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ENVIRONMENTAL
PROTECTION
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May 17, 1999

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

Clayton Project No.70-97066.00.000

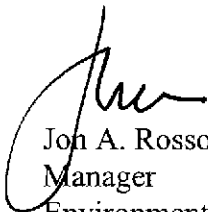
Subject: Workplan for Additional Investigation, Groundwater Monitoring, and
Feasibility Study for 630 29th Avenue in Oakland, California

Dear Mr. Chan:

Clayton has prepared the requested Workplan for 630 29th Avenue in Oakland, California pursuant to your request in the April 1, 1999 Alameda County Health Care Services letter. The Workplan and a copy of Clayton's March 1998 indoor air monitoring report are included as attachments to this letter.

If you have any comments or questions regarding the attached documents, please contact me at (925) 426-2676. We would like to move forward with the workplan as soon as possible. We look forward to hearing from you regarding the approval of the Workplan.

Sincerely,



Jon A. Rosso, P.E.
Manager
Environmental Risk Management and
Remediation
San Francisco Regional Office

JAR/mwh

cc: Ms. Donna Proffitt

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**Workplan for Additional Investigation,
Groundwater Monitoring and a Feasibility
Study
at
Former Lemoine Sausage Facility
Oakland, California
For**

Clayton Project No. 70-97066.00

May 1999

Clayton Environmental Consultants is a Division of Clayton Group Services, Inc.

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1. INTRODUCTION

Clayton Environmental Consultants, a division of Clayton Group Services, Inc., has prepared this Workplan pursuant to the request of Alameda County Health Care Services in the letter dated April 1, 1999. The Workplan has been prepared for the former Lemoine Sausage Facility located at 630 29th Avenue in Oakland, California (Figure 1).

This Workplan outlines a scope of work for additional groundwater investigations to delineate the extent of groundwater impacts, quarterly groundwater monitoring, and the preparation of a feasibility study.

1.1. SITE HISTORY

A fueling dispenser and one 1,000-gallon gasoline UST were formerly located east of the facility building. The UST was located beneath the sidewalk adjacent to 7th Street and supplied the dispenser located in a "cubby hole" near the building's roll-up door. The UST and associated piping were removed on November 21, 1996 and confirmation soil samples were collected. The UST removal and results of confirmation sampling are described in the "Underground Storage Tank Closure Report", dated September 24, 1997.

Two subsequent limited subsurface investigations were performed in August/September 1997 and, documented in Clayton's "Limited Subsurface Investigation, Former Lemoine Sausage Facility, 630 29th Avenue, Oakland, California" dated April 1998 and in Clayton's "Limited Groundwater Investigation, Former Lemoine Sausage Facility, 630 29th Avenue, Oakland, California" dated March 1999. The analytical results of the 1997 and 1999 limited subsurface investigation are summarized in Table 1 for soil samples and Table 2 for limited groundwater samples.

2. SCOPE OF WORK

Pursuant to the request of Alameda County Health Care Services, Clayton will perform the following scope of work:

- Additional groundwater investigation to define the extent of impacts to groundwater,
- Quarterly groundwater monitoring and sampling; and
- Prepare a feasibility study

2.1. ADDITIONAL GROUNDWATER INVESTIGATION

The groundwater gradient has been demonstrated to flow to the north-northeast toward an East Bay Municipal Utility District main sewer pipeline trench. Based on the onsite groundwater elevations, the trench inverts elevation, and the regional groundwater flow direction, Clayton assumes that the plume does not extend north of the pipeline trench. The plume does however extend south and west of the former source area and this extent has not been defined.

To define the southerly and westerly extent of the groundwater plume, Clayton will install two additional groundwater monitoring wells. One well will be located in the southwest portion of the facility warehouse and the second well will be located in 29th Avenue south of 7th Street as shown in Figure 2.

2.1.1. Drilling Procedures and Monitoring Well Construction

An encroachment and excavation permit will be obtained from the City of Oakland for the placement of the proposed well in 29th Avenue. A limited access drill rig equipped with 8-inch diameter hollow stem augers will be used to drill boreholes for monitoring well installation. A California modified split spoon sampler lined with three 2-inch diameter, 6-inch long brass sleeves will be used to collect soil samples from boreholes. While drilling each borehole, one 18-inch soil sample drive will be advanced every five-foot interval to collect soil samples for either soil classification or screening purposes. Soil cores will be logged for lithological content by the Unified Soil Classification System (USCS), color using a Munsell color chart, relative moisture content, competency, blow counts, and other observable distinguishing characteristics (for example, rootlets or odor). A PID will be used to field screen soil for the presence of volatile organic compounds. Field observations and monitoring well construction details will be entered onto exploratory boring log sheets.

