REPORT
TO

Beck Roofing Company

QUARTERLY STATUS REPORT
AND
SUPPLEMENTAL INVESTIGATION
RESULTS

Submitted by

ANDERSON
CONSULTING
GROUP
631 COMMERCE DRIVE
ROSEVILLE, CA 95678
(916) 786-8883

ANDERSON
CONSULTING
GROUP

File No. 3288-44
September 9, 1994

Geotechnical and Environmental Engineering Solid Waste Management

Beck Roofing Company, Inc.
21123 Meekland Ave.
Hayward,Ca. 94541

Attention: Charles and Mary Beck

Subject: Beck Roofing Company, Inc.
21123 Meekland Avenue
Hayward, CA 94541
QUARTERLY STATUS REPORT AND SUPPLEMENTAL INVESTIGATION RESULTS

Dear Mr. and Mrs. Beck

Transmitted herein are the Quarterly Status Report and Supplemental Investigation Results for the above referenced property. The work was conducted in accordance with our proposal dated 17 May 1994.

All of the monitoring wells located on the property, including the well built during this investigation, were sampled on 4 August 1994. Consequently, your next normal quarterly sampling event is due on 4 November 1994.

If you have any questions regarding the results of this investigation, please do not hesitate to call.

Sincerely,

ANDERSON CONSULTING GROUP

F. William Welte
Project Engineer

John A. Baker III, PE
Environmental Director

REGISTERED PROFESSIONAL ENGINEER
JOHN A. BAKER, JR.
23727
Exp. 12/31/97
CIVIL
STATE OF CALIFORNIA

cc Juliet Shin, Alameda County EHD

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Roseville, CA 95678-6431
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1.0 BACKGROUND

In May 1990, a one thousand gallon underground fuel tank was removed from the subject property. Contaminated soil adjacent to, and beneath the tank, was also excavated at that time to an approximate depth of 17 feet.

Subsequently, three monitoring wells and several soil borings were completed, by other consultants, to define the extent of soil and/or groundwater contamination.

Results of those investigations indicated that soil contamination in the phreatic zone (at the level of the groundwater) extends at least 30-40 feet laterally from the excavation. Quarterly groundwater testing detected contamination in one well (mw#3) at significant concentrations. Groundwater contamination was also occasionally detected in the other two wells at substantially lower concentrations.

In June 1994, Anderson Consulting Group was authorized to further delineate the soil/groundwater contamination.

2.0 OBJECTIVE OF INVESTIGATION

The purpose of this additional investigation is to accomplish the following objectives.

1. Establish the zero line of the groundwater contamination plume to the southwest of the former tank location, or determine if groundwater contamination has extended beyond the southwest property line.

2. Attempt to delineate the zero line of the soil contamination on the southwest and northwest sides of the tank excavation. The existing building may impede investigation northwest of the tank excavation.

3. Characterize contaminant concentrations in vadose soil (above the groundwater) directly underneath the tank excavation (from 17 to 30 feet below the surface).

4. Analyze and recommend appropriate remedial measures and possibly continued groundwater monitoring.

3.0 METHODOLOGY

To accomplish the above stated objectives we advanced 4 additional exploratory borings to depths of 30 to 40 feet. One of the borings (SB18), was drilled to a depth of 40 feet and converted to a two-inch diameter monitoring well. The borings and well locations are shown on figure 1.

3.1 Soil Borings/Temporary Wells (Hydropunch)

All of the soil borings were completed on 1 August 1994, by Turner Exploration, from Rancho Cordova, California (C-57 License No. 602720). A truck mounted Mobile B-61 drill rig was utilized to advance eight-inch hollow stem augers to a depth immediately above groundwater. Soil samples were collected at approximately 5 feet vertical intervals with a split-spoon sampler driven through the hollow stem auger.

Soil samples were retrieved from the sampler in their brass liners, covered with teflon tape, capped, sealed with duct tape, and immediately placed in a precooled ice chest.

To prevent cross contamination, all sampling equipment was cleaned between sample depths with a dilute water and trisodium phosphate solution, and rinsed with distilled water. In addition, the augers were steam cleaned between borings.

A teflon coated temporary well screen (hydropunch) was driven into the water bearing zone from the bottom of soil borings SB18,SB19,and SB20 to facilitate collection of discreet groundwater samples at those locations. After the well screens were set, several gallons were purged from the temporary wells and then allowed to fully recharge. Water samples were collected with a stainless steel bailer and transferred to sterile 40-milliliter glass containers, sealed with TFE lined septae and screw caps. The groundwater samples were also placed immediately in a precooled ice chest.

All soil cuttings generated while drilling were disposed of in the onsite soil stockpile remaining from the tank excavation. All of the borings were backfilled with six-sack neat cement grout.

3.2 Monitoring Well Installation

Monitoring well # MW4, built in SB18, was also constructed by Turner Exploration. The two inch diameter pvc well casing was installed through the hollow stem auger, and the auger was progressively retrieved as the sand pack was set. The annulus was sealed with a neat cement grout and finished with a flush mount, traffic rated enclosure, set in concrete. A schematic diagram showing the well construction is included in Appendix A. After it was completed, a level survey was performed of the new well to establish the groundwater elevation in that well relative to the existing three wells.

3.2.1 Well development and Sampling

The well was developed on 3 August 1994 by alternating bailing and surging until turbidity diminished appreciably. Purge water was disposed of in the contaminated soil pile discussed above.

All four of the wells were sampled on 4 August 1994. Prior to sampling, 3-4 well volumes were purged from each well. Samples were collected with new disposable teflon bailers when field measurements indicated pH, conductivity, and temperature had stabilized. They were transferred with a nozzle designed to reduce aeration to 40-

milliliter glass vials sealed with TFE lined septae. All samples were submitted immediately to an onsite mobile laboratory.

3.3 Laboratory Analysis

Soil and water samples were submitted immediately to an onsite mobile California certified laboratory, owned and operated by Transglobal Environmental Geochemistry from Sacramento, California. Each sample was analyzed for Total Petroleum Hydrocarbons, as gasoline (EPA Method 8015 modified), and Volatile Hydrocarbons (EPA Method 8020/602). Results of the soil and groundwater analyses are summarized below. Complete laboratory reports are included in Appendix C.

3.3.1 Soil Analyses Summary

TABLE 1
parts per million

Boring #	Depth(ft.)	Gasoline	Benzene	Toluene	Ethylbnz	Xylenes
SB-18	25.5	ND	ND	ND	ND	ND
SB-18	31.0	ND	ND	ND	ND	ND
SB-18	35.5	ND	ND	ND	ND	ND
SB-19	30.5	ND	ND	ND	ND	ND
SB-19	35.5	ND	ND	ND	ND	ND
SB-20	25.5	ND	ND	ND	ND	ND
SB-20	30.5	ND	ND	ND	ND	ND
SB-20	35.5	ND	ND	ND	ND	ND
SB-21	28.5	180	2.2	8.7	4.8	22
SB-21	29.0	430	11	42	14	69
SB-21	29.5	550	13	64	25	120
SB-18	water	ND	ND	ND	ND	ND
SB-19	water	ND	ND	ND	ND	ND
SB-20	water	ND	ND	ND	ND	ND

ND = not detected (below detection limits)

3.3.2 Groundwater Analyses Summary

Water samples collected on 4 August 1994, were submitted to WEST laboratory in Davis, California, on 5 August 1994. The samples were analyzed for Total Petroleum Hydrocarbons, as gasoline (EPA method 8015), and Volatile Organics (EPA method 602). Results of the analyses are summarized below in Table 2. Complete laboratory reports are included in appendix C.

TABLE 2

Sampled 4 August 1994
parts per billion

Well No.	Gasoline	Benzene	Toluene	Ethylbnz	Xylenes
MW1	ND	ND	ND	ND	ND
MW2	ND	ND	ND	ND	ND
MW3	4200	450	ND	180	160
MW4	ND	ND	.50	ND	ND

ND = not detected (below detection limits)

4.0 SOIL/GROUNDWATER CONDITIONS

Site soil was found to consist primarily of moist, stiff, silty clay. A comparatively narrow strata of medium coarse sand was observed in several borings at a depth of 14-16 feet. In SB-20, a strata of medium dense silty sand with gravel to 3/8 inch diameter was observed at a depth of 28 feet. Free water was also first encountered at depths of approximately 28 feet in each boring.

The soil conditions discussed above are generalized descriptions based on our observations made while

advancing the exploratory borings. A more accurate description for each boring is presented in the boring logs included in Appendix B.

Results of the level survey performed on the monitoring wells indicate that the groundwater flows westerly with a gradient of approximately .00075 feet/foot (see figure 1). Survey elevation data is summarized below.

WELL NO.	DTGW	TOC ELEV.	GW ELEV.
MW 1	29.26	58.55	29.29
MW2	29.35	58.65	29.30
MW3	29.27	58.52	29.25
MW4	28.80	58.01	29.21

DTGW = depth to groundwater
TOC ELEV. = top of casing elevation
GW ELEV. = groundwater elevation (TOC ELEV- DTGW)

5.0 FINDINGS

Three additional soil borings were completed during this investigation to the southwest (down gradient) of the tank excavation (see figure 1). Laboratory analysis of groundwater samples, collected from temporary wells built in each boring, and soil samples collected from the borings, did not detect the presence of petroleum contaminants. Consequently, one of the borings (SB-18) was converted to a two-inch diameter monitoring well.

