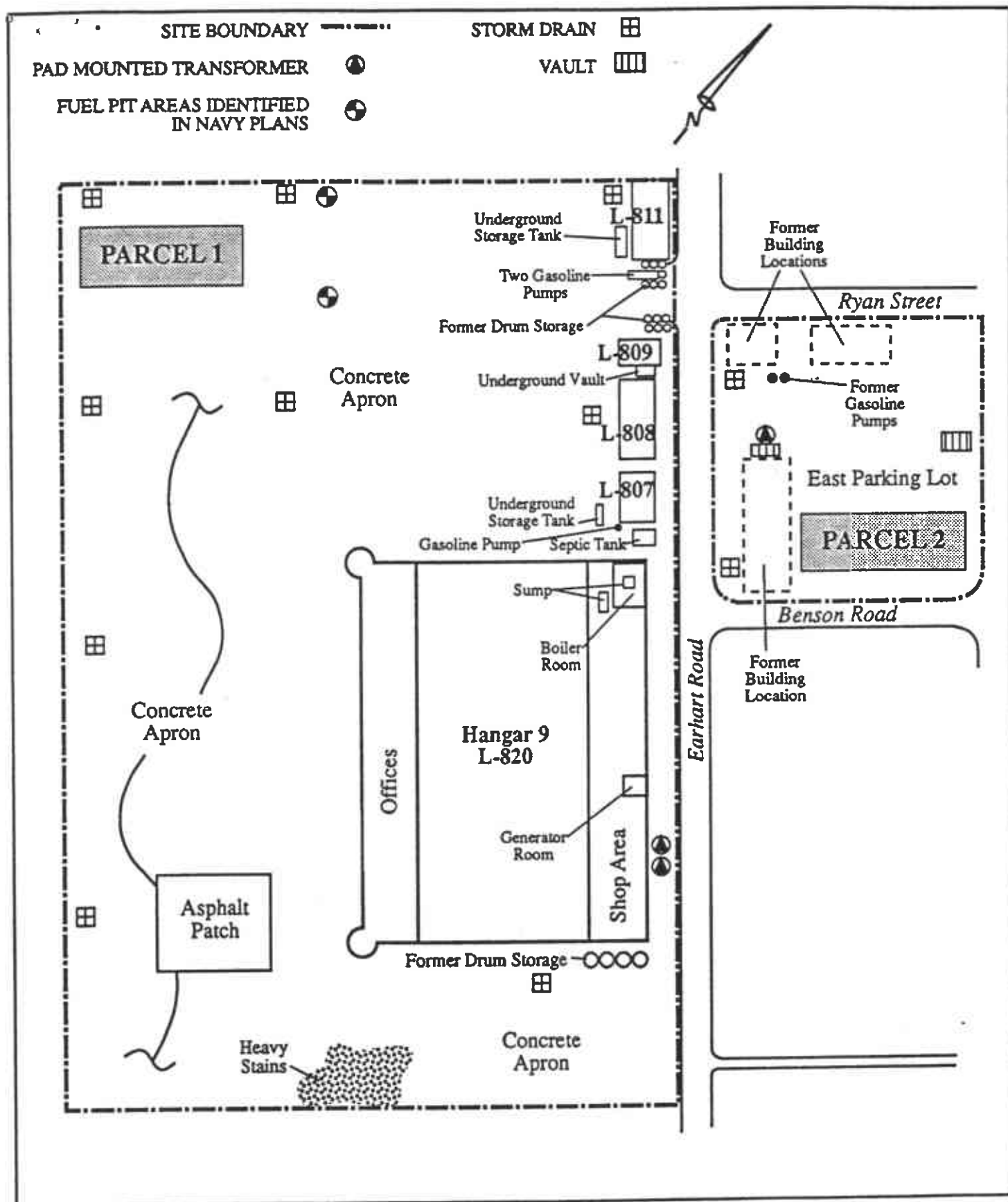


Figure 1 Hangar 9 Site Plan (Parcels 1 and 2)



(McLaren/Hart Phase I Report, 1991)

Not to Scale

12 LOCAL HYDROGEOLOGY

The project site is located approximately 1,400 feet west of the Airport Channel branch of San Leandro Bay. The ground surface elevation of Parcel 1 ranges from 3 to 4 feet above sea level, and Parcel 2 ranges from 1 to 10 feet above sea level. The subsurface lithology of the North Field area of the MOIA consists predominantly of sand and silt fill material overlying native clay. A report prepared for a nearby site indicated that the thickness of the fill material ranges from 1.5 to 8.5 feet approximately 3,000 feet south of the site at the Chevron tank farm (GeoStrategies Inc. 1991). The native clay consists of Holocene-age organic rich clay and silty clay estuarine deposits which are underlain successively by stream deposited alluvium and unconsolidated marine clays and silts (GeoStrategies Inc. 1991).

The project area consists of filled marshland and ground water is expected to be encountered at depths corresponding from approximately sea level to 8 feet below ground surface. At the Chevron site to the south, ground water was encountered at elevations ranging from 3.49 feet above to 6.07 feet below sea level. Ground water flow is expected to be eastward, toward the Airport Channel, but may vary due to tidal influences (McLaren/Hart 1991a).

13 SITE HISTORY

Hangar 9 and its ancillary buildings were constructed in 1941 for use by the U.S. Navy as an aviation training facility and air base (Baseline 1988). The Navy vacated the hangar around 1953. The hangar was occupied by Transamerica Airlines from 1973 to 1986, and subsequently by Emery Worldwide and Wings West. The hangar has been vacant since 1990 (McLaren/Hart 1991a).

A building occupied by S&S Accessories occupied Parcel 2 until it was demolished in 1989. The building is believed to have stored flammable solvents. Gasoline pumps were supposed to have been located in the northwest corner of this parcel (McLaren/Hart 1991a). Since gasoline pumps may have been located on the parcel it is possible that underground storage tanks are also located in this area.

2.0 SITE CHARACTERIZATION PROCEDURES

Samples were collected in accordance with the Hangar 9 sample plan (McLaren/Hart 1991b). A total of 16 soil samples were collected from various locations in Parcel 1 using a CME truck mounted auger rig with a hammer driven, 1.5 ft modified California split spoon sampler with three 6-inch brass rings. A concrete cutter was used to remove a 4-inch diameter core of concrete at each sampling location to expose the underlying soil. The concrete layer ranged in thickness from 4 to 8 inches and averaged approximately 6 inches thick. The sampler was hammer driven directly into the soil through the hole in the concrete to obtain a continuous core sample. Sample depth measurements were made from the concrete's surface. Samples were logged and selected for analysis based on odors and/or discoloration.

Sludge and aqueous samples were collected from six sumps and one septic tank on Parcel 1 and two sumps on Parcel 2. These samples were collected by attaching a jar to a sampler and scraping the sampler along the bottom of the sump to collect the sludge off the bottom. Borehole samples and sump samples were labeled and placed in a cooler with ice and delivered to Curtis & Tompkins Laboratories in Berkeley for analyses.

Sampling locations for Buildings L-807, L-808, and the East Parking Lot are shown in Figure 2; sampling locations for Buildings L-809 and L-811 are shown in Figure 3; and sampling locations for Hangar 9 (Building L-820) are shown in Figure 4. Photographic documentation of sampling activities are presented in Appendix A.

2.1 BUILDING L-807: Welding and Machine Shop

This building was originally used for paint and oil storage but most recently shows evidence of use as a welding and machine shop. An abandoned fuel pump is located outside the southwestern corner of the building. An underground fuel storage tank is located outside near the southwest corner of the building and was reportedly used to store solvents and fuel hydrocarbons (McLaren/Hart 1991).