All hollow stem auger drill stems and downhole sampling equipment will be either steam cleaned or washed in a solution of non-phosphate detergent and double rinsed with tap water after each use. The soil cuttings and decontamination water will be containerized in separate USDOT approved 55-gallon drums. The drums will be sealed, labeled with content information and generation date, and stored onsite pending future disposal.

2-inch diameter wells will be installed for this phase of work. The groundwater monitoring wells will be constructed within the eight-inch diameter boreholes. The well screen, constructed with two-inch diameter schedule 40 PVC casing perforated with 0.020-inch slots and fitted with a PVC end cap, will be placed in each borehole. The monitoring well screen casing will be set from ten feet below first encountered water to ten feet above first encountered groundwater. The well screen casing will be flush threaded to the necessary length of two-inch diameter schedule 40 PVC blank pipe to complete the well casing to surface.

The well screen filter pack will be constructed by pouring Lonestar number 3 graded sand from the bottom of the borehole annular space to two feet above the top of the well screen casing. A two-foot interval of 3/8-inch bentonite pellets will be placed in the annular space above the top of the sand filter pack. The bentonite will be hydrated and allowed to swell. The remaining annular space to approximately one-foot below ground surface will be filled with a neat cement grout containing approximately five-percent bentonite powder. A traffic rated Christy box will be placed around the top of each well casing and secured in place with concrete. A lockable expanding well cap will be used to secure each well head.

2.1.2. Groundwater Monitoring Well Development

The annular space grout seal surrounding each monitoring well will be allowed to set for three days prior to well development. Well development will be performed to remove sediment that has accumulated in the well casing and filter pack sand during well construction, and also to help stabilize the filter pack sand and aquifer material surrounding the well screen intake area.

The depths to groundwater and total length of the monitoring well casing will be measured to determine the quantity of water within each well casing. A two-inch surge block will be used to agitate water and well construction materials prior to and during well development. A submersible pump will be used to purge groundwater and sediment from well casings. Well development will be continued until water quality parameters (pH, temperature, electrical conductivity, and turbidity) have stabilized. Groundwater parameters will be recorded onto field well development data sheet. A minimum of 10 well casing volumes of water will be purged from each monitoring well during development. Purge water will be stored onsite in sealed, labeled, USDOT approved 55-gallon drums pending future disposal.

2.1.3. Groundwater Monitoring Well Survey

A State of California Licensed Land Surveyor will be contracted to survey the location and elevation of each monitoring well. The survey will include the top of well casing elevation (north face) and top of Christy box rim elevation; the elevation data will be surveyed to 0.01-foot accuracy. The northing and easting co-ordinates will be surveyed to 0.1-foot accuracy and referenced to a recognized survey monument.

2.2. QUARTERLY GROUNDWATER MONITORING AND SAMPLING

The five existing and two proposed wells will be monitored for depth to water and four wells (MW-1, MW-3 and the two proposed wells) will be sampled on a quarterly basis. Prior to groundwater sampling, the depth to groundwater within each monitoring well will be measured with a water level indicator. Using the well survey co-ordinate and elevation data along with the depth to water measurement from each monitoring well, the groundwater elevation and flow direction beneath the subject property will be determined.

*not needed
MW2
✓ this out*

Approximately four well casing volumes of water will be purged from each monitoring well prior to sampling. A submersible pump will be used to purge ground water from each monitoring well. Water quality parameters (pH, electrical conductivity, temperature and visual turbidity) will be recorded onto field sampling data sheets prior to purging and after removing each well casing volume of water. Upon purging sufficient water from the monitoring wells, groundwater for laboratory analysis will be retrieved using a disposable bailer and transferred into laboratory supplied sample containers. Sample containers will be sealed, labeled with identifying information, logged onto the chain-of-custody, and temporarily stored in a chilled ice-chest while awaiting transportation to the laboratory. Groundwater purged from monitoring wells during development and

sampling will be stored onsite in sealed, labeled, USDOT approved 55-gallon drums pending future disposal.

