

July 19, 1999

S 04233

REPORT OF SOIL AND GROUNDWATER INVESTIGATION
AND
SAMPLING OF FOUR WELLS

Karen Langmaid
San Lorenzo Unified School District
15510 Usher Street
San Lorenzo, CA 94580

RE: Arroyo School, 15701 Lorenzo Avenue, San Lorenzo, CA

STID: 4233

Dear Ms. Langmaid:

Thank you for contracting with Allcal Property Services, Inc. (ALLCAL) to write this report of a soil and groundwater investigation and sampling of four wells at the above-referenced property. The investigation and sampling of wells were conducted according to an April 16, 1999, work plan submitted by ALLCAL and conditionally approved in an April 21, 1999, letter (attached) by the Alameda County Health Care Services Agency (ACHCSA) to you (Client). In addition to the scope of work proposed in ALLCAL's work plan, the ACHCSA requested that the top-of-casing (TOC) elevations of the four wells be surveyed relative to mean sea level (MSL) and that methyl-tertiary-butyl-ether (MTBE), if detected during the groundwater investigation, be confirmed using Method 8260.

Background

The following background is summarized from the ACHCSA's October 21, 1998, letter and from other consultant reports contained in the ACHCSA's project file.

In January 1991, one 45-gallon, gasoline, underground storage tank (UST) and one 6,000-gallon, diesel UST were removed from the site (see attached SITE PLAN for tank locations). Soil samples collected from the gasoline UST excavation were analyzed for total petroleum hydrocarbons as gasoline and diesel (TPHG and TPHD, respectively) and total lead. No samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX). Results of chemical analyses detected only low concentrations of lead. Soil samples collected from the diesel UST excavation were analyzed for TPHD, total oil & grease (TOG), and BTEX. Results of chemical analyses detected TPHD and

99 JUL 23 PM 4: 02
ENVIRONMENTAL
PROTECTION

TOG at concentrations of up to 300 parts per million (ppm) and 2,000 ppm, respectively.

As an investigation of soil contamination in the area of the former diesel UST, 16 soil borings were drilled in January 1991. Soil borings 14 through 16 were converted into monitoring wells MW-1 through MW-3, respectively. Results of chemical analyses of soil samples from these borings detected TPHD and TOG at concentrations of up to 1,720 ppm and 5,685 ppm, respectively. Results of chemical analyses of groundwater samples from the wells detected TPHD at concentrations of up to 300 parts per billion (ppb).

Four additional soil borings were drilled in the area of the former diesel UST on August 10, 1992, and one of the borings was converted into groundwater monitoring well MW-4. Results of chemical analyses of soil samples from these borings detected TPHD and TOG at concentrations up to 210 ppm and 975 ppm, respectively, and low concentrations of toluene, ethylbenzene, and xylenes.

Quarterly groundwater monitoring of the site's four wells was conducted regularly for TPHD, TOG, and BTEX until March 23, 1993. Results of chemical analyses detected low concentrations of TPHD in one or more wells, with the exception of the April, 14, 1992, event when no TPHD was detected in any of the wells. TOG and BTEX were never detected, with the exception that toluene was detected at low concentrations in one or more wells on July 15, 1991, and April 14, 1992.

Details of the above work and results of chemical analyses are documented in various reports by LW Environmental Services, Inc. (LW) on file at the ACHCSA's office.

ACHCSA Request for Additional Information

In an ~~August 10, 1992~~ ^{Oct 21, 1988} letter to the Client, the ACHCSA requested additional work and information prior to considering site closure. The requested work consisted of: (1) Drilling a soil boring immediately down-gradient of the former gasoline UST excavation for the collection of one soil and one "grab" groundwater sample for chemical analysis. The ACHCSA requested the soil sample be analyzed for TPHG and BTEX, and the groundwater sample be analyzed for TPHG, BTEX, and MTBE. (2) Drilling a soil boring adjacent to former soil boring SB-2 for collection of soil samples at 5 and 10 feet below grade and for chemical analysis for TPHD and polynuclear aromatics (PNAs). (3) Sampling the four groundwater monitoring wells and analyzing the samples for TPHG, TPHD, BTEX, and MTBE.

WORK CONDUCTED

The following work was conducted by ALLCAL:

- Submitted an April 16, 1999, work plan to the Client and the ACHCSA for their comment and approval.
- Sampled four groundwater monitoring wells and analyzed the samples for TPHG, TPHD, BTEX, and MTBE. Measured depth to groundwater in each well and

determined groundwater gradient (direction of groundwater flow). The Client had contracted with a certified land surveyor to measure TOC's relative to MSL.

- Obtained a soil boring permit from the Alameda County Public Works Agency (ACPWA), marked the locations of the proposed soil boring adjacent to former boring SB-2 and the proposed boring down-gradient of the former gasoline tank, and "cleared" each boring location of underground utilities.
- Drilled two soil borings. Drilled boring SB-2A adjacent to former boring SB-2 to a depth of about 11 feet and drilled boring SB-1G at the location of the former gasoline UST to a depth of about 28 feet.
- Collected soil samples at depths of about 5 and 10 feet below grade in boring SB-2A and analyzed the samples for TPHD and PNAs. Collected one soil sample at the depth of about 23.5 feet and a "grab" groundwater sample from boring SB-1G and analyzed both samples for TPHG, BTEX, and MTBE.
- Sealed the borings with neat Portland cement.
- Prepared this report.

Details of the above work are presented below.

Sampled Groundwater Monitoring Wells/Surveyed TOC's Relative to MSL

ALLCAL's first task of the above work consisted of sampling the four wells and determining direction (gradient) of groundwater flow.

A review of seven of LW's gradient maps, ranging in date from January 1991, through May 1993, found that the north direction indicated on each map was in error by almost 180 degrees; subsequently, the direction of reported groundwater flow was not correct. Also, the horizontal scale, as measured from map to map, was variable; and beginning with the December, 1992, map, the location of well MW-3 changed significantly from earlier maps. Lastly, the TOC elevations of the wells were measured relative to an arbitrary on-site datum instead of MSL.

Well Elevation Survey:

At the request of the ACHCSA to survey the TOC elevations relative to MSL to an accuracy of .01 foot, the Client contracted with certified land surveyor Greenwood & Moore, Inc., located in Castro Valley, California, to conduct the survey. On May 26, 1999, the wells were surveyed relative to Bench Mark "C" cut in the southeasterly curb return at Grant Avenue and Via Alamos Street. The bench mark is at an elevation of 21.807 feet MSL (see attached Monument Record). The surveyed elevations are documented in the attached drawing by Greenwood & Moore, Inc.

Well Sampling:

ALLCAL sampled the four wells on June 2, 1999. Before sampling, depth-to-water was measured to the nearest .05 foot in each well from the TOC using an electronic water level meter, and each well was checked for floating product using a dedicated disposable polyethylene bailer. No floating product was observed in any of the wells.

Sampling was conducted by purging each well of about 25 liters (3 wetted well volumes) with a dedicated polyethylene bailer. (Because a dedicated bailer was used for each well, no decontamination was necessary between sampling events.) Temperature, pH, and electrical conductivity were monitored and purging continued until they stabilized (see attached **RECORDS OF WATER SAMPLING**). After purging was completed, water samples were collected in laboratory-provided 40-milliliter, sterilized, glass vials and 1-liter amber bottles having Teflon-lined screw caps. The bottles were immediately sealed and labeled to include: date, time, sample location, project number, and sampler name. The samples were immediately stored in an iced-cooler for transport to California Department of Health Services certified McCampbell Analytical Inc. laboratory, located in Pacheco, California, accompanied by chain-of-custody documentation.

