6070

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Clayton
ENVIRONMENTAL
CONSULTANTS

January 10, 1997

Mr. Barney M. Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Clayton Project No. 70-97066

Subject: Workplan for Investigation at the Former Lemoine Sausage Factory Located at 630 29th Avenue, Oakland, California

Dear Mr. Chan:

Please find enclosed the "Workplan for Limited Subsurface Investigation of One Former Underground Storage Tank" at the subject site. The workplan is being submitted in response to your December 9, 1996 request.

As presented in the Workplan, Clayton proposes to collect soil and grab groundwater samples at eight locations on the subject site to assist in defining the lateral extent of impacted soil and groundwater. A letter report documenting the results of the investigation will be submitted to your office, along with recommendations for additional investigation, as appropriate.

Clayton is prepared to implement the proposed work activities upon receipt of your approval. Please contact me at (510) 426-2676 should you have any questions or comments.

Sincerely,

Richard W. Day, RG, CEG, CHG
Supervisor, Geosciences/Remediation
Environmental Management and Remediation
San Francisco Regional Office

RWD/

c: Stafford Hemmer, BA Properties
Richard Fehler, Clayton
Rita Repko, Clayton

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Workplan
for Limited Subsurface Investigation
of
One Former Underground Storage Tank
at
The Former Lemoine Sausage Factory
630 29th Avenue
Oakland, California

Clayton Project No. 70-97066.00.002
January 10, 1997

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CLAYTON'S DRILLING, WELL CONSTRUCTION AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

1.0 INTRODUCTION

BA Properties retained Clayton to remove a 1,000-gallon underground storage tank (UST) that had been located at the former Lemoine Sausage factory at 630 29th Avenue in Oakland, California (Figure 1). The UST was removed on November 21, 1996 and areas of soil contamination were observed in the UST excavation sidewalls at approximately 5 feet below ground surface (ft bgs). This workplan describes investigative activities to be conducted related to defining the extent of subsurface contamination related to the former UST.

1.1 SITE DESCRIPTION

The subject site is located at the intersection of 29th Avenue and Seventh Street in Oakland, California and is currently vacant. The property is currently owned by:

BA Properties Inc.
560 Davis Street, Second Floor
San Francisco, California 94111
(415) 622-0663

The BA Properties contact person for this project is Mr. Stafford Hammer.

1.2 SITE HISTORY

On November 21, 1996, one 1,000-gallon UST formerly used to store gasoline was removed from the subject site by Subsurface Environmental Services. The UST was located beneath the sidewalk adjacent to Seventh Street near the building's roll-up door. Piping led from the UST to a dispenser located in a "cubby-hole" near the roll-up door. Figure 2 shows the layout of the former UST and dispenser.

At the time of the UST removal, water present in the tank was pumped from the tank, and the UST was removed from the excavation. Four dime-sized holes were observed in the eastern side of the tank, and a 4- to 6-inch long crack and a quarter-sized hole were present in the seam between the bottom of the UST and the dispensing end of the tank. Due to the fragility of the old piping trench patch and the presence of a 6- to 8-inch gap between the sidewalk pavers and the fill material, the piping was removed by pulling it out through the excavation. Approximately 4 feet of piping remains between the former dispenser and a ~130° piping joint. During the UST removal, old piping leading from the UST directly to the building was observed; this piping was not connected to the tank and was probably the original piping leading from the UST to a dispenser. At this time, the layout of this piping is not known.

Cap + fill lines

Water was present in the excavation at approximately 5 ft bgs. A sheen was observed on the water immediately after the UST was removed; during soil sample collection activities, the soil in the bottom of the excavation was disturbed, and water was no longer observed in the excavation. No water samples were collected.

At the direction of Mr Barney Chan of the Alameda County Department of Environmental Health Services (ACDEH), two soil samples, S-1 and S-2, were collected from under the dispensing and fill ends of the UST of water saturated native soils at approximately 8.5 ft bgs, and a third soil sample, S-3, was collected from approximately 6 inches below the former dispenser. Clayton collected four additional soil samples, S-4 through S-7, from the excavation; one soil sample was collected from each excavation sidewall at approximately 5 ft bgs at the soil/groundwater interface.

All soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G); methyl-tertiary-butyl ether (MTBE); benzene, toluene, ethylbenzene, and xylenes (BTEX); and organic lead. TPH-G concentrations ranged between 70 and 4,300 milligrams per kilogram (mg/kg) and benzene concentration ranged from 0.1 to 16 mg/kg. Concentrations of toluene ranged from 0.7 to 380 mg/kg, ethylbenzene ranged from 0.28 to 29 mg/kg, and total xylenes were between 1.3 and 158 mg/kg. Organic lead concentrations ranged from 0.09 to 0.63 mg/kg. No MTBE was detected in the soil samples. The enclosed table summarizes the analytical results and figure 3 shows the approximate soil sample locations.

1.3 TECHNICAL RATIONALE

Based on the laboratory data for the UST removal, the lateral and vertical extent of the identified soil contamination is not defined. This investigation has been designed to further define the lateral extent of the soil contamination associated with the UST and to determine if the groundwater has been impacted by a release(s) from the UST.

2.0 SCOPE OF WORK

The following scope of work will be conducted in the performance of the limited subsurface investigation:

- Task 1: Prepare a Health and Safety Plan
- Task 2: Locate Utilities
- Task 3: Conduct the Subsurface Investigation
- Task 4: Analyze the Soil and Groundwater Samples
- Task 5: Dispose of Soil and Water Drums
- Task 6: Prepare a Report

These tasks are described in the following sections.

2.1 PREPARE A HEALTH AND SAFETY PLAN

A health and safety plan will be prepared for the work outlined in this workplan, in accordance with the requirements of the State of California General Industry Safety Order (GISO) 5192 and Title 29 of the Code of Federal Regulations, Section 1926.65 (29 CFR 1926.65). A copy of the health and safety plan will be kept onsite during onsite activities.

2.2 LOCATE UTILITIES

Before drilling commences, Underground Service Alert (USA) will be contacted and a private utility locating company will be retained to identify the underground utilities onsite and to trace the old piping leading from the UST. The identified utilities and piping run will be mapped and clearly marked on the ground. Drilling activities will not take place within 3 feet of a known utility line.

2.3 CONDUCT THE SUBSURFACE INVESTIGATION

2.3.1 Obtain Permits

Clayton will obtain any necessary permits from ACEHS or other applicable agencies before conducting any field work.

2.3.2 Advance Soil Borings

To assist in determining the extent of soil contamination in the vicinity of the UST and former fuel dispenser, Clayton proposes to advance eight shallow soil borings using a hand-held Geoprobe™ sampler. The borings will be advanced at locations in the sidewalk north and south of the former UST and in the street east of the former UST. Figure 4 shows the proposed locations of the soil borings.

The soil borings will be advanced to approximately 10 ft bgs. Soil samples will be collected continuously for the total depth of the borings in brass or steel tubes, or acetate sleeves.

Tubes containing soil samples from approximately 2.5 ft bgs and immediately above groundwater (5 ft bgs), or from other depths as determined by the field geologist, will be submitted for laboratory analysis. The sample tubes will be sealed using Teflon™ sheets and plastic endcaps, labelled, and placed into a chilled cooler for transport to Clayton's state-certified laboratory for analysis. Appropriate chain-of-custody documentation will be followed for the handling of the samples.

The soil sample tubes not selected for analysis will be inspected by the field geologist. Characteristics, such as soil type, color, relative moisture content, and odor will be noted in the field according to USCS soil classifications and Munsell soil color charts and entered onto boring logs.

To assist in determining the presence of volatile organic compounds, Clayton will screen soil using a photoionization detector (PID) or flame ionization detector (FID). The PID or FID readings will be entered onto the boring logs. All drilling activities will be conducted in accordance with ACDEH and California Regional Water Quality Control Board (RWQCB) guidelines and with Clayton's drilling, well construction, and sampling protocols for borehole/monitoring well installation (Appendix).

Based on the field observations of the soil tubes not selected for analysis, it will be determined in the field if additional soil borings are necessary to determine the lateral extent of the soil contamination. If additional soil borings are required, these soil borings will be located in areas where further assessment is needed.

Groundwater is expected to encountered in the soil borings at approximately 5 ft bgs, and grab groundwater samples will be collected for analysis. After groundwater is encountered and the borings are terminated, 1-inch diameter perforated PVC casing will be inserted into the borings, and the grab groundwater samples will be collected through the casing using unused disposable bailers or steam-cleaned metal, PVC, or Teflon™ bailers. The samples will be transferred into the appropriate laboratory-supplied containers. The containers will be closed, labelled and placed into a chilled cooler for transport to a State-certified laboratory for analysis. Appropriate chain-of-custody documentation will be followed for the handling of the samples.

