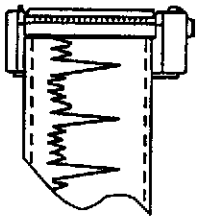


ENVIRONMENTAL TESTING & MGMT.
111 N. MARKET ST., SUITE 600
SAN JOSE, CALIFORNIA 95113
408.938.0939 FAX: 408.938.3929

February 3, 1998

Scott O. Seery
Senior Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502-6577

Re: PROPOSED WORK PLAN FOR CONTINUED SOIL AND WATER INVESTIGATION, AND EXPANDED GROUNDWATER MONITORING

SUBJECT SITE: GERMAN AUTOCRAFT
301 EAST 14TH STREET, SAN LEANDRO

Dear Mr. Seery:

Our objective in submitting this Work Plan is to assist German Autocraft in meeting the requests presented in your letter addressed to Mr. Lee dated January 16, 1998.

INTRODUCTION:

Environmental Testing & Mgmt. (ETM) previously performed a Soil and Water Investigation related to previous gasoline underground storage tanks (USTs) for the German Autocraft (GA) site. Our off-site investigation in 1996 appeared to define the GA gasoline plume extending approximately 240 feet northwest of the site. Our discovery of floating gasoline product close to West Broadmoor led to the City of San Leandro contracting with Allcal Property Services, Inc. for the installation of a monitoring well on the sidewalk of West Broadmoor on May 21, 1997. Allcal Property Services, Inc.'s investigation report and laboratory results and notes of

McCampbell Analytical Inc. imply that the gasoline at West Broadmoor may have originated from the GA site. In order to conclusively determine if the groundwater gasoline at West Broadmoor originated from the GA site, and to continue the SWI, the following is proposed:

SCOPE OF WORK:

- **Installation of seven (7) groundwater monitoring wells at locations denoted on Figure 1. If private property access is granted for more optimal placement of wells, the locations of wells may be altered.** The purpose of the well installations is to corroborate previous groundwater chemical test data in the area and support development of a final Risk-Based Corrective Action Plan (RBCA) for the GA site. Procedures for installation of wells, development, and monitoring are attached.
- **Inclusion of the private irrigation well in the backyard of 141 Farrelly Drive in the monitoring program.** The well at 141 Farrelly Drive is a potential receptor, and therefore is added to the program.
- **Gaining access the City of San Leandro well on West Broadmoor, surveying, gauging, sampling, and testing of groundwater.**
- Elevation survey of all wells in the program by a California licensed surveyor.
- Groundwater samples will be tested for gasoline, benzene, toluene, ethyl benzene, xylenes, and methyl tert-butyl ether by EPA Methods 5030 and 8020. The initial testing of groundwater taken from new wells to the program will include analysis by EPA Method 8260. Concurrently, existing wells in the program will also be tested by EPA Method 8260 to check previous test results.
- Preparation of a technical report for submittal to the Alameda County Department of Environmental Health detailing the findings of the investigation.

Please issue a letter approving this plan if you concur with our approach. We intend to submit your letter to the Underground Storage Tank Cleanup Fund as part of a Cost Preapproval Request.

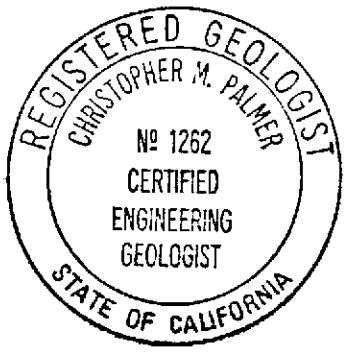
Sincerely yours,

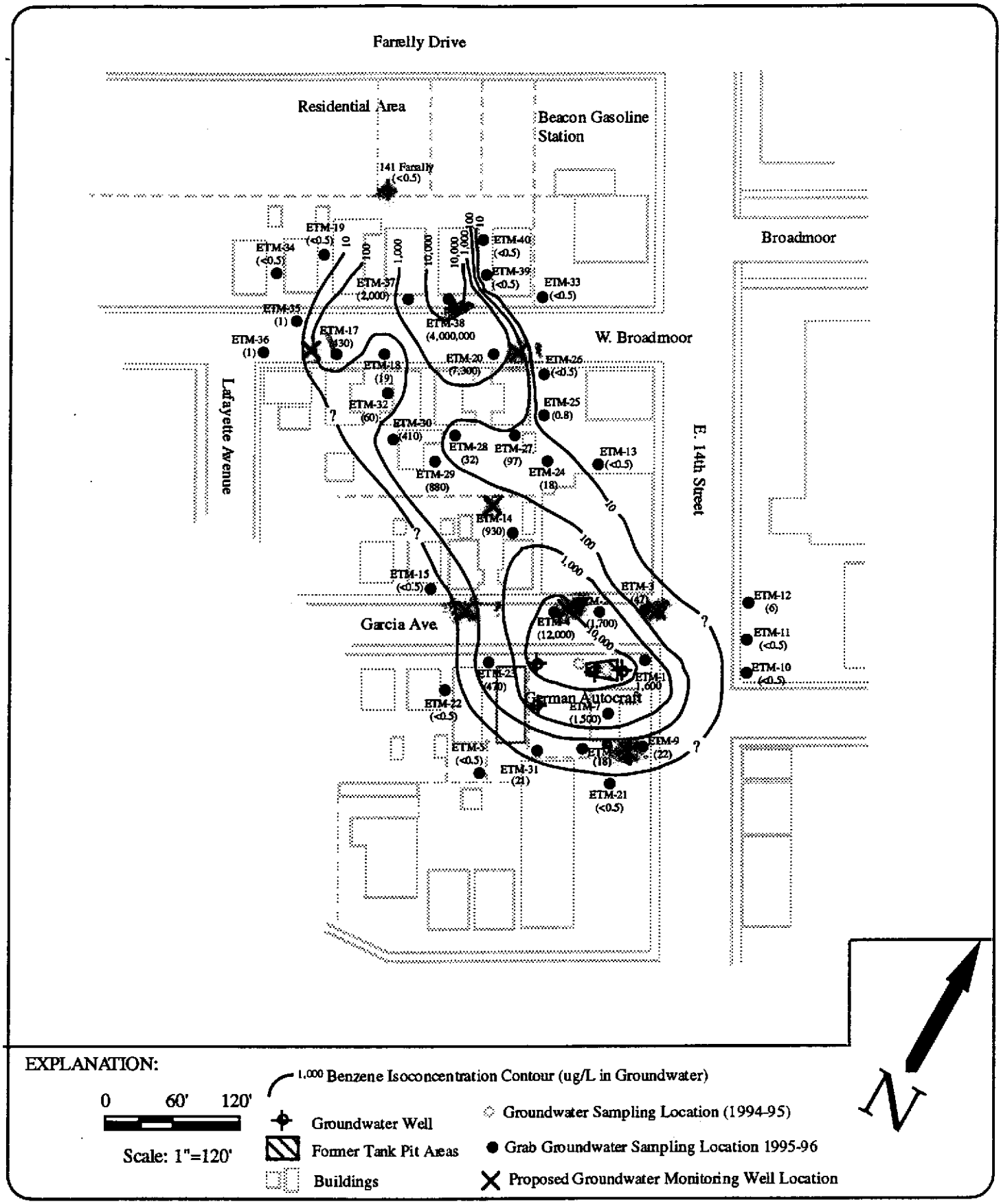
Tom Price
Project Manager

Christopher M. Palmer
Registered Geologist

Attachments: Figure 1: Site Vicinity Map with proposed groundwater monitoring well locations
Report from Allcal Property Services, Inc. dated June 16, 1997
Procedures for installation of wells and monitoring procedures

cc: Seung Lee, German Autocraft





Environmental Testing and Management
2916 Magliocco #2
San Jose, California

PROPOSED MONITORING WELL LOCATIONS ON SWI MAP
German Autocraft
301 East 14th Street
San Leandro, California

Figure 1

Date: 1/98

February 3, 1998

Re: MONITORING WELL INSTALLATION AND MONITORING PROCEDURES

SUBJECT SITE: GERMAN AUTOCRAFT
301 E. 14TH STREET, SAN LEANDRO

I. FIELD WORK FOR SOIL AND WATER INVESTIGATION

Prior to beginning field work, all workers will be briefed on a Health and Safety plan. This plan will be site specific and will address hazardous waste operations and emergency response as required by 29 CFR 1910.120.

