ATT

June 18, 1992

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Mr. William C. Collett, Treasurer
Dreyer's Grand Ice Cream, Inc.
5929 College Avenue
Oakland, CA 94618

STID 1287

Subject: Workplan for a Groundwater Remedial Investigation and Remediation for the Property at 5929 College Avenue, Oakland, CA 94618 (Project No. 919313)

Dear Mr. Collett:

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596-2079
FAX 934-0418
510 934-4884

Aqua Terra Technologies, Inc. (ATT) has developed the following workplan for a shallow, unconfined groundwater remedial investigation with subsequent groundwater remediation for the property at 5929 College Avenue in Oakland, California. ATT is submitting this workplan in accordance with the *State Water Resources Control Board Leaking Underground Fuel Tank (LUFT) Manual* (October 18, 1989 revisions), the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* (10 August 1990) and the Alameda County Environmental Health Care Services Agency (ACHCSA) requirements of March 27, 1992 (Attachment A).

SITE DESCRIPTION

Site Geography

The subject site is located in the City of Oakland, California, approximately 0.25 miles north of California Highway 24 and approximately 0.25 miles south of the Berkeley City limits (Plate 1, Attachment B). The Property is bounded by Claremont Avenue to the northwest, College Avenue to the east, and Chabot Road to the south (Plate 2, Attachment B).

The subject site is currently occupied by the corporate offices and adjacent parking lot of Dreyer's Grand Ice Cream, Inc. The site topography is relatively flat, at an elevation of approximately 172.5 feet above mean sea level (AMSL) with a slight slope to the southwest.

Site Geology and Hydrogeology

The subject property is in the Oakland Upland and Alluvial Plain which consists of alluvial fan deposits of clay, silt, and sand interbedded with coarser gravels.

Boring logs for groundwater monitoring wells and subsequent recorded groundwater table measurements indicate that the shallow site geology, below the asphalt or landscaped surface, consists of a gravel base or planter-mix backfill to approximately 1.5 feet below grade (B.G.). Native alluvial soils are composed of silty to sandy clay ranging to a depth of approximately 10.0 feet B.G., and sandy - gravelly clay to clayey sand ranging to approximately 30.0 feet B.G. (the deepest soil boring drilled by ATT).

On August 26, 1991, depth to groundwater ranged from approximately 13 to 16 feet B.G.; the shallow, unconfined groundwater flow was toward the south-southwest with a gradient of approximately 0.005 feet/foot (ft/ft) (Plate 3, Attachment B). On December 4, 1991, groundwater flow was towards the west, as determined by recorded groundwater table depths measured from groundwater monitoring wells MW1, MW2, and MW3 (Plate 4, Attachment B).

Soil and Groundwater Contamination and Investigation History

Investigations Prior to ATT

On December 13, 1989, Petroleum Engineering, Inc. removed one 1,000-gallon, one 8,000-gallon gasoline underground storage tanks (USTs) and two 4,000-gallon diesel USTs from the southwest corner of the property. Two 1,000-gallon waste oil USTs were removed from the western part of the property. Soil samples, from the gasoline/diesel UST excavation and the waste oil UST excavation, were collected on December 14, 1989 by Pace Laboratories, Inc.

1 gas
2 die
2 W.O.

Subsequent soil sample analyses by Pace Laboratories, Inc., from the bottom of the gasoline/diesel UST excavation, indicated that total petroleum hydrocarbon (TPH), quantified as gasoline (TPG/g) and diesel (TPH/d), concentrations were below 1,000 mg/Kg (equal to parts per million or ppm).

OK

800 ppm TPH-d

ATT's Investigations

On February 6, 1990, in accordance with ACHCSA requirements, ATT excavated approximately 80 to 100 cubic yards of oil and grease contaminated soil from the waste oil UST excavation. Analyses from soil samples collected by ATT subsequent to soil excavation, indicated that the soil could be transported to a Class II-I landfill. Soil offhaul, in accordance with the appropriate regulations, was completed on February 20, 1990.

On February 12, 1990, the onsite contractor cleaned the gasoline/diesel UST excavation by removing approximately 400 to 450 cubic yards of soil from the bottom of the excavation (removal was required because the loose soil could not be properly compacted). The contractor noticed a slight gasoline odor from the soil and subsequently contacted ATT. Analytical results, from soil samples collected by ATT, indicated that the average TPH gasoline concentrations in the excavated soil was 170 mg/Kg.

On February 27, 1990, ATT initiated a soil aeration program with the approval of the Bay Area Air Quality Management District (BAAQMD) and local agencies. The tank excavations were subsequently backfilled with clean imported material, the site regraded, and a new office building constructed.

From July 16 through July 18, 1991 ATT installed three groundwater monitoring wells on the subject property. Groundwater monitoring well MW1 was completed to 30 feet below grade using two-inch I.D. polyvinyl chloride (PVC) casing. Monitoring well MW2 was installed on July 17, 1991, to a completed depth of 28 feet B.G., and monitoring well MW3 was installed on July 18, 1991, to a completed depth of 27 feet B.G.. Monitoring wells MW2 and MW3 were constructed with four-inch I.D. PVC casing and screen. Pilot borings for monitoring wells MW2 and MW3 were initially drilled with six-inch outer diameter (O.D.) auger to facilitate soil sample collection; these borings were then overdrilled with ten-inch auger for the installation of four-inch diameter monitoring wells.

Groundwater monitoring well MW1 was placed in the northern part of the property; this monitoring well was used to determine background groundwater quality. Monitoring well MW2 was placed in the vicinity of the backfilled waste oil tank excavation, and monitoring well MW3 was placed in the vicinity of the former gasoline/diesel tank excavation (Plate 2, Attachment B).

