QUARTERLY MONITORING REPORT
THIRD QUARTER 1994
OLD GRAYSTONE FUELING AREA
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

ESE PROJECT #6-93-5074

PRESENTED TO:

ALAMEDA COUNTY GENERAL SERVICES AGENCY
4400 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA 94619

PREPARED BY:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
4090 NELSON AVENUE, SUITE J
CONCORD, CALIFORNIA 94520
(510) 685-4053

SEPTEMBER 8, 1994

This quarterly report has been prepared by Environmental Science & Engineering, Inc. (ESE) for the exclusive use of the Alameda County General Services Agency as it pertains to their site referred to as the Old Graystone Fueling Area located at the Santa Rita Correctional Facility, Dublin, California. This report was prepared with that degree of care and skill ordinarily exercised by other geologists and engineers practicing in this field. No other warranty, either express or implied, is made as to professional advice in this report.

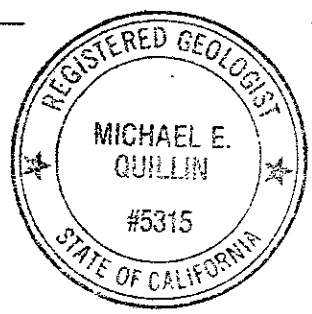
REPORT PREPARED BY:

Bart S. Miller
Project Geologist

SEPTEMBER 8, 1994
DATE

UNDER THE PROFESSIONAL SUPERVISION OF:

Michael E. Quillin
Senior Hydrogeologist
California Registered Geologist No. 5315



SEPTEMBER 8, 1994
DATE

September 8, 1994

ESE Project No. 6-93-5074

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DUBLIN, CALIFORNIA

1.0 INTRODUCTION

This report has been prepared by Environmental Science & Engineering, Inc. (ESE) for the Alameda County Health Care Services Agency (HCSA) on behalf of the Alameda County General Services Agency (GSA). It addresses ground water monitoring and sampling activities associated with three former underground storage tanks (USTs) at the Old Graystone fueling area of the Santa Rita Correctional Facility at Dublin, California (Figure 1 - Location Map).

The purpose of the fieldwork described in this report was to identify any potential petroleum hydrocarbon plume(s) in ground water at the former location of the USTs.

Site history, field methods for sampling and testing, and findings are described in the following sections. In addition, a summary of results is presented.

2.0 SITE HISTORY

The Old Graystone fueling area is located within the Santa Rita Correctional Facility property boundary approximately ½-mile west-northwest of the California Interstate 580 intersection with Tassajara Road at Dublin, California (Figure 1). The site is owned and managed by the GSA. The GSA formerly operated one 10,000-gallon unleaded gasoline UST, one 11,000-gallon regular gasoline UST, and one 500-gallon waste oil UST at the site (Figure 2 - Site Plan). The UST for unleaded gasoline was constructed of fiberglass and the USTs for regular gasoline and waste oil were constructed of single-walled carbon-steel. The installation dates of the USTs are unknown.

Under permit from the HCSA and the Dougherty Regional Fire Authority (DRFA), ESE removed and disposed of the three USTs between May 18 and May 20, 1992. ESE submitted a closure report to the GSA and the HCSA for the three USTs on July 20, 1992 (ESE, 1992a). ESE also submitted an Underground Storage Tank Unauthorized Release (Leak) / Contamination Site Report to the HCSA on November 19, 1992. Under the direction of a HCSA representative, five soil samples were collected by ESE personnel from the bottom of the three UST excavations and submitted for analysis. Laboratory results reported concentrations of total petroleum hydrocarbons as gasoline (TPH-G) in all samples ranging from 13 to 730 milligrams per kilogram (mg/Kg) using EPA Method 8015 (modified per CA LUFT). Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were also detected in all samples analyzed using EPA Method 8020.

On November 8, 1992, ESE conducted limited overexcavation and trench sampling at the site to excavate and characterize soil impacted with petroleum hydrocarbons. Soil occurring at a depth of approximately 22 feet below grade in the gasoline UST excavations was noted to be impacted with gasoline, exhibiting a grey discoloration and a fuel odor. No ground water was encountered during overexcavation activities. ESE documented all findings in a letter submitted to the GSA and the HCSA on January 8, 1993 (ESE, 1993a).

On November 18, 1992, ESE submitted a workplan to the GSA and the HCSA describing a subsurface investigation consisting of the collection of soil samples in borings and the collection of ground water samples in selected borings using a Hydropunch® (ESE, 1992b). The work was implemented on November 23, 1992. Detectable TPH-G and BTEX concentrations were reported to occur at a depth of 25 feet below grade in one soil sample collected from a boring located approximately 10 feet north of the former unleaded gasoline UST. In addition, detectable concentrations of TPH-G and BTEX were reported in seven ground water samples collected at distances ranging from 5 feet to 25 feet from the former UST locations. The reported concentrations of TPH-G and BTEX in ground water were noted to decrease radially outward from the former UST locations. ESE submitted a report documenting these findings to the GSA and the HCSA on January 15, 1993 and recommended that the impacted soil at the site be excavated and, subsequently, a ground water investigation be performed (ESE, 1993b).