A. MONITORING WELL INSTALLATION

Prior to beginning drilling, ETM will obtain permits from the Zone 7 Water Agency and the City of San Leandro. The proposed location of the monitoring wells is shown on **Figure 1**. The boreholes will be advanced with a truck-mounted hollow stem auger drill rig. The anticipated depth of the monitoring wells is expected to be approximately 40-feet.

Soil samples will be collected every five-feet starting at five-feet below grade or less frequent if deemed appropriate by the geologist, using a 2.5-inch outer diameter California modified split-spoon sampler. In addition to the samples collected every five feet, additional soil samples will be collected at any significant changes in lithology and where apparent contamination is encountered. Once the split-spoon sampler is retrieved, the bottom 6-inch brass sleeve containing soils will be sealed with aluminum foil, plastic end caps and duct tape and stored on ice for potential laboratory analysis. The remaining soil in the middle brass sleeve and the auger spoils will be visually logged for lithology, moisture content, and any obvious hydrocarbon impacts by a qualified technician. Soils from the top-most sleeve are generally cavings and do not represent undisturbed materials, therefore, these soils will not be used for any purpose. All soil samples

will be screened with a hand held PID analyzer. Based on the results of the field inspection, samples will be selected for analyses at a certified laboratory. All soil samples showing evidence of hydrocarbon contamination will also be submitted for laboratory analyses. The samples will be transported to the laboratory in iced storage under chain of custody documentation for analysis for TPHg and benzene, toluene, ethyl benzene and total xylenes (BTEX), and methyl tert-butyl ether (MtBE) by EPA Modified Methods 5030 and 8020.

All downhole drilling equipment will be steam cleaned in advance. The split-spoon sampler will be decontaminated between sampling locations by the following:

1. Remove loose soil and debris with a scrub brush using a mixture of tap water and laboratory grade cleaning solution (liquinox).
2. Tap water rinse.

Soils generated by drilling operations will be containerized in labeled, DOT-rated 55-gallon drums. Decontamination derived liquid wastes will be stored in labeled, DOT-rated 55-gallon drums on-site. The disposition of these wastes are the responsibility of the property owner and are not a part of this work plan. Once the laboratory reports are issued, appropriate disposal options for all investigation derived wastes can be developed.

If necessary, will coordinate with the Zone 7 Water Agency for monitoring well installations and inspection of well seal installations. The monitoring wells will be will be drilled to the underlying aquitard or approximately 10-feet below the uppermost groundwater aquifer, and will allow us to verify groundwater gradient. We expect the total depth of the wells to be approximately 40-feet with a 15-foot screened interval. Following drilling, at the locations selected for well construction, 2-inch diameter monitoring wells will be installed. The actual construction of the wells will be determined in the field based on conditions encountered during drilling. The general construction will consist of an appropriate length of 2-inch diameter PVC well screen with 0.02-inch machine slotted, bottom end cap, and an appropriate length of blank

well casing. The top of the well screens will be placed approximately 3-feet above the potentiometric surface, as appropriate. The top of the blank well casings will be fitted with a water-tight locking cap. A #2/12 sand pack consisting of washed and graded silica sand will be placed in the remaining annulus from the bottom of the borehole to approximately 2-feet above the top of the well screening. Two-foot hydrated bentonite seal will be installed on top of the sand packs. A Portland cement-bentonite slurry will fill the remaining annulus. Steel vaults with a locked lids will be placed over the top of the casings.

B. WELL DEVELOPMENT, GROUNDWATER SAMPLING, ELEVATION SURVEY

After a minimum of 48-hours following well constructions, the newly installed monitoring wells will be developed by swabbing, surging, and purging to remove fine-grained sediments entrained in the sand pack and near the well bore due to the drilling operations. Approximately 10 well volumes are anticipated to be removed during development or as water clears and sand pumping becomes minimal.

After a minimum of 48-hours following well development, we will collect a ground water sample from all monitoring wells at the site. Quarterly sampling activities will include 1) measuring depth to ground water in each well using an electronic water level indicator, 2) measuring floating product if present as follows: lowering a teflon bailer into the liquid at each well approximately 2 feet, allowing the liquid level in the bailer to equilibrate with the liquid level in the well, and after raising the bailer, measuring the thickness of floating product if present in the transparent bailer with a ruler or noting the presence of sheen and odor, 3) the well will be purged by calculating the standing water volume at the measured static water in the well; that volume will be purged and water parameters measured to ascertain aquifer water entry into the well; once the measured parameters equilibrate the well sample will be collected 4) sampling groundwater by gently pouring from the bailer into a 40-milliliter vial (for volatile organic analysis) until a positive meniscus is formed at the top of the vial, sealing the vial with a cap that

has a teflon septa, and checking to make sure no bubbles are present; 5) transporting samples on iced storage under chain of custody documentation to a State of California, Department of Health Services certified laboratory; and 6) analyzing samples for TPHg, BTEX, and MTBE by EPA Modified Methods 5030 and 8020. **The initial testing of groundwater taken from new wells to the program will include analysis by EPA Method 8260.** Concurrently, existing wells in the program will also be tested by EPA Method 8260 to check previous test results. All extracted ground water will be stored at the German Autocraft site in labeled, DOT-rated 55-gallon drums and the disposition of these waters by the client will be determined pending laboratory analyses.

An elevation survey of the monitoring wells will be done by a California licensed land surveyor. The elevation and water level measurements will be reported in relation to mean sea level to 1/100th of a foot from an established benchmark. This data will allow us to determine the direction of ground water gradient.

C. QUALITY ASSURANCE/QUALITY CONTROL PLAN

As part of quality assurance/quality control measures related to groundwater sampling from the monitoring wells in the program, we will collect samples in triplicate and include one trip blank. Also, duplicate samples will be collected from one of the new monitoring wells and submitted for will submit one duplicate sample for volatile organic analysis (TPHg, BTEX, and MtBE). The duplicate will be submitted as a blind duplicate.

D. TECHNICAL REPORTING

ETM will prepare a report describing methods and findings of the soil and water investigation, monitoring well installation, and findings of the quarterly monitoring program. The reports will include: site maps showing relevant features and boring and well locations, boring lithology, soil inspection observations, analytical results of soil sampling, well installation procedures, ground

water sampling results, ground water depth data, laboratory chain of custody documentation, analysis of accumulated data and recommendations based on the findings of the investigation. Copies of the report will be submitted to the ACDEH and the Regional Water Quality Control Board.

ALLCAL PROPERTY SERVICES, INC.
ENVIRONMENTAL INVESTIGATIONS

June 16, 1997

97 JUL 22 AM 8:39

Mr. Michael Bakaldin
Hazardous Materials Coordinator
Fire Department
835 East 14th Street
San Leandro, CA 94577

RE: Report of groundwater monitoring well installation in sidewalk of West Broadmoor Boulevard near intersection with East 14th Street in San Leandro, California

Dear Mr. Bakaldin:

Allcal Property Services, Inc. (ALLCAL) is pleased to submit this report of a groundwater monitoring well installation at the referenced site. Installation of the well was approved by the City of San Leandro (City) on April 29, 1997, by Purchase Order Number 29875.

