#523

AMERICAN BRASS & IRON FOUNDRY

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September 8, 1992

Mr. Barney Chan
Hazardous Materials Specialists
ALAMEDA COUNTY HEALTH AGENCY
Division of Hazardous Materials
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Report on Removal of 12,000 Gallon Capacity Underground Diesel Fuel Storage Tank, American Brass & Iron Foundry, Oakland, California

Dear Mr. Chan:

In accordance with Alameda County Health Agency and Tri-Regional Board Staff Recommendations for Underground Storage Tank Removal Procedures, please find enclosed American Brass & Iron Foundry's closure report for the removal of an on site 12,000 gallon storage tank.

The closure report reflects a portion of the initial underground storage tank closure plan submitted to Alameda County Health Agency on August 1, 1991. It is our intention to address all groundwater monitoring programs at the completion of the overall tank removal project at AB&I. Information on soil geology and groundwater contamination for surrounding property locations are being reviewed in order to fully evaluate a soil groundwater investigation.

If you require further information or have additional questions, please feel free in contacting me at (510) 632-3467 ext. 211.

Sincerely,

Dave Robinson
Environmental Engineering Manager

cc: Lester Feldman, Regional Water Quality Control Board

John Sturman, Levine*Fricke Consultants

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REMOVAL OF 12,000 GALLON CAPACITY UNDERGROUND DIESEL FUEL STORAGE TANK AMERICAN BRASS & IRON FACILITY OAKLAND, CALIFORNIA

1.0 INTRODUCTION

This report describes American Brass and Iron's removal program for one 12,000 gallon capacity underground diesel fuel storage tank from the facility located at 7825 San Leandro Street in Oakland, California; refer to Figure 1 for location details. This tank removal is the last of four UST removals as called out by AB&I's current on-site tank closure program.

Throughout the tank removal process, AB&I solicited assistance from various support groups including, Levine*Fricke, Quanteo Laboratories, Oakland, Fire Department, Alameda County Health Services, H & H Environmental and Walts Excavation Services. Levine*Fricke Consultants were the main contributors in assisting with the interpretation and conclusions for addressing this tank removal process.

2.0 SITE HISTORY

AB&I has owned and operated at the present location since 1930. The main operation consists of the manufacturing of Gray Iron in the form of various sand castings, including an assortment of sizes ~~pertaining to soil~~ of sewer pipe. The company has maintained operations in a progressive management style in order to remain competitive in the market place.

Throughout AB&I's progression, various equipment were purchased in order to increase efficiency and decrease manpower. The foundry operations are ~~extremely~~ dependent upon the operation of heavy equipment for transportation of raw materials and final products. AB&I has chosen to use diesel fuel as the main fuel supply for ~~the~~ this equipment including their facility backup generator.

The tank in question, which was removed, was the primary storage tank for the Diesel Fuel #2. The tank was originally installed in the early 1970's for the sole purpose of storing diesel fuel. To our knowledge the tank was maintained for this purpose, the addition of any other material would have contaminated the fuel and stifled the operation at the plant.

3.0 GENERAL DESCRIPTION OF CLOSURE ACTIVITIES

The overall tank removal program was managed by AB&I with direct assistance and involvement by all of the above mentioned parties. The tank was a 12,000 gallon, 1/4" thick steel tank, which was located on the northwest corner of the production facility. Refer to Figure 2 for details on tank location. The actual operation began on May 23, 1991. This tank removal was the fourth of a series of four tanks to be removed on site at 7825 San Leandro Street, Oakland. Refer to Appendix A for the original closure plan.

The tank was located beneath a 6" reinforced concrete pad with one building support column approximately 10' from the longitudinal side of the tank. The operation entailed the removal of the concrete pad of an area of 20' by 30' using a large motorized hydraulic pin digger to allow room for the removal of the tank. After the Soil was removed above and around the ~~tank and the tank was removed~~, The tank was removed, along with the minor piping system, various soil samples were taken to determine if contamination was present and to what extent. On site a PID meter was used during the operation for indicating the potential contamination concentration of excavated soil. A water sample was also taken, although the water in the pit was not allowed sufficient time to flush to eliminate the mixing action created by the excavation work.

