PROPOSED WORK, HEALTH, AND SAFETY PLAN
FOR
E-Z SERVE LOCATION #100877
525 WEST "A" STREET
HAYWARD, CALIFORNIA

October 2, 1991

Associated Soils Analysis

October 2, 1991
File No. 238-91

Amy Steitz
E-Z Serve Petroleum Marketing Company
10700 North Freeway, Suite 500
Houston, Texas 77037

Project: Mobil Station No. 1235, Hayward, California.

Subject: Work plan for well abandonment and installation of monitoring wells.

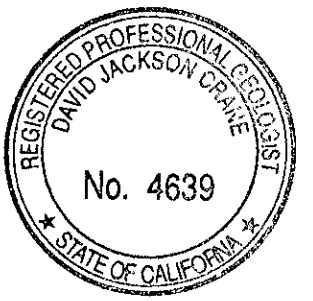
Dear Ms. Steitz:

Enclosed for your review is the work, health and safety plan for the above referenced site. A copy of the work plan will be forewarded to the appropriate County personnel, pending your approval.

If you have any questions or concerns regarding this work plan, please contact me at this office.

Sincerely,
Associated Soils Analysis, Inc.

David J. Crane
R.G. #4639, Exp. 6-30-92



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INTRODUCTION

At the request of Alameda County, E-Z Serve Petroleum Marketing Company of California is submitting this work plan for continuing assessment of the property at 525 West "A" Street, Alameda County, Hayward, California (**FIGURE 1**).

BACKGROUND

This site was a former Mobile Station consisting of four 10,000 gallon underground storage tanks which were removed on June 15, 1990. Prior to the removal of the tanks, a fuel system leak was discovered in November 1986, as a results of a discrepancy in inventory reconciliation. Converse Environmental Consultants California (CECC) conducted a Phase I site assessment as an initial step in assessing the extent of gasoline contamination at the site. At the time, soil borings were drilled on the station property to 30 feet below ground surface. The borings were converted to Monitoring Wells MW-1 through MW-3. After completion of Phase I, the following parameters had been defined:

- extent of groundwater contamination off-site
- the concentration of TPH and BTX&E in off-site groundwater
- volume of contaminated soil requiring remediation
- potential threat of groundwater contamination to nearby groundwater with actual or potential beneficial

A Phase II investigation was initiated in June 1987, to assess: (1) the potential threat of contamination of usable groundwater sources, as well as, (2) the potential for off-site migration of the groundwater contamination. During the Phase II investigation, three additional Monitoring Wells MW4 through MW6, drilled to a depth of 30-31 feet, were installed. The six wells were purged and sampled at that time. However, in 1990 during the removal of the tanks

and grading of the property, Monitoring Wells MW2, MW5, and MW6 were destroyed and MW1, MW3, and MW4 were damaged.

Based on the results of the Phase I and II site investigations and a recent investigation of the site by EZ Serve personnel, EZ Serve Petroleum Marketing Company of California proposed to contract with a geologist/contractor, licensed in the State of California, to perform the scope of work outlined in the proposed work plan.

SCOPE OF WORK

The work to be provided will be conducted in accordance with the California LUFT Manual Guidelines, EPA Regulations, ASTM Test methods, and Alameda County Health Department Requirements. The work to be done at the site involves to following:

- Provide Alameda County with a Site Safety Plan for the project
- Properly close and abandon Monitoring Wells MW2, MW5, and MW6 (**FIGURE 2**)
- Reconstruct Monitoring Wells MW1, MW3, and MW4, if possible (**FIGURE 2**)
- Apply for all permits to abandon and install wells
- Install three new wells in the area where Monitoring Wells MW2, MW5, and MW6 were originally located, or install six new wells depending on the possible reconstruction of well locations MW1, MW3, and MW4 at the site
- Purge and sample all wells
- Complete a report of findings for EZ Serve's records and submit copies to Alameda County and the Regional Water Quality Control Board

REGIONAL HYDROGEOLOGY

The site lies within the San Leandro Cone, a low gradient alluvial fan which originates at the mouth of Castro Valley and spreads westward onto the Bay Plain (CECC, 1988). This cone consists of alluvial sediments which overlie marine clay and terrigenous sand and silt of intertidal provenances.