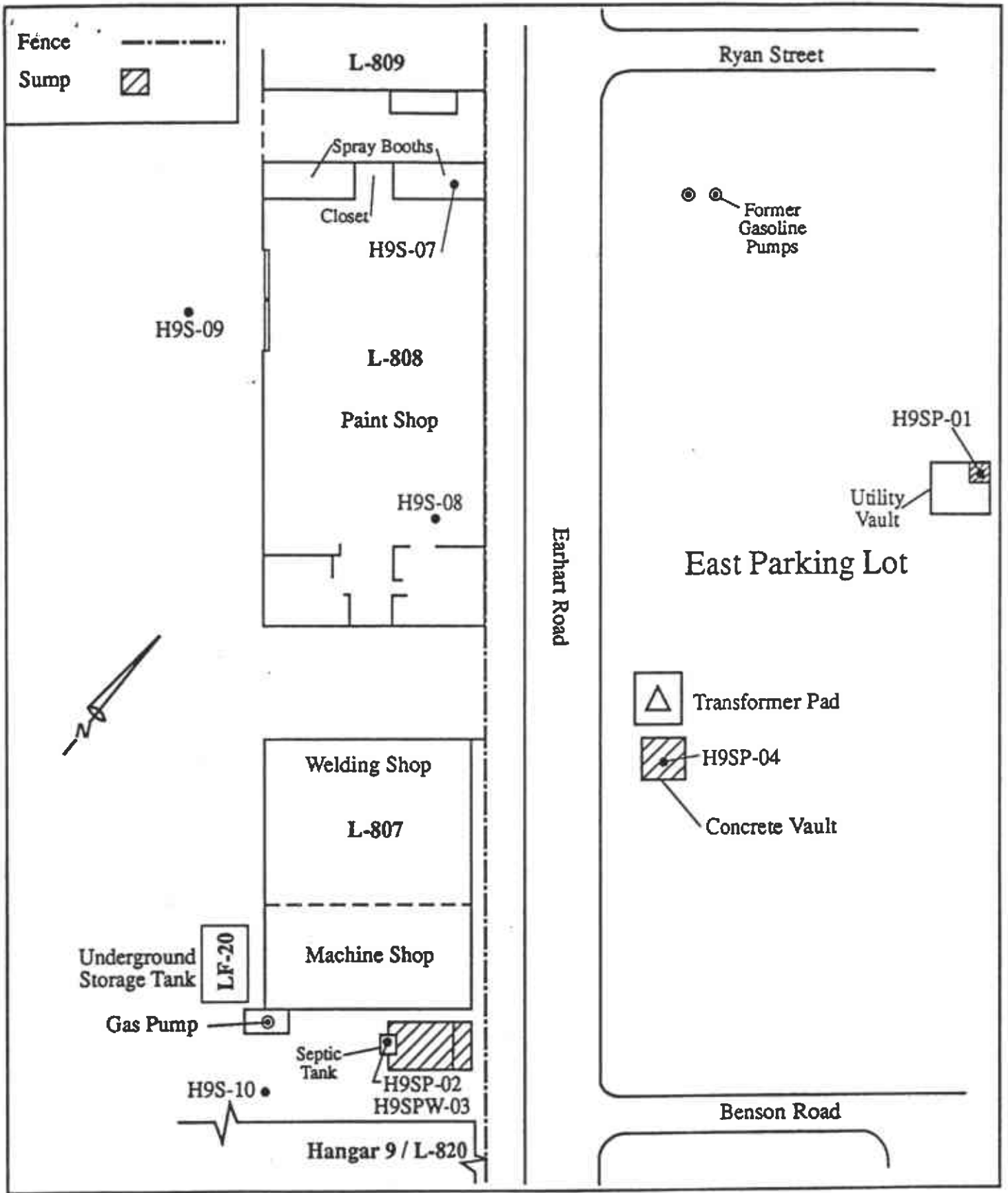


Figure 2

Sample Location Map
 Building L-807 and L-808
 and East Parking Lot

Not to Scale



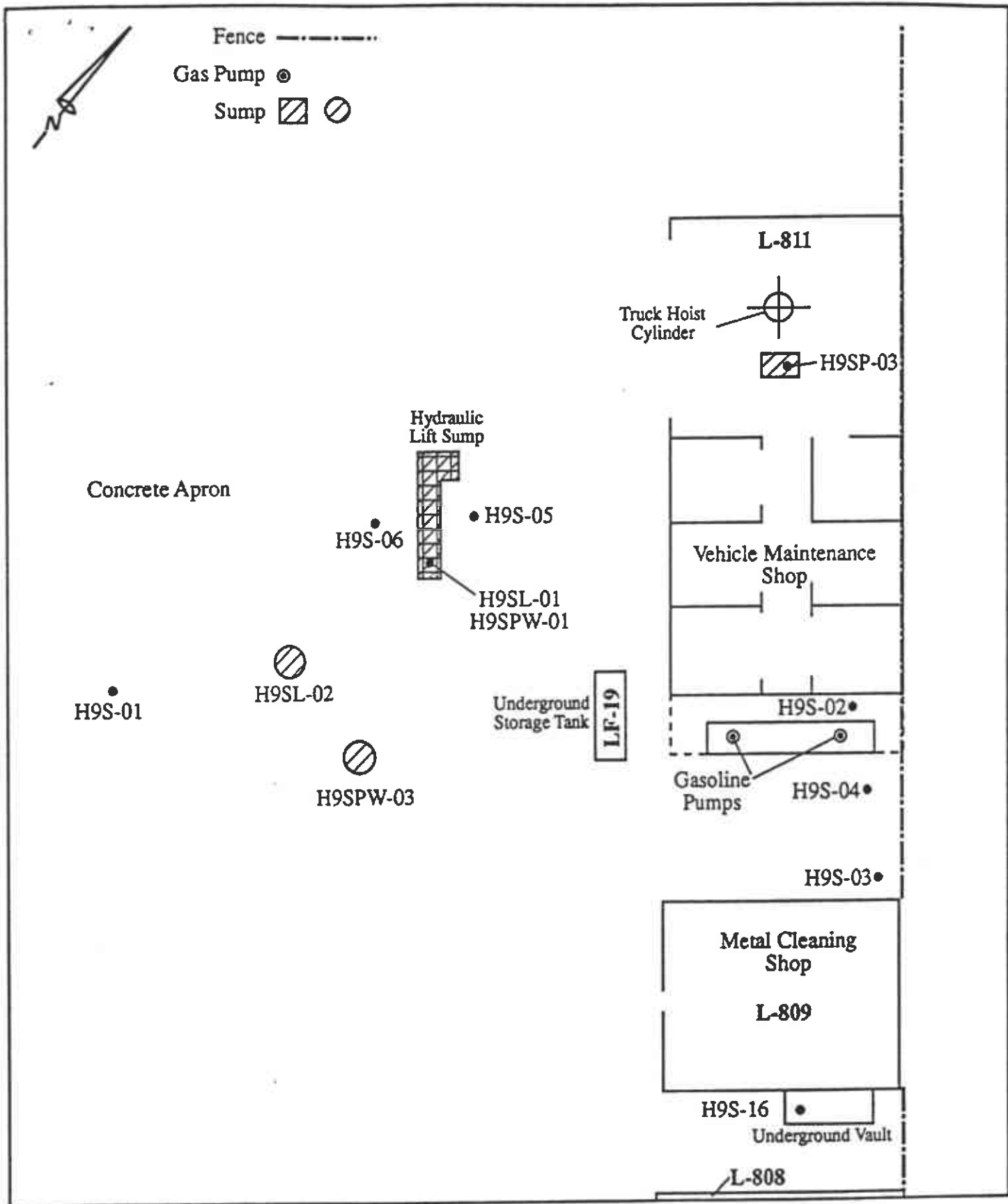


Figure 3

Sample Location Map
Building L-809 and L-811

Not to Scale



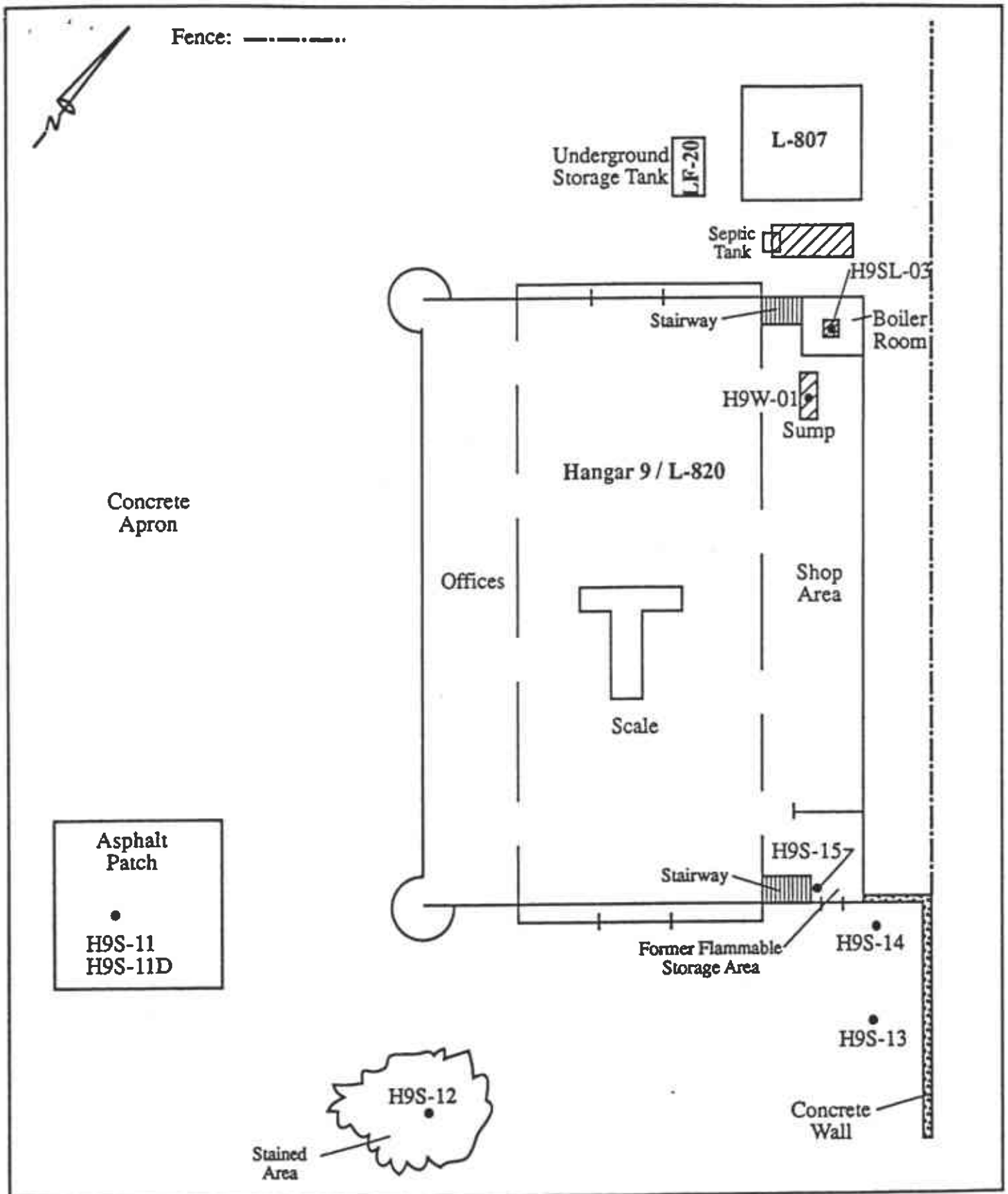


Figure 4

Sample Location Map
Hangar 9



Not to scale

One soil sample (H9S-10) was collected from approximately 100 feet south of the southwest corner of the building at a depth of 1.5 to 2.0 feet. The sample consisted of a light colored sand and had slight petroleum odors. The sample was analyzed using the California Department of Health Services (DHS) leaking underground fuel tank (LUFT) methods for total extractable hydrocarbons (TEH), and total volatile hydrocarbons (TVH), and by EPA method 8240 for volatile organic compounds (VOCs).

One sediment sample (H9SP-02) consisting of oily sludge was collected from the septic tank located south of building L-807 and was submitted for analysis by DHS LUFT methods for TEH and TVH and by EPA method 8080 for polychlorinated biphenyls (PCBs). A water sample (H9SPW-01) was also collected from the septic tank and submitted for PCB analysis.

2.2 BUILDING L-808: Paint Shop

This building was probably continuously used as a paint shop since 1941. A variety of solvents, including toluene and ethyl methyl ketone were probably used in the building (McLaren/Hart 1991). The room currently stores nine 55-gallon drums, two of which are full of waste oil.

Two soil samples were collected from inside and one from outside of Building L-808. Of the inside samples, one (H9S-07) was collected from beneath the concrete floor in the northeast "spray booth" area and submitted for analysis by DHS LUFT methods for TEH and TVH, and EPA method 8240 for VOCs. A hollow space of approximately 3.0 feet was found beneath the 6-inch thick concrete floor. The length and width of this space is unknown. The sample submitted for analysis was a composite of wet mud and rock collected from a depth of 3.5 to 7 feet.

The second sample from inside the building (H9S-08) was collected from the southeast corner of the main room beneath the concrete floor and submitted for analysis by DHS LUFT methods for TEH and TVH, and EPA method 8240 for VOCs. A hollow space of approximately 4.0 feet in depth was found beneath the 6-inch thick concrete floor. The sample submitted for

analysis was composed of gray clay collected from beneath a layer of wet mud and rock at a depth of 6.5 to 7.0 feet.

The third sample was collected approximately 5.0 feet west of the front door of the building at a depth of 1.0 to 2.5 feet. The sample consisted of light grey brown gravelly sand and was submitted for analysis by DHS LUFT methods for TEH and TVH, and EPA method 8240 for VOCs.

2.3 BUILDING L-809: Metal Cleaning Shop

The Metal Cleaning Shop is located north of Building L-808. Identified as a Boiler House on the 1941 plot plan for this site, Building L-809 currently houses Tower Avionics and is inaccessible. Tower Avionics uses the building to test aircraft fuel gauges, a process which uses stoddard solvent stored inside the building in four 55-gallon drums. On the south side of the building is a covered underground concrete sump used by former tenants to wash and degrease aircraft parts. On the north side of the building, approximately four square feet of concrete are eroded with rust stains suggesting chemical storage.

One soil sample (H9S-03) was collected from the area of eroded concrete along the north wall of the building at a depth of 1.5 to 2.0 feet. The sample consisted of light grey brown sandy gravel with gravel increasing downward. The sample was submitted for analysis by DHS LUFT methods for TEH and TVH, and EPA methods 8080 for PCBs and 8240 for VOCs.