A Corrective Action Plan for the excavation work was submitted by ESE to the GSA and the HCSA on February 1, 1993 (ESE, 1993c). During the period of February 17 through March 2, 1993, ESE supervised the excavation of soil impacted with petroleum hydrocarbons at the site. Impacted soil was identified and excavated to the depth of water saturation at approximately 24 feet below grade. ESE estimated the total volume of soil excavated to be 6,500 cubic yards. Of this volume, ESE initially estimated 5,000 cubic yards of soil to be impacted with petroleum hydrocarbons. All findings were documented in a Corrective Action Report submitted to the GSA and the HCSA on April 28, 1993 (ESE, 1993d).

ESE installed, developed, and sampled four ground water monitoring wells (OG1, OG2, OG3, and OG4; Figure 2) at locations surrounding the former USTs on November 4 and 5, 1993. Ground water flow direction at the site was noted to be consistent with local topographic slope toward the southeast (ESE, 1994a). A ground water sample collected from well OG3 was reported to contain a total petroleum hydrocarbons as diesel (TPH-D) concentration of 75 micrograms per liter (μg/L). No other ground water samples were reported to contain detectable concentrations of petroleum hydrocarbons.

ESE monitored and sampled ground water at wells OG1, OG2, OG3, and OG4 during the first and second quarters of 1994. Ground water flow direction was noted to be toward the southeast at a gradient of approximately 0.001 to 0.002 foot per foot during both quarters (ESE, 1994b; ESE, 1994c). No detectable concentrations of TPH-D or TPH-G have been reported in any of the ground water samples collected during the two quarters. However, one sample collected from OG2 during the first quarter of 1994 was reported to contain toluene, ethylbenzene, and total xylenes concentrations of 2.1, 0.51, and 3.5 μg/L, respectively. No volatile organic compounds were reported to occur in a sample collected from well OG2 during the second quarter of 1994.

3.0 FIELD METHODOLOGY

3.1 GROUND WATER MONITORING AND SAMPLING

All ground water monitoring and sampling activities were performed in accordance with HCSA and Tri-Regional Water Quality Control Board guidelines (State of California Water Quality Control Board, 1990). ESE monitored ground water levels in all wells at the site (OG1, OG2, OG3, and OG4). Ground water samples were collected from the site wells in accordance with ESE SOP No. 3 for Ground Water Monitoring and Sampling from Monitoring Wells (Appendix A).

Ground water samples collected from the site wells were placed in a cooler with ice and transported to McCampbell Analytical under chain of custody. Pursuant to the HCSA request, all samples were analyzed for TPH-G, TPH-D, and BTEX.

One duplicate ground water sample (DUP) was collected from well OG4 for Quality Assurance/Quality Control (QA/QC) purposes. The duplicate was submitted to the laboratory as a blind sample for BTEX analysis, and serves as a check on ESE's sample collection procedures and the laboratory's analytical methods. A travel blank was supplied by the laboratory for additional QA/QC purposes. The travel blank was analyzed for BTEX only and serves as a check on ESE's sample handling and transport procedures.

3.2 WASTE MANAGEMENT

All decontamination rinseates and purge water were placed in appropriately labeled 55-gallon capacity Department of Transportation (DOT)-approved drums for temporary storage at the site. Each drum of rinseate and purge water was labeled according to source location and date of collection. Integrated Wastestream Management (IWM) of Milpitas, California transported the drummed rinseate and purge water as non-hazardous waste using a licensed hauler to the Gibson Environmental Liquid Treatment and Recycling Facility located at Redwood City, California for recycling.

4.0 RESULTS

Depth to water measurements and ground water elevation data for the site wells are presented in Table 1 (Ground Water Elevation Data 8/12/94) and Appendix B (Sample Collection Logs). Ground water flow was observed to be toward the southeast at a gradient of approximately 0.0015 foot per foot (Figure 3 - Ground Water Elevation Map 8/12/94). The direction of ground water flow is consistent with local topographic slope toward the southeast and the ground water flow direction reported by the State of California Department of Water Resources (1974).

No detectable concentrations of TPH-G, TPH-D, or BTEX constituents were reported in any of the ground water samples collected at the site (Table 2 - Analytical Results for Ground Water Samples Collected From Monitoring Wells 8/12/94).