After borings have been completed and the grab groundwater samples have been completed, the borings will be grouted to approximately 4 inches below the ground surface with cement grout containing approximately 5% bentonite powder. The remainder of the borings will be filled using concrete or asphalt matching the surrounding ground surface.

The soil cuttings and water generated by the drilling and decontamination procedures will be placed into USDOT-approved 55-gallon drums. Samples of the drummed soil and water will be collected for analysis to determine appropriate disposal options. The drums will be closed, labelled, and left onsite pending appropriate disposal based on analytical results.

2.4 ANALYZE THE SOIL AND GROUNDWATER SAMPLES

The soil and grab groundwater samples from the soil borings will be analyzed according to the following methods:

- United States Environmental Protection Agency (USEPA) Method 8015 (modified) for TPH-G
- USEPA Method 8020 for BTEX
- Department of Health Services - Leaking Underground Fuel Tank (DHS-LUFT) Method for organic lead

The drummed soil and water samples will be analyzed using the following methods

- USEPA Method 8015 (modified) for TPH-G
- USEPA Method 8020 for BTEX
- USEPA Method 6010, 7471, 200.7, or 245.1 Series for 17 Title 22 Metals
- USEPA Method 9010A for Reactive Cyanide
- SW Method 7.4.3.2 for Reactive Sulfide
- USEPA Method 9045C for pH

- USEPA Method 1030 for Ignitability

For the purpose of this workplan, it is assumed that up to 16 soil samples and 8 grab groundwater samples will be collected from the soil borings and analyzed. One composite soil sample and one composite water sample will be collected from the drummed soil and water.

2.5 DISPOSE OF SOIL AND WATER DRUMS

Following receipt of the analytical results, pick up and disposal of the drums will be arranged. For the purpose of this workplan, it is assumed that two soil drums and one water drum will be generated and the waste soil and water will not be considered hazardous waste.

2.6 PREPARE A REPORT

A report containing the findings of the investigation, conclusions, and recommendations for further investigations, where appropriate, will be prepared upon receipt of analytical results.

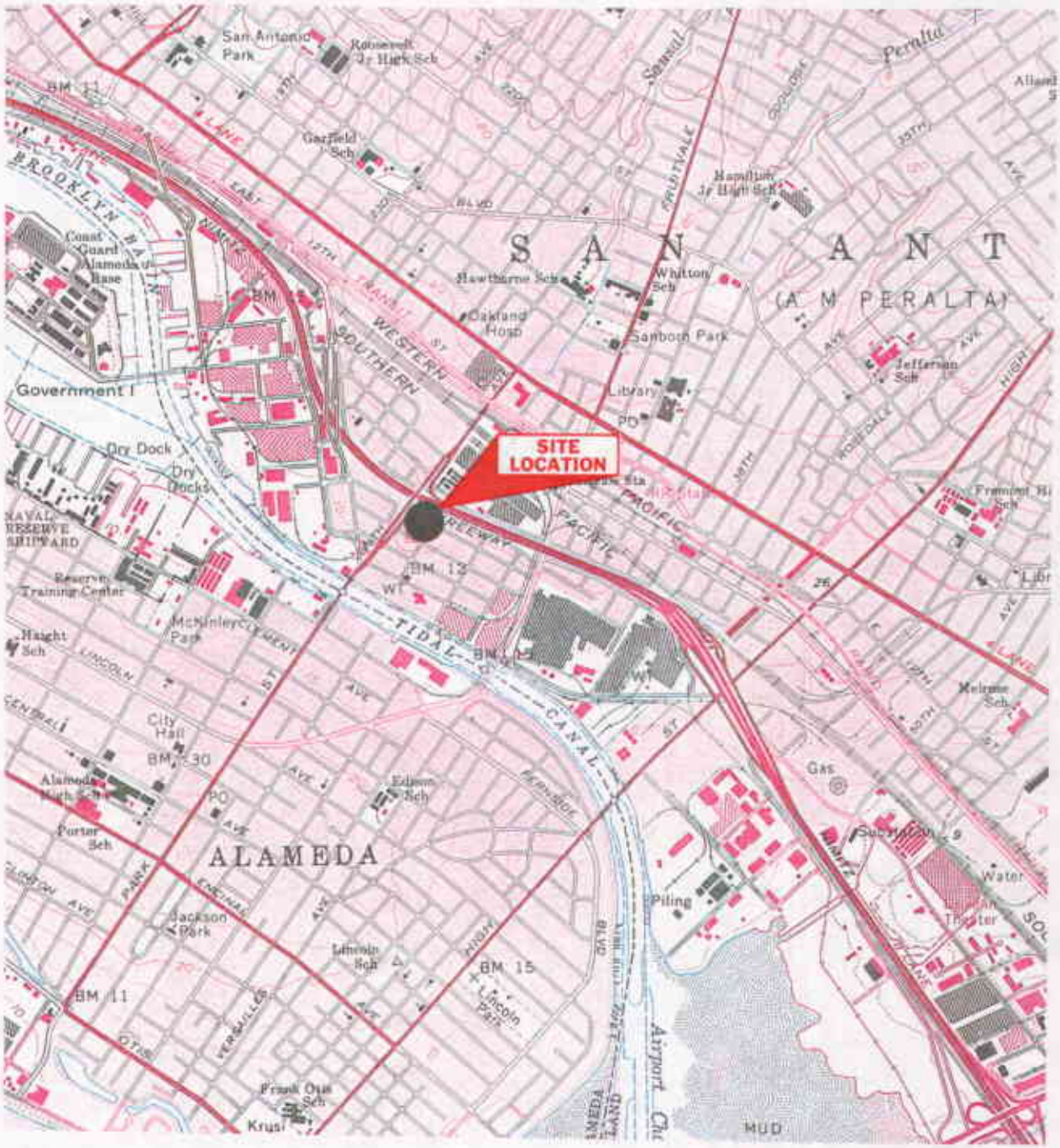
This plan was prepared by:

D. Edward MacDaniel
Project Geologist

This plan was reviewed by:

Richard W. Day, CEG, CHG
Supervisor, Geosciences/Remediation
Environmental Management and Remediation
San Francisco Regional Office

January 10, 1997



N

0 2,000

SCALE: FEET

Source: U.S.G.S. OAKLAND EAST, CALIF., 7.5 Minute Quadrangle, 1959, (photorevised 1980).

SITE LOCATION

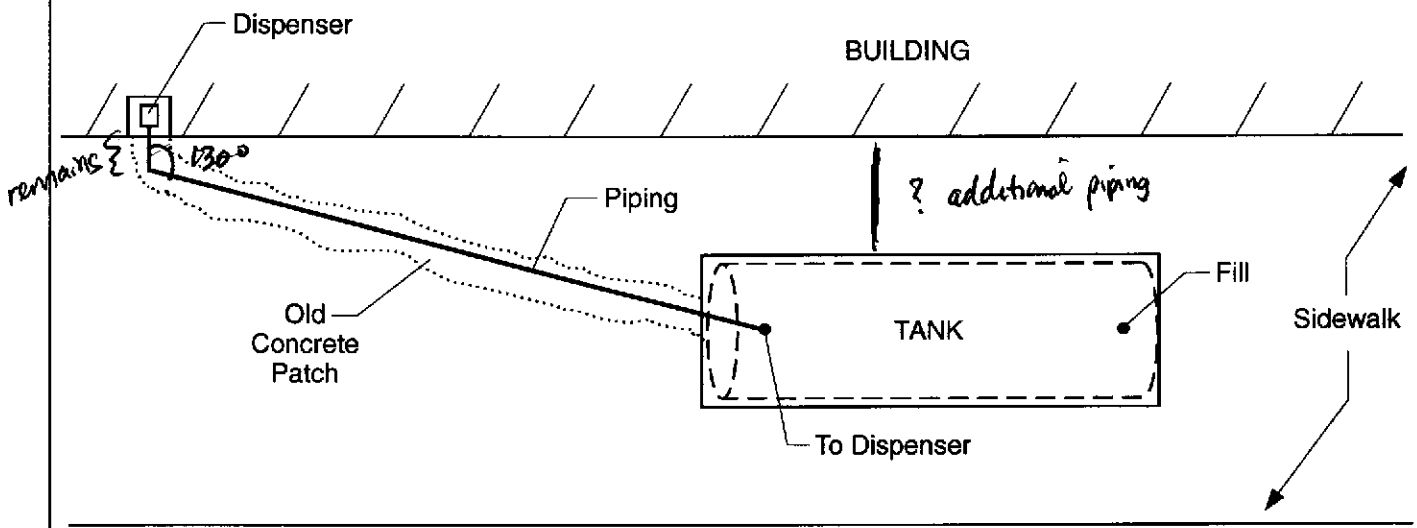
FORMER LEMOINE SAUSAGE FACTORY
630 29th AVENUE
OAKLAND, CALIFORNIA

