ENVIRONMENTAL **AGE** ENERGY MINERALS

ANANIA GEOLOGIC ENGINEERING

March 27, 1989

Ms. Katherine Chesick
Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94641

RE: Submittal of Work Plan for Site Characterization of Boiler Fuel Tanks at the Carnation Dairy Facility Located at 1310 14th Street, Oakland, California.

AGE Project No: 004-88-059

Dear Ms. Chesick:

Enclosed is the Work Plan for the site characterization in the area of the two boiler fuel tanks at the Carnation Dairy Facility in Oakland. The Work Plan is based on requirements for Monitoring Alternative 4 in Subchapter 16 and conditions encountered at the site.

AGE intends to begin drilling as soon as possible after your approval has been granted and would appreciate your prompt attention in this matter. If there are any questions please contact me at 916/631-0154.

Thank you for your time and cooperation.

Sincerely,

Mary L. Scruggs
Project Manager

cc w/ enclosures: Howard C. Schmuckler, Carnation
Jim Person, Carnation
Don Dalke, RWQCB

Send analysis has been performed.

AGE 11330 SUNRISE PARK DR., SUITE C • RANCHO CORDOVA, CA 95742
P.O. BOX 161148 • SACRAMENTO, CA 95816 • PHONE (916) 631-0154 FAX (916) 631-0528

SITE CHARACTERIZATION WORK PLAN FOR THE BOILER FUEL TANKS AT THE CARNATION DAIRY FACILITY LOCATED 1310 14TH STREET IN OAKLAND, ALAMEDA COUNTY, CALIFORNIA

AGE PROJECT No. 004-88-059

March 27, 1989

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AGE PROJECT No. 004-88-059

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FIGURES

APPENDIX

WORK PLAN FOR SITE CHARACTERIZATION OF THE BOILER FUEL TANKS AT THE CARNATION DAIRY FACILITY LOCATED AT 1310 14TH STREET IN OAKLAND, ALAMEDA COUNTY, CALIFORNIA

MARCH 27, 1989

AGE PROJECT No. 004-88-059

1.0 INTRODUCTION

Mr. Howard R. Shmuckler, Carnation Corporate Counsel, authorized Anania Geologic Engineering (AGE) to perform a site characterization for the two underground fuel tanks located west of the boiler room at the Carnation Dairy in Oakland, California (Figure 1). The purpose of the site characterization is to bring the underground tanks into compliance with the monitoring requirements specified in the California Administrative Code, Title 23, Subchapter 16, Article 4. The investigation will also characterize the geohydrologic conditions of the site and evaluate if the soil or groundwater has been affected by possible leaks or spills from the boiler fuel tanks. The Alameda County Hazardous Materials Department is the lead regulatory agency.

2.0 BACKGROUND

Carnation's dairy facility is located at 1310 14th Street in the City of Oakland, Alameda County, California. Figure 2 shows the facility location and surrounding vicinity.

2.1 FACILITY DESCRIPTION

The facility is an active ice cream and milk production plant with associated packaging, storage, and distribution operations. The facility has seven underground fuel storage tanks. This Work Plan addresses the two underground boiler tanks which contain #5 low sulfur fuel oil. The capacities of the tanks are 12,000 and 11,406 gallons. The other five underground fuel tanks were removed in January 1988. A separate Work Plan for the site

characterization of the fuel tank area has already been approved and work is in progress.

2.2 FACILITY HISTORY

The dairy facility was originally owned by American Creamery and was constructed in 1915. Carnation purchased the facility in 1929. Several additions and improvements to the buildings were made between 1946 and 1973 to meet operation requirements. Of the two underground tanks near the boiler room, one was first installed in 1946 and the other was placed in service in 1977. The older tank is the smaller one and is completely encased in concrete. The newer tank is a 12,000-gallon capacity, double tar coated tank. Carnation is currently negotiating the sale of the property and existing facilities with Foster Farms.

2.3 PROJECT HISTORY

The two boiler tanks are registered with the State of California. Copies of the State form have been submitted to the County. The tanks have not been tested due to the high viscosity of the boiler fuel. Because of the fuel's high viscosity, performing pressure based, leak detection tests of the tanks and product lines will not produce verifiable results. In addition, it is not possible to heat the tanks to reduce the viscosity in order to perform the high pressure line tests. Therefore, Monitoring Alternative 4 of California Administrative Code 23, Subchapter 16, Article 4, was selected. Work described in this document covers the initial site characterization consisting of soil sampling, groundwater sampling, and installing four groundwater monitoring wells in accordance with Monitoring Alternative 4. No other work has been performed to date for these tanks.