Installation of Groundwater Monitoring Well MW-1

Before commencing drilling activities, ALLCAL obtained a well installation permit [(number 97310) attached] from the Alameda County Flood Control and Water Conservation District, Water Resources Management Zone 7 (Zone 7); visited the site to mark the proposed well location and subcontracted an underground utility locator to "clear" the location for underground utilities; notified Underground Service Alert; and obtained a permit [(number 97123) attached] from the City to perform work in the public right-of-way.

Soil Boring and Sampling Procedures:

See attachments A and B for ALLCAL's protocols relative to hollow-stem auger drilling and soil sampling procedures and waste handling and decontamination procedures.

The exploratory boring for well MW-1 was drilled on May 21, 1997, to a total depth of about 35 feet by State of California licensed PC Exploration, Inc. (C-57 Water Well Driller Contractor's License Number 265556) using 8-inch diameter, hollow-stem, auger drilling equipment and sampled to a depth of about 36.5 feet with a California split-spoon sampler. The augers were steam-cleaned before drilling to minimize the potential of introducing offsite contamination to the boring. Representative soil samples were collected at approximately 5-foot depth intervals below the ground surface by advancing a California split-spoon sampler, equipped with 2-inch diameter by 6-inch long brass tubes, into the undisturbed soil beyond the tip of the augers. The sampling equipment was cleaned before each sampling event by washing with a trisodium non-phosphate solution and rinsing in tap water.

27973 High Country Drive • Hayward, CA 94542-2530 • (510) 581-2320 • Fax (510) 581-8490

The vadose zone soil sample collected from a depth of about 20.5 to 21 feet, near the groundwater interface, was selected for chemical analysis for total petroleum hydrocarbons as gasoline (TPHG); benzene, toluene, ethylbenzene, and xylenes (BTEX); and methyl tert-butyl ether (MTBE). After collecting the sample, the brass tube ends were covered with aluminum foil and capped with plastic end-caps. The tube was labeled to show site name, project number, date and time sampled, sample name and depth, and sampler name; sealed in a quart-size plastic bag; and placed in an iced-cooler for transport to California Department of Health Services (DHS) certified McCampbell Analytical, Inc. located in Pacheco, California, accompanied by chain-of-custody documentation (see attachment C for ALLCAL's protocol relative to sample handling procedures).

Drill cuttings were stored at the City's corporate yard near Washington Avenue in three 55-gallon steel drums. The drums were labeled to show contents, date stored, suspected contaminant, expected date of removal, company name, contact person, and telephone number.

Results of Soil Chemical Analyses:

The above soil sample was analyzed for TPHG, BTEX, and MTBE by the United States Environmental Protection Agency (EPA) methods 5030/modified 8015; 8020; and 8020, respectively. Results of all analyses were nondetectable.

Analytical results are summarized in attached Table 1 and documented with an attached certified analytical report and chain-of-custody.

Soil Profile and Occurrence of Groundwater

From ground surface to depth, the soil profile consists of: dark brown clay from surface to about 2.5 feet; a dark brown, medium-grained sand with scattered gravel from about 2.5 to 8.5 feet; a dark red-brown clay to about from about 8.5 to 15 feet followed by a light brown clay to about 28 feet. At about 25 feet the above clay appears saturated. From about 28 feet to the total depth explored, about 36.5 feet, a medium to coarse-grained, saturated sand was encountered. From about 28 to 31 feet the sand was brown with a slight gasoline odor. From about 31 to 35 feet, the sand was blue-green in color and had a strong gasoline odor; however, from about 35 to 36.5 feet the sand returned to a brown color having only a slight gasoline odor.

Confined groundwater was encountered in the sand aquifer whose upper boundary is estimated to be at a depth of about 28 feet. Groundwater in the aquifer rose in the well and appears to have stabilized at a depth of about 23 feet below ground surface.

A detailed boring log (see attached Exploratory Boring Log) was prepared from auger return material and split-spoon samples. The soil was logged according to the Unified Soil Classification System under the direction of a California Registered Geologist.

Well Construction, Development, and Sampling

The following discussion documents groundwater monitoring well construction, development, and sampling procedures; and results of groundwater chemical analyses. See attachments D, E, F, and G for ALLCAL's protocols relative to groundwater monitoring well construction, development, and sampling procedures; and quality assurance and quality control procedures (QA/QC).

Well Construction:

The boring for well MW-1 was drilled to a total depth of about 35 feet and sampled to about 36.5 feet. A confined aquifer was encountered at a depth of about 28 feet and extended to the total depth explored. The boring was converted into a monitoring well by installing 2-inch diameter, flush-threaded, schedule 40, polyvinyl chloride (PVC) casing and 0.010-inch machine-slotted screen. The screen was placed at the depth interval of 20 to 35 feet. A sand pack of number 2/12 filter sand was placed in the annular space at the depth interval of 35 to 18 feet. The remaining annular space was filled with about 1.0 foot of bentonite above the sand pack followed by a neat cement slurry to within about 0.5 foot of ground surface. A traffic rated, bolt-locked, vault box was set in concrete to protect the well. A locking well cap with lock was installed on the well casing. See attached Well Construction Detail.

Well Development:

On May 27, 1997, ALLCAL attempted to developed well MW-1 (see attached Record of Well Development). Before development, depth to water was measured from the top-of-casing (TOC) to the nearest 0.01 foot using an electronic water level meter; depth to water was 22.82 feet below TOC. The well was checked for floating product using a dedicated polyethylene bailer; no floating product was present; however, a sheen and odor were detected.

The well was developed using a 1.7-inch PVC bailer. Well development was slow due to a low water yield. Only 5 gallons of turbid water were developed before the well dewatered. No significant amount of water entered the well after 45 minutes; consequently, development was discontinued.

Development water was stored at the City's corporate yard near Washington Avenue in a 30-gallon steel drum labeled to show contents, date filled, contaminant, company name, contact person, and telephone number.

Well Sampling:

On May 30, 1997, ALLCAL sampled well MW-1 (see attached Record of Water Sampling). Prior to sampling, depth to water was measured and recorded as discussed above and the well was purged about 3 wetted well volumes and until temperature, pH, and electrical conductivity

stabilized. A water sample was collected in sterilized glass vials having Teflon-lined screw caps, immediately sealed in the vials, and labeled to include: date, time, sample location, project number, and sampler name. The sample and a trip blank were immediately stored in an iced-cooler and delivered to McCampbell Analytical Inc. for chemical analysis for TPHG, BTEX, and MTBE.

Purge water was stored at the City's corporate yard near Washington Avenue in a 30-gallon steel drum labeled to show contents, date filled, contaminant, company name, contact person, and telephone number.

(a) Results of Chemical Analyses

The water sample from well MW-1 and a trip blank were analyzed for TPHG, BTEX, and MTBE by the EPA methods 5030/modified 8015; 8020; and 8020, respectively.

TPHG, benzene, toluene, ethylbenzene, xylenes, and MTBE were detected at concentrations of 12,000 parts per billion (ppb), 18 ppb, 8.7 ppb, 90 ppb, 540 ppb, and 250 ppb, respectively. The laboratory noted that the gasoline appeared to be aged and biologically altered.

Results of chemical analyses for the trip blank sample were nondetectable.

Analytical results are summarized in Table 1 and documented with an attached certified analytical report and chain-of-custody.

