INTERNATIONAL TECHNOLOGY CORPORATION

PRELIMINARY REPORT AND WORK PLAN
KAMUR INDUSTRIES
PLAZA CAR WASH
400 SAN PABLO AVENUE
ALBANY, CALIFORNIA

PREPARED FOR:

KAMUR INDUSTRIES
ALAMEDA, CALIFORNIA

BY:

IT Environmental Services Inc.
4585 Pacheco Boulevard
Martinez, California 94553

12 January 1990
ITES Job # 148031 - Phase 03

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EXECUTIVE SUMMARY

International Technology Environmental Services (ITES) was retained by Kamur Industries on 14 December 1989 to prepare a Preliminary Report and Work Plan, leading to a Problem Assessment Report, for the site located at 400 San Pablo Avenue in Albany, California.

The site contains three underground gasoline storage tanks, which were installed in 1970.

The tanks passed an annual integrity test conducted 13 June 1989 by R.L. Stevens Company.

The Albany Fire Department was alerted 03 July 1989, when free product was observed floating in the adjacent El Cerrito Creek. Boom and absorbent pads were installed as a temporary remedial measure. An adjoining storm drain was determined to be the conduit for the entrance of contaminants into the stream.

Inventory discrepancies prompted a tank product line integrity test in mid-July 1989, which revealed a pinhole leak in the unleaded gasoline pipeline.

On 26 July 1989, repairs were executed on the leaking pipe system and contaminated soil, immediately surrounding the leak, was removed. The soil was encapsulated in polyethylene sheeting, according to BAAQMD standards, and stored on site pending analytical results.

Subsurface Consultants, Inc. (SCI) was retained by Kamur Industries to perform a site assessment. On 01 August 1989, SCI drilled five boreholes and installed four monitoring wells. Soil, groundwater and surface water samples were collected on 01 and 03 August 1989. Laboratory analysis revealed the presence of gasoline contaminants in all samples, with the exception of the surface water sample procured upstream.

A soil vapor study, executed by SCI in the area of the Plaza Car Wash and adjacent properties, revealed the presence of contaminants.

On 19 September 1989 Pacific Pipeline Survey conducted a video inspection to assess the integrity of the adjacent storm drain. The inspection indicated large cracks in the pipe which precluded sealing the joints internally without preceeding with large scale excavation.

On 10 and 11 October 1989 Riedel Environmental Services, Inc. installed a sump in Adams Street, adjacent to the storm drain, and sealed the pipe joints in the area of the excavation to abate the flow of contaminants into the creek.

On 07 November 1989, SCI generated a report which addresses potential off site contaminant sources.

On 04 December 1989, ITES was retained to execute sampling activities on the monitoring wells, sump and El Cerrito Creek. Upon analysis, monitoring well MW-2, the sump and the drainage pipe/creek intersection contained Total Petroleum Hydrocarbons (TPH) as gasoline. The monitoring wells and sump were also analyzed for Aromatic Volatile Hydrocarbons, with analysis revealing contaminants in all samples. Monitoring wells MW-3 and MW-4 could not be sampled due to the presence of a immeasurable layer of free product floating in the well.

On 18 December 1989, ITES removed stockpiled soils from the site for disposal at the West Contra Costa Sanitary Landfill.

ITES proposes conducting a supplemental soil gas survey, drilling and installing three additional monitoring wells and continued monitoring of the existing wells, sump and El Cerrito Creek. Following the accumulation of data, ITES will prepare a Problem Assessment Report addressing the extent of soil/water contamination and remedial options.

How was disposal location determined?

see p.3

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I. INTRODUCTION

International Technology Environmental Services (ITES) was retained by Kamur Industries 14 December 1989, to prepare a Preliminary Report and Work Plan leading to a Problem Assessment Report (PAR). The proposed scope of work for the PAR is to delineate the extent of any contaminant plume in the soil and water (surface/ground) at the 400 San Pablo Avenue site in Albany, California. (Figure 1)

II. SITE CHARACTERIZATION

A. SITE LOCATION

The site is located at 400 San Pablo Avenue in Albany California, 1500 feet northeast of the Albany Hill summit. The site is bounded on the north by El Cerrito Creek which flows into San Francisco Bay, approximately 3800 feet west of the site. The surrounding area is mainly commercial/industrial in character with a sewage disposal facility located an estimated 1.1 miles west of the site on Point Isabel. The site is situated at approximately 22 feet above mean sea level (USGS Richmond, California 7.5' Topographic Sheet).

B. SITE HISTORY

The site property located at 400 San Pablo Avenue was vacant until the late 1950's when the Plaza Car Wash and the adjacent Norge Dry Cleaner facilities (Figure 2) were constructed.

Three underground gasoline storage tanks were installed on site in 1970.

The three tanks passed an annual integrity test conducted on 13 June 1989, by R. L. Stevens Company.

Observation of free product in the adjacent El Cerrito Creek on 03 July 1989, prompted the Albany Fire Department to install absorbent materials and boom as a temporary remedial measure. A storm drain, which borders the site on the west, was determined to be the conduit for the entrance of contaminants into the creek (Figure 2).

July 1989 inventory reconciliation records, reviewed by Kamur Industries, reflected discrepancies in the unleaded gasoline inventory.

Results of a product line integrity test, conducted in mid-July 1989, confirmed a small leak in the unleaded gasoline fuel lines beneath the dispenser island.

Approximately one cubic yard of gasoline contaminated soil was removed during the execution of fuel line repairs on 26 July 1989. A composite sample of this soil was submitted for laboratory analysis and revealed a Total Volatile Hydrocarbon concentration of 7,500 parts per million (ppm). The soil was encapsulated in polyethylene sheeting, according to BAAQMD standards, and stored on site (Attachment 1).

Subsurface Consultants Inc. (SCI) was retained by Kamur Industries to perform a site assessment. On 01 August 1989, SCI drilled five soil borings and obtained soil samples for laboratory analysis. Four of the soil borings were completed as monitoring wells to facilitate groundwater sampling/monitoring. Groundwater samples were procured for analysis and results are shown in Attachment 1.

Laboratory analysis revealed the presence of gasoline contaminants in all soil and groundwater samples obtained 01 August and 03 August 1989, respectively (Tables 1 and 2). Contaminants such as heavy metals and purgeable halocarbons, not inherent to a retail gasoline dispensing station, were also detected in the groundwater.

Water samples were also obtained from El Cerrito Creek and the storm drain outlet on 03 August 1989. Laboratory analysis revealed the presence of gasoline contaminants as listed in Table 3. The sample analysis results are included as Attachment 2.

A soil vapor study, executed by SCI in the area of the Plaza Car Wash and adjacent properties, revealed the presence of contaminants (Attachment 3).

On 19 September 1989 Pacific Pipeline Survey conducted a video inspection to assess the integrity of the adjacent storm drain. The inspection revealed excess concrete along the pipe bottom, a bend across several pipe sections and large cracks in the pipe at the joints which precluded sealing by internal grouting, as originally intended (Attachment 4). The bend area was considered to be the most likely location for contaminants to enter the drain pipe.

On 10 and 11 October 1989 Riedel Environmental Services, Inc. installed a sump in Adams Street, strategically placed adjacent to the damaged section of the storm drain for optimum groundwater level influence. Storm drain pipe joints exposed during sump installation procedures were sealed with mortar. Soils determined to be contaminated when screened with an organic vapor analyzer, were removed and stored on site for future disposal (Attachment 3).

On 07 November 1989 SCI generated a report which addresses the potential off site contaminant sources, and is enclosed as Attachment 3.

On 04 December 1989 ITES was retained to execute sampling activities on the monitoring wells, the sump and El Cerrito Creek. Samples were obtained on 08 December 1989, and upon analysis monitoring well MW-2, the sump and the drainage pipe/creek intersection contained Total Petroleum Hydrocarbons (TPH) as gasoline in the amounts: 13 parts per billion (ppb), 55 ppb and 33 ppb respectively. The monitoring wells and sump were also analyzed for Aromatic Volatile Hydrocarbons, with analysis revealing contaminants in all samples (see Table 4). Chain of custody forms and laboratory reports are enclosed as Attachment 5.0.

On 18 December 1989, ITES removed stockpiled soils from the product line repair and sump installation efforts. Soils were classified as non-hazardous and transported to West Contra Costa Sanitary Landfill for disposal.

how

C. SITE GEOLOGY

Review of the boring logs, generated by Subsurface Consultants Inc. 01 August 1989, indicates that the asphalt covered site is underlain by sandy to silty inorganic clay with occasional dense gravel interbeds. Characteristics of the clay vary from brown to dark gray, medium stiff to stiff and moist to wet (Attachment 1).

Groundwater was encountered by SCI from four to seven feet below the wellheads. No free product was noted on the groundwater surface. Groundwater flow is westerly, eventually emptying into San Francisco Bay.

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see p. ii

III. PLAN FOR DETERMINING WATER CONTAMINATION

A. PLAN FOR DETERMINING THE SURFACE WATER CONTAMINATION.

Investigative and Remedial measures to date:

- the storm drain beneath Adams Street has been identified as a conduit for contaminant entrance to El Cerrito Creek
- a sump has been installed to maintain groundwater levels below the base of the storm drain, preventing contaminated water from entering the pipe.
- the damaged section of pipe revealed during sump installation was repaired with mortar
- the sump has been monitored for water and product levels by the owner
- absorbent pads and boom have been placed at the point where the drainage flow enters the creek and downstream
- the creek has been periodically sampled for the presence of hydrocarbon contaminants, up and downstream and 48 hours following significant (> 0.5 inches) rainfall) when?

To determine the extent of surface water contamination in El Cerrito Creek, ITES will continue to collect samples monthly and 48 hours following significant (> 0.5 inches) rain events. Samples are being procured from four established sample points:

1. 20 feet upstream from the drain
2. mouth of drain
3. drainage flow/creek interface
4. 35' downstream from the drain

These samples will be analyzed for TPH as gasoline by Precision Analytical Laboratory. Chain of custody forms will accompany the samples at all times.

Absorbent pads and boom will be replaced on an as needed basis, however the need for replacement has been slight.

B. PLAN FOR DETERMINING GROUNDWATER CONTAMINATION

Investigative and Remedial measures to date:

- a possible source of petroleum contamination (leaking product line) has been identified and the leak repaired
- four monitoring wells were installed
- monitoring wells have been sampled for the presence of petroleum contaminants
- well and sump water levels have been monitored to determine the effect of surface runoff on groundwater hydrology

ITES proposes the drilling of three additional monitoring wells for further site assessment. Numerous obstructions such as buildings, gasoline pumps, underground storage tanks precluded drilling in certain areas. Based on the above considerations and the suspected groundwater gradient direction (west), three tentative drilling locations have been determined (see figure 4). The monitoring wells will enable delineation of the contaminant plume, determination of the effects of surface runoff on groundwater hydrology and facilitate groundwater sampling.

Drilling procedures will conform to California Regional Water Quality Control Board, San Francisco Region Guidelines For Addressing Fuel Leaks, September 1985. Pertinent sections of this document are included as Attachment 6 to describe drilling, well construction, and sampling methods. All personal protective equipment will conform to IT Corporations Standard Procedure, included as Attachment 7.

All downhole equipment used in the drilling and sampling of the wells will be decontaminated. Each borehole will be drilled with a steam cleaned auger. Sampling equipment will be scrubbed with a non-phosphate detergent, rinsed several times with water, rinsed with methanol, and rinsed with distilled water.

Soil samples will be collected every five feet using a split spoon sampler. The most contaminated (determined by screening samples with a photoionization detector) or the deepest sample from each borehole will be sent to the laboratory for analysis.

Water levels will be measured with an electronic interface probe. If free product is found, the thickness of the layer will be measured with the interface probe or a graduated, acrylic bailer. If free product is not encountered a water sample will be collected with a decontaminated teflon bailer, after the well has recharged from a three well volume purging. For quality assurance, a distilled water trip blank will accompany the samples at all times.

All soil and water samples collected from the borings and wells will be analyzed for Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) and Total Petroleum Hydrocarbons (TPH) as gasoline by modified E.P.A. methods 8015, 8020, and 5030. Analyses will be performed by Precision Analytical Laboratory, California License #211 . Chain of custody forms will accompany the samples at all times.

Monitoring well elevations will be surveyed from an appropriate bench mark to 0.01 foot. The survey data will be used to compute well elevations, groundwater levels, and produce a groundwater contour map.

Soil cuttings accumulated during the drilling process, decontamination liquids, and groundwater removed from the wells as part of the development process, will be drummed in 17H and 17E drums respectively, and upon waste characterization removed to an approved waste disposal facility.

Water levels and groundwater samples will be obtained from all wells on a monthly basis during the rainy season and on a quarterly during the dry season. Following each significant (> 0.5 inches) rainfall, the wells will be monitored for floating product and water levels.

IV. PLAN FOR DETERMINING EXTENT OF SOIL CONTAMINATION

Investigative and Remedial measures to date:

- a possible contaminant source has been identified and the leak repaired

- five boreholes were drilled

- soil samples from the boreholes, the sump installation stock pile and the leaking product line repair stock pile were analyzed for the presence of petroleum contaminants

- a soil vapor study was conducted to evaluate the extent of hydrocarbon contamination

ITES proposes to further delineate the existence and extent of soil and shallow groundwater contaminants with another, more extensive soil gas survey. A soil gas survey will enable ITES to detect volatile organic compounds (VOC) in the subsurface due to their high vapor pressures which allows these compounds to diffuse into the unsaturated (vadose) zone above the groundwater.

Figure 3 shows a grid of potential soil gas survey points. The actual number and locations of the survey points will be determined as the survey progresses to best delineate the contaminant plume in the soil. The current monitoring wells and the sump will be checked periodically to observe the groundwater level. All soil gas samples will be procured at a depth of five feet below the ground surface. If groundwater is encountered at less than five feet below grade, then samples will be collected at one foot above the groundwater.

Sampling of the volatile organic compounds will be accomplished by driving a 3/8 inch diameter steel rod through the sample point borings. The steel rod will be removed and a sampling probe (a perforated 1/4 inch diameter, stainless steel tube) inserted into the hole. The space between the hole and the probe will be sealed to prevent the escape of soil gases. A teflon tube will connect the top of the buried probe to a mechanical vacuum pump which will be used to purge the sample probe of any existing gases. The probe shall be allowed to equilibrate for a period of at least ten minutes to allow the soil gases to flow through the sample probe perforations.

A Photoionization detector (PID) will be connected to the sample probe to measure the presence of VOC's. The concentration in parts per million will be recorded so the contaminant plume can be mapped.

Soil samples for laboratory analysis will be collected during monitoring well installation (methodology delineated in section III.B above).

Upon the completion of the scope of work proposed in this report, ITES will review all data and address the feasibility of exisiting remedial options.

V. SITE HEALTH AND SAFETY PLAN

V.I INTRODUCTION

This health and safety plan prescribes the work-place procedures which will be followed during the soil and groundwater assessment of the site located at 400 San Pablo Avenue, Albany, California. The provisions of this plan are mandatory for all IT personnel and subcontractors assigned to this project. All authorized visitors to the site will be required to abide by the procedures. The requirements in this plan may change due to changes in the work conditions, however, no changes will be made without prior written approval of the Health and Safety Consultant and the Project Manager.

International Technology Corporation is committed to providing a safe and healthful working environment for all its employees and subcontractors (see ITC Pro. 9000 for IT's Health and Safety Policy).

V.2 ASSIGNMENT OF RESPONSIBILITY

V.2.1 Project Manager

IT's Project Manager will be G.R. Millikan, who will be responsible for oversight and management of the project. C. Brownlow will be responsible for the implementation and management of the Health and Safety Plan.

V.2.2 Health and Safety Consultant

Mr. Colin Brownlow, IT's Health and Safety Manager in Martinez, CA or his designee will visit the site periodically and during critical phases of the project. The Health and Safety Consultant is responsible for preparation of this plan.

V.2.3 IT Site Representative/Safety and Health Officer

During most of this project there will be one IT representative on site. That representative will be

responsible for day to day implementation of the health and safety plan and overall direction of subcontractor personnel. The IT representative is empowered to stop all site work in the case of violation of the requirements of the health and safety plan.

V.2.4 Other Project Personnel/Subcontractor

All project and subcontractor personnel will be responsible for understanding and complying with the project health and safety requirements.

V.3 HAZARD CHARACTERIZATION AND RISK ANALYSIS

V.3.1 Petroleum Contaminated Water and Soils

Soil and water beneath the site may be contaminated with gasoline.

Over exposure to petroleum hydrocarbon vapor can cause depression of the central nervous system. Inhalation of high concentrations of gasoline can cause chemical pneumonia and/or pulmonary edema. Repeated or prolonged skin exposure to gasoline or gasoline contaminated materials can cause dermatitis or even blistering of the skin.

Based upon IT's experience with investigations of potentially gasoline contaminated soils and water, overexposure of personnel to gasoline vapor is unlikely. Personnel however may be exposed to short term vapor concentrations approaching 100 ppm. Respiratory protection plans will be directed to protecting personnel from these transient exposures.

V.3.2 Drilling Activities

Various hazards are present during drilling and boring procedures.

---electrical hazards due to overhead and underground utility lines
---excessive noise
---confined space
---moving portions of the drill rig
---falling of heavy overhead objects
---fall hazards due to working at heights

V.4 SITE CONTROL

A site map has been attached to this plan. The areas where drilling will occur, will be on the site, and will be barricaded to prevent unauthorized access. Only authorized personnel shall be allowed on site, any unauthorized visitors must remain outside the barricaded area.

The site is small enough that normal voice communication can be used. In the vicinity of the operating drill rig, common hand signals will be used.

V.5 TRAINING

V.5.1. IT Personnel

All IT project personnel shall have completed 40 hours of offsite health and safety training, related to hazardous waste operations. In general the IT personnel will have completed a combination of internal training courses which meet the requirements of both the interim and final Occupational Safety and Health Administration (OSHA) rule for Hazardous Waste and Emergency Response Operations (29 CFR 1910.120). All IT supervisory personnel on site will have completed an additional 8 hours of relevant health and safety training.

IT personnel who may visit the site occasionally, and are unlikely to be exposed to chemical hazards will have completed at least 24 hours of relevant health and safety training.

Any IT or contractor personnel operating specialized industrial equipment such as forklifts, heavy equipment, drilling equipment etc. shall be able to demonstrate their competency in the safe operation of such items.

V.5.2 Subcontractor Personnel

All subcontractor personnel who are likely to be exposed to hazardous materials either by inhalation or dermal contact shall have completed 40 hours of off-site health and safety training, in accordance with the OSHA interim and final Hazardous Waste and Emergency Operations rule. Subcontractor personnel who are required to work on the site for short periods of time (1-day or less), and who will not be required to wear any protective equipment, shall have completed at least 24-hours of off-site health and safety training.

V.5.3 All Site Personnel

Prior to starting off the project, a kick-off safety meeting will be held on the site. During this meeting all personnel will be briefed on the requirements contained within the health and safety plan, and will be told the site safety rules. The kick-off safety meeting will be conducted jointly by the project manager and the HSO.

At the beginning of each work shift, or whenever new personnel arrive on the site, a tailgate safety meeting will be held. The purpose of such meetings is to highlight health and safety concerns and to ensure that employees are fully briefed on the site work procedures to be followed during the shift. The tailgate safety meetings will be conducted by the first line supervisors. The project manager will review all tailgate safety meetings.

V.6 MEDICAL SURVEILLANCE

All IT subcontractor personnel shall have successfully completed a preplacement or annual update physical examination. This examination shall have been designed to comply with regulatory requirements for hazardous waste operations and shall include the following:

- Medical and Occupational history form
- Physical Examination
- Blood Analysis
- Urinalysis
- Chest X-ray
- Pulmonary Function Test
- Audiogram
- Electrocardiogram (if indicated during the physical exam)
- Alcohol and Illegal Drug Screening

V.7 GOVERNMENT AND IT STANDARDS

Currently the health and safety of workers performing hazardous waste activities regulated by OSHA (29 CFR 1910.120).

IT Corporation has internal procedures for hazardous waste operations. The procedures relevant to this site will be attached and are as follows:

- Hazardous Materials Site Mitigation (ITC PRO 9532.A)
- Hazardous Waste Operations and Emergency Response (ITC PRO 9532.10A)

The OSHA PEL for gasoline vapor is 300 ppm averaged over an eight-hour period. The 15-minute short term exposure limit is 500 ppm. To ensure that no project workers are over-exposed to hydrocarbon vapor IT has instituted a project standard of 50 ppm for gasoline vapor. Respiratory equipment is required above this level.

V.8 PROTECTIVE MEASURES

V.8.1 Personnel Protection

All project personnel shall wear safety glasses, safety boots or shoes, long-sleeved shirts and pants. When in the immediate vicinity of drilling operations, personnel shall also wear hearing protection. Personnel will wear nitrile gloves, neoprene boots and polytyvek coveralls when handling potentially gasoline contaminated soils and liquids. Please see the attached ITC Procedures 9561D and 9560D for descriptions of IT's respirator and personal protective equipment programs.

V.8.2 Utilities

During drilling or boring activities, the drill rig shall be at least ten feet from overhead power lines. All underground utilities shall be located before boring and drilling activities commence.

V.9 AIR MONITORING

Site air monitoring will be carried out to ensure that ITES personnel are not over-exposed to hydrocarbon vapor. The airborne hydrocarbon vapor levels will be monitored several times each day using either a photoionization detector (PID) or colorimetric indicator tubes.

If the PID or colorimetric indicator tube samples indicate that hydrocarbon vapor levels are 50 ppm or greater, then daily air samples will be collected from representative project personal using charcoal tube sampling methods (OSHA Method 1M1S1340). Personnel will be notified in writing of the results of any personal air samples and their significance. A copy of this report will be maintained in the employee's medical surveillance file.

V.10 ACCESS AND DECONTAMINATION

V.10.1 Access

Access to the project work area zones shall be regulated and limited to authorized persons. A daily log shall be kept of all persons entering such areas. The work area itself shall be cordoned off using barrier tape or other suitable barriers.

V.10.2 Decontamination

Due to the low toxicity of the material involved (gasoline), the anticipated low levels of contamination, and the minimal hazard posed by spread of contaminated soil, formal decontamination procedures will not be required. The following site requirements will be enforced:

- Eating, drinking and smoking within the work area are prohibited.
- Project personnel may eat, drink or smoke outside the work area, only if they have washed their hands and face.
- An emergency eye wash station shall be located on the job site adjacent to the work area.

Any potentially contaminated equipment will either be disposed of, or washed off with soap and water.

Any equipment used in the contaminated zone should be washed with soap and water before it is removed from the site.

V.11 EMERGENCY RESPONSE

In the event of an emergency such as a sickness, injury or fire, the following procedures will be followed:

- Emergency procedures will be initiated by the first person recognizing the emergency situation. This person shall immediately notify the IT site representative.

- The designated IT First Aid /CPR provider and a project member shall provide assistance to any injured or sick employee. In the case of suspected release of toxic material, these personnel shall first don protective suits and self-contained breathing apparatus. The injured employee will first be moved to a safe location, before any attempt at treatment is made.

- A project member will be designated to call the emergency services number (911) to obtain paramedic or fire department assistance if it is needed. Any injured employees will be taken to:

  Alta Bates-Herrick Hospital
  3001 Colby at Ashby
  Berkley, California

- In the event of a fire on the project site, IT personnel will immediately notify the Albany Fire Department at: (415 528-5770).
- While waiting for assistance from the fire department, project personnel will use available fire extinguishers (if safe to do so) to extinguish the fire.

Any injuries or incidents which have the potential to result in an injury will be recorded by the IT site representative on the supervisor's employee injury report form. This form, when completed by the site representative, shall be forwarded to the IT project manager, profit center manager and the IT Corporate Health and Safety Department.

TABLE 1
SOIL SAMPLE ANALYSIS
(in parts per million - ppm)

Location	Total Volatile Hydro-Carbons	Benzene	Toluene	Ethyl-Benzene	Total Xylene
1 @ 4.5′	1300	13.0	40.0	11.0	57.0
1 @ 8.0′	1100	22.0	63.0	12.0	63.0
1 @ 11.0′	25	0.36	1.40	0.27	1.40
2 @ 4.0′	740	5.20	25.0	7.20	40.0
2 @ 9.0′	BDL	0.05	0.32	0.031	0.14
3 @ 5.0′	24	0.23	0.35	BDL	0.10
3 @ 9.5′	19	0.18	0.76	0.12	0.86
A/B @ 2.5′	27000	380.0	1400.0	1500.0	280.0
A/B @ 4.0′	15000	260.0	1000.0	1100.0	210.0
A/B @ 8.0′	2500	23.0	110.0	150.0	28.0

NOTE:

BDL = Below Detection Limit

TABLE 2
GROUNDWATER SAMPLE ANALYSIS Aug 1989
(results in parts per million - ppm)

Location	Total Volatile Hydro-Carbons	Benzene	Toluene	Ethyl-Benzene	Total Xylene
MW1	16.0	1.8	1.8	0.21	1.2
MW2	80.0	9.1	12.0	0.46	7.1
MW3	71.0	22.0	21.0	0.58	7.9
MW4	14.0	2.0	1.5	BDL	1.0

TABLE 3
SURFACE WATER SAMPLE ANALYSIS AUG 1989
(results in parts per million - ppm)

Location	Total Volatile Hydro-Carbons	Benzene	Toluene	Ethyl-Benzene	Total Xylene
Creek (20' Upstream)	BDL	BDL	BDL	BDL	BDL
Storm Drain Outlet	470.0*	16.0	29.0	4.2	29.0
Creek (20' Downstream)	2.70	0.088	0.008	BDL	0.21

* 290 ppm of aged gasoline was also encountered in the storm drain sample.