3.0 PURPOSE AND SCOPE

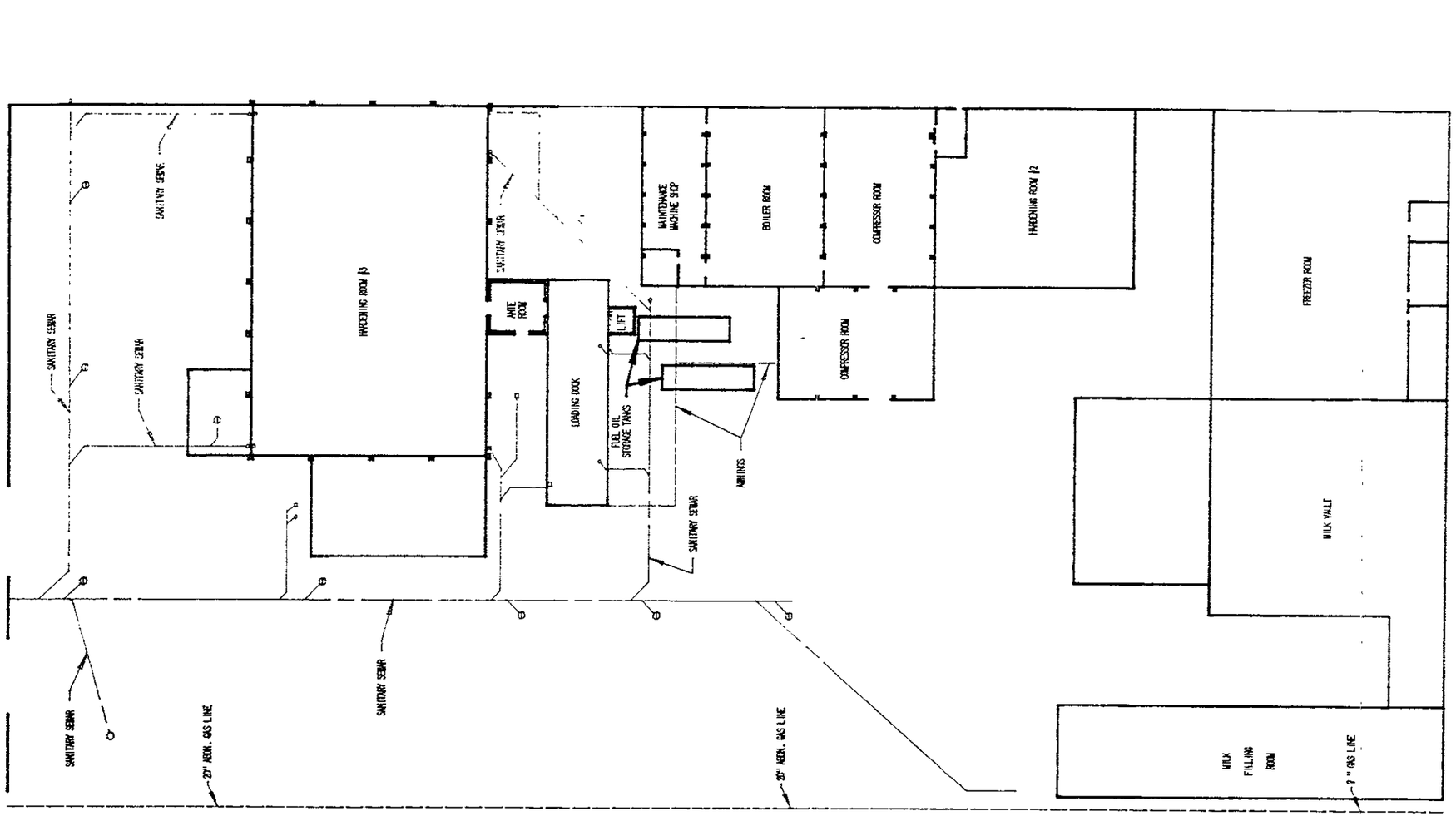
3.1 PURPOSE

The site characterization described in this Work Plan has the following objectives:

1) Evaluate if the soil or groundwater is contaminated in the vicinity of the underground tanks by sampling the soil and groundwater;

2) Investigate the lateral and vertical extent of soil contamination, if any, within the immediate vicinity of the tanks;

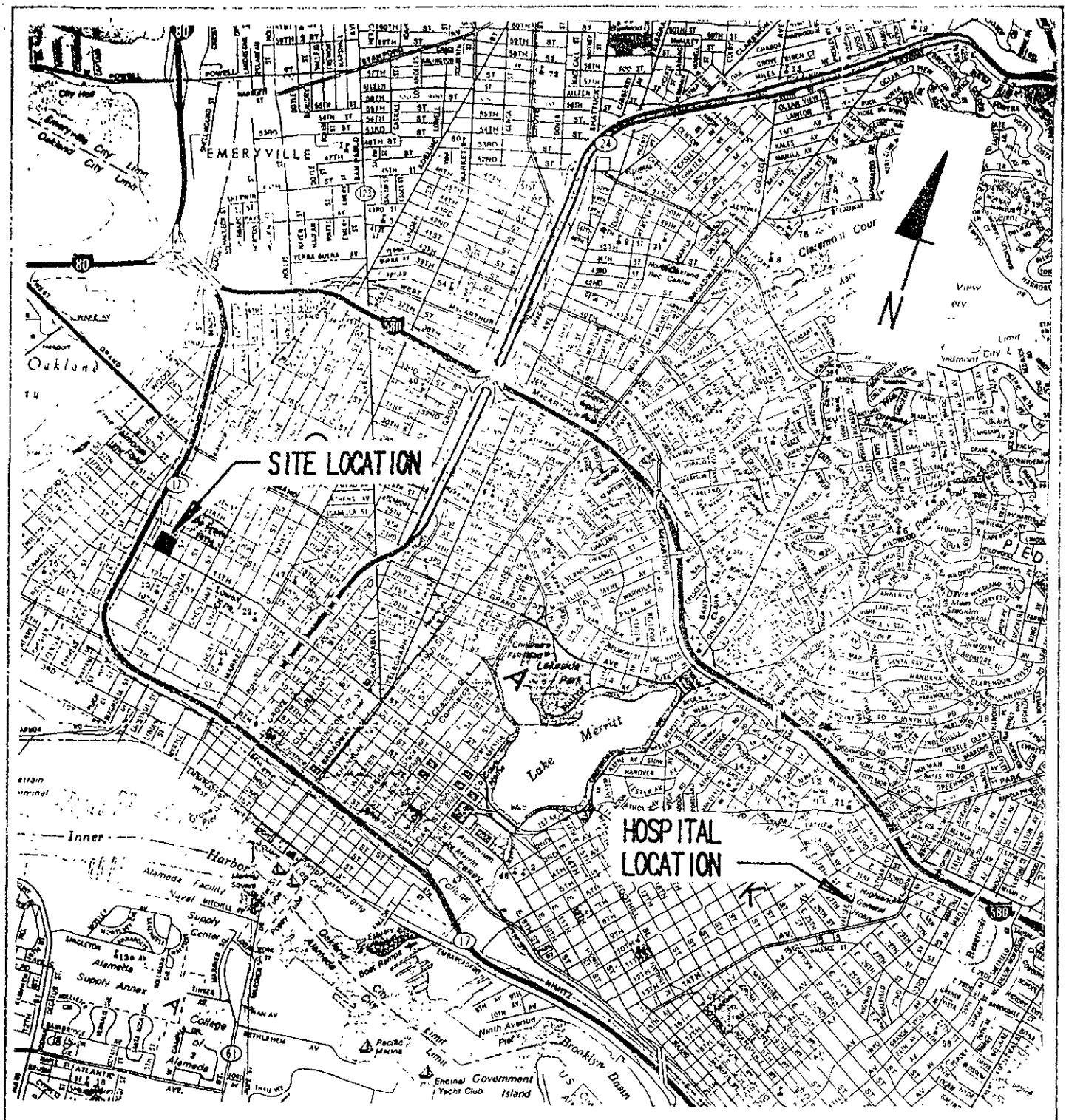
FIGURE 1



AGE
ANANIA GEOLOGIC ENGINEERING

TITLE: CARNATION DAIRY FACILITY EASTERN PORTION					
PROJECT NAME: CARNATION, OAKLAND			PROJECT NO:	004-88-039	
SITE LOCATION: 1310 14TH ST. AT POPLAR OAKLAND, CA.					
REV.	DATE	DRAWING #	CHECKED BY	APPROVED BY	SCALE
	3-24-89	0.2.D.C			1" = 42'

