SUMMARY REPORT OF PREVIOUS SITE ACTIVITY

FOR

DI SALVO TRUCKING
4919 TIDEWATER AVENUE
OAKLAND, CALIFORNIA

submitted to:

Mr. Charles Lawlor
Di Salvo Trucking Company
660 Mariposa Street
San Francisco, California

prepared by:
GEN TECH ENVIRONMENTAL, INC.
1936 CAMDEN AVENUE, Suite 1
SAN JOSE, CALIFORNIA 95124

Gen-Tech Environmental

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Contractor's Lic. #615869

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March 24, 1994
Project No. 9407

Di Salvo Trucking Company
660 Mariposa Street
San Francisco, California 94107

Attn: Mr. Charles Lawlor

Re: **Summary Report of Previous Site Activity**
Di Salvo Trucking, 4919 Tidewater Avenue, Oakland, CA
RWQCB File: 01-0495 & 2198.17

Dear Mr. Lawlor,

Gen Tech Environmental, Inc. has prepared this summary report of the previous site activities performed at the above referenced site. If you have any questions, please call.

Sincerely,
Gen Tech Environmental, Inc.

Stuart Solomon
Principal

Christopher M. Palmer
C. E. G. 1262

REGISTERED GEOLOGIST
CHRISTOPHER M. PALMER
№ 1262
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

attachments

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Introduction

Gen Tech Environmental, Inc. (GTE) has prepared this summary report regarding tank removals, sampling and interim remedial actions taken at 4919 Tidewater Avenue in Oakland, California. This report was prepared from the information, observations, samples collected and written reports by Geo-Environmental Technology, Inc. (GET, also known as Environmental Technology (ET), Inc.) in 1989. GTE has evolved from GET and ET, and the same principal supervised this project during the time the work was done. Hereinafter, work done by either Environmental Technology or Geo-Environmental Technology will be referenced by "GET".

This report has been prepared in response to the letter sent from the California Regional Water Quality Control Board (RWQCB) for the Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division (ACHD) dated February 24, 1994 (RWQCB File: 01-0495 & 2198.17).

This project was performed in several stages due to the size of the problem and the Client's limited financial resources. The summary presented below is an overview based on reports of the actions taken by GET and GTE for the site. The individual reports on file at ACHD should be reviewed for more detail on specific site actions.

Background

GET was retained by DiSalvo Trucking Company to remove three underground storage tanks at their trucking facility at 4919 Tidewater Avenue in Oakland, California. These tanks had apparently been installed in 1968 and were used continuously until March, 1989 (see GET report dated April 27, 1989). The initial project involved removing three underground tanks; one 10,000 gallon diesel, one 5,000 gallon diesel, and one 280 gallon waste oil tank (see Figures 1 and 2). These tanks were removed on March 16, 1989. Soil samples collected from the excavations indicated low levels of diesel contamination which was overexcavated from the former tank pit. Another subsurface tank (550 gallon, assumed to have been used for fuel storage), was was discovered and removed on March 27, 1989.

Approximately 3,000 cubic yards of contaminated soil was excavated from the area around the tanks and stockpiled on-site for treatment (see Figure 3). During the excavation an ten-inch diameter pipeline buried about 2-feet below grade was discovered. This pipeline may be related to historic oil refining activity in the area. The pipe broke during the excavation activity and leaked about 3,000 gallons of diesel-like fuel into the excavation. The leakage from this pipe was allowed to continue since the excavation was already partially filled with separate phase product, and the product was immediately recovered by ongoing pumping. Once the ten-inch pipeline had drained, the pipe was cut, middle section removed and the ends capped at the limits of the excavation. The 1.5-inch diameter diesel fuel pipeline buried 18-inches below grade leading to the yard hydrants was excavated and observed to have corrosion holes and a crack at the pipe elbow. Diesel fuel was observed in soil at the crack and hole locations (see Photographs, Appendix A).

Excavated soil treated with biologic enhancing hydrocarbon degradation products and tilled on-site beginning in April, 1989. The soil was repeatedly treated with the biologic product and tilled on site until diesel concentrations had declined. The product use for hydrocarbon

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degradation was Solmar L-104 Microbes. The product was applied in accordance with manufacturers specifications. This soil was this soil was piled into a landscape berm which currently exists between Tidewater Avenue and property frontage.

The excavation pit recharged with water since the pit was advanced below groundwater. Groundwater was observed at 3- to 4-feet and the excavation was advanced to a maximum depth of 12 feet. **The volume of mixed diesel and water removed is estimated at 20,000 gallons.** An additional 2,400 gallons of diesel product which recharged into the excavation and was pumped out and sent to H and H Ship Service and Oil Recovery systems, Inc.

In March-June, 1989, GET performed a reconnaissance site assessment of the contamination. This involved collected soil samples (LS-1 through LS-22). A Preliminary Investigation Report dated June 16, 1989 prepared by GET which recommended that dispenser lines, hydrants be removed, and an interceptor well or drain should be installed for diesel product recovery. A recovery well/sump equipped with a product skimmer and well was installed by Clean Environment Engineers of Emeryville, California in April, 1989 (see Figure 4, 5 and 6). This system operated from April, 1989 through August 1989. The system was shut off since 10-12 inches of free product entered well and overwhelmed the ability of the pump to remove product. Apparently, this system has not been restarted since August, 1989 (the Client was experiencing fianancial difficulties following this period). **Ultimately, about 22,400** gallons of free separate phase product (diesel fuel) and contaminated groundwater were pumped from the excavation, recovery trench and the recovery well/sump.

A new above ground diesel storage tank was installed in May, 1989 under permits of the Oakland Fire Department.

Sample Methods-Summary

Soil samples were collected from the excavation, soil stockpile, and from shallow soil borings (see Figures 3 and 4). Excavation samples were collected by having an excavator remove soil from the pit, and after brushing away the outer one- to two-inches of soil, hammering a brass liner into the soil. The stockpiled soil samples were collected by pressing a clean brass liner into the soil to a depth of about one foot, completely filling the liner. Once the liners were removed, they were all sealed with either aluminum foil or Teflon® paper and plastic endcaps, labeled, logged onto chain-of-custody forms and packed in a chilled ice chest for transport to the laboratory.

Nineteen (19) shallow exploratory soil borings were placed on the site to ascertain presence of contamination, field testing of soil samples and for analysis at the analytical laboratory (see Figures 3 and 4 and GET report dated June 15, 1989). General lithologic informtion was collected from the open excavtion. The borings were drilled with hand augering equipment. Soil samples were collected using clean brass liners which were driven into the soil. The liner is retrieved, and the ends sealed with Teflon® paper and plastic endcaps, labeled, logged onto chain-of-custody forms and packed on ice for shipment to the laboratory.

Reconnaissance "grab" groundwater samples were collected from the tank pits, shallow borings, or excavation. The samples were collected by using a clean bailer lowered into the water, and transferring the sample into the appropriate laboratory prepared container. The

containers were sealed with minimum headspace, labeled, logged onto chain of custody forms and packed into a chilled ice chest for transport to the laboratory.

Excavated Soil Treatment and Removal-Summary

Approximately 3,000 cubic yards of contaminated soil was excavated from the area around the tanks and stockpiled on-site for treatment (see Figure 3). Excavated soil was treated with biologic enhancing hydrocarbon degradation products and tilled on-site in April, 1989. The soil was repeatedly treated with the biologic product and tilled on site until diesel concentrations had declined. The product use for hydrocarbon degradation was Solmar L-104 Microbes. The product was applied in accordance with manufacturers specifications. The soil was rototilled and moistened twice per week over the treatment cycle. When completed, composite soil samples were obtained in accordance with direction of Mr. Ariu Levy of the ACDHS. Each of the final samples were found to contain less that 10 parts per million (ppm) Total Petroleum Hydrocarbons as Diesel (TPHD) and Benzene, Toluene, Ethylbenzene and Xylene were not detected. This soil was this soil was piled into a landscape berm which currently exists between Tidewater Avenue and property frontage. A report documenting this work was prepared, dated April 27, 1989 by GET. Following removal of the free product and excavation of soil, the excavations were backfilled with pea gravel and soil fill, machine compacted and the surface paved with baserock and asphalt.