2.2.1. Laboratory Analyses of Groundwater Samples

Groundwater samples will be submitted for laboratory analyses to the State of California certified McCampbell Analytical Laboratories in Pacheco, California. The samples will be analyzed by one or more of the following United States Environmental Protection Agency (USEPA) approved analytical methods:

- USEPA Method 8015M for Total Petroleum Hydrocarbons as Gasoline (TPHG)
- USEPA Method 8020 for Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, and total Xylenes [BTEX]),

In addition, during the first quarter event groundwater samples will be collected for groundwater quality/bio-remediation parameters as dissolved oxygen, oxidation-reduction potential, nitrate, sulfate and ferrous iron. Upon receipt of the first quarter water quality data, Clayton will discuss with Alameda County Health Care Services whether future water quality analyses are necessary.

*- add chlorinated HCs
EOC (Ph scavenger)*

✓ this

2.2.2. Report Preparation

A quarterly groundwater monitoring report will be generated for each quarterly sampling event. The first quarterly report will document the installation of the two additional groundwater monitoring wells and present data that will discuss whether the plume has been defined or not. Four consecutive quarters of monitoring and sampling will be performed, and at the end of that period, the need for additional groundwater monitoring will be re-evaluated.

2.3. FEASIBILITY STUDY

Once the additional groundwater investigation and first quarter of groundwater monitoring is complete, Clayton will prepare a feasibility study. The feasibility study will present several remediation approaches, including no action, and evaluate the feasibility of each alternative based on cost effectiveness, implementability, and practicability.

3. PROJECT MANAGEMENT

Upon written authorization of this workplan, Clayton will implement the scope of work beginning with an encroachment permit acquisition from the City of Oakland in order to implement the plume definition task (additional groundwater monitoring well installation). Once the additional groundwater monitoring wells have been installed and developed, Clayton will perform the first quarterly monitoring event. Upon receipt of the first quarterly monitoring data, the first quarterly monitoring report will be prepared and completed. The feasibility study will be prepared upon the completion of the first quarter

report. After the first quarter report and feasibility study have been reviewed by Alameda County, Clayton will request a meeting with Alameda County to discuss the chosen remedial alternative in the feasibility study.

Table 1**Summary of Historical Soil Analytical Data
Former Lemoine Sausage Facility
Oakland, California**

Sample Location	Sample Depth (feet)	Date Sampled	TPHG	MTBE	Benzene	Ethyl benzene	Toluene	Total Xylenes
B-1	2.5	8/29/97	<0.3	NA	<0.005	<0.005	<0.005	<0.005
B-1	5.5	8/29/97	30	NA	<0.03	<0.03	<0.03	<0.04
B-2	2.5	8/29/97	<0.3	NA	<0.005	<0.005	<0.005	<0.005
B-2	6	8/29/97	660	NA	<0.5	6	<0.5	10
B-3	2.5	8/29/97	27	NA	<0.1	<0.3	<0.1	<0.1
B-3	5	8/29/97	170	NA	<.01	<0.1	<0.1	<0.1
B-4	2.5	8/29/97	<0.3	NA	<0.005	<0.005	<0.005	<0.005
B-4	6	8/29/97	25	NA	<0.1	<0.1	<0.2	<0.1
B-4	9.5	8/29/97	0.3	NA	<0.005	<0.005	<0.005	0.008
B-5	2.5	9/2/97	1.6	NA	0.009	0.012	0.005	0.045
B-5	6	9/2/97	<0.3	NA	<0.005	<0.005	<0.005	0.005

Notes:

1. All results in milligrams per kilogram (mg/kg)
2. NA = Not Analyzed

Table 2
Summary of Groundwater and Grab Groundwater Analytical Data
Former Lemoine Sausage Facility
Oakland, California

Sample Location	Date Sampled	TPHG	MTBE	Benzene	Ethyl benzene	Toluene	Total Xylenes	1,2-DCA
B-1	8/29/97	34,000	NA	430	2,400	54	4,649	NA
B-2	9/3/99	5,100	NA	2,800	43	120	140	NA
B-3	9/10/97	51,000	<5	14,000	290	5,900	7,100	410
B-4	9/3/97	100	NA	<0.4	<0.3	<0.3	<0.4	NA
B-5	9/10/97	78,000	<5	16,000	1,100	22,000	6,000	910
B-7	2/8/99	63,000	NA	5,900	2,700	4,100	9,600	160
B-8	2/8/99	140	NA	5.4	2.6	3.2	4.6	2.9
B-9	1/28/99	51,000	NA	240	640	5,600	3,150	<0.3
B-10	1/28/99	210	NA	1.4	1.9	16.0	100.8	<0.3
MW-1	2/8/99	48,000	NA	3,900	970	6,300	4,300	<30
MW-2	2/8/99	41,000	NA	11,000	650	4,900	1,720	60
MW-3	2/8/99	35,000	NA	1,200	1,400	3,400	4,900	<30
MW-4	2/8/99	15,000	NA	670	780	90	940	<30
MW-5	2/8/99	4,900	NA	780	230	440	370	<0.3

