R. William Rudolph, Jr., PE
Thomas E. Cundey, PE
Jeriann N. Alexander, PE

95 MAY -3 PM 1:19

May 1, 1995
SCI 727.001

Mr. Dante Sambajon
Plant Engineer
Coulter Steel and Forge Company
1494 - 67th Street
Emeryville, California 94662-0901

Groundwater Monitoring
March 1995 Event
Former Diesel Fuel Tank Area
722 Folger Avenue
Emeryville, California

Dear Mr. Sambajon:

This letter records the results of the March 1995 monitoring event conducted by Subsurface Consultants, Inc. (SCI) for the groundwater monitoring program at the referenced site. Five monitoring wells have been periodically sampled in the vicinity of a former diesel fuel tank since May 1992. The previous tank area and well locations are shown on the attached Site Plan, Plate 1.

Groundwater Monitoring

The groundwater monitoring program for this site was modified by the ACHCSA in June 1994. As modified, the program requires the following:

1. Wells MW-4, MW-5 and MW-8 will be monitored for Total Extractable Hydrocarbons (TEH) and BTEX every quarter.

2. If well MW-4 shows detectable levels of contaminants, then samples from well MW-6 must be analyzed.

3. MW-3 is to be monitored for TEH and BTEX biannually.

A biannual groundwater monitoring was conducted on March 9, 1995. Initially, the depth to groundwater and the presence of free product were checked in all five wells with a steel tape, and water and petroleum product sensitive pastes. Groundwater level measurements are presented on Table 1.

Prior to sampling, the wells were purged of at least three well volumes of water. Measurements of water temperature, pH and conductivity were recorded at various intervals during the purge process. Well sampling forms are attached.

The depth to water in each well was checked, following purging and before sampling, to assure that the wells had recharged to at least 80 percent of their initial volume. The wells were then sampled using new disposable bailers. The samples were retained in containers pre-cleaned by the supplier in accordance with EPA protocol. The samples were placed in an ice filled cooler and transmitted to Curtis & Tompkins, Ltd. The testing program for this event included the following analyses:

1. Total Extractable Hydrocarbons as diesel (TEH) (EPA 5030/8015), and

2. Benzene, toluene, ethylbenzene and xylene (BTEX) (EPA 5030/602).

The results of all analytical testing events are presented on Table 2. Analytical test reports and Chain-of-Custody documents for the current event are attached.

Conclusions

Groundwater Gradient

Based on the data presented on Table 1, it appears that the groundwater gradient remains consistently toward the west. Groundwater contours for this event are presented on the site plan.

Diesel Contamination

In general, the data indicates that groundwater in a limited area around the previous tank site has been impacted by TEH within the diesel range. The upgradient and downgradient extent of the plume have been well defined.

In accordance with the monitoring program, the next sampling event will be performed during the month of June 1995. During that month, a quarterly event will be performed.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Jeriann N. Alexander
Civil Engineer 40469 (expires 3/31/95)

FV:JNA:RWR:sld

2 copies submitted

Attachments: Table 1 - Groundwater Elevations
Table 2 - Summary of Contaminants in Groundwater
Site Plan - Plate 1
Analytical Test Reports
Chain-of-Custody Documents
Groundwater Sampling Forms

cc: ✓ Ms. Susan Hugo
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Mr. Rich Hiett
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Table 1.
Groundwater Elevation Data

Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
MW-3	24.70	5/15/92	11.15	13.55
		7/1/92	11.60	13.10
		8/18/92	12.00	12.70
		3/4/93	9.97	14.91
		6/8/93	10.47	14.23
		11/4/93	12.05	12.65
		12/6/93	11.62	13.08
		2/23/94	10.12	14.58
		6/9/94	10.98	13.72
		9/7/94	11.83	12.87
		12/16/94	9.96	14.74
		3/9/95	8.86	15.84
MW-4	23.92	5/15/92	10.00	13.92
		7/1/92	11.26	12.66
		8/18/92	11.58	12.34
		3/4/93	9.39	14.53
		6/8/93	10.01	13.91
		11/4/93	11.53	12.39
		12/6/93	11.11	12.81
		2/23/94	9.63	14.29
		6/9/94	10.47	13.45
		9/7/94	11.31	12.61
		12/16/94	9.48	14.44
		3/9/95	8.72	15.20
MW-5	23.85	5/15/92	10.52	13.33
		7/1/92	9.93	13.92
		8/18/92	9.24	14.61
		3/5/93	7.72	16.15
		6/8/93	8.31	15.54
		11/4/93	10.33	13.52
		12/6/93	9.91	13.94
		2/23/94	8.23	15.62
		6/9/94	9.09	14.76
		9/7/94	9.95	13.90
		12/16/94	7.98	15.87
		3/9/95	7.33	16.52