A second soil sample (H9S-16) was collected from the bottom of the sump along the south wall of the building. The sump is approximately four feet deep. A soil sample was collected by hammering the sample directly into the sediment at the bottom of the sump to a depth of 3.0 feet. The sample collected from 2.5 to 3.0 feet below the bottom of the sump consisted of grey clay and was submitted for analysis by DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

2.4 BUILDING L-811: Vehicle Maintenance Shop

This existing structure was originally part of a larger structure, the northern half was demolished approximately three years ago. The building currently houses a garage and workshops. A hydraulic lift and a floor drain with a grease trap are located in the garage portion of the building, and two abandoned fuel pumps are located outside the south end of the building. An underground fuel storage tank is located outside near the southwest corner of the building. Three sumps are located outside the building to the west. Two of the sumps are located southwest of the fuel storage tanks; one is four feet deep and contains approximately one foot of water and several inches of sediment while the other sump located 25 feet southeast of the four feet deep sump contains only water. Although these sumps were not identified in the sampling plan they were sampled due to their proximity to the underground storage tank. Another sump located in front of the garage is associated with an abandoned hydraulic lift and contains water and black, oily sludge.

Two soil samples were collected near the fuel pumps on the south side of the building. One sample (H9S-02) was collected from between the fuel pumps and the building at a depth of 1.5 to 2.0 feet. The sample consisted of light grey brown gravelly sand overlying black and grey clay. Water was encountered at approximately 3.0 feet below the ground surface (BGS). The sample was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

A second soil sample (H9S-04) was collected from approximately 15 feet south of the fuel pumps. The sample was collected at a depth of 1.5 to 2.0 feet and consisted of grey brown gravelly sand. It was submitted for analysis by DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

Three soil samples were collected from beneath the concrete apron west of the building. One sample was collected at a location approximately 20 feet west of the smaller sump. The sample was collected from a depth of 1.5 to 2.0 feet and consisted of grey gravelly sandy silt. Wet gravel was encountered from 2.0 to 3.0 feet BGS. The sample was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

Sample H9S-05 was collected from approximately 2.5 feet east of the hydraulic lift sump at a depth of 1.5 to 2.0 feet. The sample consisted of light grey clay and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs. Sample H9S-06 was collected from approximately four feet west of the hydraulic lift sump at a depth of 1.5 to 2.0 feet. The sample consisted of grey clay and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

Samples of sludge were collected from the three sumps west of the building, and a sample of oil was collected from the sump inside the garage. Sludge sample H9SL-01 was collected from the bottom of the hydraulic lift sump west of the garage. The sample consisted of black, tarry, oily sludge and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA methods 8080 for PCBs and 8240 for VOCs. A water sample (H9SPW-02) was also collected from this sump and analyzed for PCBs and TEH. Sludge sample H9SL-02 was collected from the smaller sump approximately 40 feet west of the southwest corner of the building. The black oily sludge was analyzed using DHS LUFT methods for TEH and TVH, and by EPA methods 8080 for PCBs and 8240 for VOCs. The other sump located approximately 30 feet west of sample location H9SL-02 contained water only. A sample of water (H9SPW-03) was collected from the sump and analyzed using DHS LUFT methods for TVH, and by EPA method 8080 for PCBs. Sample H9SP-03 consisted of black oily sludge collected from the sump inside of the garage. The sample was analyzed using EPA method 8080 for PCBs.

2.5 BUILDING L-820: Hangar 9

Hangar 9 contains 45,000 square feet of hangar space and 60,000 square feet of workshops and offices on two levels, divided evenly along the east and west sides of the building (Figure 4). A boiler room is located at the north end of the work shop area and contains a sump with standing liquid. A larger sump is located inside the work shop area south of the boiler room. A room located at the south end of the workshop area was used to repair aircraft brakes and inside the room flammable materials such as hydraulic fluids and oils were stored on a wooden shelf. Heavy staining was observed on the concrete apron southwest of the hangar door, and asphalt patches are located outside the southeast corner of the building and west of the southwest corner of the

building. A drum of suspended solvent liquid was identified in a closet near the Boiler Room. Drums were stored along the concrete wall outside the southeast corner of the building.

One soil sample (H9S-11) and a duplicate (H9S-11D) were collected from beneath the asphalt patch approximately 92 feet west of the southwest corner of the building. Both samples were collected from a depth of 1.5 to 2.0 feet and consisted of grey clayey sand. Both were analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs. Sample H9S-12 was collected from beneath the stained area of concrete approximately 110 feet south of the southwest corner of the building at a depth of 1.5 to 2.0 feet. The sample consisted of grey sand and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

Sample H9S-13 was collected from about 110 feet south of the southeast corner of the building at a depth of 1.5 to 2.0 feet. The sample consisted of grey gravelly sand and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs. Sample H9S-14 was collected from outside the southeast corner of the building at a depth of 1.5 to 2.0 feet. The sample consisted of gravelly silty sand and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

One soil sample (H9S-15) was collected inside the building at the southern end of the workshop area. The sample was collected from a depth of 3.5 to 4.0 feet and consisted of wet grey clay and sand. It was analyzed using DHS LUFT methods for TEH and TVH, and by EPA method 8240 for VOCs.

An aqueous sump sample (H9W-01) was collected from the large sump at the northern end of the work shop area and was analyzed using EPA method 8080 for PCBs. A sludge sample (H9SL-03) was collected from the sump in the boiler room and was analyzed using DHS LUFT methods for TEH and TVH, and by EPA methods 8240 for VOCs and 8080 for PCBs.

TABLE 1
SUMMARY OF ANALYTICAL RESULTS
(ppm)

LOCATION	MEDIA	DEPTH (FEET)	TEH ⁽¹⁾ DHS LUFT	TVH ⁽²⁾ DHS LUFT	PCBs ⁽³⁾ EPA 8080	VOCs ⁽⁴⁾ EPA 8240
Building L-807						
H9S-10	soil	1.5-2.0	17	1.7	NA	ND
H9SP-02	sediment	septic tank	8,700	NA	0.72	NA
H9SPW-01	water	septic tank	NA	NA	ND	NA
Building L-809						
H9S-03	soil	1.5-2.0	79	16	ND	ND
H9S-16	soil	2.5-3.0	9.4	16	NA	10.0 (chlorobenzene)
Building L-808						
H9S-07	soil	6.0-7.0	11	ND	NA	ND
H9S-08	soil	6.0-7.0	3.9	ND	NA	0.023 (toluene)
H9S-09	soil	1.5-2.0	47	ND	NA	ND
Building L-811						
H9S-01	soil	1.5-2.0	5,000	6,800	NA	6 (total xylenes)
H9S-02	soil	1.5-2.0	ND	ND	NA	ND
H9S-04	soil	1.5-2.0	460	470	NA	ND

TABLE 1 (Continued)

LOCATION	MEDIA	DEPTH (FEET)	TEH ⁽¹⁾ DHS LUFT	TVH ⁽²⁾ DHS LUFT	PCBs ⁽³⁾ EPA 8080	VOCs ⁽⁴⁾ EPA 8240
H9S-05	soil	1.5-2.0	75	ND	NA	ND
H9S-06	soil	1.5-2.0	3,100	1,000	NA	2 (total xylenes)
H9SL-01	sediment	sump	2,400	130	0.3	NA
H9SPW-02	water	sump	NA	NA	ND	NA
H9SL-02	sediment	sump	820	170	ND	NA
H9SPW-03	water	sump	NA	1.7	ND	NA
H9SP-03	oil	sump	NA ⁵	NA	ND	NA
Building L-820						
H9S-11	soil	1.5-2.0	130	430	NA	ND
H9S-11D	soil	1.5-2.0	53	17	NA	ND
H9S-12	soil	1.5-2.0	13	ND	NA	ND
H9S-13	soil	1.5-2.0	90	7.5	NA	ND
H9S-14	soil	1.5-2.0	9.1	ND	NA	ND
H9S-15	soil	3.5-4.0	4.7	ND	NA	ND
H9SL0-3	sediment	sump	1,700	98	8.7	NA
H9W-01	water	sump	NA	NA	ND	NA

TABLE 1 (Continued)

LOCATION	MEDIA	DEPTH (FEET)	TEH ⁽¹⁾ DHS LUFT	TVH ⁽²⁾ DHS LUFT	PCBs ⁽³⁾ EPA 8080	VOCs ⁽⁴⁾ EPA 8240
East Parking Lot						
H9SP-01	soil	sump	NA	NA	0.34	NA
H9SP-04	water	sump	NA	NA	0.08 ⁶	NA

¹ TEH = Total Extraction Hydrocarbons

² TVH = Total Volatile Hydrocarbons

³ PCBs = Polychlorinated Biphenyls

⁴ VOCs = Volatile Organic Compounds

⁵ Sump is filled with oil

⁶ Water sample report in ppb.