Clayton Project No. 70-97066.00.002

Figure **1**

12/31/96
TOPOFIG1.CDR

Clayton
ENVIRONMENTAL CONSULTANTS



TANK LAYOUT

FORMER LEMOINE SAUSAGE FACTORY
630 29th AVENUE
OAKLAND, CALIFORNIA

Clayton Project No. 70-97066.00.002

Figure
2
01/06/97
SITEMAP.CDR

Clayton
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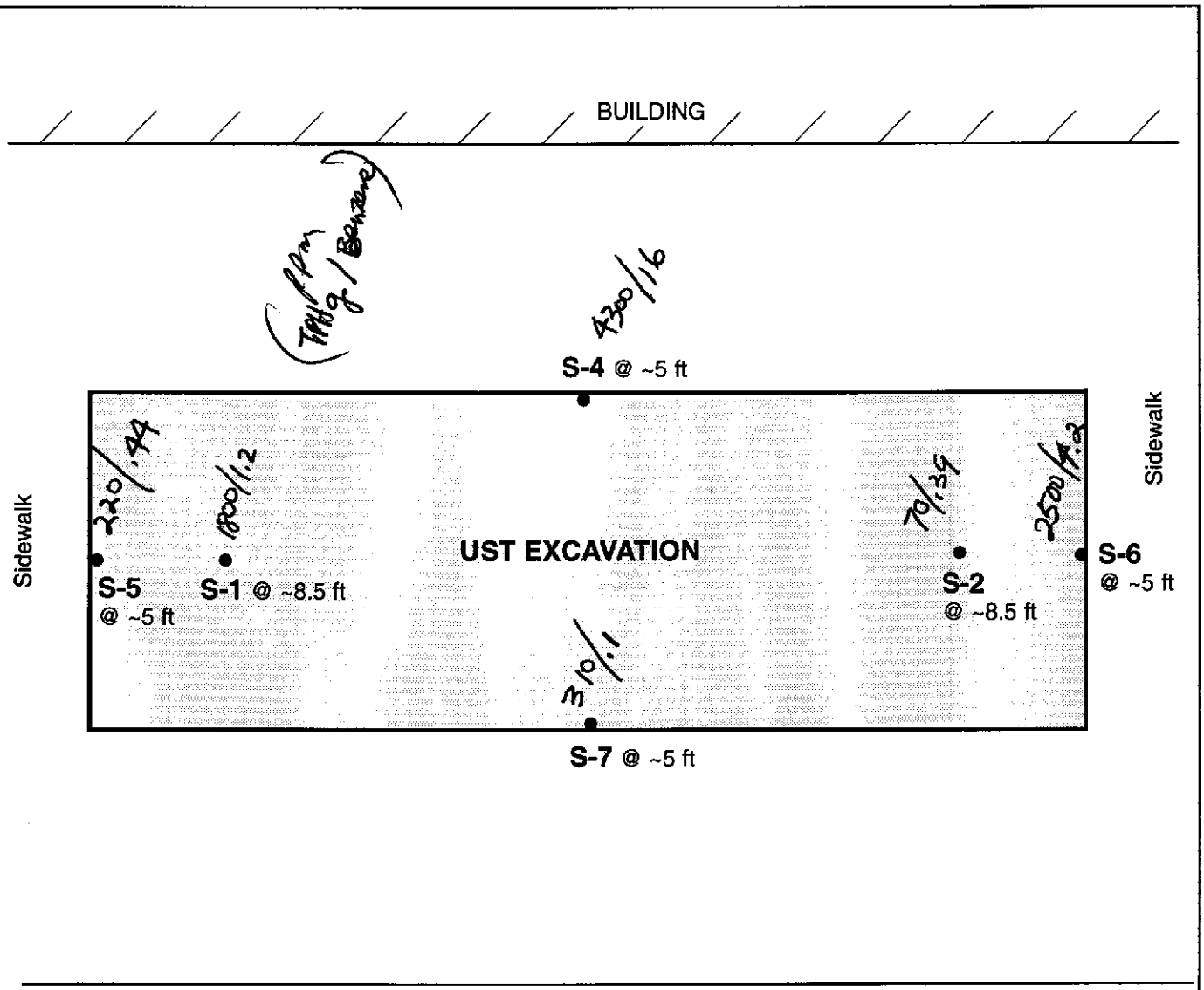
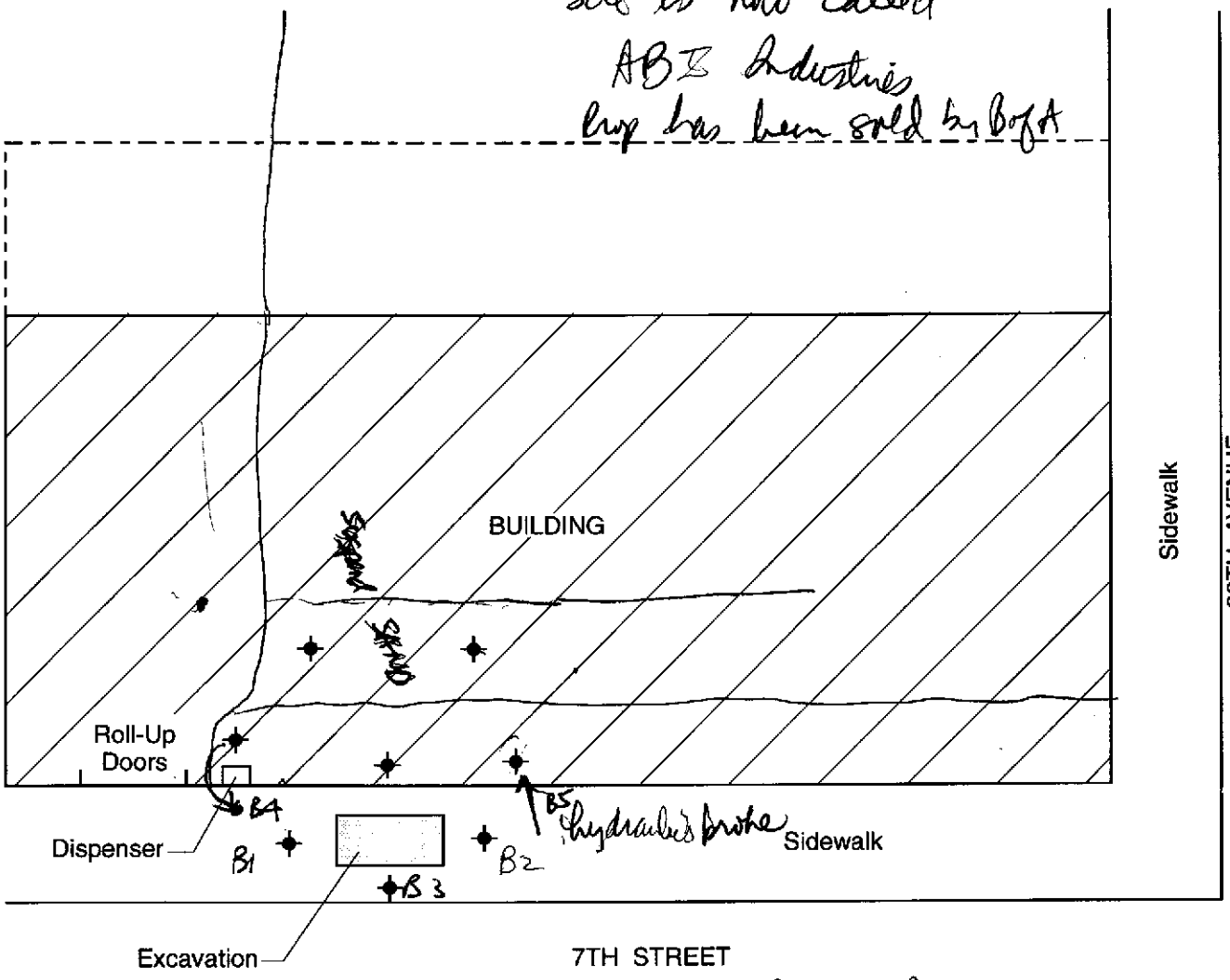