5.0 SUMMARY

Ground water flow was observed to be toward the southeast at a gradient of approximately 0.0015 foot per foot. No ground water samples collected at the site were reported to contain detectable concentrations of petroleum hydrocarbons.

6.0 REFERENCES

Environmental Science & Engineering, Inc. (ESE), 1992a. Unpublished Underground Storage Tank Closure Report for Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on July 20, 1992.

Environmental Science & Engineering, Inc. (ESE), 1992b. Unpublished Letter Workplan for a Subsurface Investigation at the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on November 18, 1992.

Environmental Science & Engineering, Inc. (ESE), 1993a. Unpublished Letter Report of Overexcavation Activities at the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on January 7, 1993.

Environmental Science & Engineering, Inc. (ESE), 1993b. Unpublished Report on Soil and Ground Water Investigation at the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on January 15, 1993.

Environmental Science & Engineering, Inc. (ESE), 1993c. Unpublished Corrective Action Plan for the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on February 1, 1993.

Environmental Science & Engineering, Inc. (ESE), 1993d. Unpublished Corrective Action Report for the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on April 27, 1993.

Environmental Science and Engineering, Inc. (ESE), 1993e. Unpublished Workplan For a Site Investigation at the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to Alameda County Health Care Services Agency on July 21, 1993.

Environmental Science & Engineering, Inc. (ESE), 1994a. Unpublished Site Assessment Report for the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to the Alameda County Health Care Services Agency on February 21, 1994.

Environmental Science & Engineering, Inc. (ESE), 1994b. Unpublished Quarterly Monitoring Report for the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to the Alameda County Health Care Services Agency on February 25, 1994.

Environmental Science & Engineering, Inc. (ESE), 1994c. Unpublished Quarterly Monitoring Report for the Old Graystone Fueling Area, Santa Rita Correctional Facility, Dublin, California; submitted to the Alameda County Health Care Services Agency on July 12, 1994.

State of California Department of Water Resources, 1974. Evaluation of Ground Water Resources: Livermore and Sunol Valleys; Bull. 118-2.

State of California Regional Water Quality Control Board (RWQCB), 1990. Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Site; August 10, 1990.

TABLES

TABLE 1

GROUND WATER ELEVATION DATA

Well No.	Date	Depth to Water (feet)	Top of Casing Elevation (feet AMSL)	Ground Water Elevation (feet AMSL)
OG1	11/05/93	23.56	351.90	328.34
	2/10/94	25.10		326.80
	5/13/94	25.50		326.40
	8/12/94	26.42		325.48
OG2	11/05/93	22.48	350.53	328.05
	2/10/94	23.85		326.68
	5/13/94	24.23		326.30
	8/12/94	25.14		325.39
OG3	11/05/93	22.75	350.75	328.00
	2/10/94	24.11		326.64
	5/13/94	24.52		326.23
	8/12/94	25.43		325.32
OG4	11/05/93	22.24	350.26	328.02
	2/10/94	23.66		326.60
	5/13/94	24.06		326.20
	8/12/94	24.98		325.28

