Timber Dell Properties, LLC
1255 Sherman St., Alameda, Calif 94501

RECEIVED

8:59 am, Sep 21, 2010

Alameda County
Environmental Health

September 20, 2010

Mr. Jerry Wickham
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Perjury Statement-**
Sub-Slab Attenuation Factor Determination Summary Report
Searway Property (SLIC Case No. RO0002584)
649 Pacific Avenue
Alameda, California

Dear Mr. Wickham,

"I declare under penalty of perjury, that the information and / or recommendations contained in the attached document or report is true and correct to the best of my knowledge."

Timber Dell Properties, LLC

Donald W. Lindsey, member

September 20, 2010
Project 103.001.001

Mr. Jerry Wickham
Hazardous Materials Specialist
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-5577

Re: *Sub-Slab Attenuation Factor Determination Summary Report*
Searway Property
649 Pacific Avenue
Alameda, California

Dear Mr. Wickham:

This letter, prepared by Trinity Source Group, Inc. (Trinity) on behalf of Timber Del Properties, LLC, presents a *Sub-Slab Attenuation Factor Determination Summary Report (Report)* to document the work detailed in the *Revised Sub-Slab Attenuation Factor Determination Work Plan* dated April 5, 2010 at the above referenced site (Figure 1 and 2). The work plan was approved in a letter from the Alameda County Health Care Services Agency (ACHCSA), dated May 19, 2010. The ACHCSA letter is included in Attachment A.

BACKGROUND

A Sub-Slab Vapor Depressurization System (SSVD) was installed and operated at the subject site following sub-slab vapor testing performed during 2007, which indicated elevated concentrations of volatile organic compounds (VOCs) in the sub-slab vapor. The SSVD has been operating since September 2008. The site layout and SSVD components are shown on Figure 2.

The SSVD system includes two horizontal sub-slab extraction wells, with pipe runs trenched to nearby walls. The pipe runs continue up to the first floor ceiling, where they are manifolded together and connected to an exhaust fan equipped with a flow meter, then discharged through the roof and a 3-foot stack. The SSVD is performing as expected with the removal of VOCs and depressurization of the sub-slab area.

In order to terminate the SSVD operation and pursue site closure, indoor air VOC concentrations must be below applicable indoor air screening levels[1]. The indoor air concentrations are determined by multiplying

[1] Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater (November 2007, updated May 2008), San Francisco Bay Regional Water Quality Control Board, California EPA, http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.

the sub-slab concentrations of specific VOCs by an attenuation factor (AF). The default AF prescribed by the California Department of Toxic Substances Control (DTSC) is 0.01.

Radon gas measurements were used to determine the site-specific AF, following the methods described by McHugh, et al. (2008).[2] This reference article notes that many studies indicate that radon is a sensitive tracer for the movement of soil gas across a building foundation.

A site-specific AF can be determined by comparing sub-slab and indoor concentrations of a tracer gas. Radon has been used as such a tracer gas, because it is naturally-occurring, detectable in most locations, and indoor sources of radon are typically not present.

The purpose of the work performed and reported herein is to determine a site-specific AF, which would then be applied to sub-slab VOC concentrations for comparison to ESLs. The site will be recommended for closure after calculated indoor-air VOC concentrations using the site-specific AF are less than applicable ESLs.

SCOPE OF WORK

RADON SAMPLING

In the April 5, 2010 *Work Plan*, Trinity recommended sampling for radon to determine a site-specific AF for the slab foundation of the building at the site (Figure 2). The purpose of this radon sampling is to determine the difference between sub-slab and indoor radon concentrations. The work performed followed the procedures described in the *Work Plan*.

Prefield Activities

Trinity conducted a pre-sampling building inspection to determine the typical HVAC operation and identify other factors affecting indoor air sampling. Closed-building conditions were discussed with the building tenants to maintain HVAC operation or non-operation consistent with the USEPA guidance. As a result, the sampling was scheduled for early morning, prior to normal site business operations, and maximizing the routine building closure starting the previous night.