NOTE:

BDL = Below Detection Limits

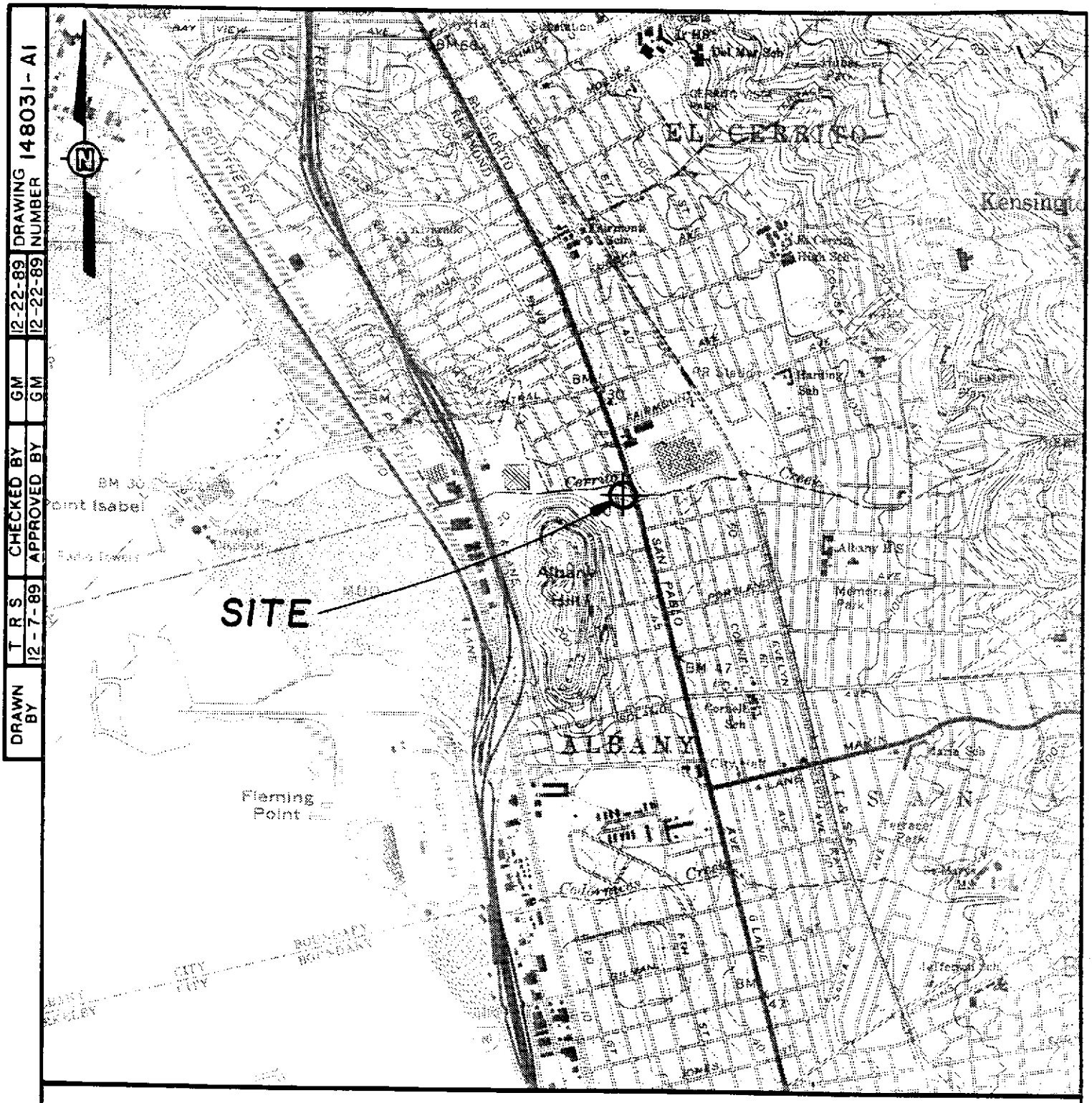
TABLE 4
ITES ~~WATER SAMPLE ANALYSIS~~ DEC 1989
(in parts per billion)

Location	TPH ~~(gas)~~ ppm	Benzene	Toluene	Ethyl-Benzene	Xylene
MW-1	BDL	21	17	2.2	7.7
MW-2	13	13000	8400	750	2500
PT-1	BDL	NA	NA	NA	NA
PT-2	33	NA	NA	NA	NA
PT-3	BDL	NA	NA	NA	NA
PT-4	BDL	NA	NA	NA	NA
SP-1	55	26000	25000	2100	13000

NOTE: Monitoring wells MW-3 and MW-4 could not be sampled due to the presence of an immeasurable layer of free product floating in each well.

KEY:

BDL = Below Detection Limits
NA = Not Analyzed
TPH = Total Petroleum Hydrocarbons
MW-1 = Monitoring Well #1
MW-2 = Monitoring Well #2
PT-1 = upstream 20 feet
PT-2 = mouth of storm drain
PT-3 = drainage flow/creek interface
PT-4 = 35 feet downstream
SP-1 = sump



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SCALE
0 2000 4000 FEET

FIGURE 1

SITE VICINITY MAP
PLAZA CAR WASH
400 SAN PABLO AVENUE
ALBANY, CALIFORNIA
PREPARED FOR

KAMUR INDUSTRIES, INC.
ALAMEDA, CALIFORNIA

REFERENCE:
U.S.G.S. 7.5' MIN. TOPOGRAPHY, RICHMOND, CA. QUADRANGLE, DATED 1959 PHOTOREVISED 1968 AND 1973, SCALE = 1:24000

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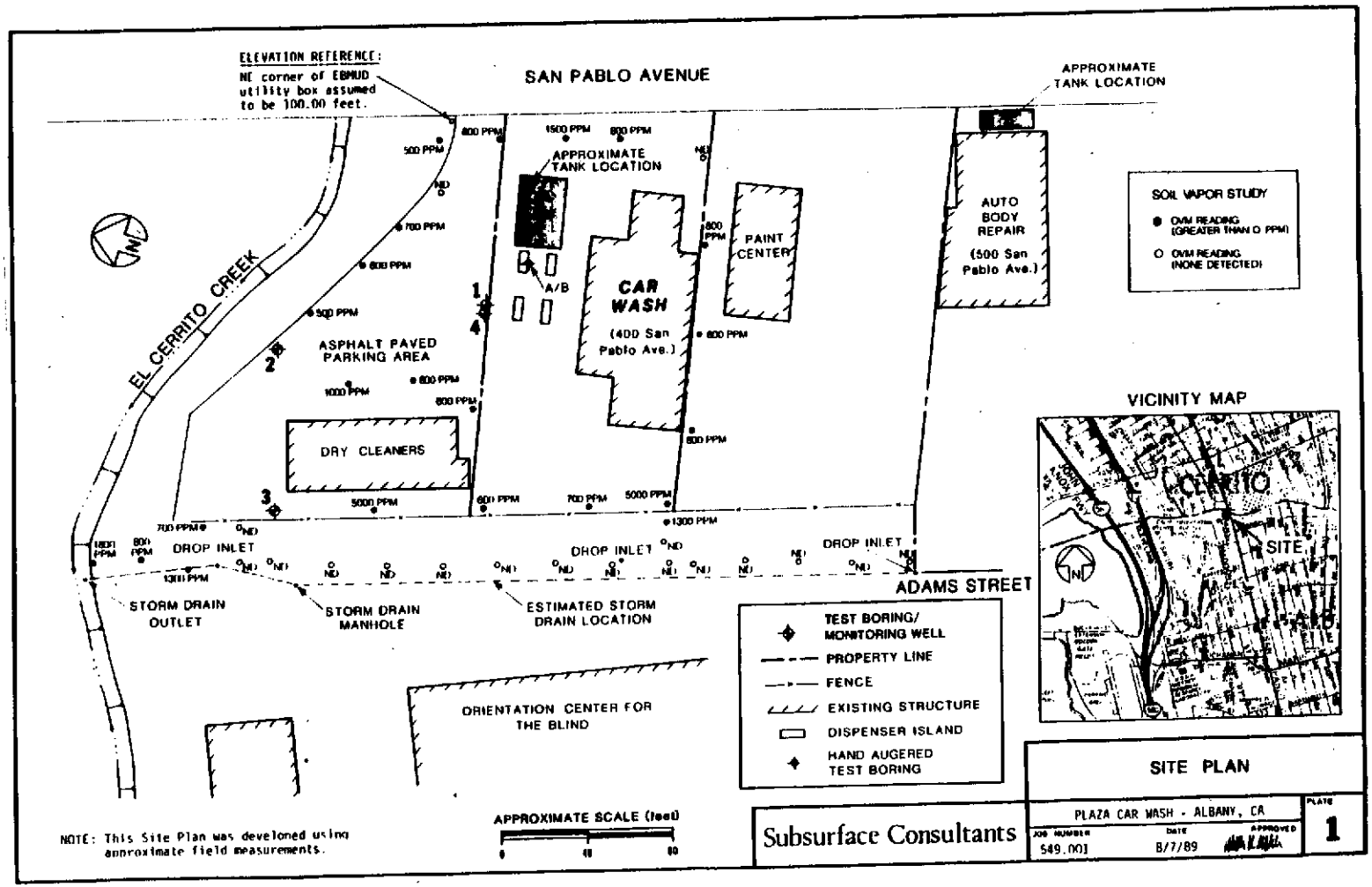
Do Not Scale This Drawing

FIGURE 2
SITE MAP



... Creating a Safer Tomorrow

126076

DRAWING NUMBER			CHECKED BY	APPROVED BY		DRAWN BY

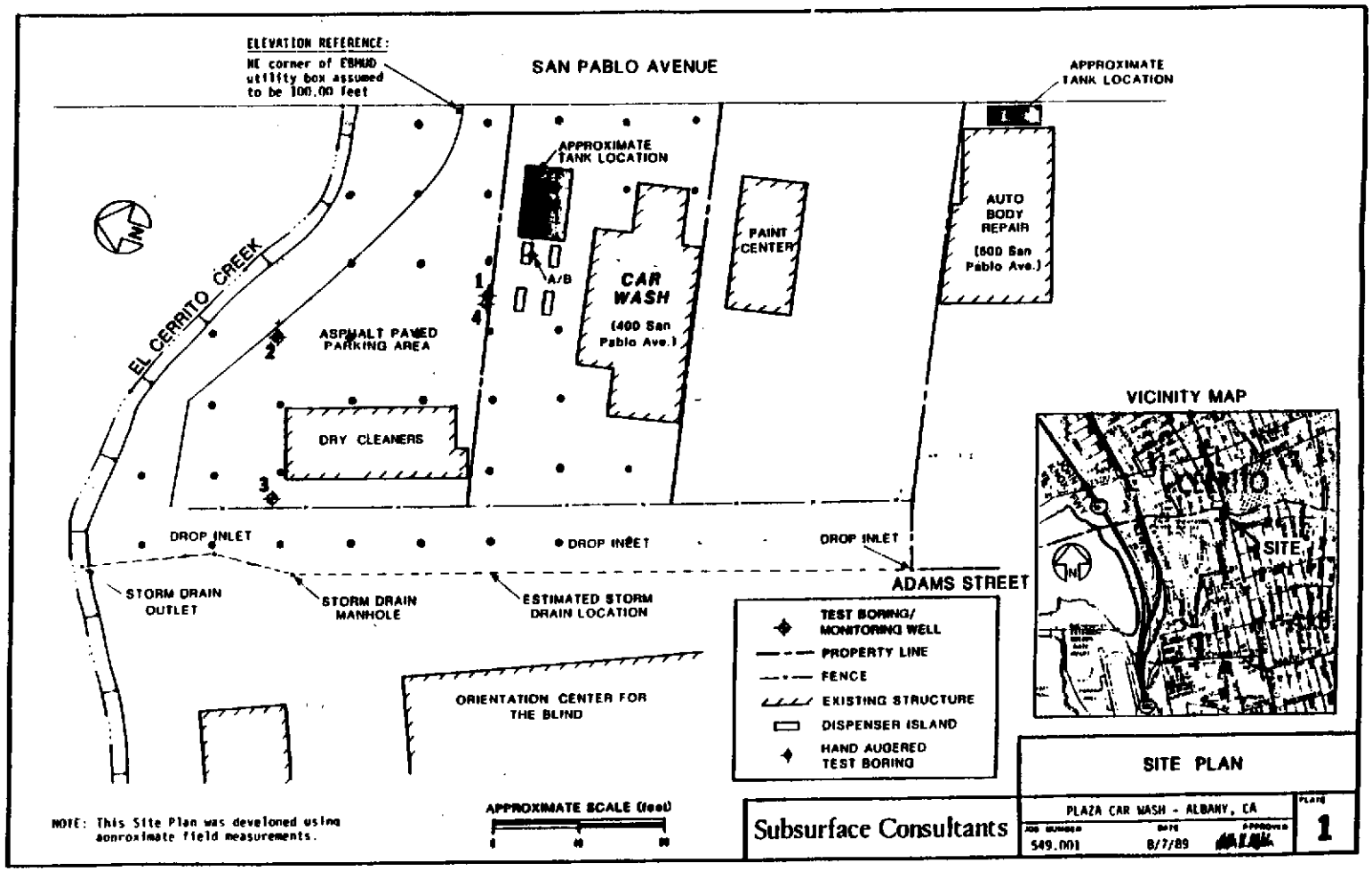


FIGURE 3

PROPOSED SOIL GAS SURVEY POINTS

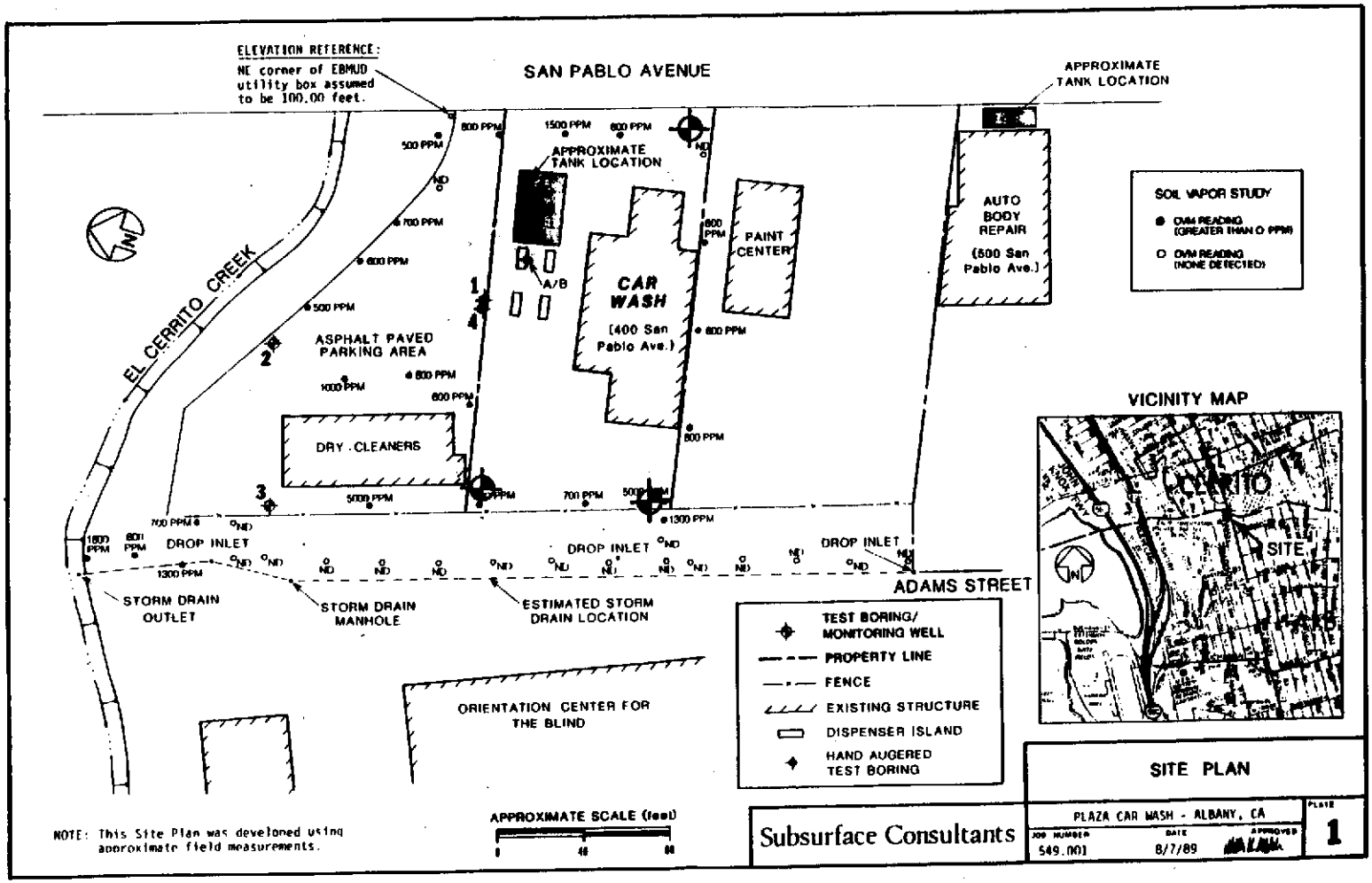
- SOIL GAS SURVEY POINTS

INTERNATIONAL TECHNOLOGY CORPORATION

146494

DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER

FIGURE 4
PROPOSED MONITORING WELLS



SITE PLAN

Subsurface Consultants

PLAZA CAR WASH - ALBANY, CA

JOB NUMBER 549.001 | DATE 8/7/89 | APPROVED | PLATE 1

◆ MONITORING WELL

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER

146494

KAMUR INDUSTRIES INC.
2351 Shoreline Dr., Alameda, CA 94501 - (415) 523-7866

August 23, 1989

Mr. M. Hossain Kazemi
Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6040
Oakland, CA 94607

Re: Report From Subsurface Consultant Regarding
Plaza Car Wash, 400 San Pablo Ave., Albany

Dear Mr. Kazemi:

Enclosed please find a copy of the report prepared by Subsurface Consultants, Inc. ("SCI") regarding the gas leak which occurred at Plaza Car Wash, located at 400 San Pablo Avenue in Albany, California. This report is being sent to you pursuant to your earlier request.

As you will note, the letter report prepared by SCI summarizes (1) the recent site history, (2) the services and analytical tests that have been performed by SCI to date at the site, and (3) the recommended future services related to identifying sources and areas of contamination, along with the development of remediation alternatives.

We have requested that SCI proceed with Phases 1 through 3 as outlined and recommended in their letter report. These include: Phase 1 - Monitoring of Existing Wells and Storm Drain Outlet; Phase 2 - Historical Use Research; and Phase 3 - Soil Gas Study.

If you have any questions regarding the SCI letter report, please contact me.

Sincerely,

Murray T. Stevens

MTS:khs

encl

cc: Mr. Gil Wistar
Alameda County Health Care Services
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Ms. Vicki Dvorak
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

COPY

James P. Bowers, PE
R. William Rudolph, Jr., PE

August 22, 1989
SCI 549.001

Mr. Murray T. Stevens
Kamur Industries
2351 Shoreline Drive
Alameda, California 94501

Consultation re:
Gasoline Contamination
Plaza Car Wash
400 San Pablo Avenue
San Pablo, California

Dear Mr. Stevens:

This letter presents preliminary results of our consultation regarding gasoline contamination at the subject site. Specifically, this letter records information regarding recent site history, temporary measures to mitigate the discharge of free product into the creek and proposed future investigation.

Recent Site History

We understand that in early July 1989, a dark-brown liquid substance (free product) was observed floating on water in El Cerrito Creek, north of the Orientation Center for the Blind (OCB). The free product was exiting a storm drain pipe which terminates at the creek northwest of Norge Cleaners, as shown on the attached Site Plan (Plate 1). We understand that the storm drain only serves the OCB site. The Albany Fire Department (AFD) placed absorbent materials and booms in the creek to remove the free product, and inspected the storm drain pipe with a remote video camera. The camera was inserted into the pipe starting at the manhole located west of Norge Cleaners. Product was reportedly observed in the storm drain pipe north, but not south, of the manhole. The product was apparently entering the storm drain through the joints. The AFD determined that possible sources of the product were underground storage tanks located at Troxell's Auto Body (500 San Pablo Avenue) and Plaza Car Wash (400 San Pablo Avenue).

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171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 415-268-0461

The AFD was concerned that fumes within the storm drain pipe could be explosive. Accordingly, they removed the manhole cover to help ventilate the pipe. The manhole remains open and the area is cordoned off. Recent combustible gas measurements indicate a lower explosive limit (LEL) in the storm drain pipe of less than 25 percent.

Troxell's Auto Body shop has at least two underground storage tanks on-site. They are located about 220 feet east of the storm drain; they reportedly have not been used for many years. Aqua Terra Technologies (ATT) was retained by the auto body shop owners, on or about July 12, 1989, to investigate the possibility of the tanks being the product source. Upon opening, the two tanks were reportedly found to be completely filled with water. We understand that analytical tests have been performed of the water; we recommend that the results be reported to the proper agencies. We do not have any conclusive evidence regarding the relationship of the auto body shop tanks to any site contamination. This should be explored further.

Plaza Car Wash has three underground gasoline storage tanks located about 160 feet east of the storm drain. In mid-June 1989, the tanks and related piping reportedly passed precision tests performed using the "Petrotite" method. In mid-July, the car wash owner noted an inventory discrepancy at the unleaded fuel storage tank. The unleaded tank fuel lines were again precision tested. The results indicated a leak in the fuel lines. A leak was located in the unleaded fuel line beneath the dispenser island and was repaired on August 26, 1989. During excavation for the repairs, gasoline contaminated soil was encountered adjacent to the pipe leak. About 1 cubic yard of soil was excavated and encapsulated on-site in polyethylene sheeting, for later disposal. Subsurface Consultants, Inc. (SCI) was retained by Kamur Industries on August 26, 1989, to investigate the extent of gasoline contamination, and to develop remediation recommendations.

Services Performed to Date

To date, SCI has performed a site reconnaissance, drilled 5 test borings, obtained soil and groundwater samples, installed 4 monitoring wells, and performed analytical tests. Most of the analytical results are forthcoming and will be reported in future correspondence. Our preliminary data and conclusions are summarized in the following paragraphs.

Our engineer checked the creek for evidence of product seeping from the ground at locations other than the storm drain. The areas checked were adjacent to the cleaners and the OCB. No areas of seeping product were observed.

The test boring locations are shown on the Site Plan; the logs of the borings are presented on Plates 2 through 4. The soils are classified in accordance with the Unified Soil Classification System described on Plate 5. The test borings encountered clays, interbedded with relatively thin layers of gravel, to the depths drilled (12 to 20 feet). The clays, and gravels are likely to have relatively low and high permeabilities, respectively. An organic vapor meter (OVM) indicated the presence of organic vapors in soil samples from all of the test borings. Groundwater was encountered at depths of 4 to 7 feet. No free product was noted on the groundwater surface. Preliminary data suggests that the direction of groundwater flow, near the car wash, is to the west, toward the storm drain. However, additional water level readings are necessary to confirm that stabilized conditions have developed.

The results of analytical tests on soil samples from Test Boring A/B and groundwater samples from the monitoring wells are as follows:

Location	Sample Type	Total Volatile Hydro-carbons (ppm) [1]	Benzene (ppm)	Toluene (ppm)	Total Xylenes (ppm)	Ethyl-Benzene (ppm)
A/B @ 2.5'	soil	27,000	380	1,400	1,500	280
A/B @ 4'	soil	15,000	260	1,000	1,100	210
A/B @ 8'	soil	2,500	23	110	150	28
MW1	water	16	1.8	1.8	0.21	1.2
MW2	water	80	9.1	12.0	0.46	7.1
MW3	water	71	22.0	21.0	0.58	7.9
MW4	water	14	2.0	1.5	ND	1.0

[1] Parts per million (mg/kg)
[2] None detected

The groundwater sample from Well MW3 was also analyzed for purgeable halocarbons. The test results are presented below:

Analytical Test	Material	Concentration (ppm)
EPA 601	1,2 - dichloroethene (total)	2.8
	Trichloroethylene	3.4
	Tetrachloroethylene	2.7
	Others	none detected

Analysis of a composite of 5 soil samples obtain from the materials removed from the pipe repair excavation as requested by the Alameda County Health Care Services Agency (ACHCSA) indicated a TVH concentration of 7,500 ppm. The results of additional analyses are not yet available.

Based upon the results of analytical testing to date, we conclude that gasoline appears to be a significant contaminant at the site. While the source of the gasoline may in large part, be the unleaded gasoline tank pipe leak, other sources of contamination cannot be ruled out at this time. Contaminants were found at the site, other than those which would customarily be associated with a gasoline dispensing retail establishment that does not do vehicle servicing. They include heavy metals and purgeable halocarbons. The source of these contaminants is currently uncertain and should be evaluated further during future investigations.

Temporary Measures to Mitigate the Discharge of Free Product into the Creek

Based upon our discussions with Mr. M. Hossain Kazemi of the RWQCB on August 7, 1989, it is necessary to eliminate the discharge of floating product into the creek from the storm drain. Accordingly, absorbent pads and booms have been placed in the storm drain pipe and outlet to collect the product. These pads and booms will be changed periodically, as required. The used pads and booms will be stored in steel drums for proper disposal. Samples of water from the storm drain outlet and the creek, both up-and down-stream from the outlet, are currently being analytically tested for TVH, TEH and BTXE. The results are forthcoming.

Proposed Future Services

We recommend that future investigation and mitigation of the problem be performed in a phased approach. The anticipated phases are as follow:

Phase 1

Monitor existing groundwater wells, and use of absorbent pads and booms to limit discharge of product to the creek. This phase should be performed concurrently with all subsequent phases of work.

Phase 2

Perform a historical use study of the site and vicinity by reviewing available city and county records, checking historical aerial photographs, discussing existing and past hazardous material uses/problems with regulatory agencies and interviewing area residents.

Phase 3

Evaluate the extent of soil and groundwater contamination by performing a soil gas study, drilling additional test borings, installing additional groundwater monitoring wells, and performing analytical tests. This phase should be performed concurrently with Phase 2.

Phase 4

Develop a plan to mitigate the discharge of product to the storm drain and creek.

Phase 5

Develop a plan to remediate the contaminated soil.

Phase 6

Develop a plan to remediate groundwater contamination.