Completed monitoring wells were developed by ATT field personnel on July 29, 1991. On August 5, August 26, and December 4, 1991, ATT field personnel collected groundwater samples from the completed and developed monitoring wells. Soil and groundwater samples were submitted to a California Department of Health Services (DHS) accredited laboratory under chain-of-custody documentation.

There was no detectable TPH/g, TPH/d, or benzene, toluene, ethylbenzene, or total xylenes (BTEX) in the soil samples collected from boring MW1. The soil sample collected from boring MW2 contained 25 mg/kg TPH/g, 23 mg/Kg TPH/d, and 0.083 mg/Kg, 0.280 mg/Kg, 0.320 mg/Kg, and 1.7 mg/Kg BTEX, respectively. U.S. Environmental Protection Agency (EPA) Method 8240 analyses, in the MW2 soil sample, indicated that 0.130 mg/Kg acetone, and 0.095 mg/Kg, 0.250 mg/Kg, 0.230 mg/Kg, and 1.5 mg/Kg BTEX, respectively were present (TOG was not detected in the MW2 soil sample). The soil sample collected from boring MW3 contained 490 mg/Kg TPH/g, 110 mg/Kg TPH/d, and 0.390 mg/Kg, less than 0.0025 mg/Kg, 2.1 mg/Kg, and 2.2 mg/Kg BTEX, respectively.

Groundwater samples collected on August 5, 1991, from monitoring well MW1 contained 1.1 ug/L (parts per billion or ppb) benzene; TPH/g, toluene, ethylbenzene, and total xylenes were not detected. Groundwater samples collected from monitoring well MW2 contained 38,000 ug/L TPH/g, 1,900 ug/L TPH/d, and 8,300 ug/L, 8,200 ug/L, 2,300 ug/L, and 13,000 ug/L BTEX, respectively. Groundwater samples collected from monitoring well MW2 also contained BTEX concentrations of 8,200 ug/L, 8,900 ug/L, 2,500 ug/L, and 38,000 ug/L, respectively. (TOG was not detected).

Groundwater samples collected from monitoring well MW3 contained 3,300 ug/L TPH/g, 800 ug/L TPH/d, and 3,900 ug/L, 160 ug/L, 95 ug/L, and 150 ug/L BTEX, respectively. Cadmium, chromium, lead, nickel, and zinc were not detected in groundwater samples collected from monitoring wells MW1 and MW2 at or above method detection limits. on 8-26-91

Groundwater samples collected on December 4, 1991, from monitoring well MW1, contained no detectable concentrations of TPH/g, TPH/d, or BTEX. Groundwater samples collected from monitoring well MW2 contained 91,000 ug/L TPH/g, and 6,900 ug/L, 6,800 ug/L, 3,200 ug/L, and ~~23,000 ug/L~~ 25,000 BTEX, respectively. Groundwater samples collected from monitoring well ND TPH-d

MW3 contained 10,000 ug/L TPH/g, and 3,300 ug/L, 88 ug/L, 80 ug/L, and 130 ug/L BTEX, respectively. TPH/d was not detected in monitoring wells MW2 and MW3.

The soil and groundwater investigation was completely summarized in ATT's February 19, 1992 report (ATT, 1992).

PROPOSED SCOPE OF WORK

Methods For Determining The Extent of Groundwater Contamination

HydroPunch™ and Monitoring Well Locations

Prior to HydroPunch™ and hollow-stem auger drilling, locations will be cleared for underground utilities. A private locating service will be used for the subject property. Offsite public utilities will be cleared by Underground Service Alert (USA) at least 48 hours before any subsurface investigation.

HydroPunch™ probes will be used to define the lateral limits of the hydrocarbon contamination (extent of the plume). Samples of groundwater will be collected under proper protocol and submitted under proper chain-of-custody to a DHS accredited laboratory.

HydroPunch™ Installation

ATT proposes to collect groundwater samples from up to ten HydroPunch™ locations. HydroPunch™ probes will be used to sample the groundwater table for hydrocarbon contamination; sample results will determine the lateral extent of the hydrocarbon plume. Drilling and monitoring well installation activities will begin after the HydroPunch™ investigation.

show locations on map Fig. 2

Drilling Procedures and Monitoring Well Construction/Development

A California licensed (C-57) water well driller will be contracted to provide drilling services for the groundwater monitoring well installations.

how many MWs? locations?

A Mobile B-61 truck-mounted drilling rig (or its equivalent) will be utilized for all drilling, soil sampling, and monitoring well installations. Monitoring well borings will be drilled using eight-inch or ten-inch outside diameter (O.D.) hollow-stem augers.

Drilling procedures and groundwater monitoring well construction and development will be in accordance with regulatory agency requirements and guidelines using the protocol in Attachment C.

Groundwater monitoring well soil borings will be logged using the Unified Soil Classification System (USCS).

Soil Sample Collection

Soil samples will be collected, during drilling operations, using a California modified split-spoon sampler driven, through the hollow-stem augers, using a 140 pound hammer with a 30-inch drop. For each sample drive, the sampler will be lined with three, six-inch by two-inch O.D. brass tubes. The split-spoon sampler and tubes will be pre-cleaned, before each sample drive using the procedure described in Attachment D.

Drilling cuttings and discarded soil samples will be placed in approved (DOT 17-H) 55-gallon steel drums. These will be sealed and stored on the subject property until sample analyses are returned from the laboratory. follow up on disposal

Groundwater Measurements and Sampling

Monitoring wells will be measured monthly; groundwater table measurements will be conducted using a Solinst reel water level meter with accuracy to 0.01 ft. Groundwater monitoring well measurements will be conducted prior to development and/or sampling.

Groundwater samples will be collected after proper monitoring well development. Sample collection will follow the protocol in Attachment D.