The SSVD was shut down for 11 days prior to radon sampling. The HVAC was not in operation at the time of sampling.

Sampling Procedures

A total of eight samples were collected from three indoor locations, one outdoor ambient air location, and four existing sub-slab vapor probes. Sampling locations are shown on Figure 3.

Samples were collected in 500-milliliter (ml) Tedlar bags with laboratory-supplied, dedicated disposable syringes with three-way valves appropriate for soil gas collection. Sample bags were filled by fitting the

[2] McHugh, Thomas E., Hammond, Douglas E., Nickels, Tim, and Hartman, Blayne, "Use of Radon Measurements for Evaluation of Volatile Organic Compound (VOC) Vapor Intrusion," *Environmental Forensics*, 9:107-114, 2008. http://dx.doi.org/10.1080/15275920801888491

syringes to the Swagelok fitting of each vapor point. Sub-slab vapor was collected by expanding the syringe plunger, drawing vapor from below the foundation slab into the syringe. The three-way valves were switched so the air from the syringe was injected into the bag. This process was repeated approximately four times, until the 500-ml Tedlar bag was approximately 80% full. A duplicate sample was collected for each sub-slab sample that was collected, in case one sample bag was compromised in transit or processing. Field data sheets are included in Attachment B.

Indoor air samples were collected from three locations. One outdoor ambient air sample was collected. Once the air samples were collected the samples ports were closed and the Tedlar bag was labeled and packaged for shipment with chain of custody documentation and sent to the University of Southern California Department of Geosciences (USC Lab).

Laboratory Analysis

The four sub-slab vapor samples, the three indoor air samples, and the ambient air sample were analyzed for radon using an alpha-scintillation counting method. The analysis was performed by the USC Lab. The laboratory report is included in Attachment C.

Radon Analytical Results

Table 1 presents the analytical results for radon. The indoor air radon concentrations ranged from 0.03 to 0.15 picoCuries per Liter (pCi/L). The sub-slab vapor radon concentrations ranged from 1.5 to 224 pCi/L. The outdoor ambient air sample had 0.11 pCi/L.

The sub-slab radon concentrations were within a range of 165 to 224 pCi/L, except for one sample which had 1.5 pCi/L. Based on information from the USC lab, the result of 1.5 pCi/L is unusually low for a sub-slab sample, and may indicate that the sample was diluted with ambient air during the sampling process.

DETERMINATION OF SITE-SPECIFIC AF USING RADON

As described by McHugh, et al., in the previously-referenced article, the AF is determined “as the ratio of the measured concentration of the chemical of concern in indoor air (Cb; corrected by subtracting the ambient air concentration) divided by the measured concentration of the chemical in soil gas (Cs; i.e., AF=Cb/Cs).”

The outdoor radon concentration (0.11 pCi/L) was greater than the average of the indoor vapor sample average, so the corrected indoor air concentration, Cb, as calculated using the McHugh, et al., equation would result in a negative AF. Therefore, the outdoor radon concentration was not used in the AF calculation.

The calculation of the sub-slab attenuation factor is shown below. The attenuation factor was calculated using the above-described method by taking the average of the indoor samples and the average of the sub-slab samples. The anomalous sub-slab concentration of 1.5 pCi/L was not included in the calculation.

The AF was determined by dividing the average indoor radon concentration (Cb) by the average sub-slab concentration (Cs). The duplicate sample was not included in the calculations. The result of the calculation was an AF of 0.000548, as detailed in the following equation.

$$AF = \frac{Cb}{Cs} = \frac{(0.15+0.06+0.03)/3}{(194+224+165)/3} = \frac{0.08}{194} = 0.000412$$

RECOMMENDATIONS

The AF calculation result is 0.000412, which is two orders of magnitude less than the default AF of 0.01 prescribed by the (DTSC). This site-specific AF should be used to determine whether sub-slab VOC concentrations are below applicable ESLs.