LEGEND:	SOIL SAMPLE LOCATIONS	Figure	Clayton ENVIRONMENTAL CONSULTANTS
● Soil Sample	FORMER LEMOINE SAUSAGE FACTORY 630 29th AVENUE OAKLAND, CALIFORNIA Clayton Project No. 70-97066.00.002	3 01/06/97 SITEMAP.CDR	

Site is now called
ABI Industries
Bldg has been sold by BofA



Mark Mullaney - Clayton
8/29/97 Vironex - drillers
4 borings advanced (B1-B4), the one proposed inside bld next to dispenser moved to the sidewalk
only one sample yielded water immediately (B1), will cap
boreholes + will split other borings for ~~one~~ next week. Inside bld
an elevated flooring is built therefore the boring immediately next
to the tank pit inside bld cannot be done.

NOT TO SCALE

LEGEND:	PROPOSED SOIL BORING LOCATIONS	Figure
✦ Soil Boring	FORMER LEMOINE SAUSAGE FACTORY 630 29th AVENUE OAKLAND, CALIFORNIA Clayton Project No. 70-97066.00.002	4 01/06/97 SITEMAP.CDR

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Summary of Analytical Results
Soil Samples Collected From a Tank Excavation
Former Lemoine Sausage Factory
630 29th Avenue
Oakland, California

Conc in mg/kg (ppm)

Sample Name	Sample Date	Sample Location	Sample Depth (ft)	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Organic Lead
S-1	11/21/96	Under Dispensing End	8.5	1,800	<50	1.2	100	12	66	0.38
S-2	11/21/96	Under Fill End	8.5	70	<50	0.39	0.7	0.28	1.24	0.26
S-3	11/21/96	Under Dispenser	0.5	290	<50	2.1	11	5.3	29.4	0.09
S-4	11/21/96	West Sidewall	5	4,300	<50	16	380	29	158	0.9
S-5	11/21/96	South Sidewall	5	220	<50	0.44	2.8	1.1	5.3	0.33
S-6	11/21/96	North Sidewall	5	2,500	<50	4.2	2.4	19	60.3	0.63
S-7	11/21/96	East Sidewall	5	310	<50	0.1	0.43	1.3	1.3	0.22

All results are reported in milligrams per kilogram (mg/kg).

TPH-G = Total petroleum hydrocarbons as gasoline

MTBE = Methyl-tertiary-butyl ether

APPENDIX

CLAYTON'S DRILLING, WELL CONSTRUCTION AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

BOREHOLE INSTALLATION

Clayton Environmental Consultants, Inc. acquires the proper regulatory agency permits to drill boreholes and install monitoring wells that intersect with groundwater aquifers. Prior to commencing field activities, Clayton prepares a site specific health and safety plan in accordance with the requirements of Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120) and California Occupational Safety and Health Administration (Cal/OSHA) General Industry Safety Order (GISO) 5192.

Clayton subcontracts only with drillers who possess a current C-57 water well contractor's license issued by the State of California, and whose personnel have completed the OSHA 40-hour Hazardous Materials Safety Training. Prior to starting work, a "tailgate" safety meeting including discussion of the safety hazards and precautions relevant to the particular job is held with all personnel working on the job.

Borings are drilled dry by hollow- or solid-stem, continuous flight augers. All downhole tools and sampling equipment are decontaminated by steam-cleaning and/or washing in a non-phosphate detergent solution before arriving onsite to prevent the introduction of contaminants. These components are also decontaminated by steam-cleaning and/or washing in a non-phosphate detergent solution between borings.

Lithologic boring logs are prepared in the field and include a detailed description of subsurface stratigraphy using the Unified Soil Classification System and Munsell soil color charts based on examination of soil samples and cuttings brought to the surface by drilling operations. Soil samples are collected for lithologic logging purposes at a minimum of 5-foot intervals. Soil samples and cuttings are screened for potential volatile contaminants using a photoionization detector (PID) or flame ionization detector (FID). Boring logs are filled out in the field by a registered geologist or professional civil engineer registered by the State of California, or by a trained geologist or engineer working under the direct supervision of a registered geologist or professional civil engineer.

SOIL SAMPLING

Soil samples are collected continuously for the length of the borings using a split-spoon sampler lined with pre-cleaned brass or steel liners.

Clayton uses brass or steel liners cleaned with a non-phosphate detergent solution, double rinsed with clean tap water, and air dried prior to each sampling drive. The sampler is also cleaned with non-phosphate detergent solution and rinsed with tap water between sampling drives.

Soil samples selected for laboratory analysis are left in the brass liners, sealed with Teflon™ sheeting and plastic caps, wrapped in Teflon™ tape, labeled, and immediately placed into a

refrigerated container chilled to less than 4°C. Labels contain the following information: project name and number, sample identification number, date and time sampled, depth, and the sampler's initials. The soil samples are subsequently transported under chain-of-custody to a State-certified laboratory for analysis.

Excess drilling and sampling cuttings are placed into Department of Transportation (DOT)-approved drums, labeled, and left at the site pending results of laboratory analysis to determine proper disposal methods.