Purged water is stored on site in a labeled 55-gallon drum.

The water samples were analyzed for TPHG, TPHD, BTEX, and MTBE by EPA Methods GCFID 5030/8015 modified, GCFID 3550/8015 modified, 8020, and 8020, respectively. Additionally, a trip blank sample was analyzed for TPHG and BTEX.

Results of Groundwater Gradient Determination:

On June 2, 1999, direction of groundwater flow was mapped to be west-southwest with a gradient of about .006 feet/foot. See attached **GROUNDWATER GRADIENT MAP-6/2/99**.

Results of Chemical Analyses:

No analytes were detected in any of the wells, with the exception that TPHD was detected in well MW-4 at a concentration of 130 ppb. The laboratory noted that diesel range compounds were significant, but there was no recognizable pattern. See the attached certified analytical report.

Drilled Soil Borings*Pre-field Activities:*

Prior to drilling soil borings, ALLCAL: (1) obtained a soil boring permit (attached, Number 99WR260) from the ACPWA, (2) visited the site to mark the locations of the two borings, (3) subcontracted Fast-Tek Engineering (C57 license 589008) to drill the soil borings and "cleared" each location of underground utilities, and (5) gave 48 hours' notice to the ACHCSA prior to drilling the borings.

Locations of Soil Borings:

On June 29, 1999, ALLCAL drilled soil borings SB-2A and SB-1G at the approximate locations shown in the attached SITE PLAN. At the request of the ACHCSA, boring SB-2A was drilled adjacent to former boring SB-2 in the area of the former 6,000-gallon diesel UST. The ACHCSA had requested that boring SB-1G be drilled at a location immediately down-gradient of the former 45-gallon gasoline UST. No "clear" drill site could be established immediately down-gradient of the former gasoline tank location due to a complex of underground storm drains and appurtenant electrical lines. Consequently, boring SB-1G was drilled at the same location where the former UST is believed to have been in service.

Soil and Groundwater Assessment Methodology:(1) Soil Boring and Sampling Procedures

The soil borings were drilled with the Geoprobe System, small diameter (about 2-inch) drill casing, direct-push technology. Soil samples were collected as core into polyethylene terephthalate glycol (PETG) liners enclosed within the drill casing. Samples were collected in 2- and 4-foot depth intervals by hydraulically driving the casing and enclosed PETG liner at selected depths. Boring SB-2A was drilled to a total depth of about 11 feet; soil core was discretely collected at the depth intervals of 4 to 6 feet and 9 to 11 feet (2-foot depth intervals). Boring SB-1G was drilled to a total depth of about 28 feet; soil core was collected continuously (in 4-foot depth intervals) to the boring's total depth. After driving each 2- or 4-foot interval, the drill casing and enclosed liner were retrieved and the soil core was examined for apparent contamination (inspected visually for discoloration and sniffed for odor) and construction of lithologic logs. Logs were prepared for each boring (attached), according to the Unified Soil Classification System, by a California Registered Geologist.

In boring SB-2A, at the request of the ACHCSA, soil samples were collected for chemical analyses at the depths of 5 and 10 feet. In boring SB-1G, a soil sample was collected for chemical analysis at the depth of 23.5 feet.

To minimize the potential for cross-contamination, a clean shoe was attached to the drill casing between sampling events and prior to beginning each boring.

(2) "Grab" Groundwater Sampling Procedures

Groundwater was encountered in the boring of SB-1G at the depth of about 25 feet. A "grab" groundwater sample was collected by inserting 1-inch PVC screen and casing into the boring and allowing groundwater to enter the screened interval. A sample was collected into a stainless steel bailer and decanted into laboratory-provided and preserved 40 milliliter bottles having Teflon-lined caps.

(3) Sealing of Borings and Handling of Wastes

After all soil and groundwater samples were collected, each boring was sealed to grade with neat Portland Cement Type I/II.

Drill cuttings (waste) are stored on site in a labeled, 5-gallon pail. The label shows contents, date stored, suspected contaminant, expected date of removal, company name, contact person, and telephone number.

what will they do w/ this soil?

(4) Sample Handling Methods

Soil samples collected for chemical analyses were preserved in their PETG liners. The ends of the liners were covered with Teflon sheeting followed by plastic end-caps.

Teflon?

The "grab" groundwater sample was stored in laboratory-provided, 40-milliliter, HCL-preserved VOAs having Teflon-lined plastic caps.

Both soil and groundwater samples were labeled to show site name, project number, date, time, sample name, depth collected, and sampler name; and stored in an iced-cooler.

(5) Chemical Analyses

The soil samples collected from boring SB-2A were analyzed for TPHD and PNAs.

The soil and "grab" groundwater sample collected from boring SB-1G were analyzed for TPHG, BTEX, and MTBE.

All samples were delivered under chain-of-custody to California Department of Health Services certified McCampbell Analytical Inc. laboratory, located in Pacheco California, for chemical analysis. Analysis for TPHD and PNA were by EPA Methods GCFID 5030/8015 and 8270, respectively. Analysis for TPHG, BTEX, and MTBE were by EPA Methods GCFID 5030/8015, 8020, and 8020, respectively.

Soil Boring Profiles:

In boring SB-2A, a dry, grey to red-brown, sandy gravel was encountered beneath the asphalt and base-rock surface to a depth of about 5.5 feet; no odor was detected. From about 5.5 feet to the total depth explored. 11 feet, a dry, dark green to black clay with a slight hydrocarbon odor was present; at the depth of about 9 feet, hydrocarbon odor became stronger.

In boring SB-1G, a dry brown sand was encountered from grade to a depth of 6 feet. From 6 to 7 feet, a dry brown sandy gravel with broken rock (appeared to be fill material) was present. From 7 to 11 feet, a damp brown sand was present; the sand was wet at 11 feet (not enough water to collect a sample). From 11 feet to 20 feet, a damp clay was present; the clay was dark brown to 16 feet and red-brown from 16 to 20 feet. From 20 feet to 28 feet, a brown sand was present that became

saturated at 25 feet. No odors or apparent contamination was detected in the boring.

See attached **EXPLORATORY BORING LOGS**.

Results of Soil and Groundwater Chemical Analyses:

(1) Soil Boring SB-2A

In boring SB-2A, TPHD was detected at the depths of 5 and 10 feet at concentrations of 3.1 ppm and 1,600 ppm. The laboratory noted that, in the sample collected at the depth of 5 feet, diesel range compounds are significant with no recognizable pattern, and oil range compounds are significant. The laboratory also noted that, in the sample collected at the depth of 10 feet, aged diesel? is significant. No PNAs were detected.

(2) Soil Boring SB-1G

In Boring SB-1G, the soil and "grab" groundwater samples were nondetectable for all analytes.

See the attached certified analytical reports for detailed results of chemical analyses.

CONCLUSIONS AND RECOMMENDATIONS

Diesel UST:

Groundwater contamination by TPHD was found only in cross-gradient well MW-4 at a concentration of 130 ppb. No TPHG, BTEX, or MTBE was detected in any of the wells. The absence of contamination in down-gradient well MW-3, cross-gradient well MW-2, and up-gradient well MW-1 suggests that the diesel plume is small in aerial extent and stable. It is believed that this shallow water is not currently used or will be used as a source of drinking water.