Notes:

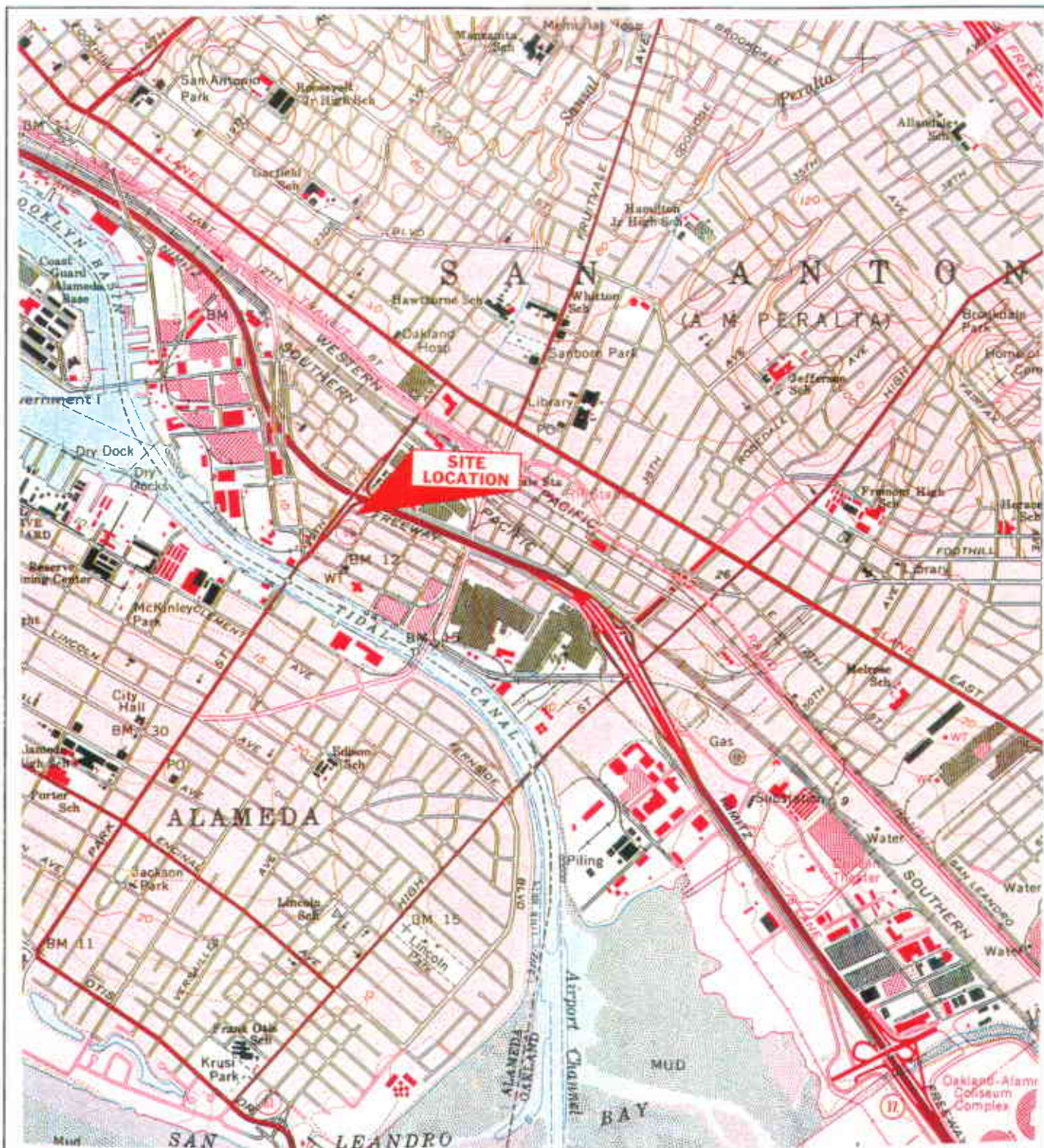
All results in micrograms per liter (u/L)