Once the tank had been removed, further excavation work was performed in an attempt to eliminate as much suspected contamination as possible and secondly to determine both the lateral and vertical extent of the contamination. The excavation hole was greatly increased in an attempt to remove any contaminated soil from around the tank. The hole was enlarged as much as possible and was back filled with clean fill rock. Due to the location and the proposed use, the area was resurfaced with concrete and reinforced with steel mesh. The tank was manifested and disposed of through H & H Ship Service Company. A detailed account of each phase of the project is specified in the proceeding sections.

w/o County witnesses approval

4.0 CLOSURE ACTIVITIES

A. Description of Tank and Materials

The excess Diesel Fuel #2 was transferred to an above ground fuel tank (convault) for future use and the UST was Pump Dry. The inside of the tank was high pressure rinsed, using a steam generating machine. Approximately 150 gallons of rinsate was collected and pumped into a collection area. The fuel was

A. Description of Tank and Materials (con't.)

separated from the water and sent to California Oil Recyclers for further treatment. The tank had been originally wrapped with tar and tar paper which had remained intact. Piping for the UST was relatively minor due to the fuel dispenser being close by and above ground. The fuel dispenser was removed along with all above ground piping prior to removal of the surface concrete pad.

B. Description of Excavation and Tank Removal

On May 20, 1992, a Bobcat hydraulic pin digger, along with a jack hammer were rented, in order to adequately break through and remove a reinforced concrete pad. The original concrete pad consisted of a section approximately 30 feet by 25 feet, allowing ample room for the removal process and any required excavation area. This particular portion of the project was extremely time consuming and consisted of virtually a weeks worth of operation. Included in this stage of the operation was the set up of a transfer pump and piping. In addition all electrical conduits ~~were~~ was removed prior to the removal of the concrete.

The initial excavation included the over-burden soil above and around the sides of the tank. The actual excavation process began on June 3, 1992. All excavated soil was removed and piled away from the actual excavation activities.

During the operations the fill, product, and vent piping were removed and set aside for subsequent removal from the site. Three tank port holes were open and 250 pounds of pelletized dry ice was placed into the tank at each end and in the center part. Combustible gasses and oxygen concentrations were measured in the tank using a combustible gas meter. The air inside the tank was drawn to the meter through tubing that was lowered approximately 5 feet into the tank. Inspector ~~Brunelle~~ Brandle, with the Oakland Fire Department, witnessed and approved the removal of the tank. The final meter readings indicated that the combustible gases were below 10% of the Lower Explosion Limit (LEL) and the oxygen content at 1.5%. Refer to Appendix B for information.

The tank port holes were sealed with wood plugs and the tank was lifted out using AB&I's crawler crane. Once out, the tank was placed directly onto a "low boy" trailer along with support piping for disposal with H & H Ship Service. The tank was manifested and recorded under EPA Manifest number 91510000. A copy of this manifest is included in Appendix B.

C. Description of Sampling Methods

Once the tank was removed from the site, along with all piping appurtenant to the tank, one initial soil sample was taken at the east end of the tank at approximately 12 feet, directly below the tank. Due to the extensive excavation, we chose to take a water sample at the end of the excavation process. The Photoinization Detector (PID) meter was used throughout the process as an approximation potential contamination. Although the use of a PID meter for diesel is poor, it will give a preliminary indication of possible contamination.

Soil samples were collected using a backhoe. The backhoe operator was directed to remove portions of native soil (not tank bedding material) at the desired depth and location with the backhoe bucket. After raising the backhoe bucket to the ground surface, soil samples were collected by driving 2-inch diameter brass liners into the desired portion of soil in the backhoe bucket. After filling the tube completely to minimize headspace, the ends of the tube were enclosed with plastic caps over aluminum foil and sealed with cloth tape. Samples were labelled and placed in a chilled ice chest.

The sampling process was performed solely by Mr. Michael Stoll with Levine*Fricke Consultants, this included all sampling materials and suggested sampling locations. The sampling locations were chosen to best represent potential soil contamination and to determine the effects of the excavation process.

5.0 REMEDIATION ACTIVITIES

A. Excavation of Contaminated Soil

A Photoinization Detector (PID) was used simply as a way to screen the soil samples encountered in the excavation process for Volatile Organic Compounds (VOC). It was understood that diesel fuel has limited volatile properties and the PID meter would indicate a fraction of the actual concentration in the soil. This process was used as an indication of possible contamination and not a verification of the actual contamination concentration. Originally the soil surrounding the tank was excavated using a backhoe to a distance of 3-6 feet from the sides of the tank in determining the lateral extent of potential diesel fuel affected soil. On June 4, 1992, approximately 180 cubic yards of soil were removed under the observation of Levin*Fricke.