In boring SB-2A, TPHD was detected at the depths of 5 and 10 feet at concentrations of 3.1 ppm and 1,600 ppm, respectively. The laboratory noted that aged diesel? is significant in the chromatogram at the TPHD at 10 feet. No PNAs were detected in either of the samples. It is ALLCAL's opinion that the TPHD remaining in the soil presents no risk to human health.

Based on the California Regional Water Quality Control Board-San Francisco Bay Region's (RWQCB) January 5, 1996, letter, the diesel UST site appears to be a low risk soils and groundwater case and can be officially closed. It is recommended the drummed pugue water be hauled off site and disposed of by recycling. It is also recommended that the wells be destroyed since they are potential pathways for re-contaminating the groundwater.

Gasoline UST

Based on nondetectable analytical results for all analytes for soil and groundwater samples, the site appears to present no risk to human health. It is recommended the site be officially closed and the

containerized soil cuttings be disposed of on site in a gardening area.

LIMITATIONS

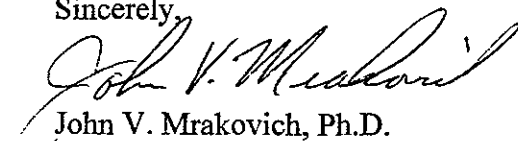
This report is based on subsurface exploration and laboratory analyses of soil and groundwater samples. The chemical analytical results for the samples are considered applicable to that boring or location from which they were collected. The soil groundwater encountered in the borings is believed to be representative of the site; however, it may vary in character between observation points. The conclusions contained herein are based on the field observations, analytical data, and professional judgment 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 judgments 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 only in order that the Client may make an informed decision.

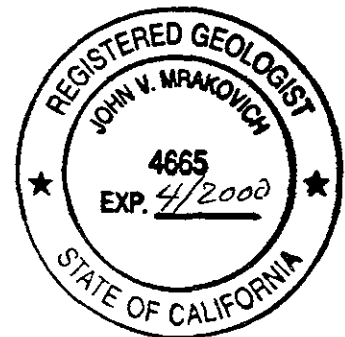
The extent of testing and data collections directly affects the statistical confidence level of all work performed. As a practical matter, to reach or even approach a 100 percent statistical confidence level would be prohibitively expensive. Therefore, if a reassessment of the subject property becomes 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.

If you have any questions, please call me.

Sincerely,


John V. Mrakovich, Ph.D.
Registered Geologist No. 4665



cc: Juliet Shin, Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 21, 1999

Ms. Karen Langmaid
San Lorenzo Unified School District
15510 Usher Street
San Lorenzo, CA 94580

STID: 4233

Re: Workplan for investigations at Arroyo School, located at 15701 Lorenzo Avenue,
San Lorenzo, CA

Dear Ms. Langmaid,

This office has reviewed AllCal Property Services, Inc.'s workplan, dated April 16, 1999, proposing further investigations for the above site. This workplan is acceptable to this office with the following additional requirements:

- It appears that the on-site monitoring wells were initially surveyed to an arbitrary on-site datum instead of to Mean Sea Level. These wells must be surveyed to Mean Sea Level to an accuracy of 0.01 foot, prior to determining groundwater gradient directions.
- Per the Regional Water Quality Control Board's (RWQCB) guidelines, a second groundwater sample must be collected from proposed boring SB-1G and placed on hold. If the first groundwater sample collected from this boring identifies MTBE using Method 8020, RWQCB recommends that the second sample be analyzed for MTBE using Method 8260 to verify the initial concentrations.

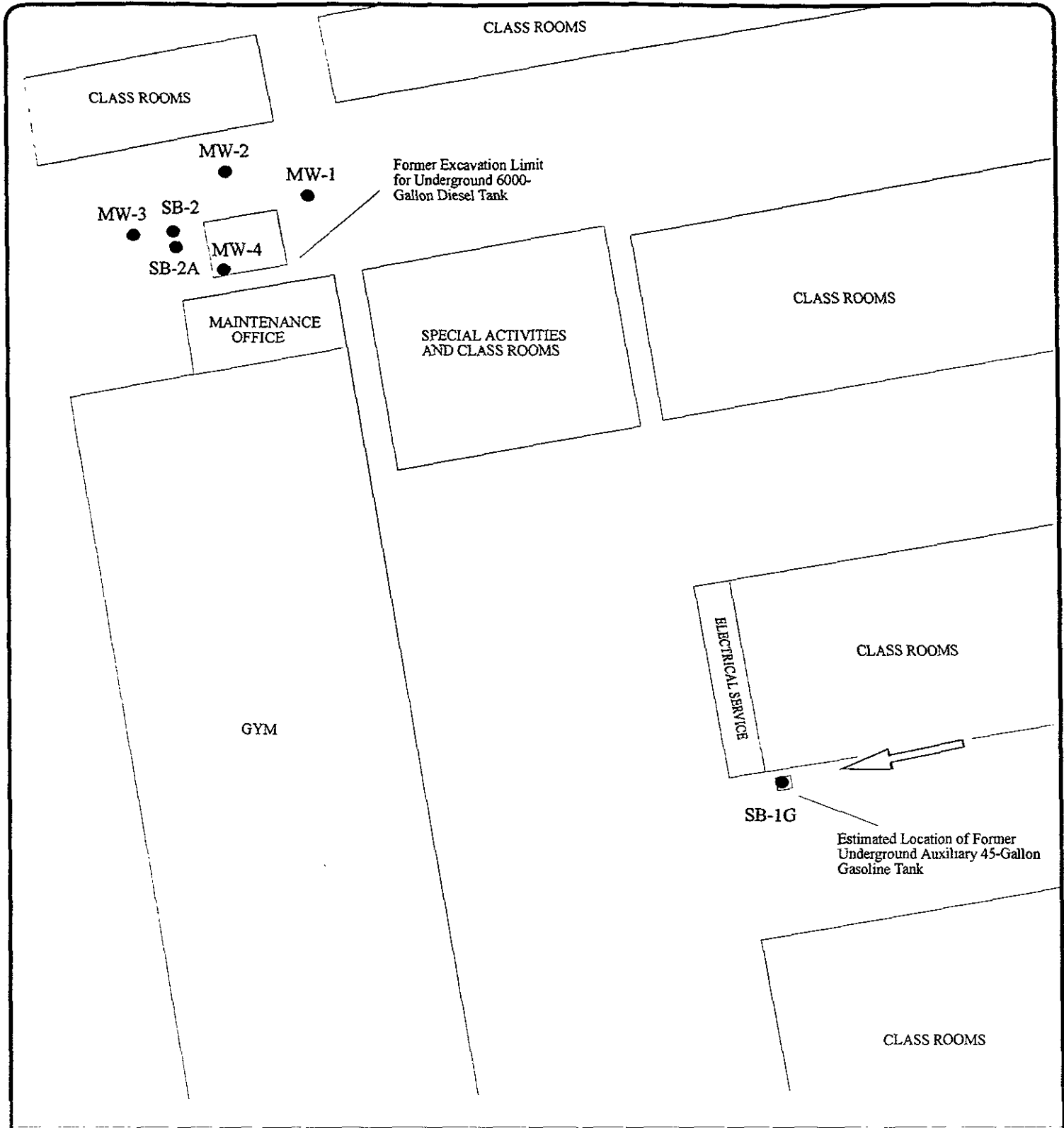
The workplan shall be implemented within 45 days of the date of this letter (i.e., by June 02, 1999), and a report documenting the work shall be submitted within 45 days after completing field activities. Any requests for extensions, or modifications of the required tasks, shall be submitted to this office in writing.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

Cc: John Mrakovich
AllCal Property Services, Inc.
27973 High Country Drive
Hayward, CA 94542-2530



Legend

MW-1
 ● Name and Location of Groundwater Monitoring Well

SB-2A
 ● Name and Location of Soil Boring

Direction of Groundwater Flow

0 50
 Approximate Scale (ft)

N

ALLCAL PROPERTY SERVICES

SITE PLAN

ARROYO SCHOOL
 15701 LORENZO AVENUE
 SAN LORENZO, CA 94577

Greenwood & Moore, Inc.