Drilling and Sampling Equipment Decontamination

Drilling and sampling equipment will be steam-cleaned prior to use and between each soil boring. Sample tubes and split-spoon samplers will be

steam-cleaned and/or cleaned with an Alconox solution and triple-rinsed with purified or distilled water.

All steam-cleaning, decontamination rinsate, groundwater monitoring well development water will be contained in approved (DOT 17-H) 55-gallon steel drums. Water samples will be collected from the drums; samples will be transported under proper chain-of-custody to a DHS certified laboratory for chemical analyses using the appropriate EPA approved methods (see below).

Project Oversite and Supervision

All HydroPunch™, drilling and soil sampling procedures, soil logging will be conducted by an ATT engineer/geologist under the direct supervision of a California registered geologist (R.G.) or professional engineer (P.E.).

Soil and Groundwater Sample Protocol and Analytical Methods

Soil, groundwater, and rinsate, decontamination and development-water samples will be collected in accordance with regulatory agency requirements and guidelines using the protocol outlined in Attachment D.

Soil samples from the monitoring well borings will be collected at five-foot intervals; a soil sample will be collected in the vadose zone just above the groundwater table.

Soil samples will be screened for hydrocarbons, in the field, using an H-nu detector. Samples will be collected and submitted to a DHS accredited laboratory if hydrocarbon contamination is detected from the screening procedure, or if the onsite geologist/engineer determines from soil coloration or odor that possible hydrocarbon contamination is present.

Soil, groundwater, rinsate, decontamination and development-water samples will be submitted to a DHS accredited laboratory under chain-of-custody documentation. Sample collection records and certified analytical reports will be maintained with copies provided in reports.

Soil, groundwater, rinsate, decontamination and development-water samples will be analyzed for TPH/g using EPA Method 5030, for TPH/d using EPA Method 3510, and for BTEX using EPA Method 602.

maybe add O+G, VOCs near former W.O. tank

GROUNDWATER REMEDIATION

Pumping Test

ATT will conduct either a step or continuous drawdown pumping test on one or more groundwater monitoring or extraction wells; this test will be used to determine the aquifer hydraulic conductivity (K), transmissivity (T), and other pertinent aquifer hydraulic characteristics as applicable. Potential zones of influence and capture will be determined from the pumping test.

Other site groundwater monitoring wells will also be used as observation wells to determine drawdown and effective capture zone(s). The calculated zone(s) of capture will be so placed to capture the hydrocarbon plume.

Extraction/Treatment System Design

ATT will design a groundwater extraction/treatment system that will be optimized for the type and extent of the contaminant plume. Generally, such a system consist of one or more, four-inch diameter PVC extraction wells, each containing a submersible pump, placed near the bottom of the extraction well. Effluent is pumped to Calcon Disorb 55-gallon drums that have a lead - follow configuration. Each drum contains a specified quantity of granular activated carbon. The final filter effluent is released to the onsite sanitary sewer clean-out. The system will have a totalizing flow meter. ATT will obtain the proper discharge permits from the local sanitary sewer district.

Water samples from the extraction/treatment system are normally collected once a month from the first filter drum in the series; samples will be collected and submitted to a DHS accredited laboratory for TPH as gasoline and diesel and BTEX analyses.

REPORTING

Groundwater Remedial Investigation

ATT will complete an interim groundwater remedial investigation and feasibility report after the conclusion of the HydoPunch™, groundwater monitoring well installation, and the initial groundwater pumping test.

A map showing the potentiometric surface with associated extraction well drawdown, effective capture zone(s) and appropriate pumping test data will be included.

Groundwater Remediation

After installation of the groundwater extraction/treatment system, ATT will conduct at least a 30-day test on the extraction/treatment system to determine optimum pumping rates for plume capture without excessive groundwater table drawdown. Monthly status reports with pumping rates and influent/effluent sample analyses will be provided.

All reports will be reviewed and signed by a California R.G. or P.E. Upon approval, copies of the appropriate reports will be sent to the RWQCB and ACHCSA.

SITE SAFETY PLAN

A site specific safety plan is in Attachment E; references cited in this workplan are in Attachment F.

Please contact us if you have any questions or comments regarding this workplan.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.

Terrance E. Carter
Terrance E. Carter
Senior Environmental Engineer
Project Manager

William E. Motzer
William E. Motzer, Ph.D.
Senior Hydrogeologist
California Registered Geologist No. 4202
(Expires 6/30/94)

TEC/WEM:pd

Attachments
cc: Ms. Jennifer Eberle, ACHCSA

ATTACHMENT A

ACHCSA Requirements Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, Assistant Agency Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Division
80 Swan Way, Rm. 200
Oakland, CA 94621
(510) 271-4320

March 27, 1992

STID #1287

Dreyer's Grand Ice Cream, Inc.
3675 Mt. Diablo Blvd., Suite 300
Lafayette CA 94549
Attn: William Collett

RE: 5929 College Ave.
Oakland CA 94618

Dear Mr. Collett,

This office is in receipt of your Groundwater Investigation Report for the above referenced site dated February 19, 1992 by Aqua Terra Technologies. Upon a review of the report by our staff, it was noted that groundwater contamination levels are extremely high. For example, monitor well #2 (MW2), exhibited concentrations of Total Petroleum Hydrocarbons as gasoline (TPH-g) up to 91,000 parts per billion (ppb), TPH as diesel up to 1,900 ppb, benzene up to 8,300 ppb, toluene up to 8,900 ppb, ethylbenzene up to 3,200 ppb, and xylenes up to 38,000 ppb. These levels exceed the state maximum contaminant levels of 1 ppb for benzene, and 1,750 ppb for xylenes.

At this time, the following steps need to be taken:

- Develop and submit a proposal within 30 days for an interim groundwater remediation system.
- Conduct twelve consecutive months of groundwater gradient determinations in each well, beginning April 1992, due to the approximately 90 degree change in groundwater gradient between 8/26/91 and 12/4/91.
- Develop and submit a proposal within 30 days for an appropriate array of downgradient monitoring wells, due to the proximity of contaminated groundwater in MW2 to the property line.