A. Excavation of Contaminated Soil (con't)

The excavated soil surrounding the tank consisted of fine sand, gravel, foundry sand and various pieces of glass. The general characteristics of the excavated soil was somewhat of a conglomerate of material which appeared to be from past foundry practices.

The excavated material on the east end of the tank had both a diesel odor and a greenish discoloration. This section was directly below the former dispenser location. It appears from the excavation that the contamination was centralized on the east end, with the west end appearing to be clean. Additional removal of the concrete pad was necessary in order to continue excavating in the south easterly direction. The excavation on the east end actually extended approximately 4 feet beyond the edge of the concrete in order to remove contaminated soil down to the water table.

The excavation process was aborted due to the level of contamination and difficulty in removing the concrete surface structure. On June 5, 1992, the excavation was stopped, for it appeared that virtually all the contaminated soil had been removed. Figure 4 illustrates the UST removal and excavation area. The sampling process was the next step for determining the outcome or results of the excavation.

B. Sampling Methods

The excavation process continued until it appeared that the soil was unaffected by diesel fuel, using the PID meter, soil odor and discoloration as indicators. Samples of the remaining native soils were collected to confirm soil quality around the perimeter of the excavation. Effort on the far east side required extensive excavation in order to eliminate potential contaminant soil. Although the excavation area was somewhat irregular, the sampling locations were chosen to best identify the contamination of the subsurface area.

All sampling was performed by Michael Stoll, Senior Geologist, with Levine*Fricke Consultants, using the same methodology as stated previously in a prior section. A series of six soil samples were taken to best represent the investigation. Each sample was tested for extractable hydrocarbons as diesel using EPA 3550(GCFID) and BTXE using method EPA 8020(5030). Soil samples collected during the excavation were labelled DEW1-E-9, DEW2-N-9, DEW3-N-8.5, DEW4-W-8, DEW5-S-8.5 and DEW6-S-9.

B. Sampling Methods (con't.)

In addition to soil sampling, a groundwater sample was taken. The sample was labelled D-Groundwater and was also tested for extractable hydrocarbons as diesel in milligrams per liter using method EPA 8020 (BTEX Water Matrix). During the excavation process it was evident that the water mixed with the contaminated soil to generate an obvious contaminated solution. Although the water was allowed to settle, the samples did not appear representative of the actual groundwater contamination level. Provided in Figure 3 is a sampling location map representing all sample locations with respect to the UST and the excavation area.

how much contaminated & non-contaminated soil excite

C. Storage of Contaminated Soil

All excavated soil was removed from the excavation site and was transported at the north end of the property. The material was placed on a concrete pad inside a covered building. The stock pile was divided into two piles based upon the excavation of the material. Extreme care was taken to segregate the soil in order to reduce the amount of material requiring treatment. Due to the contamination being diesel, aeration does not appear to be a viable remediation option. Samples of the unaffected soil were recently taken and submitted to NET Laboratories for analysis. All sampling protocols were compliant with EPA SW-846 sampling guidelines.

D. Excavation Backfill Procedures

On June 5, 1992 the back filling of the excavated area was conducted by AB&I personnel using front end loaders. This portion of the project was important not only from the standpoint of implementing clean soil into the excavated area but equally important was that the backfill process was done correctly to support heavy traffic of large operating equipment.

The backfill consisted of clean soil and gravel, layered to generate effective drainage and foundation support. A motorized soil compactor was used to enhance the compaction of the soil. The excavated section was covered with reinforced concrete approximately 10 inches thick.

6.0 GENERAL FIELD OBSERVATIONS

The storage tank was in surprisingly good condition with the outside tar wrap still intact and no apparent damage to the outside of the tank. The tank and piping appeared to be without any visible leaking or contamination of any soil directly in contact with the surface.

Using the PID meter and visual observations, the excavated soil surrounding the tank, in general, appeared to be relatively unaffected by any potential solvent contamination. Due to the size of the tank, the excavation was fairly extensive, reaching depths of 11 feet. All field notes of the project are located in Appendix A. These included both Levine*Fricke Consultants and Alameda County Health Services.