19131 REDWOOD ROAD, CASTRO VALLEY, CA 94546

OFFICE: 510-581-2772 FAX: 510-581-6913

PROJECT: *Monitoring Well
Survey at Arroyo H.S. for
San Lorenzo Unified Sch. Dist.*

JOB NO.
99051

BY:
G. Glenn

DATE:
05/26/99

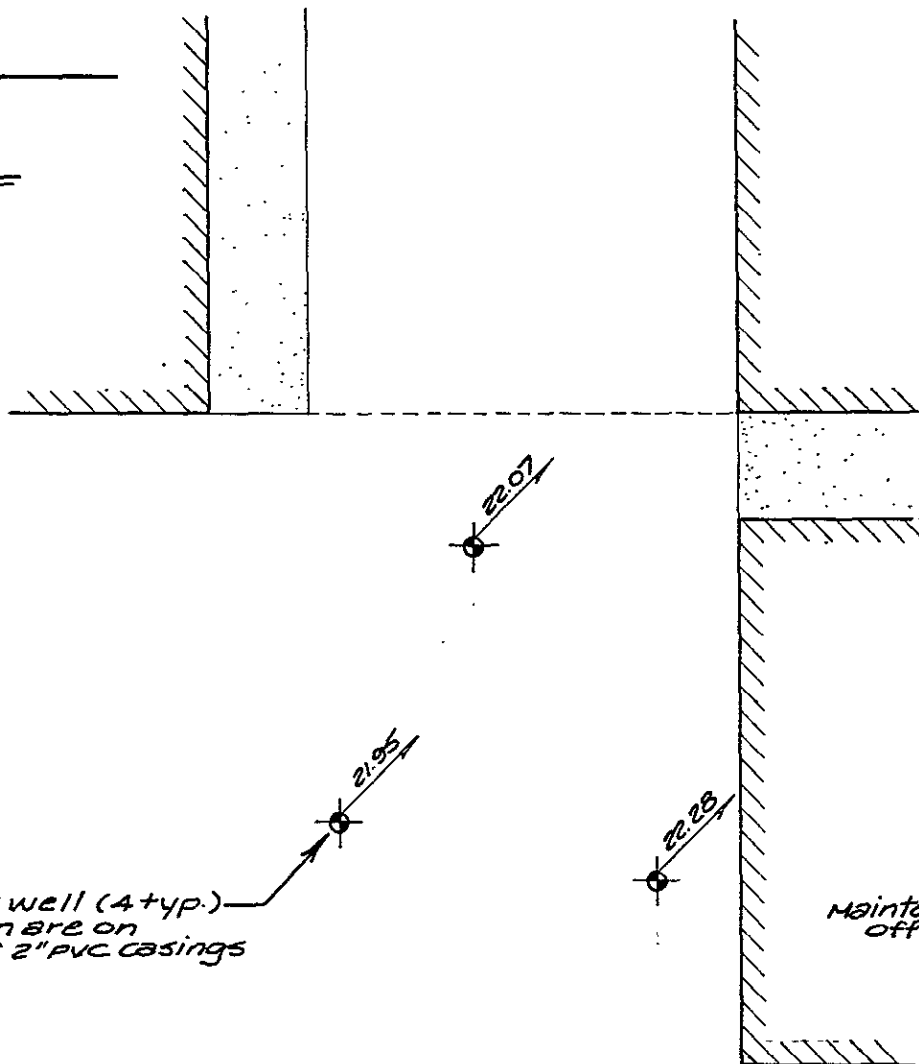
SHEET

REVISED:

1 OF 1

Plan North

SCALE: 1" = 20'



*existing monitor well (4 typ.)
Elevations shown are on
E'ly edge / top of 2" PVC casings*

*Maintenance
office*

MONUMENT RECORD CALIFORNIA COORDINATE SYSTEM

HORIZONTAL CONTROL DATA	
TYPE -	SCALED
ORDER -	
AGENCY	COP

LATITUDE	Y(NORTH)	433,6XX
LONGITUDE	X(EAST)	1,526,7XX
STATION (NAME, SET BY, YEAR SET)		(YEAR RECOVERED)
BM"C", ALA. CO.		1977
INDEX SHEET (QUADRANGLE SHEET)		
SAN LEANDRO		23B
ALAMEDA COUNTY	<input checked="" type="checkbox"/> X	CONTRA COSTA COUNTY
OTHER COUNTY		

VERTICAL CONTROL DATA	
ELEVATION IN FEET	DATUM
21.792	MEAN SEA LEVEL
21.807	
ORDER -	SECOND
	3
	1974 NGS Adj.
AGENCY	Ala. Co. cop Ireland

TO STATION OR MARK	AZIMUTH, CLOCKWISE FROM GRID SOUTH		GRID DISTANCE IN FEET
	GRID NORTH	TRUE NORTH	
	180°00'00"000		

DESCRIPTION, PLAT, REMARKS, ETC.:

BM"C"

A "T" cut in southeasterly curb return at Grant and Via Alamitos. "T" is left 16'± centerline Sta. 0+57± Via Alamitos.

VERTICAL DATA
RAYWARD-SAN LORENZO
HORIZONTAL DATA

VERTICAL DATA
LL 783-23
HORIZONTAL DATA

Former Elev.

21.792

RECORD OF WATER SAMPLING

PROJECT NO.: 137 DATE: 6/2/99
 PROJECT NAME: SLUS3

WELL NO.: MW-1
 WELL DIAMETER: 2'

PROJECT LOCATION: ARROYO SCHOOL
 SAMPLER: ALLCAL

TOC ELEV: 22.07
 LOCK NO.: _____

ANALYSES: TPHS/BTEX/MTBE/TPH

WELL DEPTH (from construction detail): 24.5

WELL DEPTH (measured): 24.30 SOFT BOTTOM?: _____

DEPTH TO WATER: 10.44 TIME: 9:29

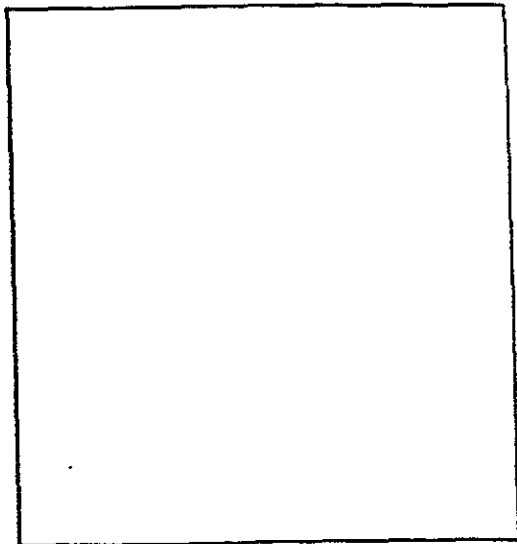
PRESSURE (circle one): YES OR NO

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

WATER VOLUME IN WELL: 2.2 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

CALCULATED PURGE VOL. (GAL): 6.65 (L): 25 ACTUAL PURGE VOL. (GAL): _____ (L): 25

PURGE METHOD: POLYETHYLENE BAILER SAMPLE METHOD: BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC x100	Clarity	Turbidity (NTU)	Remarks
9:52		1	62.5	9.39	9.59			CLEAR
10:00		10	61.9	9.08	4.84			↓
10:07		15	61.4	8.38	6.17			
10:10		20	63.7	7.95	6.94			
10:14		22	64.1	7.99	7.36			
10:17		25	63.2	8.04	6.28			
	Spl @	10:25						