FIGURE 2



AGE
ANANIA GEOLOGIC ENGINEERING

TITLE: SITE LOCATION MAP					
PROJECT NAME: CARNATION/OAKLAND				PROJECT NO: 004-88-059	
SITE LOCATION: 1310 14th ST. AT POPLAR ST. OAKLAND					
FIG. NO.	DATE	DRAWING BY	CHECKED BY	APPROVED BY	SCALE
4	2-13-89	CHRIS DIDIO			NONE

3) Characterize the lithology and interpret the geohydrologic setting;

3.2 SCOPE OF WORK

The scope of services proposed in this Work Plan is outlined below and discussed in greater detail in subsequent sections of this document. The Scope of Work includes the following tasks:

1) Arrange to have underground utilities located as precisely and completely as feasible. Underground Service Alert (USA) will be called;

2) Advance four soil borings with a hollow-stem auger drill rig to depths of approximately 25 feet in the vicinity of the underground tanks as shown on Figure 3. The augers will be steam cleaned prior to and between each boring;

3) Collect soil samples in three 6-inch brass tubes at five-foot intervals and at changes in lithology from each boring. The samples will be collected using a California split-spoon sampler with cleaned brass tubes. Proper sampling protocol will be followed and the samples will be recorded on a Chain of Custody form;

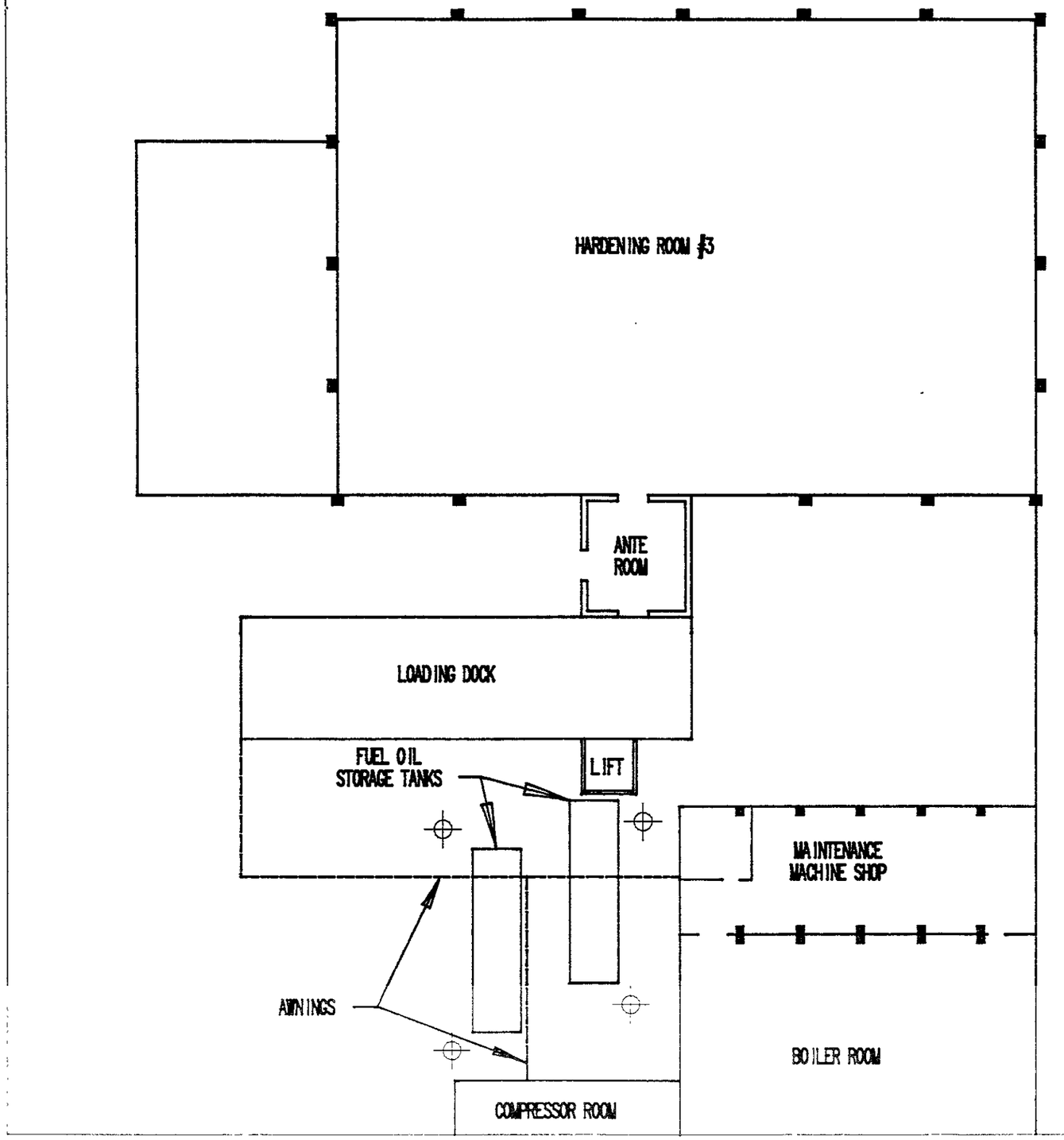
4) Field screen at each sample interval using a Bacharach TLV Sniffer calibrated in parts per million of hexane;