ND = Not detected at or above reporting limit

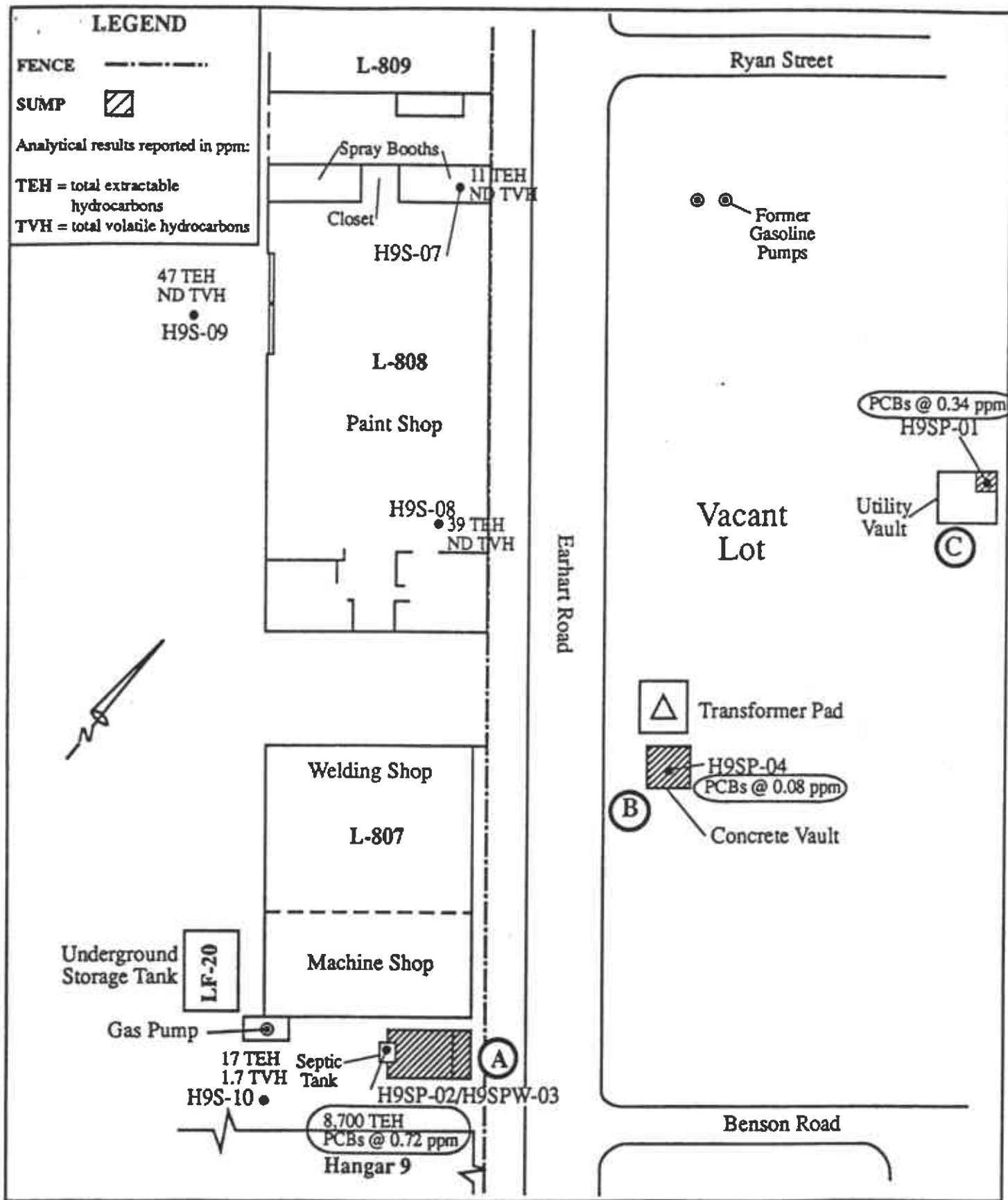


Figure 5

Analytical Results
Building L-807 and L-808
and East Parking Lot

Not to Scale



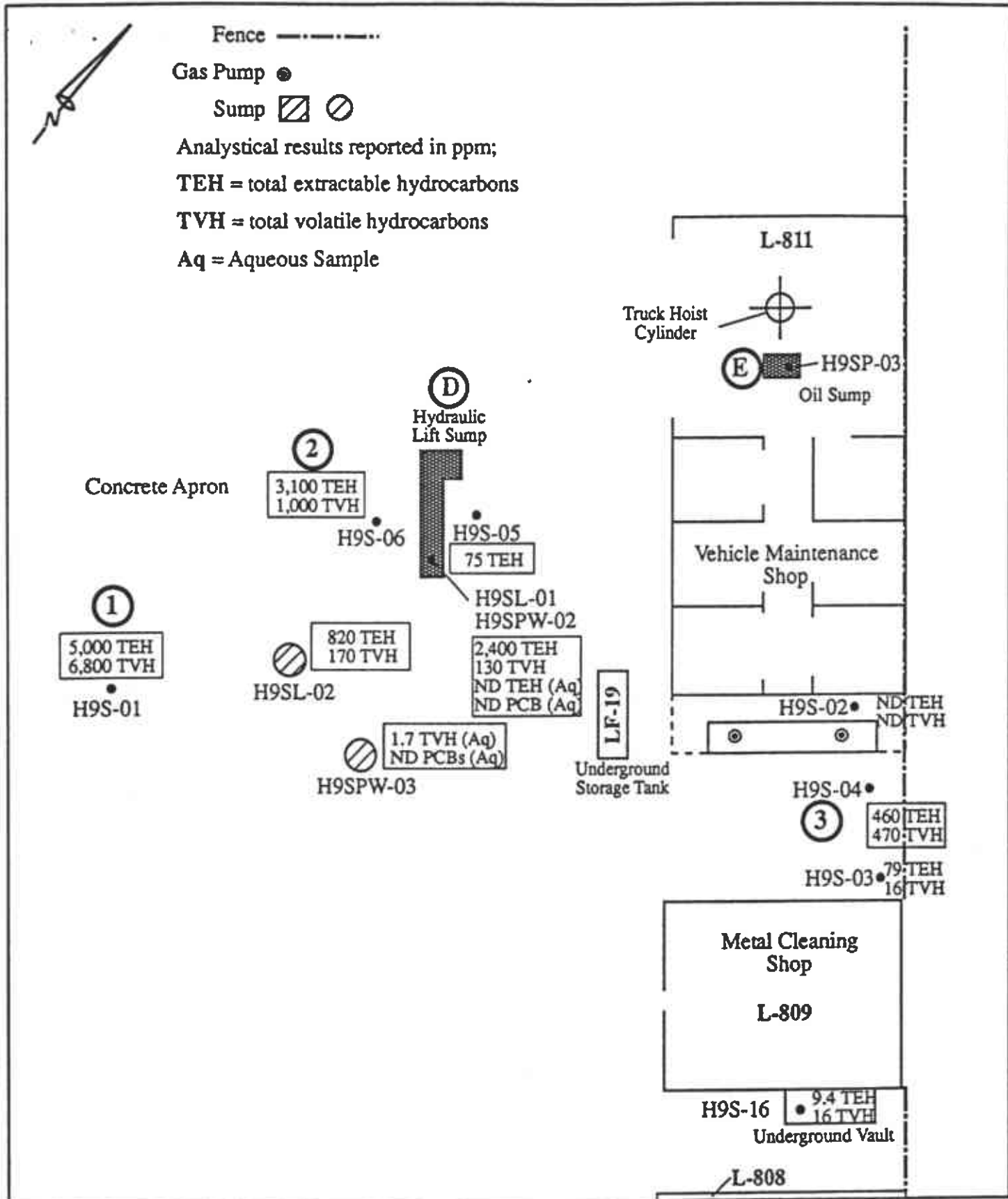


Figure 6

Analytical Results
 Building L-809 and L-811

Not to Scale





Fence: - - - - -

Analytical results reported in ppm;

TEH = total extractable hydrocarbons

TVH = total volatile hydrocarbons

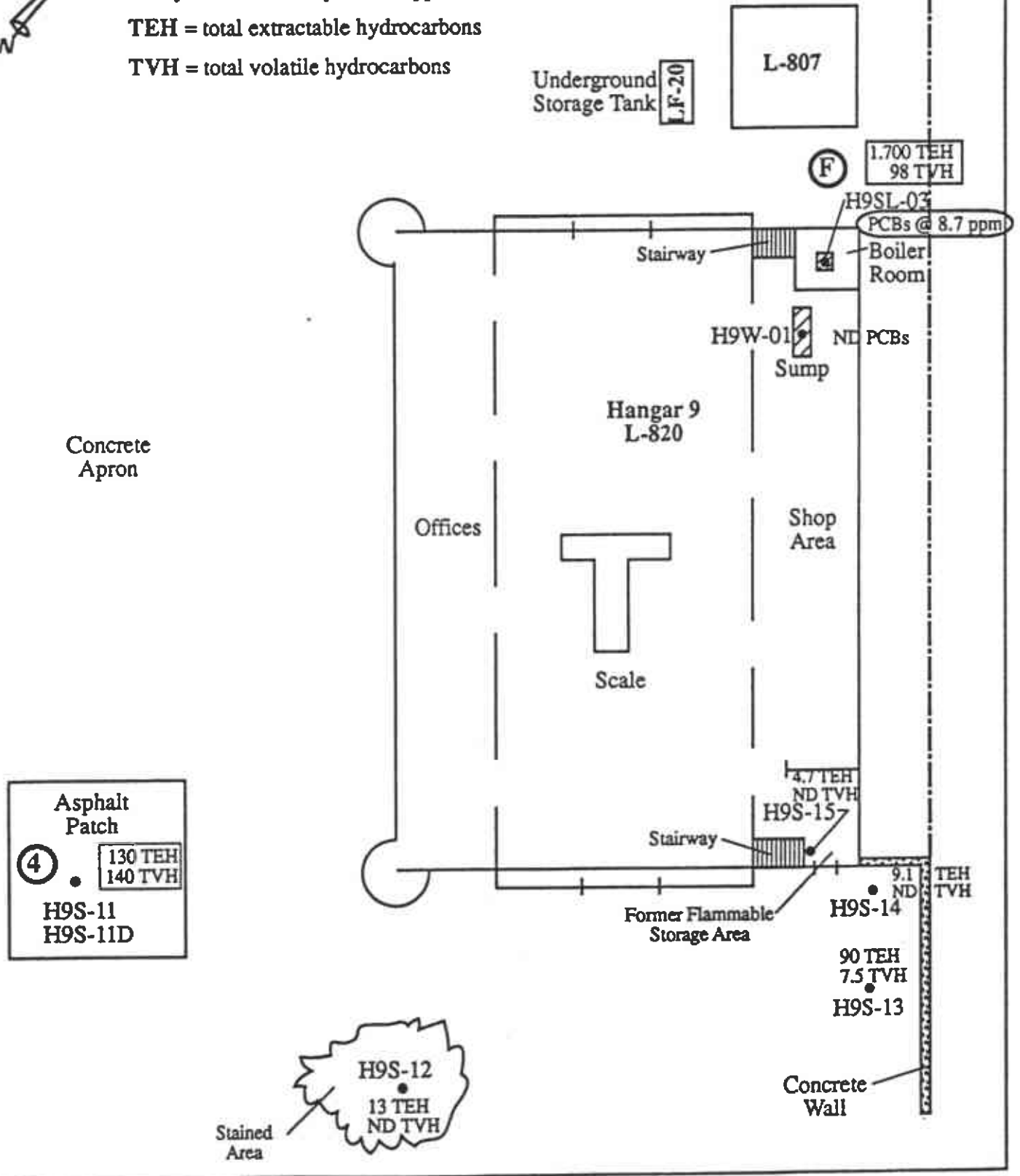


Figure 7

Analytical Results Hangar 9



Not to scale

4.0 CONCLUSIONS

The Porter-Cologne Water Quality Control Act requires that any detectable concentrations of hazardous substances (includes fuel hydrocarbons, solvents, and PCBs) discharged to or within the waters of the state, or into areas where they could be discharged into waters of the state, must be reported to the Regional Water Quality Control Board (RWQCB). Any concentrations of hazardous substances identified in soil or ground water above background values should also be reported to the Alameda County Health Department (Regional Water Quality Control Board 1991b).

Analytical results of soil samples collected during the Hangar 9 area site investigation indicate a need for additional subsurface soil sampling in several locations.

Two underground storage tanks (USTs) are known to exist at buildings L-807 and L-811. One additional tank may also be present at building L-811 and additional tanks may also be present in the east parking lot.

4.1 BUILDING L-807: Former Welding and Machine Shop

Soil sample H9S-10 contains concentrations of TEH and TVH of 17 and 1.7 ppm respectively with no detectable VOCs. This would not in and of itself suggest that additional site investigation or remedial activity is necessary. Sludge (sediment) samples collected from the nearby septic tank (location A, Figure 5) contains 8,700 ppm TEH (kerosine/jet fuel and/or diesel) and 0.72 ppm Arochlor 1260 PCB.

4.2 BUILDING L-808: Former Paint Shop

Soil samples collected from inside the building contain concentrations of fuel hydrocarbons below regulatory action levels. Sample H9S-09 contains TEH at 47 ppm, but no VOCs were identified, indicating aged or weathered fuel.

4.3 BUILDING L-809: Metal Cleaning Shop

Sample H9S-16, collected from the bottom of the underground vault south of building L-809, contained 10 ppm chlorobenzene. No other volatiles were identified. The vault was used by former tenants to degrease aircraft parts, and it is not known what kind of vault bottom exists, if any.