The new well (MW4), and the three existing monitoring wells, were then sampled as a normal quarterly sampling event . Results of those analyses indicate that petroleum contaminants are present in MW3, located approximately 40 feet downgradient of the tank excavation, at significant concentrations. Toluene was detected in MW4, located approximately 80 feet downgradient of the tank excavation, at a trace concentration (0.5 parts per billion). No other petroleum constituents were detected in that well. Also, petroleum contaminants were not detected in either MW1 (located cross gradient), or MW2 (located upgradient).

Based on the above findings, and review of the prior groundwater sampling data generated by other consultants, we have depicted, on figure 1, the approximate limits of the groundwater contamination plume originating from the former tank site. Because structures impeded sample collection northwest of the former tank site, the plume is assumed to have migrated to the northwest a distance equal to that measured on the east and southeast sides. Also, it appears, based on the above described data, that several

feet of soil overlying much of the groundwater plume is contaminated. We feel this likely due to the comparatively flat groundwater gradient, and the fine grained nature of the soil in the water bearing zone. Combined with a fluctuating groundwater surface, migration of contaminants into the capillary fringe (saturated soil above the groundwater) could account for the contamination of 3-4 feet of soil above the groundwater.

One soil boring (SB-21) was advanced through the concrete slurry that was used to backfill the tank excavation. The slurry backfill in that boring was found to be approximately 24 feet deep. Information provided by those involved with the tank removal indicated that the excavation was 17 feet deep. The observation that the slurry extends to a depth of 24 feet in SB-21 may be indicative that the boring was located over a deeper "pocket", or suggests that the excavation may have been deeper than was reported. If that were in fact the case, there would also be less volume of contaminated soil remaining between the bottom of the excavation and the water bearing zone. As such, there would also be less contaminant mass contributing to the groundwater contamination.

Three soil samples collected in SB-21, above the water bearing zone, were submitted to the laboratory for analysis. Results of those analyses indicate that gasoline is present in soil underlying the tank excavation at concentrations of 180-550 parts per million.

Review of analytic data, reported by L&W Environmental Services in January 1992, for soil samples collected from the excavation sidewalls, and subsequent soil borings, indicates significant soil contamination remains adjacent to the backfilled tank excavation. This data indicates the contamination occurs deeper in the soil profile, from 15 feet to the water bearing zone, while soil above 15 feet appears comparatively uncontaminated.

Additional soil borings were completed in July 1993 by D and D Management Consultants. While analysis of soil samples from these borings demonstrated significant attenuation of contaminant concentrations at distances of 15-20 feet from the excavation, a clear lateral boundary of the contamination was not identified.

Although a precise boundary of vadose soil contamination has not been delineated, we feel characterization of the groundwater contamination plume and associated capillary fringe contamination (see figure 1) is adequate. For purposes of site mitigation planning, we feel that it may be assumed that vadose soil contamination (soil above a depth of 20 feet) does not extend more than 20 feet laterally from the tank excavation.

6.0 REMEDIAL ALTERNATIVES DISCUSSION

Methods to remediate soil and groundwater contamination can be separated into two categories, 1.) In-situ; treating the soil in- place and, 2.) Removal; excavating the contaminated soil and either treating it and replacing it in the ground, or backfilling the excavation with clean import fill and disposing of the contaminated soil

For example, in-situ methods may include;

Vapor extraction; extraction wells are constructed in the contaminated soil above the groundwater, and a vacuum is applied to remove volatilized contaminants from the soil pore space. The resultant contaminated vapor stream is then treated and discharged to the atmosphere.

Bio-venting; again, wells are constructed in the contaminated soil. However, rather than applying a vacuum, air is blown into the well to deliver oxygen to the contaminated zone. The infusion of oxygen should encourage the proliferation of indigenous aerobic micro-organisms that will degrade the petroleum contaminants.

Groundwater pump and treat; contaminated groundwater is pumped to the surface where it is treated to remove contaminants (via air stripping or carbon filtering) and either re-injected into the groundwater or discharged to the sanitary sewer.

Air sparging; injection wells are built into the groundwater and air is blown into the groundwater. The air strips volatile contaminants from the groundwater and supplies oxygen to encourage natural degradation.

Our initial observations of soil conditions at the subject property suggest that in-situ treatment technologies (i.e. groundwater pump and treat and/ or vapor extraction) may be less effective. However, considering a substantial portion of the contaminant mass has been removed by the excavating already completed, and much of the remainder occurs in a relatively small area around the backfilled pit, we feel consideration of in-situ methods is warranted.

It appears possible that utilization of a groundwater pump and treat system (possibly in conjunction with a vapor extraction system) could potentially control the spread of the groundwater contamination plume. If operated for a long enough period of time, it might also be effective at mitigating the groundwater contamination. This could potentially require an operating period of 10-20 years.

It has been our experience that removal of the contaminated source material (soil) is often the most effective method of mitigating groundwater contamination. If the groundwater is shallow, and there is sufficient area to treat the soil onsite so that it may be replaced in the excavation, it can also be cost effective.

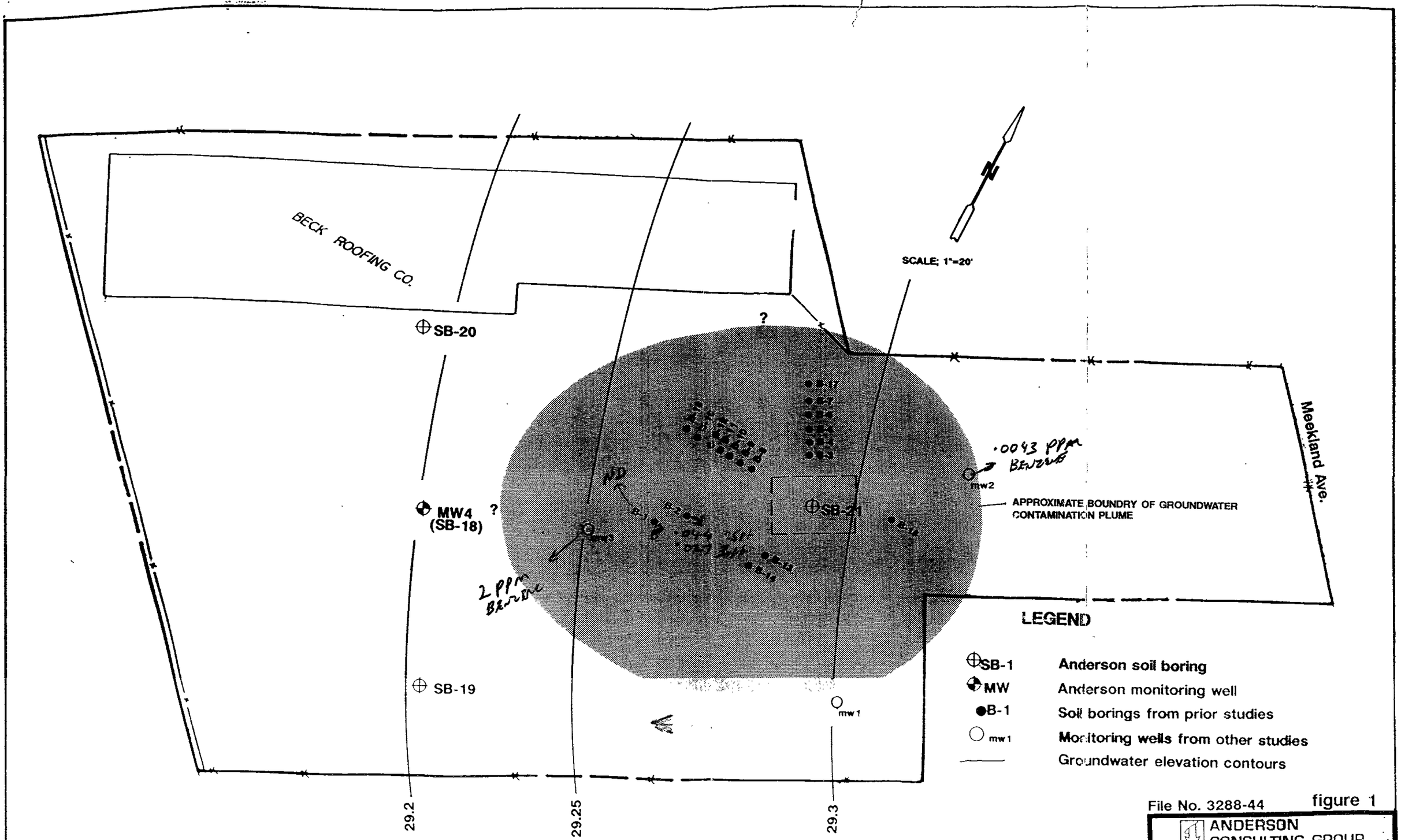
To remove all of the contaminated soil at the subject property, including that in the capillary fringe above the groundwater contamination plume, would necessitate removal of approximately 8,300 cubic yards of soil. This assumes a vertical walled excavation to a depth of 30 feet. Practically, the excavation sidewalls would have to be sloped back to improve stability. In so doing, we anticipate that the total volume excavated could exceed 10,000 cubic yards.