This letter should be submitted to the following regulatory agencies, along with a cover letter from Kamur Industries.

Mr. Gil Wistar
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Mr. M. Hossain Kazemi
San Francisco Bay Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94607

Ms. Vicki Dvorak
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

If you have questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

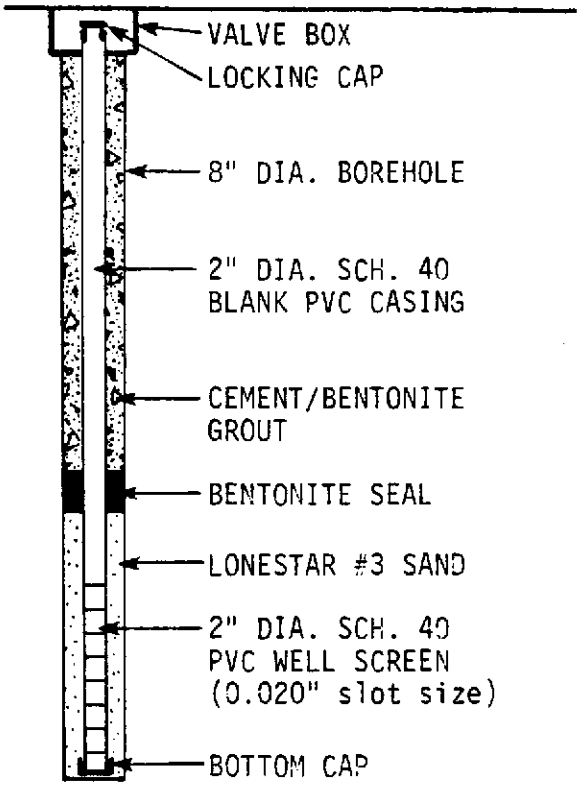
R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/92)

William K. Wikander
Geotechnical Engineer 892 (expires 12/31/92)
WKW:RWR:JPB:mbl:clh

Copies: Addressee (6)

LOG OF TEST BORING 1

EQUIPMENT 8" HollowStem Auger
DATE DRILLED 8/1/89
ELEVATION TOC: 100.15 feet*



DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
0			ASPHALTIC CONCRETE - 2" thick BASE ROCK - 2" thick BROWN SANDY CLAY (CL) stiff, moist, with gravel (fill)
5		8	DARK GRAY CLAYEY GRAVEL (GC) medium dense, moist, with brick fragments (fill)
		7	BLACK SILTY CLAY (CL) medium stiff, moist
		6	
10		8	BROWN-GRAY SILTY CLAY (CL) medium stiff, moist, with gravel GROUNDWATER LEVEL DURING DRILLING
		10	
		13	
15		9	MOTTLED RED AND BROWN SANDY CLAY (CL) medium stiff, wet, fine grained sand
20		50	BROWN SILTY SAND (SM) medium dense, wet BROWN CLAYEY GRAVEL (GC) very dense, wet, with sand
25			
30			
35			
40			

* Top of casing (TOC) using assumed elevation datum (location shown on Site Plan).

SAMPLER TYPE:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

Subsurface Consultants

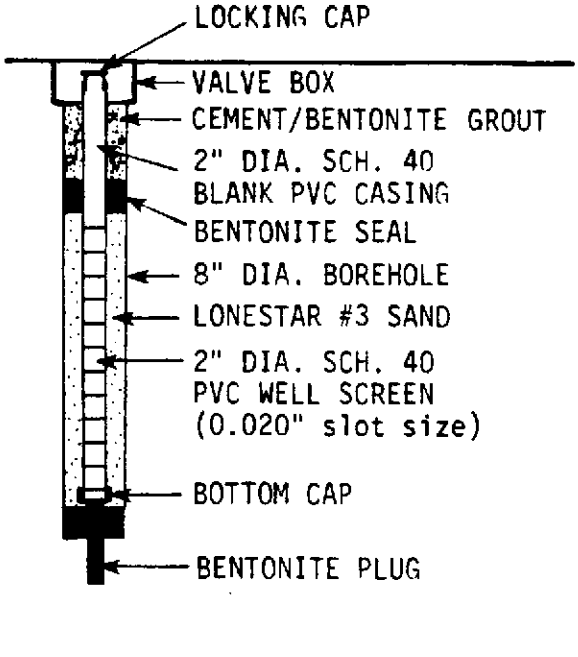
PLAZA CAR WASH - ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	8/4/89	

PLATE 2

LOG OF TEST BORING 2

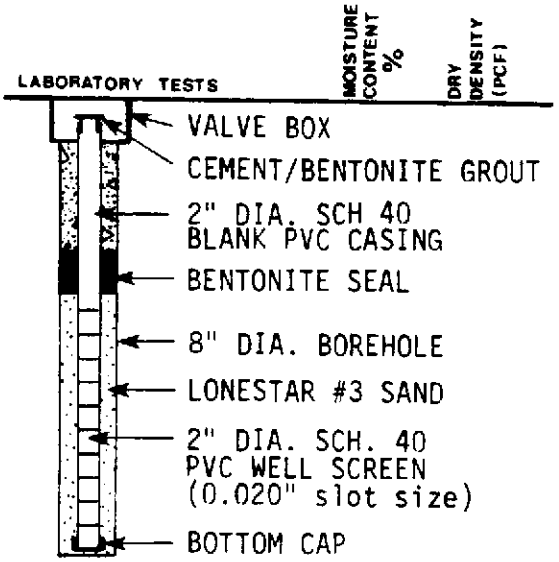
EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 8/1/89
ELEVATION TOC: 98.42 feet



DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
0			ASPHALTIC CONCRETE - 2" thick BASE ROCK - 3" thick DARK BROWN-GRAY SILTY CLAY (CL) medium stiff, moist
		6	
5		8	GROUNDWATER LEVEL DURING DRILLING
		7	
		7	
10			
		13	BROWN SANDY GRAVEL (GC) dense, wet
15			

LOG OF TEST BORING 3

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 8/1/89
ELEVATION TOC: 98.81 feet

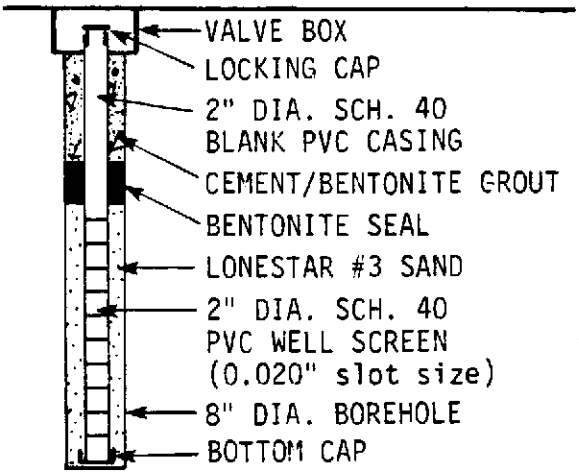


DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
0			ASPHALTIC CONCRETE - 4" thick BASE ROCK - 3" thick BROWN SANDY CLAY (CL) medium stiff, moist, with gravel (fill)
5		7	BROWN CLAYEY GRAVEL (GC) dense, wet
		5	DARK GRAY SILTY CLAY (CL) medium stiff, wet
		8	BROWN CLAYEY GRAVEL (GC) dense, wet
10		7	DARK GRAY SILTY CLAY (CL) medium stiff, wet mottled gray and brown below 10 feet
		9	
15			

Subsurface Consultants	PLAZA CAR WASH - ALBANY, CA		PLATE 3
	JOB NUMBER 549.001	DATE 8/4/89	APPROVED

LOG OF TEST BORING 4

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 8/1/89
ELEVATION TOC: 99.97 feet



DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
0			ASPHALTIC CONCRETE - 2" thick BASE ROCK - 2" thick BROWN SANDY CLAY (CL) stiff, moist, with gravel (fill)
5			DARK GRAY CLAYEY GRAVEL (GC) medium dense, moist, with brick fragments (fill) BLACK SILTY CLAY (CL) medium stiff, moist
10			BROWN-GRAY SILTY CLAY (CL) medium stiff, moist, with gravel GROUNDWATER LEVEL DURING DRILLING
15			
20			
25			
30			
35			
40			

Subsurface Consultants

PLAZA CAR WASH - ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	8/4/89	

PLATE 4

GENERAL SOIL CATEGORIES			SYMBOLS	TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW	Well Graded Gravel, Gravel Sand Mixtures
			GP	Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM	Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC	Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW	Well Graded Sand, Gravelly Sand
			SP	Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM	Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC	Clayey Sand, Poorly Graded Sand-Clay Mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILT AND CLAY Liquid Limit Less than 50%		ML	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity
			CL	Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay
			OL	Organic Clay and Organic Silty Clay of Low Plasticity
	SILT AND CLAY Liquid Limit Greater than 50%		MH	Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt
			CH	Inorganic Clay of High Plasticity, Fat Clay
			OH	Organic Clay of Medium to High Plasticity, Organic Silt
HIGHLY ORGANIC SOILS			PT	Peat and Other Highly Organic Soils

UNIFIED SOIL CLASSIFICATION SYSTEM

Subsurface Consultants

PLAZA CAR WASH - ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	8/4/89	

PLATE 5

James P. Bowen, PE
R. William Rudolph, Jr., PE

September 1, 1989
SCI 549.001

Mr. Murray T. Stevens
Kamur Industries
2351 Shoreline Drive
Alameda, California 94501

Additional Preliminary Data
Plaza Car Wash
400 San Pablo Avenue
Albany, California

Dear Mr. Stevens:

This letter presents additional preliminary data including analytical test results of soil and water samples from the subject site. We previously presented preliminary results of our gasoline contamination assessment at the site in a letter dated August 22, 1989.

Due to its urgent nature, the August 22, 1989 letter was sent prior to completion of initial analytical testing. The results of analytical tests of soil samples from the test borings are as follow:

Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 415-268-0461

Location	Sample Type	Total Volatile Hydro-Carbons (ppm)[1]	Benzene (ppm)	Toluene (ppm)	Ethyl-Benzene (ppm)	Total Xylene (ppm)
1 @ 4.5'	Soil	1,300	13.0	40.0	11.0	57.0
1 @ 8'	Soil	1,100	22.0	63.0	12.0	63.0
1 @ 11'	Soil	25	0.36	1.40	0.27	1.40
2 @ 4'	Soil	740	5.20	25.0	7.20	40.0
2 @ 9'	Soil	ND[2]	0.05	0.32	0.031	0.14
3 @ 5'	Soil	24	0.23	0.35	ND	0.10
3 @ 9.5'	Soil	19	0.18	0.76	0.12	0.86

---

[1] parts per million (mg/kg)
[2] none detected

Four test borings were drilled at the site. Borings 1 and 4 are within several feet of each other; accordingly, no soil samples from Boring 4 were obtained for analytical testing.

As requested by Mr. M. Hossain Kazemi of the San Francisco Bay Regional Water Quality Control Board (RWQCB), water samples from El Cerrito Creek and the storm drain outlet were obtained and analytically tested. The two creek samples were taken about 20 feet upstream and downstream from the storm drain outlet. The storm drain outlet sample was taken from behind a boom that was containing floating product. The results of the creek and storm drain water sample analytical tests are as follow:

Sample	Sample Type	Total Volatile Hydro-carbons (ppm)[1]	Benzene (ppm)	Toluene (ppm)	Ethyl-Benzene (ppm)	Total Xylene (ppm)
Creek (20' Upstream)[2]	water	ND[4]	ND	ND	ND	ND
Storm Drain Outlet[3]	water	470	16.0	29.0	4.2	29.0
Creek (20' Downstream)[2]	water	2.70	0.088	0.008	ND	0.21

---

1 parts per million (mg/L)
2 from storm drain outlet
3 from behind boom containing floating product
4 none detected

The water sample from the storm drain outlet was also analytically tested for total extractable hydrocarbons, yielding the following results:

Sample	Sample Type	Aged Gasoline (ppm)	Kerosene (ppm)	Diesel (ppm)	Other (ppm)
Storm Drain Outlet	Water	290	ND	ND	ND

A description of the field investigation and analytical testing, including chain-of-custody records and analytical test data, will be presented in a later report.

We recommend that this letter be submitted to the RWQCB, Alameda County Health Care Services Agency and Bay Area Air Quality Management District at the addresses given in the previous letter.

If you have questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/91)

William K. Wikander
Geotechnical Engineer 892 (expires 12/31/92)

WKW:RWR:clh

4 copies enclosed

cc: Mr. Craig Johns
Crosby, Heafey, Roach & May
1999 Harrison Street
Oakland, California 94612

ENVIRONMENTAL ENGINEERING SERVICES
PLAZA CAR WASH
400 SAN PABLO AVENUE
ALBANY, CALIFORNIA
SCI 549.001

Prepared for:

Mr. Murray Stevens
Kamur Industries, Inc.
2351 Shoreline Drive
Alameda, California 94501

By:

William K. Wikander
Geotechnical Engineer 892 (expires 12/31/92)

R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/92)

Subsurface Consultants, Inc.
171 12th Street, Suite 201
Oakland, California 94607
(415) 268-0461

November 7, 1989

I INTRODUCTION

This report summarizes results of recent environmental services we have performed at the Plaza Car Wash facility in Albany, California. Specifically, this report records the results of historical use research, a soil vapor study, efforts to mitigate the discharge of contaminants to El Cerrito Creek, and presents recommendations for future investigations and remediation. The site is located at 400 San Pablo Avenue as shown on the Site Plan, Plate 1. We presented the results of previous services at the site in letters dated August 22, September 1 and 15, and October 16, 1989.

During the course of our services, we have been in regular contact with Mr. M. Hossain Kazemi of the San Francisco Bay Regional Water Quality Control Board (RWQCB), Mr. Gil Wistar of the Alameda County Health Care services Agency (ACHCSA), and Mr. Mike Koepke of the Albany Fire Department. We understand that copies of all correspondence have been sent to the RWQCB, ACHCSA and the San Francisco Bay Area Air Quality Management District (BAAQMD). The purpose of the contacts and correspondence has been to (1) obtain interpretation of regulatory requirements, (2) provide information regarding the results of previous services and (3) obtain concurrence on investigative and interim cleanup methods to be used.

II SITE USAGE HISTORY

A. Environmental Cases

Past use of the site and neighboring parcels was researched by reviewing and/or contacting the following sources:

1. Sanborn Fire Insurance maps,
2. Historic telephone directories, and
3. Historic aerial photographs[1].

The earliest information available is from a Sanborn map dated 1929. The map shows the site to be vacant. Nearby sites identified on the map that may have used hazardous materials include an auto wrecking facility (407 San Pablo Avenue), a wholesale hardware and paint store (425 San Pablo), a gas and oil station (441 San Pablo) and a porcelain chinaware company with kilns (420 Kains Avenue).

Aerial photographs taken in 1949 show the site to be vacant. The photographs also show a gasoline station at 261 San Pablo, but the site of the former gasoline station at 441 San Pablo is vacant. The next available information, a Sanborn map dated 1950, shows the site to be vacant. Nearby sites that may have used hazardous materials include a gas station (261 San Pablo), a machine shop (425-433 San Pablo), a sheet metal works (501 San Pablo) and the porcelain chinaware company (420 Kains).

---

[1] Pacific Aerial Survey Maps AV-28-11-24/25 (9/19/49) and AV-3368-06-15/16 (8/3/88).

We understand that the Plaza Car Wash and adjacent Norge Cleaner facilities were constructed in the late 1950's. The California Orientation Center for the Blind (COCB) was constructed in about 1962. Up to about 3 feet of fill was placed on each site as part of construction. The fuel tanks at the Plaza Car Wash were reportedly installed in 1970.

B. Local Environmental Cases

Based upon our review of environmental case lists compiled by the RWQCB, and the Department of Health Services (DHS), there appears to be two documented environmental cases within about 2000 feet of the site. The location of each is shown on the attached Regional Map, Plate 2. A brief summary of available information regarding each case is presented below.

1. Mobil Station - 6700 Fairmount Avenue

On July 3, 1985, a sheen was observed in a creek near the Mobil Station. It is unclear if this is the same creek that borders the Norge Cleaners and COCB sites. Subsequent tank pressure tests at the Mobil Station indicated leaks in two 10,000 gallon gasoline storage tanks and/or distribution lines. Three monitoring wells were installed on July 20. Analytical tests of soil from the monitoring well boreholes indicated the presence of gasoline constituents; however, total petroleum hydrocarbon concentrations were not reported. Analytical tests performed on water samples from the wells indicated no detectable hydrocarbons, nor benzene, toluene or xylenes. The tanks were removed on September 2,

1985. Analysis of a composited, air dried soil sample from the excavation indicated a total hydrocarbon concentration of 15.69 parts per million (ppm). New tanks and distribution lines were installed in September 1985. Copies of correspondence regarding this site are presented in the Appendix.

2. Texaco Station - 6801 Fairmount Avenue

Leaks in two underground gasoline storage tanks and an underground waste oil storage tank were reported in September 1987. One gasoline tank and the waste oil tank were removed, and the piping for two other gasoline tanks were repaired.

C. Other Nearby Environmental Concerns

The RWQCB and DHS files only have records of documented cases where leaks have been reported. Other nearby sites that previously or currently utilize hazardous material storage tanks do exist. It is unknown if leaks have occurred at these sites. A brief summary of available information regarding each site is presented below.

1. Shell Station - 261 San Pablo Avenue

We understand that a service station existed at the site until about 1980. We are unaware if the fuel storage tanks and distribution lines were removed.

2. Norge Cleaners - 398 San Pablo Avenue

We understand that Norge Cleaners has a 300 gallon, above-ground storage tank containing perchloroethylene

(PCE). In addition, some unused and spent PCE is stored on-site in 55 gallon drums.

3. Troxell Auto Body Repair - 500 San Pablo Avenue

Information regarding this site was obtained from a report by Aqua Terra Technologies (ATT) dated August 14,1989. A copy of this report is presented in the Appendix. We understand that two underground, 550-gallon storage tanks are located beneath the sidewalk. The tanks have not been in active service for at least 10 years and are believed to have been installed about 40 years ago. The tanks were likely used for fuel and waste oil storage. The tanks were found to be full of water upon their discovery in July 1989. Analytical tests performed on the water indicated the presence of heavy metals and volatile and semi-volatile organic compounds. The water discharging from the COCB storm drain outlet into El Cerrito Creek was analyzed and indicated the presence of heavy metals, and volatile and semi-volatile organic compounds.

4. Granholt Sheetmetal Works - 501 San Pablo Avenue

During our site reconnaissance, we observed that an underground storage tank had recently been removed from beneath the sidewalk along Brighton Street at this address. Some excavated soil had been encapsulated with polyethylene sheeting. We are unaware of the type of material stored in the tank, nor whether contaminated soil and/or groundwater were encountered during tank removal.

5. Service Station - 441 San Pablo Avenue

Records indicate that a service station existed at this address prior to 1949. We are unaware if the fuel storage tanks and distribution lines leaked or were removed.

Hazardous materials may have been stored and/or utilized on other nearby sites. However, we did not observe records or indications confirming their presence or absence.

III SOIL VAPOR STUDY

A soil vapor study was performed by SCI to evaluate the extent of hydrocarbon contamination. The study area included the Plaza Car Wash, Norge Cleaners and COCB properties. The vapor sampling locations are shown on the Site Plan.

The soil vapor study equipment consisted of hollow steel rods with slotted sampling tips, a rotohammer, vacuum pump and organic vapor meter (OVM). The rod was driven into the ground so that the tip was situated just above the groundwater level. Soil vapor was withdrawn from the rods using a vacuum pump. After a few minutes, the vacuum pump was disconnected and an organic vapor meter (OVM) was used to draw a sample of the vapor and analyze it for organic compounds. The OVM readings are shown on the Site Plan.

IV SURFACE WATER CONTAMINATION MITIGATION

In our letter dated September 15, 1989, we stated that the storm drain on the COCB is likely acting as a subsurface drain, lowering groundwater in the area. We concluded that the contaminated groundwater was flowing toward the storm drain, entering the pipe through joints and exiting into El Cerrito Creek. Based upon the results of the soil vapor study and information from the Albany Fire Department concerning their observations of a video tape of the storm drain interior, it appeared that the majority of contaminants were entering the pipe within about 60 feet of the creek.

Assuming that the storm drain could not be blocked, two methods were considered to stop the flow of contaminated water into the pipe, as follows:

1. Storm Drain Pipe Seal. The pipe joints would be sealed so that water could not enter. This method could be effective as long as the seals were tight and extended along the entire pipe length. This method would not preclude the potential for contaminated groundwater flowing along the permeable trench backfill and into the creek.

2. Storm Drain Trench Sump. With this scheme, the water would be removed before it enters the pipe. Removing the water would require installation of a sump adjacent to the pipe, near the creek. Contaminated soil would be excavated

and properly disposed of. Water would be pumped from the sump, keeping groundwater levels below the bottom of the storm drain pipe. The removed water would require treatment before disposal. This method would also minimize the risk of contaminated groundwater entering the creek via the trench backfill.

Installation of a sump likely has a lower initial cost compared to sealing the pipe. However, the long-term cost of removing and treating contaminated groundwater has a potentially higher cost. Accordingly, we recommended that the storm drain joints be sealed. After sealing, contaminated soil and groundwater mitigation methods could be evaluated based upon the results of a thorough groundwater investigation.

On September 19, 1989, the interior of the storm drain pipe within 90 feet of the creek (north of the manhole shown on the Site Plan), was cleaned and inspected with a video camera in preparation for joint sealing/grouting. The camera survey indicated (1) excess concrete along the pipe bottom, (2) a 15 degree bend across several pipe sections about 60 feet from the creek, and (3) a crack in one of the concrete pipe sections. These conditions precluded joint sealing by grouting. Other alternative joint sealing measures, such as a pipe sleeve or liner, were then considered. However, they were considered inappropriate due to cost and engineering considerations.
The bends in the pipe were created by laying the pipe sections at angles to one another. The angle resulted in a crack at each

pipe joint at the outside of the bend. The video camera indicated roots and water entering through these cracks. The bend area was considered the most likely location where contaminated groundwater was entering the pipe.

On October 10 and 11, 1989, an excavation was made along the storm drain pipe in the area shown on the Sump Location Plan, Plate 3. Based upon OVM readings, about one half (5 cubic yards) of the soil removed was considered to be contaminated. The excavated soil was encapsulated in polyethylene sheeting and later aerated in accordance with BAAQMD guidelines, as reported in our letter dated October 16, 1989. The groundwater encountered in the trench contained a small amount of free product. It was removed and placed in steel drums for later disposal.

The excavation revealed a silty sand trench backfill of relatively high permeability. The clayey native soils have relatively low permeability. The 12-inch-diameter storm drain pipe was encountered at a depth of about 4.7 feet below surrounding grade. Of the three pipe joints exposed by the excavation, one was already sealed with mortar. Cracks were observed in one of the other joints and water was seeping out of the storm drain pipe, into the excavation. Mortar was placed over the unsealed joints. Trench backfill was encountered to a depth of about 6.7 feet, or about 1.0 foot below the pipe bottom. The excavation adjacent to the storm drain pipe was extended to a

depth of about 8 feet, which was considered as deep as possible considering the stability of the pipe.

A sump was installed to a depth of 8 feet within the excavation as shown on Plate 4. In summary, the sump consists of a 10-inch-diameter, PVC pipe with perforations in the lower about 5.5 feet. The end of the pipe is sealed with a cap. The excavation around the pipe is backfilled with 3/4-inch crushed rock to within about 4 inches of the groundsurface. The drain rock is covered with a concrete slab and asphalt concrete pavement.

On October 12, 1989, the groundwater level measured in the sump was 4.70 feet below the groundsurface. After 175 gallons of water were removed, the water level in the sump was at a depth of 7.65 feet. The sump recharged at a rate of about 17 gallons per hour. Similar results were obtained when the procedure was repeated several days later; however, the groundwater level appears to have stabilized at a depth of about 4.35 feet. We understand that after the rain storm on October 22 and 23, 1989, the water level had risen to a depth of about 3.00 feet, dropping to about 4.35 feet several days later. All of the pumped water was placed into 55-gallon steel drums for later disposal.

As requested by Mr. M. Hossain Kazemi of the RWQCB, about 25 gallons of water and product are being removed from the sump each week. During pumping, the pump is raised to remove floating product in the sump. Floating booms and absorbent materials are still being placed at the storm drain outlet. Floating product

has been periodically observed at the storm drain outlet since installation of the sump.

IV DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

A. General

Based upon information available to date, we conclude that groundwater contamination appears to extend off-premises in both the up and down gradient directions. Potential off-premises sources of contamination may exist. We recommend that additional investigation (including the installation of test borings /monitoring wells) be performed to determine the extent, type and concentration of contaminants present. Based upon this information, groundwater remediation alternatives should be identified and implemented.

It is judged that the sump can be used to minimize the risk of contaminated groundwater entering El Cerrito Creek. However, water levels in the sump should be maintained below the storm drain pipe. This will require continuous pumping and groundwater treatment.

We recommend that appropriate methods of contaminated soil remediation be identified and investigated. These methods will likely include removal or in-situ treatment.

We recommend that copies of this report be submitted to the ACHCSA and RWQCB. Our conclusions and recommendations are discussed in more detail in the following sections.

B. Historical On-Site and Off-Premises Uses

Based on our research, we judge that there is a risk of on-site groundwater contamination due to nearby off-premises sources. The presence or absence of off-premises sources of contamination should be confirmed by additional field studies.

C. Soil Vapor Study

The approximate extent of volatile organic chemical contamination can be determined by soil vapor studies. However, this method of study has limitations that preclude its use as a sole method of investigation. The major limitation is that the type and concentration of contaminant(s) are unknown. An OVM reading of none detected can mean that (1) the soil does not contain contaminants that can be indicated with an OVM, or (2) the soil is not permeable enough to yield the vapors of contaminants that are present and can be detected with an OVM. Sites with sandy soils, which are more permeable to vapors, generally yield more reliable results than sites with clayey soils, which are less permeable to vapors.