The shallowest regional aquifer in the area is a permeable, water-bearing alluvial sand, named the Newark aquifer. This aquifer is a series of laterally discontinuous saturated lenses of coarse to fine sediments 10 to 100 feet thick at depths less than 200 feet. The regional hydraulic gradient is westward, from the mouth of the Castro Valley towards the San Francisco Bay (CECC, 1988). The nearest water wells in the area (described below) indicate depths to first water table to be 6 to 21 feet below the ground surface.

WELL INVENTORY

An inventory of wells within a 1/2 mile radius of the site compiled from available well logs and permits available at the Alameda County Flood Control and Water Conservation District, Hayward Quadrangle Files (**TABLE I**). The inventory consists of 15 wells, five of which are within 1,500 feet of the site. Ten of the wells within 1/2 mile of the site are categorized as shallow (termination depth less than 100 feet below ground surface) with the remaining five having greater depths. Of the 10 shallow wells, five are used for water supply, three for groundwater monitoring and two for unspecified use (CECC, 1988).

FIELD INVESTIGATION

Monitoring Wells MW1, MW3, and MW4 will be reconstructed, if possible, to their original condition. Otherwise, we propose to abandon Monitoring Wells MW2, MW5, and MW6, as well as, other monitoring wells as specified by site conditions. The standards for the abandonment will follow those set forth in Chapter II of the Department of Water Resources Bulletin No. 74, "Water Well Standards: State of California" and the Department of Water Resources Bulletin No. 74,-2, "Water Well Standards: Alameda County". The existing wells will be drilled out in their entirety, including the removal of the annular seals and filter pack material. The boreholes will then be back-filled with a cement slurry.

We also propose to drill and install three to six 4-inch diameter groundwater monitoring wells. These are to be replacement wells for those abandoned and are to be located near the former well locations. Each well will be drilled to a depth of 30 feet.

We propose to use a truck-mounted Mobile B-80 drill rig with 10-inch outside diameter hollow-stem augers, AASHTO Designation T251-77. The augers will be steam cleaned prior to drilling each testhole at the site. For the well abandonment phase of the work plan an air rotary drill rig with a casing driver and tricone bit will be used.

During drilling of the wells, soil samples will be collected and monitored for the presences of petroleum constituents. Soil samples will be collected at 5-foot intervals, beginning at 15 feet below ground surface. Samples will be collected through the 10-inch outside diameter hollow-stem augers using a split spoon sampler equipped with clean brass sample tube inserts. Before each use, the sampler will be cleaned by scrubbing with ALCONOX and rinsing with distilled water. The soil samples will be retained in the 6-inch long brass liners, and immediately capped, labeled, and sealed upon removal from the sampler. Lithologic logs of each boring will

be included in the study report. The soils will be classified according to the Unified Soil Classification System.

The lowermost sample tube from each sampling interval will be sealed at both ends with Teflon tape and plastic end caps taped in place to preserve sample integrity and reduce volatilization. Soil from the next tube will be monitored fro volatile petroleum hydrocarbons using a photoionization detector (PID). The PID readings are used to indicate relative concentration levels of volatile organic compounds and are useful for selecting soil samples for laboratory analysis.

All soil samples will be labeled appropriately in the field. Labels will include: sample location, depth, date time, job number and field identification number. Samples will be placed immediately in an insulated storage container cooled with "blue" ice. The temperature inside the storage container will be maintained a 4 degrees Celsius/ 39.2 degrees Fahrenheit and monitored with a thermometer to ensure that the temperature remains constant.