Still need a copy of this report

Chemical testing Aqua Terra Technologies and Med-Tox showed that the soil was classified as non-hazardous according to Title 22 CCR 66305 criteria. The soil was used for a landscape berm and spread on the parking area to fill pot holes.

Subsurface Conditions

The site occurs near the eastern edge of the San Francisco Bay. This area is underlain be alluvial floodplain deposits which are typically clayey sediments. The site is underlain by clay and artificial fill which contains wood and debris to depths of 6- to 8-feet. A dense gray to black "Bay mud" clay underlies the clay-fill to depths of 12 feet. Groundwater occurs roughly 3- to 4-feet below the surface, and is assumed to be unconfined. Water containing diesel was observed to be flowing into the excavation at a depth of about 4 feet. The approximate extent of the separate phase diesel plume mapped in 1989 is presented on Figure 5.

Groundwater wells were not installed during these phases of work. The site is very near the Bay fringe, and a relatively flat groundwater gradients are typical. A review of a nearby Pacific Gas and Electric site indicates that while the groundwater gradient is variable, a northerly flow direction was apparent in 1989.

Chemical Analysis and Results

Fifty one (51) soil samples and two water samples were chemically analyzed at State certified analytical laboratories. Three laboratories were used; Trace Analysis Laboratory in Hayward, Med-Tox Associates Aqua Terra Technologies Laboratory in Pleasant Hill, Chromalab in San Ramon and Carter Analytical Laboratory, Inc., Campbell, California.

The soil declassification work was done by another subcontractor (Aqua Terra), who selected the laboratory foir their analyses.

Selected samples were chemically analyzed for Total Petroleum Hydrocarbons as Gasoline (TPHG), Diesel (TPHD), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Volatile Organic Analysis (VOC), Base Neutral Analysis (BNA), Ignitability, Priority Metals and Waste Oil/Total Oil and Grease using EPA Methods 8015, 8020, 8240, 8270, 7000 Series, and 503E. The chemical analytical reports are presented in the individual reports attached to this report. A fuel "fingerprint" was sent to Curtis Thompkins Laboratory in Berkeley, California for analysis of the liquid fuel. The sample was analyzed for TPHD, phenols and polychlorinated Byphenols (PCB) using EPA Methods 8015, 8080 and 604. The results showed that the unknown fuel was 95% diesel, and that Aroclor PCB and phenols were not detected.

A summary of the soil and water data is presented in Tables 1 and 2 below. The data is grouped and listed by sample date, and where analysis constituents change a new header with those constituents analyzed is inserted into the Table.

Table 1. Soil Chemical Analysis Results

Sample No.	Date Sampled	TPHG ug/kg	TPHD ug/kg	B	T	E	X	OG ug/kg
				------	all	ug/kg	-----	
DS-1*	3/24/89	NR	<3,000	<20	<20	<100	<40	NR
DS-2*	3/24/89	NR	<3,000	<20	<20	<100	<40	NR
DS-3*	3/24/89	NR	<3,000	<20	<20	<100	<40	NR
DS-4*	3/24/89	NR	64,000	<20	<20	<100	<40	NR
DS-5*	3/24/89	NR	<3,000	<20	<20	<100	<40	NR
DS-6*	3/24/89	NR	<3,000	<20	<20	<100	<40	NR
DST-1*	3/27/89	<500	<3,000	<30	<30	<100	<50	NR
LS-1*	5/2/89	NR	<3,000	NA	NA	NA	NA	NR
LS-2*	5/2/89	NR	<3,000	NA	NA	NA	NA	NR
LS-4*	5/2/89	NR	3,000,000	NA	NA	NA	NA	NR
LS-6*	5/2/89	NR	40,000	NA	NA	NA	NA	NR
LS-9*	5/2/89	NR	460,000	NA	NA	NA	NA	NR
LS-10*	5/2/89	NR	46,000,000	NA	NA	NA	NA	27,000,000
LS-11*	5/2/89	NR	420,000	NA	NA	NA	NA	NR
LS-16*	5/4-5/89	NR	<3,000	NA	NA	NA	NA	NR
LS-18*	5/4-5/89	NR	<3,000	NA	NA	NA	NA	NR
LS-21*	5/4-5/89	NR	<3,000	NA	NA	NA	NA	NR
LS-22*	5/4-5/89	NR	<3,000	NA	NA	NA	NA	NR
SS-1*	5/16/89	4,100	NR	<30	39	240	2,000	<400
SS-2*	5/16/89	1,600	NR	<30	<30	<100	<40	<500

Table 1. Soil Chemical Results con't.

Sample No.	Date Sampled	VOC ug/kg	TPHD mg/kg	B	T	E	Total X	TPHWO mg/kg
				------	all	ug/kg	-----	
SS-1#	5/26/89	NR	1,300	NA	NA	NA	NA	ND
SS-8#	5/26/89	NR	3,900	NA	NA	NA	NA	ND
SS-12#	5/26/89	NR	8,300	NA	NA	NA	NA	ND
SS-16#	5/26/89	NR	1,800	NA	NA	NA	NA	ND
SS-20#	5/26/89	NR	650	NA	NA	NA	NA	280
SS-23#	5/26/89	NR	1,400	NA	NA	NA	NA	210
SS-28#	5/26/89	NR	790	NA	NA	NA	NA	240
SS-31#	5/26/89	NR	18,000	NA	NA	NA	NA	1,200
SS-36#	5/26/89	NR	9,700	NA	NA	NA	NA	2,000
DS-1†	6/20/89	NR	<20	92	<50	<50	1,456	NR
DS-2†	6/20/89	NR	4,310	<50	<50	190	645	NR
DS-3†	6/20/89	NR	1,690	<50	<50	<50	284	NR
DS-4†	6/20/89	NR	420	197	<50	<50	<50	NR
WOP-1*	5/24/89	ND	<3,000	<20	<20	<30	<20	<10,000
WOP-2*	5/24/89	ND	<3,000	<20	<20	<30	<20	<10,000

Sample No.	Date Sampled	TPHG ug/kg	TPHD ug/kg	B	T	E	X	OG ug/kg
				------	all	ug/kg	-----	
TS-1†	6/19/89	NR	5,710	<50	410	<50	975	NR
TS-2†	6/19/89	NR	3,950	1,620	55,700	<50	1,000	NR
TS-3†	6/19/89	NR	1,330	<50	310	65	130	NR
TS-4†	6/19/89	NR	1,560	<50	<50	<50	<50	NR
TS-5†	6/19/89	NR	370	<50	<50	<50	<50	NR
SD-1†	6/19/89	NR	1,310	<50	<50	<50	<50	NR
SD-2†	6/19/89	NR	13,460	<50	<50	<50	<50	NR
SD-3†	6/19/89	NR	5,500	<50	<50	<50	<50	NR
LS-1@	6/15/90	NR	9.0	NR	NR	NR	NR	NR
LS-2@	6/15/90	NR	ND	NR	NR	NR	NR	NR
LS-3@	6/15/90	NR	ND	NR	NR	NR	NR	NR
LS-4@	6/15/90	NR	ND	NR	NR	NR	NR	NR
LS-5@	6/15/90	NR	ND	NR	NR	NR	NR	NR
LS-6@	6/15/90	NR	ND	NR	NR	NR	NR	NR

Table 1. Soil Chemical Results con't.