Information regarding the type and concentration of contaminants present, can only be reliably obtained by properly sampling and analytically testing the soil. Accordingly, soil vapor studies are often used as a relatively inexpensive way to select test boring/monitoring well locations.

The soil vapor study results indicated contamination over almost the entire Norge cleaners and Plaza Car Wash sites. Because part of the contaminated area is upgradient of the

unleaded gasoline tank distribution system, we conclude that it is possible that some of the contamination may originate from an off-premises source. We recommend that additional studies be performed to evaluate the extent of on-site and off-premises contamination. This should include an additional off-premises soil vapor study and test borings/monitoring wells both up and down gradient from the apparent on-site source.

Along the storm drain on the COCB site, contamination was detected within about 60 feet of the creek. We recommend that at least one test boring/monitoring well be installed in areas situated more than 60 feet from the creek to confirm the soil vapor study findings.

D. Sump

Observations of the sump excavation confirmed that the storm drain and trench backfill act as a conduit, channeling contaminated groundwater to El Cerrito Creek. To reduce the likelihood of contaminated groundwater and free product entering the creek via the storm drain, the sump water level should be maintained below the pipe bottom elevation. Based upon preliminary studies, we estimate that it will be necessary to pump the sump at an average rate of about 17 gallons per hour to maintain the required level. Pumping rates will likely vary seasonally.

The water removed from the sump will require treatment prior to disposal. The water should either be transported off-premises for treatment, or treated on-site and disposed of into

the sanitary sewer. Because of cost considerations, we judge that an on-site water treatment system ,such as one consisting of an oil/water separator, air stripper and activated carbon filter will be the most appropriate means to treat the water. If properly designed and maintained, this type of system can remove contaminants from water to non-detectable levels. Disposal of the treated water into a sanitary sewer will require a permit from the East Bay Municipal Utility District (EBMUD).

E. Contaminated Soil Removal

The lateral and vertical extent of soil contamination near the fuel release should be determined. Once defined, the contaminated soil should be remediated.

The existing fuel tanks and piping will likely be exposed during soil remediation. From a conservative standpoint, it may be prudent at that time to either remove or replace these facilities.

List of Attached Plates:

Plate 1	Site Plan
Plate 2	Regional Map
Plate 3	Sump Location Plan
Plate 4	Sump Detail

Appendix:

Correspondence regarding 6700 Fairmount Avenue

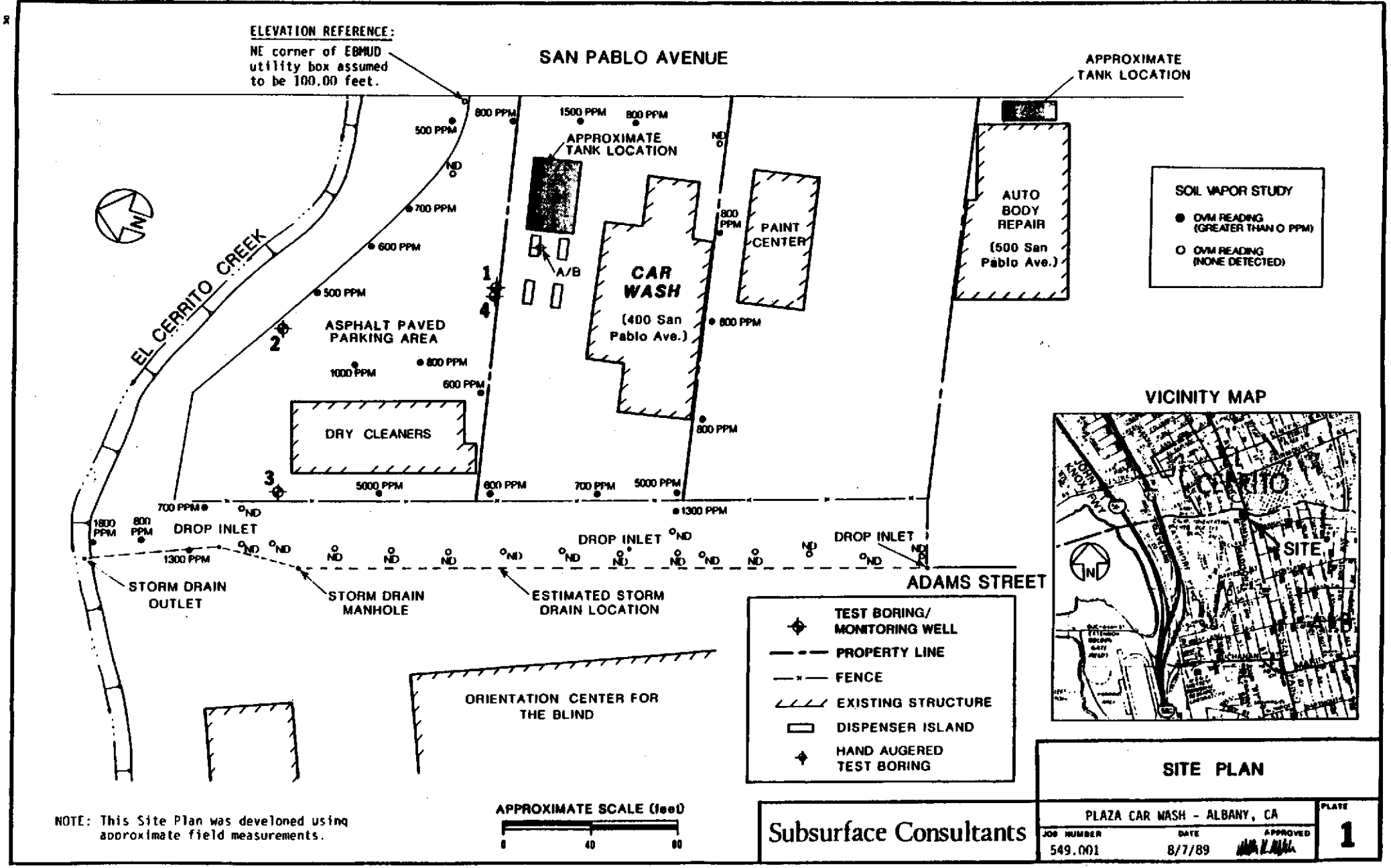
ATT Report regarding 500 San Pablo Avenue

Distribution:

6 copies: Mr. Murray Stevens
Kamur Industries, Inc.
2351 Shoreline Drive
Alameda, California 94501

1 copy: Mr. Craig Johns
Crosby, Heafey, Roach & May
1990 Harrison Street
Oakland, California 94612

WKW:RWR:JPB:clh



NOTE: This Site Plan was developed using approximate field measurements.

Subsurface Consultants

SITE PLAN

PLAZA CAR WASH - ALBANY, CA

JOB NUMBER	DATE	APPROVED	PLATE
549.001	8/7/89		1

PROPERTIES REPORTING TOXIC MATERIAL OR FUEL RELEASES
WITHIN 2000 FEET OF THE SITE

SITE	LOCATION	TYPE OF PROBLEM
1	MOBILE STATION 6700 Fairmount Ave El Cerrito, CA	GASOLINE TANK LEAK
2	TEXACO STATION 6801 Fairmount Ave. El Cerrito, CA	GASOLINE TANK LEAK

N

APPROXIMATE SCALE (feet)

0 2000 4000

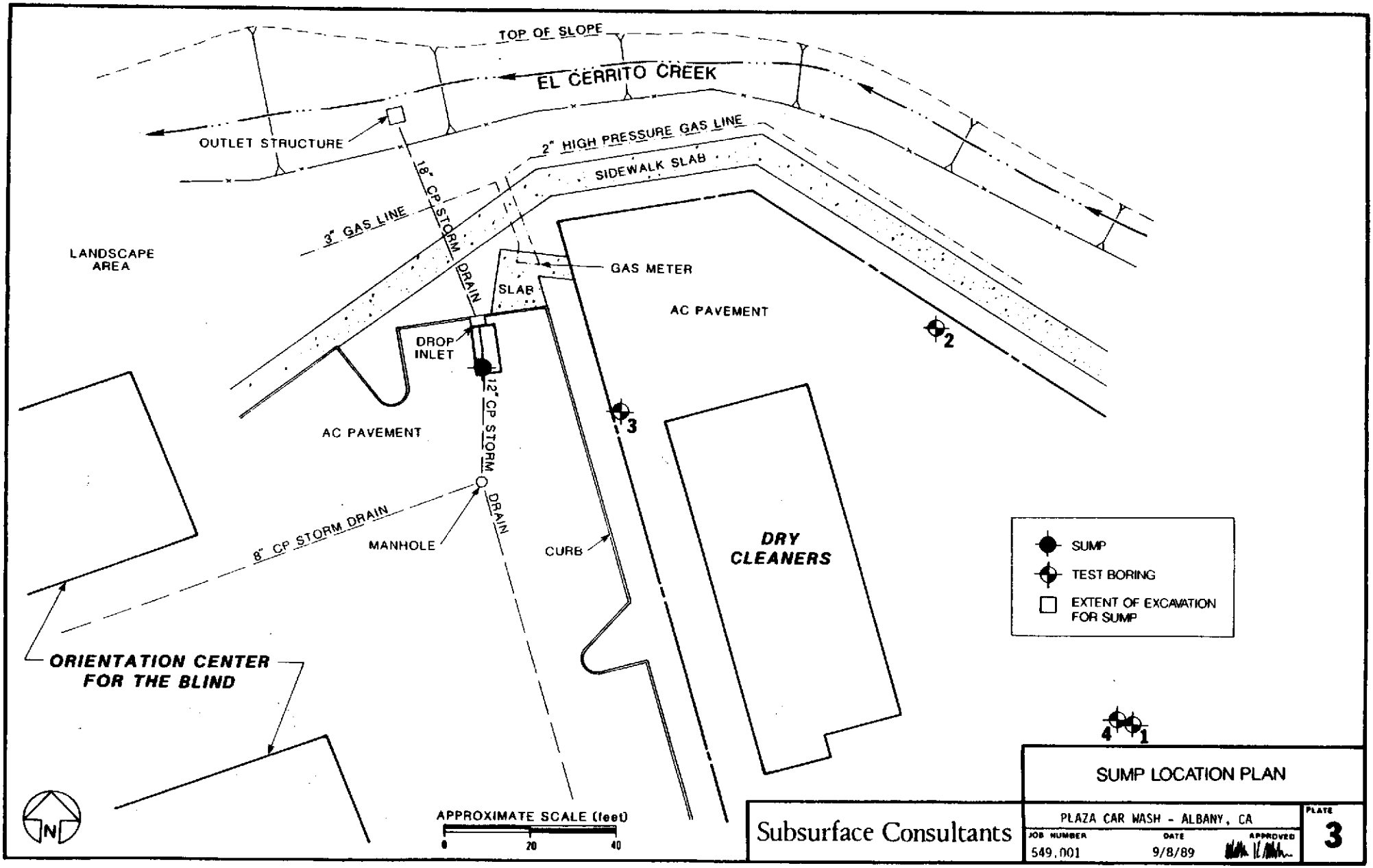
REGIONAL MAP

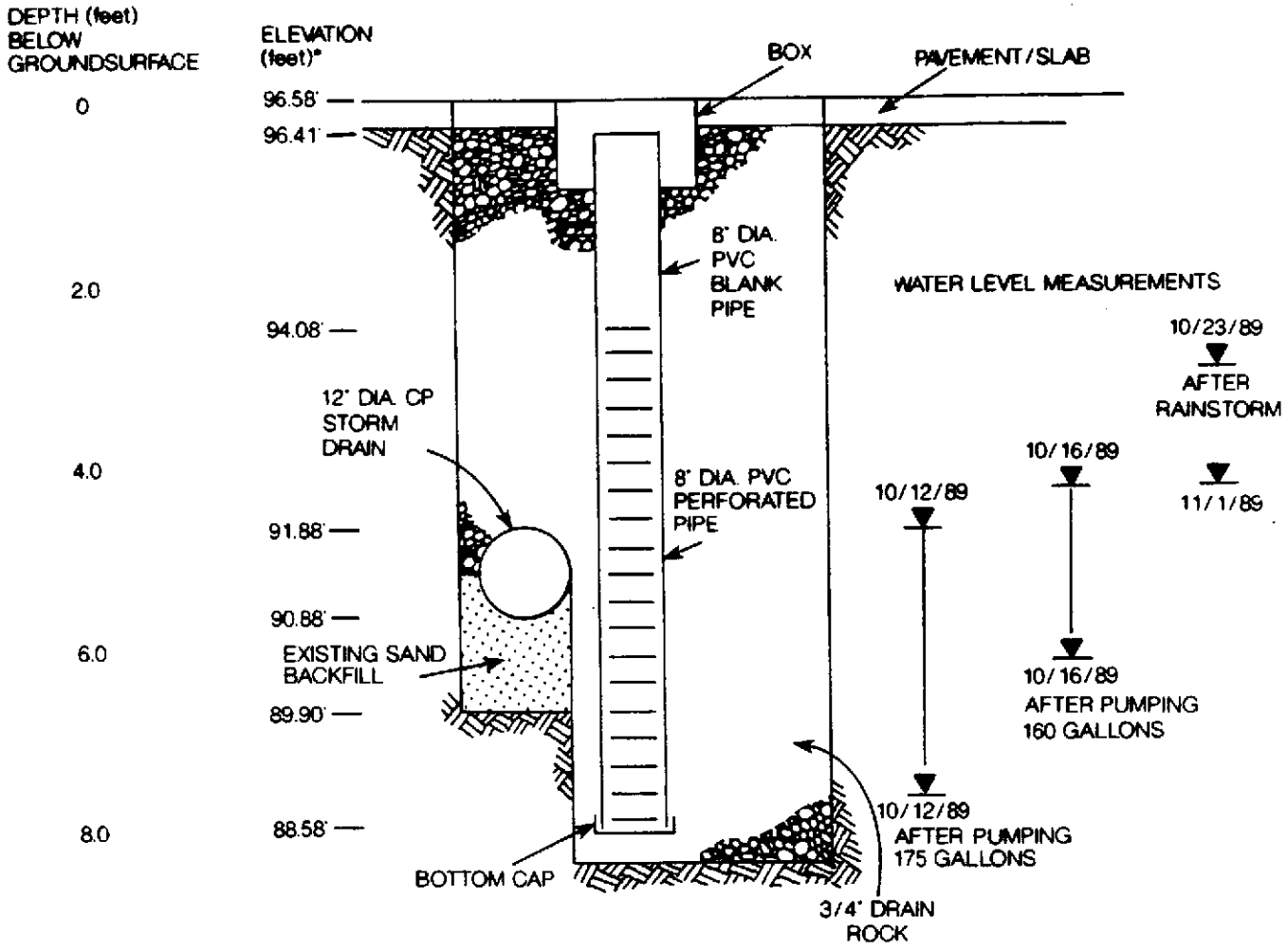
Subsurface Consultants

PLAZA CAR WASH – ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	11/7/89	

PLATE 2


TOP OF SLOPE
EL CERRITO CREEK
OUTLET STRUCTURE
18" CP STORM DRAIN
2" HIGH PRESSURE GAS LINE
SIDEWALK SLAB
3" GAS LINE
LANDSCAPE AREA
GAS METER
SLAB
AC PAVEMENT
DROP INLET
12" CP STORM DRAIN
AC PAVEMENT
8" CP STORM DRAIN
MANHOLE
CURB
DRY CLEANERS
ORIENTATION CENTER FOR THE BLIND
SUMP
TEST BORING
EXTENT OF EXCAVATION FOR SUMP
N
APPROXIMATE SCALE (feet)
0
20
40
Subsurface Consultants
SUMP LOCATION PLAN
PLAZA CAR WASH - ALBANY, CA
JOB NUMBER 549.001
DATE 9/8/89
APPROVED
PLATE 3



*BASED UPON ASSUMED ELEVATION DATUM. SEE SITE PLAN

APPROXIMATE SCALE (feet)

0 2 4

SUMP DETAIL

Subsurface Consultants

PLAZA CAR WASH – ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	11/3/89	

PLATE 4

SAN FRANCISCO BAY REGION

SUBJECT: Mobil Oil gas tank leak / El Cerrito

BY: rlf DATE: 3 July 85

INFO FROM: Craig Galloway (213) 683-5520

Today I received a call from Craig Galloway of Mobil Oil in L.A. who appraised me of a confirmed gasoline line leak at one of their stations in El Cerrito (6700 Fairmont Ave). I have spoken previously w/ Bruce Benicke, Contra Costa Co Health, about this site. At that time there was gasoline discharging into a nearby creek and it was suspected to be coming from Mobil. Galloway said their pressure tests confirmed it is from their site. (They also have discrepancies in their inventory records.) Mobil has taken responsibility for both on- and off-site mitigation:

Off-site: containment booms placed in the creek to contain the fuel. They will skim the creek after significant accumulation behind the boom.

On-site: Mobil will begin construction of three monitoring well this afternoon. They are now pumping out their tanks and have made plans to replace all tanks + lines.

Other agencies involved or notified: Contra Costa Co. Health, USCG, DFG, Public Works, Fire Dept.

Galloway was also concerned about other gas stations in the neighborhood discharging gasoline. He said that gasoline in the creek appeared weathered and may have come from an upgradient source. I plan to inspect the area this afternoon.

TO	INI
RMT	
PMH	
LPK	
DMH	
GJG	
KHK**	
ANO*	
DME	
LP	
FEJ*	
NJA	
LE*	
RMB	
PHJ	
RKN	
DDD*	
MRK	
JYL	
SCH	
HJS**	
HCK*	
RAS	
BHN	
AGL*	
MDD	
ME	
GRF	
TCW**	
RJC*	
MHK	
SIM*	
TGR	
JEN	
SRR	
DLM*	
TMH	
LF	
TEH	
AJT	
EJT	
GP	
VJH**	
MAP	
HR	

(REVISED 12/83)

Mobil Oil Corporation

612 SOUTH FLOWER STREET
P.O. BOX 2100
LOS ANGELES, CALIFORNIA 90051

DB

September 8, 1986

Mr. Dale C. Bowyer
Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94607

MOBIL OIL CORPORATION
S/S #10-131
6700 FAIRMONT AVENUE
EL CERRITO, CALIFORNIA
Alameda

Dear Mr. Bowyer:

Per my letter of December 13, 1985, enclosed for your information are the results from sampling completed on all wells at the above location. All water samples contain levels of hydrocarbons below detectable limits.

Based on 1) the recent water results, and 2) the previous removal of all contaminted soil encountered in the replacement of the steel tanks, Mobil believes this incident requires no further actions. We therefore request that this incident be considered closed.

Your cooperation in this incident has been appreciated. If you have any questions, please call my office at (213) 683-6335 or 5520.

Sincerely,

FW R. J. Edwards
Region Environmental Manager

CEG:ars
enclosure
71220-(7)

cc: Mr. Bruce Benike
Contra Costa County
Health Services Department
1111 Ward Street
Martinez, California 94553

Mobil Oil Corporation

612 SOUTH FLOWER STREET
P.O. BOX 2122
LOS ANGELES, CALIFORNIA 90051

October 2, 1985

Mr. Peter W. Johnson
California Regional Water
Quality Control Board
San Francisco Bay Region
1111 Jackson St., Suite 6040
Oakland, CA 94607

RE: Mobil Oil Corporation
Service Station 10-131
6700 Fairmont Avenue
El Cerrito, CA

Dear Mr. Johnson:

Please find enclosed a copy of our consultant's report for the above location.

As you are aware product was encountered from a line failure on July 3, 1985. Since this event all tanks were replaced along with associated product lines. Three monitoring wells were installed with no free product encountered. Soil samples were taken with results attached. All contaminated soil has been isolated. All soil will be properly disposed within the near future.

Since the contaminated soil has been isolated and no free product has been encountered in the wells, Mobil Oil believes no further actions are necessary. To ensure our findings we will complete one more round of samplings. If at this time no product is evident Mobil Oil will request closure of this project.

It is requested that upon completion of your review of this project, your department advise my office if this proposal is satisfactory. If you have any questions, please do not hesitate to contact my office.

Sincerely,

R. J. Edwards
Region Environmental
Coordinator

CEG:ga
Enclosures
(48840)

cc: Mr. Bruce Benike
Contra Costa County
Health Services Department
1111 Ward Street
Martinez, CA 94553

Suite 212
100 West Rincon Avenue
Campbell, CA 95008

Geonomics Inc.

ENVIRONMENTAL SERVICES DIVISION

(408) 374-9116

September 13, 1985

Mr. Steve Pao
Mobil Oil
P.O. Box 127
Richmond, CA 94807

Dear Mr. Pao:

The attached report describes our resampling and laboratory testing results for contaminated soils taken at Mobil station # 10-131 in El Cerrito, CA. This report has also been sent to the Contra Costa County Department of Health Services. The invoice for our services is enclosed.

It has been our pleasure to provide this service for you. If you have any questions after reading the report, please feel free to call us.

Sincerely,

Roger D. Dockter

Roger D. Dockter
Geologist

Enclosure

Suite 212
100 West Rincon Avenue
Campbell, CA 95008

Geonomics Inc.
ENVIRONMENTAL SERVICES DIVISION

(408) 374-9116

Date: September 13, 1985

Soil Sampling Report - Underground Storage Tanks

Name of Business: Mobil Station # 10-131

Site address: 6700 Fairmont Avenue, El Cerrito, CA

Type of work performed: Soil sample taken for laboratory testing from soil excavated and air dried after tank removal.

Date sampled: September 2, 1985

Number of tanks at site: Two

Number of tanks removed: Two

Tank - capacity (approx.), contents, type: 10,000 gal. gasoline

Soil sample:

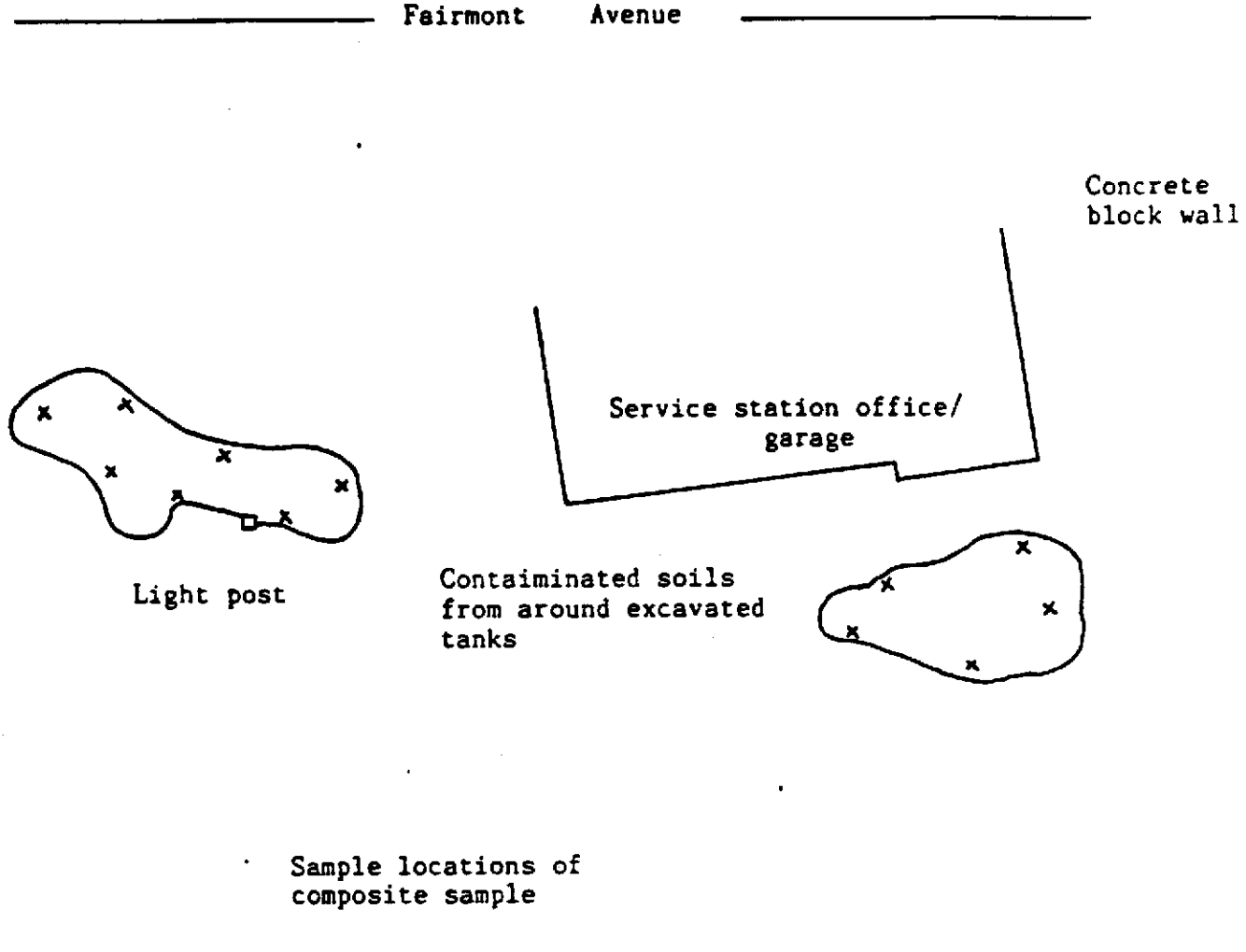
Sample #	Depth(ft)	Location description
M-4R	2-3" above base of asphalt surface	Composite sample (See Map)

Condition of soil sampled: Very faint odor from two locations, no odors at other locations.

Laboratory results: (lab report attached)

Sample Number	Test results	Tested for
M-4R	15.69 UG/GM	Total Hydrocarbons

Note: Total Hydrocarbons range from C11 to C20.



Site Map - Mobile Station # 10-131
6700 Fairmont Avenue
El Cerrito, CA

FIREMAN'S FUND
RISK MANAGEMENT
SERVICES, INC.