Water seepage into the excavation was observed at a depth of about 9-10 feet, with standing water collecting in the east end corner. Based on prior field observation from previous removals of UST here on site, it is expected that static groundwater is at a depth of about 10 to 13 feet below ground surface. The groundwater conditions were extremely poor due mainly to the excavation process which created a mixing action of the soil and water. Because of time restraints and pump equipment malfunctions the water was unable to sufficiently flush in order to take a representative sample. The visible observation of the sample indicated that a poor representative sample was chosen based on the amount of debris in the water from the excavation efforts.

7.0 LABORATORY ANALYSIS

All soil and water samples were taken by Mr. Michael Stoll of Levine*Fricke using EPA sampling methods during the excavation. The samples were submitted to Quanteo Laboratories Analytical with the Chain of Custody being directly from Mr. Michael Stoll.

Results of the laboratory analysis, along with the Chain of Custody are provided in Appendix C. The soil samples collected from the excavation indicated that the soil below and around the former tank was virtually unaffected by diesel fuel contamination, with limits ranging from 0 to 2.0 milligrams per kilogram (mg/kg). Accessible soil immediately below the former tank were excavated to a depth of approximately 13 feet providing an adequate assessment in fully understanding potential vertical contamination.

7.0 LABORATORY ANALYSIS (con't.)

The analysis for TPH-Diesel indicated affected soil on the south east section of the excavation. Demonstrating some hydrocarbon contamination. Although the contamination level was fairly minor, limits for Benzene, Toluene, Ethylbenzene and Xylenes were non detected for all samples. All laboratory analysis results are located in Appendix C.

As expected, the water sample indicated a higher level for the TPH-Diesel analysis, but continued a non detect level for the BTEX testing. The contamination level for TPH-Diesel was 6.8 milligrams per liter: refer to Table 1 for details.

8.0 SOIL / WATER QUALITY RESULTS

The soil analysis results demonstrating the soil was unaffected by diesel fuel contamination caused from leakage of the storage tank and piping connections. The southeast corner was the only indication of soil contamination with a level of 2 milligrams per kilogram. As depicted by the sampling layout map, sufficient samples were taken to determine both the lateral and vertical contamination level surrounding the UST excavation. Among other parameters the down gradient direction for this area was considered in choosing sampling locations.

The water analysis indicated a higher level of contamination level for all compounds in question than was expected or indicated from both visible observations and soil analysis results. The high levels are more than likely a direct result of the extensive excavation process and the stringent project time frames. As indicated by the soil/water analysis results, it appears the water sample was not representative of the water quality which exist.

9.0 CONCLUSION / RECOMMENDATION

A 12,000 gallon underground diesel fuel storage tank was removed from the site and approximately 180 cubic yards of excavated soil were removed. The tank removal went according to plan with the aid of the crawler crane, which allowed us to remove the tank and load onto a "low boy" for direct disposal. The tank appears to be in good shape with the outside wrap material in tack. The excavation process was larger than originally anticipated but resulted in the virtual elimination of soil contamination surround the prior UST location.

9.0 CONCLUSION / RECOMMENDATION (con't.)

Overall the soil was found, for all purposes, to be relatively unaffected by diesel fuel contamination both beneath and on the sides of the former storage tank. The tank and underground piping appeared to be intact and was not the cause of the contamination. From the location of the contamination and the minimum vertical depth at which contamination was discovered, it was evident the contamination was probably a direct result of poor vehicle fuel filling practices. The highest concentration was near the ground surface versus the lowest concentration at groundwater level.

As indicated by the water analysis contamination levels, in conjunction with soil analysis and visible observation of the removal process, it is apparent with the inconsistent results from the water sample taken was not representative. It is our judgement additional water samples must be taken to best qualify the water quality and the potential impact of contamination generated from the underground storage tank.