Trinity has applied the site-specific AF to indoor-air ESLs, to determine site-specific screening levels for sub-slab vapor. Table 2 presents the sub-slab vapor VOC concentrations in the SSVD effluent for the most-commonly detected VOCs at the site, with their proposed site-specific screening levels.

As shown on Table 2, effluent VOC concentrations currently are below the commercial and residential site-specific screening levels for all VOCs except carbon tetrachloride. Carbon tetrachloride was reported in May 2010 at 562 µg/m^3, which exceeds the site-specific screening levels of 46 µg/m^3 for residential use and 75 µg/m^3 for commercial land use.

During the two years that the SSVD has operated, carbon tetrachloride concentrations in the sub-slab vapor (as measured in the vapor extracted via the SSVD) have declined from 3,900 µg/m^3 to 562 µg/m^3. Trinity expects that concentrations will continue to decline. Therefore, at this time, Trinity recommends continued operation of the SSVD, while comparing the effluent VOC concentrations to the site-specific screening levels. When SSVD effluent levels are consistently less than the site-specific screening levels, Trinity will recommend a period of intermittent operation (pulsing) the SSVD. If SSVD effluent levels remain below site-specific screening levels after pulsing, Trinity will recommend site closure.

Trinity requests that ACEH approve the site-specific AF and screening levels presented herein, for application to this site.

DISTRIBUTION

A copy of this letter has been forwarded to:

Mr. Don Lindsey
Timber Del Properties, LLC
2424 Central Avenue
Alameda, CA 94501

Ms. Georgia Turner
Vice-President
The Mechanics Bank
1999 Harrison St., Suite 810
Oakland, CA 94612

Ms. Barbara Roesner
Senior Credit Analyst
The Mechanics Bank
1999 Harrison St., Suite 810
Oakland, CA 94612

Please call Trinity at (831) 426-5600 with any questions regarding this letter.

Sincerely,

TRINITY SOURCE GROUP, INC.

Cora Olson
Senior Staff Engineer

Debra J. Moser, PG, CEG, CHG
Senior Geologist

Attachments:

Table 1 – Summary of Radon Sampling Results
Table 2 – Summary of Sub-Slab Extraction System Effluent Analytical Data and Site-Specific Screening Levels

Figure 1 – Site Location Map
Figure 2 – Site Layout and Proposed Sampling Locations

Attachment A – Alameda County Environmental Health Correspondence
Attachment B – Field Data Sheets and Chain-of-Custody Documentation
Attachment C – Laboratory Analytical Report

TABLES

Table 1
Summary of Radon Analytical Results

Searway Property
649 Pacific Avenue
Alameda, California

Radon Analysis (EPA Method GS: Grab Sample/Scintillation Cell counting)

Summary	Collection Date	Collection time (PDT)	Analysis Date	Analysis time (PDT)	Vol run (cc)	Conc. pCi/L	±1 sig pCi/L	Lab Duplicates mean pCi/L	Lab Duplicates ±1ssd pCi/L
Received 6/9/10									
1 VS-3-Subslab	6/8/2010	8:00	6/10/2010	10:59	40	194	10		
2 VS-13-Subslab	6/8/2010	8:11	6/10/2010	11:02	40	224	11	220	6
lab-dup	6/8/2010	8:11	6/11/2010	7:47	60	216	11		
3 VS-10-Subslab	6/8/2010	9:00	6/10/2010	11:09	40	165	8		
4 VS-11-Subslab	6/8/2010	9:22	6/11/2010	13:53	40	1.5	0.4		
5 Indoor-North	6/8/2010	8:36	6/11/2010	13:56	60	0.15	0.18		
6 Indoor-South	6/8/2010	7:19	6/11/2010	14:01	120	0.06	0.10		
7 Indoor-West	6/8/2010	6:41	6/11/2010	14:04	120	0.03	0.10		
8 Ambient-Outdoor	6/8/2010	7:49	6/11/2010	14:11	60	0.11	0.14		

- Uncertainty given in pCi/liter is based on counting statistics for low activity samples. For high activity samples uncertainty is ±5%.
- The Lower Limit of Detection for Rn (95% confidence level as recommended by EPA 402-R-95-012, Oct. 97) is 0.14 pCi/liter.
- Results are reported based on standardization with NIST-traceable radon sources.
- These results are for application of naturally-occurring radon as a tracer of soil vapor intrusion, but are not intended for evaluation of radon hazards.