NOTES:
AMSL refers to Above Mean Sea Level

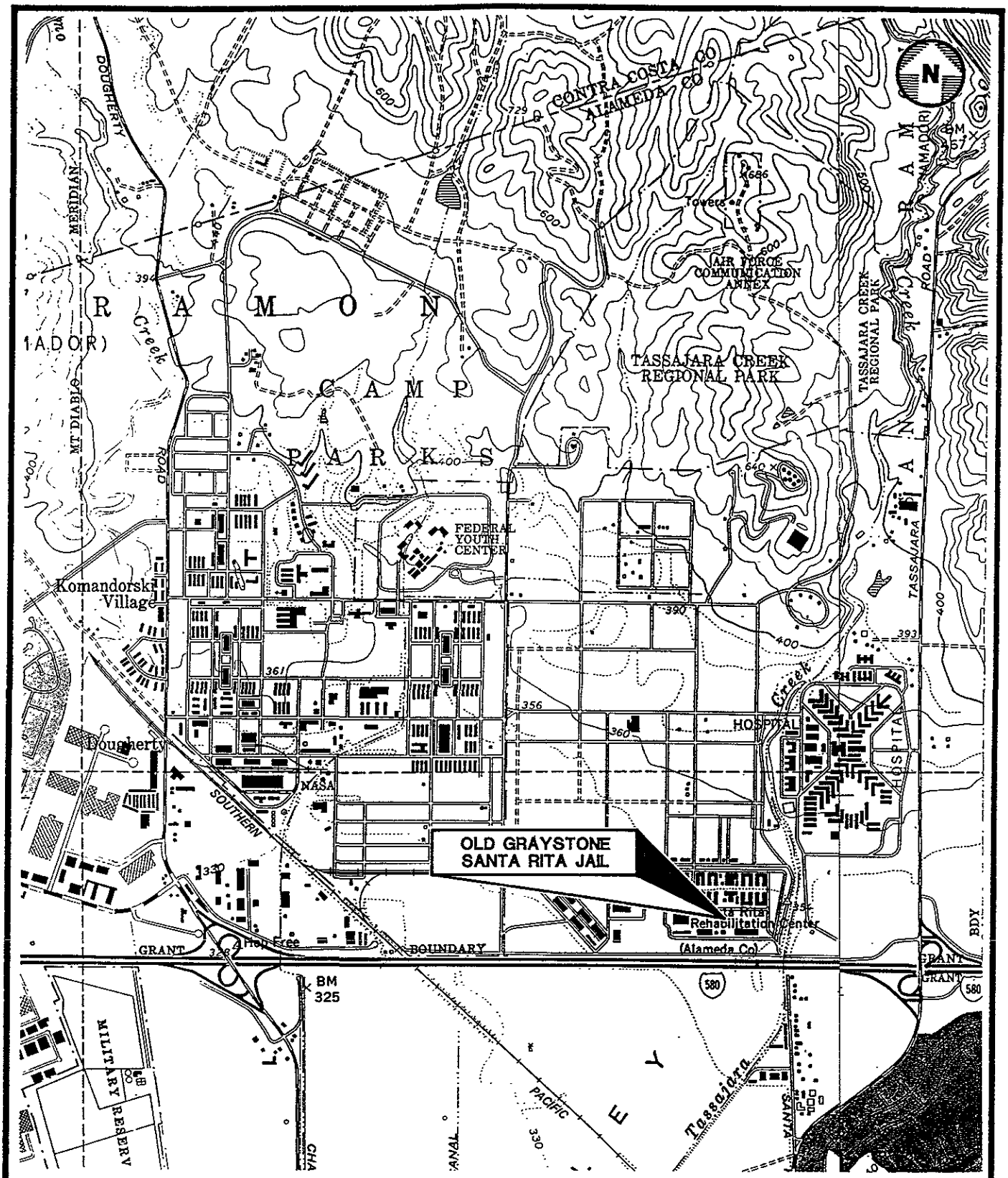
TABLE 2

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES COLLECTED FROM MONITORING WELLS

Sample No.	Date	TPH-G (µg/L)	TPH-D (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
OG1	11/05/93	ND	--	ND	ND	ND	ND
	2/10/94	ND	ND	ND	ND	ND	ND
	5/13/94	ND	ND	ND	ND	ND	ND
	8/12/94	ND	ND	ND	ND	ND	ND
OG2	11/05/93	ND	--	ND	ND	ND	ND
	2/10/94	ND	ND	ND	2.1	0.51	3.5
	5/13/94	ND	ND	ND	ND	ND	ND
	8/12/94	ND	ND	ND	ND	ND	ND
OG3	11/05/93	ND	0.75	ND	ND	ND	ND
	2/10/94	ND	ND	ND	ND	ND	ND
	5/13/94	ND	ND	ND	ND	ND	ND
	8/12/94	ND	ND	ND	ND	ND	ND
OG4	11/05/93	ND	--	ND	ND	ND	ND
	2/10/94	ND	ND	ND	ND	ND	ND
	5/13/94	ND	ND	ND	ND	ND	ND
	8/12/94	ND	ND	ND	ND	ND	ND