Limitations

This report is based on subsurface exploration and laboratory analyses of soil and groundwater samples. The chemical analytical results for the samples are considered applicable to that borehole or location from which they were collected. The soil encountered in the boring is believed to be representative of the site; however, the soil may vary in character between observation points. The conclusions contained herein are based on the field observations, analytical data, and professional judgement which is in accordance with current standards of professional practice. Representations made of soil and groundwater conditions between sample locations are extrapolations based on professional opinions and judgements and accepted industry practice. Therefore, ALLCAL cannot and will not provide guarantees, certifications, or warranties that the subject property is or is not free of all contaminated soil or groundwater and such assessments are provided so that the client may make an informed decision.

The extent of testing and data collection directly affects the statistical confidence level of all work performed. As a practical matter, to reach or even approach a 100 percent statistical confidence level would be prohibitively expensive. Therefore, if a reassessment of the subject property becomes necessary in the future, ALLCAL will not reassess the area at its own cost. No other warranty is expressed or implied.

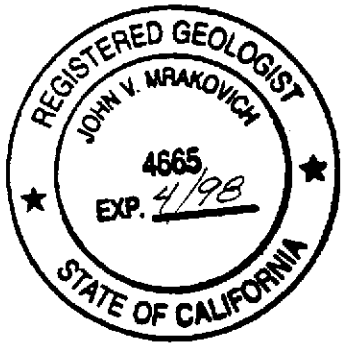
The findings and conclusions of this report are valid as of the present time; however, the passing of time could change the conditions of the subsurface due to natural processes or the influence of man. Accordingly, the findings of this report may be invalidated, wholly or partly, by changes beyond ALLCAL's control. Therefore, this report should not be relied upon after an extended period of time without being reviewed by a Civil Engineer or Registered Geologist.

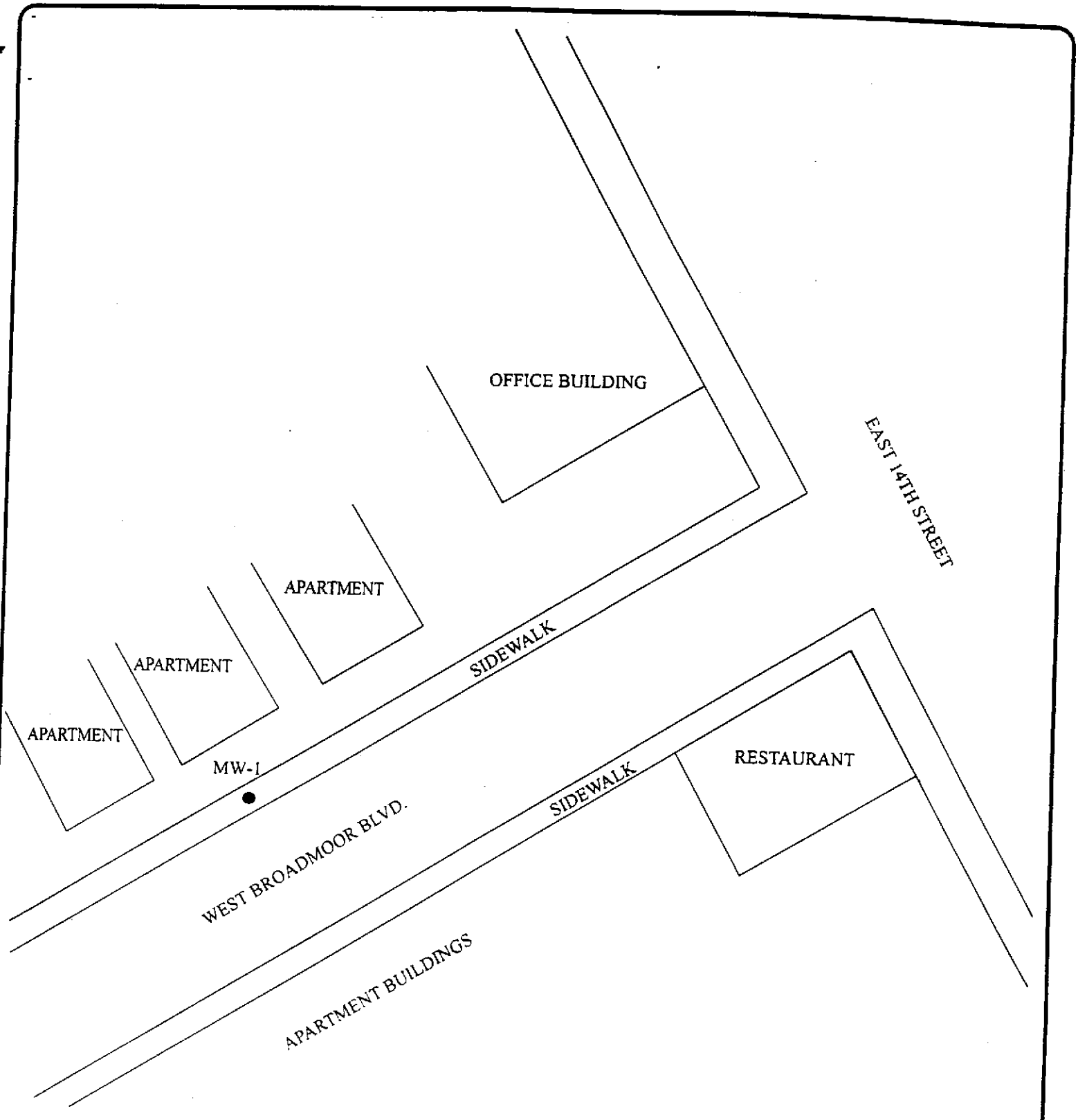
A State of California **WELL COMPLETION REPORT** (copy attached) has been filed with Zone 7. If you have any questions, please call me at (510) 581-2320.

Sincerely,

John V. Mrakovich

John V. Mrakovich, Ph.D.





Legend

MW-1

● Name and Location of Groundwater Monitoring Well

N

0 40

Approximate Scale in ft

ALLCAL PROPERTY SERVICES

SITE PLAN

WEST BROADMOOR BLVD.
SAN LEANDRO, CALIFORNIA

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588-5127 ♦ PHONE (510) 484-2600 FAX (510) 462-3914

May 14, 1997

Mr. John Mrakovich
Allcal Property Services
27973 High Country
Hayward, CA 94542

Dear Mr. Mrakovich:

Enclosed is drilling permit 97310 for a monitoring well construction project at Broadmoor Boulevard and East 14th Street in and for the City of San Leandro.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact Wyman Hong at extension 235 or me at extension 240.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer III

CM:pl

Enc.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE, PLEASANTON, CALIFORNIA 94588-5127 PHONE (510) 484-2600 X235
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT IN SIDEWALK ON NORTH SIDE OF WEST BROADMOOR BLVD, ABOUT 170 FEET WESTERLY OF INTERSECTION WITH EAST 14TH STREET, SAN LEANDRO, CA

California Coordinates Source _____ ft. Accuracy ± _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name CITY OF SAN LEANDRO
Address 835 EAST 14TH ST Phone 510 577 3331
City SAN LEANDRO, CA Zip 94577

APPLICANT
Name ALLCAL PROPERTY SVS, INC.
Fax 5105818490
Address 27973 HIGH COUNTRY Phone 581 2320
City HAYWARD, CA Zip 94542

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☒	Auger	☐
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 765556

WELL PROJECTS

Drill Hole Diameter	8 in.	Maximum Depth	35 ft.
Casing Diameter	2 in.		
Surface Seal Depth	24 ft.	Number	1

GEOTECHNICAL PROJECTS

Number of Borings	_____	Maximum Depth	_____ ft.
Hole Diameter	_____ in.		