The soil sample (H9S-03) collected from the north side of the building contains a concentration of TEH (79 ppm) that would be considered marginal with regard to regulatory action levels. The fact that VOC constituents did not exceed laboratory detection levels indicates aged or weathered fuel.

4.4 BUILDING L-811: Former Vehicle Maintenance Shop

A sump located inside the garage contains waste oil (location E, Figure 6). Analysis of this waste oil did not indicate PCB contamination. Three sumps located west of building L-811 are contaminated with petroleum hydrocarbons. An underground storage tank is located to the southeast of building 811. The sumps and underground storage tank may be a source of soil contamination identified in three soil samples collected west of building L-811. Soil contamination was also identified south of building L-811 (location 3, Figure 6).

4.5 BUILDING L-820: Hangar 9

Two sumps were identified inside Hangar 9. The sump located inside the boiler room contains waste oil contaminated with PCBs (location F, Figure 6). A sump in an adjacent room is filled with water. Analysis of the contents of this sump did not indicate contamination. Soil samples collected in the apron area southwest of Hangar 9 indicated hydrocarbon contamination.

4.6 EAST PARKING LOT

The contents of the small sump in the utility vault (location C, Figure 7) and the liquid and sludge in the concrete vault near the transformer (location B, Figure 7) contain PCBs.

5.0 REFERENCES

Baseline Environmental Consulting. 1988. Site Characterization Report for Hangar No. 6, North Field Oakland International Airport, Prepared for the Port of Oakland. Baseline Environmental Consulting, Oakland, CA.

California Water Resources Control Board. 1988. Leaking Underground Fuel Tank (LUFT) Field Manual.

GeoStrategies Inc. 1991. Well Installation Report. Prepared for Chevron U.S.A. Inc. GeoStrategies Inc., Hayward, CA.

McLaren/Hart. 1991(a). Property Transaction Environmental Assessment of Hangar 9 and an Adjacent Parcel at the North Field Oakland Airport. Draft Report. Prepared for Port of Oakland. McLaren/Hart Inc., Alameda, CA.

McLaren/Hart. 1991(b). Sampling Plan for the Port of Oakland Hangar Nine Site Located at North Field Airport, Oakland, California. McLaren/Hart Inc., Alameda, CA.

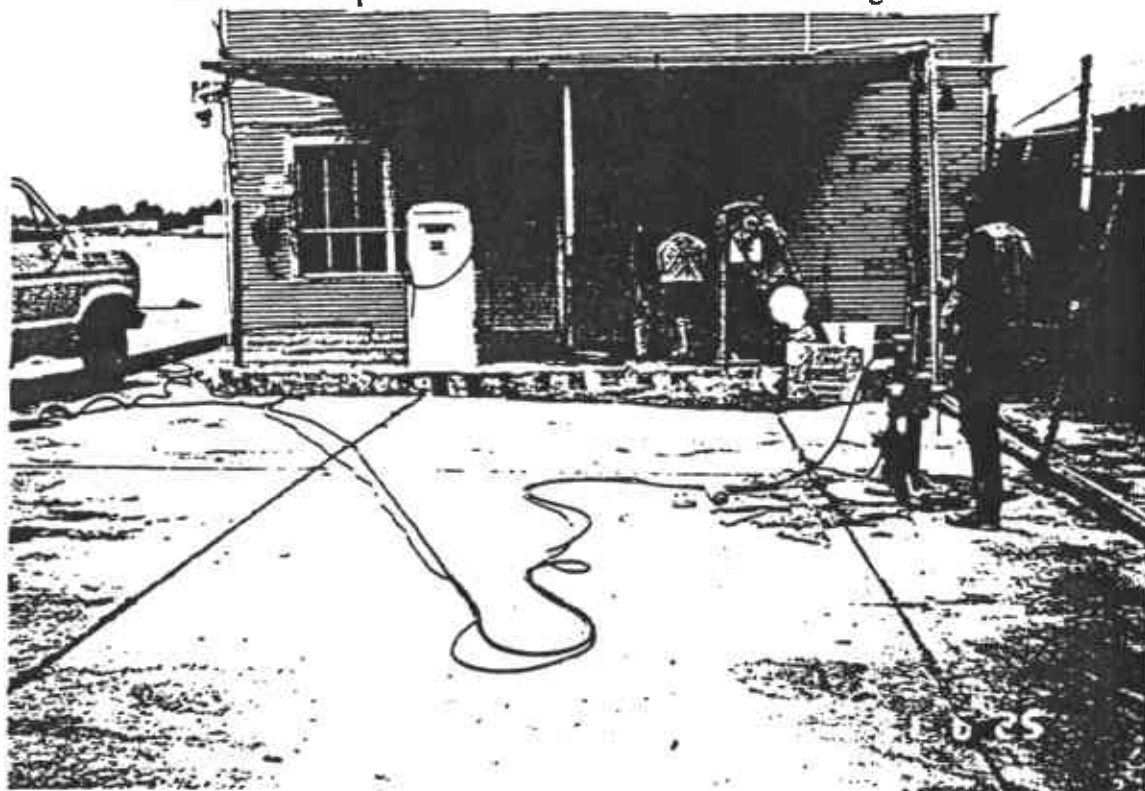
Regional Water Quality Control Board, San Francisco Bay Region, Personal Communication with Tom Gandesberg, July 31, 1991(a).

Regional Water Quality Control Board, San Francisco Bay Region, Personal Communication with Lester Feldman, July 17, 1991(b).

APPENDIX A: Photographic Documentation



Borehole Sample H9S-01 collected in front of Building L-811



Borehole Samples H9S-04 and H9S-03 collected near gas pumps adjacent to Building L-811

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment



Sediment Sample H9SL-02 collected from sumps southwest of L-811



Borehole Samples H9S-05 and H9S-06 collected on eastern and western side of former hydraulic lift

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment



Borehole Sample H9S-09 collected in front of Building L-808

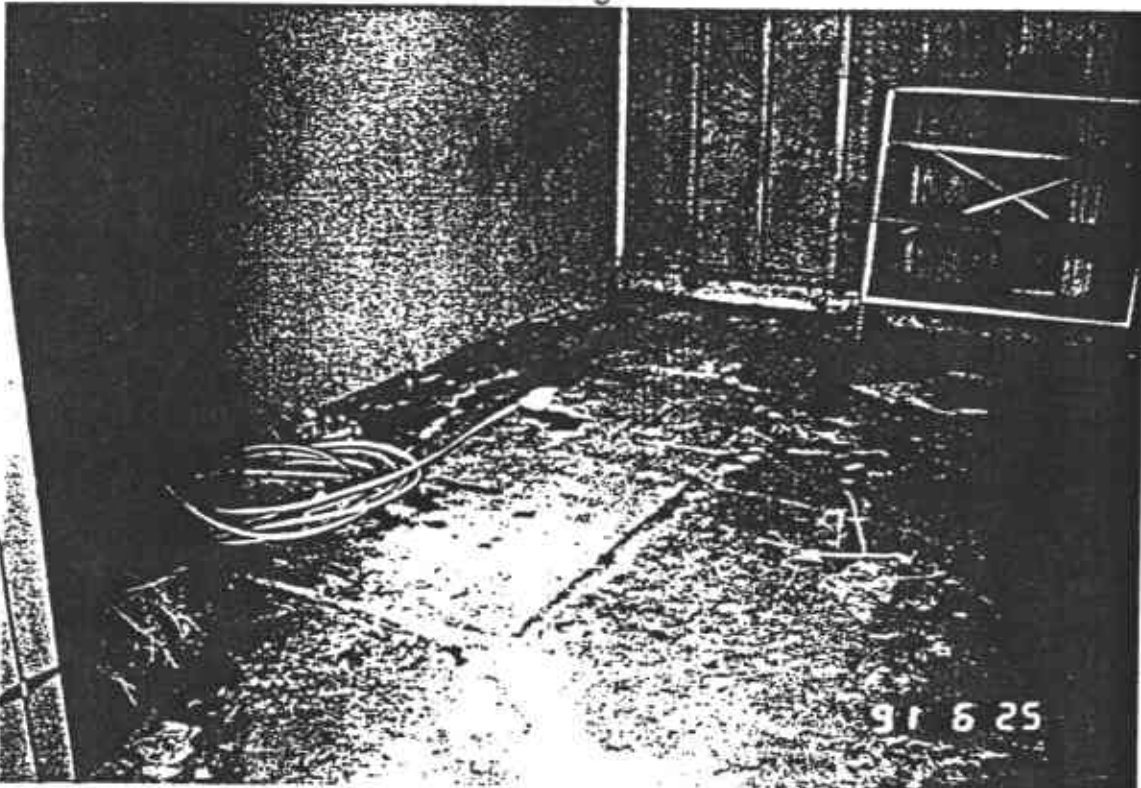


Abandoned gas pump outside southwest corner L-807
Borehole Sample H9S-10 collected outside the northwest corner of Hangar 9

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment

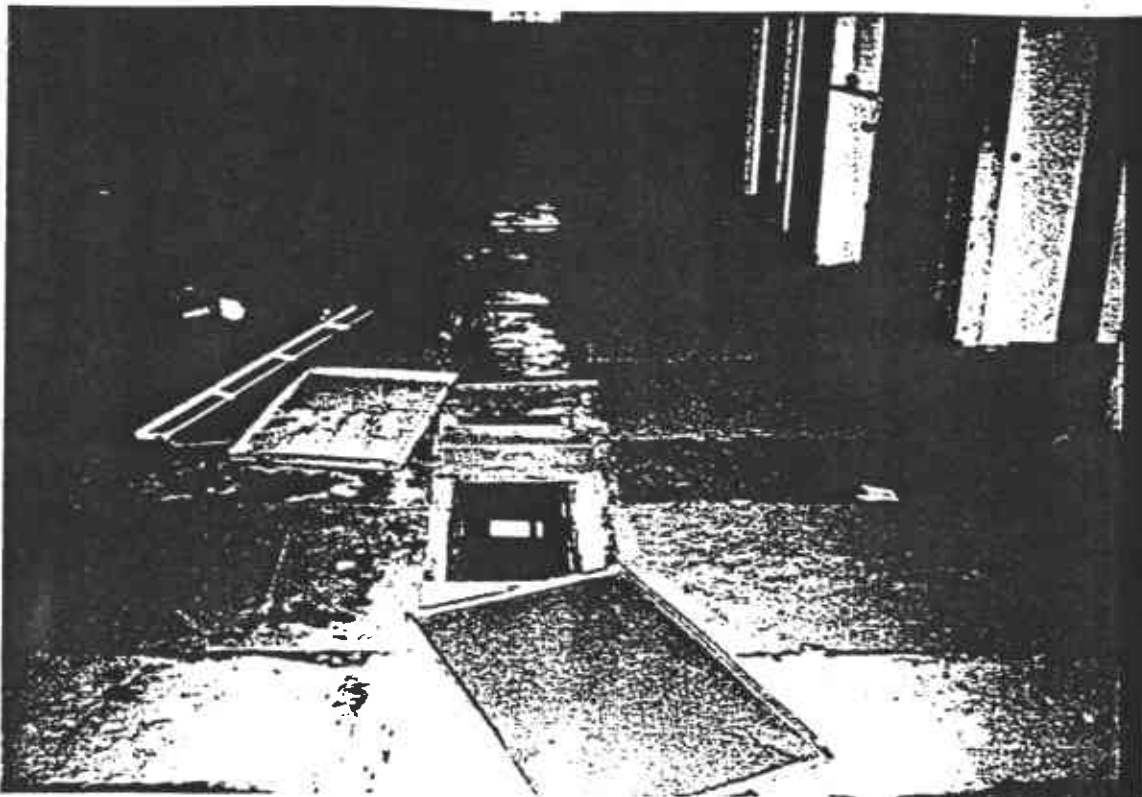


Borehole Sample H9S-13 and H9S-14 collected outside the southeast corner of Hangar 9 in the former drum storage area