WELL CONSTRUCTION

Boreholes are converted to monitoring wells by placing 2-inch or 4-inch diameter well casing with flush-threaded joints and slotted screen comprised of polyvinyl chloride (PVC), stainless steel, or low carbon steel into the borehole. Well design and construction materials vary depending on subsurface conditions and the parameters to be monitored. To prevent the potential introduction of contaminants, all well construction materials are either removed directly from the factory sealed containers or decontaminated by steam cleaning and/or washing in a non-phosphate detergent solution prior to being placed in the borehole. No thread lubrication other than Teflon™ tape is used for connecting the casing segments.

The upper portion of the well above the well screen is solid casing. The annular space of the borehole is backfilled with washed, kiln-dried sand to a point at least 1 foot above the slotted screen. A seal above the filter pack is formed by placing a 1- to 2-feet layer of bentonite pellets on top of the sand. The bentonite pellets are moistened by pouring clean tap water down the hole so that they can expand and form a seal. Neat cement grout is placed above the bentonite seal and brought to the ground surface.

Water-tight locking caps are placed on top of the well casing to protect against infiltration of potential surface contaminants and prevent unauthorized access. The well heads are protected from damage with traffic rated Christy boxes set in concrete.

The solid casing may extend 2 to 3 feet above the ground surface, depending on the surface characteristics of the site. If the casings extend above the ground surface, the wells will be protected from damage by the installation of galvanized steel stove-pipes that will be secured using locks.

WELL DEVELOPMENT

Well seals in newly installed wells must are allowed to set for 48 to 72 hours prior to development.

All monitoring wells are initially developed to clean the well and stabilize disturbed aquifer materials around the screened internal perforations. Wells are developed by pumping (or bailing) and surging until the groundwater parameters, such as pH, temperature, conductivity, and turbidity, stabilize. When a well is installed in a low yield formation and the well purges dry, the well is allowed to recover and purged dry three times.

GROUNDWATER SAMPLING

Since well development can volatilize contaminants, newly installed wells are allowed to stabilize for an additional 48 to 72 hours between development and the first purging/sampling event. To ensure a representative groundwater sample from the aquifer is collected, groundwater within the well casing and filter material is purged and replaced with fresh groundwater water from the aquifer prior to sampling. Prior to purging, the depth to water and total depth of the wells are measured to the nearest 0.01 foot to calculate the well volume. Groundwater is purged from the well by pumping or bailing until at least four well volumes are evacuated and the parameters of pH, temperature, and conductivity stabilize. When a low-yield well is evacuated during purging, groundwater samples are collected only after the water level in the well has recovered to 80% of pre-purging level.

Purge and decontamination water from well development and sampling is placed into DOT-approved drums, labeled with the name of the site, address, well number, and left on-site pending results of laboratory analysis to determine proper disposal methods.

Field sampling logs maintained for each well include:

- Monitoring well identification number
- Water level, before and after purging
- Well depth
- Condition of water prior to purging (e.g., odor, sheen, amount of free product)
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

Groundwater samples are collected using disposable bailers or pre-cleaned Teflon™ bailers. All groundwater sampling equipment that comes into direct contact with the groundwater is thoroughly cleaned before arrival at the site and between sampling events.

Groundwater is collected in clean laboratory-supplied containers, labeled, placed immediately into a refrigerated container chilled to 4°C. All groundwater sample containers are labeled in the field with the project name and number, sample identification number, date and time of collection, and sampler's initials. The groundwater samples are subsequently transported under chain-of-custody documentation to a State-certified laboratory for analysis.

Groundwater samples are carefully transferred to the sample containers to minimize potential volatilization of contaminants. The sample containers for the most volatile analytes are filled first; the remaining containers are filled in order of declining volatility.

Preservatives are not added to any sample, unless instructed by the laboratory.

Under no circumstances are sealed sample containers opened by anyone other than the laboratory personnel who perform the requested analyses. If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, for example during shipment by an overnight shipper, a custody seal is placed on each sample container and/or refrigerated container to ensure that the samples have not been tampered with during transportation. The custody seal is signed by the sampler, and the date and time that the seal was placed is recorded.

REFERENCES

"Groundwater Monitoring Guidelines, Revised September 1992", Alameda County District Groundwater Protection Program.

"Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure, revised October 1989", State of California LUFT Task Force.

"Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites, Revised 10 August 1990", North Coast, San Francisco Bay, and Central Valley regions of the California State Water Quality Control Board.

"Investigation and Remediation at Fuel Leak Sites, Revised October 1990." Santa Clara Valley Water District.

"Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County, Revised June 1989." Santa Clara Valley Water District.