These proposals must adhere to the technical requirements outlined in the RWQCB Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks and the SWRCB LUFT manual. A report documenting the results from work performed is due to this office within 45 days of completion of field activities.

All reports and proposals must be submitted under seal of a California-Registered Geologist, -Certified Engineering Geologist, or -Registered Civil Engineer. Please submit copies of all reports and proposals to Rich Hiett at the Regional Water Quality Control Board.

If you have any questions, please contact Jennifer Eberle, Hazardous Materials Specialist, at 510-271-4320.

Sincerely,

Susan Hugo

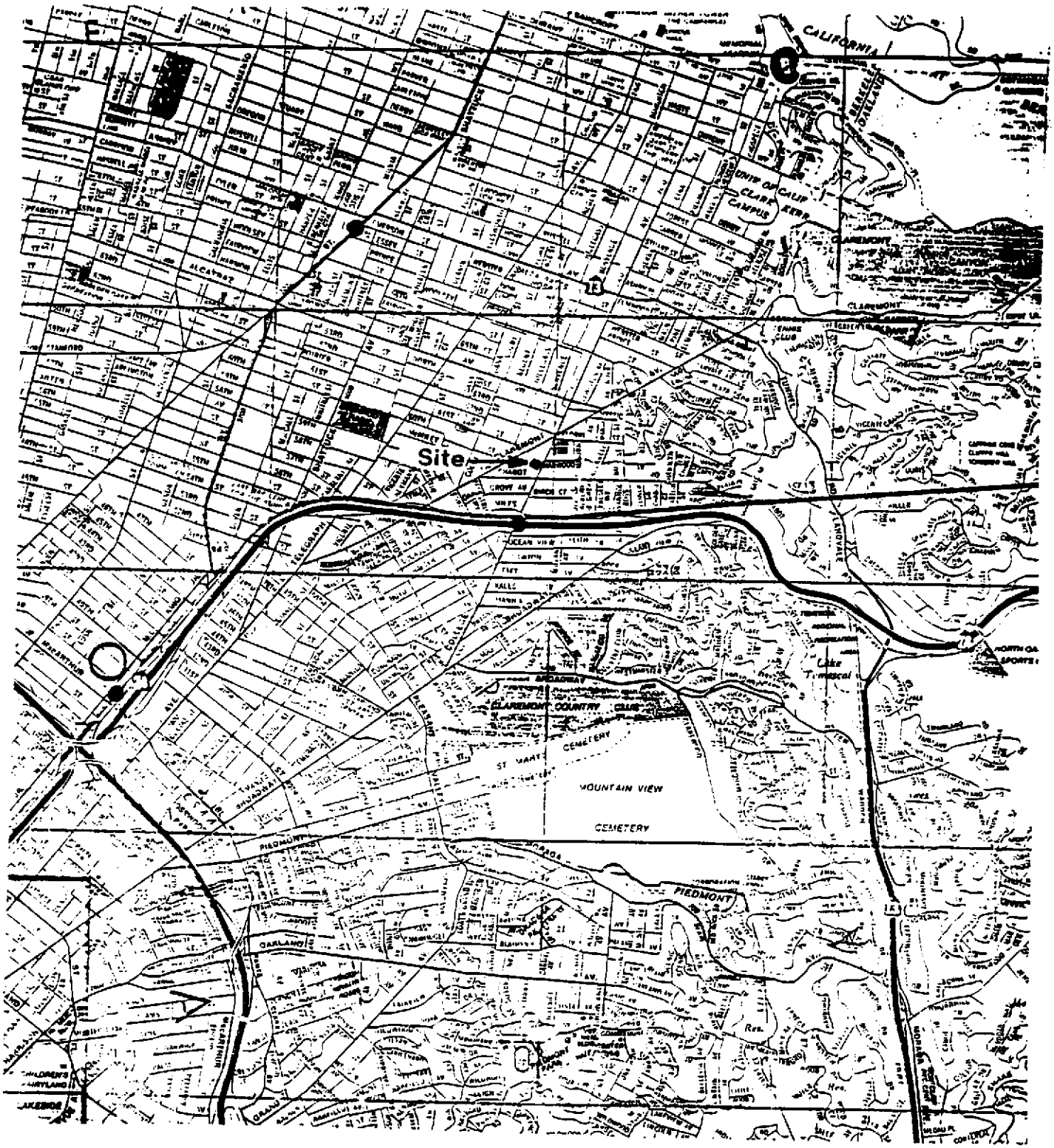
Susan Hugo
Senior Hazardous Materials Specialist

cc: Rich Hiett, RWQCB
Terrance Carter, Aqua Terra Technologies, 2950 Buskirk Av., Ste 120, Walnut Creek CA 94596
File (JE)

je

ATTACHMENT B

Plates



Property Location Map

ATT Aqua Terra Technologies
Consulting Engineers
& Scientists

Dreyer's Grand Ice Cream, Inc.		PLATE
JOB NUMBER	DATE	1
9126	6/92	

LEGEND

Property Boundary

Building

Groundwater Monitoring Well

Proposed Hydro Punch™ Locations

Sidewalk

Chabot Road

Driveway

Planter

Parking

MW2

Planter

Parking

Claremont Avenue

Sidewalk

MW1

Driveway

MW3

5929 College Avenue

Sidewalk

College Avenue

N

0 50 feet

SCALE

ATT Aqua Terra Technologies Consulting Engineers & Scientists

Site Map

Dreyer's Grand Ice Cream, Inc.