CONSULTING SERVICES
P. O. BOX 3090
SAN RAFAEL, CALIFORNIA 94911
800-227-0765
(IN CALIFORNIA 800-227-5889)

ENVIRONMENTAL LABORATORY
3700 LAKEVILLE HIGHWAY
PETALUMA, CALIFORNIA 94952
800-227-0765
(IN CALIFORNIA 800-227-5889)

LOSS CONTROL | INDUSTRIAL HYGIENE | LABORATORY | ENVIRONMENTAL ENGINEERING | OCCUPATIONAL HEALTH

Ronald Michelson
Geonomics, Inc.
100 West Rincon Avenue, Ste. 212
Campbell, CA 95008

L A B O R A T O R Y R E S U L T S

Supply/Order No.:
Client's Survey No.: M129
Contract No.: NO CONTRACT NUMBER

Laboratory Job No.: 851965
Date Received: 09/04/85
Date Reported: 09/10/85

ASSAY:SOLVENTS BY EXTRACTION
MATRIX:SOIL SAMPLES FROM MOBILE STATION 10-131, EL CERRITO, CA

LABNO	SMPLNO-ID	AIR(LT)	FRONT(MG)	BACK(MG)	TOTAL(MG)	MG/M3	PPM
12049	M-4R						
	TOTAL HYDROCARBONS				15.69 UG/GM		

NOTE: TOTAL HYDROCARBONS RANGE FROM C11 TO C20.

ANALYST:JOHN QUINN

"Imagineering a cleaner world"

RIEDEL
ENVIRONMENTAL SERVICES, INC.

☑ Portland Division
Foot of N. Portsmouth Ave
P.O. Box 5007
Portland, OR 97208
(503) 286-4656

☐ St. Louis Division
529 Spirit of St. Louis Blvd
Chesterfield, MO 63017
(314) 532-7660

☐ San Francisco Division
230 Cutting Blvd
Richmond, CA 94802
(415) 234-7400

☐ Seattle Division
901 Fairview Ave. No.
P.O. Box 1730
Seattle, WA 98111
(206) 622-2900

September 25, 1985

Mr. Stephen Pao
Mobil Oil Corporation
P. O. Box 127
Richmond, CA 94807

Dear Steve:

This letter report is a description of the geohydrologic work that was done at Mobil Service Station No. 10-131 located on Fairmont Avenue, El Cerrito, California. The work was done in relationship to a spill caused by a distribution line rupture that occurred on July 3, 1985.

On July 8th, three monitoring wells were installed on the property (see Figure 1 for locations). During the drilling of these wells, split-spoon samples were taken to ascertain subsurface soil conditions and detectable hydrocarbon contamination. Geologic logs of these wells are given on Appendix A of this letter.

On completion of monitoring well installation, the elevation of each well collar was determined to 0.01 foot accuracy (see Table I), and on July 9th water product thickness and water level measurements were made (also see Table I). No product was measured at that time and water table contours are shown in Figure 2.

Conclusions drawn from the above data is that the Mobil station is built on a 5 to 10 foot thick layer of backfill which is very compact. The high density of this near-surface layer would form a barrier being resistant to the vertical movement of liquids through the soil. Below the backfill is a natural formation of sandy clay which is where the water table exists. The boring logs show that hydrocarbon odors exist in all the holes drilled. Boring No. 1 had hydrocarbons only near the surface. The other two had hydrocarbon odor throughout the sampled sections. Boring No. 1 is upgradient of the pump islands (where the line rupture occurred) and the minor contamination detected would probably be from an accumulation of small spills during normal operations of the station. Borings No. 2 and 3 each had hydrocarbon odors at depth. However, no free product was observed. The detection of hydrocarbons by odor does not indicate the presence of product since very small concentrations can be smelled (on the order of 1 ppm). Measurement made in all the wells using an electronic interface probe detected no phase-separated free product (see Table I). Thus there appears to be a small amount of residual hydrocarbons in the soil above the water table but none on the water table or migrating along on top of the water.

With the installation of the new buried tanks at the station and replacement of the ruptured distribution line, any possible source of contaminants should be eliminated. However, at least one more set of water depth measurements and product thickness readings should be taken to assure no free product movement is occurring.

If you have any comments or suggestions regarding this data or recommendations, feel free to call me at (503) 286-4656.

Sincerely,

RIEDEL ENVIRONMENTAL SERVICES, INC.

Roger N. Smith
Hydrologist

RNS:kps

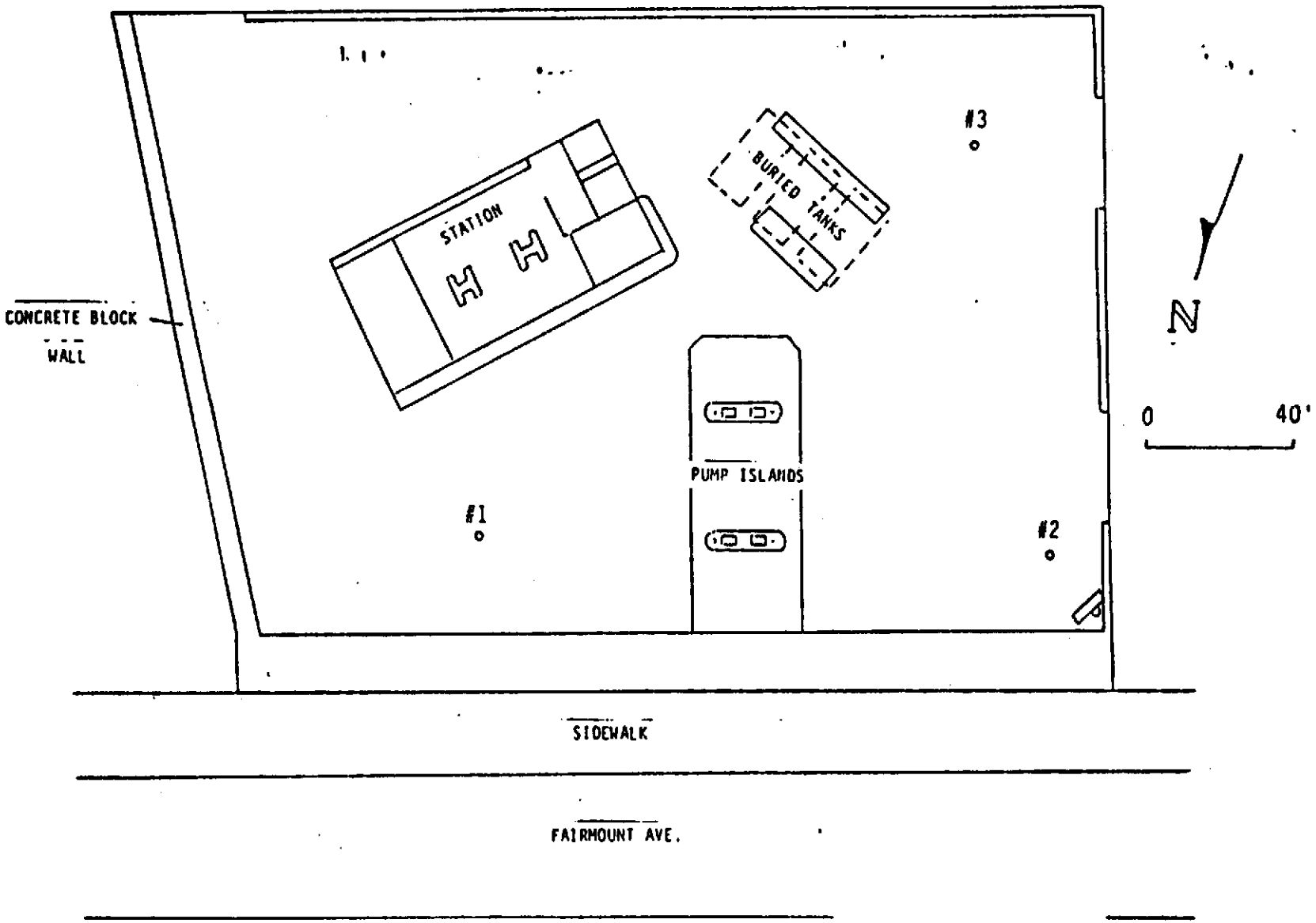


Figure 1. Location of monitoring wells on project site.

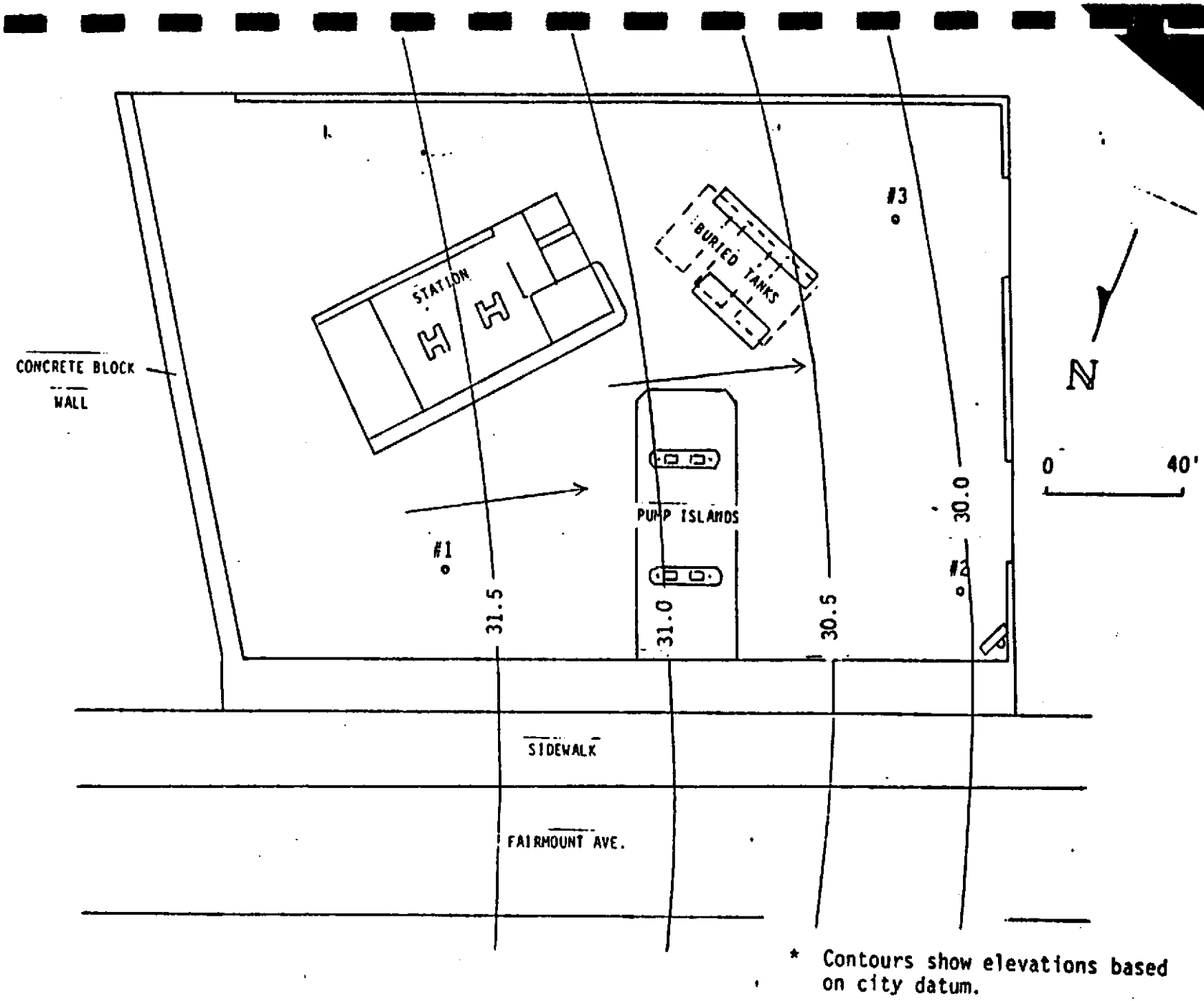


Figure 2. Groundwater contours and flow direction 7/9/85.

TABLE I

MONITORING WELL DATA

Well No.	Elevation (Top of Casing) (Ft.)	Water Elev. (Ft.)	Product Thickness (Ft.)
		7/9/85	7/9/85
1	42.11	31.66	0
2	37.98	30.05	0
3	38.49	30.15	0

Elevations are based on City of El Cerrito datum.

9/85
RNS/kps

DEPTH	GRAPHIC LOG	CLASSIFICATION OF MATERIAL	WELL CONSTRUCTION	GROUNDWATER	SAMPLES	(140 LB WEIGHT, 30" DROP) ▲ BLOWS PER FOOT 0 50 100
		SURFACE ELEVATION: (Top of Casing) 42.11				
1		$0 - 0^5$ Asphalt	Concrete			
2		$0^5 - 6^5$ Drk brown to black sandy clay backfill, very tight and impermeable. Odor: minor (if any) hydrocarbon smell				
3						
4			Bentonite			
5						
6		$6^5 - 12^0$ Medium to light brown sandy clay. Odor: none				
7						
8						
9						
10						
11			Sand			
12		$12^0 - 15^0$ Light brown sandy clay. Odor: none				
13						
4						
5						

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▼ WATER LEVEL

RIEDEL INTERNATIONAL, INC.
N. CHANNEL AVE.
P.O. BOX 3220, PORTLAND, OREGON 97208-3220

BORING LOG 1

DATE 7/15/85 JOB NO. 8215 FIG.

GRAPHIC L	CLASSIFICATION OF MATERIAL SURFACE ELEVATION: (Top of Casing) 37.98	WELL CONSTRUC	GROUNDWAT	SAMPLES	(140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT 0 50 100
	0 - 0^5 Asphalt 0^5 - 7^0 Dark brown very compact sandy clay. Appears to be backfill and very impermeable. 7^0 - 12^0 Light brown very compact sandy clay. Appears relatively impermeable except through solution channels. Odor: slight hydrocarbon smell. 12^0 - 15^0 Light brown very fine sandy clay. Odor: slight hydrocarbon smell.	CONCRETE BENTONITE SAND	▼		

LEGEND

- I 2.0" O.D. SPLIT SPOON SAMPLE
- II 3.0" O.D. THIN WALLED SAMPLE
- G GRAB SAMPLE OF DRILL CUTTINGS
- NX CORE RUN
- * SAMPLE NOT RECOVERED
- ▼ WATER LEVEL

RIEDEL INTERNATIONAL, INC.
4555 N. CHANNEL AVE.
P.O. BOX 3220, PORTLAND, OREGON 97208-3220

BORING LOG 2

DATE 7/20/85 JOB NO. 8215 FIG.

GRAPHIC LOG | CLASSIFICATION OF MATERIAL | WELL CONSTRUCTION | GROUNDWATER | SAMPLES | PENETRATION RESISTANCE (140 LB. WEIGHT, 30" DROP) ▲ BLOWS PER FOOT

SURFACE ELEVATION: (Top of Casing) 38.49

0-0.5 Asphalt

0.5-10 Gray Sandy Clay
Very compact, with orange stained solution channels, some crushed stone (5-10%) below 5.0'.

Odor .05-5.0 strong

Hydrocarbon smell with high sulpher content, possibly caused by disolved asphalt

5.0 - 10.0 Much less noticeable small, almost non near bottom.

CEMENTONITE

10.0 -15.0 Light brown silt and sand very loose

Odor: Minor gas smell

SAND

0 50 100

LEGEND

I 2.0" O.D. SPLIT SPOON SAMPLE
II 3.0" O.D. THIN WALLED SAMPLE
G GRAB SAMPLE OF DRILL CUTTINGS
NX CORE RUN
* SAMPLE NOT RECOVERED

▼ WATER LEVEL

RIEDEL INTERNATIONAL, INC.
4635 N. CHANNEL AVE.
P.O. BOX 3220, PORTLAND, OREGON 97208-3220

BORING LOG 3

DATE 7/15/85 JOB NO. 8215 FIG.

Mobil Oil
Leaking fuel tank/lines
Fairmont Ave, El Cerrito

9071

Thermo Electron

EAL Corporation

2030 Wright Avenue
Richmond, California 94804
(415) 236-2033
TWX 910 366 6130

ANALYSIS REPORT

Date: 7/25/85
Samples Received: 7/23/85
EAL W.O No.: 2720-43
Purchase Order No.: 177894

Riedel Environmental Services
230 Cutting Blvd.
Richmond, CA 94802

Attention: Jeff Lucas

SAMPLE IDENTIFICATION	EAL:	2720-43-1	2720-43-2	2720-43-3
	CUSTOMER:	1-Well 1	2-Well 2	3-Well 3
COMPOUND	UNIT			
Benzene	ppb	570	20	2
Toluene	ppb	220	1	1
Chlorobenzene	ppb	1	2	<1
Ethyl benzene	ppb	30	<1	<1
m-xylene	ppb	<1	<1	<1
1,2 dichlorobenzene	ppb	2	2	<1
1,3 dichlorobenzene	ppb	16	6	1
total org comp/as of toluene	ppb	3200	100	270

Reported 7/24/85

HYG/php

Harry Y. Gee
Program Manager

MTK

Mobil Oil Corporation

612 SOUTH FLOWER STREET
P.O. BOX 2122
LOS ANGELES, CALIFORNIA 90051

December 13, 1985

Mr. H. Kazemi
California Regional Water
Quality Control Board
1111 Jackson St., Room 6040
Oakland, California 94607

RE: MOBIL OIL CORPORATION
SERVICE STATION 10-131
6700 FAIRMONT AVENUE
EL CERRITO, CALIFORNIA

Dear Mr. Kazemi:

Enclosed for your review are the water results from our first round of sampling at the above location. The submission of these results are as requested in Mr. Peter Johnson's letter of October 25, 1985.

Since no free product has appeared in the monitoring wells, Mobil Oil proposes to complete one more round of sampling. In addition, our consultant will prepare a final report which will include a site assessment on wells and groundwater quality in the area.

Upon completion of your review, please advise my office if this proposal is satisfactory.

If you have any questions, please do not hesitate to contact my office at (213) 683-6335 or 5520.

Sincerely,

R. D. Edwards
Region Environmental
Coordinator

CEG:ram
Enclosure
(52300)

c.c.: Mr. Bruce Benike
Contra Costa County
Health Services Department
1111 Ward Street
Martinez, CA 94553

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
535 Main Street
Martinez, Ca. 94553
(415) 372-5444

KEI-P86-072
August 19, 1986

Mobil Oil Company
P. O. Box 127
Richmond, CA 94807

Attn: Mr. Steve Pao

Re: Mobil S/S 10 - 131
6700 Fairmont Avenue
El Cerrito, CA
Groundwater Pumping, Sampling and Analyses

Dear Mr. Pao:

This letter report summarizes our findings for the referenced site.

Kaprealian Engineering Inc. (KEI) performed the groundwater wells monitoring consisting of pumping the three existing wells, recording the water elevation prior to pumping, purging, sampling, and analyzing the samples for dissolved total hydrocarbons, Benzene, Toluene and Xylenes (BTX). The wells were purged five well volumes prior to taking the samples. The samples were taken at the water elevations ranging from 8 to 10.6 feet below the ground surface using a tephlon bailer, placed in clean glass bottles, stored in an ice chest and delivered to the Sequoia Analytical Laboratory in Redwood City, CA. Between samplings, the bailer was thoroughly cleaned to avoid any potential cross contamination. No floating product, odor or sheen was noted at the time of sampling.

The samples were taken on 8/12/86 and the results are as listed below:

LABORATORY RESULTS

Sample Station	Depth (ft)	Total Hydrocarbons (ppm)	Benzene (ppm)	Toluene (ppm)	Xylenes (ppm)
MW-1	10.6	<0.05	<0.001	<0.001	<0.001
MW-2	8.0	<0.05	<0.001	<0.001	<0.001
MW-3	8.5	<0.05	<0.001	<0.001	<0.001

The laboratory results are attached.

CONCLUSIONS

The results indicate that there is no detectable hydrocarbons contamination in all three monitoring wells. Therefore, it is apparent that the impact on the shallow groundwater is extremely negligible.

According to the Contra Costa County Health Department and available groundwater information, there are no active wells within a quarter (1/4) mile of this area. The groundwater in this area is used for irrigation only.

RECOMMENDATIONS

KEI does not believe that continued monitoring of the wells will provide any new information regarding impact on the groundwater quality. Therefore, KEI recommends no further monitoring and sampling at this time unless it is specifically required by the California Regional Water Quality Control Board (CRWQCB). This information should be submitted to the CRWQCB and the Contra Costa County Health Department.

It has been a pleasure serving your company. Should you have any questions, please do not hesitate to contact me at 372-5444.

Sincerely,

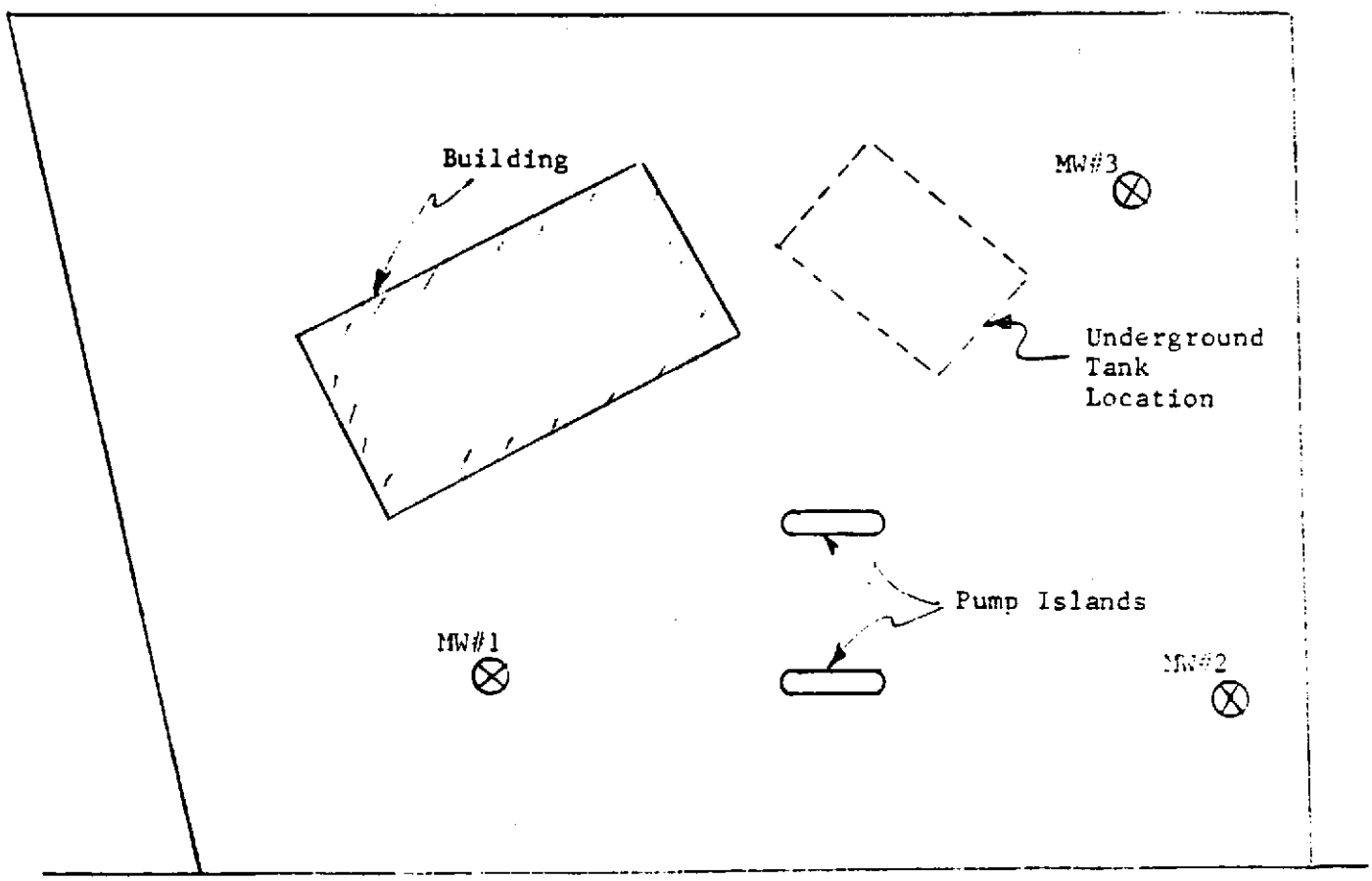
Kaprealian Engineering, Inc.

Mardo Kapreralian

MK:
Enclosure: Laboratory Analysis
Location Map

cc: C. Galloway

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
535 Main Street
Martinez, Ca. 94553
(415) 372-5444



LOCATION MAP - Mobil Service Station
6700 Fairmont Avenue
El Cerito, CA

⊗ Monitoring Well

ATT

August 14, 1989

Mr. Jon L. Benjamin
Attorney at Law
Heller, Ehrman, White & McAuliffe
333 Bush Street
San Francisco, CA 94104

Subject: Abandoned Underground Storage Tanks
500 San Pablo Avenue
Albany, CA

Dear Mr. Benjamin:

This letter presents chemical data and its interpretation for samples collected from the subject tanks and from Cerrito Creek, and provides a proposal for managing the tanks.

Aqua Terra Technologies
Consulting Engineers
Scientists

50 Buskirk Avenue
Suite 120
Walnut Creek, CA
5 9 6
(934-4884

BACKGROUND

Two tanks are located beneath approximately four feet of fill in the sidewalk fronting the building at 500 San Pablo Avenue. For identification purposes, the tanks have been designated as Tank 1 and Tank 2. Each tank has a nominal capacity of 550 gallons, with fill and vent piping located in the immediate vicinity. The tanks have not been in active service for at least 10 years, and are believed to have been installed approximately 40 years ago. Records regarding the historical uses of the tanks are not available; however, early uses likely included fuel and waste oil storage associated with automobile dealerships and maintenance.

The capacity of the tanks was confirmed when material completely filling each tank was removed during mid-July into 21, 55 gallon drums (total capacity 1,155 gallons or 577 gallons each). The material removed from each tank was identifiable as water containing dilute amounts of petroleum based substances. Inasmuch as the tank bottoms and the minimum depth to local groundwater are both approximately eight feet below grade, the source of the water in the tanks cannot be attributable to groundwater. Apparently, the tanks were filled with water as a closure measure by their last user.