Sample No.	Date Sampled	Ign.	VOCΔ	BNA	Metals
SS-1, 8 COMP#	5/26/89	NI	ND	ND	TRG
SS-12, 16 COMP#	5/26/89	NI	ND	ND	TRG
SS-20, 23, 28 COMP#	5/26/89	NI	ND	ND	TRG
SS-31 SS-36 COMP#	5/26/89	NI	ND	ND	TRG

NOTES: Soil Chemical Analysis Results

NA - Not Analyzed
NR - Not Requested
ND - Not Detected
VOC - Volatile Organic Compound
VOCΔ - None detected except for fuel constituents reported above.
BNA - Base, Neutral and Acid Extractables
TPHWO - Total Petroleum Hydrocarbons as Waste Oil
TRG - When metals detected, concentrations are considered typical for the regional geology.
* - Analyzed at Trace Analysis Laboratory, Hayward, CA
# - Analyzed by Med-Tox Associates, Pleasant Hill, CA
† - Analyzed by Carter Analytical Laboratory, Inc., Campbell, CA
@ - Analyzed by Chromalab, Inc. San Ramon, CA; post treatment stockpile soil samples.
TPHG - Total Petroleum Hydrocarbons as Gasoline
TPHD - Total Petroleum Hydrocarbons as Diesel
B - Benzene; T - Toluene; E - Ethylbenzene; X - (Total) Xylene
NI - Not Ignitable at <186º F

Table 2. Water Chemical Analysis Results

Sample No.	Date Sampled	VOC ug/kg	TPHD ug/kg	B ------	T all	E ug/kg	X ------	OG ug/kg
WS-1*	5/2-3/89	NR	<80	NR	NR	NR	NR	NR
WWOP-1*	5/24/89	ND	<100	<2	120	260	3,300	36,000
WS-1*	5/16/89	8,000	NR	110	41	1,000	120	NR
WS-2*	5/16/89	NR	690,000	NR	NR	NR	NR	NR

NOTES: Water Chemical Analysis Results

NA - Not Analyzed
NR - Not Requested
ND - Not Detected
VOC - Volatile Organics Compounds
* - Analyzed at Trace Analysis Laboratory, Hayward, CA
TPHG - Total Petroleum Hydrocarbons as Gasoline
TPHD - Total Petroleum Hydrocarbons as Diesel
B - Benzene; T - Toluene; E - Ethylbenzene; X - (Total) Xylene

Remedial Actions and Discussion

A large quantity of diesel fuel has leaked at this site. The main leak sources were apparently the tanks and pipeline leaks shown on Figure 5. Possible other sources could have been the ten-inch pipeline, and fourth tank used by a prior site occupant. Large quantities of fuel were observed to leak during the excavation and the hydrant metal pipeline appeared to be seriously corroded. An area of vadose zone soil and saturated soil was affected in the vicinity of the underground storage tanks. The storage tanks and the section of pipeline were disposed properly off-site.

Approximately 3,000 cubic yards of soil was excavated and spread along the southern edge of the site for treatment. The soil was treated with a biologic product which enhances hydrocarbon degradation, and periodically rototilled. Chemical analysis of stockpile samples showed the the TPHD had declined to not detected and that the soil was classified as non-hazardous. The soil was distributed over the site and in the landscape berm.

The excavation and recovery well/sump were used to collect the separate phase fuel "floating" on the groundwater surface. The well/sump is a 48-inch diameter pipe drilled to a depth of about 6 feet. A recovery trench was added to the system and connected to the well/sump. The trench is 4-feet deep and backfilled with a perforated drain pipe at the trench base, and backfilled with drain rock (see Figures 2 and 6). The trench follows the course of the pipeline which connected the hydrants in the yard area near the former tank locations. Most of the fuel was pumped out of the initial excavation pit, and about 2,400 gallons of separate phase were removed. Groundwater which recharged the excavation were pumped out and disposed off-site. Once the fluids were removed, the excavation was backfilled.

The remedial actions to date have removed the sources of contaminants and a large quantity of fuel and contaminated soil and water. An extraction system was installed which was effective to remove contaminants during its operation.

Conclusions

A large volume of diesel fuel leaked from the subsurface tanks and pipelines on site. Three on-site tanks were used by DiSalvo. Sources unknown to the site were the additional 550-gallon storage tank and the ten-inch pipeline filled with product. All of these sources are assumed to have contributed to the contamination of this site. Large quantities of diesel, and contaminated groundwater which entered the excavation, were pumped out and disposed off-site. Soil excavated from the area of the underground storage tanks was treated and left on-site. In our opinion, these actions had a significant affect on the contamination and afforded the most appropriate action given the Client's available financial resources.

GTE has recommended additional site characterization to install permanent groundwater monitoring wells, and additional borings to further assess site conditions. This would include additional geologic and hydrogeologic characterization of groundwater movement. GTE has submitted a work plan dated March 4, 1994 for this scope of work and will use it to ascertain the need for additional monitoring wells and develop additional remedial action. Once the monitoring wells are installed, the site can be scheduled for quarterly groundwater monitoring, and that information will be forwarded to the agencies.

Limitations

This report prepared by Gen Tech Environmental, Inc. is a summary of the referenced work performed by Environmental Technology and Geo-Environmental Technology, Inc. and has been prepared for the specifically for the site at 4919 Tidewater Avenue in Oakland, CA. The work was performed according to the State and local agency suggested guidance documents for these investigations in place at that time the work was done. The interpretations, conclusions and recommendations made herein are based on the data and analysis of the soil and water samples collected on-site and should be reviewed in the context of the whole report. Please note that reports of contamination must be submitted to the agencies in a timely manner. Gen Tech Environmental, Inc. is not responsible for errors in laboratory analysis and reporting, or for information withheld during the course of the study. No warranty or guarantee is expressed or implied therein.

References

Letter dated February 24, 1994, File: 01-0495 and 2198.17, to Mr. Charles Lawlor of DiSalvo Trucking Co. 660 Mariposa Street San Francisco, CA 94107 from the California Regional Water Quality Control Board San Francisco Bay Region, re: Legal Request for Submittal of a Technical Report Resulting from the Alameda County Department of Environmental Health's Pre-Enforcement Review Panel Meeting on January 18, 1994.

Geo-Environmental Technology Inc., report dated April 27, 1989 entitled, "Underground Tank Removal Report," 6 pages with attachments.