Because the subject property is limited in area, excavating the volume of soil discussed above would effectively curtail any other use of the property during remedial construction. Further, because space is

limited, it is likely that the contaminated fraction could not be treated onsite. Consequently, it would be necessary to dispose of the soil offsite, thereby adding substantial cost to the project.

If excavating the contaminated soil is the preferred remedial option, we feel limiting the extent of the excavation to the more highly contaminated soil adjacent to, and under the existing backfilled pit, would be more practical. In so doing, the volume of excavated material could be reduced to an estimated 3000-4000 cubic yards. We feel this would remove a sufficient percentage of the contaminant mass to allow natural degradation of the remainder occurring within the capillary fringe. Also, this would likely permit continuation of normal business activities during remedial construction.

We understand this site is currently included on the waiting list for the State Petroleum Underground Storage Tank Cleanup Fund, and that mitigation of the subject contamination is dependent on those funds. It appears at this time,based on the data accumulated to date, that migration of the contamination in the groundwater is very slow. As such, it also appears possible that remediation could be postponed until funding is available, without significant expansion of the groundwater contamination plume. However, we recommend that postponing remediation of the site should not be considered unless regular (quarterly) sampling of the four existing monitoring wells is implemented, and the size of the plume carefully monitored.



File No. 3288-44 figure 1

ANDERSON
CONSULTING GROUP
Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

APPENDIX A

ZONE 7 WATER AGENCY

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

Attention Wyman Hong

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 21123 Meekland Ave
Hayward, CA

CLIENT
Name Charles & Mary Beck
Address 21123 Meekland Voice 510-581-6750
City Hayward, CA Zip 94544

APPLICANT
Name Anderson Consulting Group
Bill Welter Fax 916-786-7891
Address 631 COmmerce Drive Voice 916-786-8883
City Roseville, CA Zip 95678

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other Monitor
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 602720

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 40 ft.
Surface Seal Depth 2 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings 5 Maximum
Hole Diameter 8 in. Depth 38 ft.

ESTIMATED STARTING DATE August 1, 1994
ESTIMATED COMPLETION DATE August 1, 1994

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

APPLICANT'S SIGNATURE

FOR OFFICE USE

PERMIT NUMBER 94427
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 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 WELLS, INCLUDING PIEZOMETERS
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. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

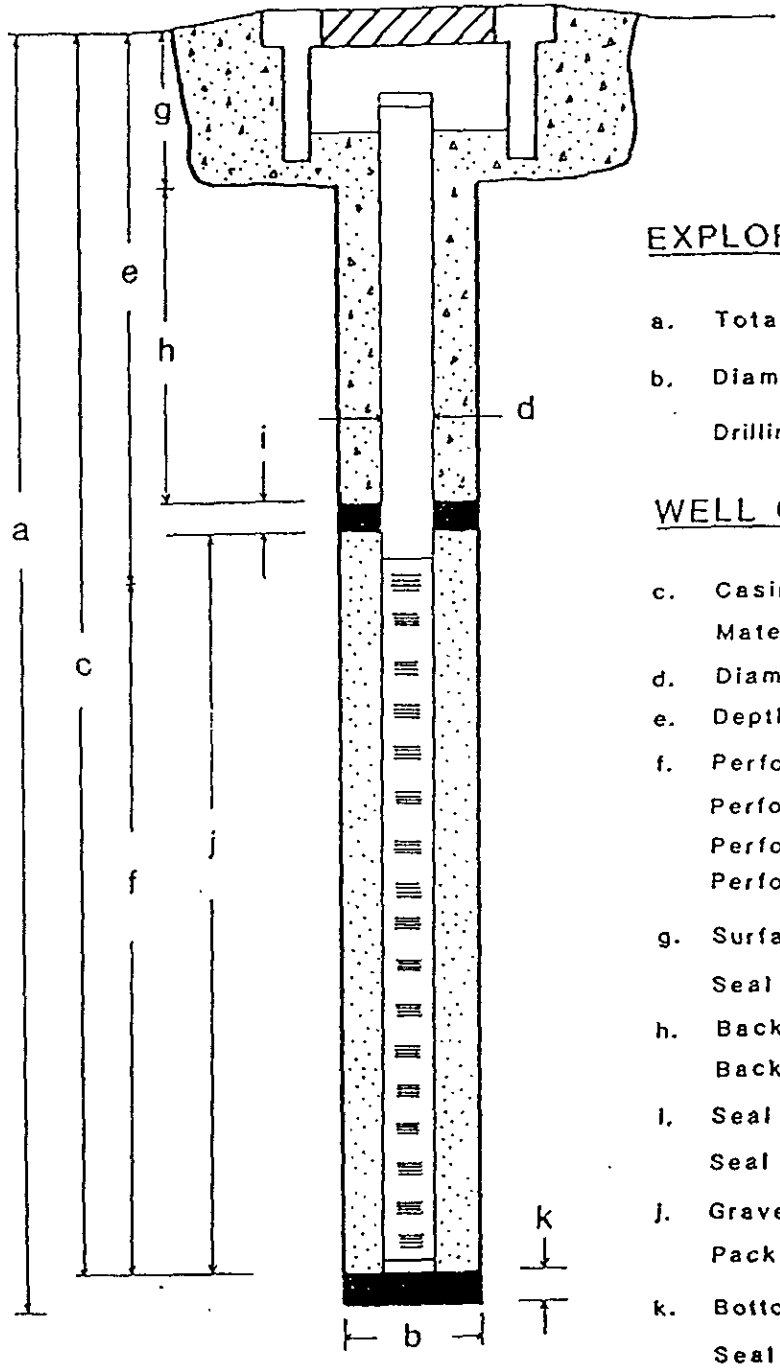
(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 25 Jul 94
Wyman Hong

AS-BUILT MONITORING WELL DETAIL



EXPLORATORY BORING

a. Total depth 40 ft.

b. Diameter 8 in.

Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Casing length 40 ft.

Material Schedule 40 PVC

d. Diameter 2 in.

e. Depth to top perforations 30 ft.

f. Perforated length 10 ft.

Perforated interval from 30 to 40 ft.

Perforation type Factory Slot

Perforation size .02 Inch

g. Surface seal (0 to 2 ft.) 2 ft.

Seal material Concrete

h. Backfill (2 to 26 ft.) 24 ft.

Backfill material Neat Cement Grout

i. Seal (26 to 28 ft.) 2 ft.

Seal material Bentonite

j. Gravel pack (28 to 40 ft.) 12 ft.

Pack material #3 Sand

k. Bottom seal ft.

Seal material PVC End Cap

FILE NO. 3288-44

PROJECT Beck Roofing

WELL NO. MW-4

DATE COMPLETED 1 August 1994

ANDERSON CONSULTING GROUP
Roseville (916) 786-8883
Grass Valley (916) 273-SOIL

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

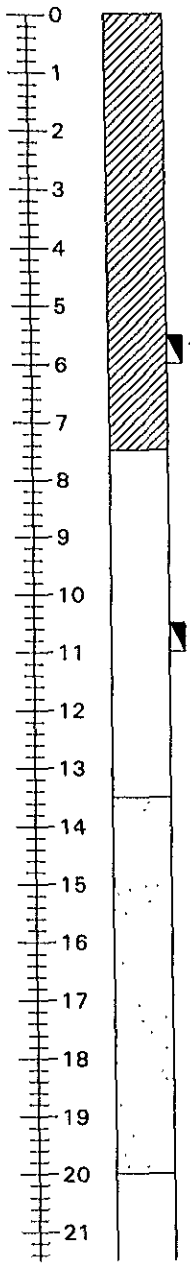
APPENDIX B

LOG OF BORING: SB-18

Project: Beck Roofing **File:** 3288-44

Date: 1 August 1994 **Elevation:** feet

Surface: **Water:** None encountered



ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
0			CL	Dark grey, moist, medium stiff, silty Clay - some fine Sand				
6	11/6	SB18-1						
7			ML-CL	Yellow brown, moist, medium stiff, clayey Silt/silty Clay				
11	9/6	SB18-2						
13			SP	Light brown, moist, loose-medium dense, medium coarse, Sand				
20			ML-CL	Olive-mottled, moist, soft to medium soft, clayey silt/silty Clay				

Site description and comments:

ANDERSON CONSULTING GROUP

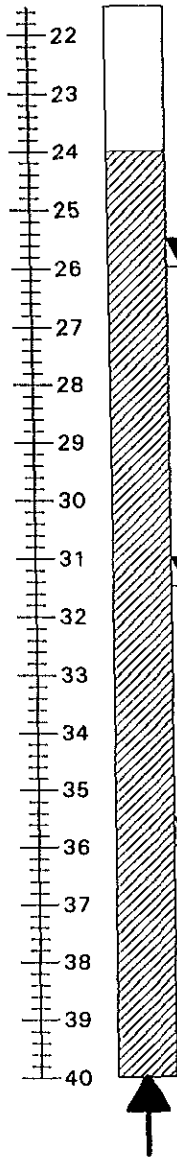
Boring: SB-18
Depth: 40.0 ft
Figure:

LOG OF BORING: SB-18 (Continued)

Project: Beck Roofing

File: 3288-44

ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
22								
23								
24			CL	Olive, moist, stiff, mottled Clay with trace of silt and rhizomes				
25								
26	10/6	SB18-3						
27								
28				Saturated				
29								
30								
31	9/6	SB18-4						
32								
33								
34								
35								
36	9/6	SB18-5						
37								
38								
39								
40				Boring terminated at 40 feet				



ANDERSON CONSULTING GROUP

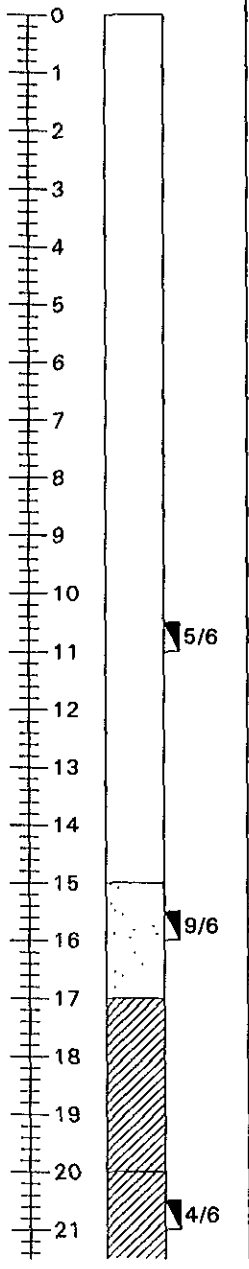
Boring: SB-18
Depth: 40.0 ft
Figure:

LOG OF BORING: SB-19

Project: Beck Roofing **File:** 3288-44

Date: 1 August 1994 **Elevation:** feet

Surface: **Water:** None encountered



ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
0			ML-CL	Dark grey, damp, soft to medium stiff, silty Clay/clayey Silt				
11	5/6	SB19-1						
15			SP	Light brown, damp, medium dense, medium coarse, Sand				
16	9/6	SB19-2						
17			CL	Olive-mottled, moist, soft to medium stiff, Clay				
20			CL	Olive brown, moist, medium stiff, silty Clay				
21	4/6	SB19-3						

Site description and comments:

ANDERSON CONSULTING GROUP

Boring: SB-19
Depth: 40.0 ft
Figure:

LOG OF BORING: SB-19 (Continued)

Project: Beck Roofing **File:** 3288-44

ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
22								
23								
24								
25								
26	12/6	SB19-4		Saturated				
27								
28								
29								
30								
31		SB19-5						
32								
33								
34								
35								
36		SB19-6						
37								
38								
39								
40				Boring terminated at 40 feet				

ANDERSON CONSULTING GROUP

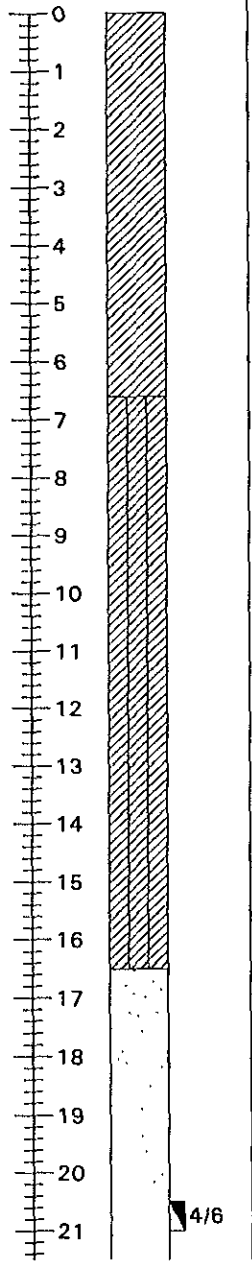
Boring: SB-19
Depth: 40.0 ft
Figure:

LOG OF BORING: SB-20

Project: Beck Roofing **File:** 3288-44

Date: 1 August 1994 **Elevation:** feet

Surface: **Water:** None encountered



ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
			CL	Dark brown, moist, soft to mediumstiff silty sandy Clay				
			CL-ML	Yellow brown, moist, soft to medium stiff, silty clay/clayey silt				
			SP	Light brown, damp, medium dense, Sand				
	4/6	SB20-1						

Site description and comments:

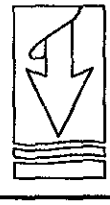
ANDERSON CONSULTING GROUP

Boring: SB-20
Depth: 36.5 ft
Figure:

LOG OF BORING: SB-20 (Continued)

Project: Beck Roofing **File:** 3288-44

ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
22								
23								
24								
25								
26	6/6	SB20-2						
27								
28			SM	Grey brown, saturated, medium dense silty sand with gravel to 3/8"				
29								
30								
31	3/6	SB20-3						
32								
33								
34								
35								
36	3/6	SB20-4						
				Boring terminated at 36.5 feet				



ANDERSON CONSULTING GROUP

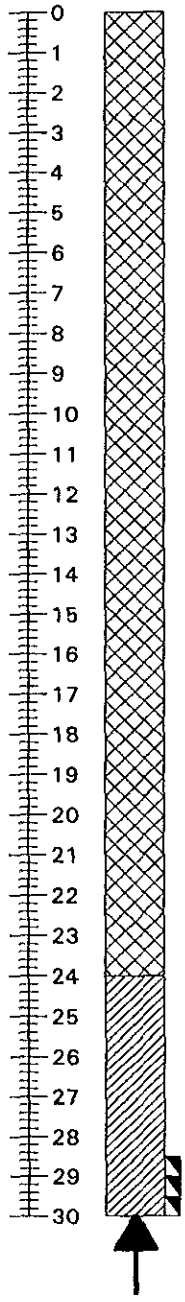
Boring: SB-20
Depth: 36.5 ft
Figure:

LOG OF BORING: SB-21

Project: Beck Roofing **File:** 3288-44

Date: 1 August 1994 **Elevation:** feet

Surface: **Water:** None encountered



ELEV / DEPTH	SOIL SYMBOLS SAMPLER SYMBOLS & BLOW COUNTS	Sample Number	USCS	Material Description and Remarks	Dry Density (pcf)	Moisture Content (%)	Phi	C (ksf)
			FILL	0 to 24 feet cement grout backfill				
			CL	Olive brown-mottled, wet, medium stiff, silty Clay				
		SB21-1 SB21-2 SB21-3		Boring terminated at 30 feet				

Site description and comments:

ANDERSON CONSULTING GROUP

Boring: SB-21
Depth: 30.0 ft
Figure:

APPENDIX

TRANSGLOBAL
ENVIRONMENTAL
GEOCHEMISTRY, INC.

August 3, 1994

Mr. Bill Welter
Anderson Consulting Group
631 Commerce Drive
Roseville, CA 95678

SUBJECT: DATA REPORT - Anderson Consulting Group Project # 3288-44
Beck Roofing Company, Hayward, California

TEG Project # 940801E

Mr. Welter:

Please find enclosed a data report for the samples analyzed from the above referenced project for Anderson Consulting Group. The samples were analyzed on site in TEG's DHS certified mobile laboratory (Cert. #1671). TEG conducted a total of 28 analyses on 8 soil and 4 water samples.

- 9 analyses on soils for aromatic volatile hydrocarbons by EPA method 8020.
- 9 analyses on soils for total petroleum hydrocarbons by EPA method 8015mod.
- 5 analyses on waters for aromatic volatile hydrocarbons by EPA method 8020.
- 5 analyses on waters for total petroleum hydrocarbons by EPA method 8015mod.

The results of the analyses are summarized in the enclosed tables. Applicable detection limits and QA/QC data are included in the tables.

TEG appreciates the opportunity to have provided analytical services to Anderson Consulting Group on this project. If you have any further questions relating to these data or report, please do not hesitate to contact us.

Sincerely,

Mark Jerpbak
Director, TEG-Northern California

PO Box 162580, Sacramento, CA 95816 Phone: (916) 736-3233 Fax: (916) 452-5806

teg

ANDERSON CONSULTING Project #3288-44
Beck Roofing Company
Hayward, California

TEG PROJECT #940801E

BTEX (EPA 8020) & TPH (EPA mod8015) ANALYSES OF SOILS

SAMPLE NUMBER	DATE SAMPLED	DATE ANALYZED	GASOLINE mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBNZ mg/kg	XYLENES mg/kg
BLANK	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-18 25.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-18 31.0	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-18 35.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-19 30.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-19 30.5 DUP	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-19 35.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-20 25.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-20 30.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-20 35.5	8/01/94	8/01/94	nd	nd	nd	nd	nd
REPORTING LIMITS			10	0.005	0.005	0.005	0.015

'nd' INDICATES NOT DETECTED AT LISTED REPORTING LIMITS.