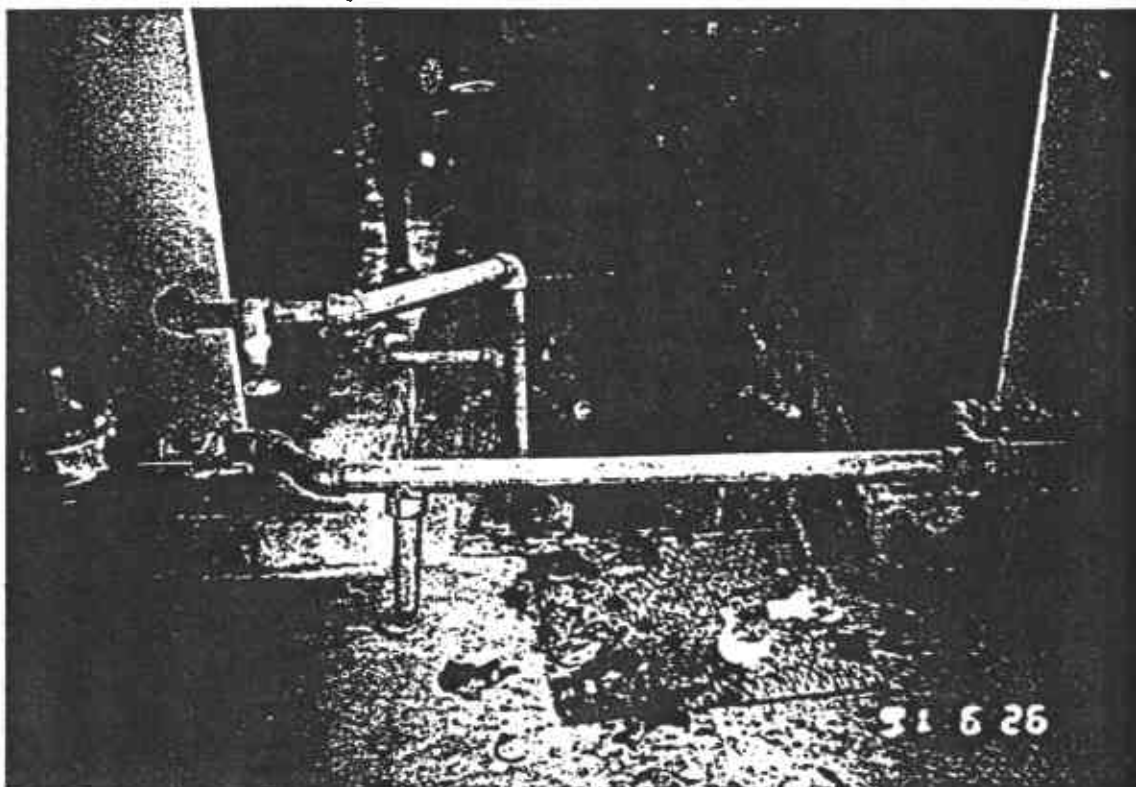


Sample H9S-16 collected from opening of vault located between Building L-808 and L-809

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment

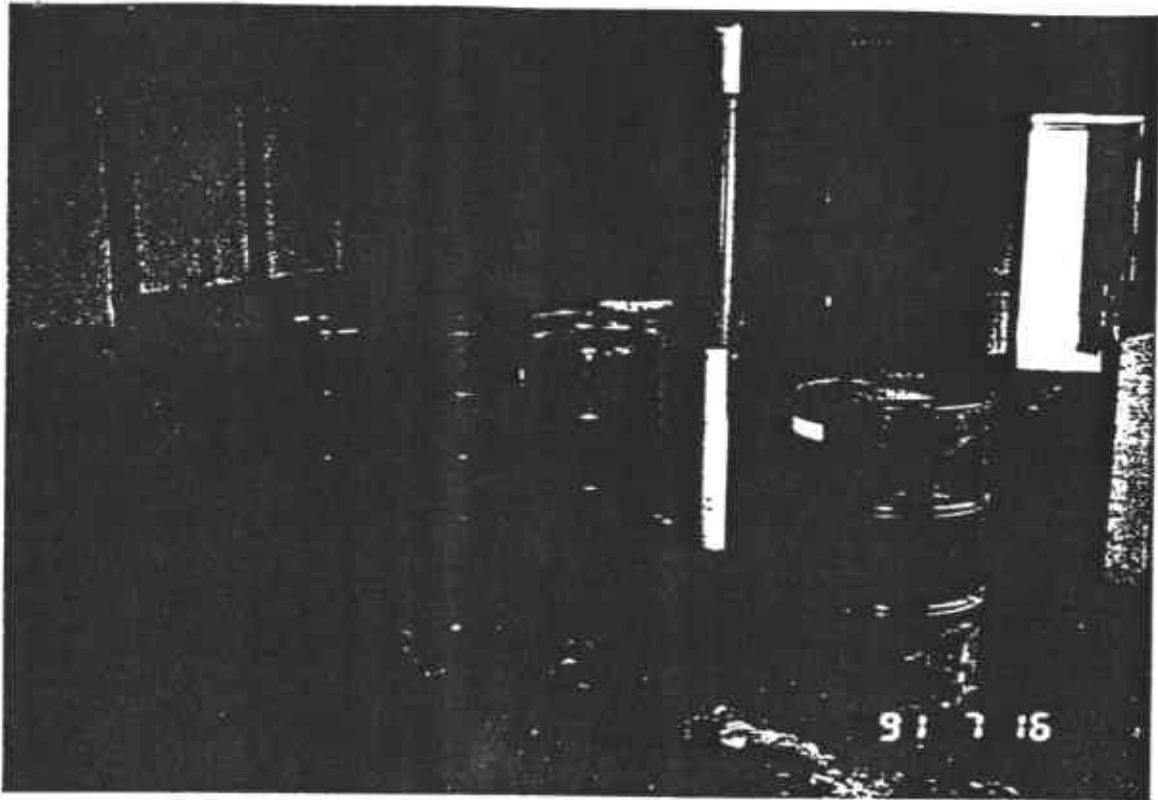


Sump located near Boiler Room of Hangar 9

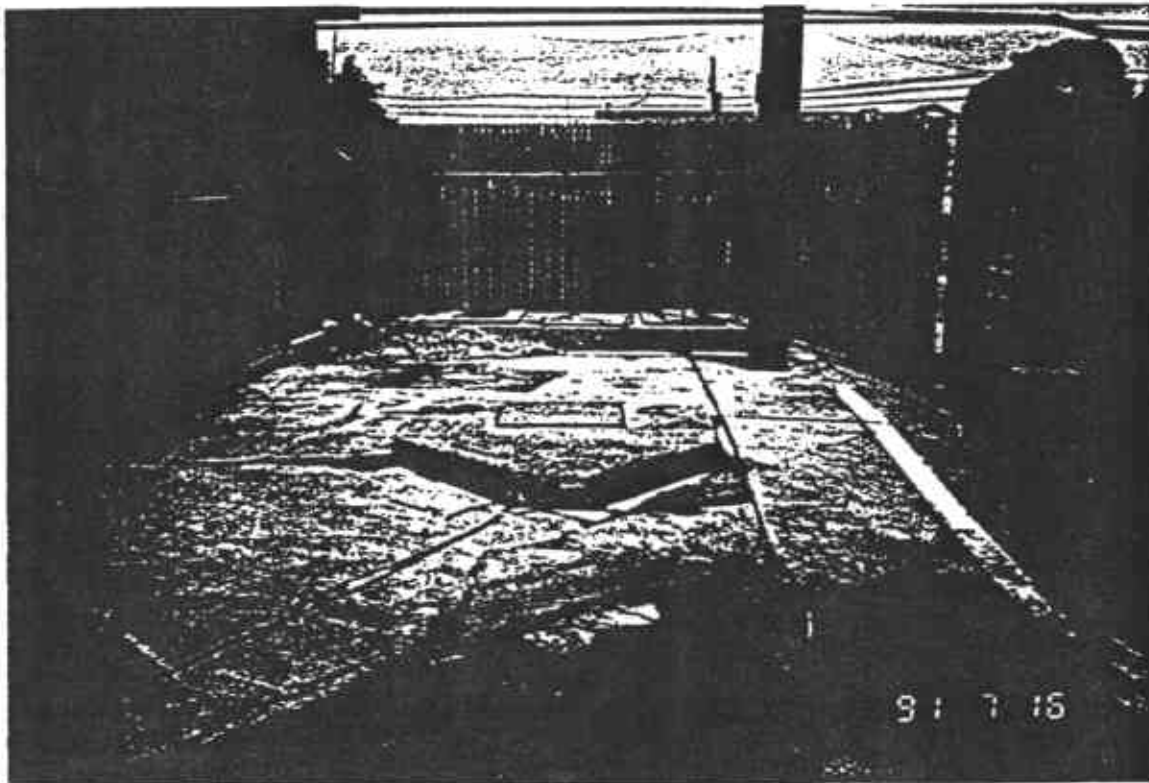


Sump between boilers in Hangar 9 former Boiler Room

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment



Abandoned drums located in Building L-808



Septic Tank located between Hangar 9 and L-807 (H9SP-02)

Appendix A
Photographic Documentation
Hangar 9 Phase II Site Assessment

**APPENDIX B: Laboratory Reports and
Chain of Custody Records**



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/26/91

DATE REPORTED: 07/11/91

LAB NUMBER: 104298

CLIENT: TETRA TECH, INC.

PROJECT ID: TC 4601-33

LOCATION: PORT OF OAKLAND

RESULTS: SEE ATTACHED

QA/QC APPROVAL

Final Approval

Berkeley

Wilmington

Los Angeles

LABORATORY NUMBER: 104298
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/6-9/91
 DATE REPORTED: 07/09/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	SAMPLE ID	RESULT (mg/Kg)	QUANTITATED AS
104298-1	H9SL01	2,400	Kerosene/Jet Fuel *
104298-2	H9SL02	820	Diesel
104298-3	H9SL03	1,700	Kerosene/Jet Fuel *

* NOTE: Peaks were also detected in the diesel range but cannot be quantitated due to overlap with kerosene range.

ND = Not detected at or above reporting limit. Reporting limit indicated in parenthesis.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	98

LABORATORY NUMBER: 104298
 CLIENT: TETRA TECH
 PROJECT #: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9

DATE RECEIVED: 06/26/91
 DATE ANALYZED: 07/05/91
 DATE REPORTED: 07/05/91

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	REPORTING LIMIT (mg/Kg)
104298-1	H9SL01	130	160
104298-2	H9SL02	170	16
104298-3	H9SL03	98	16

NOTE: Chromatographic pattern of these samples more closely resembles
 paint thinner or mineral spirits than gasoline.