A chain-of-custody record will accompany the samples. Chain-of-custody records will include: sample location, depth, date, time, job number, temperature of sample container, field identification number, analyses required, and personnel collecting samples. A field log book will be maintained containing essentially the same information as the chain-of custody record with the addition of any field observations about the sample. Once the samples are delivered to the laboratory, the chain-of-custody will be signed by the laboratory with the temperature of the sample container recorded, indicating that possession of the samples has changed

Personnel involved in collecting the soil samples and classifying the soils will be under the direct supervision of the project engineer , fully experienced in the field of environmental and geotechnical drilling.

TESTHOLE BORING SOIL CONTAINMENT

During drilling and abandonment operations the soil cuttings will be placed on 4 mil black plastic or in 55 gallon steel storage barrels equipped with bolt-on steel lids, Model 17H, depending on petroleum constituent levels. The soil cuttings (in storage barrels or on plastic) will remain on-site in an area that is not accessible to the public. The storage barrels, if used will be labeled indicating the boring number, estimated depth of soil cuttings, and that the materials within the barrels are potentially hazardous materials.

The soil cuttings will remain on-site until laboratory test results of the soil samples are available. After review of the laboratory test results, appropriate disposal of the soil cuttings can be determined.

WELL CONSTRUCTION

The wells will be constructed with 4-inch outside diameter schedule 40 PVC screen and blank casing. The well joints will be flush threaded to provide adequate strength and smooth internal and external surfaces. No chemicals, glues, or solvents will be used in the construction of the wells. The well screen will extend from approximately 5 feet above to approximately 5 feet below the existing water level using a 0.01 inch slotted screen. Dry filter pack material consisting of #20 graded silica sand will be installed in the wells annular space from the bottom of the well to approximately 1 foot above the well screen. A 3-foot thick bentonite seal will be placed above the filter pack. Any remaining annular space will be sealed with a cement/bentonite slurry mix to the ground surface. A locking PVC cap will be placed over the well casing. The well will be completed with a water-resistant, locking, traffic-rated wellhead box approximately 1-inch above grade to prevent surface water from entering the well. The elevation of the top of the well casing with respect to an established site benchmark

reference will be measured with surveying equipment. Construction logs of the as-built well will be included in the final report.

WELL DEVELOPMENT

After the wells are completed and the cement has had sufficient time to set, generally 12 hours, the wells will be developed by surging and bailing to clear sediment from the formation and filter pack. Prior to development, the water level and presence of possible free product will be measured using water sounding instrument. Development will be considered complete when water quality parameters have stabilized and the well produces water relatively free of sediment.

WATER LEVEL MEASUREMENT AND SAMPLING

Following development, one groundwater sample from each well will be collected using a clean, stainless-steel or Teflon bailer following purging of three to five well volumes of water from the well. This water, as well as, wash and rinse water used to clean sampling equipment will be stored on-site in 55-gallon drums properly labeled as to their contents. The barrels will be removed and properly disposed of within 90 days.

Prior to purging, however, water levels will be measured and the possible presence of free gasoline product will again be measured. Sampling will occur after the water level has recovered to at least 85% of its pre-purged levels. The sample will be placed in laboratory-supplied containers, labeled, and stored under ice in a portable cooler for transport to a State-certified laboratory following chain-of-custody procedures. The samples will be immediately sealed in the field with Teflon-lined threaded caps, ensuring that no air bubbles occur after the container lids are placed over the sample containers The temperature inside the storage

container shall be maintained at 4 degrees Celsius/ 39.2 degrees Fahrenheit and monitored with a thermometer to ensure that the temperature remains constant. The temperature readings shall be recorded at each sampling interval.

A chain-of-custody record will accompany the samples. Chain-of -custody records will include: sample location, depth, date, time, job number, field identification number, analysis required, and personnel collecting samples. To minimize cross contamination from one well to another, all samples equipment, purging equipment, and measuring tape/equipment will be washed with LIQUONIX and double rinsed with potable water between wells.