NA = Not Analyzed

1,2-DCA = 1,2-dichloroethane

TPHG = Total Petroleum Hydrocarbons as Gasoline

MTBE = methyl tert-butyl ether



0 2,000

SCALE: FEET

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

SITE LOCATION

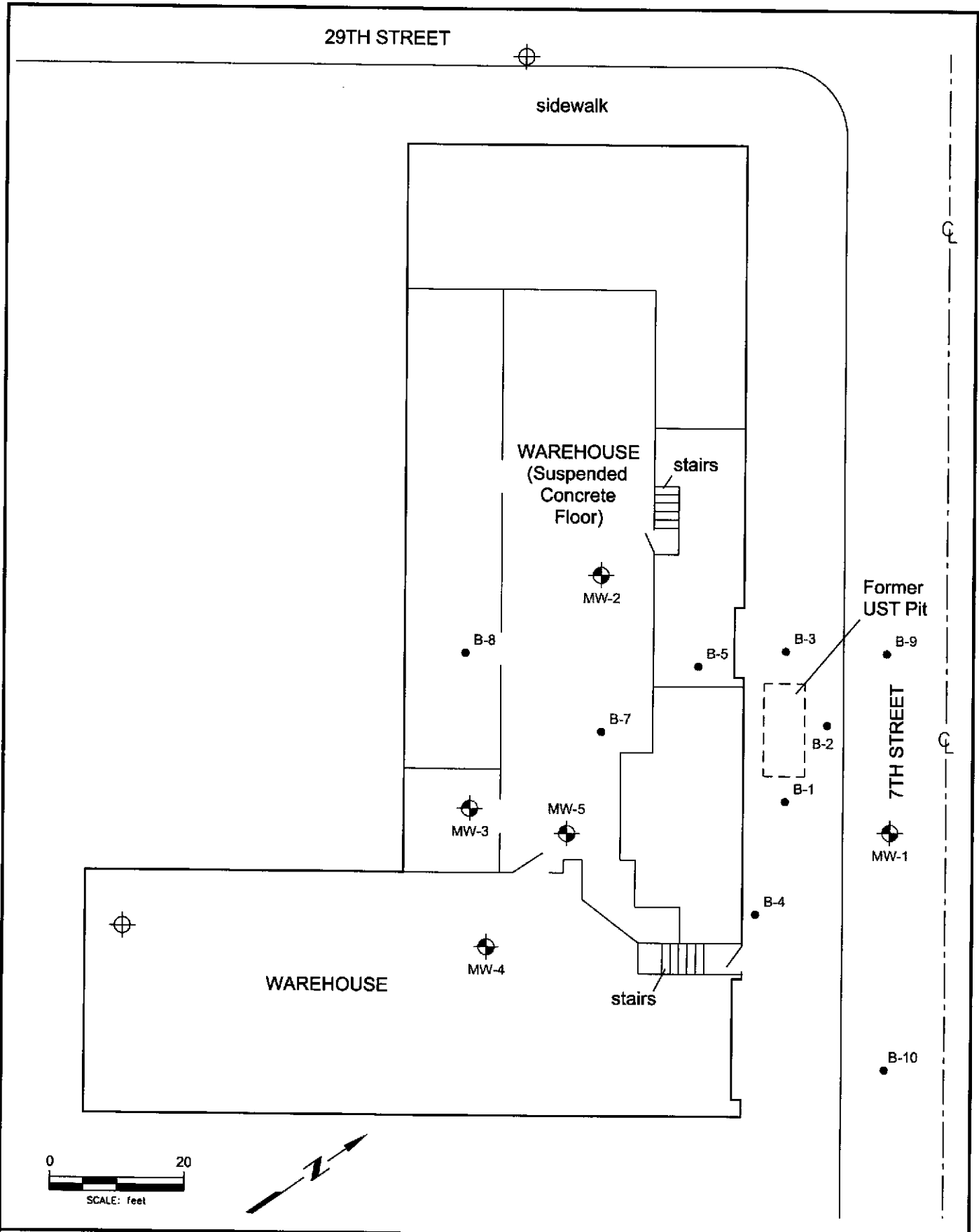
FORMER LEMOINE SAUSAGE FACTORY
630 29th AVENUE
OAKLAND, CALIFORNIA
Clayton Project No. 70-97066.00.002

Figure

1

03/20/98
LSF-0398.CDR

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LEGEND	
MW-1	Monitoring Well Location
B-1	Soil Boring/Temporary Monitoring Well Location
	Proposed Monitoring Well Location

PROPOSED MONITORING WELL LOCATION MAP

FORMER LEMOINE SAUSAGE FACTORY
 630 29TH AVENUE
 OAKLAND, CALIFORNIA
 Clayton Project No. 70-97086.00

Figure
2
 05/10/99
 WELLMAP.DWG

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