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	99

LABORATORY NUMBER: 104298-1
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9SL01

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550 SONICATION
 =====

AROCLOR TYPE	RESULT (ug/kg)	REPORTING LIMIT (ug/kg)
AROCLOR 1221	ND	17
AROCLOR 1232	ND	17
AROCLOR 1016	ND	17
AROCLOR 1242	ND	17
AROCLOR 1248	ND	17
AROCLOR 1254	ND	17
AROCLOR 1260	300	17

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====

LABORATORY NUMBER: 104298-2
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9SL02

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550 SONICATION
 =====

AROCLOR TYPE	RESULT (ug/kg)	REPORTING LIMIT (ug/kg)
AROCLOR 1221	ND	17
AROCLOR 1232	ND	17
AROCLOR 1016	ND	17
AROCLOR 1242	ND	17
AROCLOR 1248	ND	17
AROCLOR 1254	ND	17
AROCLOR 1260	ND	17

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====

LABORATORY NUMBER: 104298-3
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9SL03

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550 SONICATION
 =====

AROCLOR TYPE	RESULT (ug/kg)	REPORTING LIMIT (ug/kg)
AROCLOR 1221	ND	170
AROCLOR 1232	ND	170
AROCLOR 1016	ND	170
AROCLOR 1242	ND	170
AROCLOR 1248	ND	170
AROCLOR 1254	ND	170
AROCLOR 1260	8,700	170

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====

LABORATORY NUMBER: 104298-4
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9W01

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3510 SEP FUNNEL
 =====

AROCLOR TYPE	RESULT (ug/L)	REPORTING LIMIT (ug/L)
AROCLOR 1221	ND	0.5
AROCLOR 1232	ND	0.5
AROCLOR 1016	ND	0.5
AROCLOR 1242	ND	0.5
AROCLOR 1248	ND	0.5
AROCLOR 1254	ND	0.5
AROCLOR 1260	ND	0.5

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/26/91

DATE REPORTED: 07/11/91

LAB NUMBER: 104298

CLIENT: TETRA TECH, INC.

PROJECT ID: TC 4601-33

LOCATION: PORT OF OAKLAND

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

Berkeley

Wilmington

Los Angeles

LABORATORY NUMBER: 104298
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/6-9/91
 DATE REPORTED: 07/09/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	SAMPLE ID	RESULT (mg/Kg)	QUANTITATED AS
104298-1	H9SL01	2,400	Kerosene/Jet Fuel *
104298-2	H9SL02	820	Diesel
104298-3	H9SL03	1,700	Kerosene/Jet Fuel *

* NOTE: Peaks were also detected in the diesel range but cannot be quantitated due to overlap with kerosene range.

ND = Not detected at or above reporting limit. Reporting limit indicated in parenthesis.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	98

LABORATORY NUMBER: 104298
 CLIENT: TETRA TECH
 PROJECT #: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9

DATE RECEIVED: 06/26/91
 DATE ANALYZED: 07/05/91
 DATE REPORTED: 07/05/91

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	REPORTING LIMIT (mg/Kg)
104298-1	H9SL01	130	160
104298-2	H9SL02	170	16
104298-3	H9SL03	98	16

NOTE: Chromatographic pattern of these samples more closely resembles paint thinner or mineral spirits than gasoline.

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	99

LABORATORY NUMBER: 104298-1
CLIENT: TETRA TECH
PROJECT ID: TC 4601-33
SAMPLE ID: H9SL01

DATE RECEIVED: 06/26/91
DATE EXTRACTED: 07/02/91
DATE ANALYZED: 07/02/91
DATE REPORTED: 07/05/91

=====
POLYCHLORINATED BIPHENYLS (PCBs)
ANALYSIS METHOD: EPA 8080
EXTRACTION METHOD: EPA 3550 SONICATION
=====

AROCLOR TYPE	RESULT (ug/kg)	REPORTING LIMIT (ug/kg)
AROCLOR 1221	ND	17
AROCLOR 1232	ND	17
AROCLOR 1016	ND	17
AROCLOR 1242	ND	17
AROCLOR 1248	ND	17
AROCLOR 1254	ND	17
AROCLOR 1260	300	17

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
RPD, % 7
RECOVERY, % 91
=====

LABORATORY NUMBER: 104298-3
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9SL03

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3550 SONICATION
 =====

AROCLOR TYPE	RESULT (ug/kg)	REPORTING LIMIT (ug/kg)
AROCLOR 1221	ND	170
AROCLOR 1232	ND	170
AROCLOR 1016	ND	170
AROCLOR 1242	ND	170
AROCLOR 1248	ND	170
AROCLOR 1254	ND	170
AROCLOR 1260	8,700	170

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====

LABORATORY NUMBER: 104298-4
 CLIENT: TETRA TECH
 PROJECT ID: TC 4601-33
 SAMPLE ID: H9W01

DATE RECEIVED: 06/26/91
 DATE EXTRACTED: 07/02/91
 DATE ANALYZED: 07/02/91
 DATE REPORTED: 07/05/91

=====
 POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 3510 SEP FUNNEL
 =====

AROCLOR TYPE	RESULT (ug/L)	REPORTING LIMIT (ug/L)
AROCLOR 1221	ND	0.5
AROCLOR 1232	ND	0.5
AROCLOR 1016	ND	0.5
AROCLOR 1242	ND	0.5
AROCLOR 1248	ND	0.5
AROCLOR 1254	ND	0.5
AROCLOR 1260	ND	0.5

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 7
 RECOVERY, % 91
 =====



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 06/25/91
DATE REPORTED: 07/10/91

LAB NUMBER: 104274

LABORATORY
JUL 15 1991
ANALYTICAL

CLIENT: TETRA TECH, INC.

PROJECT ID: TC 4601-33

LOCATION: PORT OF OAKLAND, HANGER 9

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

LABORATORY NUMBER: 104274
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND, HANGER 9

DATE RECEIVED: 06/25/91
 DATE EXTRACTED: 07/05/91
 DATE ANALYZED: 07/7-9/91
 DATE REPORTED: 07/10/91

Extractable Petroleum Hydrocarbons in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	SAMPLE ID	RESULT (mg/Kg)	QUANTITATED AS
104274-1	H9S01	5,000	Kerosene/Jet Fuel *
104274-2	H9S02	ND(1.0)	**
104274-3	H9S03	79	Kerosene/Jet Fuel *
104274-4	H9S04	460	Kerosene/Jet Fuel *
104274-5	H9S05	75	Diesel
104274-6	H9S06	3,100	Kerosene/Jet Fuel *
104274-7	H9S07	11	Diesel
104274-8	H9S08	3.9	Diesel
104274-9	H9S09	47	Diesel **
104274-10	H9S10	17	Diesel **
104274-11	H9S11	130	Kerosene/Jet Fuel *
104274-12	H9S11D	53	Kerosene/Jet Fuel *
104274-13	H9S12	13	Diesel
104274-14	H9S13	90	Diesel **
104274-15	H9S14	9.1	Diesel
104274-16	H9S15	4.7	Diesel
104274-17	H9S16	9.4	Kerosene/Jet Fuel *

* NOTE: Peaks were also detected in the diesel range but cannot be quantitated due to overlap with kerosene range.

** Unquantifiable oil range hydrocarbons detected.

ND = Not detected at or above reporting limit. Reporting limit indicated in parenthesis.

QA/QC SUMMARY

RPD, %	20
RECOVERY, %	98

LABORATORY NUMBER: 104274
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: PORT OF OAKLAND, HANGER 9

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/05-09/91
 DATE REPORTED: 07/10/91

Total Volatile Hydrocarbons as Gasoline in Soils & Wastes
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (mg/Kg)	REPORTING LIMIT (mg/Kg)
104274-1	H9S01	6,800	800
104274-2	H9S02	ND	1.0
104274-3	H9S03	16	2.0
104274-4	H9S04	470	16
104274-5	H9S05	ND	1.0
104274-6	H9S06	1,000	80
104274-7	H9S07	ND	1.0
104274-8	H9S08	ND	1.0
104274-9	H9S09	ND	1.0
104274-10	H9S10	1.7	1.0
104274-11	H9S11	430	16
104274-12	H9S11D	17	2.0
104274-13	H9S12	ND	1.0
104274-14	H9S13	7.5	1.0
104274-15	H9S14	ND	1.0
104274-16	H9S15	ND	1.0
104274-17	H9S16	16	1.0

NOTE: Chromatographic pattern of these samples more closely resembles paint thinner or mineral spirits than gasoline.

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	3
RECOVERY, %	107

LABORATORY NUMBER: 104274-1
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 SAMPLE ID: H9S01

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/03/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10,000
bromomethane	ND	10,000
vinyl chloride	ND	10,000
chloroethane	ND	10,000
methylene chloride	ND	5,000
acetone	ND	10,000
carbon disulfide	ND	5,000
trichlorofluoromethane	ND	5,000
1,1-dichloroethene	ND	5,000
1,1-dichloroethane	ND	5,000
cis-1,2-dichloroethene	ND	5,000
trans-1,2-dichloroethene	ND	5,000
chloroform	ND	5,000
freon 113	ND	5,000
1,2-dichloroethane	ND	5,000
2-butanone	ND	10,000
1,1,1-trichloroethane	ND	5,000
carbon tetrachloride	ND	5,000
vinyl acetate	ND	10,000
bromodichloromethane	ND	5,000
1,2-dichloropropane	ND	5,000
cis-1,3-dichloropropene	ND	5,000
trichloroethylene	ND	5,000
dibromochloromethane	ND	5,000
1,1,2-trichloroethane	ND	5,000
benzene	ND	5,000
trans-1,3-dichloropropene	ND	5,000
2-chloroethylvinyl ether	ND	10,000
bromoform	ND	5,000
2-hexanone	ND	10,000
4-methyl-2-pentanone	ND	10,000
1,1,2,2-tetrachloroethane	ND	5,000
tetrachloroethylene	ND	5,000
toluene	ND	5,000
chlorobenzene	ND	5,000
ethyl benzene	ND	5,000
styrene	ND	5,000
total xylenes	6,000	5,000

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	96 %
Toluene-d8	102 %
Bromofluorobenzene	72 %

LABORATORY NUMBER: 104274-2
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S02

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/05/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	98 %
Toluene-d8	107 %
Bromofluorobenzene	84 %

LABORATORY NUMBER: 104274-3
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S03

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/04/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	1,000
bromomethane	ND	1,000
vinyl chloride	ND	1,000
chloroethane	ND	1,000
methylene chloride	ND	500
acetone	ND	1,000
carbon disulfide	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
cis-1,2-dichloroethene	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
freon 113	ND	500
1,2-dichloroethane	ND	500
2-butanone	ND	1,000
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
vinyl acetate	ND	1,000
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1,000
bromoform	ND	500
2-hexanone	ND	1,000
4-methyl-2-pentanone	ND	1,000
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	ND	500
ethyl benzene	ND	500
styrene	ND	500
total xylenes	ND	500

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	93 %
Toluene-d8	101 %
Bromofluorobenzene	92 %