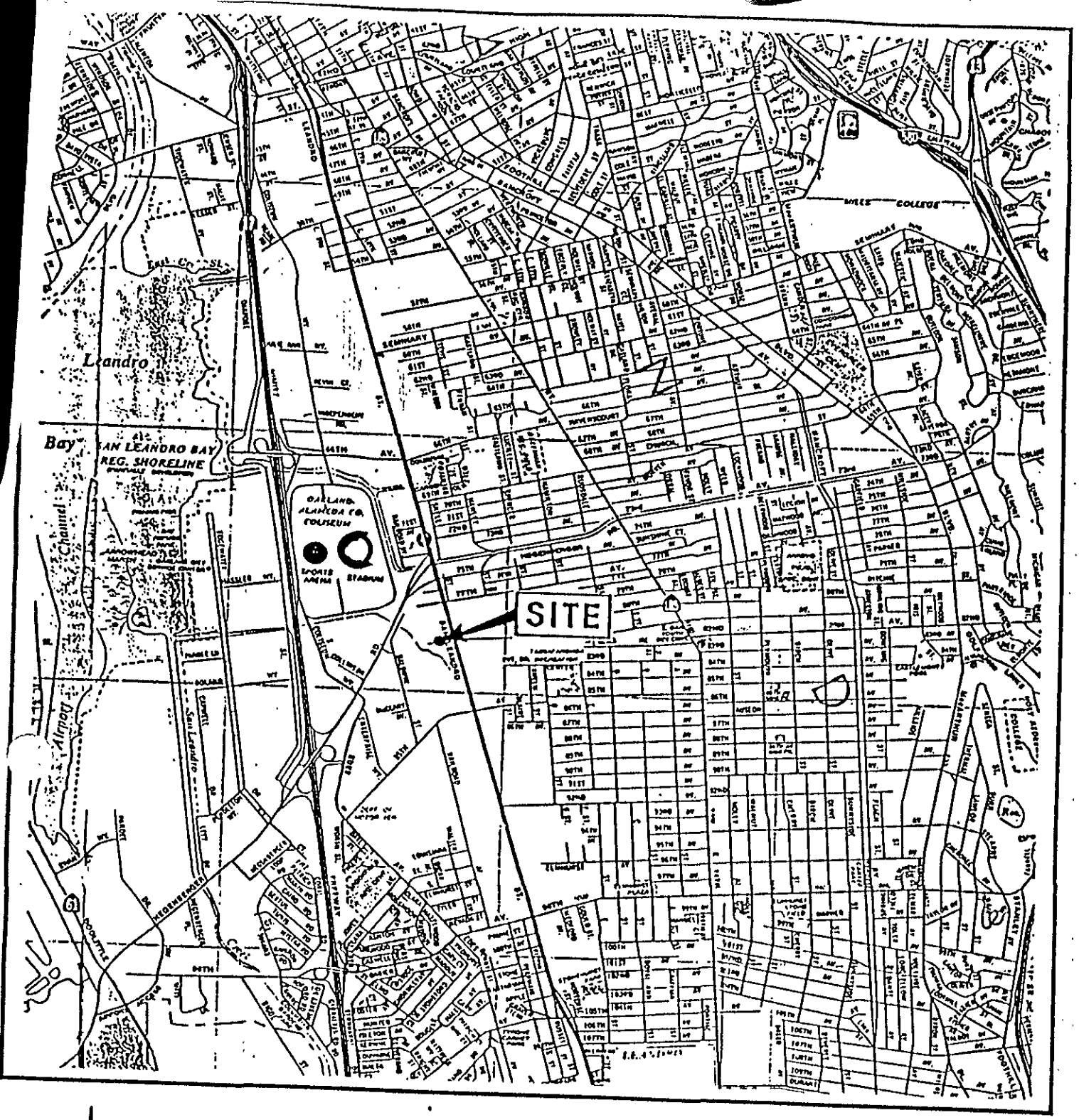
Based upon our review of the work performed, sampling and analysis procedures, and the results obtained, it is our opinion that the work was performed in compliance with applicable tank closure requirements.

It is our recommendation that a monitoring well be installed in the down gradient direction and a shallow groundwater monitoring program be established in order to access the extent of any potential groundwater contamination.

Dave Robinson, REA
No. 03815, exp. 6/30/93

FIGURE 1

SITE LOCATION MAP



MAP SOURCE:
Oakland, Berkley, Alameda
California State Automobile Association
7-86