Until their discovery in July, the existence of the tanks was unknown to the current property owner. The tanks were discovered during a reconnaissance of the area by local fire and health department personnel in association with a petroleum product occurrence in

Cerrito Creek. Subsequent investigations have identified underground fuel storage tanks located on an adjacent neighboring property as the source of the release to the creek.

SAMPLE COLLECTION/RESULTS

Samples of the material contained in each of the underground tanks and a sample of the petroleum product occurring in the creek were collected by Aqua Terra personnel on July 12 as described in the sample collection records provided in Attachment A. The samples with chain of custody documentation were submitted in an iced cooler to a California Department of Health Services certified analytical laboratory for chemical analysis. Each sample was analyzed for 13 heavy metals according to EPA Method 6000 and 7000 series protocol and for volatile and semi-volatile organic chemicals according to EPA Methods 8240 and 8270. The chemical data are summarized in Table 1 of Attachment B along with the analytical laboratory data sheets and chain of custody document.

As summarized in Table 1, chemical analyses of the material contained in Tank 1 indicate that the tank was used to store a solvent. Semi-volatile hydrocarbon constituents characteristic of a petroleum lubricant or fuel were not detected in the sample. However, compounds which included 1,2-dichloroethane (DCA) and 2-butanone (MEK), and are commonly associated with solvents, were present in the sample, as were benzene (B), toluene (T), ethylbenzene (E), and xylene (X). All of the volatile compounds detected in the Tank 1 sample were present at generally equivalent concentrations, with no compound occurring at a level substantually higher than any other compound, again suggesting a solvent. The mixture of compounds detected in the sample are not suggestive of a fuel.

The analytical data resulting from the sample collected from Tank 2 shows concentrations of volatile and semi-volatile organics characteristic of aged gasoline. This observation is supported by the existence of ethylbenzene and xylene, coupled with the exclusion of benzene and toluene. In addition, naphthalene and 2-methylnaphthlene are both constituents of gasoline.

The detected concentration of lead in the Tank 2 sample indicates that the gasoline stored in the tank was leaded. The absence of other polynuclear aromatic hydrocarbons (PAH) in addition to the naphthalenes suggests that waste oil was not stored in the tank.

The sample of material collected from Cerrito Creek is significantly dissimilar to either of the samples collected from the tanks. The absence of detectable lead, the elevated concentrations of BTEX, and the presence of the naphthalenes in the creek sample, as illustrated in Table 1, provides a strong correlation with unleaded gasoline.

The results of the chemical analyses presented in Table 1 indicate that each of the three samples (Tank 1, Tank 2, Cerrito Creek) are representative of distinctly different materials. A correlation is not apparent between the data representing the contents of the tanks and the material sampled from the creek.

TANK CONTENTS DISPOSAL

The chemical data characterizing the contents of Tanks 1 and 2 indicate that the material must either be managed by a waste contractor or pretreated for disposal to the storm or sanitary sewers. Contingent upon acceptance by a waste contractor, the materials may be removed for approximately $28.00 per drum, or a total of about $600. Considering the potential difficulties associated with pretreating the material and obtaining permission for discharge to the sewer, the waste contractor represents the least costly and most expeditious option.

PROPOSED CLOSURE ACTION

With the discovery of the tanks, action is required to comply with the intent of applicable underground storage tank regulations (California Code of Regulations, Title 23, Subchapter 16). The regulations require that the tanks either be monitored according to an approved monitoring plan, or that they be closed to prevent their future use. Inasmuch as the tanks have not been in active service for a number of years, the appropriate alternative for complying with the regulatory intent is to close them. The closure requirement calls for either

removing the tanks by excavating them or closing them in-place by filling them with a solid set grout material. In-place closure is accompanied by cleaning the tanks of any residual material and capping all appurtenant piping. The regulations also contain a provision for temporary closure where a future use of the tanks is anticipated.

The conditions existing at the property on which the tanks are located are somewhat unique and do not fit easily into any of the closure options allowed by the regulations. It is my understanding that plans are currently underway to begin redevelopment of the property within the next 18 to 24 months. Redevelopment will include demolition of several of the structures currently occupying the property, including the building associated with the tanks. Consequently, considerable site work, including excavation and grading activities, will be implemented. Removing the tanks during these activities would eliminate several problems associated with removing the tanks under current conditions.

Removing the tanks now would require closing traffic lanes on San Pablo Avenue during excavation activities, blocking all sidewalk traffic for several days in the area of the tanks, limiting the boundaries of the excavation between San Pablo Avenue and the front of the building, placing the structural integrity of the building at risk from soils caving, and disrupting activities of businesses operating in the immediate vicinity. Alternatively, closing the tanks in-place by filling them with grout will create future problems during redevelopment activities since each tank will represent the equivalent of a 550 gallon boulder.

The solution to the problems generated by either excavating the tanks or closing them in-place is to implement temporary closure measures until the tanks can be removed during redevelopment. This option satisfies the intent of the regulations and provides substantial benefit to the public as well as to the property owners. Considering that the tanks have not been used in several years and considering the apparent sound integrity of the tanks as manifested by their being full of water until recent weeks when emptied, an environmental

risk is not expected from leaving the tanks in-place until redevelopment activities are initiated.

Specific activities to implement temporary closure of the tanks should include cleaning the tanks of all residual materials and fitting the fill pipe to each tank with a tight fitting, locking cap. The tanks should be monitored quarterly to confirm that liquid is not accumulating in them. When the tanks are removed during redevelopment, soil sampling should be conducted to verify the integrity of the tanks and/or to document the removal of any contaminated soils associated with the tanks.

The contents of this letter should be shared with the involved regulatory agencies prior to implementing the proposed closure action.

Please contact me if you have any questions regarding the matters discussed herein.

Sincerely,

Aqua Terra Technologies, Inc.

R. Wane Schneiter, Ph.D.
Civil Engineer No. 38735 (Expires 3/31/93)
Project Manager

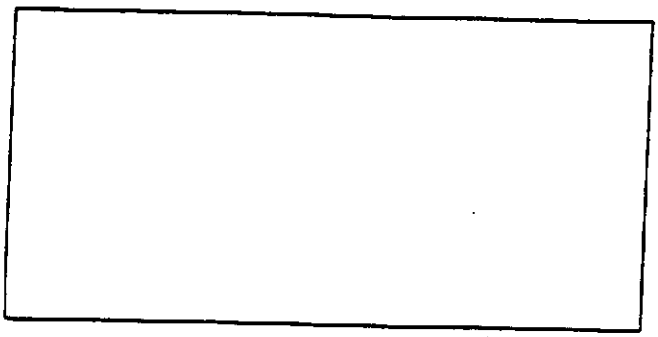
RWS:lg
Attachments

ATTACHMENT A

Sample Collection Records

ENVIRONMENTAL SAMPLE COLLECTION RECORD

Site Plan:



Date: 7-12-89 Time: 10:30 Job No: 9064

Sample ID: TK-1 Location: 500 San Pablo Ave Albany, CA

Sampling Procedure:

Collected sample by lowering a teflon bailer into tank 1. Product was poured into 40ml. VOA, 1 liter amber, and 1 liter plastic for EPA 624, 625 and PPM.

Water Level: pH:

Depth to bottom of well: Salinity:

Well Purge Volume: Turbidity:

Purge Water Fate: Organic Vapor:

Sampling Equipment: Teflon bailer, rubber gloves.

Equipment Cleaning Procedures: N/A

Sampling Handling/Storage: sample was stored on ice immediately after sampling.

Sample Collected By: MICHAEL DESCHENES

Signature: Michael Deschenes Title: Staff Scientist

Aqua Terra Technologies
Consulting Engineers & Scientists

ATT

ENVIRONMENTAL SAMPLE COLLECTION RECORD

Site Plan:

Date: 7-12-89 Time: 11:15 Job No: 9064

Sample ID: TK-2 Location: 500 San Pablo Ave. Albany, CA

Sampling Procedure: Collected sample by lowering a teflon bailer into tank 2. Product was poured into 40 ml, 1 liter amber, and 1 liter plastic for EPA 624, 625, and PPM

Water Level: pH:

Depth to bottom of well: Salinity:

Well Purge Volume: Turbidity:

Purge Water Fate: Organic Vapor:

Sampling Equipment: Teflon bailer, rubber gloves.

Equipment Cleaning Procedures: N/A

Sampling Handling/Storage: Samples were stored on ice immediately after sampling.

Sample Collected By: MICHAEL DESCHENES

Signature: Michael Deschenes Title: Staff Scientist

ATT

ENVIRONMENTAL SAMPLE COLLECTION RECORD

Site Plan:

Date: 7-12-89 Time: 12:00 Job No: 9064

Sample ID: CR-1 Location: 500 San Pablo ave. Albany, CA

Sampling Procedure: Collected sample from creek using a sterile plastic brass tube cap. Floating product was poured into 40 ml. VOA, 1 liter amber, and 1 liter plastic for EPA 624, 6 and PF

Water Level: pH:

Depth to bottom of well: Salinity:

Well Purge Volume: Turbidity:

Purge Water Fate: Organic Vapor:

Sampling Equipment: sterile plastic brass tube cap, rubber gloves

Equipment Cleaning Procedures: N/A

Sampling Handling/Storage: sample was stored on ice immediately after sampling

Sample Collected By: MICHAEL DESCHENES

Signature: Michael Deschenes Title: Staff Scientist

ATTACHMENT B

Chemical Data

Table 1. Albany Tanks

Chemical	Concentration Tank 1 (mg/L)	Tank 2 (mg/Kg)	Creek (mg/Kg)
lead	<5	82	<5
mercury	<0.02	<0.5	0.1
silver	14	14	9.5
thallium	13	15	12
zinc	79	22	<5
1,2-dichloroethane	1.6	<0.25	<0.25
2-butanone	2.9	<5	<5
benzene	6.4	<0.25	8,000
toluene	11	<0.25	39,000
ethylbenzene	7.8	1,800	24,000
xylene	38	2,000	89,000
2,4-dimethylphenol	0.91	<100	<100
benzoic acid	2.6	<500	<500
bis(2-chloroethoxy)methane	0.64	<100	<100
naphthalene	<10	650	2,400
2-methylnaphthalene	<10	760	1,700
di-n-butylphthalate	0.3	<100	<100

GTEL
ENVIRONMENTAL
LABORATORIES, INC

Northwest Region
4080 Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/25/89 JP PAGE 1 OF 1

WORK ORD#: C907244
CLIENT: MICHAEL DECHENES
AQUA TERRA TECHNOLOGIES
2950 BUSKIRK AVENUE, SUITE 120
WALNUT CREEK, CA 94596
PROJECT#: SFB-0134-9
LOCATION: 500 SAN PABLO AVE.
ALBANY, CA
SAMPLED: 07/12/89 BY: M. DESCHENES
RECEIVED: 07/13/89 BY: M. HUTH
ANALYZED: 07/20/89 BY: L. CALLAN
MATRIX: OIL
UNITS: mg/L

PRIORITY POLLUTANT METALS
TEST RESULTS

	MDL	LAB # I.D.#	01 TK-1	02 TK-2	03 CR-1		
Antimony	25		<25	<25	<25		
Arsenic	12		<12	<12	<12		
Beryllium	0.5		<0.5	<0.5	<0.5		
Cadmium	1		<1	<1	<1		
Chromium	3		<3	<3	<3		
Copper	3		<3	<3	<3		
Lead	5		<5	82	<5		
Mercury	0.02		<0.02	<0.5	0.1		
Nickel	0.3		<0.3	<0.3	<3		
Selenium	25		<25	<25	<25		
Silver	5		14	14	9.5		
Thallium	10		13	15	12		
Zinc	5		79	22	<5		

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: As by EPA 3020/7060; Cd by EPA 3020/7131; Se by EPA 3020/7740; Hg by EPA 7470; Ag by EPA 3005/7760; Tl by EPA 3020/7840; Pb by EPA 3020/7421; Others by EPA 3020/6010.

Emma P. Popek

EMMA P. POPEK, Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC

Northwest Region
4080 Pike Lane
Concord CA 94520
(415) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California

07/27/89 jp Page 1 of 1

WORK ORD#:C907242
CLIENT: BRAD BENNETT
AQUA TERRA TECHNOLOGIES
2950 BUSKIRK AVE. SUITE 120
WALNUT CREEK, CA 94596
PROJECT#: SFB-0134-7
LOCATION: 500 SAN PABLO AVE./ALBANY, CA

SAMPLED: 07/12/89 BY: M. DESCHENES
RECEIVED: 07/13/89
ANALYZED: 07/26/89 BY: P. KOWALSKI

MATRIX: Water and Oil
UNITS: ug/L (ppb) water/ ug/kg Soil

PARAMETER	MDL	SAMPLE # I.D.	01* TK-1	02** TK-2	03** CR-1		
Chloromethane	500		<500	<500	<500		
Bromomethane	500		<500	<500	<500		
Vinyl chloride	500		<500	<500	<500		
Chloroethane	500		<500	<500	<500		
Methylene chloride	250		<500	<500	<500		
Acetone	5000		<5000	<5000	<5000		
Carbon disulfide	250		<250	<250	<250		
1,1-Dichloroethene	250		<250	<250	<250		
1,1-Dichloroethane	250		<250	<250	<250		
trans-1,2-Dichloroethene	250		<250	<250	<250		
Chloroform	250		<250	<250	<250		
1,2-Dichloroethane	250		1600	<250	<250		
2-Butanone	5000		2900	<5000	<5000		
1,1,1-Trichloroethane	500		<500	<500	<500		
Carbon tetrachloride	500		<500	<500	<500		
Vinyl acetate	2500		<2500	<2500	<2500		
Bromodichloromethane	250		<250	<250	<250		
1,2-Dichloropropane	250		<250	<250	<250		
cis-1,3-Dichloropropene	250		<250	<250	<250		
Trichloroethene	250		<250	<250	<250		
Dibromochloromethane	250		<250	<250	<250		
1,1,2-Trichloroethane	250		<250	<250	<250		
Benzene	250		6400	<250	8000000		
trans-1,3-Dichloropropene	250		<250	<250	<250		
2-Chloroethylvinylether	500		<500	<500	<500		
Bromoform	250		<250	<250	<250		
4-Methyl-2-pentanone	2500		<2500	<2500	<2500		
2-Hexanone	2500		<2500	<2500	<2500		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: MS 8240

GTEL
ENVIRONMENTAL
LABORATORIES, INC

Northwest Region
4080 Pike Lane
Concord CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

WORK ORD#:C907242

CLIENT: BRAD BENNETT
PROJECT#: SFB-0134-7
LOCATION: 500 SAN PABLO AVE./ALBANY, CA

MATRIX: Water and Soil
UNITS: ug/L (ppb) water/ ug/kg soil

PARAMETER	MDL	SAMPLE # I.D.	01* TK-1	02** TK-2	03** CR-1	
Tetrachloroethene	250		<250	<250	<250	
1,1,2,2-Tetrachloroethane	250		<250	<250	<250	
Toluene	250		11000	<250	39000000	
Chlorobenzene	250		<250	<250	<250	
Ethylbenzene	250		7800	1800000	24000000	
Styrene	250		<250	<250	<250	
1,2-Dichlorobenzene	250		<250	<250	<250	
1,3-Dichlorobenzene	250		<250	<250	<250	
1,4-Dichlorobenzene	250		<250	<250	<250	
Xylene (total)	250		38000	2000000	89000000	
Trichlorofluoromethane	250		<250	<250	<250	

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.

METHOD: MS 8240
* Water Sample
** Soil Sample

Emma P. Popek

EMMA P. POPEK, Laboratory Director

GTEL
ENVIRONMENTAL
LABORATORIES, INC.
Northwest Region
4080 Pike Lane
Concord CA 94520
(415) 685-7852
(800) 544-3422 from inside California
(800) 423-7143 from outside California

07/27/89 MH

WORK ORD#:C907243
CLIENT: BRAD BENNETT
AQUA TERRA TECHNOLOGIES
2950 BUSKIRK AVE. SUITE 120
WALNUT CREEK, CA 94596
PROJECT#: SFB-0134-8
LOCATION: 500 SAN PABLO AVE./ALBANY, CA

SAMPLED: 07/12/89 BY: M. DESCHENES
RECEIVED: 07/13/89
ANALYZED: 07/18/89 BY: M. MAZZALI

MATRIX: WATER * - OIL **
UNITS: ug/L * - ug/Kg **

PARAMETER	MDL	SAMPLE # I.D.	01 * TK-1	02 ** TK-2	03 ** CR-1		
Phenol	10		<10	<100000	<100000		
bis(2-Chloroethyl)ether	10		<10	<100000	<100000		
2-Chlorophenol	10		<10	<100000	<100000		
1,3-Dichlorobenzene	10		<10	<100000	<100000		
1,4-Dichlorobenzene	10		<10	<100000	<100000		
Benzyl alcohol	10		<10	<100000	<100000		
1,2-Dichlorobenzene	10		<10	<100000	<100000		
2-Methylphenol	10		<10	<100000	<100000		
bis-(2-Chloroisopropyl)ether	10		<10	<100000	<100000		
4-Methylphenol	10		<10	<100000	<100000		
N-Nitroso-di-n-propylamine	10		<10	<100000	<100000		
Hexachloroethane	10		<10	<100000	<100000		
Nitrobenzene	10		<10	<100000	<100000		
Isophorone	10		<10	<100000	<100000		
2-Nitrophenol	10		<10	<100000	<100000		
2,4-Dimethylphenol	10		910	<100000	<100000		
Benzoic acid	50		2600	<500000	<500000		
bis(2-Chloroethoxy)methane	10		640	<100000	<100000		
2,4-Dichlorophenol	10		<10	<100000	<100000		
1,2,4-Trichlorobenzene	10		<10	<100000	<100000		
Naphthalene	10		<10	650000	2400000		
4-Chloroaniline	10		<10	<100000	<100000		
Hexachlorobutadiene	10		<10	<100000	<100000		
4-Chloro-3-methylphenol	10		<10	<100000	<100000		
2-Methylnaphthalene	10		<10	760000	1700000		
Hexachlorocyclopentadiene	10		<10	<100000	<100000		
2,4,6-Trichlorophenol	10		<10	<100000	<100000		
2,4,5-Trichlorophenol	10		<10	<100000	<100000		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.
METHOD: EPA 8270
NOTE: Data pertaining to WATER will be indicated by *.
Date pertaining to OIL will be indicated by **.

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080 Pike Lane
Concord CA 94520
(415) 685 7852
(800) 544 3422 from inside California
(800) 423 7143 from outside California

WORK ORD#:C907243

CLIENT: BRAD BENNETT
PROJECT#: SFB-0134-8
LOCATION: 500 SAN PABLO AVE./ALBANY, CA

MATRIX: WATER * - OIL **
UNITS: ug/L * - ug/Kg **

PARAMETER	MDL	SAMPLE # I.D.	01 * TK-1	02 ** TK-2	03 ** CR-1		
2-Chloronaphthalene	10		<10	<100000	<100000		
2-Nitroaniline	50		<50	<500000	<500000		
Dimethylphthalate	10		<10	<100000	<100000		
Acenaphthylene	10		<10	<100000	<100000		
3-Nitroaniline	50		<50	<500000	<500000		
Acenaphthene	10		<10	<100000	<100000		
2,4-Dinitrophenol	50		<50	<500000	<500000		
4-Nitrophenol	50		<50	<500000	<500000		
Dibenzofuran	10		<10	<100000	<100000		
2,4-Dinitrotoluene	10		<10	<100000	<100000		
2,6-Dinitrotoluene	10		<10	<100000	<100000		
Diethylphthalate	10		<10	<100000	<100000		
4-Chlorophenyl-phenylether	10		<10	<100000	<100000		
Fluorene	10		<10	<100000	<100000		
4-Nitroaniline	50		<50	<500000	<500000		
4,6-Dinitro-2-methylphenol	50		<50	<500000	<500000		
N-Nitrosodiphenylamine	10		<10	<100000	<100000		
4-Bromophenyl-phenylether	10		<10	<100000	<100000		
Hexachlorobenzene	10		<10	<100000	<100000		
Pentachlorophenol	50		<50	<500000	<500000		
Phenanthrene	10		<10	<100000	<100000		
Anthracene	10		<10	<100000	<100000		
Di-n-butylphthalate	10		300	<100000	<100000		
Fluoranthene	10		<10	<100000	<100000		
Pyrene	10		<10	<100000	<100000		
Butylbenylphthalate	10		<10	<100000	<100000		
3,3-Dichlorobenzidine	10		<10	<100000	<100000		
Benzo(a)anthracene	10		<10	<100000	<100000		

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.
METHOD: EPA 8270
NOTE: Data pertaining to WATER will be indicated by *.
Data pertaining to OIL will be indicated by **.

GTEL
ENVIRONMENTAL
LABORATORIES, INC

Northwest Region
4080 Pike Lane
Concord CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

WORK ORD#:C907243

CLIENT: BRAD BENNETT
PROJECT#: SFB-0134-8
LOCATION: 500 SAN PABLO AVE./ALBANY, CA

MATRIX: WATER 8 - OIL 88
UNITS: ug/L * - ug/Kg **

PARAMETER	MDL	SAMPLE # I.D.	01 * TK-1	02 ** TK-2	03 ** CR-1	
bis(2-Ethylhexyl)phthalate	10		<10	<100000	<100000	
Chrysene	10		<10	<100000	<100000	
Di-n-octylphthalate	10		<10	<100000	<100000	
Benzo(b)fluoranthene	10		<10	<100000	<100000	
Benzo(k)fluoranthene	10		<10	<100000	<100000	
Benzidine	50		<50	<500000	<500000	
Benzo(a)pyrene	10		<10	<100000	<100000	
Indeno(1,2,3-cd)pyrene	10		<10	<100000	<100000	
Dibenz(a,h)anthracene	10		<10	<100000	<100000	
Benzo(g,h,i)perylene	10		<10	<100000	<100000	

MDL = Method Detection Limit; compound below this level would not be detected.
Results rounded to two significant figures.
METHOD: EPA 8270
NOTE: Data pertaining to WATER will be indicated by *.
Data pertaining to OIL will be indicated by **.

Emma P. Popek

EMMA P. POPEK, Laboratory Director

Deschenes
Consultant

Muskirk Avenue, Suite 120
Creek, CA 94596
)934-4884
934-0418

Sierra Technologies
Consulting Engineers & Scientists

ATT

CHAIN OF SAMPLE CUSTODY RECORD

Collector: MICHAEL DESCHENES — Date Sampled: 7/12/89 Time: _____
Location of Sampling: 500 SAN PABLO AVE, ALBANY / CA 94706
CLIENT: KEN FREEDMAN
Project Number: 9064 Survey Number: _____
Sample Type: WASTE OIL/WATER, SOLVENTS?
Container Type and Condition: 40 ML VOA, 1 LITER AMBER, 1 LITER PLASTIC
Contract Laboratory/Record/Name: GTEL, CONCORD.

Sample ID	Field Information
TK-1 (2)	ANALYZE WASTE OIL ONLY
TK-2 (2)	ANALYZE WASTE OIL ONLY
CR-1 (2)	

Analysis Requested: EPA 624, EPA 625, EPA PPM.

Results Needed By: 2 WEEKS JULY 20, 1989

Contact and results to be sent to: MICHAEL DESCHENES

Travel Blank: ☐ Yes ☒ No Travel Blank to be Analyzed Separately: ☐ Yes ☒

Duplicate Samples: ☒ Yes ☐ No Duplicates to be Analyzed Separately: ☐ Yes ☒

Cleaning Blank: ☐ Yes ☒ No Cleaning Blank to be Analyzed Separately: ☐ Yes ☒

Background Soil Sample: ☐ Yes ☒ No Background Soil Sample to be Analyzed Separately: ☐ Yes ☒

Chain of Custody:

Michael Deschenes — 7-13-89
Field Personnel — Date

Courier — Date

Michelle Wuth — July 13, 1989 1310
Lab — Date

James P. Bowers, PE
R. William Rudolph, Jr., PE

RECEIVED SEP 18 1989

LETTER OF TRANSMITTAL

TO: Mr. M. Hossain Kazemi
Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6040
Oakland, California 94607

DATE: September 15, 1989
PROJECT Plaza Car Wash
SCI JOB NUMBER: 549.001

Surface Water Contamination Mitigation

WE ARE SENDING YOU:

1 copies	
of our final report	X if you have any questions, please call
a draft of our report	X for your review and comment
a Service Agreement	please return an executed copy
a proposed scope of services	for geotechnical services
specifications	with our comments
grading/foundation plans	with Chain of Custody documents
soil samples/groundwater samples	for your use
an executed contract	
X ~~the letter you requested~~	

REMARKS: Mr. Murray Stevens, the owner of Plaza Car Wash, is out-of-town and unavailable to send the attached letter to you, appended to his own transmittal. The letter has been reviewed by his attorney, Mr. Craig Johns of Crosby, Heafey, Roach & May. We are sending the letter to you, with Mr. John's approval, in order that you can review and approve the proposed mitigation method prior to the start of work.

COPIES TO: ✓Mr. Craig Johns, Crosby, Heafy, Roach & May
Mr. Murray Stevens, Kamur Industries

BY: William K. Wikander

Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 415-268-0461

James P. Bowers, PE
R. William Rudolph, Jr., PE

September 15, 1989
SCI 549.001

Mr. Murray T. Stevens
Kamur Industries
2351 Shoreline Drive
Alameda, California 94501

Consultation
Surface Water Contamination Mitigation
Plaza Car Wash
400 San Pablo Avenue
Albany, California

Dear Mr. Stevens:

This letter presents results of our consultation regarding mitigation of contaminated water entering El Cerrito Creek at the subject site. Our previous consultations regarding the site were recorded in letters dated August 22 and September 1, 1989.