JOB NUMBER	DATE	PLATE
9126	6/92	2

LEGEND

Property Boundary

Building

Groundwater Monitoring Well

174.0 Groundwater Elevation and Contour

172.52 Groundwater Elevation - measured relative to an arbitrary benchmark which was measured to mean sea level (MSL) by interpolation from the Oakland West, Calif. 7.5' Quadrangle topographic map (T.1S, R.3W)

Sidewalk

Chabot Road

Groundwater Flow Direction

Planter

Parking

MW2
172.65

Driveway

MW3
172.52

5929 College Avenue

172.5

173.0

173.5

Driveway

Planter

Parking

MW1
173.81

Claremont Avenue

Sidewalk

174.0

Sidewalk

College Avenue

N

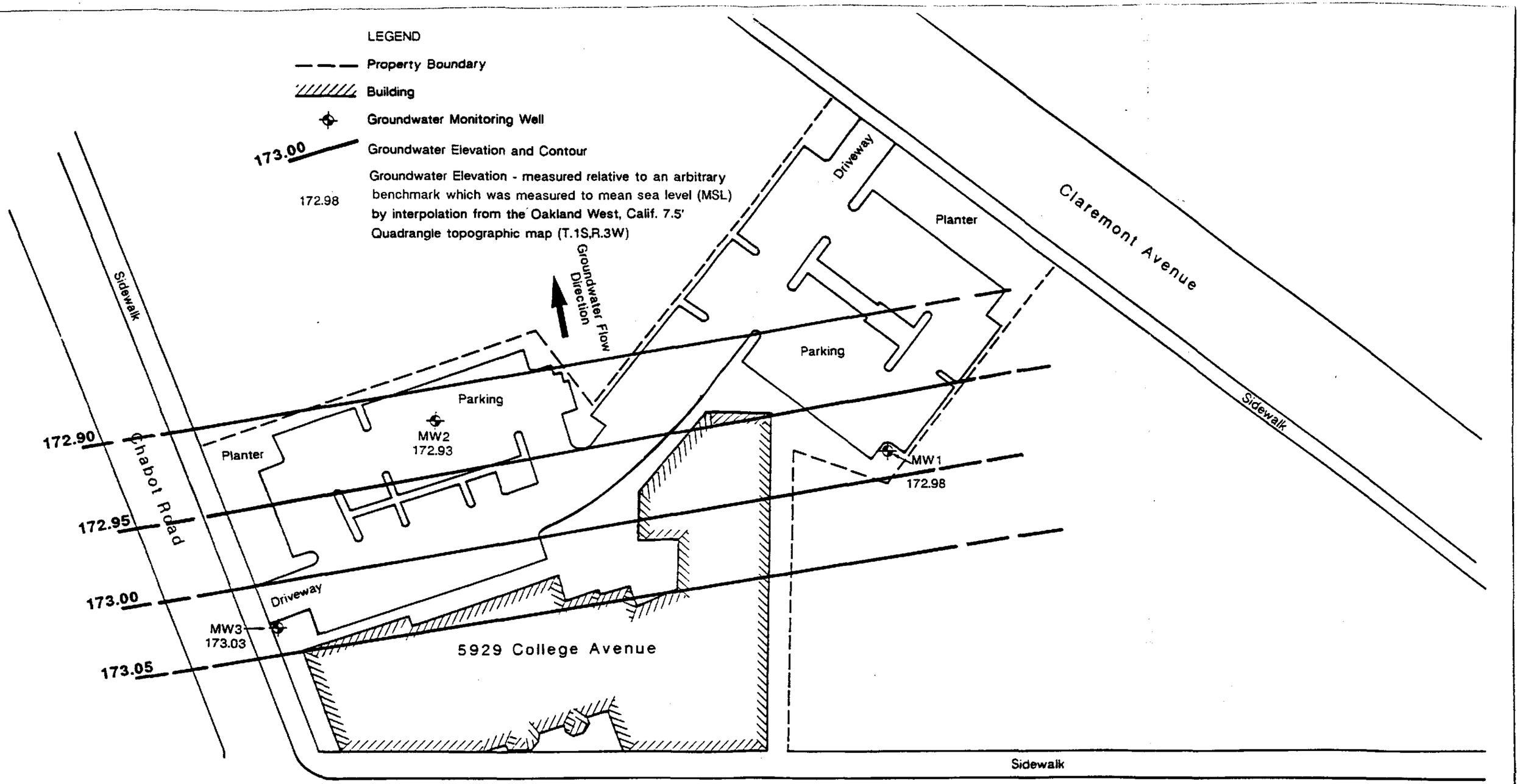
0 50 feet
SCALE

Groundwater Elevations and Contours
8/26/91

ATT Aqua Terra Technologies
Consulting Engineers
& Scientists

Dreyer's Grand Ice Cream, Inc.

JOB NUMBER	DATE	PLATE
9126	6/92	3



Groundwater Elevations and Contours
12/04/91

ATT Aqua Terra Technologies Consulting Engineers & Scientists

Dreyer's Grand Ice Cream, Inc.		PLATE
JOB NUMBER	DATE	4
9126	6/92	

ATTACHMENT C

Drilling Procedures & Groundwater Monitoring Well Construction/Design

ATTACHMENT C

DRILLING PROCEDURES & GROUNDWATER MONITORING WELL CONSTRUCTION/DESIGN

DRILLING AND SAMPLING PROCEDURES

All borings for well construction will be drilled using eight-inch diameter or larger hollow stem auger equipment. A California Registered Geologist or Engineer will direct or supervise the collection of undisturbed samples of the soils encountered and the preparation of detailed logs for each boring.

Soil sampling will be conducted using a modified California split-spoon sampler, a standard penetration sampler, or a five-foot continuous sampler. Samples will be retained in two-inch to three-inch diameter, six-inch long, clean, brass or stainless steel tubes. The samples will be retained for verification of soil classification and for chemical laboratory analytical testing, as appropriate. Teflon sheeting will be placed between the soil sample and the cap, and the cap will be sealed with PVC tape.

