Harding Lawson Associates

October 1, 1987

87-1330.04

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Alameda County Environmental Health Service
470 27th Street, Room 322
Oakland, California 94612

Attention: Mr. Lowell Miller

Gentlemen:

City Blue Production Facility Site
1700 Jefferson Street
Oakland, California

The purpose of this letter is to update the Alameda County Environmental Health Service regarding the investigations performed by Harding Lawson Associates (HLA) at the City Blue Production Facility site at 1700 Jefferson Street in Oakland, California. An unauthorized release report on underground storage tanks was filed by us at this site on April 8, 1987.

Harding Lawson Associates (HLA) began investigating the property in March 1987, both for geotechnical engineering purposes and to check for evidence of soil or ground-water contamination. The Blue Print Service Company is preparing to build a one-story, concrete structure on a portion of the property. The underground tanks that previously occupied the site have been removed. Enclosed with this letter are copies of our preliminary hazardous waste assessment report and our report on professional services during tank removal. We understood that these reports would be transmitted to the Alameda County Environmental Health Service by our client, the Blue Print Service Company. Unfortunately, because our client did not study our reports and was not aware of the necessity to forward them to the Health Service, these documents were not transmitted until now.

HLA is continuing to investigate the site. Our investigation includes the installation of three ground-water monitoring wells. We have developed and sampled these wells and encountered free product in one of them. Further investigation, including the installation of at least two more ground-water monitoring wells, will be undertaken to define the lateral extent of free product on the ground-water surface. We anticipate completing an interim report on our ground-water monitoring in one to two weeks and we will transmit this document to you.

On the basis of our preliminary ground-water calculations and chemical analysis results, we believe that the contamination does not extend significantly below the proposed structure. We would like to discuss the building construction in connection with plans for site remediation at your earliest convenience.

We regret that the Health Service was not notified sooner of our site investigations and we look forward to working with you closely during our remaining investigations and site remediation.

Yours very truly,

HARDING LAWSON ASSOCIATES

Daul a. Li

Daniel A. Louis
Civil Engineer

Norman T. Shopay by JEI

Norman T. Shopay
Senior Environmental Specialist

DAL/NS/sjp

Enclosures

cc: Blue Print Service Company
Attention: Mr. Paul J. Koze

Garcia/Wagner and Associates
Attention: Mr. Felix A. Rodriguez

A Report Prepared for

Blue Print Service Company
c/o Garcia/Wagner and Associates, Architects
555 Sutter Street
San Francisco, California 94102

PRELIMINARY HAZARDOUS WASTE ASSESSMENT
CITY BLUE PRODUCTION FACILITY
OAKLAND, CALIFORNIA

HLA Job No. 18106,001.04

by

Daniel A. Louis
Project Engineer

G. Scott Crowther
Civil Engineer

Harding Lawson Associates
666 Howard Street
San Francisco, California 94105
415/543-8422

June 3, 1987

INTRODUCTION

This report presents the results of our preliminary hazardous waste assessment for the City Blue Production Facility in Oakland, California. We presented the results of our soil investigation for the proposed facility in a report dated May 4, 1987.

The project is located northeast of the intersection of 17th and Jefferson streets; it has approximately 70 feet of frontage on Jefferson Street and 190 feet of frontage on 17th Street. The site is surfaced with asphalt pavement, except in the southwest corner, where a small service station is operated by the Blue Print Service Company. As part of the construction of the proposed facility, the existing service station will be demolished and its three buried gasoline tanks will be removed. We understand that two of the buried tanks have a 1000-gallon capacity and the other has a 550-gallon capacity. The buried fuel lines connecting the tanks with the pump island will also be removed. We understand that the tanks were pressure-tested in 1978 for Fire Department and Air Quality permits.

The purpose of this preliminary hazardous waste assessment was to: 1) determine if the buried gasoline tanks leaked and 2) if they leaked, provide recommendations for further investigation.