Based upon groundwater level measurements from monitoring wells that have been installed at the site, the direction of groundwater flow is about south 65 to 80 degrees west with about a 1 percent gradient. The approximate storm drain location is shown on Plate 1; it is about 2 feet below the groundwater level encountered in the monitoring wells. Storm drains are often constructed with relatively permeable backfill and with unsealed joints. It is likely that the storm drain is acting as a subsurface drain, lowering the groundwater level in the area. We judge that the contaminated groundwater is also flowing toward the stormdrain, entering through joints and exiting into El Cerrito Creek.

Based upon the results of a recently completed soil gas study, contaminated soil/water appears to be located along the north about 60 feet of the storm drain. We understand that the Albany Fire Department viewed the storm drain interior using a video camera. Product was only observed to enter the storm drain north of the manhole, which is located about 90 feet from the creek. Based upon the soil gas and video studies, we judge that contaminated water does not appear to be entering the storm drain south of the manhole.

In order to mitigate the discharge of free and dissolved product into El Cerrito Creek, we recommend that the storm drain joints be sealed so that subsurface water cannot enter. We judge that the Cues Joint Sealing System described in the attached brochure is an acceptable method for sealing the joints.

We understand that the joints will be sealed starting Tuesday, September 19, 1989, by Pacific Pipeline Survey. The pipe will first be swabbed, then cleaned using high-pressure water spray. If contaminated soil is removed from the pipe, it will be stockpiled for later proper disposal. The pipe rinse water will be allowed to flow into the creek after free product is removed. After cleaning, each pipeline joint north of the manhole will be injected with grout and tested for a tight seal. After construction, samples of water from the storm drain outlet should be analytically tested weekly for total volatile hydrocarbons (TVH). If no TVH is detected for at least 4 weeks, the sampling/testing intervals should be reduced to quarterly. If significant TVH is still detected, additional mitigations may be necessary.

Although the discharge of product/contaminated water into El Cerrito Creek should be substantially mitigated using the above recommendations, contaminated soil and groundwater will still remain at the site. Further investigation will be necessary in order to develop plans to mitigate these problems.

We recommend that this letter be submitted to the RWQCB, Alameda County Health Care Services Agency and Bay Area Air Quality Management District.

If you have questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/92)

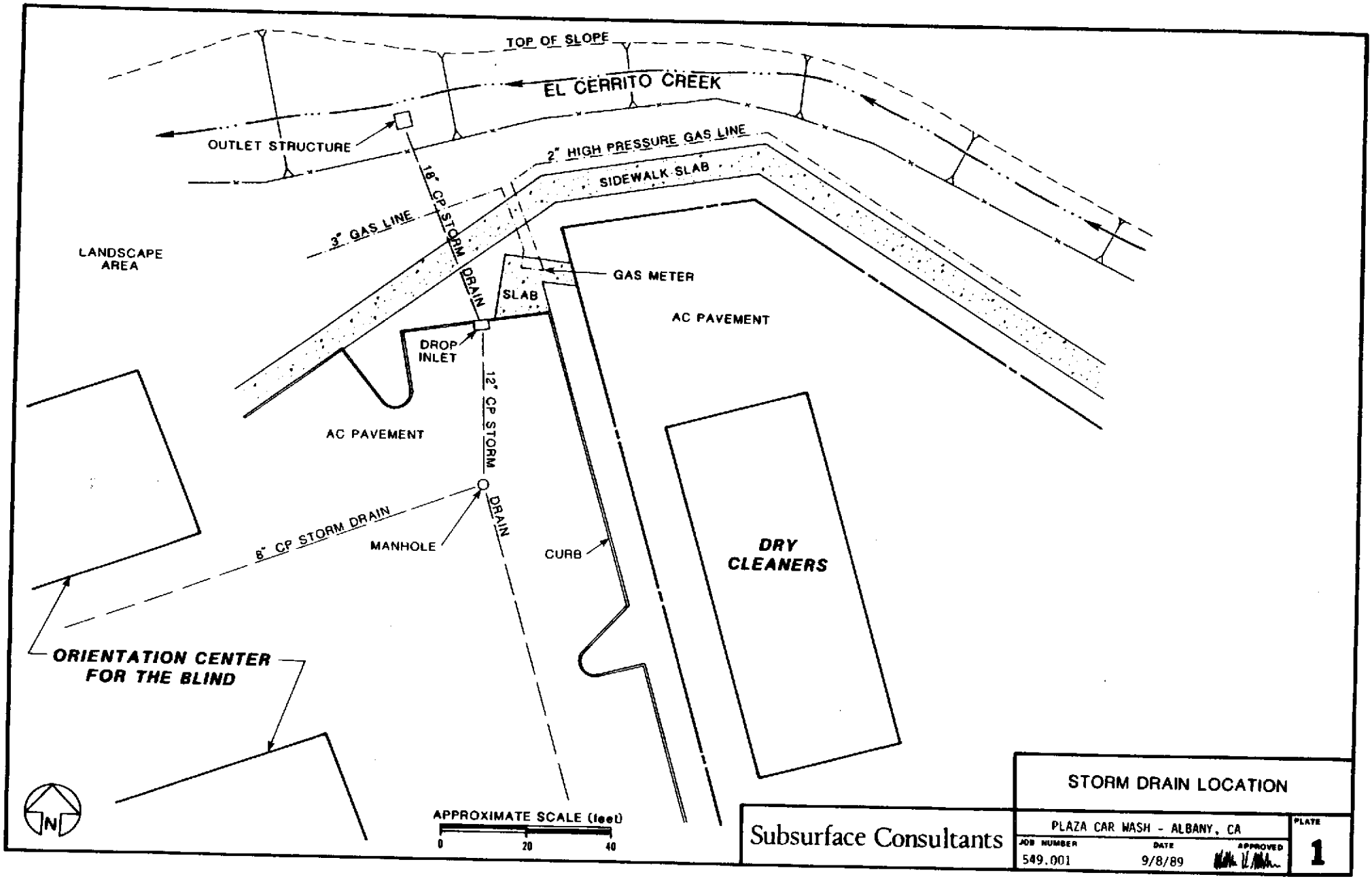
William K. Wikander
Geotechnical Engineer 892 (expires 12/31/92)

WKW:RWR:mbl

4 copies submitted

Attachments: Plate 1 - Storm Drain Location
Cues Brochure

cc: Mr. Craig Johns
Crosby, Heafey, Roach & May
1990 Harrison Street
Oakland, California 94612



STORM DRAIN LOCATION

Subsurface Consultants

PLAZA CAR WASH - ALBANY, CA

JOB NUMBER	DATE	APPROVED
549.001	9/8/89	

PLATE 1

GUIDELINES FOR ADDRESSING FUEL LEAKS

SEPTEMBER 1985

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Attachment 1. Guidelines for Monitoring Well Construction and Sampling[1]

This discussion provides a suggested protocol for installation of an initial monitoring well at sites where there has been a documented or probable discharge of motor fuel to soil, and contamination or threatened contamination of shallow groundwater is suspected. The Guidelines presented below discuss well location, drilling, and construction procedures, as well as procedures for collection of soil samples and water samples and observation for the presence of free product above the groundwater.

Monitoring Well Location

Monitoring wells for initial investigation of leaks from underground tanks or piping should be located within ten feet of the suspected leak and within the backfill area if this is feasible. The well should be located in the downgradient direction, based on known or reasonably assumed conditions of the site.

Well Drilling Procedures

To obtain representative samples of soil and water the following methods are recommended and shall be employed whenever possible.

Drilling shall be accomplished with a hollow stem, continous flight auger. Under no circumstances shall conventional mud-rotary type drills be used. Test holes shall be logged by qualified field personnel under the direct supervision of a registered engineering geologist or registered geologist. All bore holes shall be located on sight specific maps which show the locations of all subsurface tanks, sumps and buried pipelines.

Test holes shall extend at least 30 feet below the lowest point of any underground tank or sump to a maximum depth of 45 feet from the ground surface (figure a-1). Soil samples shall be collected as specified under "Soil Sampling Procedures" (see next section), between the tank (or piping) bottom and the water table. Should no groundwater be encountered, soil samples and visual observations are to be taken. The well bore shall then be sealed according to county well standards.

If groundwater is encountered within the maximum bore hole depth, then the well shall be drilled at least 15 feet into the saturated zone. Should an aquitard or clay layer be encountered at any point below the water table, then the competency of this layer shall be tested by drilling at least 5 feet within this zone. If the aquitard is found to be less than five feet, it can be assumed to be a local clay lens and the drilling should continue to the depth specified above. Should the clay layer be more than five feet thick, then the excess hole is to be backfilled with concrete and the monitoring well constructed in the overlaying aquifer. Bore holes must be of sufficient diameter to accommodate well casings, screens and gravel pack. Minimum casing diameters of no less than 2 inches

should be used with a maximum diameter being no greater than 6 inches.

Soil Sampling Procedures

Soil samples shall be collected by utilizing Shelby Tubes or a modified California Drive sampler. Samples shall be taken at five foot intervals below the lowest point of the tank or piping, however no soil samples shall be be taken in the saturation zone. Samples are to be capped air tight with teflon or aluminum and then placed in refrigerated ice chests for transportation and storage. Samples shall not be extruded in the field but only at a certified testing laboratory. Formal, signed, chain of custody records shall be maintained for all samples. All soil samples shall be analyzed. Each sample shall be analyzed discretely for Total Hydrocarbons as described in Attachment 2, Analytical Procedures.

Well Construction Procedures

Wells must be constructed of materials which will least affect water quality data, and be of sufficient durability to withstand deterioration. Acceptable construction materials include, polyvinyl chloride piping (PVC), stainless steel or low carbon steel. These materials shall be throughly cleaned with trisodium phosphate (TSP) and rinsed with water so as to be free from organic contamination.

Casings should be threaded or fitted with slip sleeves, however, organic sealants shall not be used. Well screens should be installed of sufficient length to accommodate seasonal groundwater fluctuations and extend at least fifteen feet below and at least five feet above the top of the saturation zone. The well casing should be cement grouted with an annular seal beginning from above the perforation zone to the ground surface or subsurface vault, and an appropriate surface sealer applied to prevent local surface contamination. Well centralizers should be used whenever necessary so that perforations, well screens, gravel pack and annular seals are properly centered within the borehole.

Gravel Pack Well Perforation Zone

The well perforation zone shall be packed with appropriate material to provide filtration capacity and prevent siltation from the aquifer zone. It shall be constructed with well-rounded materials, (crushed materials are unacceptable), and washed clean of silt, dirt, and all other foreign matter. The filtration zone should rise two feet above the top of the perforated zone, (figure a-1). Placement of the sand or gravel pack shall begin within the lower reaches of the gravel pack zone and proceed upward. Filter placement shall be conducted in such a manner to minimize the possibility of segregation.

Annular Seal

The annular seal should be placed above the zone of perforation and extend to the ground surface or subsurface containment vault, figure (a-1). It shall be composed of neat cement, cement grout, concrete or bentonite slurry. If cement is used it shall be class A Portland Cement. In cases where PVC casings are used, then latent heat of hydration should be monitored to prevent damage or premature failure of the casing. The affects of latent heat can be minimized by the addition of bentonite pellets or sand, or by simply allowing the mixture to cool before placement.

Annular seals shall be placed above the gravel pack and extend to the ground surface or subsurface vault. A finer zone of material may be required above the gravel pack to prevent seepage of sealer material. This layer should be composed of finer sands, soil or bentonite pellets.

Sealer materials should be thoroughly mixed with clean water. This material shall be placed, beginning from the bottom of the sealing interval, in such a manner to prevent bridging, dilution and segregation when placed underwater. If bentonite pellets are used for the seal, placement can be through free fall as bentonite pellets would sink to the bottom of any water which may have seeped into the hole. When portland cement is used, placement shall be in one continous lift for the entire interval to be sealed.

Well Bottom Plugs

The bottom of each well should be permanently sealed to prevent improper well development, siltation, or a cavity from forming at the base of the casing. This should be accomplished with either a screw-on or friction cap, secured without the use of organic sealing compounds.

Surface Security and Identification

The platform or surface of each well head shall be protected from all unauthorized entry from fluids or vandalism. Well heads may be secured above or below the ground depending on local surface conditions. The well head shall be sealed with a water tight cap and be secured or locked.

Well heads secured below the surface shall be vaulted in a concrete or similar type vault, secured with a locking cover. The vault installation shall provide for drainage of accumulated surface run-off.

Each well shall be identified according the standard procedures including, owner, well number, type of installation, and pertinent construction data such as, depth, casing, diameter, and well screen perforated intervals.

Well Development

All monitoring wells shall be developed in order to clean the well and stabilize the sand, gravel, and aquifer materials around the screens and perforations. Well development may be accomplished by bailing, mechanical or air lift pumping, surging, or swabbing. Well development shall continue until the well is thoroughly developed and free of sand, silt and turbidity.

In some cases where low permeability formations are involved initial development pumping may immediately dewater the well casing and thereby inhibit development. When this occurs, clean, potable grade water can be introduced into the well, followed by surging of the waters introduced with a swabb or surge block. Care must be taken not to damage the well screen or casing while swabbing or surging. This is to be followed by pumping. The procedure should be repeated as required to establish full development.

Sampling for Floating Free Product

The sampling of free product which may be floating on the surface of the ground water shall not be performed until the well has been allowed to stabilize for at least 24 hours after development or other withdrawal procedure.

A sample shall be collected which is indicative of the thickness of floating product within the monitoring well. This may be accomplished by the use of a clear, acrylic bailer which is designed to collect a liquid sample at the free product/ground water interface. A graduated scale on the bailer is helpful for determining the thickness of free product.

Samples shall be field inspected for the presence of odor and/or sheen in addition to the above evaluation.

Sampling for Dissolved Product

If less than 1/4 inch of free product is detected by the above method, then analyses for dissolved consituents shall be performed by the following method:

—The well shall be purged by bailing or pumping to remove four to ten well volumes prior to sampling, or until the discharge water indicates stabilization of temperature, conductivity, and pH. If the well is evacuated before four to ten well volumes are removed, or stabilization is acheived, the sample shall be taken when the water level in the well recovers to approximately 80% of its initial water level. However, for wells where recovery is very slow, the sample should be taken as soon as the water level is sufficient to recover a representative sample.

— Following appropriate purging, a sample of the ground water shall be

obtained in a manner which reduces or eliminates the possibility of loss of volatile constituents from the sample. For collecting samples, a gas-actuated positive displacement pump, or a submersible pump is preferred. A teflon or steel bailer is acceptable. Peristaltic pumps or air-lift pumps shall not be used.

— Water samples shall be collected in vials or other containers specifically designed to prevent loss of volatile constituents from the sample. No headspace should be present in the sample container once the container has been sealed. Samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Monday, December 3, 1979, Page 69544, Table II), and formal, signed, chain of custody records shall be maintained for all samples.

— Water samples shall be analyzed utilizing the methods specified in Attachment 2, Analytical Procedures. To determine which constituents must be analyzed see the text of the guidelines or consult Figure 2.

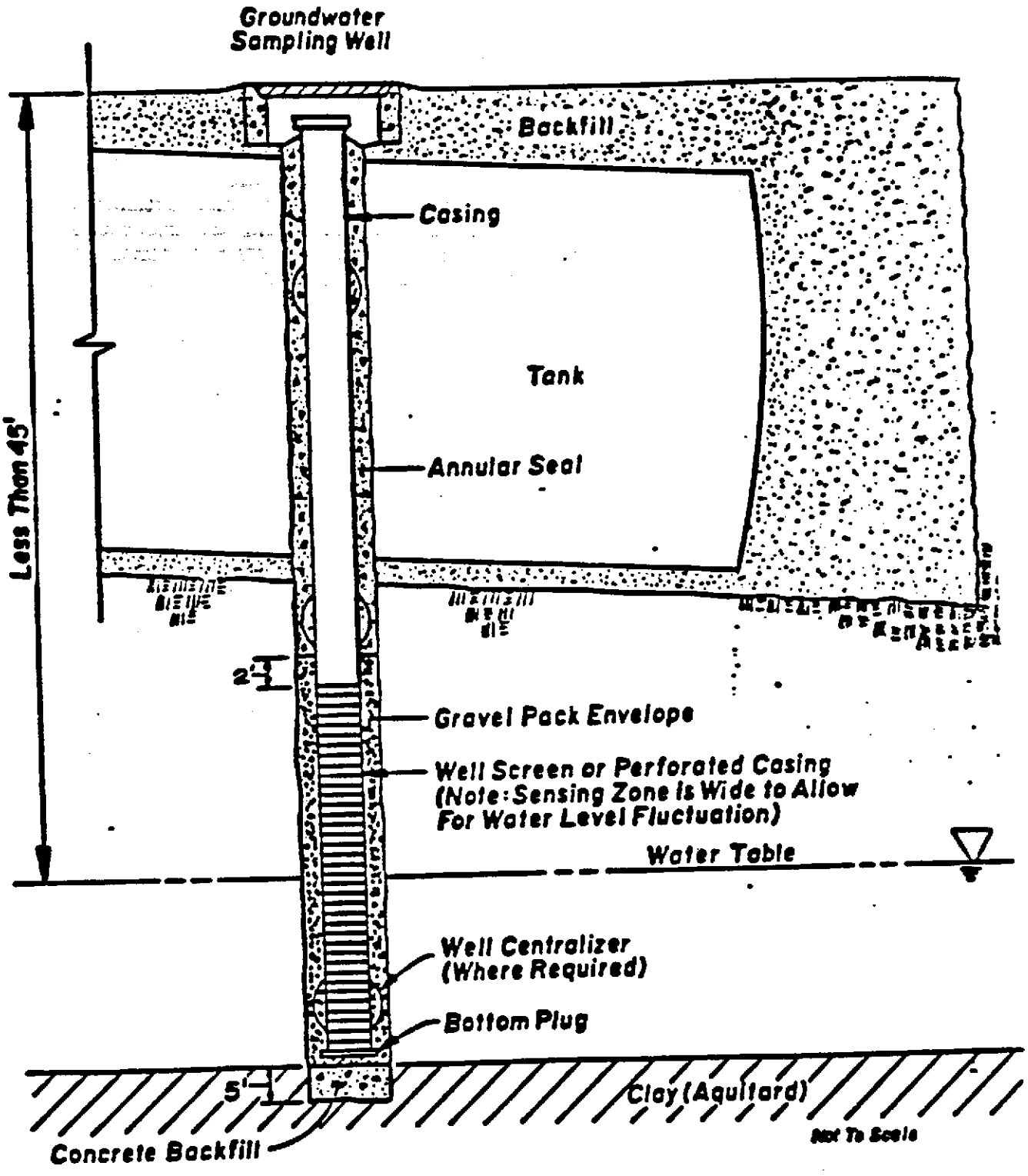


FIGURE a-1. MONITORING WELL FOR FUEL LEAK INVESTIGATIONS

IT CORPORATION

STANDARD PROCEDURE

PROCEDURE NO. ITC PRO 9560D

DATE May 27, 1986

SUPERSEDES 9560C (02/10/86)

APPROVED David R. Smith

SUBJECT: Personal Protective Equipment

I. PURPOSE

This procedure describes personal protective equipment requirements for employees who work with potentially harmful substances, physical hazards, or in potentially hazardous areas.

II. REGULATION

A. IT Corporation will provide suitable personal protective equipment as required for the nature of the job being performed, such as, but not limited to, boots, protective clothing, respirators, face-shields, safety eye wear, respirator opthalmic hanger devices, hard hats, and gloves. This personal protective equipment will be approved by the Regional Health and Safety office prior to use.

B. Employees shall use H&S-approved protective equipment on any task where there is potential exposure to: physical hazards such as equipment operation, objects dropping from above, or flying particles; or exposure to toxic or irritating gases, fumes, vapors, liquids, or other materials which might cause respiratory distress or skin irritation.

C. Employees shall wear hard hats, eye protection, and steel-toed, chemical resistant foot protection (when required) at all IT job sites and industrial shop facilities.

1. Eye Protection

All employees engaged in or working in areas adjacent to eye-hazardous activities or operations shall wear appropriate eye protection.

a. Safety glasses are required for impact protection.

b. Chemical goggles are required for protection against chemical splash.

c. Face shields are required for face protection from chemical splash and are not a substitute for eye protection.

d. Full face respirators can provide eye and face protection in lieu of a, b, and c.

E. Lending Personal Protective Equipment To Non IT Personnel

1. The following personal protective equipment may be provided on a short-term loan basis to site visitors:

   a. Hard hats
   b. Chemical goggles
   c. Safety glasses
   d. Face shields
   e. Chemically resistant boots
   f. Chemical resistant gloves
   g. Hearing protectors

2. The following personal protective equipment shall not be provided, loaned, or sold to non-IT personnel without prior consultation and approval by the IT regional Health and Safety Office:

   a. Respiratory protective equipment
   b. Personal protective garments

   The regional Health and Safety office will additionally specify any special training that may be required for non-IT personnel using respiratory protective equipment and/or personal protective garments.

IT CORPORATION

STANDARD PROCEDURE

PROCEDURE NO. ITC PRO 9561C

DATE January 15, 1988

SUPERSEDES 9561C (11-03-86)

APPROVED David R. Smith

SUBJECT:

RESPIRATORY PROTECTIVE DEVICES

I. PURPOSE

To prescribe the general requirements of the respiratory protection program, and to provide information and guidance on the proper selection, instruction and training, use, and care of respiratory protective devices.

II. SCOPE

All operations where potential exposure to harmful dusts, fumes, mists, gases, vapors, or odors cannot be controlled by accepted engineering control measures, and the use of respiratory protective devices is required, are subject to the provisions of this directive.

III. REFERENCES

A. Title 29, Code of Federal Regulations, Section 1910.134.

B. Title 29, Code of Federal Regulations, Section 1926.58, Appendix C, III.

C. American National Standards Institute, ANSI Z88.2-1980, "Practices for Respiratory Protection".

D. NIOSH, A Guide to Industrial Respiratory Protection, June, 1976.

E. AIHA, Respiratory Protection, A Manual and Guideline, 1980.

F. NIOSH, Performance Evaluation of Respiratory Protective Equipment Used in Paint Spraying Operations June, 1976.

G. NIOSH, Development of Improved Respirator Cartridge and Cannister Test Methods, July, 1977.

H. NIOSH, Certified Equipment List, October, 1984.

I. ITC PRO 8000.20, Minimum Preventative Maintenance Standards for Corporate Equipment.

J. ITC PRO 8001-T, Maintenance Department Management System.

IV. ATTACHMENTS

A. Table of Approved Respirators for Use by IT Corporation Employees

B. Respiratory Training Completion Form, ITC Form 9561-1

C. SCBA Monthly Inspection Checklist, ITC Form 9561-2

D. IT Mandatory Qualitative Respirator Fit Test Protocol

V. DISCUSSION

It is generally more practical and less costly to control employee exposures to harmful air contaminants by use of process engineering controls, safe work practices, and substitution with low toxicity materials than to rely solely on the use of respiratory protection and other personal protective devices. Many of the operations of IT Corporation do not, however, permit the removal of harmful air contaminants by engineering controls, and therefore, employee exposures must be controlled by use of respiratory protective equipment.

This directive prescribes the general requirements of the respiratory protection program with regard to proper selection, use, and care of respirators, and requirements for employee instruction and training. In all cases where OSHA has specified that a specific respirator be used (such as in the asbestos and carcinogen standards, confined space work, etc.) reference should be made to the specific ITC Procedure or applicable federal or state rules and regulations.

VI. POLICY REGARDING OBSTRUCTIONS TO FACE SEAL

It is the policy of IT Corporation to assign to jobs that require respiratory protective devices, or that might require the use of a respirator on an emergency basis, only those employees without physical obstructions to a gas-tight face seal.

Respirator wearers cannot be afforded protection from hazardous airborne contaminants when conditions prevent a complete gas-tight face seal. Facial hair, head hair, and eyeglasses are among these physical obstructions. While eyeglasses are in the category of obstructions that prevent a gas-tight face seal, primarily in the case of full-face supplied-air respirators, this problem is correctable by use of mounting devices to hold the eyeglasses. The criteria is that there can be no obstruction of contact between the wearer's skin and the mask whatsoever. Beard stubble constitutes a physical obstruction. Affected employees shall be required to be clean shaven, as a condition of employment.

Candidates for employment at IT shall be made aware that their versatility may be limited and that this can affect their job assignments. As a consequence, an individual's attitude should be assessed regarding the removal of gas-tight face seal obstructions prior to employment.

VII. PROCEDURE

A. General Program Requirements

1. Management Responsibility

a. Business group management shall ensure compliance with the respiratory protection program set forth in this procedure.

b. Respirators shall be provided by the employer whenever a qualified person determines that such equipment is necessary to protect the health of the employee from significant inhalation exposures.

c. The employer shall provide only that respiratory equipment that has been jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH).

d. Respirators shall be selected by or with the approval of Health and Safety on the basis of respiratory hazards to which the worker is exposed. (See Section B.1.)

e. Employees shall be instructed and trained in the need, use, sanitary care, and limitations of such respiratory equipment prior to assignment to activities requiring respiratory protection. (See Section C.)

f. The manager shall provide, repair, or replace respiratory protective equipment as may be required due to wear and deterioration. (See Section D.)

g. The manager shall provide means for cleaning all respiratory protective equipment. (See Section D.)

h. The manager shall ensure that only those employees who are medically qualified to wear respirators are assigned to respirator work. (See Section E.)

2. Health and Safety Responsibilities

a. Regional Health and Safety

Regional Health and Safety personnel shall monitor compliance with the various aspects of this program, provide technical assistance regarding respirator selection and use, evaluate the effectiveness of this program, and support respirator training and fit testing.

b. Corporate Health and Safety

Corporate Health and Safety personnel shall audit business group performance for compliance with this procedure, assure

maintenance of training and medical records, and review the status of this procedure with regard to current regulatory requirements.

3. Employee Responsibility

a. The employee shall use the provided respiratory protection in accordance with instructions and training received.

b. The employee shall guard against damage to the respirator.

c. The employee shall report immediately any malfunction of the respirator to the supervisor or other responsible person.