ESTIMATED STARTING DATE 5/21/97
ESTIMATED COMPLETION DATE 5/21/97

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE John Muldowney Date 5/13/97

FOR OFFICE USE

PERMIT NUMBER 97310
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at t Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitt work the original Department of Water Resources Water W Drillers Report or equivalent for well projects, or drilling lo and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of appro date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement gro placed by tremie.
2. Minimum seal depth is 50 feet for municipal and indust wells or 20 feet for domestic and irrigation wells unless lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement gro placed by tremie.
2. Minimum seal depth for monitoring wells is the maximu depth practicable or 20 feet.

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings heavy bentonite and upper two feet with compacted material. areas of known or suspected contamination, tremied cem grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed tremie.

F. WELL DESTRUCTION. See attached.

G. SPECIAL CONDITIONS

Approved Wyman Hong Date 14 May 97
Wyman Hong

1019

Service No. _____

CITY OF SAN LEANDRO
APPLICATION TO PERFORM WORK IN THE PUBLIC RIGHT-OF-WAY

97123
Permit Number

MAY 19, 1997
Date Approved

Work Site: Northside of W. Broadmoor Blvd. Intersection of East 14th ST.

Applicant: Name PC EXPLORATION Address 1780 Vernon St. Ste 3, Roseville CA 95678 Tel 916-782-9722

Owner: Name City of San Leandro Address San Leandro, CA. 94577 Tel. _____

Purpose of Permit:

☐ Utility ☐ Street Excavation ☐ Curb, Gutter Sidewalk, Driveway ☒ Other Monitoring Well

Detailed Description and Dimensions of Work: DRILL & INSTALL 2" PVC Monitoring Well

Plan Submitted: Yes ☒ No ☐

Date Work to be Started: 5/21/97

Building Permit No. _____

Oro Loma Permit No. _____

Profile Submitted: Yes ☐ No ☐

Date Work To Be Completed By: _____

State Encroachment Permit No. _____

Alameda County Flood Control Permit No. _____

Compliance with State Labor Code: In accordance with Section 3800.

☒ Applicant has on file, with the City of San Leandro, evidence that workman's compensation insurance is carried.

☐ Applicant will not employ anyone so as to become subject to the workman's compensation laws of California.

Statement of State Contractor's License: In accordance with Section 7031.5 of the State Business and Professions Code.

☒ Applicant has State License No. 265556, Class A C57, in full force and effect.

☐ Applicant is exempt from the State Contractor's License Law for the following reason(s): _____

RECEIVED
CITY OF SAN LEANDRO
MAY 19 1997

By the application and acceptance of this permit, the undersigned intending to be legally bound does hereby agree that all work performed will be in accordance with all applicable provisions of this permit and all regulations, provisions, and specifications as adopted by the City. Further, the undersigned agrees that this permit is to serve as a guaranty for payment of all permit and/or inspection charges as billed by the City. Any misrepresentation of information requested from the applicant on this form shall make this permit null and void.

Signed: Dana O'Baker Date: 5-15-97

PLEASE CALL 577-2708 FOR INSPECTIONS

SPECIAL PROVISIONS

Backfill Required per CITY STANDARDS.

Pavement Section Required

Minimum Depth of Cover

Police & Fire Dept. to be notified 24 hours prior to start: YES ___ NO ___

* PROPERTY OWNER(S) MUST BE NOTIFIED PRIOR TO START OF WORK.

* INSTALL NO PARKING NOTICE WHERE APPLICABLE 48 HOURS PRIOR TO START OF WORK.

SEE REVERSE SIDE FOR GENERAL PROVISIONS APPLICABLE TO ALL PERMIT WORK

* ADHERENCE TO BAY AREA CLEAN WATER ACT REQUIRED AT ALL JOB SITES.

PERMIT IS VALID WHEN SIGNED

Any omission on the part of the City to specify on this permit any rule, regulation, provision, or specification shall not excuse the permittee from complying with all requirements of law and appropriate ordinances and all applicable regulations, provisions, and specifications adopted by the City.

ISSUE FOR CITY ENGINEER

INSPECTION RECORD

Date	Comments	Insp.	Hrs. Chrgd.

NOTE: 1 hr. minimum charge per inspection stop

Hours forwarded from reverse side: _____

TOTAL HOURS CHARGED: _____

FEES

PERMIT FEE: 50.00 TO ACCT #3306

RESTORE/INSPECT DEPOSIT: 75.00 TO CN# _____

STREET CUT FEE: _____ TO ACCT #3304

TOTAL: _____

☒ All charges collected at permit issuance

☐ All charges to be billed to

CN# _____

Rev. Date 8/91

CITY OF SAN LEANDRO

835 EAST 14th STREET • SAN LEANDRO, CALIFORNIA 94577

ACCOUNT NO. 3306

RECEIPT NO. 50595

Date MAY 19 19 97

Received From PC EXPLORATION, INC. $ 125.00

Address 1780 VERNON ST. SUITE 3., ROSEVILLE CA. 95678

For INSTALL (1) ONE MONITORING WELL @
NORTH SIDE OF WEST BROADMOOR BLVD. / INTERSECTION OF EST 14TH ST.

RECEIVED
CITY OF SAN LEANDRO
MAY 15 1997
ENGG / TRANS

By

NOT VALID UNTIL RECEIPTED BY CASHIER

MOORE BUSINESS FORMS, INC. M

PRINTED ON RECYCLED PAPER

EXPLORATORY BORING LOG/ WELL CONSTRUCTION DETAIL

Project Number: 121

Project Name: WEST BROADMOOR BLVD.
SAN LEANDRO, CA

Boring Number: MW-1

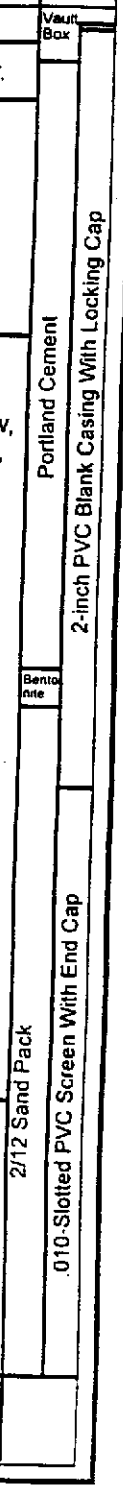
Page Number: 1 OF 1

By: ALLCAL PROPERTY SERVICES, INC. Date: 5/21/97

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND-WATER LEVEL	DEPTH (ft.)	SAMPLES	SOIL TYPE	DESCRIPTION
							Concrete Sidewalk.
						CL	CLAY (CL): dark brown, very silty, damp, no odor.
18/18		5/4/5		5		SP	SAND (SP): dark brown, medium-grained, scattered gravel up to .25-inch diameter, damp, no odor.
18/18		6/16/23		10			CLAY (CL): dark red-brown, mottled orange-yellow, silty, scattered gravel up to .25-inch diameter, stiff, damp with moist areas, no odor.
18/18		6/14/26		15		CL	@ 15 ft., color is light brown for remainder of interval.
18/18		7/13/16		20			
18/18		7/8/14		25			@ 25 ft., saturated, no odor.
18/18		14/20/25		30		SP	SAND (SP): brown to 31 ft., then blue-green, and brown again at 35 ft., medium to coarse-grained with gravel up to 1-inch diameter, saturated, strong gasoline odor where blue-green, slight odor where brown.
18/18		24/26/29		35			Boring drilled with 8-inch, O. D., hollow-stem augers to 35 feet. Samples collected in 2-inch, split-spoon sampler to 36.5 ft.