ANALYSES PERFORMED IN TEG's DHS CERTIFIED MOBILE LAB (#1671)

ANALYSES PERFORMED BY: Mr. Henry Wilkinson

DATA REVIEWED BY: Mr. Mark Jerpbak

8-3-94

Transglobal Environmental Geochemistry
PO Box 162580, Sacramento, CA 95816 Phone: (916) 736-3233 Fax: (916) 452-5806

ANDERSON CONSULTING Project #3288-44
Beck Roofing Company
Hayward, California

TEG PROJECT #940801E

QA/QC DATA - MATRIX SPIKE ANALYSES - SOIL

SAMPLE NUMBER	DATE ANALYZED	GASOLINE mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBNZ mg/kg	XYLENES mg/kg
SB-18 25.5						
Spiked Conc.	8/01/94	20.0	0.0100	0.0100	0.0100	0.0300
Measured Conc.		17.9	0.0102	0.0094	0.0099	0.0297
% Recovery		89.7%	102.0%	94.0%	99.0%	99.0%
Spiked Conc.	8/01/94	20.0	0.0100	0.0100	0.0100	0.0300
Measured Conc.		18.6	0.0095	0.0089	0.0093	0.0285
% Recovery		93.1%	95.0%	89.0%	93.0%	95.0%
RPD		3.8%	7.1%	5.5%	6.3%	4.1%

ACCEPTABLE RPD LIMIT = 15%

ANALYSES PERFORMED IN TEG's DHS CERTIFIED MOBILE LAB (#1671)
ANALYSES PERFORMED BY: Mr. Henry Wilkinson
DATA REVIEWED BY: Mr. Mark Jerpbak

8-3-94

Transglobal Environmental Geochemistry
PO Box 162580, Sacramento, CA 95816 Phone: (916) 736-3233 Fax: (916) 452-5806

teg

ANDERSON CONSULTING Project #3288-44
Beck Roofing Company
Hayward, California

TEG PROJECT #940801E

BTEX (EPA 8020) & TPH (EPA mod8015) ANALYSES OF WATERS

SAMPLE NUMBER	DATE SAMPLED	DATE ANALYZED	GASOLINE ug/l	BENZENE ug/l	TOLUENE ug/l	ETHYLBNZ ug/l	XYLENES ug/l
BLANK	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-18-1	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-18-2	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-19	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-19 DUP	8/01/94	8/01/94	nd	nd	nd	nd	nd
SB-20	8/01/94	8/01/94	nd	nd	nd	nd	nd
REPORTING LIMITS			500	0.5	0.5	0.5	1.5

'nd' INDICATES NOT DETECTED AT LISTED REPORTING LIMITS.

ANALYSES PERFORMED IN TEG's DHS CERTIFIED MOBILE LAB (#1671)

ANALYSES PERFORMED BY: Mr. Henry Wilkinson

DATA REVIEWED BY: Mr. Mark Jerpbak

8-3-94

Transglobal Environmental Geochemistry
PO Box 162580, Sacramento, CA 95816 Phone: (916) 736-3233 Fax: (916) 452-5806

ANDERSON CONSULTING Project #3288-44
Beck Roofing Company
Hayward, California

TEG PROJECT #940801E

QA/QC DATA - MATRIX SPIKE ANALYSES - WATERS

	DATE ANALYZED	GASOLINE ug/l	BENZENE ug/l	TOLUENE ug/l	ETHYLBNZ ug/l	XYLENES ug/l
Spiked Conc.	8/01/94	2000	5.00	5.00	5.00	15.00
Measured Conc.		2182	4.86	4.69	4.76	13.85
% Recovery		109.1%	97.2%	93.8%	95.2%	92.3%
Spiked Conc.	8/01/94	2000	5.00	5.00	5.00	15.00
Measured Conc.		2030	4.80	4.72	4.82	14.28
% Recovery		101.5%	96.0%	94.4%	96.4%	95.2%
RPD		7.2%	1.2%	0.6%	1.3%	3.1%

ACCEPTABLE RPD LIMIT = 15%

ANALYSES PERFORMED IN TEG's DHS CERTIFIED MOBILE LAB (#1671)

ANALYSES PERFORMED BY: Mr. Henry Wilkinson

DATA REVIEWED BY: Mr. Mark Jerpbak 8-3-94

Transglobal Environmental Geochemistry
PO Box 162580, Sacramento, CA 95816 Phone: (916) 736-3233 Fax: (916) 452-5806

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC

CHAIN-OF-CUSTODY RECORD

CLIENT: Anderson Consulting
ADDRESS: 631 Commerce Dr.
PHONE: FAX:
CLIENT PROJECT #: 3288-44 PROJECT MANAGER: Bill Welter

DATE: 8-1-94 PAGE 1 OF 1
TEG PROJECT #: 940801 E
LOCATION: 21123 Meekland Ave., Hayward
COLLECTOR: Bill Welter DATE OF COLLECTION: 8-1-94

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory Note Number
SB-18	25.5	1060	Soil	2" Brass		X				X											1	
SB-18	31.0	1070	✓	✓		X				X											1	
SB-18	35.5	1030	✓	–		X				X											1	
SB-18-1	-	1100	H_2O	VOA		X				X											2	
SB-20	25.5	1210	Soil	2" Brass		X				X											1	
SB-20	30.5	1220	Soil	"		X				X											1	
SB-20	35.5	1235	Soil	"		X				X											1	
SB-20		1240	H_2O	VOA		X				X											2	
SB-18-2		1255	✓	✓		X				X											2	
~~SB-19~~	~~25.5~~	~~1400~~	~~Soil~~	~~2" Brass~~		X				X										Bw	~~1~~	
SB-19	30.5	1415	✓	"		X				X											1	
SB-19	35.5	1425	✓	"		X				X											1	
SB-19		1435	H_2O	VOA		X				X											3	

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
Bill Welter	8/1/94 7:40 p.	[signature]	8-1-94 1945
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☒ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	17
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	Y
NOTES:	

LABORATORY NOTES: All samples received In good condition

August 11, 1994
Sample Log 9987

Bill Welter
Anderson Geotechnical Consultants, Inc.
631 Commerce Drive
Roseville, CA 95678

Subject: Analytical Results for 3 Soil Samples
Identified as: Project # 3288-44 (Hayward)
Received: 08/03/94

Dear Mr. Welter:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on August 11, 1994 and describes procedures used to analyze the samples.

Sample(s) were received in brass sleeves that were sealed with PTFE sheets and plastic endcaps. Each sample was transported and received under documented chain of custody and stored at 4 degrees C until analysis was performed.

Sample(s) were analyzed using the following method(s):

"BTEX" (EPA Method 8020/Purge-and-Trap)
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us at 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

Stewart Podolsky
Senior Chemist

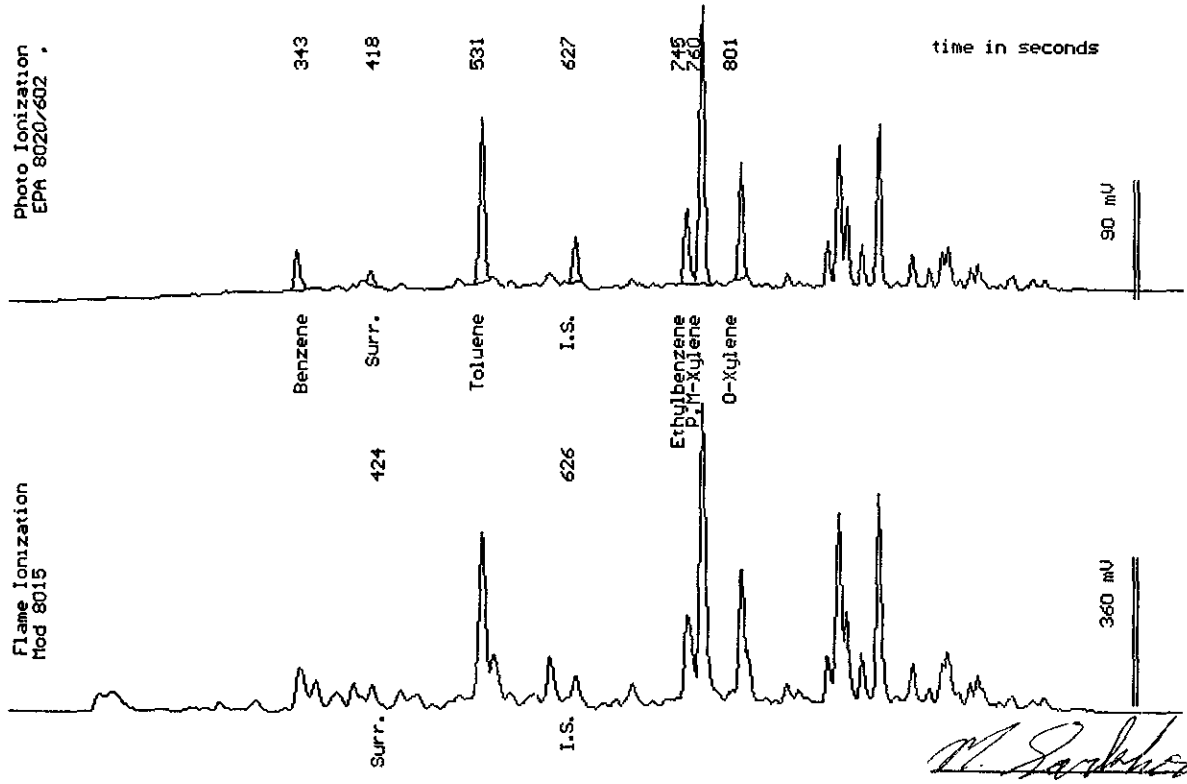
Sample Log 9987

9987-1

Sample: **B-21 @ 28.5**

From : Project # 3288-44 (Hayward)
Sampled : 08/02/94
Dilution : 1:10 QC Batch : 6125F
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.050)	2.2
Toluene	(.050)	8.7
Ethylbenzene	(.050)	4.8
Total Xylenes	(.050)	22
TPH as Gasoline	(5.0)	180
Surrogate Recovery		79 %