SIGNATURE: J. Marchant

WATER VOL. IN DRUM: _____
 NEED NEW DRUM?: _____

RECORD OF WATER SAMPLING

PROJECT NO.: 137 DATE: 6/2/99
 PROJECT NAME: SLUSD
 PROJECT LOCATION: ARROYO SCHOOL
 SAMPLER: ALICAL

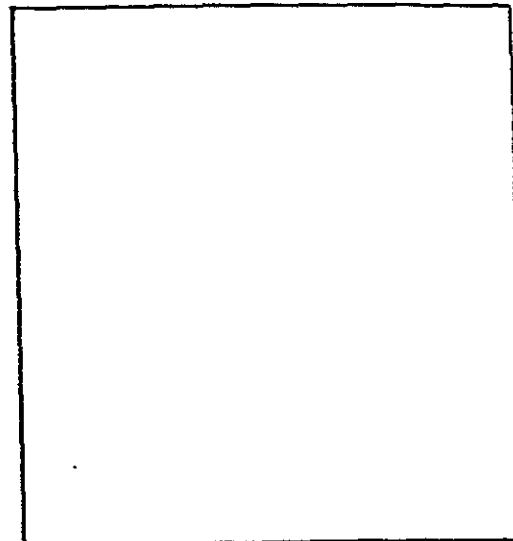
WELL NO.: MW-2
 WELL DIAMETER: 2'
 TOC ELEV: 21.95
 LOCK NO.: _____

ANALYSES: TPHG/BTEX/MTBE/TPH
 WELL DEPTH (from construction detail): 24.50
 WELL DEPTH (measured): 24.45 SOFT BOTTOM?: _____
 DEPTH TO WATER: 10.47 TIME: 9:31
 PRESSURE (circle one)? YES OR NO
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?

WATER VOLUME IN WELL: 2.24 GAL

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

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



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 6.71 (L): 25.37 ACTUAL PURGE VOL. (GAL): _____ (L): 25
 PURGE METHOD: POLYETHYLENE BAILER SAMPLE METHOD: BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC x100	Clarity	Turbidity (NTU)	Remarks
10:40		1	66.0	8.93	5.53			CLEAR
10:47		10	65.3	8.99	6.39			↓
10:52		15	64.7	8.73	6.42			
10:56		20	64.9	8.20	6.64			
11:00		22	64.6	8.08	6.68			
11:04		25	66.6	7.96	6.72			SLIGHTLY CLOUDY
	Spl @		11:15					

SIGNATURE: J. M. [Signature]

WATER VOL. IN DRUM: _____
 NEED NEW DRUM?: _____

RECORD OF WATER SAMPLING

PROJECT NO.: 137 DATE: 6/2/99

WELL NO.: MW-3

PROJECT NAME: SLUS3

WELL DIAMETER: 2"

PROJECT LOCATION: ARROYO SCHOOL

TOC ELEV: 21.91

SAMPLER: ALCAL

LOCK NO.: _____

ANALYSES: TPHS/RTEX/MTBE/TPH3

WELL DEPTH (from construction detail): 24.5

WELL DEPTH (measured): 24.42 SOFT BOTTOM?: _____

DEPTH TO WATER: 10.70 TIME: 9:35

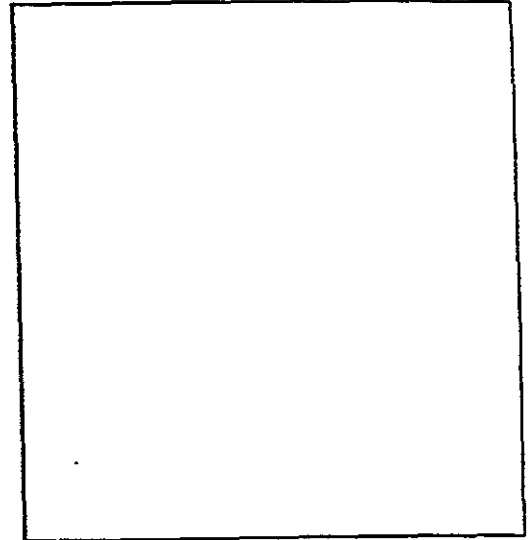
PRESSURE (circle one): YES OR (NO)

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

WATER VOLUME IN WELL: 2.2 GAL

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

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



LOCATION MAP

CALCULATED PURGE VOL. (GAL): 6.59 (L): 24.89 ACTUAL PURGE VOL. (GAL): _____ (L): 25

PURGE METHOD: POLYETHYLENE BAILER SAMPLE METHOD: BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X100	Clarity	Turbidity (NTU)	Remarks
11:26		1	64.9	7.93	8.51			CLEAR
11:35		10	65.0	7.67	8.16			BLACK SUSPENDED MATERIAL
11:46		15	65.0	7.59	8.25			↓
11:45		20	64.0	7.72	7.98			
11:47		22	64.8	7.71	8.02			
11:50		25	65.2	7.57	8.22			
		SPL @ 12:00						

SIGNATURE: J. Mrazek

WATER VOL. IN DRUM: _____
NEED NEW DRUM?: _____

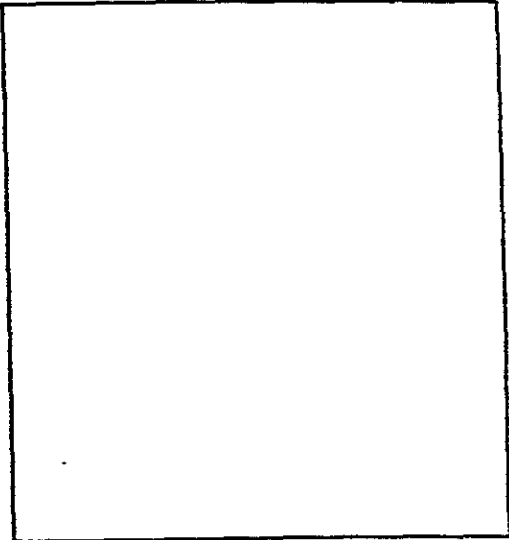
RECORD OF WATER SAMPLING

1.1

PROJECT NO.: 137 DATE: 6/2/99
 PROJECT NAME: SLUS
 PROJECT LOCATION: ARROYO SCHOOL
 SAMPLER: ALLCAL

WELL NO.: MW-4
 WELL DIAMETER: 2"
 TOC ELEV: 22.28
 LOCK NO.: _____

ANALYSES: TPHG/BTEX/MTBE/TPH
 WELL DEPTH (from construction detail): 23.5
 WELL DEPTH (measured): 23.78 SOFT BOTTOM?: _____
 DEPTH TO WATER: 10.86 TIME: 9:40
 PRESSURE (circle one)? YES OR NO
 IF YES, WAS PRESSURE (circle one): POSITIVE OR NEGATIVE?