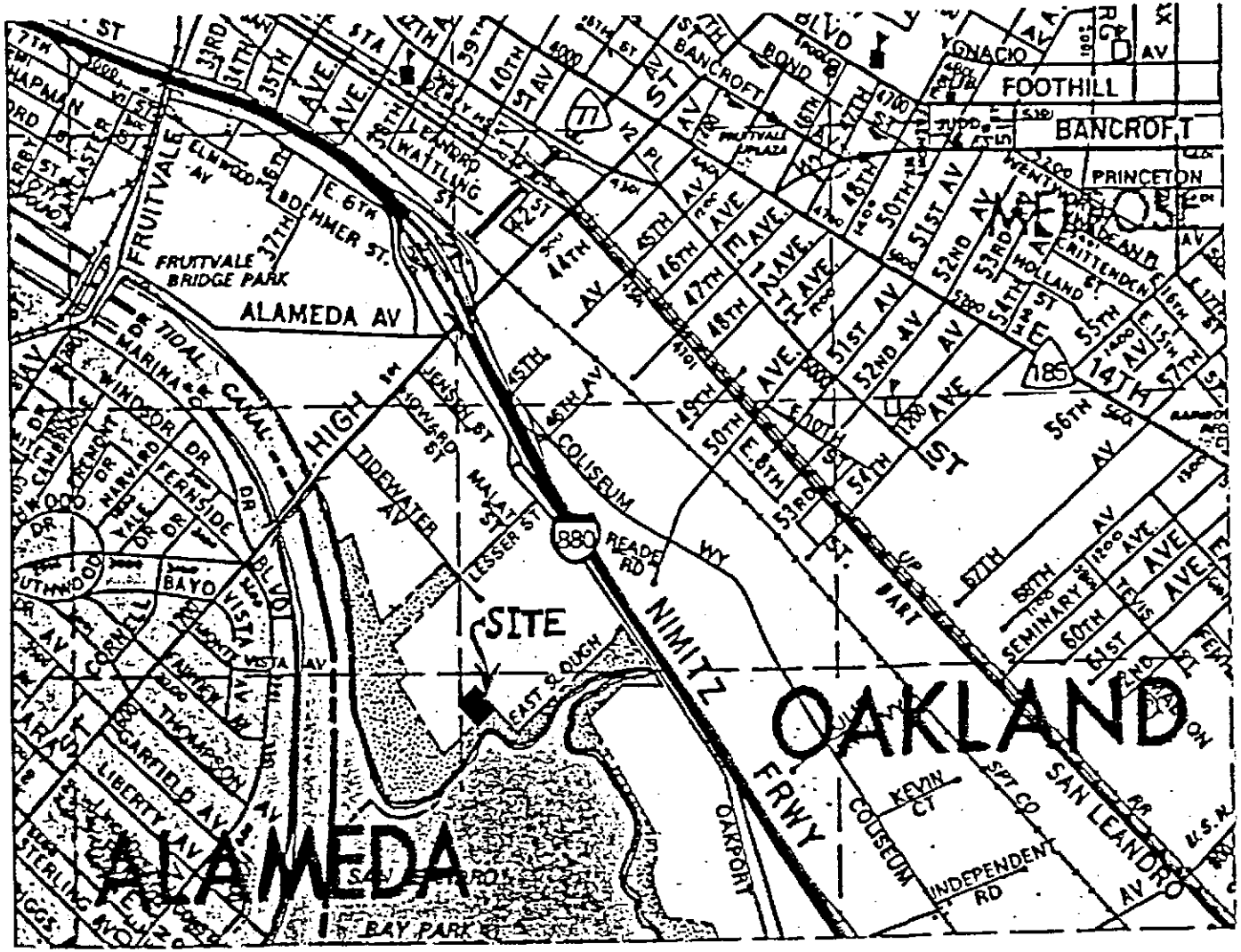
Geo-Environmental Technology Inc., report dated June 15, 1989, entitled, "Technical Report Preliminary Investigation."

Geo-Environmental Technology Inc., report dated, "Declassification of Contaminated Soil Report."

Geo-Environmental Technology Inc., report dated March, 12, 1991, entitled, "Contaminated Site Interim Report."

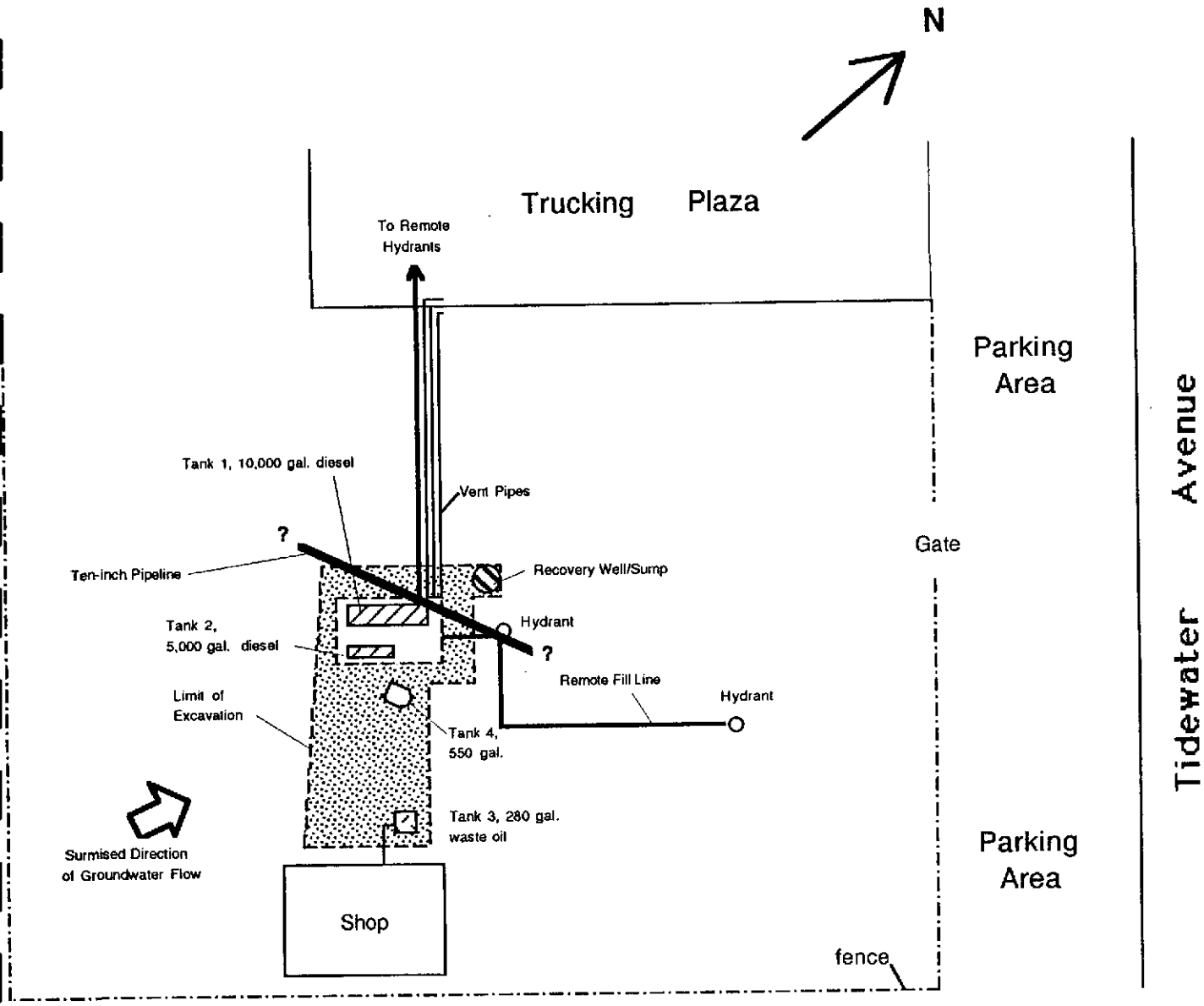
Gen Tech Environmental, Inc. letter to Charles Lawlor, dated October 11, 1993 Re: 4919 Tidewater, Oakland, CA-Hydrant Piping Leak Evaluation, 2 pages with attached photographs.

Aqua Terra Technologies letter to Mr. Stuart Solomon, GET, dated July 7, 1989, re: Stockpiled Soil deSalvo Trucking Oakland, CA 3 pages with attached chemical data.



Base map from Thomas Bros. Map Series

Gen-Tech Environmental		
SCALE: 1"=2200'	VICINITY MAP	DRAWN BY
DATE: 6-10-89		REVISED
DISALVO TRUCKING 4919 TIDEWATER AVENUE OAKLAND, CALIFORNIA		



Notes: Information presented taken from Geo-Environmental Technology, Inc. June, 1989.
Tank No. 4 discovered during excavation, apparently used for petroleum storage. Ten-inch Pipeline may be related to oil refinery use.