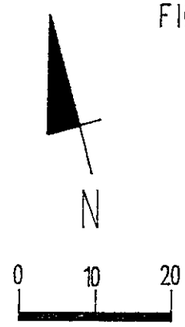
5) Analyze at least one soil sample from each boring for benzene, toluene, ethylbenzene, xylenes (BTEX); total petroleum hydrocarbons (TPH) as gasoline and diesel; total oil and grease; and fat, oil and grease using EPA methods 8015 Modified, 8020, 503D and 503E;

6) Convert the four soil borings into two-inch diameter monitoring wells with schedule 40 PVC screen and casing as shown on Figure 4. The well screen size, based on sieve analyses, will be 0.030 inches and the filter pack will be clean #3 Monterey sand;

7) Develop the monitoring wells by blowing them out with nitrogen or by bailing to set the filter pack and remove fines. Well development will not begin until the surface seal has been allowed to set for at least 24 to 48 hours;

FIGURE 3



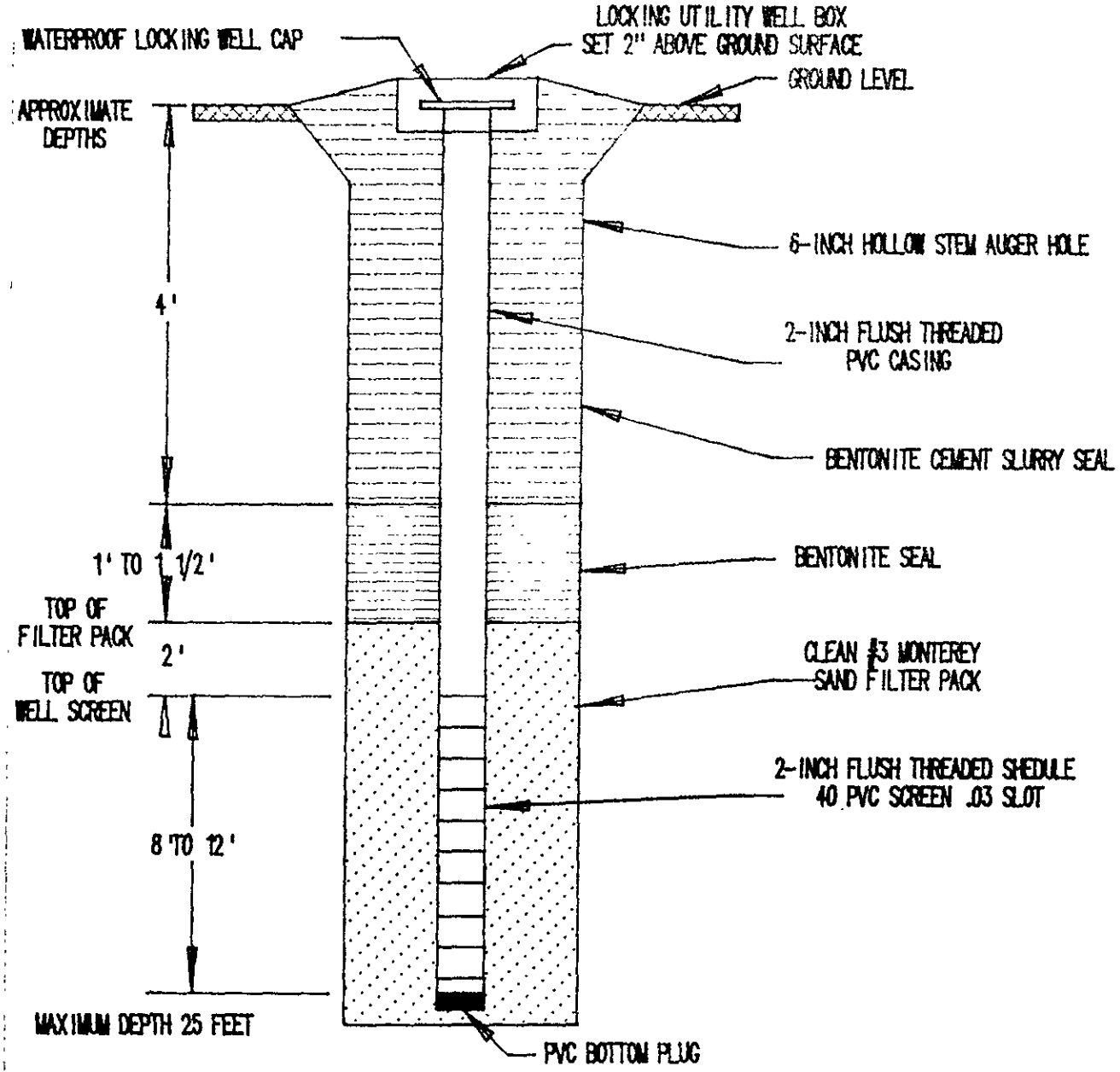


PROPOSED BORING LOCATIONS ⊕

AGE
ANANIA GEOLOGIC ENGINEERING

TITLE: BOILER FUEL TANK AND PROPOSED BORING LOCATIONS.					
PROJECT NAME: CARNATION/OAKLAND				PROJECT NO:	004-88-059
SITE LOCATION: 1310 14th ST. AT POPLAR OAKLAND, CA.					
REV.	DATE	DRAWING BY	CHECKED BY	APPROVED BY	SCALE
	3-24-89	CHRIS DIDIO			1" = 20'

FIGURE 4



AGE
ANANIA GEOLOGIC ENGINEERING

TITLE: MONITORING WELL CONSTRUCTION DETAIL					
PROJECT NAME: CARNATION/OAKLAND				PROJECT NO: 004-88-059	
SITE LOCATION: 1310 14th ST. AT POPLAR ST. OAKLAND					
REV. NO.	DATE	DRAWING BY	CHECKED BY	APPROVED BY	SCALE
	3-14-89	CHRIS DIDIO			NONE

8) Allow monitoring wells to equilibrate for at least 48 hours prior to sampling;

9) Measure groundwater level and floating product thickness, if present, in all four wells prior to sampling any of the wells. Measurements will be made using an interface tape or an acrylic bailer;