Figure 1 : SITE VICINITY

Project No. 1150

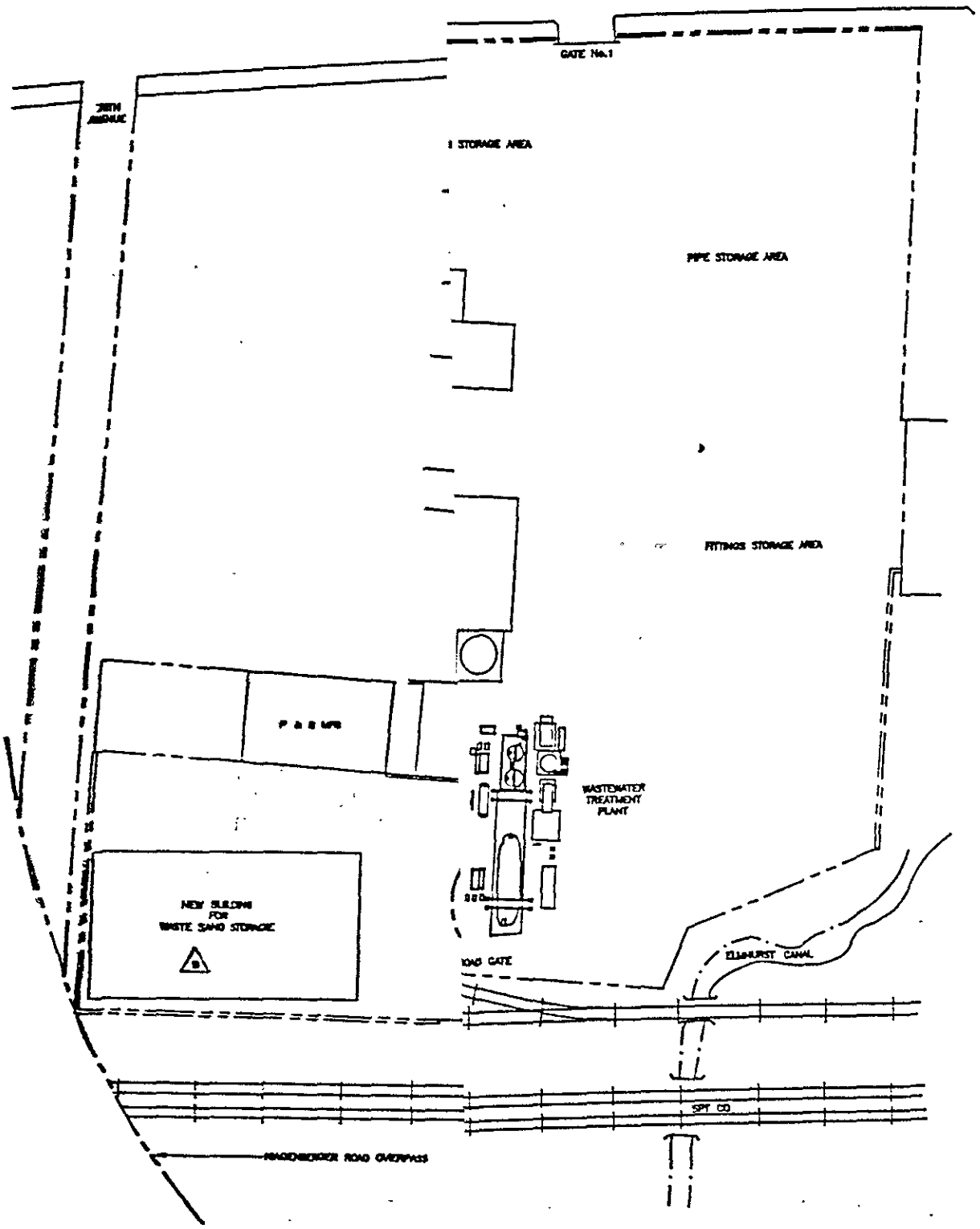
K75AUG86|m

LEVINE•FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

FIGURE 2

TANK SITE LAYOUT

2	B	ADDED DESCRIPTION TO BUILDING	1/10/92



AMERICAN BRASS & IRON FOUNDRY

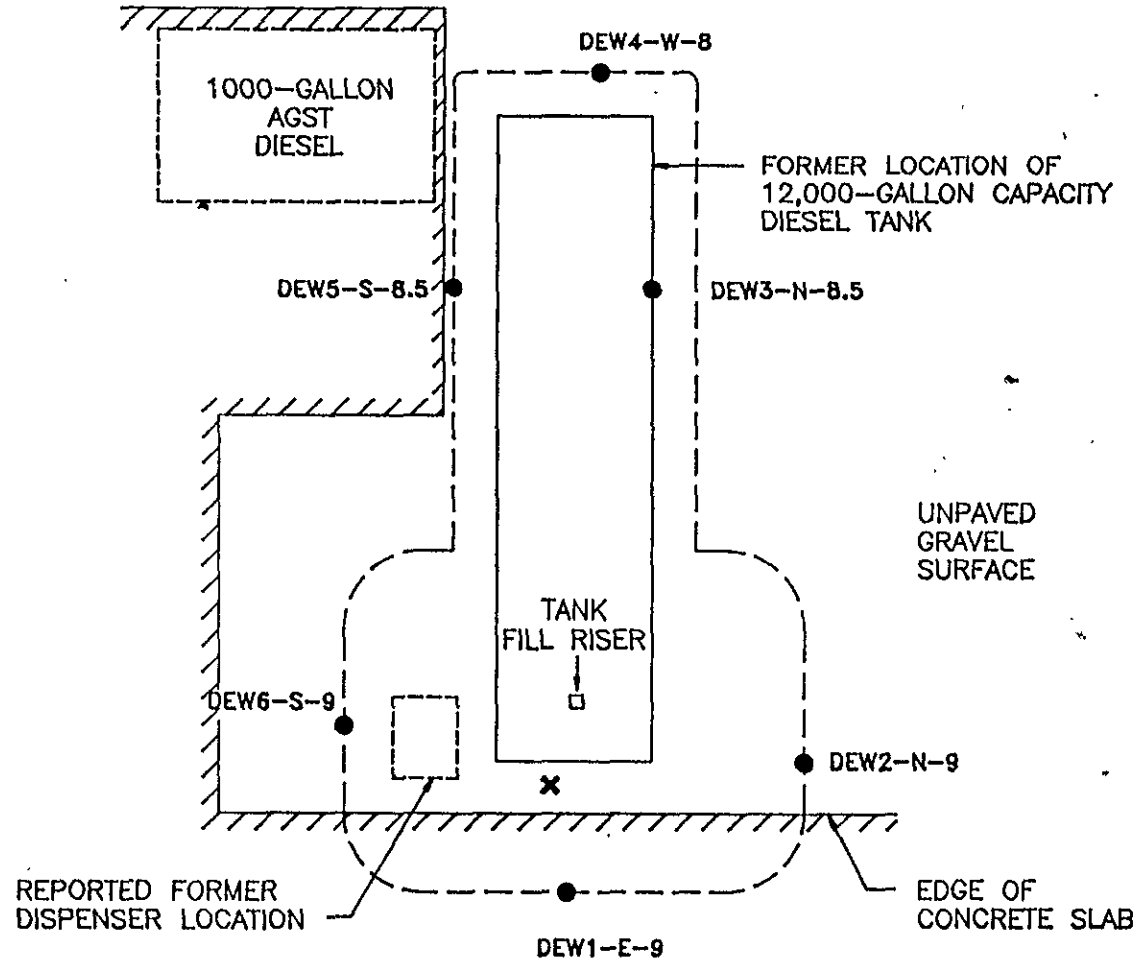
7355 San Leandro Street, Oakland, CA 94621

FOUNDRY PLOT PLAN

		DATE 9/21/88	DRAWN JR	D-MT-008 B
NEXT ASSY	USED ON	SCALE NONE	CHECKED	
APPLICATION		FILE NAME: PLOTPLAN	PLOT:	SHEET 1 OF 1

FIGURE 3

SAMPLING LOCATION MAP



EXPLANATION

- ● Soil sample location (depth in feet is last number)
- ✖ Excavation water sample location

0 5 10 FEET

Figure 2 : PLAN SHOWING FORMER TANK AND SOIL SAMPLE LOCATIONS

Project No. 2408.01

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

2408S001.JOS:EM 070192

TABLE 1.0

SUMMARY OF ANALYSIS RESULTS

TABLE 1

SAMPLE ID	EXTRACTABLE HYDROCARBONS AS DIESEL (mg/kg)	BTEX (µg/kg)
DEW1-E-9	ND	ND
DEW2-N-9	ND	ND
DEW3-N-8.5	ND	ND
DEW4-W-8	ND	ND
DEW5-S-8.5	ND	—
DEW6-S-9	2	ND
GROUNDWATER	6.8 (mg/L)	ND
DETECTION LIMIT	1 (H_2O = 0.05)	5 (H_2O = 0.3)
METHOD #	3550 GCFID	

APPENDIX A

ORIGINAL UST CLOSURE PLAN
EXCAVATION PERMIT