Definitions:

Vol run	Volume analyzed (cc)
sig dpm	uncertainty (± 1 sig) in dpm based on counting statistics
piC/liter:	Radon concentration in picoCuries per liter
	Radon concentration in disintigrations per minute per liter of sample

Table 2
Summary of Recent Sub-Slab Extraction System Effluent Analytical Data and Site-Specific Screening Levels

Searway Property
649 Pacific Avenue
Alameda, California

		EPA Method TO-3(MOD)	EPA Method TO-15								
Sample Date	Sample Location	Stoddard µg/m^3	Benzene µg/m^3	Chloroform µg/m^3	Carbon Tetrachloride µg/m^3	PCE µg/m^3	TCE µg/m^3	VC µg/m^3	2-Butanone µg/m^3	Acetone µg/m^3	Notes
9/10/2008	Influent	4,900[c]	<80	560	3,900	2,600	<130	<64	300	<480	
	Effluent	610[c, d]	<1.8	<3.9	29	17	<1.1	<0.5	<0.88	71	k
9/11/2008	Influent	2,400[c]	<32	480	3,200	2,500	<54	<26	260	<190	e
	Effluent	710[c]	<1.8	<3.9	<1.9	<2.6	<1.1	<0.5	14	180	e
10/10/2008	Influent	960[b]	65	110	880	880	<5.4	<2.6	27	51	l
	Effluent	740[b]	<3.2	54	200	13	<5.4	<2.6	<3.0	25	m
11/6/2008	Influent	1,700[a]	<1.6	58	690	520	<2.7	<1.3	23	62	f
	Effluent	2,800[a]	1.9	53	770	14	<2.7	<1.3	6.5	37	g
12/4/2008	Influent	2,400[h]	20	110	780	1,100	<6.7	<3.2	110	<24	i
	Effluent	2,100[h]	18	120	1,100	40	<5.4	<2.6	82	<19	j
1/2/2009	Influent	<3,500	<16	26	560	800	<27	<13	<15	<95	n
	Effluent	<3,500	<8.0	73	920	220	<13	<6.4	<7.4	<48	o
2/9/2009	Influent	2,300[p]	<3.2	64	480	680	<5.4	<2.6	9.6	29	t
	Effluent	1,800[p]	<3.2	<4.9	10	<6.8	<5.4	<2.6	<3.0	20	s
5/20/2009	Influent		Carbon Vessels Removed; Influent no longer sampled.								
	Effluent	1,800[q]	<4.5	<9.8	<4.7	<6.4	<2.6	<1.2	<2.2	<2.9	r
8/7/2009	Effluent	4,500[u]	<1.6	<2.4	<3.2	<3.4	<2.7	<1.3	2.0	24	v
11/6/2009	Effluent	2,400[u]	5.4	85	670[x]	1,100[x]	<2.7	<1.3	<1.5	84	w
2/2/2010	Effluent	2,000[y]	5.6	40	280	430	<2.7	<1.3	<1.5	31	z
5/5/2010	Effluent	<400	2.24	77.4	562	857	<5.4	<2.6	<1.5	34.9	aa

Table 2
Summary of Recent Sub-Slab Extraction System Effluent Analytical Data and Site-Specific Screening Levels

Searway Property
649 Pacific Avenue
Alameda, California

Sample Date	Sample Location	EPA Method TO-3(MOD) Stoddard µg/m³	EPA Method TO-15 Benzene µg/m³	Chloroform µg/m³	Carbon Tetrachloride µg/m³	PCE µg/m³	TCE µg/m³	VC µg/m³	2-Butanone µg/m³	Acetone µg/m³	Notes
SFBRWQCB ESLs (µg/m³) Residential Property Use - Indoor Air											
		10*	0.0084	0.46	0.019	0.41	1.2	31	N/A	660	
SFBRWQCB ESLs (µg/m³) Commercial Property Use - Indoor Air											
		14*	0.14	0.77	0.031	0.69	2.0	0.031	N/A	920	
Site-Specific Screening Levels for Sub-Slab Vapor (µg/m³) - Residential Property Use**											
		24,272	20	1,117	46	995	2,913	75,243	N/A	1,601,942	
Site-Specific Screening Levels for Sub-Slab Vapor (µg/m³) - Commercial Property Use**											
		33,981	340	1,869	75	1,675	4,854	75	N/A	2,233,010	

Notes:

Stoddard = Total petroleum hydrocarbons as gasoline.
PCE = Tetrachloroethylene or Perchloroethylene
TCE = Trichloroethylene
VC = Vinyl Chloride
VOCs = Volatile Organic Compounds
MTBE = Methyl tertiary butyl ether
TBA = Tert-Butanol
TAME = Tert amyl methyl ether
µg/m³ = micrograms per cubic meter, also equivalent to parts per billion (ppb)
< = Less than laboratory analytical method reporting limit.
NS = No sample collected
a = Result reported as Stoddard Solvent, but sample chromatogram does not resemble Stoddard Solvent standard pattern.
b = Sample chromatogram does not resemble Stoddard Solvent standard pattern (possibly aged). Reported value due to presence of non-gasoline compounds within range of C5-C12 quanitifed as Gasoline.
c = Not a typical Stoddard (discrete light end peaks within Stoddard range)
d = Reporting limit increased due to low initial pressure in canister. Results reported to the MDL. Reported values between the MDL and RL should be considered as estimated.
e = Reporting limit increased due to low initial pressure in canister. Results reported to the MDL.
f = Other VOCs detected are: Carbon Disulfide 7.7 µg/m³, 1,2,4-trimethylbenzene 2.9 µg/m³, m,p-xylene 4.7 µg/m³, methylene chloride 4.5 µg/m³, and toluene 30 µg/m³.
g = Other VOCs detected are: Carbon Disulfide 7.5 µg/m³, m,p-xylene 3.6 µg/m³, and toluene 27 µg/m³.
h = Sample chromatogram does not resemble Stoddard solvent standard pattern. Reported value due to presence of non-stoddard solvent compounds within range of C7-C12.
i = Other VOCs detected are: 1,2,4-trimethylbenzene 66 µg/m³, 1,3,5-trimethylbenzene 14 µg/m³,

Table 2
Summary of Recent Sub-Slab Extraction System Effluent Analytical Data and Site-Specific Screening Levels

Searway Property
649 Pacific Avenue
Alameda, California

		EPA Method TO-3(MOD)	EPA Method TO-15								
Sample Date	Sample Location	Stoddard µg/m^3	Benzene µg/m^3	Chloroform µg/m^3	Carbon Tetrachloride µg/m^3	PCE µg/m^3	TCE µg/m^3	VC µg/m^3	2-Butanone µg/m^3	Acetone µg/m^3	Notes

4-ethyl toluene 48 µg/m^3, ethyl benzene 49 µg/m^3, m,p-xylene 270 µg/m^3, o-xylene 54 µg/m^3 and toluene 490 µg/m^3

j = Other VOCs detected are: 1,2,4-trimethylbenzene 38 µg/m^3, 1,3,5-trimethylbenzene 7.6 µg/m^3, 4-ethyl toluene 35 µg/m^3, ethyl benzene 45 µg/m^3, m,p-xylene 240 µg/m^3, o-xylene 44 µg/m^3, and toluene 380 µg/m^3

k = Other VOC detected is: m,p-xylene 4.1 µg/m^3

Notes continued:

l = Other VOCs detected are:1,2,4-trimethylbenzene 8.2 µg/m^3, 4-ethyl toluene 8.8 µg/m^3, m,p-xylene 53 µg/m^3, MTBE 220 µg/m^3, o-xylene 22 µg/m^3, TBA 55 µg/m^3, TAME 21 µg/m^3, and toluene 82µg/m^3

m = Other VOCs detected are: MTBE 180 µg/m^3, TAME 8.4 µg/m^3, and toluene 7.3 µg/m^3

n = Toluene detected at a concentration of 37 µg/m^3

o = Toluene detected at a concentration of 29 µg/m^3

p = Hydrocarbons responded within range of C5-C12 quantified as Stoddard Solvent but sample chromatogram does not match requested fuel standard pattern. TPH value due to presence of heavy end unidentified hydrocarbon peaks.

q = Result reported as a Stoddard solvent but sample chromatogram does not match requested fuel pattern. Reported value due to individual non-target peaks (heavy end) within ranage of C5-C12.

r = The reporting limts were raised due to limited sample received (tedlar bag). Results reported to the MDL.

s = Toluene was detected at a concentration of 4.5 µg/m^3

t = Toluene was detected at a concentration of 5.7 µg/m^3

u = Result reported as a Stoddard solvent but sample chromatogram does not match requested fuel standard pattern. Result due to individual peaks of unidentified compounds within C5-C12 range quantified as Stoddard Solvent.

v = Other VOCs detected are: 1,2,4-Trimethylbenzene 5.9 µg/m^3, isopropanol 21 µg/m^3 and toluene 2.3 µg/m^3

w = Other VOCs detected are: 1,2,4-Trimethylbenzene 140 µg/m^3, 1,3,5-Trimethylbenzene 38 µg/m^3, 4-Ethyl Toluene 130 µg/m^3, ethylbenzene 83 µg/m^3, total xylenes 322 µg/m^3, methylene chloride 8.1 µg/m^3 t-butyl alcohol 29 µg/m^3, toluene 35 µg/m^3.

x = Outside of calibration range but within working range of the instrument. Due to hold time restrictions, no diluted analysis was performed.

y = TPH as Stoddard Solvent result due to unidentified compounds within range quantified as Stoddard Solvent.

z = Other VOCs detected are: 1,2,4-Trimethylbenzene 120 µg/m^3, 1,3,5-Trimethylbenzene 40 µg/m^3, 4-Ethyl Toluene 120 µg/m^3, Carbon disulfide 4.1 µg/m^3, Isopropanol 21 µg/m^3, total-xylene 171 µg/m^3, Tert-butyl Alcohol 13µg/m^3, and Toluene 15µg/m^3

aa = Other VOCs detected are: Tert-butanol 63.8 µg/m^3, Toluene 10.3 µg/m^3, total-Xylene 30.01 µg/m^3, 4-ethyl toluene 19.5 µg/m^3, 1,3,5-Trimethylbenzene 8.18 µg/m^3, and 1,2,4-Trimethylbenzene 17.2 µg/m^3.