WELL DETAIL



CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

RECORD OF WELL DEVELOPMENT

PROJECT NO.: 121 DATE: 5/27/97

WELL NO.: MW-1

PROJECT NAME: WEST BROADMOORE BLVD

WELL DIAMETER: 2"

PROJECT LOCATION: SAN LEANDRO, CA

TOC ELEV: NA

DEVELOPER: ALLIED PROPERTY SVS

LOCK NO.:

WELL DEPTH (from construction detail): 34'

WELL DEPTH (measured): 37 SOFT BOTTOM?: YES

DEPTH TO WATER: 22.82 TOC TIME: 9:40

PRESSURE (circle one)?: YES OR (NO)

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 1.5 GAL

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78L]

LOCATION MAP

DEVELOPMENT METHOD: BAILER

FLOATING PRODUCT PRESENT: YES ☐ NO ☒

SHEEN PRESENT: YES ☒ NO ☐

ODOR PRESENT: YES ☒ NO ☐

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (Gal)	Clarity (NTU'S)	Remarks
9:30	22.82			WATER TURNS WITH GASOLINE ODOR.
				WELL WENT DRY AFTER REMOVING
				5 GAL. ALMOST NO RECHARGE
				AFTER 45 MINUTES.

TOTAL VOLUME DEVELOPED (GAL): 5 (L):

WATER VOL. IN DRUM: 5 GAL

SIGNATURE:

NEED NEW DRUM?: NO

RECORD OF WATER SAMPLING

PROJECT NO.: 121 DATE: 5/30/97

PROJECT NAME: WEST BROADMOOR BLVD

PROJECT LOCATION: SAN LEANDRO

SAMPLER: ALTA PROPERTY SVS, INC.

ANALYSES: TPH BTEX MTBE

WELL DEPTH (from construction detail): 30

WELL DEPTH (measured): 30 SOFT BOTTOM?: _____

DEPTH TO WATER: 23.02 TIME: 9:05

PRESSURE (circle one)?: YES OR (NO)

IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 6.62 L

[2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]

[6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]

WELL NO.: MW-1

WELL DIAMETER: 2"

TOC ELEV: NA

LOCK NO.: _____

LOCATION MAP

CALCULATED PURGE VOL. (GAL): _____ (L): 20 ACTUAL PURGE VOL. (GAL): _____ (L): 20

PURGE METHOD: POLYETHYLENE BAILER SAMPLE METHOD: POLYETHYLENE BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X 100	Clarity	Turbidity (NTU)	Remarks
9:05		1	73.2	9.05	6.53			CLEAR, GASOLINE ODOR
9:22		5	70.5	7.00	5.65			TURBID, GASOLINE ODOR
[illegible]		10	[illegible]	[illegible]	[illegible]			
[illegible]		15	[illegible]	[illegible]	5.05			
9:49		20	69.5	7.07	[illegible]			
[illegible]		25	[illegible]	[illegible]	[illegible]			
[illegible]		SAMPLE WELL						

SIGNATURE: [signature]

WATER VOL. IN DRUM: 12 GAL

NEED NEW DRUM?: NO

TABLE 1

SUMMARY OF SOIL AND GROUNDWATER CHEMICAL ANALYSES

Boring/ Well	Matrix	Depth (ft)	TPHG	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-1	soil[1]	20.0-21.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW-1	water[2]	NA	12,000[b,d]	18	8.7	90	540	250
Trip Blank	water	NA	<50	<0.5	<0.5	<0.5	<0.5	NA

[1] Contaminant concentrations for soil reported in parts per million (ppm).

[2] Contaminant concentrations for water reported in parts per billion (ppb).

b) Heavier gasoline range compounds are significant (aged gasoline?).

d) Gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?

ATTACHMENT A

HOLLOW-STEM AUGER DRILLING AND SOIL SAMPLING PROCEDURES

Undisturbed soil samples will be recovered from soil without introducing liquids into the borings. Soil samples as core or cutting will be taken at 5-foot depth intervals from ground surface to termination depth for lithologic logging.

Borings will be drilled with a hollow-stem auger and sampled with a California or modified California-type split-spoon sampler. Soil samples will be of sufficient volume to perform the analyses which may be required, including replicate analyses.

Soil from all borings will be described in detail using the Unified Soil Classification System and will be logged by a geologist, civil engineer, or engineering geologist who is registered or certified by the State of California and is experienced in the use of the Unified Soil Classification System.

All wet zones above the free water zone will be noted and logged.

Soil samples will be collected in decontaminated brass or stainless steel sampling tubes in the split-spoon. Sediment traps will be used when unconsolidated sand and gravel fall from the sampler during retrieval. The brass tubes will be cut apart using a clean knife. The ends of the tubes will be covered with a thin sheet of Teflon tape or aluminum foil beneath plastic end caps. The samples will be stored on ice at a temperature of 4 degrees Celsius. In the Alameda County Water District, the samples will be stored on dry ice.

Drill cuttings will be stored on site in 55-gallon drums or covered with plastic sheeting. Analytical results will be submitted immediately to the site owner for determination of appropriate disposal procedures. The soil borings not completed as wells will be backfilled with a cement grout.

ATTACHMENT B

WASTE HANDLING AND DECONTAMINATION PROCEDURES

Decontamination: Any drilling, sampling, or field equipment that comes into contact with soil or groundwater will be decontaminated prior to its use at the site and after each incident of contact with the soil or groundwater being investigated. Decontamination is essential to obtain samples that are representative of environmental conditions and to accurately characterize the extent of soil and groundwater contamination. Hollow-stem auger flights, the drill bit, and all other soil boring devices will be steam-cleaned between the drilling of each boring.

All sample equipment, including the split-spoon sampler and brass or stainless-steel tubes, will be cleaned by washing with trisodium phosphate or Alconox detergent, followed by rinsing with tap water. Where required by specific regulatory guidelines, a nonphosphate detergent will be used.

Waste Handling: Waste materials generated during site characterization activities will be handled and stored as hazardous waste and will be stored on site in appropriately labeled containers. Waste materials anticipated include: excavated soil, drill cuttings, development and purge water, water generated during aquifer testing, water generated during decontamination, and used personnel protection equipment such as gloves and Tyvek. The site owner will be responsible for providing the storage containers and will be responsible for the disposal of the waste materials. Drill cuttings from individual borings will be stored separately in drums or covered by plastic sheeting, and the appropriate disposal procedure will be determined by the site owner following receipt of the soil sample analytical results. Storage containers will be labeled to show material stored, known or suspected contaminant, date stored, expected removal date, company name, contact, and telephone number.

ATTACHMENT C

SAMPLE HANDLING PROCEDURES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination and will be delivered to the laboratory in an iced-cooler. Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers.

Samples will be stored in iced-coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory. Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to cool samples during transport to the laboratory. Water samples will be cooled with crushed ice. In the Alameda County Water District, water samples will be buried in the crushed ice with a thermometer, and the laboratory will be requested to record thermometer temperature at the time of receipt.

Each sample will be identified by affixing a label on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

Soil samples collected in brass or stainless-steel tubes will be preserved by covering the ends with Teflon tape and capping with plastic end-caps. The tubes will be labeled, sealed in quart-size bags, and placed in an iced-cooler for transport to the laboratory.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory. All sample transfers will be documented in the chain-of-custody. All field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician or professional who has been designated as being responsible for sample shipment to the appropriate laboratory. The custody record will include the following information: site identification, name of person collecting the sample(s), date and time sample(s) were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the person relinquishing samples to another person with the date and time of transfer noted.

ATTACHMENT D

GROUNDWATER MONITORING WELL CONSTRUCTION PROCEDURES

Casing Diameter: The minimum diameter of well casings will be 2 inches (nominal).

Borehole Diameter: The diameter of the borehole will be a minimum of 4 inches and a maximum of 12 inches greater than the diameter of the well casing.