LABORATORY ANALYSIS

Soil samples will be delivered to a State-certified hazardous waste testing laboratory within 24 hours after the samples are collected. The temperature will be maintained at 4 degrees Celsius in the insulated storage container prior to delivering to the laboratory. Select soil samples will be submitted for laboratory analysis using EPA Methods 8015 (gasoline components), and 8020 (volatile aromatics). The soil samples will be analyzed within the required 14 day period following collection, unless a 24 hour or 48 hour rush is required.

The water samples will be analyzed at a State-certified laboratory within 7 days of collection for Total Petroleum Hydrocarbons (TPH) using EPA Method 8015, and Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX) using EPA Method 602.

REPORT

Upon completion of field activities and receipt of the laboratory results a report will be written by the registered geologist or certified engineering geologist employed by the contractor and licensed in the State of California. Copies of the report will be forwarded to the Department of Environmental Health of Alameda County and to the Regional Water Quality Control Board. The report will describe field observations and activities and soil conditions, and will include sampling results and boring logs.

APPROXIMATE WORK SCHEDULE

County approval of work plan	4-6 weeks
Selection of contractor	3-4 weeks
Permitting	1-2 weeks
Drilling/well installation	1-2 weeks
Sampling	2-3 weeks
Report preparation	4-6 weeks
TOTAL	Approximately 6 months duration

REFERENCES

Converse Environmental Consultants California, 1988; Phase II investigation -EZ Serve Mobil Station No. 1235. Unpublished report.

HEALTH AND SAFETY PLAN
FOR
EZ Serve #100877
525 West A Street
Hayward, California

GENERAL STATEMENT

The site characterization for E-Z Serve #100877, at 525 West A Street, Hayward, California is being conducted to assess the vertical and lateral extent of petroleum constituents in soil. For preliminary assessment of these petroleum constituents, three to six testhole borings will be drilled. The soil sampling program will include soil cores, chemical analyses, grab samples, soil moisture measurements, and field screening by photoionization detector (PID). Detailed descriptions of borehole and drilling information will also be maintained. Decontamination procedures and health and safety measures conforming to Level D will be followed.

Results from data analyses will be the basis of planning the subsequent investigation phase.

HAZARD EVALUATION

This hazard evaluation is directed toward those volatile organic compounds which based on data gathered to date, are known or suspected to be present at sampling locations, they being: Benzene, Ethylbenzene, Toluene, Total Xylenes, Isopropylbenzene, Total Petroleum Hydrocarbons, Organic Lead, and Ethylene Dibromide.

The U.S. Environmental Protection Agency (EPA) (1985) had defined levels of protection in order to provide a standard vocabulary to describe personal protection equipment. The four levels afford varying degree of respiratory protection, dermal protection, and protection from traumatic injury. The four levels are summarized as follows:

- **Level A** consists of a totally encapsulated, chemically protective suit with self-contained breathing apparatus.
- **Level B** provides maximal respiratory protection through use of supplied air or self-contained breathing apparatus; the level of dermal protection is selected on the basis of anticipated hazards.
- **Level C** incorporates an air-purifying respirator which is specific to the contaminant(s) of concern; the degree of dermal protection depends on anticipated dermal hazards.
- **Level D** is basically a work uniform including hard hats, gloves and safety boots.

If the Safety Supervisor determines that hazardous or potentially hazardous conditions exist, they may require upgrading of the protection level from Level D to Level C. The Safety Supervisor also has the authority to stop all sampling-related work until adequate protection is provided for all workers, or until site hazards are mitigated. Safety equipment required for Level C includes air purifying respirators, chemical resistant clothing, gloves, boot covers, and hard hats.

The Safety Supervisor may require the use of portable field monitoring equipment such as an organic vapor analyzer in order to determine whether respiratory protection is necessary.