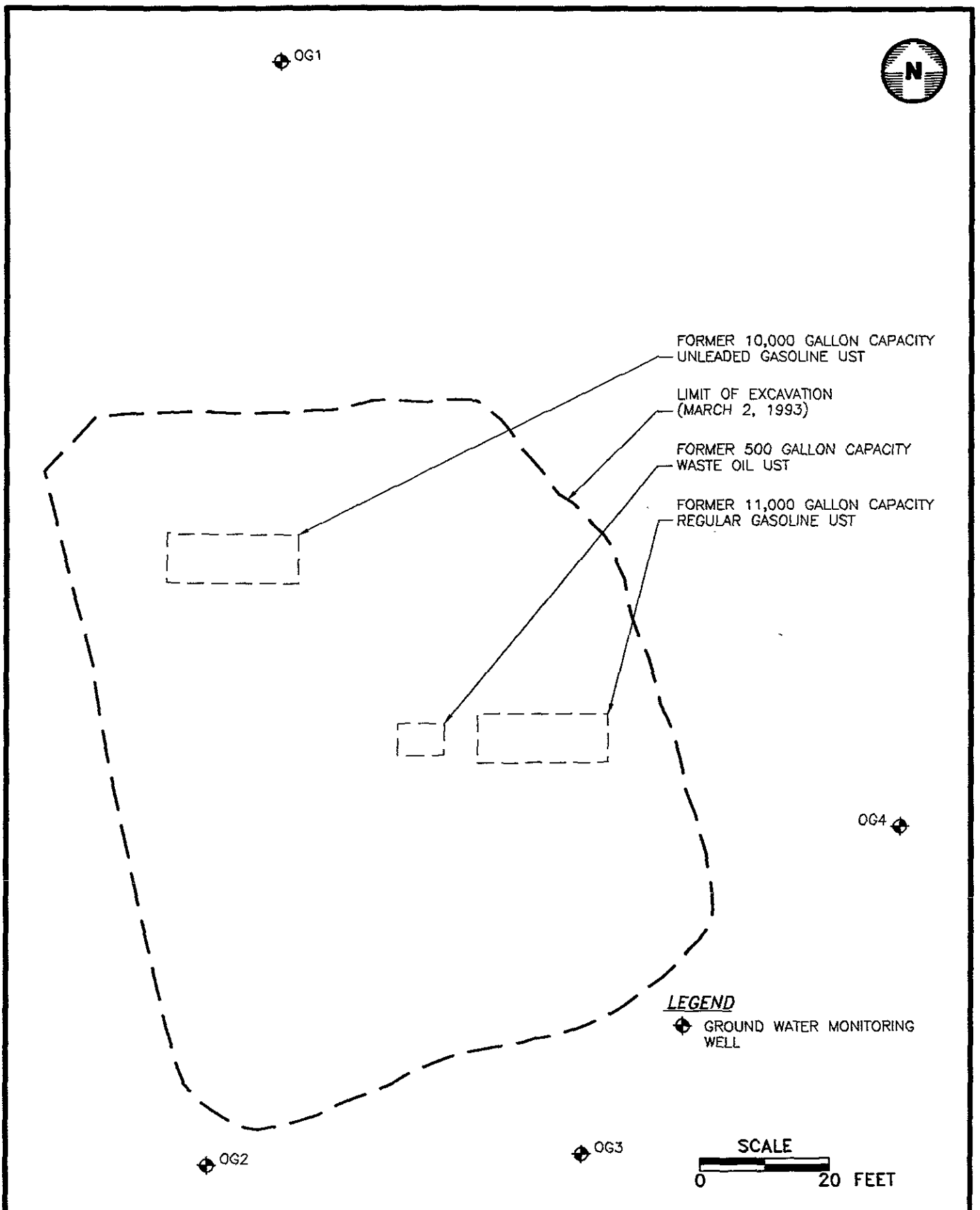
NOTES:
µg/L refers to micrograms per liter
TPH-G refers to Total Petroleum Hydrocarbons as Gasoline
TPH-D refers to Total Petroleum Hydrocarbons as Diesel
ND refers to not detected at analytical method detection limit