The scope of our preliminary hazardous waste assessment was defined in our proposal dated January 28, 1987, and included:

1. Drilling two borings on opposite sides of the buried tanks
2. Collecting soil and water samples from each boring
3. Performing laboratory chemical analysis on selected soil and water samples
4. On the basis of regulatory agency criteria, assessing whether petroleum hydrocarbons in the soil and/or water exist at hazardous concentrations
5. Discussing site cleanup alternatives
6. Presenting the results of our assessment in a report.

Following our field investigation and laboratory testing, we submitted, with your approval, the necessary contamination site reports in accordance with the regulatory agency requirements. In addition, we met with the project architects, Garcia/Wagner and Associates, and with Mr. Paul Koze, Jr. of Blue Print Service Company on April 13, 1987 to discuss buried tank removal and other aspects of the project.

FIELD INVESTIGATION AND LABORATORY TESTING

We explored the subsurface conditions immediately adjacent to the buried tanks by drilling Borings 4 and 5 to depths of 30 and 31 feet, respectively, at the locations shown on the Site Plan, Plate 1. Borings 1, 2, and 3 were drilled as part of our soil investigation for the proposed facility.

The borings were drilled on February 19 and 20, 1987 with truck-mounted, hollow-stem auger equipment under the direction of our field

engineer, who logged the soil conditions encountered, recorded detectable petroleum odor, and obtained tube samples for visual examination and laboratory testing. The drilling equipment was steam-cleaned between borings and the sampling equipment was washed between samples.

Samples were obtained using a Sprague and Henwood (S&H) split-barrel sampler driven with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler was converted to equivalent standard penetration test (SPT) resistance values, which are presented on the Logs of Borings, Plates 2 and 3. The soil is described in accordance with the Unified Soil Classification System and the ASTM D2487-85 standard test method described on Plate 4. Water samples were obtained from inside the hollow-stem augers using a stainless steel bailer.

The samples were labelled and stored using EPA methods, and they were delivered to Analytical Science Associates in Emeryville, California accompanied by a Chain of Custody form. Selected soil and water samples were tested to measure total petroleum hydrocarbon (TPH) concentrations using EPA test method 8015. The TPH detection limits are 10 parts per million (ppm) for soil samples and 0.5 ppm for water samples.

SUBSURFACE CONDITIONS

Below the asphalt pavement, the site is blanketed by 3 to 6 feet of loose to medium dense silty sand fill that occasionally contains brick debris. At the boring locations immediately adjacent to the buried tanks,

this silty sand fill extends to depths of 6 and 9 feet. The sand fill is underlain by an approximately 15-foot-thick layer of native medium dense to dense clayey sand. The clayey sand is underlain by approximately 10 to 15 feet of dense fine-grained sand. Although it was not encountered within the depths explored in Borings 4 or 5, we believe, on the basis of the results of Boring 1, that a stiff to very stiff sandy clay underlies the dense sands at a depth of approximately 35 feet.

A slight petroleum odor was noticed in the soil samples collected in the tank backfill. These odors became stronger with depth. Very strong odors were noticed near the water table at approximately 25 feet below the surface. Soil samples obtained 5 feet below the water table had a moderately strong petroleum odor.

The results of laboratory TPH tests performed on soil samples are presented in Table 1.

Table 1
Total Petroleum Hydrocarbon Concentrations in Soil

Boring	Soil Sample Depth (feet)	Total Petroleum Hydrocarbons (ppm)
4	11.5	64
	15.5	310
	20.0	2100
	26.5	1700
	30.0	46
5	14.5	150
	19.5	900
	24.0	3300

Ground water was encountered in both borings at approximately 26 feet below the surface or an elevation of approximately +5 feet.* Measured TPH concentrations in ground-water samples obtained from both borings through the hollow-stem augers were approximately 50 ppm.

DISCUSSION AND CONCLUSIONS

We understand that the underground tanks are currently being emptied and will be removed before building construction begins. During our field investigation, very strong petroleum hydrocarbon odors were noticed and high hydrocarbon concentrations were measured in laboratory tests performed on both the soil and ground water; this indicates that gasoline has leaked from the buried tanks. A thin hydrocarbon sheen was observed on the ground-water sample from Boring 5.

The San Francisco Bay Region of the California Regional Water Quality Control Board (RWQCB) has established guidelines for addressing fuel leaks. According to these guidelines, the tanks should be removed from service and an investigation should be performed to determine the vertical and lateral extent of contamination and its impact on ground water at the site. Soils containing TPH concentrations greater than 1000 ppm must be excavated, where possible, and either treated to reduce concentrations to less than 100 ppm or disposed of at a Class I landfill. In general

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* City of Oakland Datum

the current practice accepted by the RWQCB is that soil containing less than 100 ppm TPH may be left in place or, if excavated, replaced in the excavation. In all cases where TPH concentrations in excess of 100 ppm are detected, monitoring wells are required to determine the impact on ground water. On the basis of the TPH test results and RWQCB guidelines, we conclude that cleanup of soil and monitoring well installation is required.

Three soil cleanup alternatives are: 1) excavate and dispose of the contaminated soil above the ground water, 2) excavate, treat on-site, and reuse the contaminated soil, or 3) extract hydrocarbons from the soil above the ground water level using in-situ treatment such as a soil ventilation system.

To determine the impact on ground water, monitoring wells will need to be installed and water samples obtained and tested to measure TPH, benzene, toluene, and xylene (BTX), and possibly metal concentrations. If these constituents are present in concentrations greater than acceptable limits, ground water cleanup will be required. The cleanup would consist of in-situ treatment or extracting ground water by pumping from wells installed at the site. The extracted water could be discharged into the sanitary sewer system, although the East Bay Municipal Utility District (EBMUD) may require that the water be processed through a filter/treatment system before discharge.

Additional investigation will be necessary to determine the extent of soil and/or ground water contamination and the most economical approach for cleanup.

The details of the plan to clean up the soil and/or water at the site can only be developed following installation and sampling of the monitoring wells and will require negotiation with and approval of the RWQCB, the Alameda County Environmental Health Service, and possibly other regulatory agencies.

RECOMMENDATIONS

Buried Tank Removal

We recommend that the buried tanks be removed. During removal the soil beneath the tanks should be sampled following the guidelines in Appendix A. The excavated soil can be aerated on site if approval is obtained from the Bay Area Air Quality Management District (BAAQMD). After the soil has been aerated to a TPH concentration below 100 ppm, it can be used to backfill the excavation or disposed of at a Class III landfill. If approval for aeration is not obtained from the BAAQMD, then the soil contaminated to a TPH concentration greater than 100 ppm will need to be disposed of at a Class I landfill. The excavation should be backfilled and compacted as recommended in our soil report and summarized below.

1. On-site soil is suitable for use as backfill
2. Imported material to be used for backfill should be sand or gravel free of organic material, debris, and rock fragments larger than 6 inches in diameter; it should have a liquid limit not greater than 40 and a plasticity index not greater than 15

3. Backfill should be placed in lifts not greater than 8 inches in loose thickness and should be compacted to at least 90 percent relative compaction

4. The upper 6 inches of all backfill should be compacted to at least 95 percent relative compaction

5. If "clean" sand backfill (sand with little or no fines) is used, all lifts should be compacted to at least 95 percent relative compaction.

Monitoring Wells and Further Investigation

In accordance with the guidelines of the RWQCB, we recommend that the site be further investigated by:

1. Installing at least three 4-inch-diameter ground-water monitoring wells to measure ground-water contamination and the direction of flow. Recommended monitoring well locations are shown on the Site Plan, Plate 1. (We recommend installing 4-inch-diameter wells instead of the customary 2-inch-diameter wells so that if cleanup is required, submersible pumps may be installed to discharge water.) We recommend installing the monitoring wells as soon as possible.

2. Obtaining soil and ground-water samples for laboratory testing of TPH, dry density, and moisture content, as appropriate.

3. Laboratory testing the ground water obtained from the wells to measure TPH, BTX, and metals concentrations.

Remediation Plan

A site remediation plan should be developed based on the results of sample analysis during tank removal and the data from the ground-water monitoring wells. The plan should be submitted to the relevant regulatory agencies prior to implementation. Additionally, we recommend that this preliminary report be submitted to the Alameda County Environmental Health Service before construction bids are accepted.

PLATES

Plate 1	Site Plan
Plate 2	Log of Boring 4
Plate 3	Log of Boring 5
Plate 4	Soil Classification Chart and Key to Test Data

Depressed Area

EXISTING THREE STORY BRICK BUILDING WITH BASEMENT

EXISTING TWO STORY BRICK BUILDING

CONCRETE BLOCK WALL

Concrete Walkway

Site Boundary

EXISTING TWO STORY WOOD FRAME BUILDING WITH BASEMENT

JEFFERSON STREET

Concrete Sidewalk

PROPOSED CITY BLUE PRODUCTION FACILITY

Gas Filler Caps

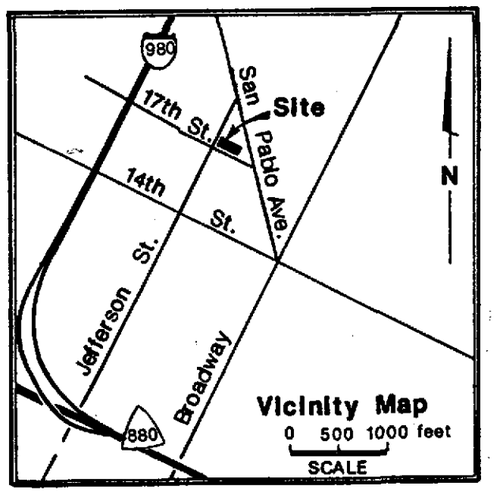
Pump Island

EXISTING ONE STORY METAL FRAME GAS STATION

Brick Wall

Concrete Sidewalk

SEVENTEENTH STREET



EXPLANATION

- Boring Location and Number, this investigation
- Boring Location and Number, Soil Investigation
- Proposed Monitoring Well Location

REFERENCES:

1. "Preliminary Site Plan, City Blue Production Facility, 1700 Jefferson Street, Oakland, California," by Garcia/Wagner and Associates, dated Feb. 17, 1987.
2. Untitled Survey (partial print), Seventeenth Street and Jefferson Street, Surveyor unknown.

N

0 16

Scale in feet

HLA **Harding Lawson Associates**
Engineers, Geologists & Geophysicists

Site Plan
Preliminary Hazardous Waste Assessment
City Blue Production Facility
Oakland, California

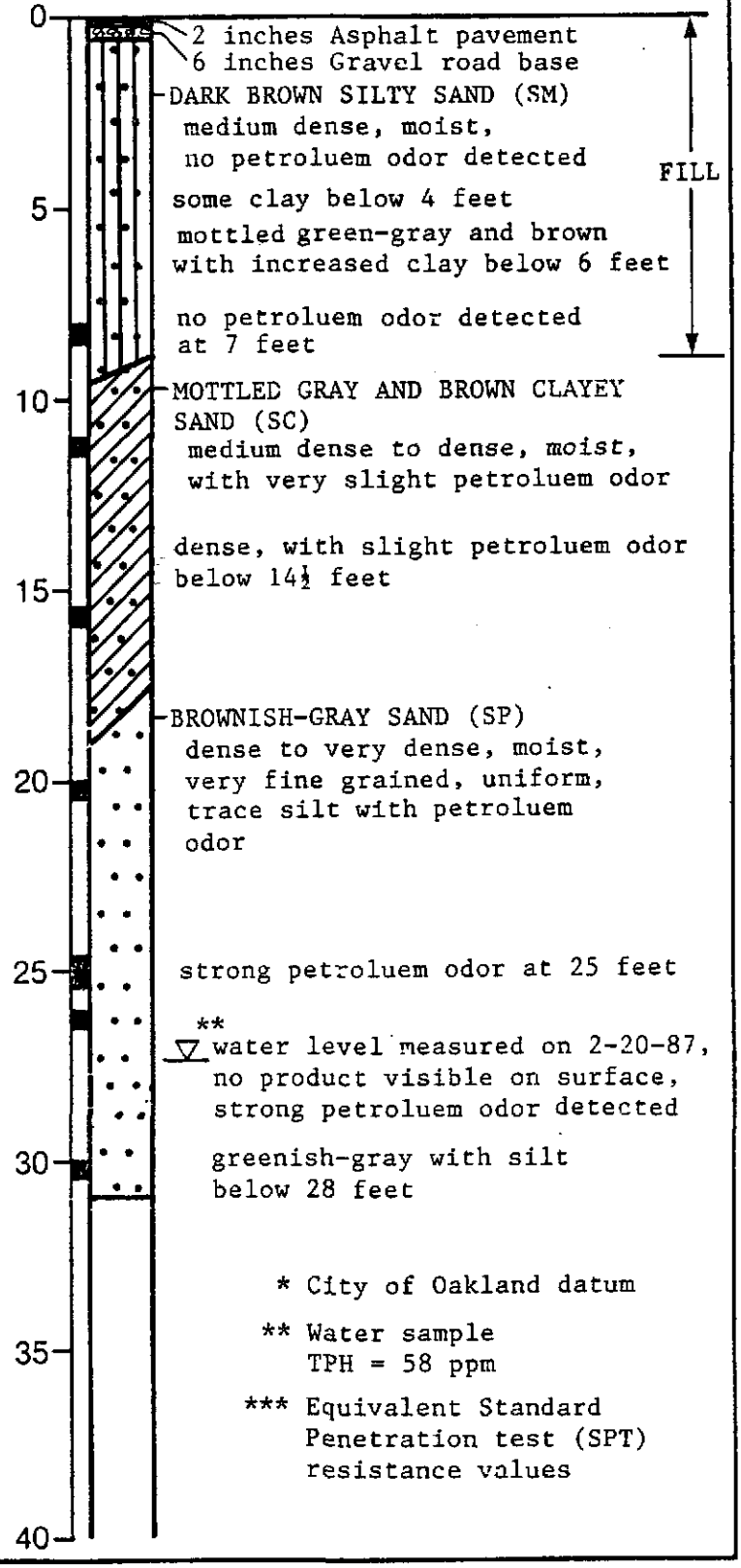
PLATE 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AG	18106,001.04	DL	2/87		

Laboratory Tests	Blows/foot ***	Moisture Content (%)	Dry Density
TPH = Total Petroleum Hydrocarbons			
ppm = parts per million			
	21		
TPH = 64 ppm	31		
TPH = 310 ppm	49		
TPH = 2100 ppm	33/6"		
	33/5½"		
TPH = 1700 ppm	49/6"		
TPH = 46 ppm	40		

Equipment Hollow Stem Auge

Elevation 31.5 feet * Date 2-19-87



* City of Oakland datum

** Water sample
TPH = 58 ppm

*** Equivalent Standard Penetration test (SPT) resistance values

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 4

City Blue Production Facility
Oakland, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	18106,001.04	DZ	2/87		

Equipment Hollow Stem Auger

Elevation 31.5 feet Date 2-20-87

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
				0	
					2 inches Asphalt pavement 6 inches Gravel road base
					GREENISH GRAY SILTY SAND (SM) medium dense, moist, trace clay
				5	increased clay at 5 feet
					FILL
					MOTTLED BROWN AND GREENISH GRAY CLAYEY SAND (SC) medium dense, moist, with silt, no petroluem odor detected
	17				
				10	increased clay below 9 feet
					decreased clay, slight petroluem odor below 13½ feet
TPH = 150 ppm	12			15	
					GRAY-BROWN SAND (SP) medium dense, moist, uniform, fine-grained, with strong petroluem odor
TPH = 900 ppm	27			20	
					dense with some silt, strong to very strong petroluem odor at 24 feet
TPH = 3300 ppm	49			25	
					* ▽ water level measured on 2-20-87, product was visible on surface, strong petroluem odor detected
	33			30	greenish gray, saturated, with slightly less petroluem odor below 28½ feet.
				35	
				40	

* Water sample
TPH = 51 ppm

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 5

City Blue Production Facility
Oakland, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	18106,001.04	DL	2/87		

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS (MORE THAN HALF IS LARGER THAN NO. 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL-GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE-GRAINED SOILS (MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT 50% OR LESS)		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50%)		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM / ASTM

Perm	—	Permeability
Consol	—	Consolidation
LL	—	Liquid Limit (%)
PI	—	Plastic Index (%)
G_s	—	Specific Gravity
MA	—	Particle Size Analysis
▩	—	"Undisturbed" Sample
⊠	—	Bulk or Classification Sample

Shear Strength (psf) ↓ Confining Pressure ↓

TxUU (FM) or (S)	3200	(2600)	— Unconsolidated Undrained Triaxial Shear (field moisture or saturated)
TxCU (P)	3200	(2600)	— Consolidated Undrained Triaxial Shear (with or without pore pressure measurement)
TxCD	3200	(2600)	— Consolidated Drained Triaxial Shear
SSCU (P)	3200	(2600)	— Simple Shear Consolidated Undrained (with or without pore pressure measurement)
SSCD	3200	(2600)	— Simple Shear Consolidated Drained
DSCD	2700	(2000)	— Consolidated Drained Direct Shear
UC	470		— Unconfined Compression
LVS	700		— Laboratory Vane Shear

KEY TO TEST DATA

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Soil Classification Chart and Key to Test Data

City Blue Production Facility
Oakland, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	18106,001.04	DZ	2/87		

Appendix A

SOIL SAMPLING PLAN

BURIED TANK REMOVAL

Appendix A

SOIL SAMPLING PLAN
BURIED TANK REMOVAL

In accordance with the guidelines of the Regional Water Quality Control Board dated September 1985 on underground tank removal, we recommend that tank removal include:

1. Visual inspection of the tank upon removal. All external tank surfaces and fittings should be inspected for evidence of holes, leakage, or deterioration. The results of the inspection should be documented in writing, with photographs where appropriate.

2. Visual inspection of the excavation. All excavation surfaces should be inspected for evidence of leakage. Evidence of leakage includes stained soil, areas of free product, and odors. The results of the inspection should be documented in writing, with photographs where appropriate.

3. Two soil samples should be obtained from beneath the tank, one from directly beneath the fill pipe, the other from a similar position at the opposite end of the tank. If obviously stained or contaminated areas exist in locations other than the two noted above, then additional soil samples should be obtained from these areas.

We recommend that soil samples be obtained according to the following procedures:

1. Immediately upon removal of the tank, a backhoe bucket of native soil should be taken from a location approximately 1-1/2 feet below the excavation floor. This soil should be rapidly brought to the surface.

2. Approximately 3 inches should be rapidly scraped from the surface of this soil. Then a clean stainless steel tube at least 3 inches long should be pushed into the soil and filled completely to eliminate any void space.

3. The ends of the tube should be covered with aluminum foil or Teflon and then with plastic caps, and should be wrapped with suitable tape and labeled.

4. The samples should be immediately placed on ice or dry ice for transport to a laboratory. Formal chain-of-custody records should be maintained and submitted for each sample.

Soil samples should be sent to a state-certified laboratory such as Curtis and Tompkins in San Francisco or Analytical Science Associates in Emeryville for total petroleum hydrocarbon analyses.

DISTRIBUTION

4 copies:

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Attention: Mr. Paul Koze, Jr.

DAL/GSC/sjp/nlh

QUALITY CONTROL REVIEWER

Barry Robson

V. Barry Robson
Principal Engineer