The following sections of the Health and Safety Plan describe safety equipment, decontamination procedures, and work limitations for sampling operations under Protection Level D. Emergency procedures in the event of personal exposure, injury, or explosion are also included for all operations, regardless of protection level. A separate section is provided describing Protection Level C safety equipment, decontamination procedures, personal precautions and site access. Protection Level C procedures will be followed if the Safety Supervisor determines that site hazards or potential site hazards warrant this level of protection.

SAFETY EQUIPMENT

Safety equipment required for Protection Level D includes hard hats and boots. Hard hats will be worn during all drilling operations. Additional equipment available to the investigative team includes earplugs, disposable coveralls and boots, chemical-resistant gloves, and safety goggles. Use of this additional equipment shall be determined by the Safety Supervisor based on site conditions.

EQUIPMENT

The following equipment will be available for Protection Level D work:

Protective Clothing

AF-15 Pioneer nitrile gloves

Tyvek coveralls, hoods, and boots

Visual

Uvex #9300 dust & chemical goggles

Hearing

Moldex pura-form ear plugs

Miscellaneous

16 unit first aid kit

Barrier cream

Hard hats*

*Hard hats are mandatory during all drilling operations.

DECONTAMINATION AND DISPOSAL

Although the hazard evaluation indicated that harmful exposure to hazardous compounds in soils or groundwater is not likely to occur during the investigation, personnel decontamination accomplished by good personal hygiene practices should be followed to limit potential exposure to contaminants. Personnel decontamination is required prior to all breaks and meals, and at the end of the day. Decontamination of individuals will be accomplished by soap and water washing followed by a clean water rinse. When used, protective clothing, gloves, or goggles will be removed and stored in plastic bags prior to all breaks and meals. At the end of the day, disposable gloves, coveralls, and boots will be collected in plastic bags for disposal, and non-disposable protective equipment such as safety goggles will be decontaminated by soap and water washing followed by a clean water rinse.

Procedures for disposal of investigation-derived materials have been established in accordance with federal and state hazardous waste regulations. Investigation-derived materials include soil cuttings and development water from monitor well drilling operations.

If waste derived from investigation activities are determined by laboratory analysis to be hazardous, then disposal of those wastes will be conducted in compliance with EPA's interim policy

"Procedure for Planning and Implementing Off-site Response Actions" (Federal Register, 1985), as follows:

Treatment

Treatment, reuse, or recycling of hazardous wastes will be considered in the removal of investigation-derived hazardous materials.

Selection of Off-site Treatment or Disposal Facility

Selection of an appropriate facility for off-site management of investigation-derived hazardous wastes will be based on the following requirements:

1. The owner or operator of any hazardous waste management facility under consideration must have a RCRA permit applicable to specific wastes and specific storage, treatment, or disposal processes.

2. A RCRA compliance inspection must be performed at the off-site facility to receive investigation-derived hazardous wastes not more than six months before receiving such wastes.

3. Any land disposal facility receiving investigation-derived hazardous wastes must meet RCRA minimum technical requirements per the Hazardous and Solid Waste Amendments of 1984. These technical requirements include ground water monitoring and liner and leachate collection system standards.

Manifest Requirements

Investigation-derived hazardous material transported to an off-site storage, treatment, or disposal site will be accompanied by a Uniform Hazardous Waste Manifest, in compliance with requirements in the Code of Federal Regulations, 40 CFR 262.

PERSONAL PRECAUTIONS

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material should be avoided during drilling and soil sampling activities.
- Hands and face should be thoroughly washed upon leaving the work area.
- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, or discolored surfaces; kneel on ground; or lean, sit, or place equipment on drums, containers, or the ground.
- Medicine and alcohol can magnify the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel unless specifically approved by a qualified physician.