Date Analyzed: 08-08-94
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

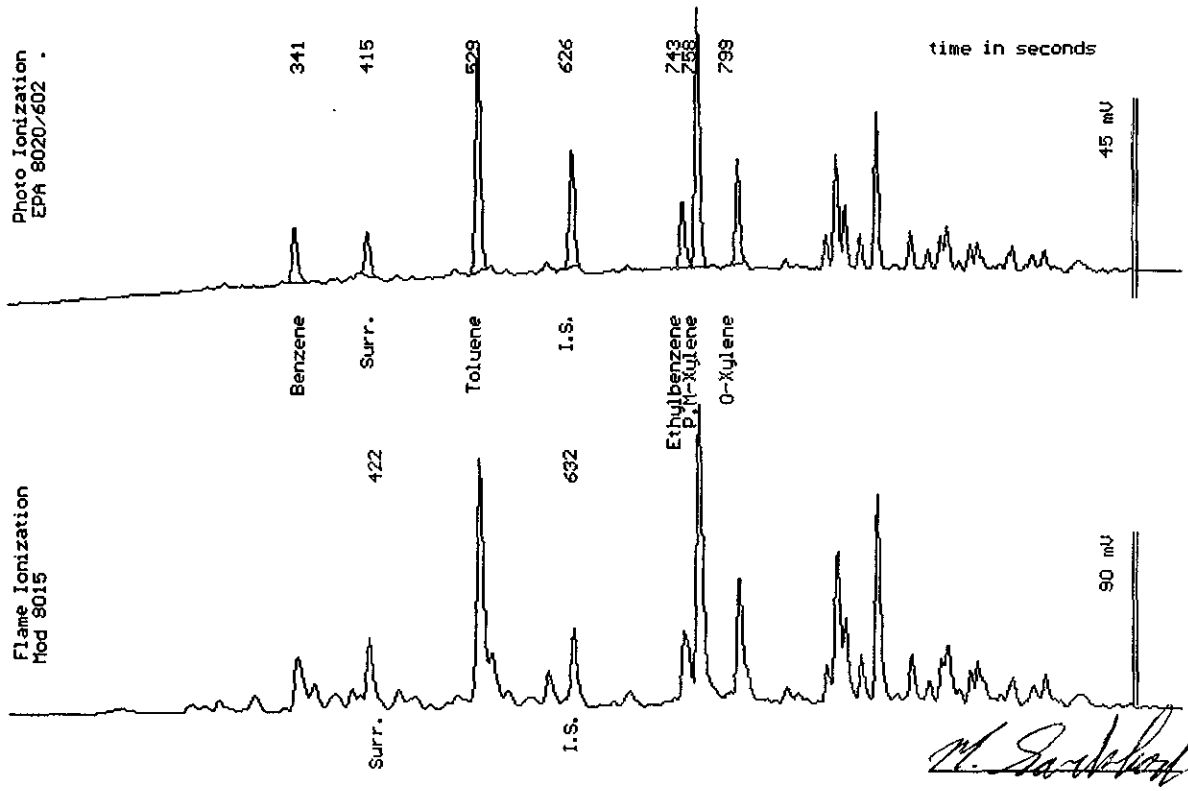
Sample Log 9987

9987-2

Sample: **B-21 @ 29.0**

From : Project # 3288-44 (Hayward)
Sampled : 08/02/94
Dilution : 1:100 QC Batch : 6125I
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg	
Benzene	(.50)	11	
Toluene	(.50)	42	
Ethylbenzene	(.50)	14	
Total Xylenes	(.50)	69	
TPH as Gasoline	(50)	430	
Surrogate Recovery		90	%



Date Analyzed: 08-10-94
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

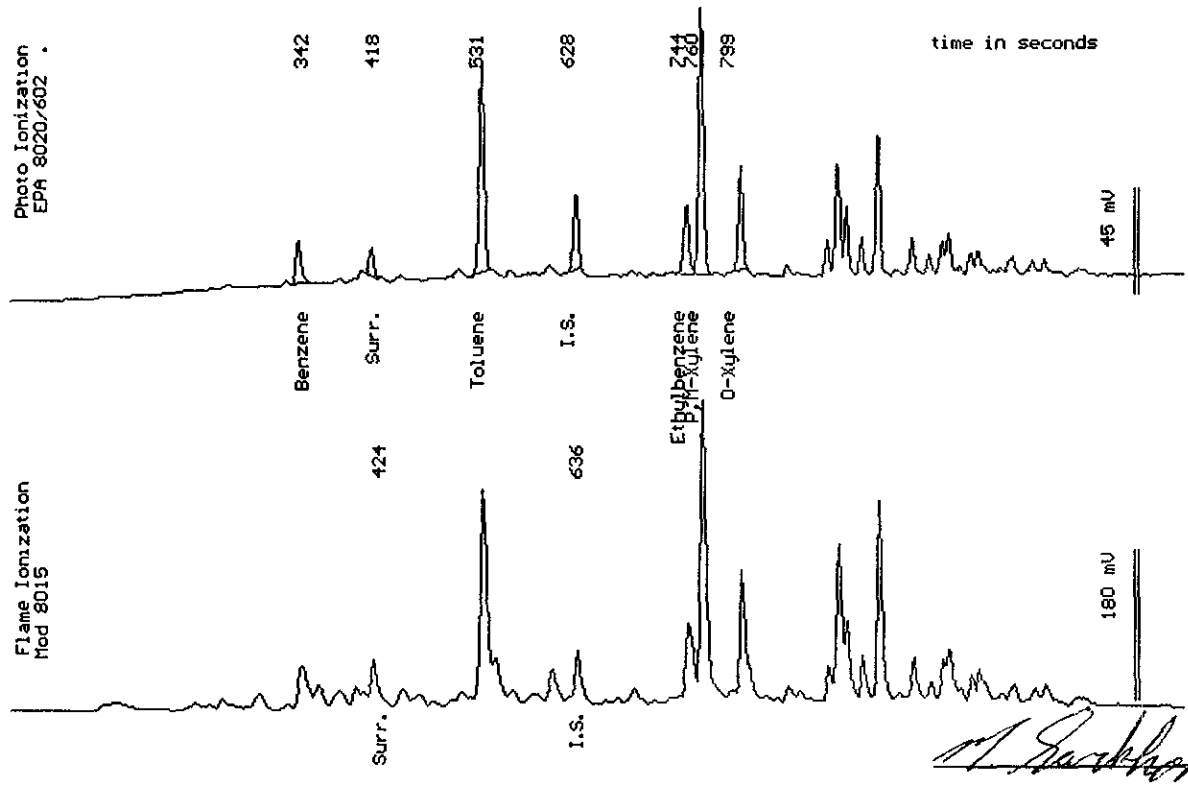
Sample Log 9987

9987-3

Sample: B-21 @ 29.5

From : Project # 3288-44 (Hayward)
Sampled : 08/02/94
Dilution : 1:100 QC Batch : 6125I
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg	
Benzene	(.50)	13	
Toluene	(.50)	64	
Ethylbenzene	(.50)	25	
Total Xylenes	(.50)	120	
TPH as Gasoline	(50)	550	
Surrogate Recovery		92	%



Date Analyzed: 08-10-94
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

WEST Western Environmental Science & Technology

1046 Olive Drive, Suite 3
Davis, CA 95616

916-753-9500
FAX #: 916-753-6091
LAB#: 916-757-4650

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Bill Water
Phone #: 969-8885

Company/Address: Anderson Consulting
FAX #: 786-7891

Project Number: 3288-44
P.O.#:
Project Name:

Project Location: Hayward
Sampler Signature: Bill Water

ANALYSIS REQUEST

Sample ID	Sampling DATE	Sampling TIME	Container VOA	Container SLEEVE	Container 1L GLASS	Container 1L PLASTIC	Method Preserved HCl	Method Preserved HNO_3	Method Preserved ICE	Method Preserved NONE	Matrix WATER	Matrix SOIL	BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/Oil (8015)	Total Oil & Grease (5520 B/E,F)	Total Oil & Grease IR (5520 B/E,F,C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/8150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/8270	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni	TAT: RUSH SERVICE (12 hr) or (24 hr)	TAT: EXPEDITED SERVICE (48 hr) or (1 wk)	TAT: STANDARD SERVICE (2wk)
B-21 @ 28.5	8-2-94	1300		1					X			X		X																				X
B-21 @ 29.0	✓			1					X			X		X																				X
B-21 @ 29.5	✓			1					X			X		X																				X

W.E.T. (✓) TOTAL (✓)

Relinquished by:	Date	Time	Received by:
Bill Water	8-3-94	1315	
Relinquished by	Date	Time	Received by:
Relinquished by	Date	Time	Received by Laboratory:
	8-3-94	1315	[signature]

Remarks:

Bill To:

Western Environmental Science & Technology

FED. ID. #68-0148585 **45133 County Road 32B • Davis, CA 95616-9426 • 916 753-9500**

I N V O I C E

BILL TO: Anderson Geotechnical Consultants, Inc.
631 Commerce Drive
Roseville, CA 95678

REMIT TO: Western Environmental Science and Technology
45133 County Road 32B
Davis, CA 95616
(916) 753 - 9500

DATE: August 12, 1994

PROJECT IDENTIFICATION: Project # 3288-44 (Hayward)

WEST INVOICE NUMBER: 9987

TERMS: Payment due net 30 days; 1.5% per month finance charge.

****

ITEMIZATION OF SERVICES PROVIDED AND CHARGES

3	Sample(s) for Gasoline w/ BTEX @ $70.00 ea. (2-wk)	$210.00
INVOICE TOTAL:		$210.00

Prices reflect discount as contracted

BLW
3036-44

August 17, 1994
Sample Log 10026

Bill Welter
Anderson Geotechnical Consultants, Inc.
631 Commerce Drive
Roseville, CA 95678

Subject: Analytical Results for 4 Water Samples
Identified as: Project # 3288-44 (Beck Roofing)
Received: 08/05/94

Dear Mr. Welter:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on August 17, 1994 and describes procedures used to analyze the samples.

Sample(s) were received in 40-milliliter glass vials sealed with TFE lined septae and plastic screw-caps. Each sample was transported and received under documented chain of custody and stored at 4 degrees C until analysis was performed.

Sample(s) were analyzed using the following method(s):

"BTEX" (EPA Method 602/Purge-and-Trap)
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us at 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

Joel Kiff
Senior Chemist

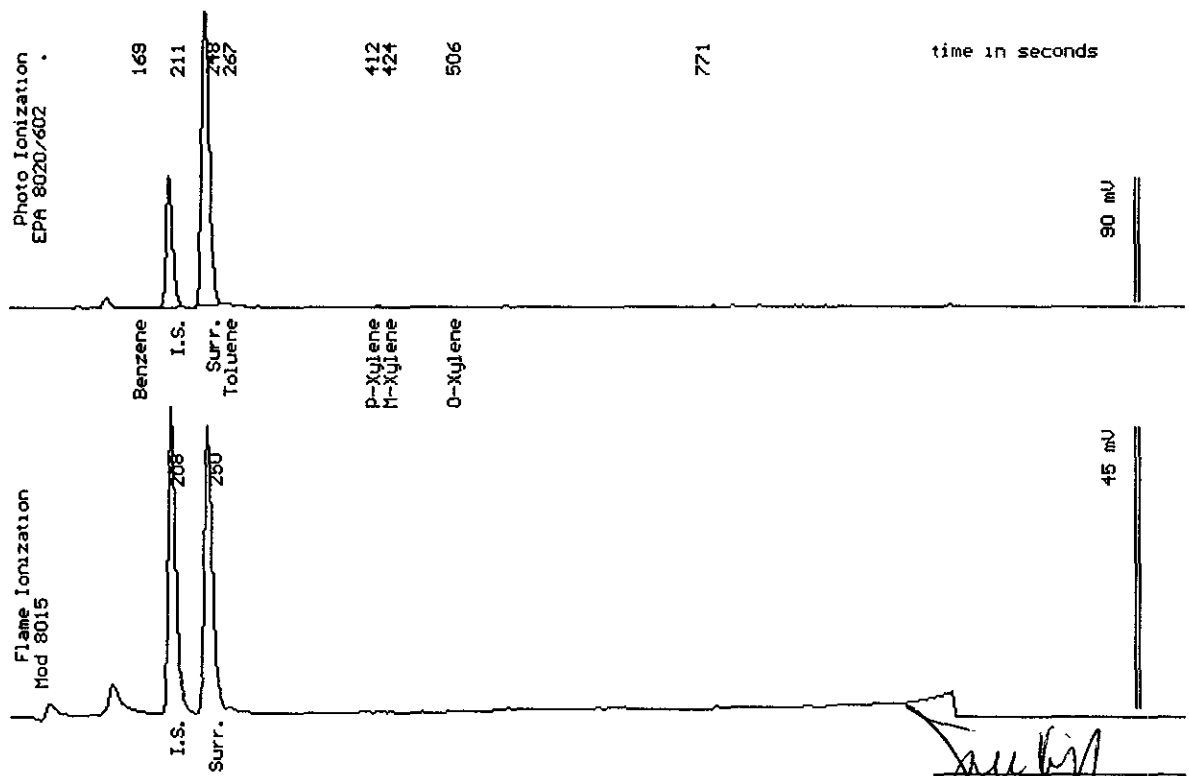
Sample Log 10026

10026-1

Sample: **MW-1**

From : Project # 3288-44 (Beck Roofing)
Sampled : 08/04/94
Dilution : 1:1 QC Batch : 2101B
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.30)	<.30
Toluene	(.30)	<.30
Ethylbenzene	(.30)	<.30
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		101 %



Date Analyzed: 08-14-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

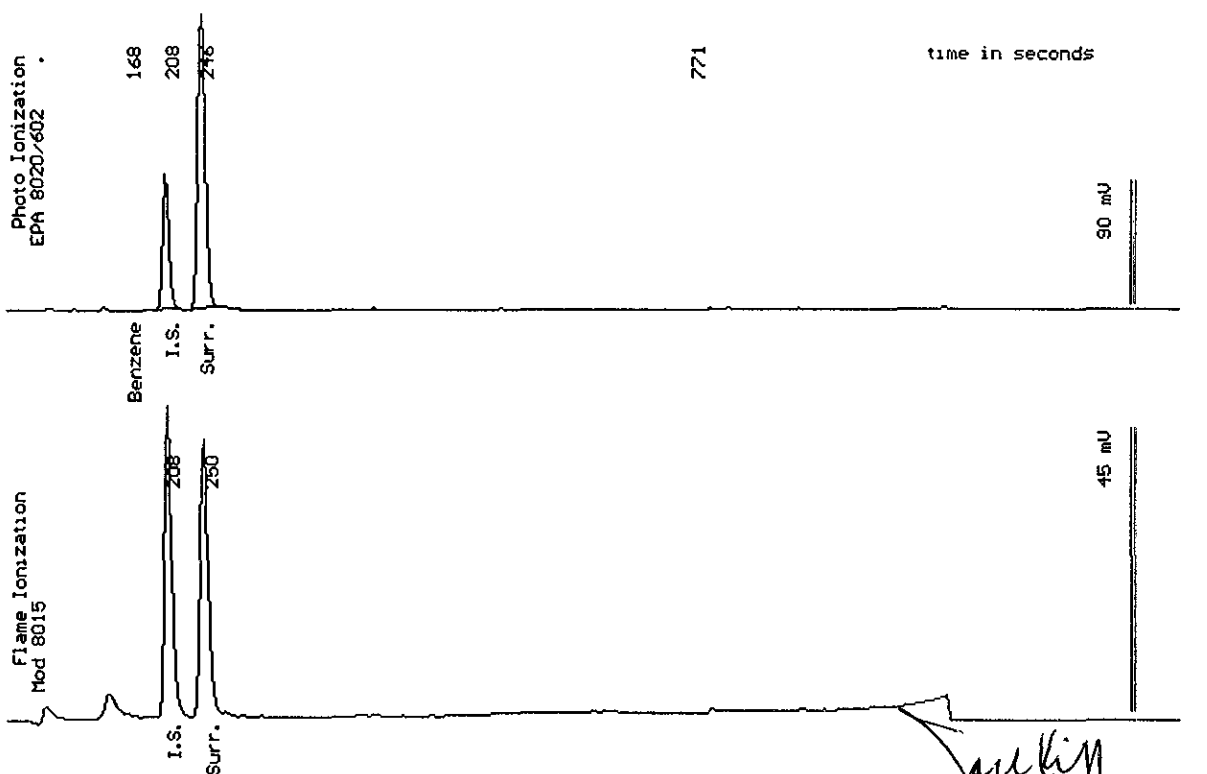
Sample Log 10026

10026-2

Sample: **MW-2**

From : Project # 3288-44 (Beck Roofing)
Sampled : 08/04/94
Dilution : 1:1 QC Batch : 2101B
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.30)	<.30
Toluene	(.30)	<.30
Ethylbenzene	(.30)	<.30
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		102 %