LABORATORY NUMBER: 104274-4
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S04

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/04/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	1,000
bromomethane	ND	1,000
vinyl chloride	ND	1,000
chloroethane	ND	1,000
methylene chloride	ND	500
acetone	ND	1,000
carbon disulfide	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
cis-1,2-dichloroethene	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
freon 113	ND	500
1,2-dichloroethane	ND	500
2-butanone	ND	1,000
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
vinyl acetate	ND	1,000
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1,000
bromoform	ND	500
2-hexanone	ND	1,000
4-methyl-2-pentanone	ND	1,000
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	ND	500
ethyl benzene	ND	500
styrene	ND	500
total xylenes	ND	500

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	99 %
Toluene-d8	108 %
Bromofluorobenzene	83 %

LABORATORY NUMBER: 104274-5
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S05

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/06/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	94 %
Toluene-d8	99 %
Bromofluorobenzene	104 %

LABORATORY NUMBER: 104274-6
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S06

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/04/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	1,000
bromomethane	ND	1,000
vinyl chloride	ND	1,000
chloroethane	ND	1,000
methylene chloride	ND	500
acetone	ND	1,000
carbon disulfide	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
cis-1,2-dichloroethene	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
freon 113	ND	500
1,2-dichloroethane	ND	500
2-butanone	ND	1,000
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
vinyl acetate	ND	1,000
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1,000
bromoform	ND	500
2-hexanone	ND	1,000
4-methyl-2-pentanone	ND	1,000
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	ND	500
ethyl benzene	ND	500
styrene	ND	500
total xylenes	2,000	500

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	96 %
Toluene-d8	98 %
Bromofluorobenzene	59 %

LABORATORY NUMBER: 104274-7
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S07

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/08/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	104 %
Toluene-d8	100 %
Bromofluorobenzene	104 %

LABORATORY NUMBER: 104274-8
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S08

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/08/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	10
acetone	ND	50
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	23	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	111 %
Toluene-d8	100 %
Bromofluorobenzene	107 %

LABORATORY NUMBER: 104274-9
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S09

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/08/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	15
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	113 %
Toluene-d8	97 %
Bromofluorobenzene	93 %

LABORATORY NUMBER: 104274-10
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S10

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/09/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	10
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	105 %
Toluene-d8	100 %
Bromofluorobenzene	103 %

LABORATORY NUMBER: 104274-11
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S11

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/06/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	1,000
bromomethane	ND	1,000
vinyl chloride	ND	1,000
chloroethane	ND	1,000
methylene chloride	ND	500
acetone	ND	1,000
carbon disulfide	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
cis-1,2-dichloroethene	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
freon 113	ND	500
1,2-dichloroethane	ND	500
2-butanone	ND	1,000
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
vinyl acetate	ND	1,000
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1,000
bromoform	ND	500
2-hexanone	ND	1,000
4-methyl-2-pentanone	ND	1,000
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	ND	500
ethyl benzene	ND	500
styrene	ND	500
total xylenes	ND	500

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	114 %
Toluene-d8	103 %
Bromofluorobenzene	85 %

LABORATORY NUMBER: 104274-12
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S11D

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/09/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	84 %
Toluene-d8	101 %
Bromofluorobenzene	78 %

LABORATORY NUMBER: 104274-13
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S12

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/09/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	50
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	96 %
Toluene-d8	101 %
Bromofluorobenzene	106 %

LABORATORY NUMBER: 104274-14
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S13

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/08/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	116 %
Toluene-d8	103 %
Bromofluorobenzene	97 %

LABORATORY NUMBER: 104274-15
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S14

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/09/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	10
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	91 %
Toluene-d8	100 %
Bromofluorobenzene	97 %

LABORATORY NUMBER: 104274-16
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S15

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/09/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	10
bromomethane	ND	10
vinyl chloride	ND	10
chloroethane	ND	10
methylene chloride	ND	5.0
acetone	ND	10
carbon disulfide	ND	5.0
trichlorofluoromethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloroethane	ND	5.0
cis-1,2-dichloroethene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
chloroform	ND	5.0
freon 113	ND	5.0
1,2-dichloroethane	ND	5.0
2-butanone	ND	10
1,1,1-trichloroethane	ND	5.0
carbon tetrachloride	ND	5.0
vinyl acetate	ND	10
bromodichloromethane	ND	5.0
1,2-dichloropropane	ND	5.0
cis-1,3-dichloropropene	ND	5.0
trichloroethylene	ND	5.0
dibromochloromethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
benzene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
2-chloroethylvinyl ether	ND	10
bromoform	ND	5.0
2-hexanone	ND	10
4-methyl-2-pentanone	ND	10
1,1,2,2-tetrachloroethane	ND	5.0
tetrachloroethylene	ND	5.0
toluene	ND	5.0
chlorobenzene	ND	5.0
ethyl benzene	ND	5.0
styrene	ND	5.0
total xylenes	ND	5.0

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	101 %
Toluene-d8	100 %
Bromofluorobenzene	108 %

LABORATORY NUMBER: 104274-17
 CLIENT: TETRA TECH, INC.
 PROJECT #: TC 4601-33
 LOCATION: H9S16

DATE RECEIVED: 06/25/91
 DATE ANALYZED: 07/08/91
 DATE REPORTED: 07/10/91

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES
 Extraction Method: EPA 5030 - Purge & Trap

COMPOUND	Result ug/kg	Reporting Limit (ug/kg)
chloromethane	ND	1,000
bromomethane	ND	1,000
vinyl chloride	ND	1,000
chloroethane	ND	1,000
methylene chloride	ND	500
acetone	ND	1,000
carbon disulfide	ND	500
trichlorofluoromethane	ND	500
1,1-dichloroethene	ND	500
1,1-dichloroethane	ND	500
cis-1,2-dichloroethene	ND	500
trans-1,2-dichloroethene	ND	500
chloroform	ND	500
freon 113	ND	500
1,2-dichloroethane	ND	500
2-butanone	ND	1,000
1,1,1-trichloroethane	ND	500
carbon tetrachloride	ND	500
vinyl acetate	ND	1,000
bromodichloromethane	ND	500
1,2-dichloropropane	ND	500
cis-1,3-dichloropropene	ND	500
trichloroethylene	ND	500
dibromochloromethane	ND	500
1,1,2-trichloroethane	ND	500
benzene	ND	500
trans-1,3-dichloropropene	ND	500
2-chloroethylvinyl ether	ND	1,000
bromoform	ND	500
2-hexanone	ND	1,000
4-methyl-2-pentanone	ND	1,000
1,1,2,2-tetrachloroethane	ND	500
tetrachloroethylene	ND	500
toluene	ND	500
chlorobenzene	10,000	500
ethyl benzene	ND	500
styrene	ND	500
total xylenes	ND	500

ND = Not detected at or above reporting limit

QA/QC SUMMARY: SURROGATE RECOVERIES

1,2-Dichloroethane-d4	120 %
Toluene-d8	104 %
Bromofluorobenzene	101 %



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 07/16/91

DATE REPORTED: 07/30/91

LAB NUMBER: 104523

CLIENT: TETRA TECH, INC.

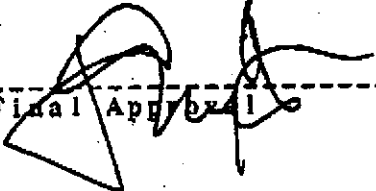
PROJECT ID: TC 4601-33

LOCATION: PORT OF OAKLAND, HANGAR 9

RESULTS: SEE ATTACHED



QA/QC Approval



Final Approval

Berkeley

Wilmington

Los Angeles



LABORATORY NUMBER: 104523
CLIENT: TETRA TECH, INC.
PROJECT ID: TC 4601-33
LOCATION: PORT OF OAKLAND, HANGAR 9

DATE RECEIVED: 07/16/91
DATE EXTRACTED: 07/22/91
DATE ANALYZED: 07/24/91
DATE REPORTED: 07/30/91

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT* (ug/L)
104523-2	H9SPW02	ND	ND	50

ND = Not detected at or above reporting limit.

*Reporting limit applies to all analytes.

QA/QC SUMMARY

RPD, %	9
RECOVERY, %	98

LABORATORY NUMBER: 104523
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9

DATE RECEIVED: 07/16/91
 DATE ANALYZED: 07/22/91
 DATE REPORTED: 07/30/91

Total Volatile Hydrocarbons as Gasoline in Aqueous Solutions
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT ID	TVH AS GASOLINE (ug/L)	REPORTING LIMIT (ug/L)
104523-3	H9SPW03	1,700	50

QA/QC SUMMARY

=====
 RPD, % 1
 RECOVERY, % 99
 =====

LABORATORY NUMBER: 104523-1
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9
 SAMPLE ID: H9SPW01

DATE RECEIVED: 07/16/91
 DATE EXTRACTED: 07/17/91
 DATE ANALYZED: 07/18/91
 DATE REPORTED: 07/30/91

=====
 ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 505
 =====

AROCLOR TYPE	RESULT (ug/L)	REPORTING LIMIT (ug/L)
AROCLOR 1221	ND	3.3
AROCLOR 1232	ND	3.3
AROCLOR 1016	ND	3.3
AROCLOR 1242	ND	3.3
AROCLOR 1248	ND	3.3
AROCLOR 1254	ND	3.3
AROCLOR 1260	ND	3.3

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 15
 RECOVERY, % 84
 =====

LABORATORY NUMBER: 104523-2
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9
 SAMPLE ID: H9SPW02

DATE RECEIVED: 07/16/91
 DATE EXTRACTED: 07/17/91
 DATE ANALYZED: 07/18/91
 DATE REPORTED: 07/30/91

=====
 ANALYSIS: POLYCHLORINATED BIPHENYLS (PCB_s)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 505
 =====

AROCLOR TYPE	RESULT (ug/L)	REPORTING LIMIT (ug/L)
AROCLOR 1221	ND	3.3
AROCLOR 1232	ND	3.3
AROCLOR 1016	ND	3.3
AROCLOR 1242	ND	3.3
AROCLOR 1248	ND	3.3
AROCLOR 1254	ND	3.3
AROCLOR 1260	ND	3.3

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 15
 RECOVERY, % 84
 =====

LABORATORY NUMBER: 104523-3
 CLIENT: TETRA TECH, INC.
 PROJECT ID: TC 4601-33
 LOCATION: PORT OF OAKLAND HANGAR 9
 SAMPLE ID: H9SPW03

DATE RECEIVED: 07/16/91
 DATE EXTRACTED: 07/17/91
 DATE ANALYZED: 07/18/91
 DATE REPORTED: 07/30/91

=====
 ANALYSIS: POLYCHLORINATED BIPHENYLS (PCBs)
 ANALYSIS METHOD: EPA 8080
 EXTRACTION METHOD: EPA 505
 =====

AROCLOR TYPE	RESULT (ug/L)	REPORTING LIMIT (ug/L)
AROCLOR 1221	ND	3.3
AROCLOR 1232	ND	3.3
AROCLOR 1016	ND	3.3
AROCLOR 1242	ND	3.3
AROCLOR 1248	ND	3.3
AROCLOR 1254	ND	3.3
AROCLOR 1360	ND	3.3

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

=====
 RPD, % 15
 RECOVERY, % 84
 =====