EMERGENCY PROCEDURES

In The Event of Personal Exposure

- Call the Safety Supervisor to the scene immediately.
- Immediately remove any clothing that becomes contaminated. Promptly wash with soap and flush with clean water.
- Determine the material involved.
- Don't expose self or others to the materials unnecessarily. Stay upwind, control access to the area, and wear the appropriate protective equipment.
- Remove people from the contaminated area. Wear the appropriate protective equipment and don't charge in blindly. Administer first aid, if necessary.

- If the incident warrants, the Safety Supervisor must call the appropriate emergency services. See the list of emergency phone numbers in the next section. The emergency care facilities are indicated on **FIGURE 3.**

- Record information on the exposure.

In the Event of Personal Injury

- Call the Safety Supervisor to the scene immediately.

- Remove people from dangerous area or equipment.

- Administer first aid, if necessary.

- If the incident warrants, the Safety Supervisor must call the appropriate emergency services. See the list of emergency phone numbers in the next section. The emergency care facilities are indicated on **FIGURE 3.**

In the Event of Fire or Explosion

- Evacuate personnel from area of danger.

- Call the Safety Supervisor to the scene immediately.

- Administer first aid if necessary.

- The Safety Supervisor shall:

  > Notify the Fire Department.

  > Contact the local hospital immediately when a major fire starts, advising them of the chemicals involved and the Poison Control Center to be contacted.

  > Keep personnel out of the smoke or mist created by the fire and hose streams. Immediately evacuate areas in the path of smoke.

  > See emergency phone numbers in the following section.

EMERGENCY SERVICES

Location:	Telephone:
Ambulance	1-510-784-4270
Emergency Medical Facility *Kaiser Permanente Hospital* *27400 Hesperian Blvd.* *Hayward, California*	1-510-784-4251
Police Department *Hayward Police Department* *300 Winton Avenue* *Hayward, California*	1-510-293-7272

HAYWARD IS SERVICED BY THE 911 EMERGENCY SERVICE

The following is a consolidated phone list of response groups, agencies, or other entities who may need to be contacted as a result of implementing this plan:

Alameda County Emergency Services 911

Fire Department 911

Alameda County Sheriff's Department 911

California Department of Health Services 209-445-5321

National Response Center 209-424-8802

San .Francisco Bay Area Poison Control Center 1-800-523-2222

Alameda County Health Department 1-510-271-4330

Chemtrec 800-424-9300

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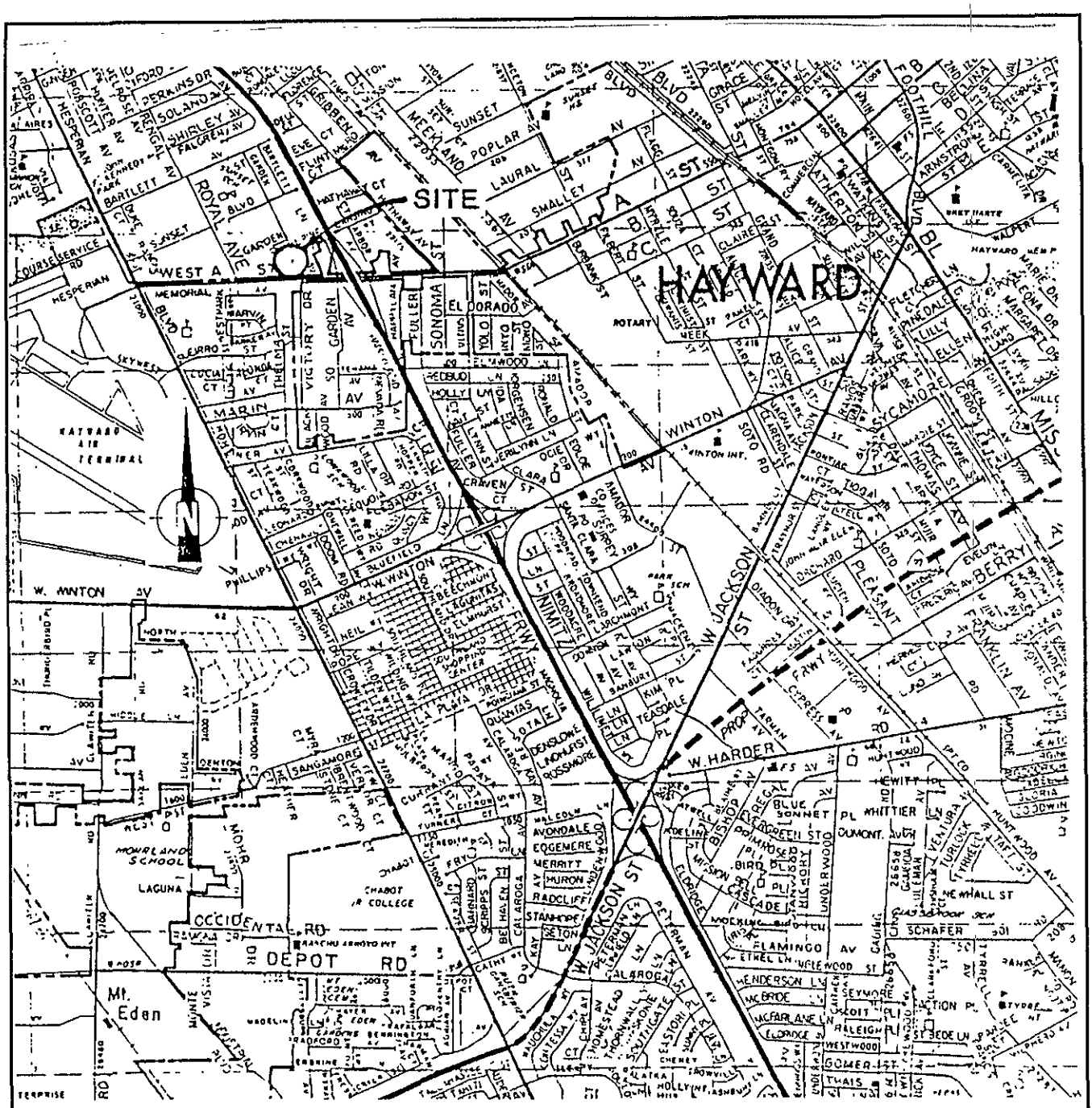