Shallow (Unconfined Zone) Wells: When groundwater is encountered or known to be within 45 feet of the ground surface, the borehole will be advanced through the aquifer to an underlying competent aquitard. The competency of the aquitard may be tested by sampling 5 feet into the underlying aquitard and backfilling the excess hole with either bentonite pellets or neat cement placed by tremie pipe method. An aquitard found to be less than 5 feet thick, may be assumed to represent a local lens. The screened interval will begin a minimum of 5 feet above the saturated zone and extend the full thickness of the aquifer or no more than 20 feet into the saturated zone, whichever is reached first. The well screen will not extend into the aquitard, nor will the screened interval exceed 25 feet in length.

Deep (Confined Zone) Wells: Any monitoring well to be screened below an upper aquifer will be installed as a double-cased well. A steel conductor casing will be placed through the upper water-bearing zone to prevent aquifer cross-contamination.

The conductor casing will be installed in the following manner: A large diameter borehole (typically 18 inches) will be drilled until it is determined that the first competent aquitard has been reached. A low carbon steel conductor casing will be placed in the borehole to the depth drilled. Centralizers will be used to center the casing in the borehole. The annular space between the conductor casing and the formation will be cement-grouted from bottom to top by tremie pipe method. The grout will be allowed to set for a minimum of 72 hours.

Drilling may continue inside the conductor casing, with a drill bit of smaller diameter than the conductor casing. If additional known aquifers are to be fully penetrated, the procedure can be repeated with successively smaller diameter conductor casings.

The bottom of the well screen in a confined aquifer will be determined by presence or lack of a competent (5 foot) aquitard as described above. The screened interval in a confined zone will extend across the entire saturated zone of the aquifer or up to a length of 20 feet, which ever is less. The screened zone and filter pack will not cross-connect to another aquifer.

Casing Materials: Well casing will be constructed of materials that have the least potential for affecting the quality of the water sample. The most suitable material for a particular installation will depend upon the parameters to be monitored. Acceptable materials include PVC, stainless steel, or low carbon steel.

Casing Joints: Joints will be connected by flush threaded couplers. Organic bonding compounds and solvents will not be used on joints.

Well Screen Slots: Well screen will be factory slotted. The size of the slots will be selected to allow sufficient groundwater flow to the well for sampling, minimize the passage of formation materials into the well, and ensure sufficient structural integrity to prevent the collapse of the intake structure.

Casing Bottom Plug: The bottom of the well casing will be permanently plugged, either by flush threaded screw-on or friction cap. Friction caps will be secured with stainless steel set screws. No organic solvents or cements will be applied.

Filter Pack Material: Filter envelope materials will be durable, water worn, and washed clean of silt, dirt, and foreign matter. Sand-size particles will be screened silica sand. Particles will be well rounded and graded to an appropriate size for retention of aquifer materials.

Bentonite Seal Material: Bentonite will be pure and free of additives that may effect groundwater quality. Bentonite will be hydrated with clean water.

Grout Seal Material: Cement grout will consist of a proper mixture if Type I/11 Portland cement, hydrated with clean water. Up to 3% bentonite may be added to the mixture to control shrinkage.

Decontamination: All downhole tools. well casings, casing fittings, screens, and all other components that are installed in
the well will be thoroughly cleaned immediately before starting each well installation. When available, each component will be cleaned with a high temperature, high pressure washer for a minimum of five minutes. When a washer is not available, components will be cleaned with water and detergent or tri-sodium phosphate, rinsed in clean water, than rinsed in distilled water.

Soil and water sampling equipment and material used to construct the wells will not donate to, capture, mask, nor alter the chemical composition of the soil and groundwater.

Drilling Methods: Acceptable drilling methods include solid and hollow-stem auger, percussion, direct circulation mud and air rotary, and reverse rotary. The best alternative is that which minimizes the introduction of foreign materials or fluids. If drilling fluid is employed, drilling fluid additives will be limited to inorganic and non-hazardous compounds. Compressed air introduced to the borehole will be adequately filtered to remove oil and particulates.

Casing Installation: The casing will be set under tension to ensure straightness. Centralizers will be used where necessary to prevent curvature or stress to the casing.

Sand Pack Installation: The sand pack will be installed so as to avoid bridging and the creation of void spaces. The tremie pipe method will be used where installation conditions or local regulations require. Drilling mud. when used. will be thinned prior to pack placement. The

sand pack will cover the entire screened interval and rise a minimum of two feet above the highest perforation.

Bentonite Seal Placement: The bentonite seal will be placed by a method that prevents bridging. Bentonite pellets can be placed by free fall if proper sinking through annular water can be assured. Bentonite slurry will be placed by the tremie pipe method from the bottom upward. The bentonite seal should not be less than 1 foot in thickness above the sand pack.

Grout Seal Placement: The cement grout mixture will be hydrated with clean water and thoroughly mixed prior to placement. If substantial groundwater exists in the bore hole, the grout will be placed by tremie pipe method from the bottom upward. In a dry borehole, the grout may be surface poured. Grout will be placed in one continuous lift and will extend to the surface or to the well vault if the wellhead is completed below grade. A minimum of 5 feet of grout seal will be installed, unless impractical due to the willow nature of the well.

Surface Completion: The wellhead will be protected from fluid entry, accidental damage, unauthorized access, and vandalism. A watertight cap will be installed on the well casing. Access to the casing will be controlled by a keyed lock.

Wellheads completed below grade will be completed in a concrete and/or steel vault, installed to drain surface runoff away from the vault.

Well Identification: Each well will be identified by well number, owner, and type of installation. Construction data, including depth, hole and casing diameter, and screened interval will be noted.

ATTACHMENT E

GROUNDWATER MONITORING WELL DEVELOPMENT PROCEDURES

INTRODUCTION

Newly installed groundwater monitoring wells will be developed to restore natural hydraulic conductivity of the formation, remove sediments from well casing and filter pack, stabilize the filter pack and aquifer material, and promote turbidity-free groundwater samples.

Wells may be developed by bailing, mechanical pumping, air lift pumping, surging, swabbing, or an effective combination of methods. Wells will be developed until the water is free of sand, silt, and turbidity or no further improvement is achieved.

In some cases where low permeability materials are involved or the drilling mud used fails to respond to cleanup, initial development pumping may immediately dewater the well casing and thereby inhibit development. When this occurs, clean, potable grade water may be introduced into the well, followed by surging of the introduced waters with a surge block. This operation will be followed by pumping. The procedure may be repeated as required to establish full development.

METHODOLOGY

Seal Stabilization: Cement and bentonite annular seals will set and cure not less then 24 hours prior to well development.

Decontamination: All well development tools and equipment will be thoroughly cleaned immediately before starting each well installation. When available, each component will be cleaned with a high temperature, high pressure washer for a minimum of five minutes. When a washer is not available, components will be cleaned with clean water, then rinsed with distilled water.

Development equipment will not donate to, capture, mask, nor alter the chemical composition of the soils and groundwater.

Introduction of Water: Initial development of wells in low permeability materials may dewater the casing and filter pack. When this occurs, clean, potable water will be introduced into the well to enhance development.

Bailing: Development will begin by bailing to remove heavy sediments from the well casing. Care will be taken to not damage the well bottom cap during lowering of the bailer.

Surging: Care will be exercised when using a surge block to avoid damaging the well screen and casing. When surging wells screened in coarse (sand/gravelly) aquifers, the rate of surge block

lifting will be slow and constant. When surging wells screened in fine (silty) aquifers, more vigorous lifting may be required. Between surging episodes, wells will be bailed to remove accumulated sediments.

Pumping: Development pumping rates will be less than the recharge rate of the well in order to avoid de-watering.