When access limitations do not allow drilling with truck mounted equipment, either a trailer mounted drilling rig, portable power driven, or manually operated soil sampling equipment will be utilized. If soil samples are to be retained for analysis, they will be collected in clean brass tubes fitted within a thin walled drive sampler. The soil samples will be capped and sealed as described above.

All down hole sampling, drilling, and well construction equipment and materials, including augers, casing, and screens will be steam cleaned prior to their initial use. The sampling equipment will be cleaned prior to each assembly by washing with a trisodium phosphate solution (TSP), rinsing with purified water, and allowing to air dry. The auger flights, drill bit, and sampler will be steam cleaned at each boring location.

MONITORING WELL CONSTRUCTION

Monitoring wells will be constructed in accordance with applicable local water district or California Department of Water Resources guidelines. The specific completion details for each well will be determined in the field at the time of drilling by a California Registered Geologist or Professional Engineer experienced in groundwater monitoring system design and installation.

Monitoring wells will usually consist of two or four-inch diameter, Schedule 40 PVC casing and screens with flush, threaded joints. No PVC glue will be used. The screened sections will be machine slotted with either 0.010-inch (0.255 mm) or 0.020-inch (0.51 mm) openings. The smaller slot size will be used where the wells are screened within fine-grained sandy soils, and the larger slots will be used where coarse sand or gravels are encountered. The slotted sections will be fitted with a threaded cap and placed opposite the water-bearing strata in the boring. The blank pipe will be connected to the perforated pipe and will usually extend to just below the ground surface.

The annulus between the side of the borehole and the slotted section will be filled with a clean sand pack to variable depths, but not less than one or two feet above the perforated pipe. The annulus will be packed with either Lonestar No. 1/20 or equivalent (where 0.010-inch slotted

pipe is used) or No. 3 or equivalent (where 0.020-inch slotted pipe is used) washed sand filter material. The gradation of the filter material is summarized below:

U.S. Sieve No.	Opening (mm)	Percent Passing (No. 3)	Percent Passing (No. 1/20)
6	3.35	100	
8	2.36	99 - 100	
12	1.70	62 - 78	
16	1.18	15 - 33	100
20	0.85	0 - 8	90 - 100
30	0.60	0 - 4	14 - 40
40	0.425		0 - 5

A seal of bentonite pellets approximately 0.5 to 1.0 foot thick will be placed above the sand pack to reduce the risk of grout penetration into the sand. The bentonite pellets will be hydrated with purified water to form a tight plug. A cement/bentonite grout will be placed above the bentonite plug to a depth of approximately 0.5 to 2.0 feet below the ground surface. The grout will be pumped into the boreholes using a tremie pipe when required by local guidelines or regulation. A flush mounted traffic box or above-ground security enclosure will be set in concrete above the cement/bentonite mixture.

At most sites in sedimentary formations, it is not practical to "rationally design" a filter pack based on sieve analyses. From experience, Lonestar No. 1/20 or No. 3 washed sand, or equivalent, as a filter material has been selected for use in the proposed wells. The 0.010-inch and 0.020-inch slot sizes were selected to retain 100 percent of the filter material.

The completed wells will be enclosed in a traffic rated enclosure placed flush with grade or in an above-ground metal enclosure, and will be fitted with a locking cap. Well head elevations will be determined by a level survey, and well coordinates will be determined by a traverse survey. The level/traverse survey will be referenced to a bench mark of known or assigned elevation, and known coordinates. Once water levels have stabilized, water levels in all wells will be measured.

After the wells have been completed, they will be developed by pumping and surging to clean and stabilize the soils around the screens. A manually operated, positive displacement surge pump and teflon bailer, surge block, and/or centrifugal pump will be used for development. A minimum of 10 well casing volumes of water will be removed during development; however, development will continue until turbidity or sediment content has stabilized. All development equipment will be steam cleaned or triple rinsed in a solution of purified water and tri-sodium phosphate (TSP) prior to its initial use in each well. A well development record will be maintained which will include 1) a description of development water characteristics at frequent intervals, 2) the quantity of water removed during development, and 3) flow rates during development.

Soil cuttings generated during drilling will be stored in 55-gallon drums or wrapped in plastic sheeting, and water generated during well development and sampling will be retained in secured 55-gallon drums until chemical analytical data from samples are received.

ATTACHMENT D

Soil & Groundwater Sample Collection & Handling Protocol

ATTACHMENT D

SOIL & GROUNDWATER SAMPLE COLLECTION & HANDLING PROTOCOL

INTRODUCTION & PURPOSE

Because reliable and representative test results must be generated from soil and groundwater samples, it is essential to establish a sampling procedure which assures that all samples are:

- Collected by approved and repeatable methods
- Representative of the materials(s) at the desired location and depth
- Uncontaminated by container and sampling equipment

The following sampling protocol is designed to be a guide to the sampling and handling procedures for soil and groundwater samples to be collected. Based on conditions which may be encountered in the field, some modifications to this protocol may be required to fit the needs of an individual site.

SAMPLING PROCEDURES

Groundwater Sampling

Prior to collecting groundwater samples, monitoring wells will be purged by bailing until pH, conductivity, and temperature levels stabilize. A minimum of four well casing volumes will be purged from each well. Wells will be purged and groundwater samples will be obtained using a teflon bailer or disposable polyethelene bailer, and nylon rope. New nylon rope will be used for each well.

The appropriate number and type of sample containers will be used for each sample collected, in accordance with the analytical laboratory requirements and EPA protocol. The bottles will be filled using the bailer. All sample bottles will be pre-cleaned by the supplier according to EPA protocols.