Table 1.
Groundwater Elevation Data

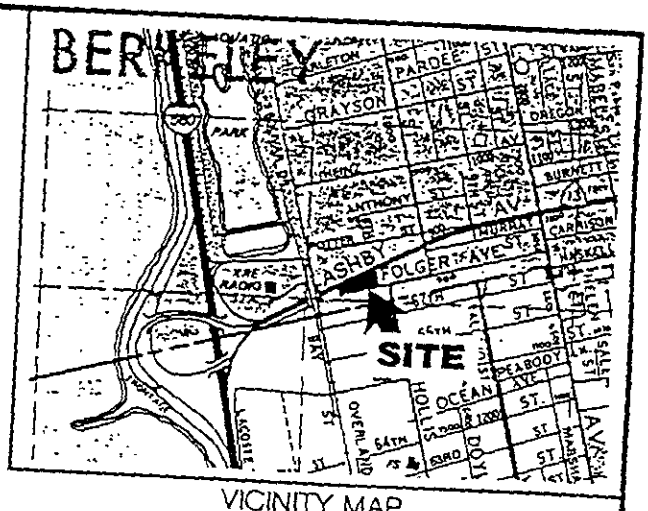
Well	TOC Elevation (feet)	Date	Groundwater Depth (feet)	Groundwater Elevation (feet)
MW-6	22.98	5/15/92	12.46	10.52
		7/1/92	12.96	10.02
		8/18/92	13.42	9.56
		3/4/93	11.60	11.38
		6/8/93	12.34	10.64
		11/4/93	13.62	9.36
		12/6/93	13.08	9.90
		2/23/94	11.78	11.20
		6/9/94	12.73	10.25
		9/7/94	13.52	9.46
		12/16/94	11.69	11.29
		3/9/95	11.02	11.96
MW-8	23.85	12/6/93	9.07	14.15
		2/23/94	7.93	15.92
		6/9/94	8.60	15.25
		9/7/94	9.39	14.46
		12/16/94	7.78	16.07
		3/9/95	7.82	16.03

TOC = Top of casing
Elevation reference = City of Berkeley Survey Monument of Folger Avenue at the Location Shown on the Site Plan

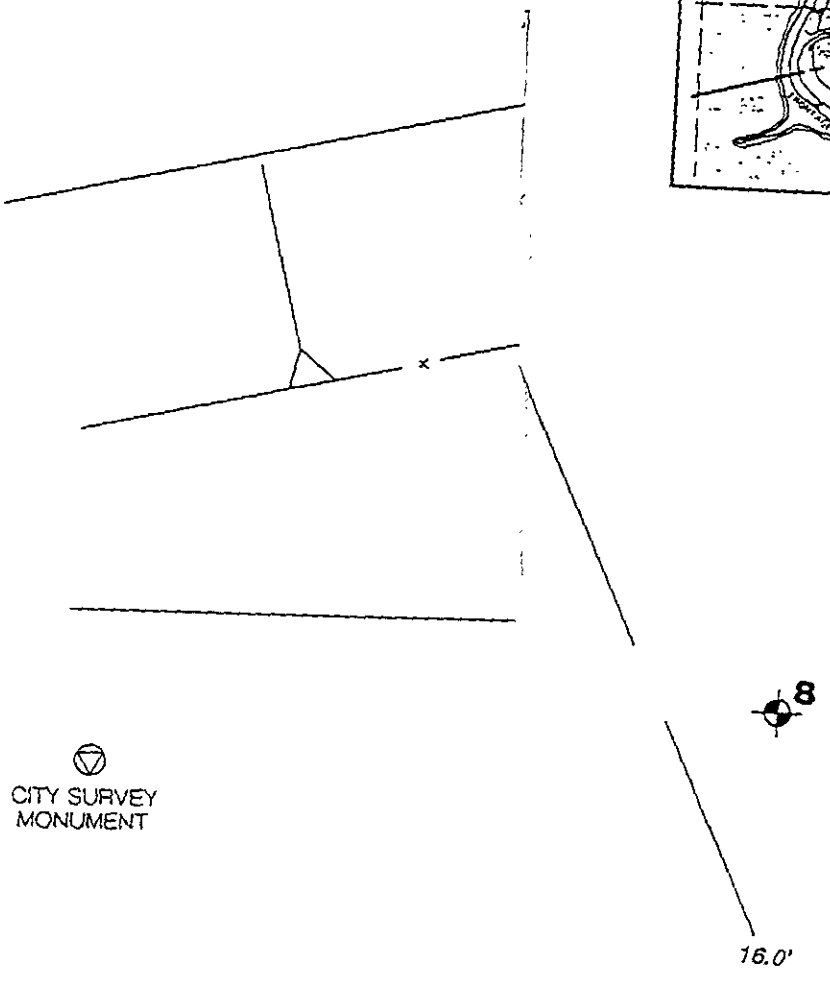
Table 2.
TEH and BTEX Concentrations in Groundwater

Sample	Date	TEH ug/l	B ug/l	T ug/l	E ug/l	X ug/l
MW-3	5/15/92	100	<0.5	<0.5	<0.5	2.5
	8/18/92	<50	<0.5	<1.0	<0.5	<0.5
	3/4/93	<50	<0.5	<0.5	<0.5	<0.5
	6/8/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	60	<0.5	0.6	<0.5	0.21
	2/23/94	1600	<0.5	<0.5	<0.5	<0.5
	9/7/94	900	<0.5	<2	<0.5	<0.5
	3/13/95	310	<0.5	<0.5	<0.5	<0.5
MW-4	5/15/92	10,000	<0.5	<0.5	<0.5	5
	8/18/92	300	<0.5	<1.0	<0.5	<0.5
	3/4/93	<50	<0.5	<0.5	<0.5	<0.5
	6/8/93	190	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	0.5	0.5	<0.5	0.9
	2/23/94	<50	<0.5	<0.5	<0.5	<0.5
	6/9/94	530	<0.5	<0.5	<0.5	<0.5
	12/16/94	410	<0.5	<0.5	<0.5	<0.5
	3/13/95	750	<0.5	<0.5	<0.5	<0.5
MW-5	5/15/92	510	<0.5	<1.0	<0.5	<0.5
	3/5/93	1,400	<0.5	<0.5	<0.5	<0.5
	6/8/93	1,300	<0.5	<0.5	<0.5	<0.5
	11/4/94	930	<0.5	0.5	<0.5	0.9
	2/23/94	3,100	<0.5	<0.5	<0.5	<0.5
	6/9/94	310	<0.5	<0.5	<0.5	<0.5
	9/7/94	1100	<0.5	<2	<0.5	<0.5
	12/19/94	690	<0.5	<0.5	<0.5	<0.5
	3/14/95	590	<0.5	<0.5	<0.5	<0.5
MW-6	5/15/92	<50	<0.5	<0.5	<0.5	2
	8/18/92	<50	<0.5	<1.0	<0.5	<0.5
	3/4/93	<50	<0.5	<0.5	<0.5	<0.5
	6/8/93	<50	<0.5	<0.5	<0.5	<0.5
	11/4/93	<50	<0.5	<0.5	<0.5	0.7
	2/23/94	<50	<0.5	<0.5	<0.5	<0.5
	6/9/94	<50	<0.5	<0.5	<0.5	<0.5
	9/7/94	<50	<0.5	<2	<0.5	<0.5
	12/16/94	<50	<0.5	--	--	--
	3/13/95	<50	<0.5	<0.5	<0.5	<0.5
MW-8	12/6/93	<50	<0.5	<0.5	<0.5	<0.5
	2/23/94	<50	<0.5	<0.5	<0.5	<0.5
	6/9/94	<50	<0.5	<0.5	<0.5	<0.5
	9/7/94	<50	<0.5	<2	<0.5	<0.5
	12/16/94	<0.5	<0.5	<0.5	<0.5	<0.5
	3/13/95	84	<0.5	<0.5	<0.5	<0.5

ug/l = micrograms per liter, parts per billion
TEH = Total extractable hydrocarbons
B = benzene
T = toluene



VICINITY MAP



CITY SURVEY MONUMENT

MONITORING WELL

EXTENT OF EXCAVATION

FENCE

PREVIOUS TANK LOCATION

15.0' GROUNDWATER FLOW CONTOURS (feet) MARCH 1995

N

APPROXIMATE SCALE (feet)

0 20 40

SITE PLAN

22 FOLGER AVENUE – BERKELEY, CA

NUMBER	DATE	APPROVED	PLATE
7.001	5/2/95		1

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants
171 12th Street
Suite 201
Oakland, CA 94608

Date: 17-MAR-95
Lab Job Number: 120253
Project ID: 727.001
Location: Coulter Steel

Reviewed by: Mary Pleasant

Reviewed by: Teresa K Morrison

Curtis & Tompkins, Ltd

LABORATORY NUMBER: 120253
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 727.001
LOCATION: COULTER STEEL

DATE SAMPLED: 03/13,14/95
DATE RECEIVED: 03/14/95
DATE EXTRACTED: 03/16/95
DATE ANALYZED: 03/16/95
DATE REPORTED: 03/17/95
BATCH NO:19473

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT (ug/L)
120253-001	MW-3	**	310*	50
120253-002	MW-4	**	750	50
120253-003	MW-5	**	590*	50
120253-005	MW-8	ND	84*	50
METHOD BLANK	NA	ND	ND	50

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

* Sample chromatogram does not resemble diesel standard.
** Kerosene range not reported due to overlap of hydrocarbon ranges.

QA/QC SUMMARY: BS/BSD

RPD, %	3
RECOVERY, %	87

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120253
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 727.001
LOCATION: COULTER STEEL

DATE SAMPLED: 03/13,14/95
DATE RECEIVED: 03/14/95
DATE ANALYZED: 03/14/95
DATE REPORTED: 03/17/95
BATCH NO:19448

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT (ug/L)
120253-001	MW-3	ND	ND	ND	ND	0.5
120253-002	MW-4	ND	ND	ND	ND	0.5
120253-003	MW-5	ND	ND	ND	ND	0.5
120253-005	MW-8	ND	ND	ND	ND	0.5
METHOD BLANK	N/A	ND	ND	ND	ND	0.5

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: MS/MSD

RPD, %	<1
RECOVERY, %	108

SAMPLE SPIKED: 120253-002

CHAIN OF CUSTODY FORM

PAGE ____ OF ____

PROJECT NAME: Coulter Steel
JOB NUMBER: 727.001 LAB: Curtis + Tompkins
PROJECT CONTACT: Jeri Alexander TURNAROUND: Normal
SAMPLED BY: Dennis Alexander REQUESTED BY: Jeri Alexander

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE			METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME	NOTES	ANALYSIS REQUESTED: TEH	BTXE
-1	MW-3	X						3	1					X			X		03	13	95	0915		X	X
-2	MW-4	X						3	1					X			X		03	13	95	1030		X	X
-3	MW-5	X						3	1					X			X		03	14	95	1330		X	X
-4	MW-6	X						3	1					X			X		03	13	95	1015	X		
-6	MW-8	X						3	1					X			X		03	13	95	1145		X	X

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
Dennis Alexander	3/14/95 1240 p.m.		
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)	DATE / TIME
RELEASED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature) Tracy Babcock	DATE / TIME 3/15/95 1145

COMMENTS & NOTES: Hold sample MW-6 for possible future analysis (dependent upon MW-4 results).

Subsurface Consultants, Inc.
171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607
(510) 268-0461 • FAX: 510-268-0137

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Subsurface Consultants
171 12th Street
Suite 201
Oakland, CA 94608

Date: 28-MAR-95
Lab Job Number: 120339
Project ID: 727.001
Location: Coulter Steel

Reviewed by: Mary Pleasant

Reviewed by:

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120339
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 727.001
LOCATION: COULTER STEEL

DATE SAMPLED: 03/13/95
DATE RECEIVED: 03/14/95
DATE ANALYZED: 03/21/95
DATE REPORTED: 03/28/95
BATCH NO: 19549

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT (ug/L)
120339-001	MW-6	ND	ND	ND	ND	0.5
METHOD BLANK	N/A	ND	ND	ND	ND	0.5

ND = Not detected at or above reporting limit.

Reporting Limit applies to all analytes.

QA/QC SUMMARY: MS/MSD of 120340-001

RPD, %	3
RECOVERY, %	114

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 120339
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 727.001
LOCATION: COULTER STEEL

DATE SAMPLED: 03/13/95
DATE RECEIVED: 03/14/95
DATE EXTRACTED: 03/23/95
DATE ANALYZED: 03/25/95
DATE REPORTED: 03/28/95
BATCH NO: 19624

Extractable Petroleum Hydrocarbons in Aqueous Solutions
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT (ug/L)
120339-001	MW-6	ND	ND	50
METHOD BLANK	N/A	ND	ND	50

ND = Not detected at or above reporting limit. Reporting limit applies to all analytes.

QA/QC SUMMARY: MS/MSD of 120285-007

RPD, %	5
RECOVERY, %	84

Curtis & Tompkins, Ltd.

VERBAL ADDITIONS/CANCELLATIONS TO ANALYSIS REQUEST SHEET

Client: SCI Date: 3/21

Requested By: Fernando Veley Time: ____ AM 1550 PM

Recorded By: MBp

Current Lab ID (Previous Lab ID)	Client ID	Circle Matrix	Specify add or cancel	Analysis	Due Date
120339-001 (126253-004)	MW-6	(water) soil waste oil other	+	BTXE TEH	3/28
( )		water soil waste oil other			
( )		water soil waste oil other			
( )		water soil waste oil other			
( )		water soil waste oil other			
( )		water soil waste oil other			

coulter

GROUNDWATER DEPTHS

Project Name: Coulter Steel

Job No.: 727.001

Measured by: DWA

Well	Date	Time	Groundwater Depth (feet)	Comments
MW-3	3/9/95	11:43 a.m.	8.86'	
MW-4	↓	11:30 a.m.	8.72'	
MW-5	↓	11:23 a.m.	7.33'	
MW-6	↓	11:36 a.m.	11.02'	
MW-8	↓	11:55 a.m.	7.82'	

WELL SAMPLING FORM

Project Name: Coulter Steel Well Number: MW-3

Job No.: 727.001 Well Casing Diameter: 2 inch

Sampled By: DWA Date: 3/13/95

TOC Elevation: _____ Weather: cloudy

Depth to Casing Bottom (below TOC) 30.00 feet

Depth to Groundwater (below TOC) 8.86 feet

Feet of Water in Well 21.14 feet

Depth to Groundwater When 80% Recovered 13.09 feet

Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 3.5 gallons

Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other

Free Product none

Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2	6.97	59.4	1035		murky / slight odor
4	6.89	60.8	1125		
6	6.91	60.4	1175		
8	6.90	60.9	1185		
10	6.76	59.6	1220		

Total Gallons Purged _____ gallons

Depth to Groundwater Before Sampling (below TOC) 13.09 feet

Sampling Method disposable bailer

Containers Used 3 (40 ml) | 1 (liter) | _____ (pint)

Subsurface Consultants

JOB NUMBER | DATE | APPROVED

PLATE

WELL SAMPLING FORM

Project Name: Coulter Steel Well Number: MW-4

Job No.: 727.001 Well Casing Diameter: 2 inch

Sampled By: DWA Date: 3/13/95

TOC Elevation: _____ Weather: cloudy.