B. Specific Program Requirements

1. Respirator Selection

a. When respirator use is required, only properly cleaned and maintained NIOSH/MSHA approved respirators shall be used. Single use respirators may only be used with specific approval by Health and Safety.

b. Employees shall be allowed to pick the most comfortable respirator from a selection including respirators of various sizes from different manufacturers. (Refer to ITC PRO 9551.4 for specific respiratory requirements for asbestos work.)

c. Selection of respirators shall be approved by Health and Safety in all cases, and shall be based on the following considerations:

(1) Nature of the hazard - The chemical and physical properties, toxicity, and concentration of hazardous material or mixture of materials.

(2) Oxygen-deficient atmospheres - Entry into oxygen-deficient atmospheres is prohibited.

(3) Immediately Dangerous to Life and Health (IDLH) Atmospheres - Entry into any IDLH Atmosphere is prohibited. Contact the Health and Safety Department for information.

(4) Irritant or Corrosive Atmospheres - Respirators selected must provide adequate face and eye protection. The contaminant or mixture of contaminants must have adequate warning properties (odor, irritation, or taste) to indicate respirator breakthrough if an air-purifying device is used.

d. Regulated Materials - In all cases where OSHA has specified that a specific respirator be used (carcinogen standards,

Confined Space Entry, etc.., that respirator or one providing equal or better protection shall be used. Contact Health and Safety for assistance.

e. Make and model of respirators approved for use by IT employees can be found in Attachment A, Table of Approved Respirators for use by IT Corporation Employees. NOTE: Full facepiece negative pressure air purifying respirators are not approved for protection against asbestos exposure.

2. Use of Corrective Lens Eyewear in Environments Where Respiratory Protection is Necessary

a. The wearing of contact lenses in work environments which entail exposure to chemical fumes, vapor, splashes, intense heat, molten metals, or highly particulate-contaminated atmospheres shall be prohibited.

b. Management shall assess which employees in their operations wear eye glasses routinely, determine what types (makes and models) of respiratory protective masks are used, and assure that the appropriate frames or opnthalmic device hangers are obtained and provided at company expense. (See ITC PRO 9560.1.)

C. Employee Training and Instruction

1. The basic respirator training program shall include, as a minimum, the following:

a. Instruction in the need, use, sanitary care, and limitations of each respirator type.

b. Opportunity for "hands-on" experience with the respirators.

c. Proper fitting, including demonstrations and practice in wearing, adjusting, and determining the fit of the respirator. A selection of respirators shall be available to determine the most comfortable respirator and the best fit.

d. How to perform a positive and negative pressure test of the facepiece-to-face seal.

e. A familiarization period of wear in normal air.

f. For negative pressure respirators, wearing the respirator in an irritant fume test atmosphere for qualitative fit testing. All qualitative fit testing shall be performed by a qualified person using the protocol found in Attachment D or other protocol as designated by specific standards (e.g. asbestos, benzene). Qualitative fit testing shall be performed annually, or more frequently as required by law. Quantitative fit testing may be required for some respirators or contaminants. Health and Safety will determine fit test requirements.

g. Instruction in the nature of the respiratory hazards, whether acute, chronic, or both, and a description of potential health effects if the respirators are not used.

h. Classroom and field training to recognize and cope with emergency situations (including respirator failure).

2. Subject training shall be repeated annually, and each employee receiving such training shall complete the Respiratory Training Completion Form (Attachment B).

3. Training records are maintained by the Corporate Training Department. On-site records of training and fit testing will be maintained as required by law (asbestos).

D. Respirator Inspection, Cleaning, Maintenance, and Storage

1. General

Regional Health and Safety will define a program to area/facility management for maintenance and care of respirators which shall be adjusted to the type of facility, working conditions, and hazards involved, and shall include the following basic elements:

a. Inspection for defects and/or deterioration.

b. Cleaning and disinfecting in accordance with manufacturers instructions.

c. Repair as necessary.

d. Establishment and maintenance of a recordkeeping system to document respirator inspection, repair, and maintenance.

e. Proper storage.

2. Inspection, Maintenance, and Storage

a. All respirators shall be inspected routinely before, during, and after each use by the user. Any defects shall be reported to supervision. No defective respirator shall be issued or worn. Defective respirators shall be tagged and returned to the storeroom for repair.

b. Respirators maintained for emergency use (such as SCBA) shall be inspected and sanitized after each use and inspected at least monthly. A record of the most recent inspection shall be maintained on the respirator or the storage container; and shall include the inspector's identification, the date, and a respirator identification number. The record shall be made on the SCBA Monthly Inspection Checklist, Attachment C. Alternate inspection checklist(s) forms may be used if they contain, as a minimum, the information required in Attachment C.

c. Routinely used respiratory equipment shall be regularly cleaned, inspected, and sanitized by an individual qualified by experience or training to do the work.

d. Specific instructions for respiratory equipment inspection and maintenance applicable to IT Corporation respiratory protective devices are contained in the following:

(1) ITC PRO 9561.1; Scott Type C Supplied Air Respirators Inspection and Maintenance.

(2) ITC PRO 9561.2; Scott Air Pak IIA Inspection and Maintenance.

(3) ITC PRO 9561.4; Scott, Model 64 Respirator Inspection and Maintenance.

(4) ITC PRO 9561.5; Scott, Model 65 Full Facepiece Respirator Inspection and Maintenance.

Other types of resiratory equipment shall be maintained according to manufacturer's instructions.

e. Where respirators are assigned to individual employees, area management shall ensure compliance with cleaning and maintenance requirements by periodic inspection and field audits of respiratory equipment.

f. Respiratory equipment shall not be passed on from one person to another until it has been cleaned and sanitized, per Regional Health and Safety requirements.

b. Breathing air shall be free from harmful dusts, fumes, mists, vapors, gases or odors.

c. Oxygen shall NOT be used at any time in open-circuit SCBA's or air-line respirators.

2. Compressed Air Cylinder Systems (Cascade)

a. Breathing air cylinders shall be legibly identified with the word AIR by means of stenciling, stamping or labeling as near to the valve end as practical.

b. Cascade systems shall be equipped with low pressure warning bells (Pak alarm, etc.) or similar warning devices to indicate air pressure in the manifold below 500 psi.

c. When a cascade system is used to supply breathing air, one employee shall be assigned as safety standby within audible range of the low pressure alarm.

d. When a cascade system is used to recharge SCBA air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 3000 psi.

e. Air-line couplings shall be incompatible with outlets for other gas-systems to prevent inadvertently supplying air-line respirators with nonrespirable gases or oxygen.

f. The air pressure at the hose connection to positive-pressure respiratory equipment shall be within the range specified in the approval of the equipment by the manufacturer.

g. Cylinders shall be stored and handled to prevent damage to the cylinder or valve. Cylinders shall be stored upright with the protective valve cover in place and, in such a way (e.g. supported with substantial rope or chain in the upper one third of the cylinder, or in racks designed for this purpose) as to prevent the cylinder from falling. Cylinders shall not be dropped, dragged, rolled, or allowed to strike each other or to be struck violently. Cylinders shall never be exposed to temperatures exceeding 125 degrees F. Cylinders with visible external damage, evidence of corrosion damage, or exposure to fire shall not be accepted or used. Additional information is given in ITC PRO 9532.2, Compressed Gases.

h. Only cylinders within current hydrostatic test periods shall be used.

g. When not in use, respirators shall be stored to protect against dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals.

E. Air Purifying Respirators (APR)

1. Fit testing shall be accomplished in accordance with Attachment D to this procedure.

2. When APRs are worn employees shall change the filter/cartridge elements:

a. Whenever an increase in breathing resistance is detected,

b. If "breakthrough" is perceived,

c. Filter/cartridge elements must be removed and discarded at the end of the shift. New elements must be installed at the beginning of each shift.

F. Powered Air Purifying Respirators (PAPR)

1. When PAPRs are worn, employees shall change filter/cartridge elements:

a. Whenever an increase in breathing resistance is detected;

b. If "breakthrough" is perceived;

c. When airflow through filter elements decreases to an unacceptable level as indicated by the manufacturer's test device;

d. When chemical cartridges or filter/chemical cartridge combination elements are used, the elements must be removed and discarded at the end of the shift. New elements must be installed at the beginning of each shift.

G. Compressed Air Systems

1. Air Quality

a. Compressed air used for respiration shall be of high purity, and shall meet, as a minimum, the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Specification G-7.1 (ANSI Z86.1-1973). Current Certificates of Air Quality Analysis should be maintained in the Health & Safety Department.

3. Compressor Supplied Breathing Air

a. All compressors used for supplying breathing air shall be equipped with the following safety and standby devices:

(1) The compressor intake shall be located to assure that only respirable (uncontaminated) air is admitted. This requires attention to the location of the compressor intake with respect to compressor engine exhaust, chemical storage or use areas, and suitable intake screening or filtration.

(2) Alarms to indicate compressor failure (such as low-pressure air horns, etc.) shall be installed in the system.

(3) A receiver of sufficient capacity to enable the respirator wearer to exit from a contaminated atmosphere shall be provided.

(4) Oil lubricated compressors - if an oil-lubricated compressor is used to supply breathing air, it shall be equipped with both of the following devices:

(a) Continuous reading carbon monoxide monitoring system set to alarm should the carbon monoxide concentration exceed 10 ppm; or

(b) High temperature alarm which will activate when the discharge air exceeds 110% of the normal operating temperature in degrees Fahrenheit.

(5) An inline purifying filter assembly to remove oil, condensed water, particulates, odors and organic vapors shall be used in conjunction with the air compressor.

b. Routine inspection and maintenance of air compressor shall be performed in accordance with ITC PRO 8000.20 and 8001-T.

H. Escape/Egress Units

1. These respirators are intended for use in areas where escape with a short term (5 minute) air supply is necessary. They may be used as adjuncts to airline pressure demand respirators as a backup air supply; or as independent emergency devices in areas where respiratory protection is not normally required.

2. Appropriate training shall be accomplished and documented prior to assigning employees to tasks or locations subject to the use of these respirators.

3. Escape/egress units (5 minute) shall never be used as primary standby respirators for confined space entry.

I. Medical Surveillance

1. No employee shall be assigned to a task that requires the use of a respirator unless it has been determined that he/she is physically able to perform the work while using the required respirator.

2. If an employee experiences difficulty in breathing during the fitting test or during use, he or she shall be re-examined by a physician to determine whether the employee can wear a respirator while performing the required duty.

3. Once a medical determination has been made as to physical ability to wear a respirator, a review of the employee's health status shall be made at least annually.

4. Facial deformities or excessive facial hair may prohibit wearing respirators due to lack of adequate gas-tight face-to-facepiece seal.

TABLE OF APPROVED RESPIRATORS FOR USE BY IT CORPORATION EMPLOYEES

Attachment A
ITC PRO 9561
(12/87)

TYPE OF RESPIRATOR	MANUFACTURER	FACEPIECE NAME	FACEPIECE UNIT MODEL #	RATING	SIZES AVAILABLE
AIR PURIFYING - Cartridge					
HALF-FACE	SCOTT	HALF-FACE	66	GOOD[3]	S-M-L
	SCOTT	HALF-FACE	64	GOOD	S-M-L
	MSA	COMFO II		GOOD	S-M-L
FULL-FACE	SCOTT	SCOTT-O-VISTA	65	FAIR[4]	S-L
	MSA	ULTRA-TWIN		GOOD[4]	S-M-L
POWERED AIR PURIFYING	MSA	ULTRAVUE		FAIR[1,2]	S-M-L
	RACAL	POWER FLOW		GOOD	
	RACAL	BREATHE-EASY	7	FAIR[1]	ONE SIZE ONLY
AIR PURIFYING - Canister	MSA	ULTRAVUE		GOOD	S-M-L
SUPPLIED AIR RESPIRATORS					
AIRLINE	SCOTT	SCOTT-O-RAMIC	AIR-PAK	GOOD	ONE SIZE ONLY
	MSA	ULTRAVUE		GOOD	S-M-L
S.C.B.A.	SCOTT	SCOTT-O-RAMIC	IIA	GOOD	ONE SIZE ONLY
	SCOTT	SCOTT-O-VISTA	2.2	FAIR	S-L
	MSA	ULTRAVUE 401	401	GOOD	S-M-L
	MSA	ULTRAVUE	ULTRALITE	GOOD	S-M-L
ESCAPE / EGRESS UNIT	SCOTT	SCOTT-O-RAMIC	SKA-PAK	GOOD	ONE SIZE ONLY
	SCOTT	SCOTT-O-VISTA	SKA-PAK	FAIR	S-L
	MSA	ULTRAVUE	AIR-SLING	GOOD	S-M-L
	ISI	ELSA	5, 5XF	GOOD	ONE SIZE ONLY

1 Use or acquistion of this device must be approved by the Regional Health & Safety Manager.

3 This model requires the use of the neck strap option

INTERNATIONAL TECHNOLOGY CORPORATION

RESPIRATOR TRAINING COMPLETION FORM

FIT TEST PROTOCOL:

☐ Standard

☐ Other (specify) _____

DIVISION _____ **LOCATION** _____

FIT TEST CONDUCTED BY: _____ **DATE** _____

Initial only the appropriate blocks

NAME _____ (Please print) **SIG.** _____ **S.S.#** _____	**SCBA** Model: Size: S M L	**AIRLINE PRESSURE DEMAND** Size: S M L Brand:	**PAPR** Model: Size: S M L	**AIR PURIFYING FULL FACE** Size: S M L Brand:	**AIR PURIFYING HALF MASK** Size: S M L Brand:	**OTHER**
1. I understand why respiratory protection is needed and where and when it should be used.						
2. I know how to use this respirator properly.						
3. I know how to clean and inspect this respirator.						
4. I understand the limitations and restrictions of the respirators I will be using.						
5. I wore this respiratory equipment in normal air and checked the facepiece fit.						
6. I wore this respiratory equipment in a test atmosphere generated by smoke or other means.						
7. I understand that a good gas-tight face seal cannot be achieved with obstruction such as facial hair or glasses (with fullface mask).						

INTERNATIONAL TECHNOLOGY CORPORATION

SCBA MONTHLY INSPECTION CHECKLIST

INSPECTED BY: _____ BACKPACK # _____

DATE: _____ AIR CYLINDER # _____

			PASS	FAIL
A. BACKPACK AND HARNESS ASSEMBLY	1. STRAPS	☐ INSPECT FOR COMPLETE SET	☐	○
		☐ INSPECT FOR DAMAGED STRAPS	☐	○
	2. BUCKLES	☐ INSPECT FOR MATING ENDS	☐	○
		☐ CHECK LOCKING FUNCTION	☐	○
	3. BACKPLATE AND CYLINDER LOCK	☐ INSPECT BACKPLATE FOR CRACKS, MISSING SCREWS/RIVETS	☐	○
		☐ INSPECT CYLINDER HOLD DOWN STRAP	☐	○
		☐ INSPECT STRAP TIGHTENER	☐	○
B. CYLINDER AND CYLINDER VALVE ASSEMBLY	1. CYLINDER	☐ CYLINDER TIGHT TO BACKPLATE	☐	○
		☐ CURRENT HYDROSTATIC TEST	☐	○
		☐ INSPECT CYLINDER FOR DENTS/GOUGES	☐	○
	2. HEAD AND VALVE ASSEMBLY	☐ INSPECT CYLINDER VALVE LOCK FOR PRESENCE	☐	○
		☐ INSPECT CYLINDER GAUGE FOR CONDITION	☐	○
		☐ PROPER FUNCTION OF CYLINDER VALVE LOCK	☐	○
		☐ TEST FOR CYLINDER VALVE LEAKAGE	☐	○
C. REGULATOR AND HIGH PRESSURE HOSE	1. HIGH PRESSURE HOSE AND CONNECTOR	☐ LEAKAGE IN HOSE	☐	○
		☐ LEAKAGE IN HOSE TO CYLINDER CONNECTOR	☐	○
	2. REGULATOR AND LOW PRESSURE ALARM	☐ READ REGULATOR GAUGE (AT LEAST 1800 PSI)	☐	○
		☐ LOW PRESSURE ALARM SOUNDS AT 500-650 PSI	☐	○
		☐ TEST INTEGRITY OF DIAPHRAGM	☐	○
		☐ TEST FOR POSITIVE PRESSURE	☐	○
		☐ TEST BY PASS SYSTEM	☐	○
D. FACEPIECE AND CORRUGATED BREATHING TUBE	1. FACEPIECE	☐ INSPECT HARNESS FOR DETERIORATION	☐	○
		☐ INSPECT FACEPIECE BODY FOR DETERIORATION	☐	○
		☐ INSPECT LENS	☐	○
		☐ INSPECT EXHALATION VALVE	☐	○
	2. BREATHING TUBE AND CONNECTOR	☐ INSPECT BREATHING TUBE FOR DETERIORATION	☐	○
		☐ INSPECT CONNECTOR THREADS AND GASKET	☐	○
	3. LEAK TEST AND CLEANING	☐ PERFORM NEGATIVE PRESSURE TEST ON FACEPIECE/BREATHING TUBE	☐	○
		☐ CLEAN AND SANITIZE FACEPIECE	☐	○

NOTE: 1. CHECK ☐ FOR PASS, ○ FOR FAIL.
2. ANY ITEM MARKED "FAIL" WILL PLACE SCBA OUT OF SERVICE.

ITC FORM 9561-2
Attachment C

IT MANDATORY QUALITATIVE RESPIRATOR FIT TEST PROTOCOL

NOTE: This protocol does not satisfy the fit test requirements for asbestos or benzene. The appropriate protocols will be found in ITC PRO 9551.4 (asbestos) and 9551.11 (benzene).

A. Respirator Selection

Respirators shall be selected as described in Section VII.B.1 above. The respirator shall be equipped with combination HEPA/acid gas cartridges.

B. Fit Test

1. The test conductor shall review this protocol with the test subject before testing.

2. The test subject shall perform the conventional positive and negative pressure fit checks. Failure of either check shall be cause to select an alternate respirator.

3. A test atmosphere shall be generated with irritant smoke.

4. The test subject shall be advised that the smoke can be irritating to the eyes and instructed to keep the eyes closed while the test is being conducted (applies to half-mask respirators).

5. While wearing the selected respirator, the test subject shall enter the test atmosphere and perform the following exercises:

   a. Breathe normally.
   b. Breathe deeply. Be certain breaths are deep and regular.
   c. Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.
   d. Nod head up and down. Be certain motions are complete and made every second. Inhale on each side. Do not bump the respirator against the shoulders.
   e. Nod head up and down. Be certain motions are complete and made every second. Inhale when head is in the full up position (looking toward ceiling). Do not bump the respirator against the chest.
   f. Talking. Talk aloud and slowly in a fashion which will generate a wide range of facial movements.
   g. Breathe normally.

6. The test subject shall indicate to the test conductor if the irritant smoke is detected. If smoke is detected, the test conductor shall stop the test. In this case, the tested respirator is rejected and another respirator shall be selected.

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 54491

C/C Control No. 171007

PROJECT NAME/NUMBER Kamus 148031

LAB DESTINATION Precision Analytical

SAMPLE TEAM MEMBERS D. Kubik Jr

CARRIER/WAYBILL NO. Hand Delive-

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
010390PT1	PT1 Stream	1/3/90 1015	Surface Wat.	3x40ml VOA		
010390PT2	PT2	1020				
010390PT3	PT3	1025				
010390PT4	PT4 Stream	1030	Su. Fa. wate.			
010390TB	Trip Blank	1000	Ground Wate.			
010390MW1	MW1	1100				
010390MW2	MW2	1120				
010390SP1	Sump	1125		3x40ml VOA		
010390SP1	Sump	1/3/90 1125	Groundwater	1x1l Amber		

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] ITES 1/3/90 1223

   Received By: Donna Calinguin PAL 1/3/90 12:22

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received by:

4. Relinquished By:

   Received By:

WHITE - To accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 5449I
C/C Control No. 17007

PROJECT NAME: Kamur
PROJECT NUMBER: 148031
PROJECT MANAGER: Greg M. Milkan
BILL TO: ITES Mtz

PURCHASE ORDER NO.: 148031

DATE SAMPLES SHIPPED: 12/14/89
LAB DESTINATION: Precision Analytical
LABORATORY CONTACT: Jaime Chon
SEND LAB REPORT TO: Greg M. Milkan
4585 Pacheco Blvd
Mtz CA 94553

DATE REPORT REQUIRED: 1/17/89
PROJECT CONTACT: Greg M. Milkan
PROJECT CONTACT PHONE NO.: 372 9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
010390PT1	Surface water	3x 40 ml	HCl	TPH G	
010390PT2	"	"	"	"	
010390PT3	"	"	"	"	
010390PT4	Surface Water	"	"	TPH G	
010390TB	Groundwater	"	"	TPH G #	
010390MW1	"	"	"	TPH G BTEX	
010390MW2	"	"	"	TPH G BTEX	
010390SP1	"	3x 40ml	HCl	TPH(G) TPH(D) BTEX	
010390SP1	Groundwater	1x1 l		TPH(G) TPH(D) BTEX	

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)

Normal X Rush _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)

Nonhazard _____ Flammable _____ Skin Irritant X Highly Toxic _____ Other _____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)

Return to Client _____ Disposal by Lab X

FOR LAB USE ONLY

Received By Donna Calingasan Date/Time 1/3/90 12:22

WHITE - Original, to accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

CHAIN-OF-CUSTODY RECORD

R/A Control No. 001331

C/C Control No. A 82755

PROJECT NAME/NUMBER KAMUR ALBANY 148031 LAB DESTINATION PRECISION LAB

SAMPLE TEAM MEMBERS P. DeOCAMPO CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
120889MW2	MW #2	12-8-89 1230	Groundwater	40ml VOA's		
120889MW1	MW #1	1240				
120889MWFB	MW #FB	1350				
120889PT1	PT #1	1300	Surface water			
120889PT2	PT #2	1315				
120889PT3	PT #3	1325				
120889PT4	PT #4	1340	Surface water			
120889SP1	SUMP #1	1400	Groundwater	40ml VOAS		
120889SP1	SUMP #1	12-8-89 1400	Groundwater	1L Amber		

COPY

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: David DeOcampo ITES 12/8/89 1520

Received By: Donna Calinguin PAL 12/8/89 3:20

2. Relinquished By:

Received By:

3. Relinquished By:

Received by:

4. Relinquished By:

Received By:

WHITE - To accompany samples
YELLOW - Field copy

INTERNATIONAL TECHNOLOGY CORPORATION

REQUEST FOR ANALYSIS

R/A Control No. 00433
C/C Control No. A82755

PROJECT NAME: KAMUR ALBANY
PROJECT NUMBER: 148031
PROJECT MANAGER: Greg Millikan
BILL TO: 4575 Pacheco Blvd Martinez, CA 94553

DATE SAMPLES SHIPPED: 12-8-89
LAB DESTINATION: Precision Lab
LABORATORY CONTACT:
SEND LAB REPORT TO: Greg Millikan 4575 Pacheco Blvd Martinez, CA 94553
PURCHASE ORDER NO.:
DATE REPORT REQUIRED: 12-22-89
PROJECT CONTACT: Greg Millikan
PROJECT CONTACT PHONE NO.: (415) 372-9100

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions
120889 MW2	Groundwater	3 x 40ml	HCL	TPH (G) BTEX	
120889 MW1	Groundwater	3 x 40 ml	HCL	TPH (G) BTEX	
120889 MWFB	Groundwater	3 x 40ml	HCL	TPH (G) BTEX	
120889PT1	Surface Water	1 x 40ml	HCL	Gasoline	
120889PT2		1 x 40ml	HCL	Gasoline	
120889PT3		1 x 40ml	HCL	Gasoline	
120889PT4	Surface Water	1 x 40ml	HCL	Gasoline	
120889SP1	Groundwater	1 x 40ml	HCL	TPH (G) Diesel	
120889SP1	Groundwater	1 x 1L	HCL		

COPY

TURNAROUND TIME REQUIRED: (Rush must be approved by the Project Manager.)
Normal ____ Rush X (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances)
Nonhazard X Flammable ____ Skin Irritant ____ Highly Toxic ____ Other ____ (Please Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, and disposal.)
Return to Client ____ Disposal by Lab X

FOR LAB USE ONLY
Received By Donna Talmgren Date/Time 12/8/89 3:25

WHITE - Original, to accompany samples
YELLOW - Field copy

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 12/08/89
Reported: 12/18/89
Job No. #: 71228

Attn: Greg Millikan
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Kamur Albany
Matrix: Water

Total Petroleum Hydrocarbon Analysis
By DHS Method (LUFT)
mg/l

Lab ID	Client ID	Diesel	Gasoline	MDL
71228-1	120889 MW2	N/A	13	0.5
71228-2	120889 MW1	N/A	ND<0.5	0.5
71228-3	120889 MWFB	N/A	ND<0.5	0.5
71228-4	120889 PT1	N/A	ND<0.5	0.5
71228-5	120889 PT2	N/A	33	0.5
71228-6	120889 PT3	N/A	ND<0.5	0.5
71228-7	120889 PT4	N/A	ND<0.5	0.5
71228-8	120889 SP1	ND<0.5	55	0.5

QA/QC: Spike Recovery for Diesel: 128%
Spike Recovery for Gasoline: 95%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

Precision Analytical Laboratory, Inc.
4136 LAKESIDE DRIVE, RICHMOND, CA 94806 PHONE (415) 222-3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 12/08/89
Reported: 12/18/89
Job No. #: 71228

Attn: Greg Millikan
International Technology
4575 Pacheco Blvd.
Martinez, CA. 94553

Project: Kamur Albany
Matrix: Water

Aromatic Volatile Hydrocarbon Analysis:
EPA Method 8020
ug/l

Lab ID	Client ID	Benzene	Ethyl-benzene	Toluene	Xylene	MDL
71228-1	120889 MW2	13000	750	8400	2500	30
71228-2	120889 MW1	21	2.2	17	7.7	0.3
71228-3	120889 MWFB	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
71228-4	120889 SP1	26000	2100	25000	13000	30

QA/QC: Spike Recovery for Benzene: 112%
Spike Recovery for Toluene: 110%
Spike Recovery for O-Xylene: 109%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director