Discharged Water Containment and Disposal: All water and sediment generated by well development will be stored in 55-gallon steel drums. Development water will be temporarily contained on site, pending sampling and laboratory analysis. All hazardous development water will be transported off site by a licensed transporter to a hazardous waste disposal or treatment facility. No hazardous development water will be released to the environment.

ATTACHMENT F

GROUNDWATER SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 48 hours after well development. Groundwater samples will be obtained using either a bladder pump, clear Teflon bailer, or polyethylene bailer. Prior to sampling, sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after three to five wetted casing volumes of groundwater have been evacuated and after the ALLCAL sampling team leader determines that water representative of the formation is being obtained. The well will be purged until conductivity has been stabilized (three consecutive conductivity reading within 15% of one another). If the well is emptied before four to ten well volumes are removed, the sample shall be taken when the water level in the well recovers to 80% of its initial water level or better.

ALLCAL will also measure the thickness of any floating product in the monitoring wells using a probe or clear Teflon bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, ALLCAL will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Page 69544, Table II) for the type of analysis to be performed.

MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

Parameter	Units of Measurement
pH	Units
Electrical conductivity	Umhos
Temperature	Degrees F or C
Depth to Water	Feet/Tenths
Volume of Water Discharged	Gallons

Documentation: All parameter measurements shall be documented in writing on ALLCAL development logs.

ATTACHMENT G

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

A quality assurance and quality control (QA/QC) program may be conducted in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples may be taken in the field to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip blanks, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and laboratory analysis. They are water samples that remain with the collected samples during transportation and are analyzed along with the field samples to check for residual contamination. Analytically confirmed organic-free water will be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blanks will be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water sample is poured into appropriate containers to simulate actual sampling conditions. Contamination due to air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of trip and field blanks, and false identifying numbers will be put on the labels.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC tests designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and the United States Environmental Protection Agency-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and the observance of good laboratory practices.

McCAMPBELL ANALYTICAL INC.
110 Second Avenue South, #D7, Pacheco, CA 94553
Telephone : 510-798-1620 Fax : 510-798-1622
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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #121052197; West Broadmoor Blvd.	Date Sampled: 05/21/97
		Date Received: 05/22/97
	Client Contact: John Mrakovich	Date Extracted: 05/22/97
	Client P.O:	Date Analyzed: 05/22/97

05/30/97

Dear John:

Enclosed are:

1). the results of 1 samples from your **#121052197; West Broadmoor Blvd.** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #121052197; West Broadmoor Blvd.	Date Sampled: 05/21/97
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Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)^	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Recovery Surrogate
76741	MW-1-20.5-21	S	ND	ND	ND	ND	ND	ND	105
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

^ cluttered chromatogram; sample peak coelutes with surrogate peak

"The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 05/22/97 Matrix: Soil

Analyte	Concentration (mg/kg) Sample (#74903)	MS	MSD	Amount Spiked	% Recovery MS	% Recovery MSD	RPD
TPH (gas)	0.000	2.171	2.203	2.03	107	109	1.5
Benzene	0.000	0.196	0.192	0.2	98	96	2.1
Toluene	0.000	0.208	0.204	0.2	104	102	1.9
Ethylbenzene	0.000	0.204	0.204	0.2	102	102	0.0
Xylenes	0.000	0.610	0.606	0.6	102	101	0.7
TPH (diesel)	0	342	343	300	114	114	0.1
TRPH (oil and grease)	0.0	24.5	24.6	23.7	103	104	0.4

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

ALLCAL PROPERTY SERVICES
ENVIRONMENTAL INVESTIGATIONS • HOME INSPECTIONS
27973 HIGH COUNTRY DRIVE FAX (510) 581-8490
HAYWARD, CA 94542-2530 Ph (510) 581-2320

LAB: MCCAMPBELL

TURNAROUND: NORMAL

P.O. #: NA

8696 XAC36

CHAIN OF CUSTODY

PAGE 1 OF 1

PROJECT NO.	SITE NAME & ADDRESS
121052197	WEST BROADMOOR BLVD SAN LEANDRO, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER: JOHN MRAKOVICH

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER MTBE	REMARKS
MW-1-20.5-21.0	5/21/97	10:45	X		WELL MW-1	BRASS LINER	X	X			X		76741

VOAS | O&G | METALS | OTHER

ICE/T ✓ PRESERVATIVE
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT ✓ CONTAINERS ✓

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
J. Mrakovich	5/22/97 10:45				
	5/22/97 1155	Melanie MAS			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: _____

McCAMPBELL ANALYTICAL INC.
110 Second Avenue South, #D7, Pacheco, CA 94553
Telephone : 510-798-1620 Fax : 510-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #121053097; West Broadmore Blvd., San Leandro	Date Sampled: 05/30/97
		Date Received: 05/30/97
	Client Contact: John Mrakovich	Date Extracted: 05/30/97
	Client P.O:	Date Analyzed: 05/30/97

06/06/97

Dear John:

Enclosed are:

1). the results of 2 samples from your **#121053097; West Broadmore Blvd., San Leandro** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

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ALLCAL Property Services	Client Project ID: #121053097; West Broadmore Blvd., San Leandro	Date Sampled: 05/30/97
27973 High Country Drive		Date Received: 05/30/97
Hayward, CA 94542-2530	Client Contact: John Mrakovich	Date Extracted: 05/30-06/02/97
	Client P.O:	Date Analyzed: 05/30-06/02/97

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)^	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
77001	MW-1	W	12,000,b,d	250	18	8.7	90	540	104
77002	Trip Blank	W	ND	---	ND	ND	ND	ND	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L	5.0	0.5	0.5	0.5	0.5		
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005		

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

^ cluttered chromatogram; sample peak coelutes with surrogate peak

"The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
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QC REPORT FOR HYDROCARBON ANALYSES

Date: 05/30/97 Matrix: Water

Analyte	Concentration (mg/L) Sample #(76840)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	94.3	89.0	100.0	94.3	89.0	5.8
Benzene	0.0	9.2	8.9	10.0	92.0	89.0	3.3
Toluene	0.0	9.4	9.1	10.0	94.0	91.0	3.2
Ethyl Benzene	0.0	9.6	9.3	10.0	96.0	93.0	3.2
Xylenes	0.0	28.7	28.0	30.0	95.7	93.3	2.5
TPH (diesel)	0	156	158	150	104	106	1.7
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/02/97-06/03/97 Matrix: Water

Analyte	Concentration (mg/L) Sample #(76977)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	107.1	100.5	100.0	107.1	100.5	6.4
Benzene	0.0	9.1	8.8	10.0	91.0	88.0	3.4
Toluene	0.0	9.5	9.2	10.0	95.0	92.0	3.2
Ethyl Benzene	0.0	9.5	9.0	10.0	95.0	90.0	5.4
Xylenes	0.0	28.6	26.9	30.0	95.3	89.7	6.1
TPH (diesel)	0	143	144	150	96	96	0.8
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

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LAB: MCCAMPBELL

TURNAROUND: NORMAL

P.O. #: NA

8743XAC37

CHAIN OF CUSTODY

PAGE 1 OF 1

PROJECT NO.	SITE NAME & ADDRESS
12105309?7	WEST BROADMOOR BLVD, SAN LEANDRO, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER
JOHN MRAKOVICH

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	POC SCAN (624's)	OTHER METHANE	REMARKS
MW-1	5/30/97	9:55		X	WELL MW1	2-40ML VOA	X	X			X		[redacted]
TRIP BLANK	5/30/97			X		1-40ML VOA	X	X					

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
[signature]	5/30/97 12:25	[signature]			
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
[signature]	5/30/97 2005	[signature]			
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: _____