FIGURES

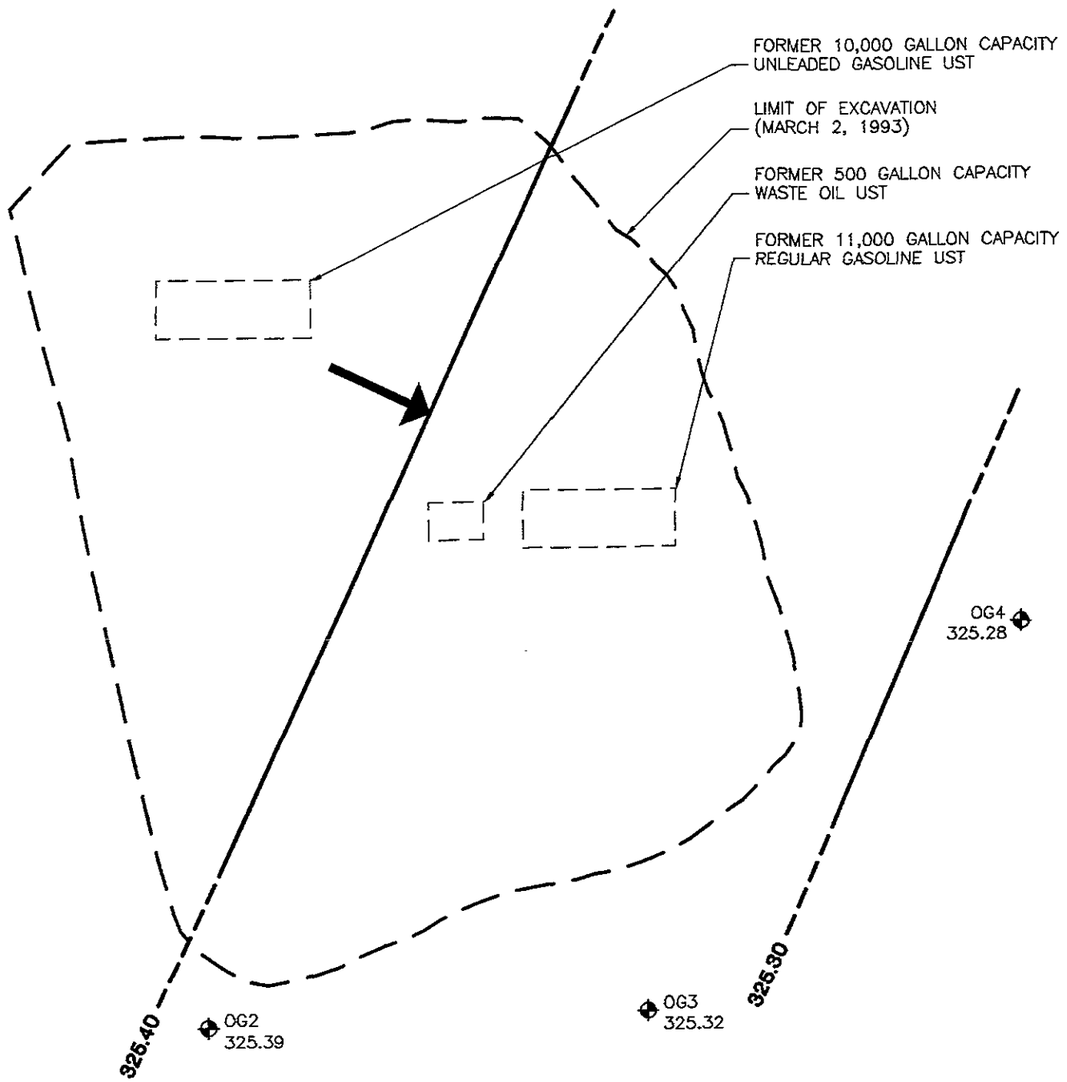


ADAPTED FROM U.S.G.S. DUBLIN AND LIVERMORE 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1980.

ESE A CILCORP Company — Environmental Science & Engineering, Inc.	DATE 2/94	LOCATION MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	ALAMEDA COUNTY GENERAL SERVICES AGENCY OLD GRAYSTONE FUELING AREA SANTA RITA CORRECTIONAL FACILITY	PROJ. NO. 6-93-5074
	CAD FILE 50741004		



Environmental Science & Engineering, Inc. A DILCORP Company	DATE 2/94 REVISED 9/6/94	SITE PLAN	FIGURE NO. 2
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 50742001	ALAMEDA COUNTY GENERAL SERVICES AGENCY OLD GRAYSTONE FUELING AREA SANTA RITA CORRECTIONAL FACILITY	PROJ. NO. 6-93-5074



LEGEND

- ◆ GROUND WATER MONITORING WELL
- 325.39 GROUND WATER ELEVATION IN FEET ABOVE MEAN SEAL LEVEL (MSL)
- 325.40 GROUND WATER ELEVATION CONTOUR IN FEET MSL
- → DIRECTION OF GROUND WATER FLOW

SCALE
0 20 FEET

Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 2/94 REVISED 9/6/94 CAD FILE 50742002	GROUND WATER ELEVATION MAP AUGUST 12, 1994 ALAMEDA COUNTY GENERAL SERVICES AGENCY OLD GRAYSTONE FUELING AREA SANTA RITA CORRECTIONAL FACILITY	FIGURE NO. 3 PROJ. NO. 6-93-5074

APPENDIX A

ESE STANDARD OPERATING PROCEDURE NO. 3

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, Ph and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, Ph and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, Ph, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.

APPENDIX B
SAMPLE COLLECTION LOGS

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: OLD GRANITE
PROJECT NO.: 6-93-5074
DATE: AUG. 12, 1994

SAMPLE LOCATION I.D.: OG-1
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"_____
4" X
Other___

SAMPLE TYPE

Ground Water X
Surface Water____
Treat. Influent____
Treat. Effluent____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
(4.0)	0.6528
6.0	1.4690

DEPTH TO PRODUCT: - (ft.) PRODUCT THICKNESS: - (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 26.42 (ft.) WATER COLUMN: 11.45 (ft.) (3 or 4 WCV): 22.42 (gal)
DEPTH OF WELL: 37.87 (ft.) WELL CASING VOLUME: 7.47 (gal) ACTUAL VOLUME PURGED: 30 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
0935	0	7.64	2.24	73.3	—	RUSTY/SILTY
0939	10	6.94	2.34	71.6	—	CLEAR
0941	20	6.89	2.30	70.8	—	CLEAR

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 8/12/94 TIME: 0830 BY: CHV
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump ___Other
___Bailer (Teflon/PVC/SS) X Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS) ___Dedicated
X Bailer (Disposable) ___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	OG-1	0950	8/12/94	McCampbell	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS:_____

SAMPLER: Chris Valcheff PROJECT MANAGER: B. Miller

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: OLD GRAYSTONE
PROJECT NO.: 6-93-5074
DATE: AUG. 12, 1994

SAMPLE LOCATION I.D.: OG-2
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: BRETT MILLER

CASING DIAMETER

2"_____
4" X
Other___

SAMPLE TYPE

Ground Water X
Surface Water____
Treat. Influent____
Treat. Effluent____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
(4.0)	0.6528
6.0	1.4690

DEPTH TO PRODUCT: — (ft.)
DEPTH TO WATER: 25.14 (ft.)
DEPTH OF WELL: 37.47 (ft.)

PRODUCT THICKNESS: — (ft.)
WATER COLUMN: 12.33 (ft.)
WELL CASING VOLUME: 8.05 (gal)

MINIMUM PURGE VOLUME (3 or ~~4~~ WCV): 24.15 (gal)
ACTUAL VOLUME PURGED: 30 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
1005	0	7.18	2.82	71.7	—	CLEAR
1009	10	7.25	2.86	70.5	—	"
1011	20	7.19	2.79	73.4	—	"

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 8/12/94 TIME: 0830 BY: CHV
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump ___Other
___Bailer (Teflon/PVC/SS) X Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS) ___Dedicated
X Bailer (Disposable) ___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	OG-2	1020	8/12/94	McCAMPBELL	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS:_____

SAMPLER: _____ PROJECT MANAGER _____

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: OLD GRAYSTONE
PROJECT NO.: 6-93-5074
DATE: AUG. 12, 1994

SAMPLE LOCATION I.D.: OG-3
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"____
4" Y
Other___

SAMPLE TYPE

Ground Water X
Surface Water____
Treat. Influent____
Treat. Effluent____
Other____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
(4.0)	0.6528
6.0	1.4690

DEPTH TO PRODUCT: — (ft.)
DEPTH TO WATER: 25.43 (ft.)
DEPTH OF WELL: 37.74 (ft.)

PRODUCT THICKNESS: — (ft.)
WATER COLUMN: 12.31 (ft.)
WELL CASING VOLUME: 8.04 (gal)

MINIMUM PURGE VOLUME (3 or 4 WCV): 24.11 (gal)
ACTUAL VOLUME PURGED: 30 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
1022	0	7.38	2.81	71.6	—	CLEAR
1025	10	7.25	2.78	69.8	—	"
1028	20	6.95	2.77	69.6	—	"

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 8/12/94 TIME: 0830 BY: CHV
TURBIDITY: TYPE____ UNIT#____ DATE:____ TIME:____ BY:____

PURGE METHOD

___Displacement Pump
___Bailer (Teflon/PVC/SS)
___Other
X Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS)
X Bailer (Disposable)
___Dedicated
___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	OG-3	1035	8/12/94	MCLAUGHLIN	
DUPLICATE					
SPLIT					
FIELD BLANK					

COMMENTS:

SAMPLER: C.H. Valcheff
PROJECT MANAGER: B. Miller

4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

Environmental Science & Engineering, Inc.
A CILCORP Company

SAMPLE COLLECTION LOG

PROJECT NAME: OLD GRAYSTONE
PROJECT NO.: 6-93-5074
DATE: AUG. 12, 1994

SAMPLE LOCATION I.D.: OG-4
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: BART MILLER

CASING DIAMETER

2"_____
4" X
Other___

SAMPLE TYPE

Ground Water X
Surface Water____
Treat. Influent____
Treat. Effluent____
Other_____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
(4.0)	0.6528
6.0	1.4690

DEPTH TO PRODUCT: — (ft.) PRODUCT THICKNESS: — (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 24.98 (ft.) WATER COLUMN: 12.11 (ft.) ((3) or 4 WCV): 23.78 (gal)
DEPTH OF WELL: 37.09 (ft.) WELL CASING VOLUME: 7.91 (gal) ACTUAL VOLUME PURGED: 30 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
1030	0	7.20	2.98	71.3	—	CLEAR
1041	10	6.97	2.94	70.2	"	"
1044	20	6.74	2.91	70.6	"	"

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 8/12/94 TIME: 0830 BY: CHV
TURBIDITY: TYPE_____ UNIT#_____ DATE:_____ TIME:_____ BY:_____

PURGE METHOD

___Displacement Pump ___Other
___Bailer (Teflon/PVC/SS) X Submersible Pump

SAMPLE METHOD

___Bailer (Teflon/PVC/SS) ___Dedicated
X Bailer (Disposable) ___Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	OG-4	1050	8/12/94	McCampbell	
DUPLICATE	DUP	1050	8/12/94		
SPLIT					
FIELD BLANK					

COMMENTS:_____

SAMPLER: _____ PROJECT MANAGER _____

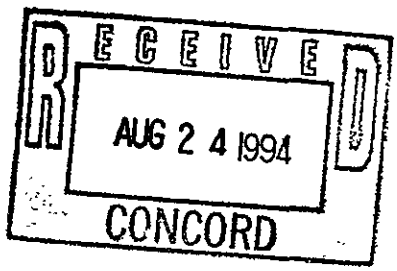
4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323

APPENDIX C

LABORATORY RESULTS AND CHAIN OF CUSTODY DOCUMENTS

McCAMPBELL ANALYTICAL INC.