10) Collect one water sample from each of the monitoring wells using a teflon bailer. Three to five well volumes of water will be purged with a peristaltic pump or bailer prior to sampling. Temperature, pH and conductivity will be monitored during purging. The samples will be collected in appropriate containers provided by the analyzing laboratory. The samples will be placed in a cooler maintained at a temperature of approximately four degrees Centigrade and transported to the laboratory at the end of each day under Chain of Custody;

11) Analyze four water samples for TPH, BTEX, total oil and grease, and fat, oil and grease using EPA methods 8020, 8015 Modified, 503A and 503E;

12) Arrange for a California licensed surveyor to survey the location and elevation of each of the monitoring wells to the nearest tenth of a foot for location and nearest hundredth of a foot for elevation;

13) Determine groundwater gradient and flow direction;

14) Prepare a written report detailing the field procedures, analytical results, site characteristics and monitoring well installation and construction details. In addition, the report will recommend groundwater monitoring frequency, conclusions, and recommendations.

4.0 SUBSURFACE INVESTIGATION METHODS

The methods employed to implement the above Scope of Work are described in this section.

4.1 BORING METHODS

The borings will be advanced using an appropriate drill rig with a 6-inch outer diameter hollow-stem continuous-flight auger in accordance with ASTM Method D 1452-80 for soil investigations and sampling by auger borings. The auger will be steam cleaned prior to drilling each boring. The lithology, soil classification and other pertinent data will be recorded in a field notebook and on a field boring log in accordance with ASTM Method D 2488-84 for visual description and identification of soils.