LOCATION MAP

WATER VOLUME IN WELL: 2.07 GAL
 [2-INCH CASING = 0.16 GAL/FT] [4-INCH CASING = 0.65 GAL/FT]
 [6-INCH CASING = 1.47 GAL/FT] [1 GAL = 3.78 L]

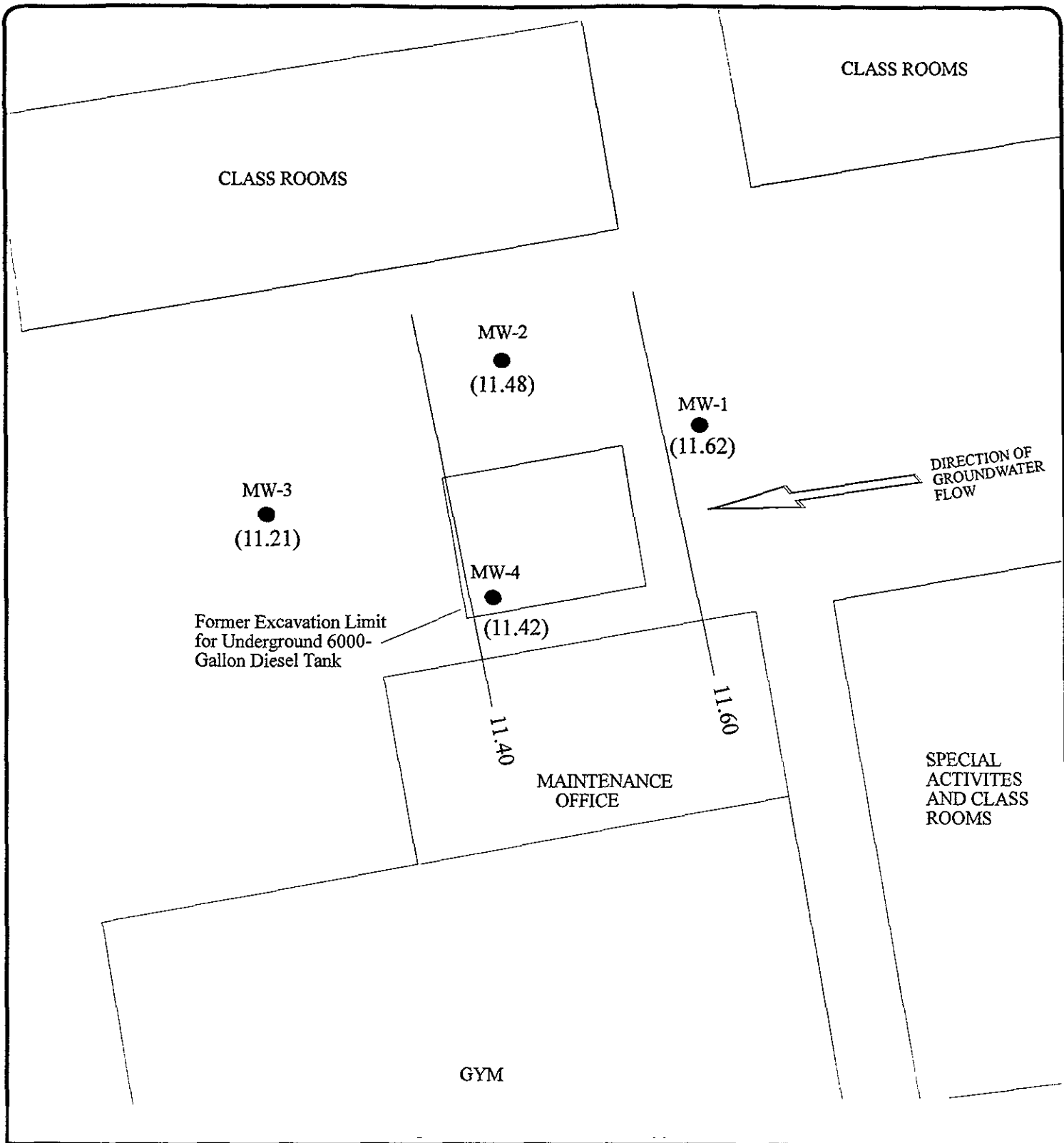
CALCULATED PURGE VOL. (GAL): 6.20 (L): 23.44 ACTUAL PURGE VOL. (GAL): _____ (L): 25
 PURGE METHOD: POLYETHYLENE DAILER SAMPLE METHOD: BAILER

FIELD MEASUREMENTS

Time	Depth to Water (FT)	Vol (L)	Temp (Deg. F)	pH	EC X1000	Clarity	Turbidity (NTU)	Remarks
12:12		1	62.9	10.15	3.12			CLEAR
12:20		10	63.8	11.10	3.12			CLOUDY WITH BLACK SUSPENDED MATERIAL
12:25		16	63.8	11.25	2.52			↓
12:29		20	63.6	11.18	2.19			
12:31		22	64.0	10.76	1.62			
12:34		25	63.7	10.58	1.84			
	Spl @	12:45						POSSIBLE HYDROCARBON ODOR

SIGNATURE: J. M. [Signature]

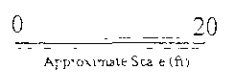
WATER VOL. IN DRUM: _____
 NEED NEW DRUM?: _____



Legend

MW-1
 ● Name and Location of
 (11.63) Groundwater Monitoring Well
 (Groundwater Elevation)

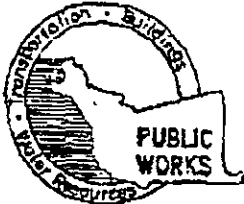
11.40
 Potentiometric Contour
 Contour Interval= 20 ft



ALLCAL PROPERTY SERVICES

GROUNDWATER GRADIENT MAP-6/2/99

ARROYO SCHOOL
 15701 LORENZO AVENUE
 SAN LORENZO, CA 94577



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

051 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 15701 LORENZO AVE.
SAN LORENZO, CA

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

CLIENT

Name SAN LORENZO UNIFIED SCHOOL DIST.
Address 15510 USHER ST Phone 510 317 4874
City SAN LORENZO Zip 94550

APPLICANT

Name JOHN MRAKOVICH
ALLCAL PROPERTY SVS Fax 510 581 8490
Address 27913 HIGH COUNTRY DR Phone 510 581 7320
City HAYWARD 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 DIRECT PUSH

DRILLER'S LICENSE NO. C57 624461

WELL PROJECTS

Drill Hole Diameter _____ in. Maximum _____
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth _____ ft. Number _____

GEOTECHNICAL PROJECTS

Number of Borings 2 Maximum _____
Hole Diameter 2 in. Depth 20 ft.

ESTIMATED STARTING DATE 6/29/99
ESTIMATED COMPLETION DATE 6/29/99

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

APPLICANT'S SIGNATURE John Mrakovich DATE 6/9/99

FOR OFFICE USE

PERMIT NUMBER 99WR260
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL

Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremie cement grout shall be used in place of compacted cuttings.

E. CATHODIC

Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

See attached.

G. SPECIAL CONDITIONS

APPROVED [Signature] DATE 6/12/99

EXPLORATORY BORING LOG

Project Number: 137

Boring Number: SB-2A

Project Name: Arroyo School
San Lorenzo, CA

Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC Date: 6/29/99

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND- WATER LEVEL	DEPTH (ft.)	SOIL TYPE	DESCRIPTION
				0		0.00 - .5 FT.: ASPHALT UNDERLAIN BY BASE ROCK.
				5	GP	0.5 - 5.5 FT.: SANDY GRAVEL (GP), GREY TO RED-BROWN, MEDIUM TO COARSE-GRAINED, DRY, NO ODOR.
24/24				10	CL	5.5 - 11.0 FT.: CLAY (CL), DARK GREEN TO BLACK, FIRM, SANDY, SILTY, DRY, SLIGHT HYDROCARBON ODOR. @ 9.0 FT.: HYDROCARBON ODOR.
24/24				15		TOTAL DEPTH OF BORING = 11 FEET.
				20		
				25		
				30		

Remarks: BORING DISCRETELY CORED WITH 2.0 - INCH O. D., DIRECT-PUSH GEOPROBE SYSTEM. SAMPLES COLLECTED IN 1.75- BY 36 - INCH PETG LINER. BORING SEALED TO GROUND SURFACE WITH CEMENT SLURRY.