To prevent cross contamination of groundwater samples by the sampling equipment, all reusable equipment used in sampling will be washed with a trisodium phosphate solution (TSP), triple rinsed with purified water, and allowed to air dry prior to each use. A sample of the purified water will be retained for analysis as part of sample quality assurance.

Soil Sampling

After the soil sampler is driven to the desired depth and the samples are retrieved, each end of the tube containing the soil sample to be retained for laboratory analysis, will be sealed with teflon sheeting, covered with plastic end caps, and sealed with PVC tape. All sample containers (tubes) will be steam cleaned (or washed with TSP, as above) and air dried prior to use. The soil sample recovered in the tube just above the sample retained for chemical analysis will be examined in the field for visual and olfactory indications of chemical contamination and used for lithologic description.

The Unified Soil Classification System (USCS) will be used to log and describe the soil by the on-site geologist. These logs will also include details of the sampling process such as depth, apparent odors, discoloration, and any other factors which may be required to evaluate the presence of contamination at the site.

POST SAMPLING PROCEDURES

One field/travel blank consisting of one sample bottle filled with purified water will accompany soil and groundwater sample containers at all times, including during transport to and from the site. Purified water field/travel blanks will be analyzed according to the appropriate EPA Methods corresponding to the soil/groundwater sample analyses.

Sample containers will be labeled with sample number, project number, date, and the initials of the person collecting the sample. A separate sample collection record will be maintained for each groundwater sample collected.

Soil and groundwater samples collected will be analyzed by an analytical laboratory certified by the California Department of Health Services (DHS). Quality assurance documentation will accompany all analytical reports generated by the laboratory.

The samples will be placed in a cooler with dry ice (for soil samples) or bagged ice (for water samples) immediately following collection, and will remain in the iced cooler until refrigerated at the analytical laboratory. The samples will be delivered to the laboratory direct by courier or overnight freight within 48 hours of time of collection. Appropriate chain of custody forms will be used for all samples.

ATTACHMENT E

Site Safety Plan

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN

A. GENERAL INFORMATION

Site: Dreyer's Grand Ice Cream Corporate Headquarters

Location: 5929 College Avenue, Oakland, CA 94618

Plan Prepared By: Benjamin Berman
Technical Services Manager
Site Safety Officer
Date: June 8, 1992

Plan Approved By: William E. Motzer, Ph.D., R.G.
Senior Hydrogeologist
Corporate Health and Safety Officer
Date: June 8, 1992

Objectives: HydroPunch I™ investigation, soil and groundwater sample collection

Proposed Date of Investigation: July, 1992 and upon approval of work plan by the Alameda County Health Care Services Agency and San Francisco Bay Region, Regional Water Quality Control Board

Background Review: Complete: X Preliminary:

Documentation/Summary: Aqua Terra Technologies, Inc. (ATT) workplan of March, 1990 (attached)

Overall Hazard: Serious: Moderate:
Low: X Unknown:

B. SITE/WASTE CHARACTERISTICS

Waste Type(s): Liquid: Solid: X Sludge: Gas:

Characteristic(s): Corrosive: Ignitable: Radioactive:

Volatile: X Toxic: Reactive: Unknown: Other(name):

Facility Description: New office building and adjacent parking lot.

Principal Disposal Method (type and location): HydroPunch I™ investigation, no excess soil or purged groundwater anticipated. Purged groundwater from existing monitoring wells is stored on site in 55-gallon drums (DOT 17-H). The purged groundwater is

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

disposed of in accordance with regulatory agency requirements and based on accredited laboratory analytical results from the groundwater samples.

Unusual Features (power lines, terrain, utilities, etc.): none

Status: Active: X Inactive: Unknown:

History (agency action, complaints, injuries, etc.): None noted

C. HAZARD EVALUATION

Parameter:	TLV (ppm)	IDLH (ppm)	LEL (%)	HEALTH skin/eyes/inge./inha
	—	—	20	X

Special Precautions and Comments: Use NIOSH approved gloves when handling soil samples. Sampling to be conducted in open air.

D. SITE SAFETY WORK PLAN

Perimeter Establishment: Map/Sketch Attached: see work plan

Perimeter Identified: Yes; via building plans and property lines

Zone(s) of Contamination Identified: Zones of contamination identified during underground fuel and waste oil storage tank removal and other previous investigation. The currently proposed investigation will further identify the contamination zone.

Personal Protection:

Level of Protection: A___B___C___D_X_

Modifications: If necessary, tyvek suits will be used with NIOSH approved face masks. All personnel collecting soil samples will wear gloves. Hard hats and steel toed shoes will be worn at all times.

Surveillance Equipment & Materials:

Instrument: LEL Meter Action Level: 20%

Site Entry Procedures: Permission of property owner and onsite building security. Hard hats and steel toed shoes will be worn at all times.

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Decontamination Procedures:

Personal: Wash hands, face, clothes. Smoking or eating not permitted onsite during active excavation or drilling.

Equipment: Steel toed boots, gloves, hard hat, NIOSH approved respirator.

First Aid (type of equipment available): Fully stocked first aid kit and emergency eyewash with company vehicles.

Work Limitations (time of day, weather, heat/cold stress):

Work limitations: winds less than 10 mph; no work during periods of precipitation; work hours: 8:00 A.M to 5:00 P.M. Monday through Friday.

Investigation-Derived Material Disposal: Hydro Punch I™ investigation, no excess soil or other materials anticipated.