Cuttings and other spoils from the borings will be placed in 55-gallon drums or on sheets of plastic and covered until it is determined and verified with analytical results whether or not the soil is contaminated. If the material is contaminated, a written plan will be submitted by the Facility operator to the County for their approval before disposal occurs. Disposal will be the responsibility of the Facility operator.

Backfilling of any boring will be accomplished by pouring a bentonite cement slurry through the auger if the borings will not be completed as groundwater monitoring wells.

4.2 SOIL SAMPLING

Soil samples will be collected using a split-spoon sampler lined with three 2-inch diameter brass sleeves driven by a 140 pound hammer with a 30-inch drop. The sampling will be done in accordance with ASTM Methods D 1586-84, Standard Method for Penetration and Split-Barrel Sampling of Soil, and D 1587-83, Standard Practice for Thin-Walled Tube Sampling of Soils. The brass sleeves and sampler will be steam cleaned prior to each use.

Soil samples will be driven at depths of 5, 10, and 15 feet in each boring unless the on-site geologist selects different sampling depths based on field observations. No soil samples for chemical analysis shall be taken below the water table. The blow counts, recovery, and lithology will be recorded on the field logs. Lithology will be described in accordance with ASTM procedure D 2488-84 (Standard Practice for Description and Identification of Soils). One brass sleeve of the three in the sampler will be kept for analyses. Another brass tube will be used for logging the boring and screening with the TLV Sniffer.

why not?

At least one brass sleeve with soil from each boring will be capped with a tight fitting plastic cap and sealed with tape. A sample tag with a unique sample number, project number, date, time,

sampler identification, sample location, and depth will be attached to each soil sample. The sample will then be put into a ziplock bag and immediately placed in a cooler at a temperature of approximately 4 degrees Centigrade. Each sample will be recorded on a Chain of Custody form and in the field notebook. The samples will be transported at the end of each day to Precision Analytical Laboratory in Richmond, a California State certified laboratory.

4.3 FIELD SCREENING OF SOIL SAMPLES

One of the three sample tubes will be emptied into a glass jar. The glass jar will be covered with foil or plastic film and an organic vapor detector will be used to analyze the headspace. A vapor reading in parts per million will be taken with the Bacharach TLV Sniffer which is calibrated to hexane. The reading will be noted on the boring log and in the field notebook.

4.4 SOIL ANALYSES

The soil samples will be analyzed by Precision Analytical Laboratory, a California State certified laboratory, in accordance with DOHS guidelines and EPA protocols. The samples will be analyzed for TPH, BTEX, total oil and grease, and fat, oil and grease by EPA methods 8015 Modified, 8020, 503D and 503E.

4.5 WELL INSTALLATION

The monitoring wells will be flush mounted and installed immediately after the borings have been advanced to total depth. The PVC well screen and casing will be placed inside the auger. Using the auger, the filter pack will be poured slowly between the outside of the well casing and the inside of the auger to a height of one to two feet above the well screen. The bentonite seal will be constructed by pouring bentonite pellets over the filter pack and then charging the bentonite with distilled water. A bentonite cement slurry with approximately 4% bentonite will be used for the completed wells at the end of each day. The Alameda County Flood Control District will be notified when the drilling will start so an inspector can witness the seal if necessary. The surface will be finished such that the ground slopes away from the well casing to prevent surface water from entering the well. The top of the casing will be capped and a water-tight locking well box will be installed. A padlock will be placed on the well box to prevent tampering with the well. The well will be labeled and a Water Well Drillers Report will be filed with both the California Department of Water Resources and Alameda County.

4.6 WELL DEVELOPMENT

The wells will be developed after the seals have been allowed to set for at least 48 hours. Well development will be accomplished by jetting or bailing, removing four to ten well volumes or until significant reduction of turbidity is observed. Water and materials brought to the surface during the well development will be placed in barrels and later treated in the on-site bioremediation treatment area.

4.7 WATER LEVEL MEASUREMENTS

The well will be allowed to sit and equilibrate for at least 48 hours before water level measurements are taken. The water level will be measured in all four monitoring wells with a level water meter or a MMC oil-water interface probe prior to sampling any wells. Water level measurements including the date, time, equipment used, and the person(s) performing the measurements will be recorded in a bound field notebook.

4.8 WATER SAMPLING

A groundwater sample will be collected from each of the wells using a teflon bailer. The well will be purged a minimum of three to five well volumes using a peristaltic pump or bailer. The field parameters (pH, conductivity, and temperature) will be monitored and recorded in the field notebook. If possible, the sample will be collected when the field parameters have stabilized. If the well recovery is slow, the sample will be collected as soon as the water level is sufficient to recover a representative sample. The bailer and/or pump will be steam cleaned prior to each use to reduce the risk of cross-contamination. If floating product is present in any of the wells, the floating product thickness will be measured with the oil-water interface tape.

The samples will be collected in appropriate containers provided by the analyzing laboratory. Samples to be analyzed for volatiles will be collected in 40 ml VOA vials and filled completely so there is no headspace. The sample will be sealed and labeled with a sample tag stating the unique sample number, project number, date, time, sampler, and sample location. The sample will be placed in a cooler at a temperature of approximately 4 degrees Centigrade. All samples will be recorded on a Chain of Custody form and in the field notebook. The samples will be transported to Precision Analytical Laboratory, a California State certified laboratory, for analyses at the end of each day.

4.9 WATER ANALYSES

The water samples will be analyzed by Precision Analytical Laboratory, a California State certified laboratory, in accordance with DOHS guidelines and EPA protocols. The samples will be analyzed for TPH, BTEX, total oil and grease, and fat, oil and grease by EPA methods 8015 Modified, 8020, 503A and 503E.

5.0 QUALITY ASSURANCE PLAN

This section describes field and analytical quality assurance procedures to be followed during the investigation and remediation.

5.1 SAMPLE COLLECTION AND HANDLING PROTOCOL

Proper sample collection and handling are essential to assure quality of data obtained from a sample. Each sample, therefore, will be collected in a brass tube, preserved correctly for the intended analysis and stored for no longer than the permissible holding time prior to analysis. Protocol to be applied in this project is described in Section 4.

5.2 SAMPLE IDENTIFICATION AND CHAIN OF CUSTODY PROTOCOL

Sample identification and Chain of Custody procedures are designed to assure quality and to document sample possession from the time it is collected to the time of its ultimate disposal. The container for each sample submitted for analysis will have a label affixed with the identifying number or the number will be inscribed directly on the container if feasible. The analytical laboratory will assign a separate sample number unique to that sample for internal sample coordination and identification. A description of the sample including the sample number and other pertinent information regarding its collection and/or geologic significance will be written in field notes and on a geologic boring log being prepared by the site geologist. These field documents will be kept in a permanent project file. All samples will be analyzed by a State certified laboratory for the analyses requested.

A properly completed Chain of Custody form will be submitted to the analytical laboratory along with the samples. The laboratory's assigned number will be properly entered on the form. A quality control officer at the lab will verify integrity of the samples submitted, proper sample volume, correctness of containers used, and properly executed Chain of Custody form. Pertinent information will be entered into a log book kept by the laboratory.

5.3 ANALYTICAL QUALITY ASSURANCE

In addition to routine calibration of analytical instruments with standards and blanks, the analyst is required to run duplicates and spikes on ten percent of analyses to assure an added measure of reliability and precision. Accuracy is verified through the following:

1) U.S. EPA and State certification of results;

2) Participation in inter-laboratory round robin program;

3) "Blind" samples are submitted for analysis by the quality control officer on a weekly basis. These are prepared from National Bureau of Standards specifications or EPA reference standards; and

4) Verification of results with an alternative method.

6.0 SCHEDULE

AGE anticipates starting the work described in this Work Plan at the beginning of April 1989, pending approval by the County. Since the tanks are located in an active truck loading area, the drilling schedule will be dependent on plant operations. Drilling and installation of the monitoring wells should be completed within a few days.

A factual report of findings described above will be submitted within a month of receipt of analytical results for the soil and groundwater samples.

7.0 REMARKS AND SIGNATURES

This Work Plan was prepared in accordance with current industry standards and practice. The work described herein will be performed under the supervision of a California Registered Geologist.

Prepared by:

Mary L. Scruggs
Project Geologist

Date: 3/27/89

Approved by:

Nicholas W. Coffey
General Partner
California Registered
Geologist No. 4297

Date: 3/27/89