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



08/19/94

Dear Bart:

Enclosed are:

1). the results of 6 samples from your # **6-93-5074; Old Graystone** project,

2). a QC report for the above samples

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

4). a bill for analytical services.

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

McCAMPBELL ANALYTICAL INC.

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

Environmental Science & Eng.	Client Project ID: # 6-93-5074; Old Graystone	Date Sampled: 08/12/94
4090 Nelson Avenue, Suite J		Date Received: 08/12/94
Concord, CA 94520	Client Contact: Bart Miller	Date Extracted: 08/13/94
	Client P.O:	Date Analyzed: 08/13/94

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with 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)+	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
40280	OG-1	W	ND	ND	ND	ND	ND	100
40281	OG-2	W	ND	ND	ND	ND	ND	100
40282	OG-3	W	ND	ND	ND	ND	ND	99
40283	OG-4	W	ND	ND	ND	ND	ND	96
40284	Dup	W	ND	ND	ND	ND	ND	96
40285	Trip Blank	W	ND	ND	ND	ND	ND	9/
Detection Limit unless other-wise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

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

cluttered chromatogram; sample peak co-elutes 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 are significant; no recognizable pattern; 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 phase is present.

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

Environmental Science & Eng. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 6-93-5074; Old Graystone	Date Sampled: 08/12/94
		Date Received: 08/12/94
	Client Contact: Bart Miller	Date Extracted: 08/13/94
	Client P.O:	Date Analyzed: 08/13/94

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
40280	OG-1	W	ND	104
40281	OG-2	W	ND	104
40282	OG-3	W	ND	104
40283	OG-4	W	ND	104
40284	Dup	W	ND	103
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	
		S	10 mg/kg	

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

cluttered chromatogram; surrogate and sample peaks co-elute or surrogate peak is on elevated baseline

+ 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) modified diesel?; light(c_L) or heavy(c_H) diesel compounds are 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 phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/13/94 Matrix: Water

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.0	115.4	120.3	100	115.4	120.3	4.1
Benzene	0	10.7	10.8	10	107.0	108.0	0.9
Toluene	0	10.7	10.6	10	107.0	106.0	0.9
Ethyl Benzene	0	10.7	10.5	10	107.0	105.0	1.9
Xylenes	0	32.9	32.7	30	109.7	109.0	0.6
TPH (diesel)	0	140	136	150	94	91	3.2
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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DATE Aug. 12, 1994 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME OLD GRAYSTONE

ADDRESS SANTA RITA CORRECTIONAL FACILITY
LIVERMORE, CA

PROJECT NO. 6-93-5074

SAMPLED BY CHRIS VALLHEFF

LAB NAME

ESE Environmental Science & Engineering, Inc.
A CILCORP Company
4090 Nelson Avenue
Suite J
Concord, CA 94520
Phone (510) 685-4053
Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-G (8015)	TPH-D (8015M)	BTEX (8020)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
OG-1	8/12/94	0950	LIVERMORE	X	X	X	H_2O	3	2 VOAs w/HCl, 1 AMBER LIR
OG-2	↓	1020	↓	X	X	X	↓	3	↓ 40280
OG-3		1035		X	X	X		3	40281
OG-4		1050		X	X	X		3	40282
DUP	↓	1050	↓	X	X	X	↓	3	40283
TRIP						X		1	40284
									40286

MATRIX: MATRIX / MATRIX

NUMBER OF CONTAINERS: VOAs | O&G | METALS | OTHER

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

RELINQUISHED BY: (signature)	RECEIVED BY: (signature)	date	time
1.			
2.		8/12	12:20
3.			
4.			
5.			

16 CNTR — TOTAL NUMBER OF CONTAINERS

REPORT RESULTS TO: BART MILLER

SPECIAL SHIPMENT REQUIREMENTS: COLD TRANSPORT/STORAGE

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

STANDARD TURN-AROUND TIME, INVOICE ALAMEDA CO. GSA DIRECTLY

SAMPLE RECEIPT

CHAIN OF CUSTODY SEALS	
REC'D GOOD CONDTN/COLD	
CONFORMS TO RECORD	