Date Analyzed: 08-14-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

Western Environmental Science & Technology • 45133 County Road 32B • Davis, CA 95616 • 916 753-9500 • FAX: 916 757-4652

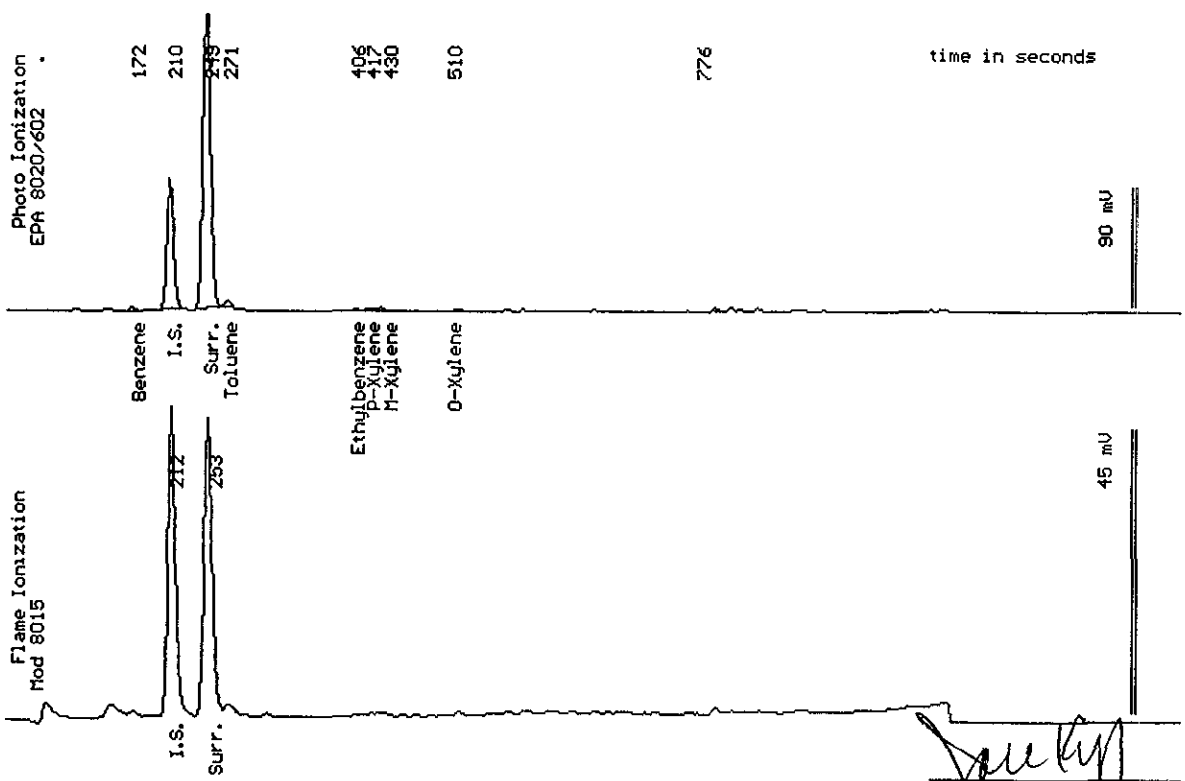
Sample Log 10026

10026-3

Sample: **MW-4**

From : Project # 3288-44 (Beck Roofing)
Sampled : 08/04/94
Dilution : 1:1 QC Batch : 2101D
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.30)	<.30
Toluene	(.30)	.50
Ethylbenzene	(.30)	<.30
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		102 %



Date Analyzed: 08-15-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

Western Environmental Science & Technology • 45133 County Road 32B • Davis, CA 95616 • 916 753-9500 • FAX: 916 757-4652

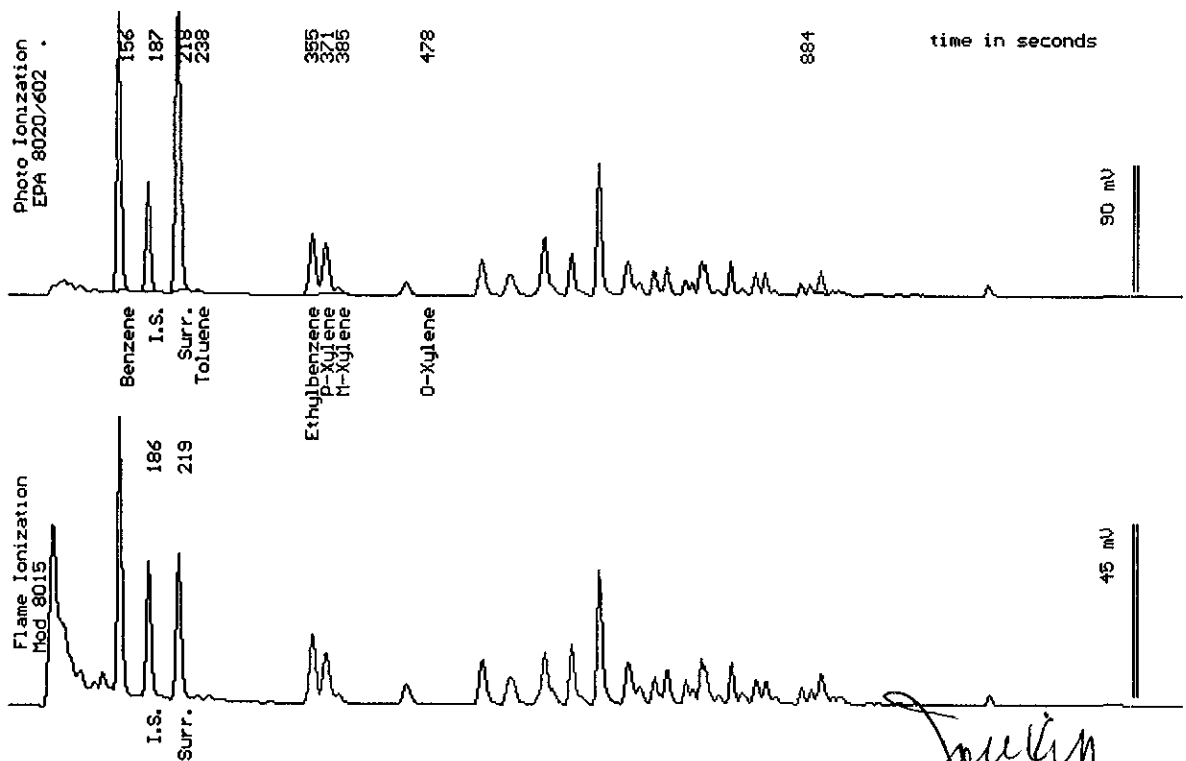
Sample Log 10026

10026-4

Sample: **MW-3**

From : Project # 3288-44 (Beck Roofing)
Sampled : 08/04/94
Dilution : 1:10 QC Batch : 4100H
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(3.0)	450
Toluene	(3.0)	<3.0
Ethylbenzene	(3.0)	180
Total Xylenes	(5.0)	160
TPH as Gasoline	(500)	4200
Surrogate Recovery		102 %



Date Analyzed: 08-15-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

Western Environmental Science & Technology • 45133 County Road 32B • Davis, CA 95616 • 916 753-9500 • FAX: 916 757-4652

Western Environmental Science & Technology

1046 Olive Drive, Suite 3
Davis, CA 95616

916-753-9500
FAX #: 916-753-6091
LAB#: 916-757-4650

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Bill Welter
Phone #: 786-8883

Company/Address: Anderson Consulting
FAX #:

Project Number: 3288-44
P.O.#:
Project Name: Beck Roofing

Project Location: Hayward
Sampler Signature: Ron Metcalf

Sample ID	Sampling DATE	Sampling TIME	Container VOA	Container SLEEVE	Container 1L GLASS	Container 1L PLASTIC	Method Preserved HCl	Method Preserved HNO_3	Method Preserved ICE	Method Preserved NONE	Matrix WATER	Matrix SOIL
mw-1	8-4-94	16:00	2				X		X		X	
mw-2	"	15:30	2				X		X		X	
mw-4	"	15:45	2				X		X		X	
mw-5	"	16:15	2				X		X		X	

ANALYSIS REQUEST

BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/Oil (8015)	Total Oil & Grease (5520 B/E,F)	Total Oil & Grease IR (5520 B/E,F,C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/8150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/8270	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	W.E.T. (✓)	TOTAL (✓)	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni
	X																			
	X																			
	X																			
	X																			

TAT

RUSH SERVICE (12 hr) or (24 hr)	EXPEDITED SERVICE (48 hr) or (1 wk)	STANDARD SERVICE (2wk)
		X
	X	
	X	
	X	

Relinquished by:	Date	Time	Received by:
Ron Metcalf	8-5	0915	C. Dupot
C. Dupot	8/5/94	1055	
	8/5/94	11:50	Ron Keese

RECEIVED
DATE 08/5/94 TIME 11:50
TEMP 0°C
INITIAL JK
WEST. LAB

Remarks:

Bill To: