File No. 10-91-483-MW

PROPOSED WORK PLAN FOR
WEYERHAEUSER PAPER COMPANY'S PROPERTY
LOCATED AT 1801 HIBBARD STREET
ALAMEDA, CALIFORNIA
OCTOBER 15, 1991

PREPARED FOR:
WEYERHAEUSER PAPER COMPANY
1801 HIBBARD STREET
P.O. BOX DRAWER X
ALAMEDA, CALIFORNIA 94501

BY:
SOIL TECH ENGINEERING, INC.
298 BROKAW ROAD
SANTA CLARA, CALIFORNIA 95050

SOIL TECH ENGINEERING, INC.

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SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

October 15, 1991

File No. 10-91-483-MW

Weyerhaeuser Paper Company
1801 Hibbard Street
P.O. Box Drawer X
Alameda, California 94501

ATTENTION: MR. STEVE MINDT

SUBJECT: PROPOSED WORK PLAN FOR THE SUBJECT SITE
Located at 1801 Hibbard Street, in
Alameda, California

Dear Mr. Mindt:

We have prepared the enclosed work plan at your request and as a requirement of the Alameda County Environmental Health Department (ACEHD). This work plan should be submitted to the ACEHD, Regional Water Quality Control Board (RWQCB), and the City of Alameda Fire Department (AFD).

The proposed work plan includes the drilling and installation of three monitoring wells, well development and sampling, laboratory analysis and preparation of a technical report.

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Upon approval of this work plan by the above-mentioned agencies, Soil Tech Engineering, Inc. (STE), will initiate the activities. A summary report will be prepared 3 weeks after receipt of laboratory analysis results.

If you have any questions or need modifications to the work plan, please call our office at your convenience.

Sincerely,

SOIL TECH ENGINEERING, INC.

for Diep Nguyen
LYNETTE SMITH
ENVIRONMENTAL EDITOR

LAWRENCE KOO, P. E.
C. E. #34928

FRANK HAMEDI-FARD
GENERAL MANAGER

File No. 10-91-483-MW

PROPOSED WORK PLAN FOR
SUBSURFACE INVESTIGATION
1801 HIBBARD STREET
ALAMEDA, CALIFORNIA

This report outlines a work plan to evaluate the lateral and vertical extent of petroleum hydrocarbon contamination of the subject site located at 1801 Hibbard Street, Alameda, California (Figure 1). This plan was prepared in accordance with the requirements of the Alameda County Health Department and the Regional Water Quality Control Board (RWQCB), and should be submitted to these agencies as well as to the City of Alameda Fire Department.

BACKGROUND:

On February 7, 1991, four underground tanks were removed from the property by Minter and Fahy Construction. The tanks were located near the warehouse building and sheds (Figure 2). Following the tank removal, soil analytical results showed high levels of Total Petroleum Hydrocarbons as gasoline (TPHg) ranging from 220 to 3,000 milligrams per kilogram (mg/Kg). Levels of Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) ranged from 0.038 to 43 mg/Kg.

A water sample, taken from the diesel tank excavation on February 25, 1991, showed TPH as diesel (TPHd) at 3.6 mg/Kg. After the sampling and analysis, the water was pumped and disposed of, and the excavated area was backfilled.

On February 27 and 28, additional excavation was done in the gasoline tank area. Soil sampling of the sidewalls showed TPHg ranging from 43 to 2,600 mg/Kg. BTEX levels ranged from 0.006 to 25 mg/Kg. In addition, moderate levels of Total Oil and Grease (TOG) and selected metals were detected. The water sample that was also taken at this time showed levels of TPHg, TPHd, BTEX, TOG, and selected metals.

Since the February 28 samples contained levels of hydrocarbon constituents, three additional feet of soil were removed, and more soil and water samples were taken. At this time, levels of all constituents were greatly reduced. After analysis, the contaminated water was pumped and disposed of. As a result of the additional excavation, the sidewalls were too close to the buildings to allow further excavation, so the hole was backfilled and resurfaced pending the installation of monitoring wells.

← Reduced to what levels?

SCOPE OF WORK:

The following is the proposed scope of work for conducting a preliminary subsurface investigation to assess the vertical and lateral extent of fuel hydrocarbons in the soil and groundwater by

drilling and installing three monitoring wells, soil sampling, developing and sampling the wells, performing laboratory analysis and preparing a technical report, which will include findings and recommendations.

Well installation, well development and soil and groundwater sampling will be conducted in accordance with state and local guidelines and STE's Standard Operating Procedures (SOP), which are attached to this proposal.

The proposed scope of work includes the following tasks:

1. Prepare a Health and Safety Plan.
2. Obtain permits and underground utility clearance.
3. Drill and install three monitoring wells.
4. Develop and sample wells.
5. Measure groundwater elevation.
6. Analyze samples at a state-certified laboratory.
7. Review data and prepare a technical report.

DESCRIPTION OF TASKS:

1. Prepare a Health and Safety Plan

As required by OSHA, a site Health and Safety Plan will be developed prior to starting the proposed on-site activities. The

Health and Safety Plan will incorporate safeguards against chemical and physical hazards associated with drilling and sampling activities. The Health and Safety Plan will be included as part of the general health and safety program for the project, and STE staff working on-site will be required to read and adhere to this plan. The project engineer will be responsible for implementing the Health and Safety Plan.

2. Obtain Permits and Utility Clearance

Well drilling permits will be obtained, as required, from the Alameda County Water District for the installation of the proposed monitoring wells. Utilities at the site will be identified by a utility locating service.

3. Drill and Install Three Monitoring Wells

Three monitoring wells will be drilled using the hollow-stem auger drilling equipment. The locations of the proposed monitoring wells are shown in Figure 2. The actual depths of the monitoring wells will be determined in the field based on the depth to groundwater and the types, depths and thicknesses of sediments encountered.

Soil samples will be collected at 5-foot intervals from the borings for lithologic description. Selected soil samples will also be retained for possible chemical analysis for petroleum

hydrocarbons. Samples for chemical analysis will be collected in clean brass liners using a Modified California Sampler. These samples will be immediately sealed and placed in chilled coolers for transport to the laboratory with the proper chain-of-custody attached. Soil samples will be analyzed for Total Petroleum Hydrocarbons as gasoline and/or diesel (TPHg and TPHd), Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX).

Drill cuttings generated during well installation will be stored on-site in 55-gallon drums pending disposal at an approved disposal site.

4. Develop and Sample Wells

The installed monitoring wells will then be developed by pumping, surging and/or bailing to remove fine particles near the well screen and to improve hydraulic communication with the surrounding formations. Water clarity, pH, temperature, specific conductance and volume extracted will be measured during the development process to gauge its progress.

Groundwater sampling will involve pumping and/or bailing approximately three to five well-casing volumes of water out of the wells prior to sampling. Water clarity, pH, specific conductance, temperature and volume extracted will be measured during purging to determine when to sample, as applicable.

Groundwater samples will be collected using a Teflon bailer. Samples will be transferred into 40-ml VOA vials with Teflon septa and 1-liter, amber-colored, glass bottles. The samples will be stored in a chilled cooler for delivery to the laboratory with chain-of-custody records attached. Groundwater samples will be analyzed for TPH and BTEX.

5. Measure Groundwater Elevation

The newly installed wells will be surveyed to the nearest 0.01 foot by using a local benchmark to allow accurate groundwater elevation measurements.

Water level measurements for the monitoring wells will be recorded in order to evaluate shallow groundwater flow direction and gradients.

6. Analyze Samples at a Laboratory

All soil and water samples will be analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX) per EPA modified Methods 8015 and 8020. In addition, soil and water samples may be analyzed for Total Oil and Grease (TOG) per EPA Method 503-D and for TPH as diesel (TPHd).

7. Review Data and Prepare a Technical Report

A report will be prepared summarizing the field data, assessments and recommendations for additional investigations or alternative remedial actions, if deemed necessary.

The report will describe the types of geologic materials encountered, the occurrence, concentrations and distribution of petroleum hydrocarbons and related compounds in the soil and groundwater, and interpretations concerning hydrogeologic conditions at the site. The report will also contain lithologic logs prepared during drilling activities, including well construction design, geologic cross sections, chemical analysis data and other documentation.

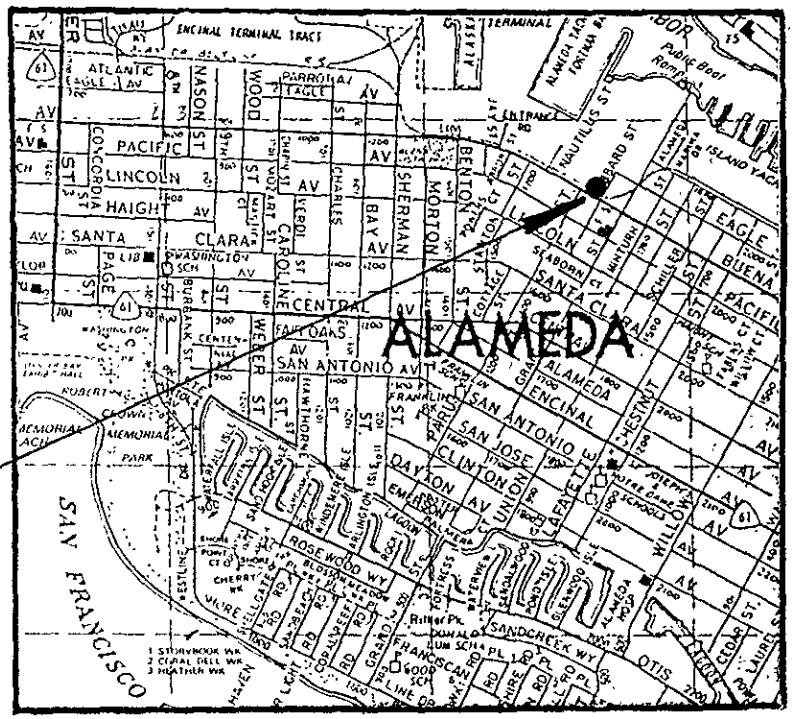
SCHEDULE:

The estimated schedule for completing the activities described in this plan is anticipated to be approximately seven weeks after installing the wells. STE can begin scheduling the activities within one week after this work plan is approved by you, the Alameda County Environmental Health Department, and the other agencies.

File No. 10-91-483-MW

A P P E N D I X "A"

SOIL TECH ENGINEERING, INC.



Thomas Brothers Map 1982 Edition
Alameda - Contra Costa Counties

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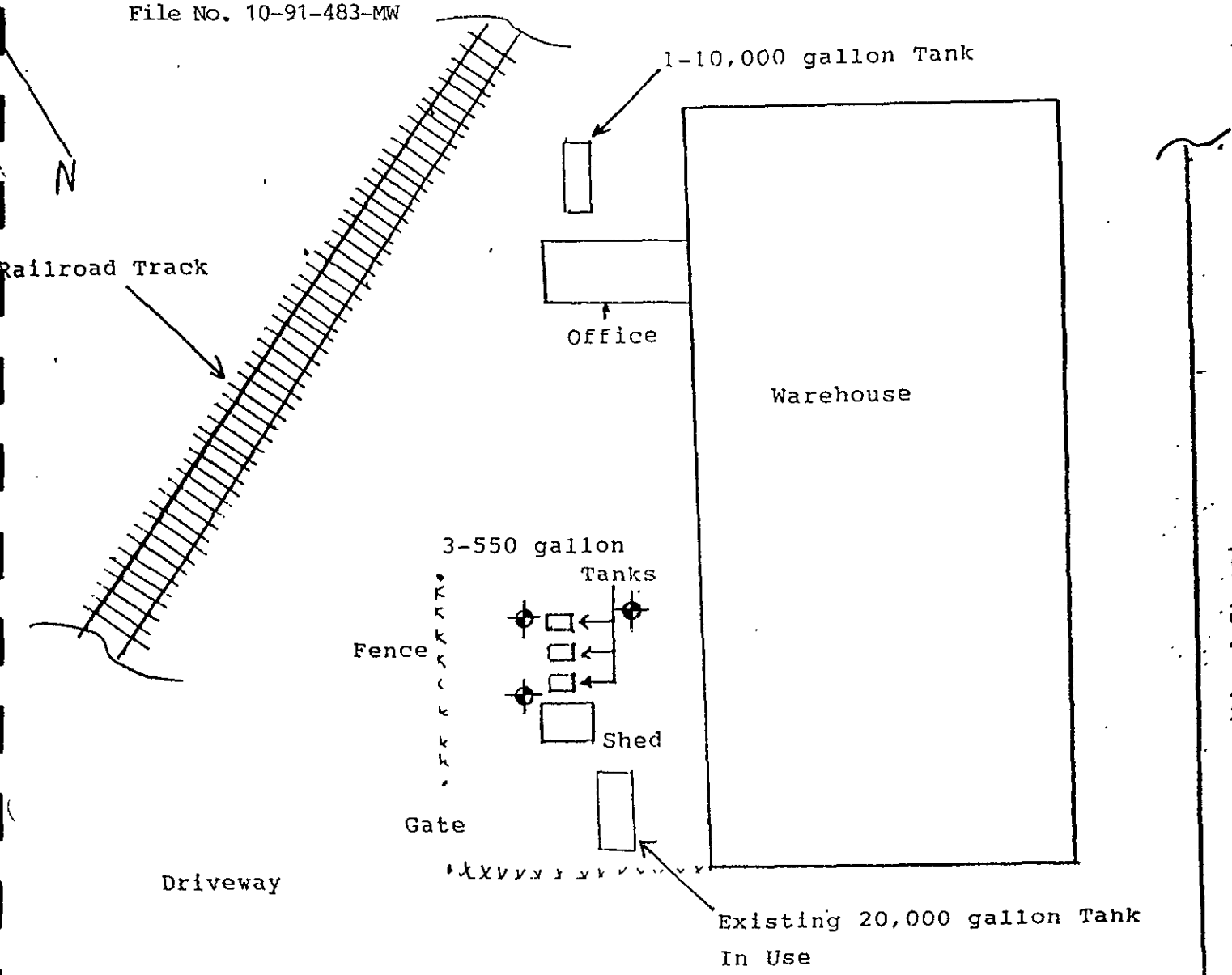
Figure 1



PROPOSED MONITORING WELL

Plot Plan:

Weyerhaeuser Paper Co.
1801 Hibbard Street
Alameda, CA 94501

Tank Removal:

3-550 Gallon Tanks

1-10,000 Gallon Tank

Figure 2

File No. 10-91-483-MW

A P P E N D I X "B"

SOIL TECH ENGINEERING, INC.

File No. 10-91-483-MW

DRILLING AND SOIL SAMPLING PROCEDURE

A truck mounted drill rig, using a continuous, solid-flight, hollow stem auger will be used in drilling soil borings to the desired depths.

Prior to drilling, all drilling equipment (i.e. auger, pin, and drilling head) will be thoroughly steam-cleaned to minimize the possibility of cross-contamination and/or vertical migration of possible contaminants.

In addition, prior to obtaining each individual soil sample, all sampling tools, including the split-spoon sampler and brass liners will be thoroughly washed in a Tri-Sodium Phosphate (TSP) solution followed by a rinse in distilled water.

During the drilling operation, relatively undisturbed soil samples will be taken from the required depth by forcing a 2-inch I.D., split-spoon sampler insert with a brass liner into the ground by means of a 140-lb. hammer, falling 30-inches or by hydraulic forces, at various depths.

The samplers will contain relatively undisturbed soil. In general, the first section of soil from the sampler (shoe) will be used in the field for lithologic inspection and evidence of contamination. The selected brass liner will be immediately trimmed, and the ends of the brass liner will be covered tightly with aluminum foil and plastic caps, sealed with tape, labeled,

placed in a plastic bag and store in an ice chest on blue ice in order to minimize the escape of any volatiles present in the samples. Soil samples for analysis are subsequently sent to a State Certified Hazardous Waste Laboratory accompanied by a chain-of-custody record.

Soil samples collected at each sampling interval will be inspected for possible contamination (odor or peculiar colors). Soil vapor concentrations are measured in the field by using Photoionization Detector (PID), PhotoVac-Tip Air Analyzer. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The soil sample is sealed in a zip-lock plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The data is recorded on the drilling log at the depth corresponding to the sampling point.

Other soil samples may be collected to document the stratigraphy and estimate relative permeability of the subsurface materials.

Soil tailings obtained during drilling will be stored on-site in steel drums, pending the analytical test results, for proper disposal.

SOIL TECH ENGINEERING
Soil, Foundation and Geological Engineers
298 BROKAW ROAD, SANTA CLARA, CA 95050

File No. _____

Date _____

By _____

Job _____

Site Description _____ (continued on reverse side)

Type of Drill Rig _____ Hole Dia. _____

(NOTE WATER LEVEL, TIME, DATE AT END OF LOG, CAVING, ETC.)

Elev. _____ Datum _____

Sample Quality	Blows/6 Inches	Sample Loc.	Sample No.	Depth		Soil Classification	Penetrometer
				1			
				2			
				3			
				4			
				5			
				6			
				7			
				8			
				9			
				0			
				1			
				2			
				3			
				4			
				5			
				6			
				7			
				8			
				9			
				0			
				1			

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MONITORING WELL INSTALLATION

Prior to well installation, all the necessary permits will be obtained from the local regulatory agencies.

The boreholes for monitor wells are drilled with the diameter at least two inches larger than the casing outside diameter (O.D.).

Monitor wells will be cased with threaded factory perforated and blank, schedule 40 P.V.C. The perforated interval consists of slotted casing, generally 0.010 to 0.040 inch wide by 1.5 inch long slots, with 42 slots per foot (slots which match formation grain size as determined by field grain-size distribution analysis), a P.V.C. cap is fastened to the bottom of the casing (no solvents, adhesive, or cements are used). The well casing is thoroughly washed and steam-cleaned.

After setting the casing inside the borehole, kiln dried sand or gravel filter-material is poured into the annular space from the bottom of the boring to 2 feet above the perforated interval. A 1 to 2-feet thick bentonite plug will be placed above this filter material to prevent grout infiltration into the filter material. Approximately 1 to 2 gallons of distilled water will be added to hydrate the bentonite pellets. The well is then sealed from the top of the bentonite seal to the surface with concrete or neat cement (containing about 5% bentonite) (see Well Construction Detail).

For protection from vandalism and surface water contamination, Christy boxes with a special type of Allen screw are installed around the well head, (for wells in parking lots, drive-ways and building areas). Steel stovepipes with padlocks are usually set over well heads in landscaped areas.

In general, groundwater monitoring wells shall extend to the base of the upper aquifer, as defined by the consistent (less than 5 feet thick) clay layer below the upper aquifer, or at least 10 to 15 feet below the top of the upper aquifer, whichever is shallower. The wells shall not extend through the laterally extensive clay layer below the upper aquifer. The wells shall be terminated 1 foot to 2 feet into such a clay layer.

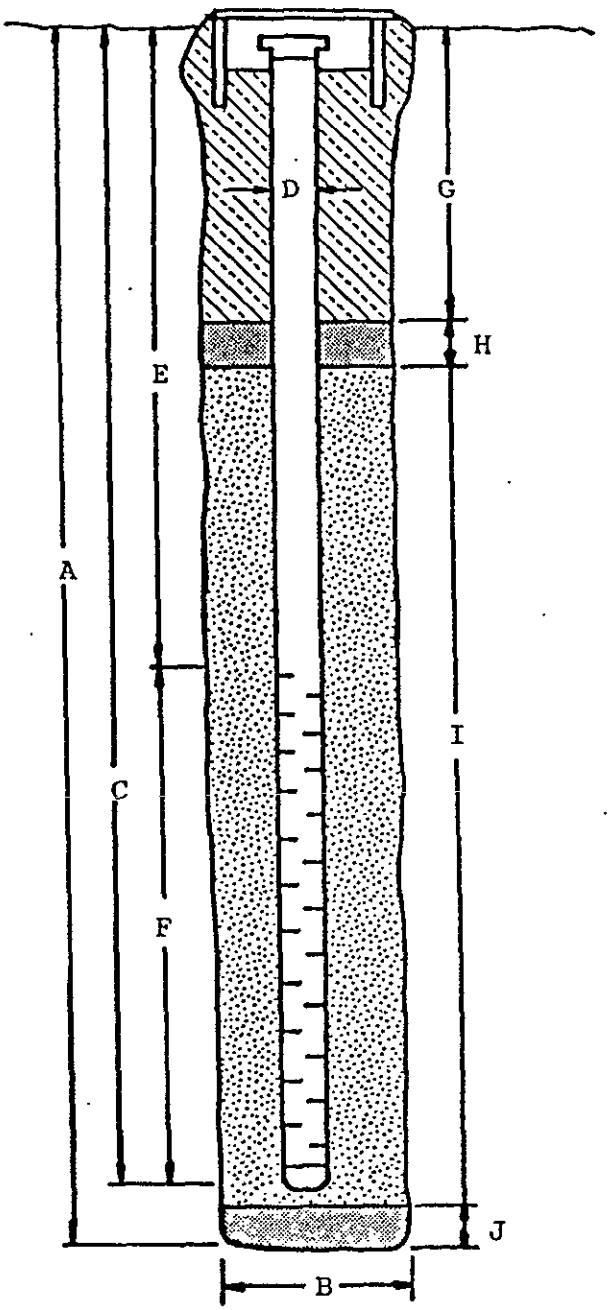
WELL DETAILS

PROJECT NAME:_____ BORING/WELL NO._____

PROJECT NUMBER:_____ CASING ELEVATION:_____

WELL PERMIT NO.:_____ SURFACE ELEVATION:_____

G-5 Vault Box



A. Total Depth:_____

B. Boring Diameter:_____

Drilling method:_____

C. Casing Length:_____

Material:_____

D. Casing Diameter:_____

E. Depth to Perforations:_____

F. Perforated Length:_____

Perforated Interval:_____

Perforation Type:_____

Perforation Size:_____

G. Surface Seal:_____

Seal Material:_____

H. Seal:_____

Seal Material:_____

I. Gravel Pack:_____

Pack Material:_____

Size:_____

J. Bottom Seal:_____

Seal Material:_____

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WELL DEVELOPMENT AND WATER LEVEL MEASUREMENTS

For all newly-installed groundwater monitoring wells, the well casing, filter pack and adjacent formation shall be cleared of disturbed sediment and water.

Well development techniques will include pumping, bailing, surging, swabbing, jetting, flushing and air lifting by using a stainless steel or Teflon bailer, submersible stainless steel pump, or air lift pump. The well development will continue until the groundwater appears to be relatively free of fine-grained sediments and/or until field measurements of pH, electrical conductivity and temperature stabilize.

To assure that cross-contamination does not occur between wells, all well development tools be thoroughly washed in a Tri-Sodium Phosphate (TSP) solution followed by a rinse in distilled water or steam-cleaned before each well development.

Subsequent to well installation, the well(s) will be surveyed to the nearest benchmark to an accuracy of 0.01 feet, in order to accurately measure the groundwater elevation. The depth to the static water surface in all wells will be measured monthly.

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 866-0919 ■ (415) 791-6406

MONITORING WELL SURVEY SHEET

NAME: _____ DATE: _____

FACILITY NAME AND ADDRESS: _____

_____

DATE WELLS SURVEYED: _____

FIELD ACTIVITIES

	RUN 1		RUN 2		RUN 3	
WELL NUMBER	ROD READING	RIM ELEVATION	ROD READING	RIM ELEVATION	ROD READING	RIM ELEVATION

WARNING: HAVE YOU SURVEYED ALL WELLS? LOCATED ALL WELLS?

HAVE YOU CHECKED FOR AND SURVEYED EXISTING MONITORING WELLS ON ADJACENT PROPERTIES OR PROPERTIES ACROSS THE STREET?

DO WE HAVE ACCURATE SKETCHES AT 1"=30' (AND 1"=100' IF NECESSARY)? IF NOT, MAKE THEM.

\SURVEY

File No. 10-91-483-MW

GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc...) are cleaned by pumping TSP water solution followed by distilled water.

Prior to purging the well, "Water Sampling Field Survey Forms" will be filled out (depth to water level and total depth of well and well casing volume calculated). The well will be then bailed or pumped to remove four to ten well-volumes or until the discharged water temperature, conductivity and pH stabilize. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample will be collected when the water level in the well recovers to 80% of its static level.

Forty milliliter (ml.) glass Volatile Organic Analysis (VOA) vials with Teflon septa will be used as sample containers. The groundwater sample will be decanted into each VOA vial in such a manner that no air space is present. The cap is quickly placed over the top of the vial and securely tightened. The groundwater sample will be labeled and refrigerated for delivery with proper chain-of-custody to the laboratory. Chain-of-custody information should include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

In general, a laboratory-cleaned bailer will be used for each monitoring well sampled.

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Soil, Foundation and Geological Engineers

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WELL MONITORING/SAMPLING

Name:_____ Date:_____

FACILITY NAME AND ADDRESS:_____

_____

DATE WELLS DEVELOPED:_____

FIELD ACTIVITIES

DEVELOPING MONITORING PURGING (PUMP/BAIL) SAMPLING

WELL NUMBER	WELL DEPTH	WATER DEPTH	PRODUCT THICKNESS	SHEEN PRESENCE	ODOR	VOLUME WATER	PURGED PRODUCT

SKETCH -- REMARKS

Volume of Water in Casing or Hole

Diameter of Casing or Hole (In)	Gallons per foot of Depth	Cubic Feet per Foot of Depth	Liters per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
$1\frac{1}{2}$	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
$2\frac{1}{2}$	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
$3\frac{1}{2}$	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
$4\frac{1}{2}$	0.826	0.1104	10.26	10.26×10^{-3}
5	1.020	0.1364	12.67	12.67×10^{-3}
$5\frac{1}{2}$	1.234	0.1650	15.33	15.33×10^{-3}
6	1.469	0.1963	18.24	18.24×10^{-3}
7	2.000	0.2673	24.84	24.84×10^{3}
8	2.611	0.3491	32.43	32.43×10^{3}
9	3.305	0.4418	41.04	41.04×10^{3}
10	4.080	0.5454	50.67	50.67×10^{3}
11	4.937	0.6600	61.31	61.31×10^{3}
12	5.875	0.7854	72.96	72.96×10^{3}
14	8.000	1.069	99.35	99.35×10^{3}
16	10.44	1.396	129.65	129.65×10^{3}
18	13.22	1.767	164.18	164.18×10^{3}
20	16.32	2.182	202.68	202.68×10^{3}
22	19.75	2.640	245.28	245.28×10^{3}
24	23.50	3.142	291.85	291.85×10^{3}
26	27.58	3.687	342.52	342.52×10^{3}
28	32.00	4.276	397.41	397.41×10^{3}
30	36.72	4.909	456.02	456.02×10^{3}
32	41.78	5.585	518.87	518.87×10^{3}
34	47.16	6.305	585.68	585.68×10^{3}
36	52.88	7.069	656.72	656.72×10^{3}

1 Gallon = 3.785 Liters
1 Meter = 3.281 Feet
1 Gallon Water Weighs 8.33 lbs. = 3.785 Kilograms
1 Liter Water Weighs 1 Kilogram = 2.205 lbs.
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419×10^{3} cubic meters per meter of depth

From Groundwater and Wells, Second Edition

CHAIN OF CUSTODY RECORD

PROJ. NO. | NA[redacted]

SAMPLERS: *(Signature)*

NO.	DATE	TIME	SOIL	WATER	LOCATION	CONTAINER	ANALYSES REQUESTED (2)	REMARKS

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Receive by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 496-0265 OR (408) 496-0266

SAMPLE MANAGEMENT

Sample Type: Soils, Oils, Solvents, Polids, Highly Contaminated Liquids (c)

General Composition	Sample Volume	Sample Container	Preservative	Holding Time (recommended/regulatory)
Weak Acids and Bases		plastic or glass		
Photosensitive materials		amber glass		
Volatile organics		40 ml glass vial with TFE lined septum		
Non-volatile organics		glass with TFE lined cap		
Measurement - General Chemical Categories, Inorganic				
Inorganics, general		plastic or glass		
Metals, total		plastic or glass		
Measurement - General Chemical Categories, Organic				
Acid extractables		glass with TFE lined cap		
Base/neutral extractables		glass with TFE lined cap		
Measurement Specific Chemicals - Inorganic				
Hydrofluoric acid		plastic		
Phosphoric acid		plastic		

SAMPLE MANAGEMENT

Sample Type: Waste

General Composition	Sample Volume	Sample Container	Preservative	Holding Time (d) (recommended/regulatory)
Measurement - Specific Chemicals, Inorganic				
Ammonia			add 1 ml conc H_3PO_4	24 hrs
Arsenic			add 6 ml conc HNO_3/L	6 months
Chlorine			cool 4°C	24 hrs
Chromium VI			add 6 ml conc H_2SO_4/L	24 Hrs
Cyanide, total			add 2.5 ml of 50% NaOH/L, cool 4°C	24 hrs
Fluoride			cool 4°C	7 days
Mercury, total			add 5 ml conc HNO_3L	38 days
Mercury, dissolved			filter, add 5 ml conc HNO_3/L	38 days
Selenius			add 5 ml conc HNO_3/L	6 months
Sulfide			add 2 ml conc HC1/1	24 hrs
Zinc			add 2 ml conc HC1/1	-

Sample Type: Soils, Oils, Solvents, Solids, Highly Contaminated Liquids (c)

Strong acids, pH<2	glass
Strong bases, pH>12.5	plastic

SAMPLE MANAGEMENT

Sample Type: Water and Wastewater

General Composition	Sample Volume	Sample Container	Preservative	Holding Time (d) (recommended/regulatory)
Sulfate	50 ml	plastic or glass	cool 4°C	7 days/28 days
Sulfide	500 ml	plastic or glass	cool 4°C, add 4 drops 2N Zn acetate/100 ml	24 hrs/28 days
Sulfite	50 ml	plastic or glass	determine on site	no holding
Measurement - Specific Chemicals, Organic				
NTA	50 ml	plastic or glass waterline & center	cool 4°C	24 hrs
Measurement - Physical Properties				
Acidity			cool 4°C	24 hrs
Alkalinity			cool 4°C	24 hrs
pH			determine on site	6 hrs
			cool 4°C	
Measurement - General Chemical Categories, Inorganic				
Metals, dissolved			filter on site, add 5 ml conc HNO_3/L	6 months
Metals, total			add 5 ml conc HNO_3/L	6 months
Measurement - General Chemical Categories, Organic				
Phenolics			add H_3PO_4 to pH 4 and 1 g $CuSO_4$/L, cool 4°C	24 hrs

SAMPLE MANAGEMENT

Sample Type: Water and Wastewater

General Composition	Sample Volume	Sample Container	Preservative	Holding Time (d) (recommended/regulatory)
Measurements - Specific Chemicals, Inorganic				
Ammonium	500 ml	plastic or glass	cool, 4°C, add H_2SO_4 to pH<2	24 hr/28 days
Boron	100 ml	plastic	none required	28 days/28 days
Chlorine	200 ml	plastic or glass	determine on site	no holding
Chromium VI	300 ml	plastic or glass, rinse with 1:1 HNO_3	cool, 4°C	24 hrs/28 days
Cyanide, total	500 ml	plastic or glass add NaOH to pH>12	cool, 4°C, dark	24 hrs/14 days
Cyanide, amenable to chlorination	50 ml	plastic or glass	add 100 mg NaS_2O_3	
Fluoride	300 ml	plastic	none required	7 days/28 days
Iodide	100 ml	plastic or glass	cool, 4°C	24 hrs/ -
Iodine	500 ml	plastic or glass	determine on site	1/2 hr/ -
Mercury, total	500 ml	plastic or glass rinsed with 1:1 HNO_3	cool, 4°C add HNO_3 to pH<2	28 days/28 days
Mercury, dissolved	100 ml	plastic or glass	filter on site add HNO_3 to pH<1	glass: 38 days hard plastic: 13 days
Nitrate	100 ml	plastic or glass	cool, 4°C add H_2SO_4 to pH<2	24 hrs/48 hrs
Nitrate & nitrate	200 ml	plastic or glass	cool, 4°C add H_2SO_4	24 hrs/28 days
Nitrate	100 ml	plastic or glass	cool, 4°C or freeze	

SAMPLE MANAGEMENT

Sample Type: Water and Wastewater

General Composition	Sample Volume	Sample Container	Preservative	Holding Time (d) (recommended/regulatory)
Measurement - General Chemical Categories, Organic				
Acid extractables		2 liter glass with TFE lined cap		
Base/neutral extractable		2 liter glass with TFE lined cap		
MBA's	250 ml	plastic or glass	cool, 4°C	24 hr
Oil and Grease	1000 ml	glass, wide mouthed, calibrated	cool, 4°C, H_2SO_4 to pH<2	24 hr/28 days 24 hr/28 days
Organics		glass rinsed with organic solvents, TFE cap		
Phenolics	500 ml	glass		24 hr/28 days
Purgeables by purge and trap	50 ml	glass, TFE lined cap		

SAMPLE MANAGEMENT

Sample Type: Water and Wastewater (a,b,c)

General Composition	Sample Volume	Sample Container	Preservative	Holdin Time (d) (recommended/regulatory)
Nonvolatile organics		2 liter glass with TFE lined cap		
Photosensitive materials		1 liter amber glass		
Volatile organics		40 ml glass vial with TFE lined cap (collect in duplicate)		
Volatile	100 ml	Plastic or glass	cool, 4°C	7 days
Measurement - Physical Properties				
Acidity	100 ml	plastic or borosilicate glass	cool, 4°C	24 hr/14/days
Alkalinity	200 ml	plastic or glass	cool, 4°C	24 hr/14/days
pH	25 ml	plastic or glass	determine on site	2 hr/2 hr
Temperature	1000 ml	plastic or glass	determine on site	no holding
Measurement - General Chemical Categories, Inorganic				
metals, dissolved	200 ml	plastic(g) or glass	filter on site (f)	6 mos (e)
metals, total	100 ml	plastic(g) or glass rinsed with 1:1 HNO_3	HNO_3 to pH<2 (g)	6 mos/6 mos (e)

SOIL TECH ENGINEERING

Soil, Foundation and Geological Engineers

298 BROKAW ROAD, SANTA CLARA, CA 95050 ■ (408) 866-0919 ■ (415) 791-6406

GENERAL FORMAT
SOIL SAMPLING FOR DISPOSAL
and/or
SITE SUPERVISION

REPRESENTATIVE_____ DATE_____

FACILITY NAME AND ADDRESS_____

_____

FACILITY CONTACT/ENGINEER:_____ PHONE:(___)_____

DEALER/OWNER :_____ PHONE:(___)_____

CONTRACTOR :_____ PHONE:(___)_____

FIRE DEPARTMENT :_____ PHONE:(___)_____

COUNTY HEALTH DEPARTMENT :_____ PHONE:(___)_____

STATE AGENCY :_____ PHONE:(___)_____

SOIL DESCRIPTION(Circle one): SANDY SILTY CLAY SANDY/CLAY SILTY/SAND

ODOR DESCRIPTION (Circle one): NONE FAINT MINOR STRONG

SOIL SAMPLING

NUMBER OF COMPOSITE SAMPLES:_____DEPTH SAMPLES TAKEN AT:_____(FT)

NUMBER OF SAMPLES PER COMPOSITE:_____

SITE SUPERVISION

AERATION: DATE PERMISSION OBTAINED FROM BAAQMD:_____

TOTAL VOLUME OF SOIL TO BE AERATED :_____cu.yds.

VOLUME OF SOIL AERATED ON THIS DATE :_____cu.yds.

EXCAVATION: DESCRIBE PURPOSE:_____

_____

_____

APPROXIMATE VOLUME OF SOIL EXCAVATED:_____cu.yds.

_____

REMARKS:_____

_____

_____

File No. 10-91-483-MW

OUTLINE OF DRUM HANDLING PROCEDURES FOR WEYERHAEUSER PAPER COMPANY'S PROPERTY LOCATED AT 1801 HIBBARD STREET ALAMEDA, CALIFORNIA

1. Test material per site-specific test requirements.

2. Classify Material as: Clean/Non-Hazardous.

3. Labeling of Drums:

   * Pending Label: Used to describe material pending final analytical testing. Labels must be immediately affixed to drum during field work.

   * Non-Hazardous Label: Required within 24 hours after analytical results are received.

   * Hazardous Label: Required within 24 hours after analytical results are received.

   * For Pick-Up Label: Must be affixed to drum prior to arranged pick-up date by certified hauler.

4. Remove within 21 days of generation. Empty drums, where material was disposed in bulk, must be removed the same day they are emptied.

5. Disposal of Material:

   * Clean: Any local landfill.

   * Non-Hazardous: Class III landfill.

   * Hazardous: Class I landfill.

SOIL TECH ENGINEERING, INC.

6. Manifests may be signed by the on-site contractor or consultant, owner, or other authorized representatives. The transporter should not sign the manifest.

   It is the responsibility of the contractor, consultant and owner to arrange for a person to sign the manifest on the day of pick-up.

7. Reporting:

   Reports shall include the following:

   * Completed soil and water worksheets.
   * Copy of the analytical results.
   * State how and where material was disposed.
   * If drums are emptied and material was disposed of in bulk, state how empty drums were handled.
   * The signed blue and yellow copies of the hazardous waste manifest.

SOIL:

1. Test Requirements and Methods: Per STE site-specific test requirements.

   * TPH: EPA Method 8015.
   * BTEX: EPA Method 8020.
   * O&G: 503 D&E.
   * Lead:

     -Total Lead - EPA Method 7421.

-Inorganic (soluble) Lead: DOS Title 22, Waste Extraction Test, §22-66700.

-Organic - EPA Method 8240.

* Ignitable:

2. Classification:

* Clean: TPH, BTEX, O&G, VOC and non-detectable (<100 ppm).

* Non-Hazardous if any are true:

-TPH less than 1,000 ppm.

-Lead - Inorganic (soluble) Lead less than 5 ppm (STLC) or less than 100 ppm (TTLC).
- Organic Lead less than 13 ppm (TTLC).

* Hazardous if any are true:

-TPH greater than 1,000 ppm.

-Lead - Inorganic (soluble) Lead greater than 5 ppm (STLC) or greater than 1,000 ppm (TTLC).
- Organic Lead greater than 13 ppm (TTLC).

-Ignitable - If TPH > 1,000 ppm, then conduct Bunsen Burner Test.
- If soil bums vigorously and persistently, soils are RCRA D001.

* VOC - less than 1,000 ppm.

3. Responsibility for Disposal:

* Clean: Consultant, contractor or owner.

* Non-Hazardous: Consultant, contractor or owner.

4. Types of Drums: DOT-17H for a solid, solidified, or sludge material.

5. Disposal Facility:

   * Clean: Any local landfill.

   * Non-Hazardous: Class III or II landfill.

   * Hazardous: Class I landfill.

WATER:

1. Test Requirements and Methods: Per site-specific test requirements.

   * TPH: EPA Method 8015.

   * BTEX: EPA Method 602.

2. Classification:

   * Clean Water: TPH and BTEX non-detectable.

   * Hazardous:

     -Water with dissolved product and detectable TPH and BTEX.

     -Water with free product.

     -Free product only.

3. Responsibility for Disposal:

   * Clean: Consultant/Contractor.

   * Non-Hazardous: Consultant, contractor or owner.

4. Types of Drums: DOT-17C or DOT-17E for liquid or slurry.

5. Disposal Facility:

   * Clean Water: Into sanitary sewer per Local Sewer District approval or into storm sewer with proper approval from Water Board.

   * Non-Hazardous:

     -Water with TPH and BTEX only.

     -Water with free product.

     -Arrange certified waste hauler to pick and dispose.

   * Hazardous:

     -Free product only.

     -Arrange disposal by a certified hazardous waste hauler.

File No. 10-91-483-MW

A P P E N D I X "C"

SOIL TECH ENGINEERING, INC.

File No. 10-91-483-MW

HEALTH AND SAFETY PLAN
FOR
WEYERHAEUSER PAPER COMPANY'S PROPERTY
LOCATED AT 1801 HIBBARD STREET
ALAMEDA, CALIFORNIA

General:

This Health and Safety Plan (HSP) contains the minimum requirements for the subject site field work. The field activities include drilling, soil sampling and water sampling. All personnel and contractors will be required to strictly adhere with this HSP requirements.

The objective of the HSP plan is to describe procedures and actions to protect the worker, as well as unauthorized person, from inhalation and ingestion of, and direct skin contact with potentially hazardous materials that may be encountered at the site. The plan describes (1) personnel responsibilities and (2) protective equipment to be used as deemed when working on the site. At a minimum, all personnel working at the site must read and understand the requirements of this HSP. A copy of this HSP will be on-site, easily accessible to all staff and government field representative.

Hazard Assessment:

The major contaminants expected to be encountered on the project are gasoline and its hydrocarbon constituents. The

anticipated contaminants and their exposure standards are listed in Table 1. It is not anticipated that the potential levels of exposure will reach the permissible exposure limits (PEL) or threshold limit values (TLV). Inhalation and dermal contact are the potential exposure pathways. Protective clothing will be mandatory for field personnel specified in this Plan. In addition, respiratory protective devices are required to be worn by each person on-site or to be within easy reach should irritating odors be detected or irritation of the respiratory tract occur.

TABLE 1
EXPOSURE LIMITS OF ANTICIPATED CHEMICAL CONTAMINANTS IN PARTS PER MILLION (ppm)

Contaminant	PEL	EL	ED	CL	TWA	STEL
Benzene*[skin] & [carc]	1	---	--------	---	10	5
Ethylbenzene	100	---	--------	---	100	125
Toluene [skin]	100	200	10 min per 8 hours	500	100	150
Xylene (o, m, & p isomers) [skin]	100	200	30 min per 8 hours	300	100	150

PEL - permissible exposure limit: 8 hours, time-weighted average, California Occupational Safety and Health Administration Standard (CAL-OSHA).

EL - excursion limit: maximum concentration of an airborne contaminant to which an employee may be exposed without regard to duration provided the 8 hours time-weighted average for PEL is not exceeded (CAL-OSHA).

ED - excursion duration: maximum time period permitted for an exposure above the excursion limit but not exceeding the ceiling limit (CAL-OSHA).

CL - Ceiling limit: maximum concentration of airborne contaminant which employees may be exposed permitted (CAL-OSHA).

TWA - time-weighted average: 8 hours, [same as threshold limit value (TLV)], American Conference of Governmental Industrial Hygienists (ACGIH).

STEL - short-term exposure limit: 15 minutes time-weighted average (ACGIH).

[carc] - substance identified as a suspected or confirmed carcinogen.

[skin] - substance may be absorbed into the bloodstream through the skin, mucous membranes or eyes.

* - Federal OSHA benzene limits given for PEL and STEL; STEL has a 50 minutes duration limit.

A brief description of the physical characteristics, incompatibilities, toxic effects, routes of entry and target organs has been summarized from the NIOSH Pocket Guide to Chemical Hazards for the contaminants anticipated to be encountered. This information is used in on-site safety meetings to alert personnel to the hazards associated with the expected contaminants.

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Benzene:

Benzene is a colorless, aromatic liquid. Benzene may create an explosion hazard. Benzene is incompatible with strong oxidizers, chlorine, and bromine with iron. Benzene is irritating to the eyes, nose and respiratory system. Prolonged exposure may result in giddiness, headache, nausea, staggering gait, fatigue, bone marrow depression or abdominal pain. Routes of entry include inhalation, absorption, ingestion and skin or eye contact. The target organs are blood, the central nervous system (CNS), skin, bone marrow, eyes and respiratory system. Benzene is carcinogenic.

Ethylbenzene:

Ethylbenzene is a colorless, aromatic liquid. Ethylbenzene may create an explosion hazard. Ethylbenzene is incompatible with strong oxidizers. Ethylbenzene is irritating to the eyes and mucous membranes. Prolonged exposure may result in headache, dermatitis, narcosis or coma. Routes of entry include inhalation, ingestion and skin or eye contact. The target organs are the eyes, upper respiratory system, skin and the CNS.

Toluene:

Toluene is a colorless, aromatic liquid. Toluene may create an explosion hazard. Toluene is incompatible with strong oxidizers. Prolonged exposure may result in fatigue, confusion, euphoria, dizziness, headache, dilation of pupils, lacrimation, insomnia,

dermatitis or photophobia. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. The target organs are the CNS, liver, kidneys and skin.

Xylene Isomers:

Xylene is a colorless, aromatic liquid. Xylene may create an explosion hazard. Xylene is incompatible with strong oxidizers. Xylene is irritating to the eyes, nose and throat. Prolonged exposure may result in dizziness, excitement, drowsiness, staggering gait, corneal vacuolization, vomiting, abdominal pain or dermatitis. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. The target organs are the CNS, eyes, gastrointestinal tract, blood, liver, kidneys and skin.

General Project Safety Responsibilities:

Key personnel directly involved in the investigation will be responsible for monitoring the implementation of safe work practices and the provisions of this plan are (1) the drilling project supervisor and (2) Soil Tech Engineering, Inc. (STE) project field engineer. These personnel are responsible for knowing the provisions of the plan, communicating plan requirements to workers under their supervision and regulatory agencies inspectors and for enforcing the plan.

The personnel-protective equipment will be selected to prevent field personnel from exposure to fuel hydrocarbons that may be present at the site. To prevent direct skin contact, the following protective clothing will be worn as appropriate while working at the site:

1. Tyvek coveralls.
2. Butyl rubber or disposable vinyl gloves.
3. Hard hat with optional face shield.
4. Steel toe boots.
5. Goggles or safety glasses.

The type of gloves used will be determined by the type of work being performed. Drilling personnel will be required to wear butyl rubber gloves because they may have long duration contact with the subsurface materials. STE sampling staff will wear disposable gloves when handling any sample. These gloves will be charged between each sample.

Personnel protective equipment shall be put on before entering the immediate work area. The sleeves of the overalls shall be outside of the cuffs of the gloves to facilitate removal of clothing with the least potential contamination of personnel. If at any time protective clothing (coveralls, boots or gloves) become torn, wet or excessively soiled, it will be replaced immediately.

Total organic vapors will be monitored at the site with a portable PID. Should the total organic vapor content approach that of the threshold limit value (TLV) for any of the substances listed in Table 1, appropriate safety measures will be implemented under the supervision of the site project engineer. These precautions include, but are not limited to, the following: (1) Donning of respirators (with appropriate cartridges) by site personnel, (2) forced ventilation of the site, (3) shutdown of work until such time as appropriate safety measures sufficient to insure the health and safety of site personnel can be implemented.

No eating, drinking or smoking will be allowed in the vicinity of the drilling operations. STE will designate a separate area on site for eating and drinking. Smoking will not allowed at the vicinity of the site except in designated areas. No contact lenses will be worn by field personnel.

WORK ZONES AND SECURITY MEASURES:

The Project Engineer will call Underground Service Alert (USA) and the utilities will be marked before any drilling is conducted on-site, and the borings will be drilled at safe distances from the utilities. The client will also be advised to have a representative on-site to advise us in selecting locations of borings with respect to utilities or underground structures. Soil Tech Engineering, Inc. assumes no responsibility to utilities not so located. The first 5 feet will be hand augered before any drilling equipment is operated.

Each of the areas where the borings will be drilled will be designated as Exclusion Zones. Only essential personnel will be allowed into an Exclusion Zone. When it is practical and local topography allows, approximately 25 to 75 feet of space surrounding those Exclusion Zones will be designated as Contamination Reduction Zones.

Cones, wooden barricades or a suitable alternative will be used to deny public access to these Contamination Reduction Zones. The general public will not be allowed close to the work area under any conditions. If for any reason the safety of a member of the public (e.g. motorist or pedestrian) may be endangered, work will cease until the situation is remedied. Cones and warning signs will be used when necessary to redirect motorists or pedestrians.

Location and Phone Numbers of Emergency Facilities:

For emergency reasons, the closest facilities addresses and phone numbers are listed below:

City of Alameda Fire Department, Station 3 — 911
1703 Grand Street, Alameda, CA

Alameda Hospital — (415) 522-3700
2070 Clinton Avenue, Alameda, CA

Additional Contingency Telephone Numbers:

Poison Control Center . . . . . (800) 523-2222

Soil Tech Engineering Administrative Office . . . . (408) 496-0265

CHEMTREC . . . . . (800) 424-9300

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Note: Only call CHEMTREC stands for Chemical Transportation Emergency Center, a public service of the Chemical Manufacturer's Association. CHEMTREC can usually provide hazard information, warnings and guidance when given the identification number or the name of the product and the nature of the problem. CHEMTREC can also contact the appropriate experts.

This Site Safety Plan has been reviewed by the project engineer, STE field personnel and all subcontractors.

Amendments or modifications to this Plan may be written on a separate page and attached to this Plan. Any amendments or modifications must be reviewed and approved by the personnel name above.

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TYPES OF PROTECTIVE CLOTHING AND RESPIRATION THAT SHOULD BE USED AT HAZARDOUS WASTE SITES WEYERHAEUSER PAPER COMPANY'S PROPERTY LOCATED AT 1801 HIBBARD STREET ALAMEDA, CALIFORNIA

The degree of hazard is based on the waste material's physical, chemical, and biological properties and anticipated concentrations of the waste. The level of protective clothing and equipment worn must be sufficient to safeguard the individual. A four category system is described below.

LEVEL A

Level A consists of a pressure-demand SCBA (air supplying respirator with back mounted cylinders), fully encapsulated resistant suit, inner and outer chemical resistant gloves, chemical resistant steel safety boots (toe, shank, and metatarsal protection), and hard hat. Optional equipment might include cooling systems, abrasive resistant gloves, disposable oversuit and boot covers, communication equipment, and safety line. Level A is worn when the highest level of respiratory, skin, and eye protection is required. Most samplers will never wear Level A protection.

LEVEL B

Level B protection is utilized in areas where full respiratory protection is warranted, but a lower level of skin and eye protection is sufficient (only a small area of head and neck is exposed). Level B consists of SCBA, splash suit (one or two piece) or disposable chemical resistant coveralls, inner and outer chemical resistant gloves, chemical resistant safety boots, and hard hat with face shield. Optional items include glove and boot covers and inner chemical resistant fabric coveralls.

LEVEL C

Level C permits the utilization of air-purifying respirators. Level B body, foot, and hand protection is normally maintained. Many organizations will permit only the use of approved full-face masks equipped with a chin or harness-mounted canister. However, many sites are visited by personnel wearing a half-mask cartridge respirator.

LEVEL D

Level D protection consists of a standard work uniform of coveralls, gloves, safety shoes or boots, hard hat, and goggles or safety glasses.

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Respirators are of two basic types, air-purifying and air-supplying. Air-purifying respirators are designed to remove specific contaminants by means of filters and/or sorbents. Air-purifying respirators come in various sizes, shapes, and models and can be outfitted with a variety of filters, cartridges, and canisters. Each mask and cartridge or canister is designed for protection against certain contaminant concentrations. Just because a cartridge says it is for use against organic vapors does not mean that it is good for all organic vapors.

Air-supplying respirators are utilized in oxygen-deficient atmospheres (less than 19.5 percent) or when an air-purifying device is not sufficient. Air is supplied to a face-mask from an uncontaminated source of air via and air line from stationary tanks, from a compressor, or from air cylinders worn on the back (SCBA). Rated capacities of the SCBA's are normally between 30 and 60 minutes. Only positive pressure (pressure demand) respirators should be used in high concentration hazardous environments.

Respirators often malfunction during cold weather or after continued use. Only NIOSH (National Institute for Occupational Safety and Health) MSHA (Mine Safety and Health Administration) approved respirators should be used.

Contact lenses are not permitted for use with any respirator. Contact lenses should not be worn at any site since they tend to concentrate organic materials around the eyes; soft plastic contact

lenses can absorb chemicals directly. In addition, rapid removal of contact lenses may be difficult in an emergency. Since eye glasses can prevent a good seal around the temple when wearing goggles or full face masks, spectacle adapters are available for masks and goggles.