Team Composition:

Team Member	Responsibility
Terrance E. Carter	Project Manager/Engineer
William E. Motzer	Project Hydrogeologist
Benjamin Berman	Project Safety Manager

E. EMERGENCY INFORMATION

Local Resources:

Ambulance:	911
Hospital Emergency Room:	911
Poison Control Center:	1-800-523-2222
Police:	911
Fire Department:	911

AQUA TERRA TECHNOLOGIES SITE SAFETY PLAN (continued)

Agency Contact:	National Response Center (NAC)
Toxic Chemical and Oil Spills:	1-800-424-8802

Site Resources:

Water Supply:	on site
Telephone:	(415) 601-0179
Radio:	unknown
Other:	none

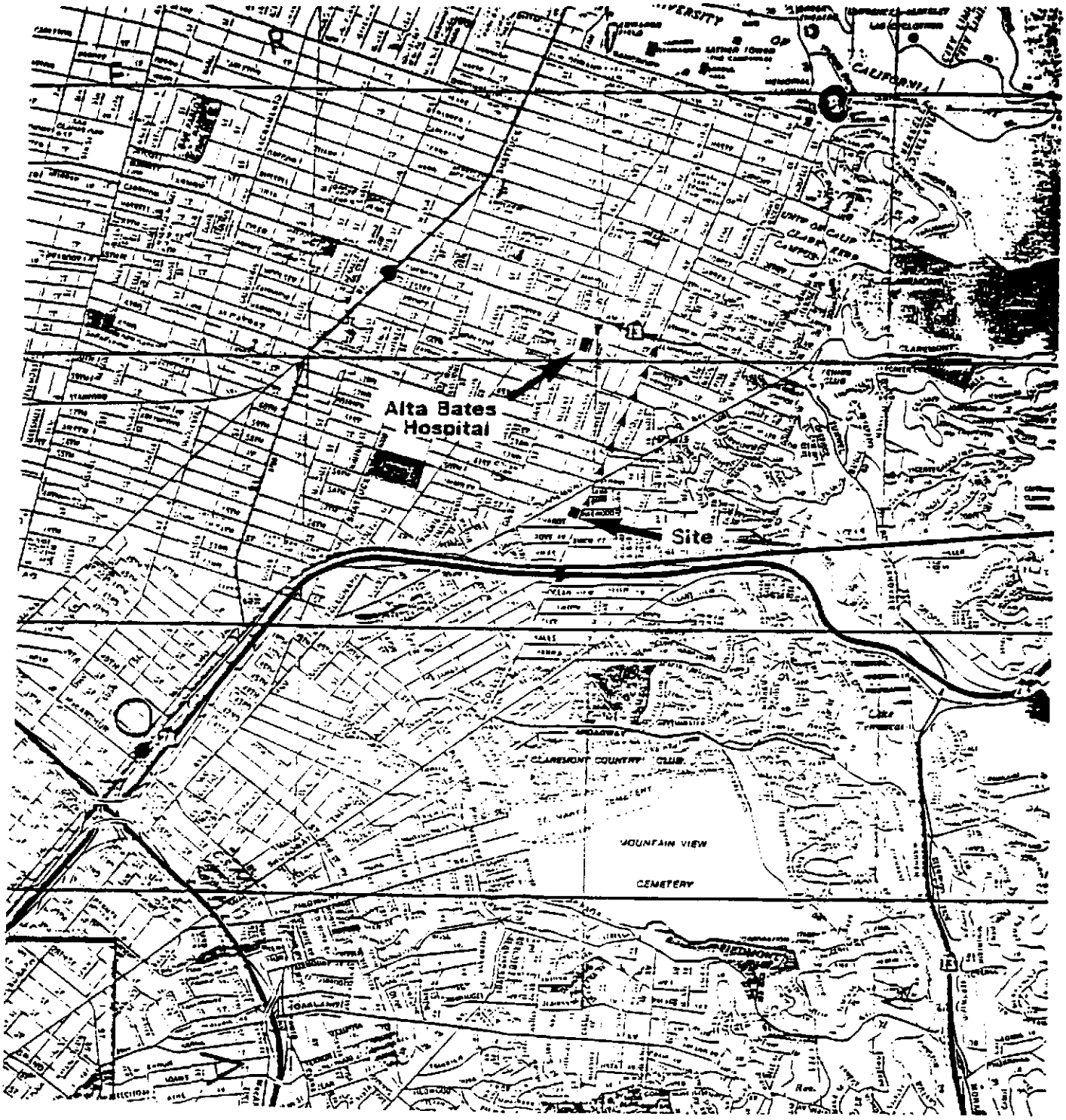
Emergency Contacts:

Name:	William C. Collett, Treasurer Dreyer's Grand Ice Cream, Inc.	Phone: (510) 601-4339
	Terrance E. Carter, Senior Env. Eng. Aqua Terra Technologies, Inc.	Phone: (510) 934-4884

Emergency Routes:

Hospital: Alta Bates-Herrick Hospital
3001 Colby and Ashby
Berkeley, California

From site north on College Avenue (approximately 0.65 miles) to Ashby Avenue. Left turn (west) onto Ashby approximately 0.20 miles to hospital entrance (on left) south side of Ashby Avenue.



0 1/2 1 mile
SCALE

N

Route to Local Hospital

ATT Aqua Terra Technologies
Consulting Engineers
& Scientists

Dreyer's Grand Ice Cream, Inc.

JOB NUMBER	DATE	ATTACHMENT
0126	3/20	G-1

ATTACHMENT F

References Cited

REFERENCES CITED

Aqua Terra Technologies, Inc. (ATT), 1992, *Groundwater Investigation, 5929 College Avenue, Oakland, California*: ATT unpublished report to Dreyer's Grand Ice Cream, Inc., 8 p. with attachments.

California State Water Resources Board (SWRCB), 1989, *Leaking Underground Fuel Tank (LUFT) Manual*: SWRCB 62 p. with appendices.

North Coast Region, San Francisco Bay Region, and Central Valley Region, 2egional Water Quality Control Board (RWQCB), 1990, *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*: Tri-Region RWQCB, 21 p. with appendices.