Depth to Casing Bottom (below TOC) 22.00 feet

Depth to Groundwater (below TOC) 8.72 feet

Feet of Water in Well 13.28 feet

Depth to Groundwater When 80% Recovered 11.38 feet

Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.17 gallons

Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other

Free Product none

Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1	7.64	58.5	315		milky/slight odor w/sheen
3	7.62	58.5	375		
5	6.80	59.8	825		
7	6.74	60.2	1000		

Total Gallons Purged 7 gallons

Depth to Groundwater Before Sampling (below TOC) 11.38' feet

Sampling Method disposable bailer

Containers Used 3 (40 ml) / 1 (liter) / _____ (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: Coulter Steel
Well Number: MW-5
Job No.: 727.001
Well Casing Diameter: 2 inch
Sampled By: DWA
Date: 3/13/95
TOC Elevation:
Weather: cloudy

Depth to Casing Bottom (below TOC) 19.50 feet
Depth to Groundwater (below TOC) 7.33 feet
Feet of Water in Well 12.17 feet
Depth to Groundwater When 80% Recovered 9.76 feet
Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.0 gallons
Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other
Free Product none
Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
0	7.16	59.5	2150		clear/slight odor w/sheen
2	7.13	59.1	885		murky
4	6.77	59.3	1025		clear
6	6.78	59.4	1025		↓

Total Gallons Purged 6 gallons
Depth to Groundwater Before Sampling (below TOC) 9.63' @ 1:15 p.m. on 3/14/95 feet
Sampling Method disposable bailer
Containers Used 3 (40 ml) | 1 (liter) | (pint)

Subsurface Consultants

JOB NUMBER | DATE | APPROVED | PLATE

WELL SAMPLING FORM

Project Name: Coulter Steel Well Number: MW-6

Job No.: 727.001 Well Casing Diameter: 2 inch

Sampled By: DWA Date: 3/13/95

TOC Elevation: _____ Weather: cloudy

Depth to Casing Bottom (below TOC) 28.50 feet

Depth to Groundwater (below TOC) 11.02 feet

Feet of Water in Well 17.48 feet

Depth to Groundwater When 80% Recovered 14.52 feet

Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.85 gallons

Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other

Free Product none

Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
2	7.70	59.8	1120		murky/no odor
4	7.45	60.2	1105		
6	7.42	59.8	1095		
8	7.31	59.8	1075		

Total Gallons Purged 9 gallons

Depth to Groundwater Before Sampling (below TOC) 14.52' feet

Sampling Method teflon bailer

Containers Used 3 (40 ml) 1 (liter) _____ (pint)

Subsurface Consultants

JOB NUMBER DATE APPROVED PLATE

WELL SAMPLING FORM

Project Name: Coulter Steel Well Number: MW-8

Job No.: 727.001 Well Casing Diameter: 2 inch

Sampled By: DWA Date: 3/13/95

TOC Elevation: _____ Weather: cloudy

Depth to Casing Bottom (below TOC) 21.00 feet

Depth to Groundwater (below TOC) 7.82 feet

Feet of Water in Well 13.18 feet

Depth to Groundwater When 80% Recovered 10.46 feet

Casing Volume (feet of water x Casing DIA ^{2} x 0.0408) 2.15 gallons

Depth Measurement Method Tape & Paste / (Electronic Sounder) / Other

Free Product none

Purge Method disposable bailer

FIELD MEASUREMENTS

Gallons Removed	pH	Temp (°F)	Conductivity (micromhos/cm)	Salinity S%	Comments
1	7.97	61.7	950		clear/no odor
3	7.67	61.7	975		"
5	7.37	61.7	1000		"
7	7.26	61.8	1025		"

Total Gallons Purged 7 gallons

Depth to Groundwater Before Sampling (below TOC) 8.43' feet

Sampling Method teflon bailer

Containers Used 3 (40 ml) | 1 (liter) | _____ (pint)

Subsurface Consultants	JOB NUMBER	DATE	APPROVED	PLATE