EXPLORATORY BORING LOG

Project Number: 137

Boring Number: SB-1G

Project Name: Arroyo School
San Lorenzo, CA

Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC

Date: 6/29/99

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND- WATER LEVEL	DEPTH (ft.)	SAMPLES ANALYZED	SOIL TYPE	DESCRIPTION
36/48				5		SP	0.00 - 6.0 FT.: SAND (SP), BROWN, MEDIUM-GRAINED, SOME FINE GRAVEL, DRY, NO ODOR.
36/48						GP	6.0 - 7.0 FT.: SANDY GRAVEL (GP), BROWN, MEDIUM TO COARSE-GRAINED, ANGULAR FRAGMENTS (BROKEN ROCK), ROOTS, DRY, NO ODOR.
36/48				10		SP	7.0 - 11.0 FT.: SAND (SP), BROWN, FINE-GRAINED, SILTY, DAMP (WET @ 11 FT.), NO ODOR.
48/48				15		CL	11.0 - 16.0 FT.: CLAY (CL), DARK BROWN, FIRM, ROOTS, DAMP, NO ODOR. @ 14 FT.: BLACK WITH FINE GRAVEL, DAMP, NO ODOR. @ 16 FT.: SAMPLE SHOE WET.
48/48				20		CL	16.0 - 20.0 FT.: CLAY (CL), RED BROWN, CHANGING TO LIGHT BROWN, FIRM, SANDY, GRAVELLY, DAMP, NO ODOR. @ 20 FT.: SOFT.
48/48			▼	25		SP	20.0 - 28.00 FT.: SAND (SP), BROWN, ALTERNATING LAYERS OF FINE TO MEDIUM-GRAINED AND VERY FINE-GRAINED SAND, CLAYEY, MOIST TO WET NO ODOR. @ 24 FT.: SAND IS MEDIUM-GRAINED.
48/48				30			TOTAL DEPTH OF BORING = 28 FEET

Remarks: BORING CONTINUOUSLY CORED WITH 2.0 - INCH O. D., DIRECT-PUSH, GEOPROBE SYSTEM. SAMPLES COLLECTED IN 1.75- BY 48 - INCH PETG LINER. BORING SEALED TO GROUND SURFACE WITH CEMENT SLURRY



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/02/99
		Date Received: 06/02/99
	Client Contact: John Mrakovich	Date Extracted: 06/02/99
	Client P.O:	Date Analyzed: 06/02/99

06/09/99

Dear John:

Enclosed are:

- 1). the results of 5 samples from your #137; Arroyo School 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 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/02/99
		Date Received: 06/02/99
	Client Contact: John Mrakovich	Date Extracted: 06/02-06/03/99
	Client P.O:	Date Analyzed: 06/02-06/03/99

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
12485	MW-1	W	ND	ND	ND	ND	ND	ND	107
12486	MW-2	W	ND	ND	ND	ND	ND	ND	107
12487	MW-3	W	ND	ND	ND	ND	ND	ND	104
12488	MW-4	W	ND	ND	ND	ND	ND	ND	103
12489	Trip Blank	W	ND	ND	ND	ND	ND	ND	104
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



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/02/99
		Date Received: 06/02/99
	Client Contact: John Mrakovich	Date Extracted: 06/02/99
	Client P.O:	Date Analyzed: 06/03/99

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	% Recovery Surrogate
12485	MW-1	W	ND	103
12486	MW-2	W	ND	104
12487	MW-3	W	ND	103
12488	MW-4	W	130,b	101
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	
	S		1.0 mg/kg	

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

* cluttered chromatogram resulting in coeluted surrogate and sample peaks, or, surrogate peak is on elevated baseline, or, surrogate has been diminished by dilution of original extract

*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 diesel is significant, b) diesel range compounds are significant, no recognizable pattern, c) aged diesel? is significant, d) gasoline range compounds are significant, e) medium boiling point pattern that does not match diesel (?), f) one to a few isolated peaks present, g) oi range compounds are significant, h) lighter than water immiscible sheen is present, i) liquid sample that contains greater than ~5 vol % sediment

QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/03/99

Matrix: WATER

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample (#12230)	MS	MSD		MS	MSD	
TPH (gas)	0.0	101.9	104.7	100.0	101.9	104.7	2.7
Benzene	0.0	9.4	9.3	10.0	94.0	93.0	1.1
Toluene	0.0	9.6	9.5	10.0	96.0	95.0	1.0
Ethyl Benzene	0.0	9.9	9.8	10.0	99.0	98.0	1.0
Xylenes	0.0	29.8	29.4	30.0	99.3	98.0	1.4
TPH(diesel)	0.0	7527	7383	7500	100	98	1.9
TRPH (oil & grease)	0	29100	28600	23700	123	121	1.7

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

McCAMBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACIFICCO, CA 94553

Telephone: (510) 798-1620

Fax: (510) 798-1622

Report To: JOHN MRAKOVICH Bill To: ALLCAL
 Company: ALLCAL PROPERTY SVS, INC
27973 HIGH COUNTRY DR.
HAYWARD, CA 94542
 Tele. (510) 581 2320 Fax: (510) 581 8490
 Project #: 137 Project Name: ARROYO SCHOOL
 Project Location: SAN LORENZO, CA
 Sampler Signature: John MraKovich

CHAIN OF CUSTODY RECORD
TURN AROUND TIME

RUSH 24 HOUR 48 HOUR 5 DAY

Analysis Request

Other

Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments					
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other																						
MW-1	MW-1	6/2/99	10:25	3	2-40 1-270	X					X																									12485
MW-2	MW-2		11:15																																	12486
MW-3	MW-3		12:00																																	12487
MW-4	MW-4		12:45																																	12488
Trip 13/Amk													X																							12489

ICE GOOD CONDITION
HEADSPACE ABSENT

PRESERVATION APPROPRIATE
CONTAINERS

VOAST O&G METALS OTHER

Relinquished By: [Signature] Date: 6/2/99 Time: 2:22 Received By: [Signature]
 Relinquished By: [Signature] Date: 5/2/99 Time: 3:25 Received By: [Signature]
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____

Remarks: IF MTBE DETECTED, CONFIRM WITH METHOD 8260 FOR SAMPLE WITH HIGHEST CONCENTRATION



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 06/29/99

07/06/99

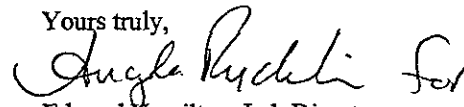
Dear John:

Enclosed are:

- 1). the results of 4 samples from your #137; Arroyo School 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 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 07/01-07/02/99

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
14663	SB1G-23.5-24.0	S	ND	ND	ND	ND	ND	ND	111
14664	SB1G-W	W	ND,i	ND	ND	ND	ND	ND	104
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



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 06/29-07/05/99

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	% Recovery Surrogate
14661	SB2A-5.0-5.5	S	3.1,g,b	107
14662	SB2A-10.0-10.5	S	1600,c	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L		
	S	1.0 mg/kg		

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

* cluttered chromatogram resulting in coeluted surrogate and sample peaks, or, surrogate peak is on elevated baseline, or surrogate has been diminished by dilution of original extract

*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 diesel is significant, b) diesel range compounds are significant, no recognizable pattern, c) aged diesel? is significant, d) gasoline range compounds are significant, e) medium boiling point pattern that does not match diesel (?), f) one to a few isolated peaks present, g) oil range compounds are significant, h) lighter than water immiscible sheen is present, i) liquid sample that contains greater than ~5 vol % sediment



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 07/06/99

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by GC-MS
EPA methods 625 (modified 610) and 3510 or 8270 (modified 8100) and 3550

Lab ID	14661	14662	Reporting Limit	
			S	W, STLC TCLP
Client ID	SB2A-5.0-5.5	SB2A-10.0-10.5		
Matrix	S	S		
Compound	Concentration*		mg/kg	ug/L
Acenaphthene	ND	ND<5	0.33	10
Acenaphthylene	ND	ND<5	0.33	10
Anthracene	ND	ND<5	0.33	10
Benzo(a)anthracene	ND	ND<5	0.33	10
Benzo(b)fluoranthene	ND	ND<5	0.33	10
Benzo(k)fluoranthene	ND	ND<5	0.33	10
Benzo(g,h,i)perylene	ND	ND<5	0.33	10
Benzo(a)pyrene	ND	ND<5	0.33	10
Chrysene	ND	ND<5	0.33	10
Dibenzo(a,h)anthracene	ND	ND<5	0.33	10
Fluoranthene	ND	ND<5	0.33	10
Fluorene	ND	ND<5	0.33	10
Indeno(1,2,3-cd)pyrene	ND	ND<5	0.33	10
Naphthalene	ND	ND<5	0.33	10
Phenanthrene	ND	ND<5	0.33	10
Pyrene	ND	ND<5	0.33	10
% Recovery Surrogate 1	87	93		
% Recovery Surrogate 2	112	115		
Comments		J		

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L
 ND means not detected above the reporting limit, N/A means analyte not applicable to this analysis
 * surrogate diluted out of range or surrogate coelutes with another peak
 (h) a lighter than water immiscible sheen is present, (i) liquid sample that contains >=5 vol % sediment, (j) sample diluted due to high organic content

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/01/99

Matrix: WATER

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		
	Sample (#14478)	MS	MSD		MS	MSD	RPD
TPH (gas)	0.0	106.3	109.4	100.0	106.3	109.4	2.8
Benzene	0.0	9.5	10.4	10.0	95.0	104.0	9.0
Toluene	0.0	9.6	10.5	10.0	96.0	105.0	9.0
Ethyl Benzene	0.0	9.8	10.6	10.0	98.0	106.0	7.8
Xylenes	0.0	29.4	32.0	30.0	98.0	106.7	8.5
TPH(diesel)	0.0	7729	7375	7500	103	98	4.7
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/27/99-06/28/99

Matrix: SOIL

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		
	Sample (#09036)	MS	MSD		MS	MSD	RPD
TPH (gas)	0.000	2.181	2.203	2.03	107	109	1.0
Benzene	0.000	0.196	0.200	0.2	98	100	2.0
Toluene	0.000	0.202	0.206	0.2	101	103	2.0
Ethylbenzene	0.000	0.206	0.208	0.2	103	104	1.0
Xylenes	0.000	0.584	0.604	0.6	97	101	3.4
TPH(diesel)	0	288	290	300	96	97	0.7
TRPH (oil and grease)	0.0	25.7	25.4	20.8	124	122	1.2

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 925-798-1620 Fax: 925-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/01/99

Matrix: SOIL

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		
	Sample (#00685)	MS	MSD		MS	MSD	RPD
TPH (gas)	0.000	2.128	2.174	2.03	105	107	2.1
Benzene	0.000	0.198	0.200	0.2	99	100	1.0
Toluene	0.000	0.204	0.206	0.2	102	103	1.0
Ethylbenzene	0.000	0.206	0.208	0.2	103	104	1.0
Xylenes	0.000	0.600	0.612	0.6	100	102	2.0
TPH(diesel)	0	302	305	300	101	102	0.8
TRPH (oil and grease)	0.0	23.4	23.8	20.8	113	114	1.7

$$\dagger \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
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QC REPORT FOR SVOCs (EPA 8270/625/525)

Date: 07/06/99

Matrix: SOIL

Analyte	Concentration (ug/Kg, m)			Amount Spiked	% Recovery		RPD
	Sample (#02568)	MS	MSD		MS	MSD	
Phenol	0	115	106	100	115	106	16.3
2-Chlorophenol	0	102	101	100	102	101	1.0
1, 4-Dichlorobenzene	0	87	87	100	87	87	0.0
N-nitroso-di-n-propyl	0	59	57	100	59	57	3.4
1, 2, 4-Trichlorobenz	0	83	85	100	83	85	2.4
4-Chloro-3-methylphen	0	109	111	100	109	111	1.8
4-Nitrophenol	0	84	85	100	84	85	1.2
Acenaphthene	0	61	55	100	61	55	10.3
2, 4- Dinitrotoluene	0	78	77	100	78	77	1.3
Pentachlorophenol	0	88	77	100	88	77	13.3
Pyrene	0	85	85	100	85	85	0.0

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

15776 ZAC5

McCAMBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553

Telephone (510) 798-1620

Fax: (510) 798-1622

CHAIN OF CUSTODY RECORD
TURN AROUND TIME

RUSH 24 HOUR 48 HOUR 5 DAY

Report To: JOHN MRAKOVICH Bill To: ALLCAL
Company: ALLCAL PROPERTY SVS., INC.
27975 HIGH COUNTRY DRIVE
HAYWARD, CA 94542
Tele: (510) 581-2320 Fax: (510) 581-8490
Project #: 137 Project Name: ARROYO SCHOOL
Project Location: SAN LORENZO, CA
Sampler Signature: John Mrakovich

Analysis Request

Other

Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED								
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other					
SB2A-5.0-5.5	SB-2A	6/24/99	9:10	1	PETS LINER		X				X								
SB2A-10.0-10.5	SB-2A		9:15	1			X				X								
SB1G-23.5-24.0	SB-1G		11:05	1			X				X								
SB1G-W	SB-1G		11:25	3	40ML	X					X								

BTEX & TPH as Gas (602/8020 + 8015) MTBE																				
TPH as Diesel (8015)																				
Total Petroleum Oil & Grease (5520 E&F/B&F)																				
Total Petroleum Hydrocarbons (418.1)																				
EPA 601 / 8010																				
BTEX ONLY (EPA 602 / 8020)																				
EPA 608 / 8080																				
EPA 608 / 8080 PCB's ONLY																				
EPA 624 / 8240 / 8260																				
EPA 625 / 8270																				
PAH's (PNA's by EPA 625 (8270) 8310)												X								
CAM-17 Metals																				
LUFT 5 Metals																				
Lead (7240/7421/239.2/6010)																				
RCI																				

14661
14662
14663
14664

IDEA GOOD CONDITION HEAD SPACE ABSENT
PRESERVATION APPROPRIATE CONTAINERS
VOASTO&G METALS OTHER

Relinquished By: A. Mrakovich	Date: 6/24/99	Time: 2:30	Received By: David J. More
Relinquished By: David J. More	Date: 6/24/99	Time: 3:50	Received By: Dina A. Bell
Relinquished By:	Date:	Time:	Received By:

Remarks:
IF MTBE DETECTED, CONFIRM WITH METHOD 8260.