Source: Thomas Brothers Maps
Alameda County, 1972

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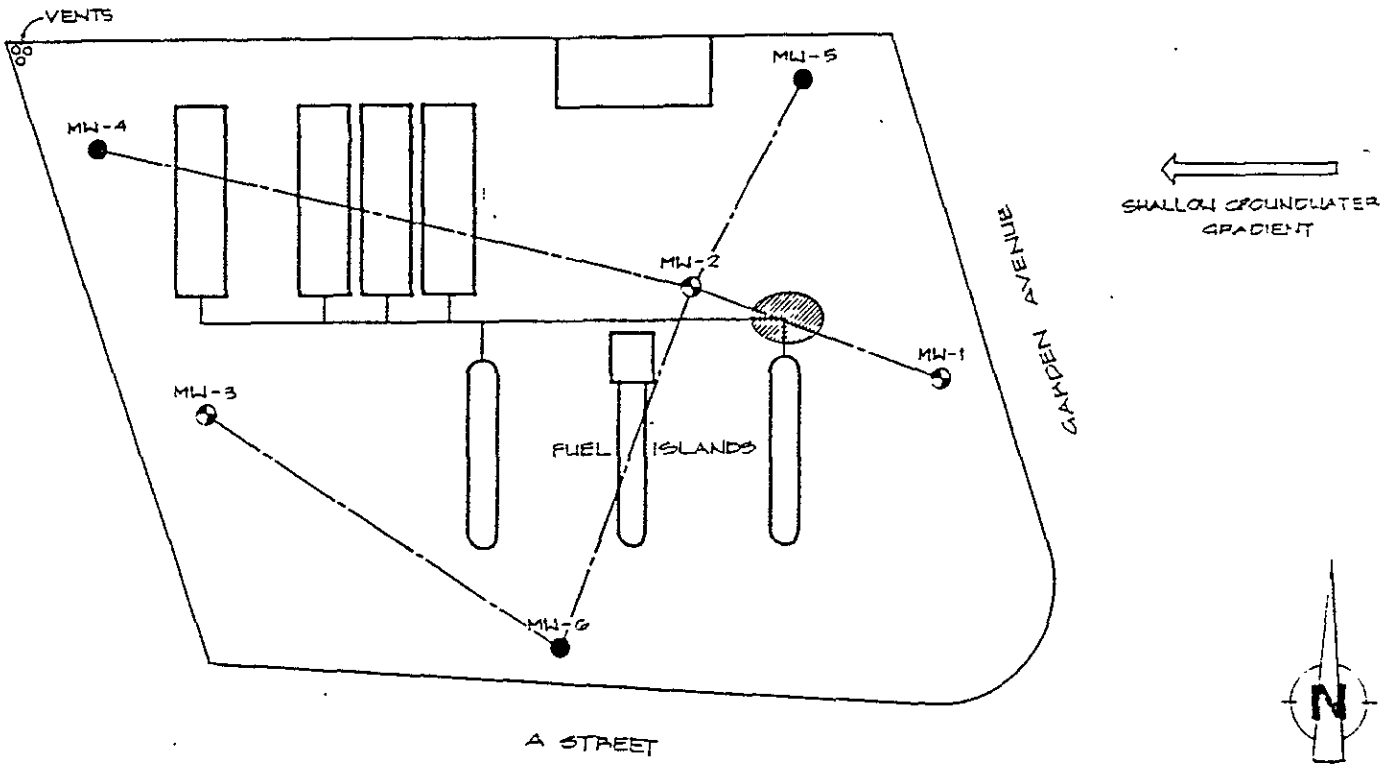
SCALE

SITE LOCATION MAP

E-Z SERVE-MOBIL No. 1235
525 West A Street
Hayward, California

Figure 1



Tanks removed 6/90

MW-2, MW-5, MW-6 - Abandon & Close
Drill new wells around same area

MW-1, MW-3, MW-4 - Reconstruct or drill new wells

SITE PLAN - LOCATION OF FENCE DIAGRAM SECTION

E-Z SERVE MOBIL NO. 1235
525 WEST A STREET
HAYWARD, CALIFORNIA

Figure 2

Table I

WELL INVENTORY

WELL NO. (3S/2W)	WELL DEPTH (FEET)	DATE DRILLED	USE	DEPTH TO FIRST WATER (FEET)	DISTANCE FROM CENTER OF SITE
17N1	255	07/46	DOMESTIC	--	1500 FT.
17P3	34	04/86	MONITORING	10	1500 FT.
17Q5	63	--	UNSPECIFIED	--	1500 FT.
20B3	29	07/77	IRRIGATION	6	1500 FT.
20C1	29	05/77	IRRIGATION	21	1500 FT.
17F3	200	06/31	IRRIGATION	--	1/2 MI.
17J3	49	01/86	MONITORING	23	1/2 MI.
17K2	680	07/65	TEST	--	1/2 MI.
17M2	72	--/53	IRRIGATION	30	1/2 MI.
17Q2	603	03/37	INDUSTRIAL	--	1/2 MI.
17R7	83	--	UNSPECIFIED	--	1/2 MI.
18J1	202	--/53	DOMESTIC	55	1/2 MI.
18R7	30	08/86	MONITORING	12	1/2 MI.
20B1	72	05/83	DOMESTIC	--	1/2 MI.
20D1	42	09/77	IRRIGATION	20	1/2 MI.

Well locations and water level data from Alameda County Flood Control and Water Conservation District (Hayward Quadrangle)

"--" = No information available