COULTER STEEL & FORGE COMPANY

Special Metals in Bars and Forgings - Tool Steels

1494 - 67TH STREET
P.O. BOX 8008, EMERYVILLE, CA 94662-0901
TELEPHONE 510-420-3500 FAX 510-420-3555

October 6, 1993

Ms. Susan Hugo
Hazardous Materials Specialist
Alameda County Health Care Services Agency
80 Swan Way, Suite 200
Oakland, California 94621

Reference: Work Plan for additional well installation
Supplemental Groundwater Investigation and
quarterly Groundwater Monitoring
Diesel tank area
722 Folger Avenue
Emeryville, California

Dear Ms. Hugo:

Enclosed is the Work Plan prepared by Subsurface Consultants Inc. including installation of an additional upgradient monitoring well. We reiterate our desire to back fill before the rainy days to avoid rain water accumulation in the pit, erosion and run off. Please advise as soon as possible.

Very truly yours,

Dante A. Sambajon
Plant Engineer

DAS:mn
Enclosure

James P. Bowers, PE
R. William Rudolph, Jr., PE

93 OCT -7 PM 12:38

October 4, 1993
SCI 727.001

Mr. Dante Sambajon
Coulter Steel's Forge Company
1494 67th Street
Emeryville, California 94662-0901

Work Plan
Supplemental Groundwater Investigation and
Quarterly Groundwater Monitoring
Diesel Tank Area
722 Folger Avenue
Emeryville, California

Dear Mr. Sambajon:

Presented herein is a Work Plan developed by Subsurface Consultants, Inc. (SCI) to install an additional upgradient monitoring well and perform quarterly groundwater monitoring at the subject site. Four monitoring wells have been installed and periodically monitored during SCI's study of releases from the former diesel tank. Dissolved diesel has been detected in three of the wells since monitoring began in May 1992. The plume is believed to be relatively localized around the previous tank site. Well locations are shown on Plate 1. A summary of groundwater elevation data is presented in Table 1. A summary of groundwater contaminant concentrations is presented in Table 2.

Soil remediation activities have involved excavation and on-site bioremediation. Approximately 880 cubic yards of soil have been removed to date. Based on our observations made during excavation and a review of soil boring samples it appears that contaminated soil still exists in discontinuous permeable zones at the groundwater surface. The approximate excavation limits are shown on Plate 1.

Approximately 350 cubic yards of soil were successfully bioremediated to an average concentration of less than 10 mg/kg as TEH and were reused as on-site fill following approval from the ACHCSA. Presently bioremediation is near completion for an additional 530 cubic yards.

Subsurface Consultants, Inc.

171 12th Street • Suite 201 • Oakland, California 94607 • Telephone 510-268-0461 • FAX 510-268-0137

Proposed Scope of Services

Given that (1) the contaminated soils appear to exist in discontinuous permeable zones near groundwater and (2) groundwater impacts appears minimal and localized we judge that the most appropriate environmental response will be to leave the impacted soils in-place and continue groundwater monitoring. In addition, to assess the extent of the groundwater plume, we proposed that an upgradient well be installed. Details of these tasks are summarized below.

Task 1. Monitoring Well Installation

We judge that the presence of elevated concentrations of diesel in the existing upgradient well MW-5, is the result of its close proximity to the previous tank area. As a result, we judge that the concentration is not representative of actual upgradient conditions. To evaluate upgradient conditions, SCI proposes to install a new monitoring well (MW-7) in the approximate upgradient location shown on Plate 1. Prior to field work, a groundwater protection ordinance permit will be obtained from the Alameda County Flood and Water Conservation District. City permits for the construction of the well in Folger Avenue will also be obtained.

The well will be installed in a test boring drilled using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers. The test boring will be drilled to a depth of approximately 15 feet. Our field engineer/geologist will observe drilling operations, prepare a detailed log of the test boring and obtain undisturbed samples of the materials encountered.

A California Drive Sampler having an outside diameter of 2.5 inches and an inside diameter of 2 inches will be used to obtain soil samples. The number of blows required to drive the sampler the final 12 inches of each 18-inch penetration will be recorded. Drilling and sampling equipment will be thoroughly steam-cleaned prior to each use to reduce the likelihood of cross-contamination between samples.

Soil from each sampling interval will be field tested for organic vapors using a photo-ionization detector (PID). Selected soil samples will be retained in 2.0-inch-diameter brass liners. Teflon sheeting will be placed over the ends of the soil liners prior to capping and sealing with tape. The sealed liners will be placed in coolers and remain refrigerated until delivery to the analytical laboratory. Soil cuttings generated during drilling will be stockpiled on-site for later disposal by others.

At the completion of drilling, a monitoring well will be installed in the test boring. In general, the well will consist of 2-inch-diameter Schedule 40 PVC pipe having flush-threaded joints. The pipe will be steam-cleaned prior to being placed in the borehole. The lower 10 feet of the well will consist of machine-slotted well screen having 0.02-inch slots. The remaining portion of the well will consist of blank pipe. The well will be provided with a bottom cap and a locking top cap. The well screen will be encased in a filter composed of Lonestar No. 3 washed sand. The filter sand will be placed by carefully pouring it through the annulus between the borehole and the well casing. The filter will extend from just below the bottom of the well to at least one foot above the top of the screened section. A one-foot thick bentonite pellet seal will be placed above the sand filter. The bentonite pellets will be hydrated using de-ionized water. The annulus above the seal will be backfilled with cement grout, consisting of portland cement mixed with clean water. The monitoring well will be completed below grade and protected by a traffic-rated valve box. A level survey of the top of casing (TOC) will be performed using the same datum used for the existing wells.

The well will be developed after the grout seal is allowed to set up. Development will consist of pumping or bailing until the water runs relatively clear. Well development water will be placed in 55-gallon drums and stored on-site for later disposal by others.

Task 2. Groundwater Monitoring

Upon completion of the upgradient well, we propose to implement groundwater monitoring. The groundwater monitoring program will involve (1) measuring groundwater levels in all 5 wells and (2) sampling and analyzing groundwater from three (3) selected wells on a quarterly basis. Initially, the three selected wells will include MW-3, MW-6 and MW-7. We propose to not sample wells MW-4 and MW-5, since wells MW-6 and MW-7 represent further downgradient and upgradient conditions, respectively.

Prior to sampling, the depth to groundwater will be measured below each well top of casing and the direction and gradient of groundwater flow in the area will be determined. The wells will then be checked for free floating product using a steel tape and petroleum product sensitive paste. The three selected wells will then be purged of at least 3 well volumes of water using a bailer or a pneumatic pump, depending on the rate of recharge. Measurements of water pH, conductivity and temperature will be made during purging. Well purge water will be stored in 55-gallon drums which will be left on-site for later disposal by others.

Once the wells recharge to within 80 percent of their initial volume they will be sampled using a precleaned sampling device. The samples will be retained in containers precleaned by the supplier and refrigerated until delivery to the analytical laboratory.

The well samples and one selected soil sample from Boring MW-7, will be submitted to a State of California Department of Health Services analytical laboratory for testing. Sample handling will be recorded using Chain-of-Custody documents. The testing program will include:

1. Total extractable hydrocarbons (TEH, EPA Methods 3550/8015), and

2. Benzene, toluene, ethylbenzene and xylene (BTEX EPA Methods 5030/8020).

The results of each monitoring event will be summarized in a letter report which will include a discussion of field services, analytical test reports and Chain-of-Custody documents. In addition, the initial report will include a discussion of Well MW-7's installation and a boring log. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Jeriann Alexander

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

R. William Rudolph

R. William Rudolph
Geotechnical Engineer 741 (expires 12/31/96)

JNA:RWR:sld

Attachments: Table 1 - Groundwater Elevation Data
Table 2 - Analytical Test Results in Groundwater
Plate 1 - Site Plan

Table 1.
Groundwater Elevation Data

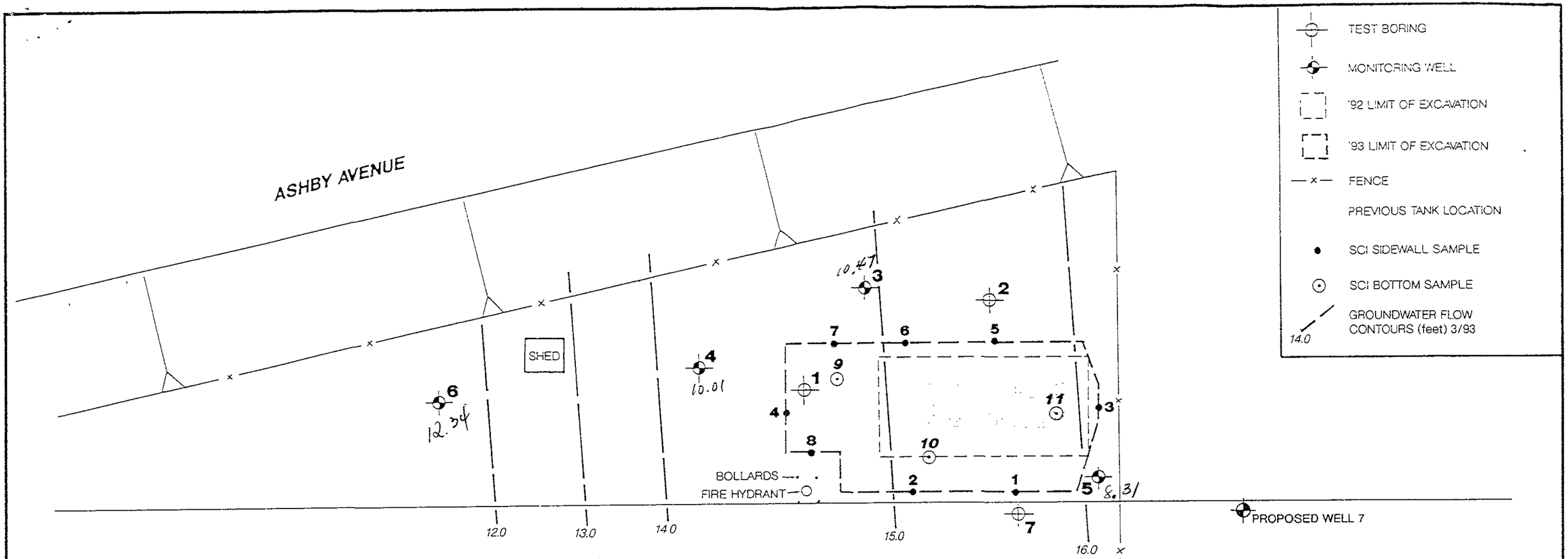
Well	TOC Elevation[1] (feet)	Date	Groundwater Depth[2] (feet)	Groundwater Elevation (feet)
MW-3	24.70	5/15/92	11.15	13.55
		7/01/92	11.60	13.10
		8/18/92	12.00	12.70
		3/04/93	9.79	14.91
		6/08/93	10.47	14.23
MW-4	23.92	5/15/92	10.00	13.92
		7/01/92	11.26	12.66
		8/18/92	11.58	12.34
		3/04/93	9.39	14.53
		6/08/93	10.01	13.91
MW-5	23.85	5/15/92	10.52	13.33
		7/01/92	9.93	13.92
		8/18/92	9.24	14.61
		3/05/93	7.72	16.15
		6/08/93	8.31	15.54
MW-6	22.98	5/15/92	12.46	10.52
		7/01/92	12.96	10.02
		8/18/92	13.42	9.56
		3/04/93	11.60	11.38
		6/08/93	12.34	10.64

[1] Reference datum is City of Berkeley Survey Monument on Folger Avenue as shown on Site Plan
[2] Measured below top of casing

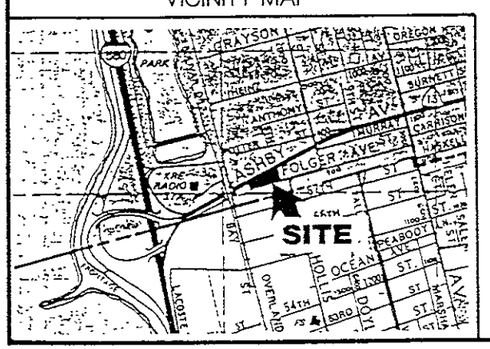
Table 2.
TEH and BTEX Concentrations in Groundwater

Sample	Date	TEH ug/l[1]	B ug/l	T ug/l	E ug/l	X ug/l
MW-3	5/18/92	**100**	<0.5	<0.5	<0.5	**2.5**
	8/18/92	<50	<0.5	<1.0	<0.5	<0.5
	3/04/93	<50	<0.5	<0.5	<0.5	<0.5
	6/08/93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	5/18/92	**10,000**	<0.5	<0.5	<0.5	**4.0**
	8/18/92	**300**	<0.5	<1.0	<0.5	<0.5
	3/04/93	<50	<0.5	<0.5	<0.5	<0.5
	6/08/93	**190**	<0.5	<0.5	<0.5	<0.5
MW-5	5/18/92	**510**	<0.5	<1.0	<0.5	<0.5
	8/18/92	<50	<0.5	<1.0	<0.5	<0.5
	3/05/93	**1,400**	<0.5	<0.5	<0.5	<0.5
	6/08/93	**1,300**	<0.5	<0.5	<0.5	<0.5
MW-6	5/18/92	<50	<0.5	<0.5	<0.5	**2.0**
	8/18/92	<50	<0.5	<1.0	<0.5	<0.5
	3/04/93	<50	<0.5	<0.5	<0.5	<0.5
	6/08/93	<50	<0.5	<0.5	<0.5	<0.5

[1] ug/l= micrograms per liter, parts per billion



VICINITY MAP



1494 67th STREET WAREHOUSE

722 FOLGER AVENUE

APPROXIMATE SCALE (feet)

0 20 40

Subsurface Consultants

SITE PLAN

722 FOLGER AVENUE – BERKELEY, CA

JOB NUMBER	DATE	APPROVED
727.001	10/1/93	

PLATE 1