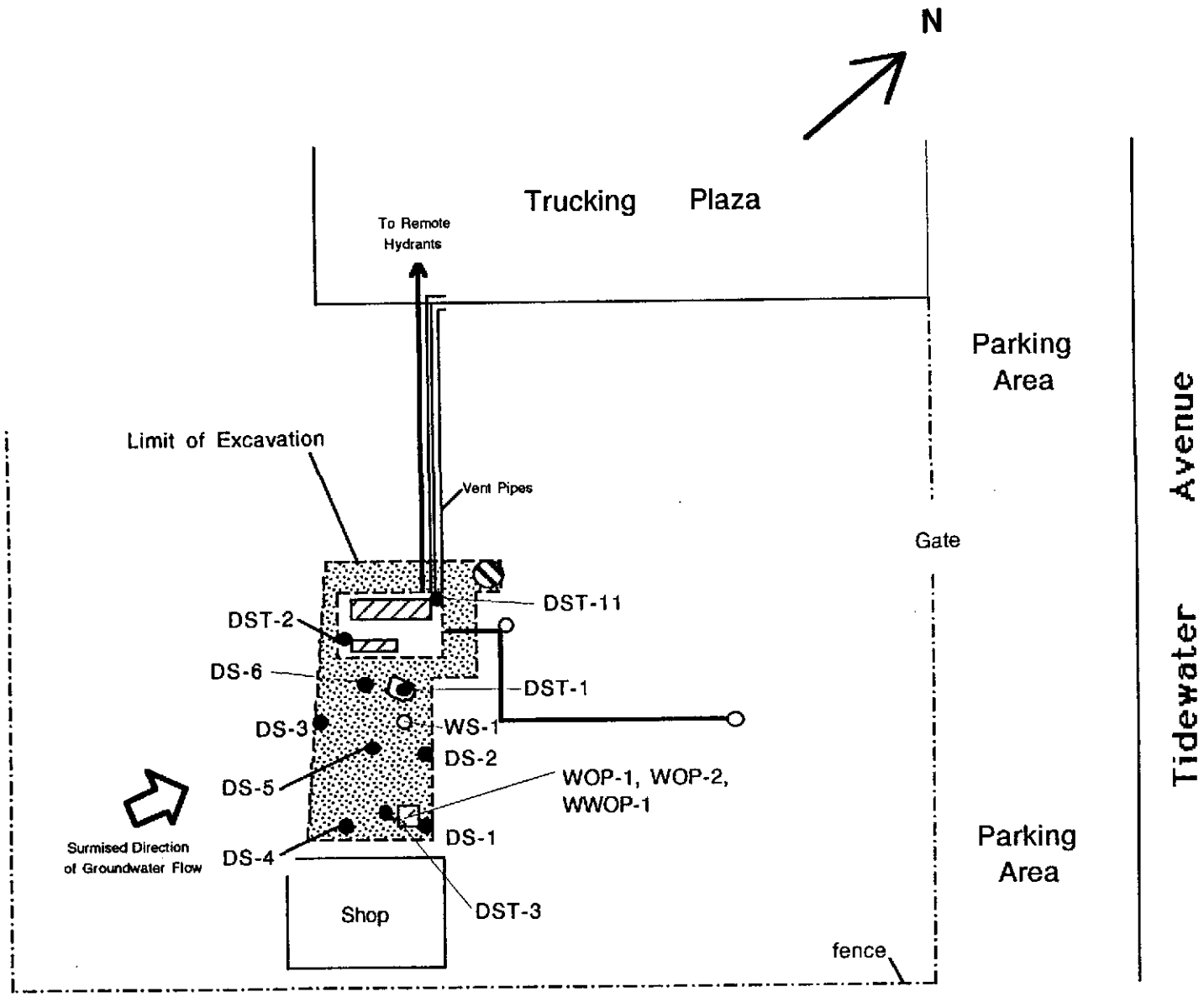
0 50

Tank Location and Excavation Map
DiSalvo Trucking
4919 Tidewater Avenue
Oakland, CA

Project No. 9344
Scale: 1" = 50'
Date: Mar., 1994

Figure 2

Gen Tech Environmental, Inc.
San Jose, CA



Notes: Information presented taken from Environmental Technology, Inc. June, 1989, Plate 2, 6-10-89. "Environmental Technology and Geo-Environmental Technology are the same company and performed the work.

● Soil Sample Location

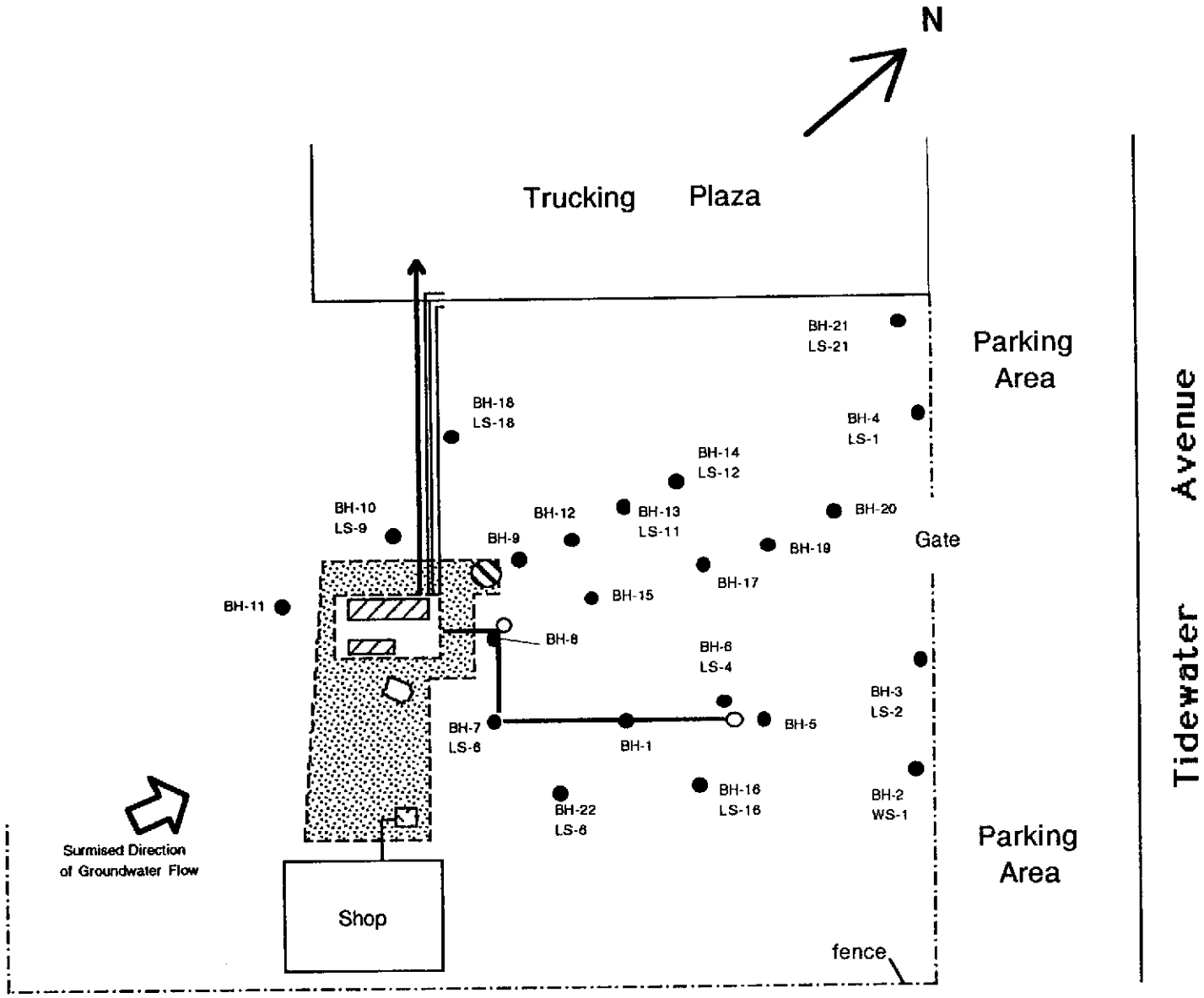
0 50'

Gen Tech Environmental, Inc.
San Jose, CA

Soil Sampling Map
Excavation Limit
DiSalvo Trucking
4919 Tidewater Avenue
Oakland, CA

Project No. 9344
Scale: 1" = 50'
Date: Mar., 1994

Figure 3



Notes: Information presented taken from Environmental Technology, Inc. June, 1989, Plate 3, 6-10-89. "Environmental Technology and Geo-Environmental Technology" are the same company and performed the work.

● BH-16 - Borehole Location
LS-16 - Sample Number

0 50'

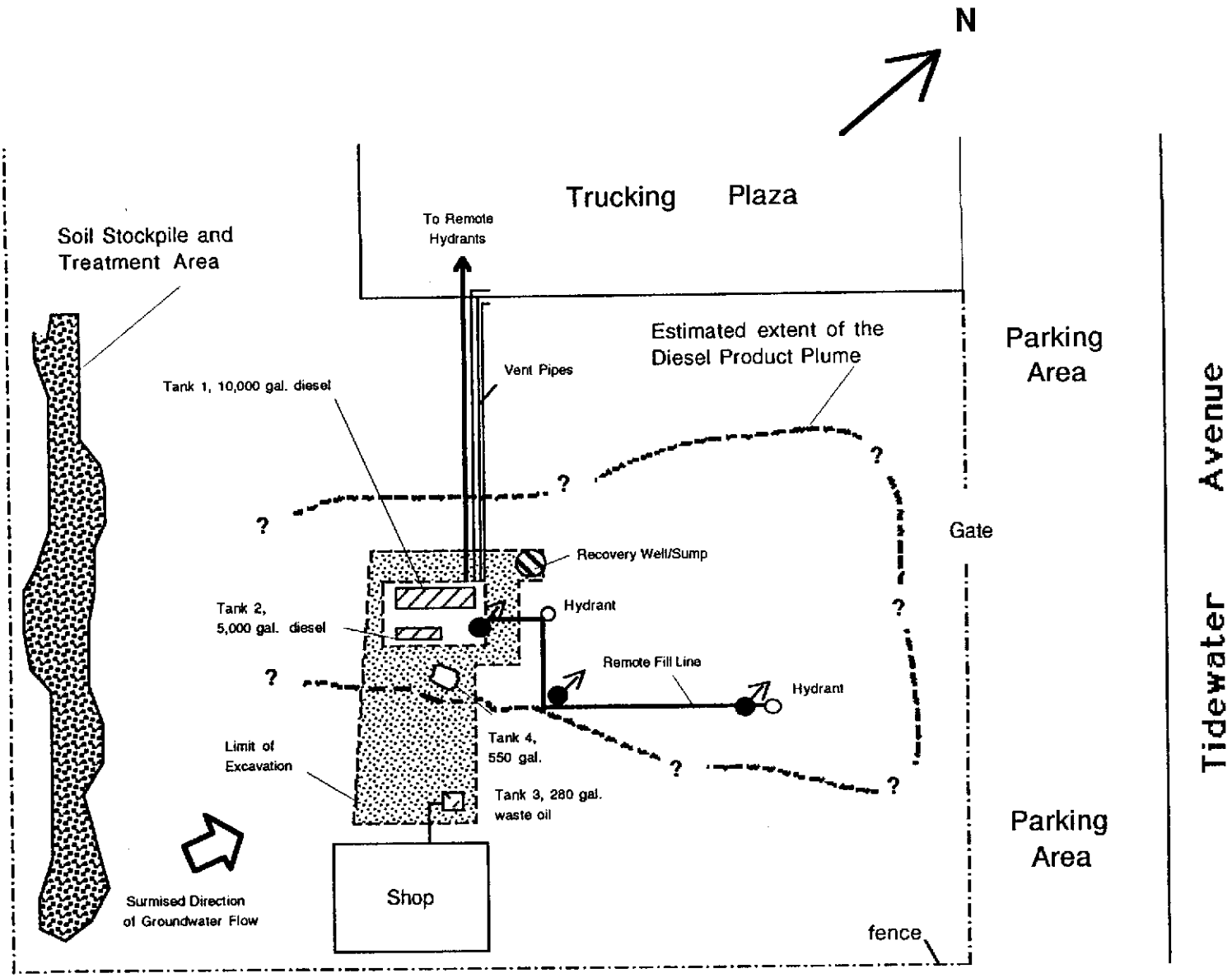
Gen Tech Environmental, Inc.
San Jose, CA

Yard Area Sampling Map

DiSalvo Trucking
4919 Tidewater Avenue
Oakland, CA

Project No. 9344
Scale: 1" = 50'
Date: Mar., 1994

Figure 4



Estimated extent of the separate phase Diesel plume plotted using sample locations shown on Figures 3 and 4.

Corroded Pipeline and/or Pipeline Leak

Notes: Information presented taken from Geo-Environmental Technology, Inc. June, 1989.

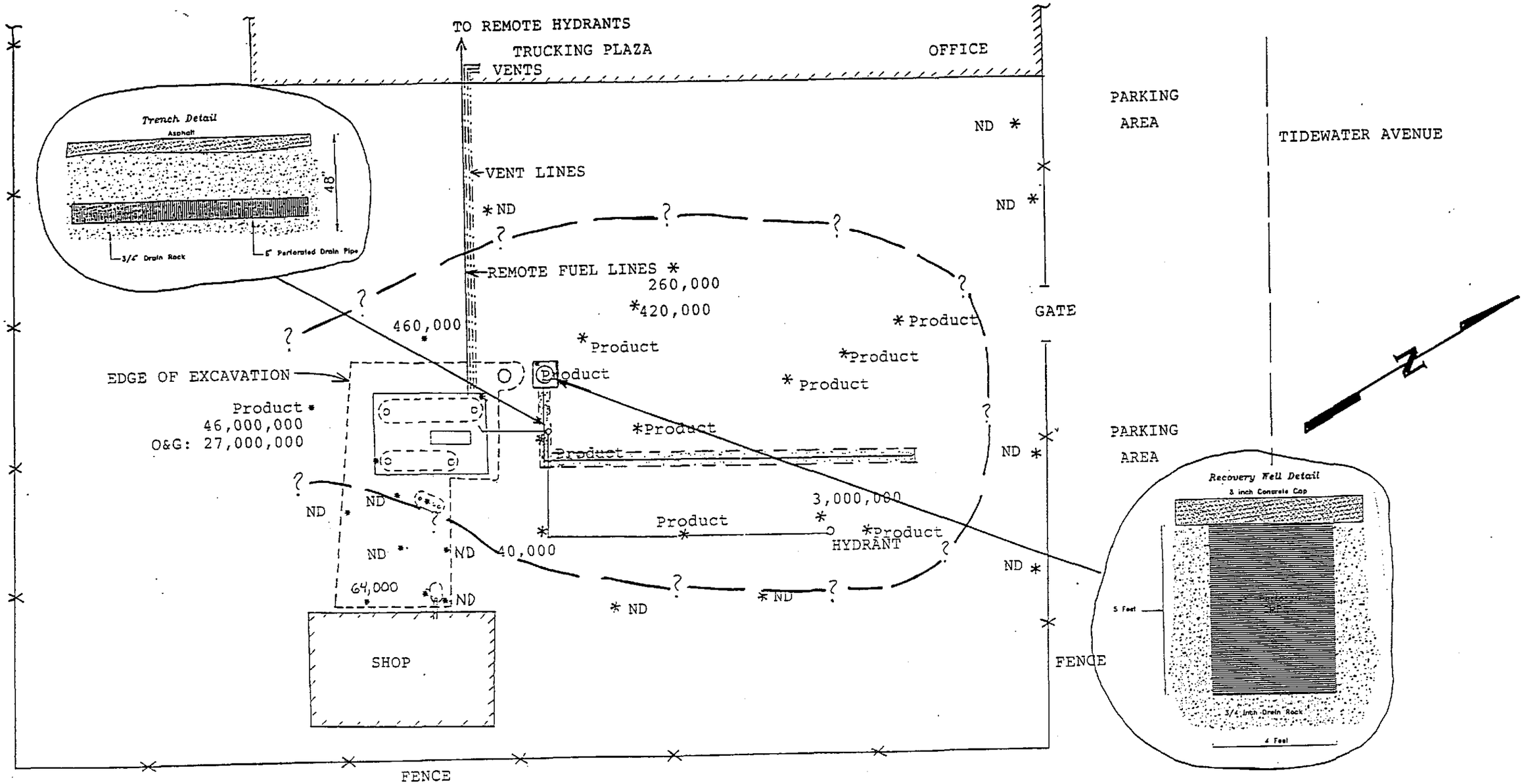
0 50'

Diesel Product Plume, May-June, 1989
DiSalvo Trucking
4919 Tidewater Avenue
Oakland, CA

Project No. 9344
Scale: 1" = 50'
Date: Mar., 1994

Figure 5

Gen Tech Environmental, Inc.
San Jose, CA



* - SAMPLE LOCATIONS WITH TPH AS DIESEL CONCENTRATIONS IN PPB

Note: Trench design and product sump recovery design by Clean Environmental Engineers and Geo-Environmental Technology, April-June, 1989.

Product Recovery Sump and Trench

DiSalvo Trucking
4919 Tidewater Avenue
Oakland, CA

Project No. 9407
Scale: 1"= 30'
Date: Mar., 1994

Figure 6

Appendix A

Di Salvo Trucking Photographs

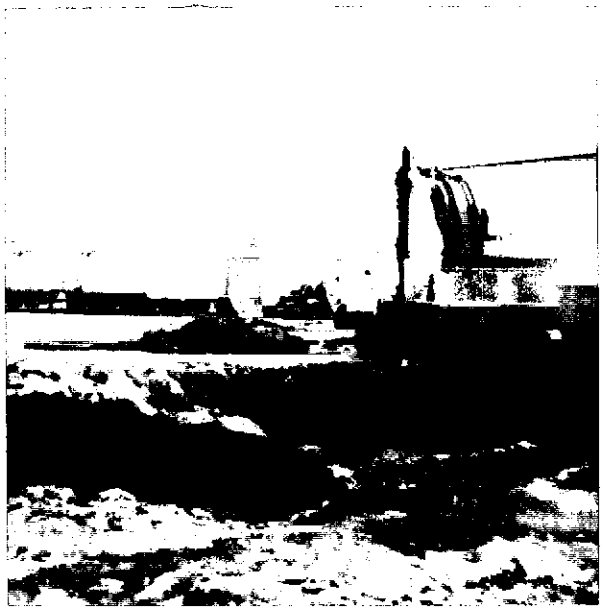
March-May, 1989

GeoEnvironmental Technology

260 Cristich Lane
Campbell, CA 95008
(408)559-1220

Disabled Pool area -
500 gal [illegible] removal

Shown are water in excavated
hole where 10,000 GA. tank was
pulled



Di Salvo : 3/21/89
Tidewater Site

Di Salvo : 3/21/89
Tidewater Site

ABOUT A FOOT OF
FLOATING PRODUCT HERE

Di Salvo 3/24
Tidewater Site

WASTE OIL TANK PIT

Di Salvo : 3/21/89
Tidewater site

PROBE SECURED AT 524 SE
STORAGE TANK

FREE PRODUCT ON WATER

524 SE

DISALVO TRUCKING
4919 Tidewater
Oakland, CA
Excavation 3/24/89

dust

Sampling limits

water flow from this corner

Newly discovered 555 tank

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October 11, 1993

DiSalvo Trucking Company
859 Harrison Street
San Francisco, CA 94107

Attn: Charles Lawlor

Subject: 4919 Tidewater, Oakland, CA - Hydrant Piping Leak Evaluation

Please find enclosed, color copies of photographs taken during the 1989 removal of hydrant pipe lines at the subject facility. This project was performed by Geo-Environmental Technology, for which I, Stuart G. Solomon was the corporate president. I was personally and actively involved in this project, and do hereby attest to the authenticity of the photographs and information presented herein.

GTE was hired to remove the fuel tanks at the subject site. Upon their removal, a considerable amount of free product was discovered floating on the groundwater. It became apparent during the removal of the hydrant product lines that the lines had in fact caused the diesel leakage. GET performed the initial steps necessary to remove the accessible free product from the groundwater, and conducted a limited further investigation to help delineate the affected areas. Progress on the project was halted due to excessive costs and limited funds.

Because the County was putting pressure on DiSalvo to continue with the investigation, a couple of month ago a meeting was held with Alameda County Dept. of Environmental Health (Barney Chan) to discuss how to proceed with this project. At the meeting, Charlie Lawlor asked me for a detailed review of what actually caused the leakage at his site. I had assumed that Mr. Lawlor was aware that the holes in the hydrant piping had been the cause. When asked why the piping had developed leaks just a few years after their installation, I informed him that the piping used was galvanized steel - which is not intended for underground piping, and should not have been used. Charlie asked me to further review the project and its related photographs, and to comment on my opinions. The following applies.

As can easily be seen in the photographs, the piping was found to be badly corroded, with numerous holes throughout. The photographs shown are good depictions of the general condition of the piping throughout the hydrant system.

The piping used in this system was galvanized steel. Some of the sections were wrapped with 10 mill plastic tape. Other sections were not. At the time of removal, the galvanizing was almost completely eroded away by electrolysis.

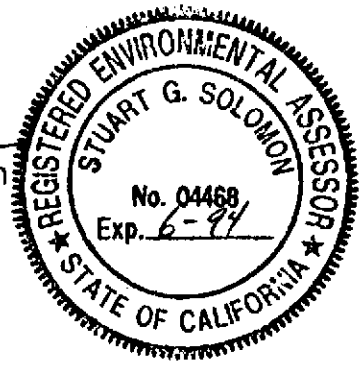
It is our professional opinion that the choice of piping used for this project was the primary reason for it's premature failure. Galvanized piping cannot be used for underground plumbing to a underground black steel tank. The zinc coating on the piping provides a more positive conductor than black steel tank. Positive (+) current from the tank will travel to the more conductive zinc coated piping, where it is easier to escape to the negative (-) ground. In effect, the galvanizing (zinc) on the piping is continually sacrificing itself for the tank - much like a sacrificial anode on a large ship. Wrapping the pipe can make the problem even worse. The current will come off of the pipe more intensely at pinholes or scratches, and especially corrode the joints where there is no galvanizing. Salt in the soil, of course, increases the conductivity even further - speeding the process of electrolysis corrosion.

In this particular case, we have the worst of both worlds. A salty environment, and incorrect application of underground piping. This was a disaster waiting to happen. Galvanized piping should only be used above ground.

If you have any questions regarding this report, please do not hesitate to call.

Very truly yours,

Stuart G. Solomon
R.E.A. No. 4468



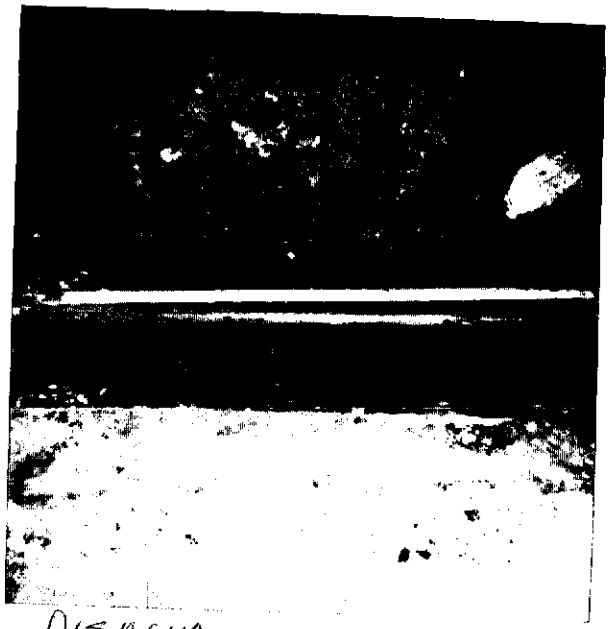
DISALVO TRUCKING
MAY 8, 1989

Typical Hydrant Section

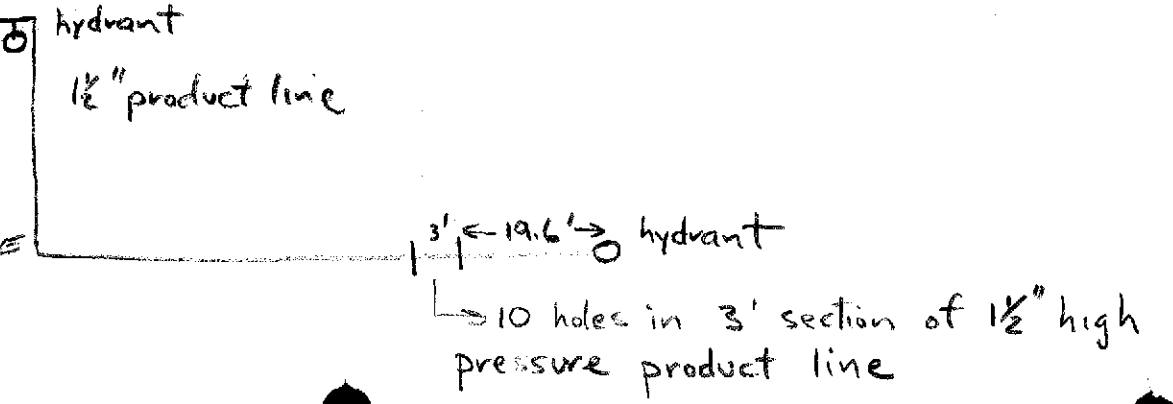
DISALVO
HOLES IN PIPING - HYDRANT

18" deep

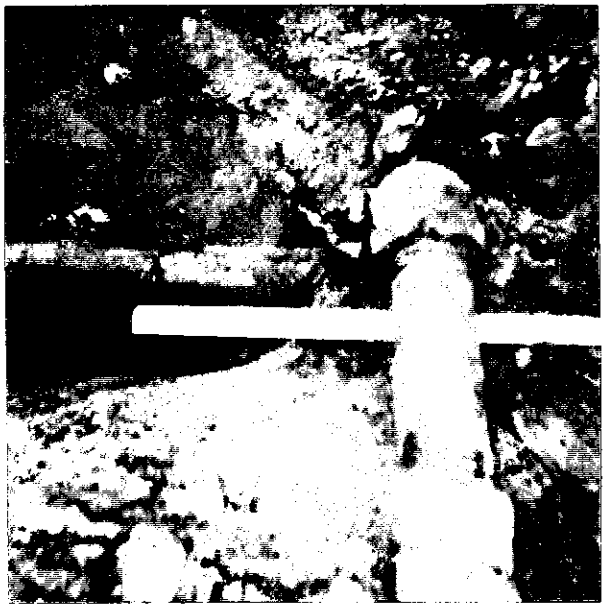
Ground contaminated with diesel product



DISALVO
10 holes in 3'
9 corrosion spots



NOTE: HYDRANT LINES ARE GALVANIZED STEEL - 1½" - 2" - SOME WRAPPED W/ 10 MIL TAPE



1¾" CRACK @ 8" FROM SWING JOINT CAUSED BY CORROSION OF PIPE.

CORROSION OF PIPING @ 8" FROM SWING JOINT.

1½" pressure remote fuel system wrapped pipe--single wall, galvin.

END OF HYDRANT SYSTEM
1½" line 18" below grade

4919 TIDEWATER AVENUE, OAKLAND, CA

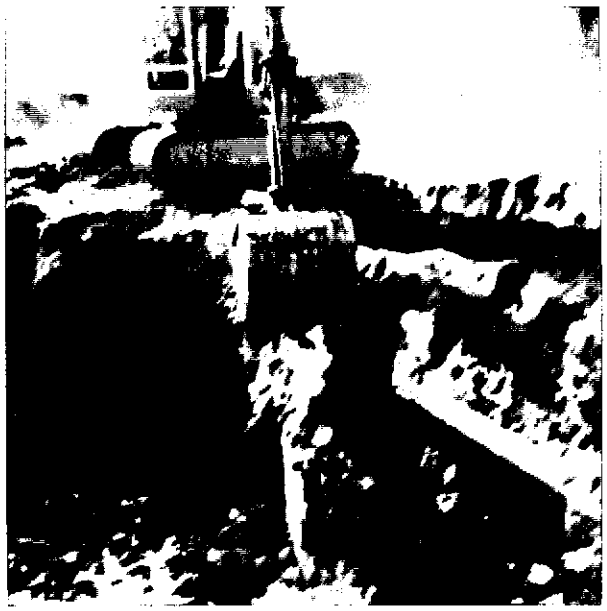
DI SALVO TRUCKING
MARCH 22, 1989

Di Salvo : 3/22/89
Tidewater Site

Di Salvo : 3/22/89
Tidewater Site

10" LINE EXTENDING THROUGH EXCAVATION →

DIESEL FLOWING FROM 10" LINE →

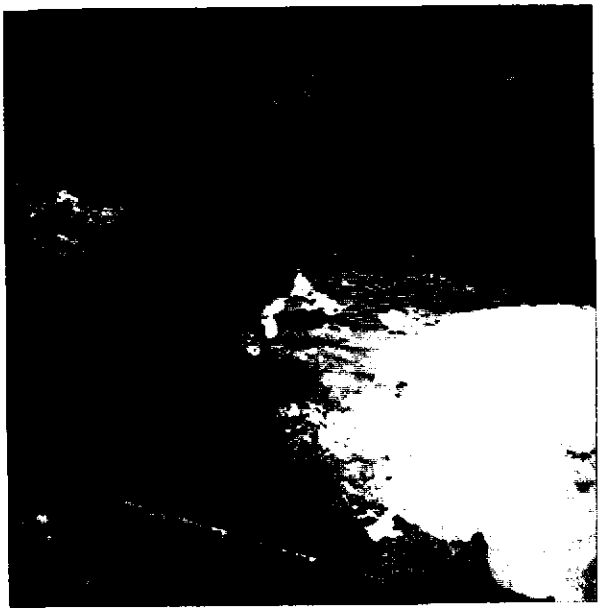


Di Salvo: 3/22/89
Tidewater Site

Di Salvo: 3/22/89
Tidewater site

10" LINE @ 6 FT BELOW GRADE

Di Salvo 3/21/89
Tidewater Site



Di Salvo 3/21/89
Tidewater Site

10" LINE →

Di Salvo : 3/21/89
Tidewater Site

Di Salvo : 3/21/89
Tidewater Site

HYDRANT PRODUCT LINES

Di Salvo: 3/22/89
Tidewater Site

Di Salvo: 3/22/89
Tidewater Site

16" LINE IS BROKEN OPEN

55 GAL BARREL FOUND

Di Salvo: 3/22/89
Tidewater site

Di Salvo: 3/22/89
Tidewater Ave. Site

55 GAL DRUM FOUND BURIED