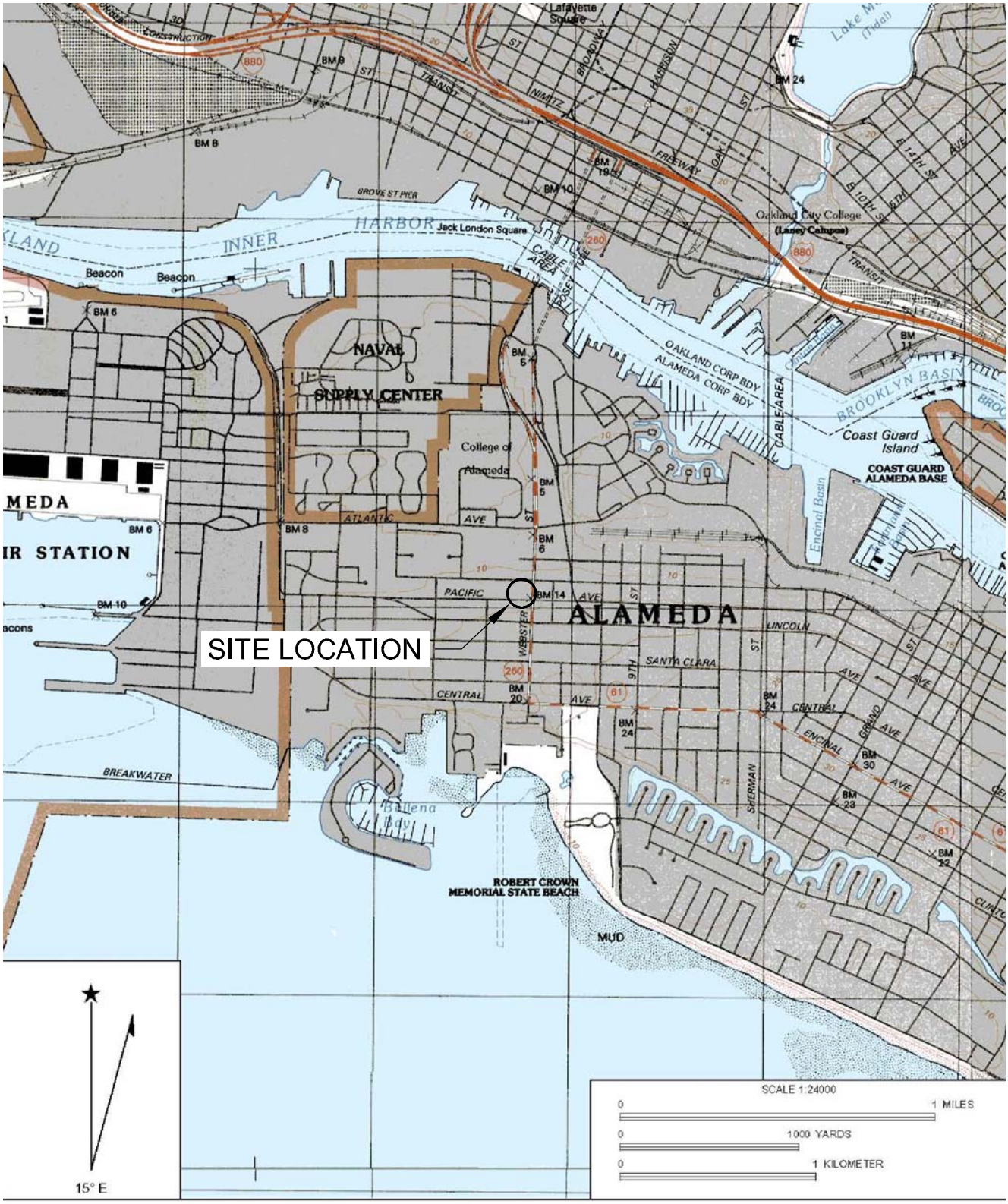
* = No established ESL result for stoddard solvent, therefore total petroleum hydrocarbons as light distillates ESL result is used.

ESL = Environmental Screening Level (May 2008),

SFBRWQCB = San Francisco Bay Regional Water Quality Control Board, California EPA, (May 2008) http://www.waterboards.ca.gov/sanfranciscobay/esl.htm.

** = Site-Specific Screening Level determined by dividing the ESL by the site-specific attenuation factor of 0.000412

FIGURES



Name: OAKLAND WEST
Date: 5/4/2006

Location: 037° 46' 34.86" N 122° 16' 37.65" W NAD 27
Caption: San Francisco Bay, Oakland West Quadrangle - 1:24,000

REF. 103_002\SLM.DWG
BASEMAP FROM MAPTECH, INC.

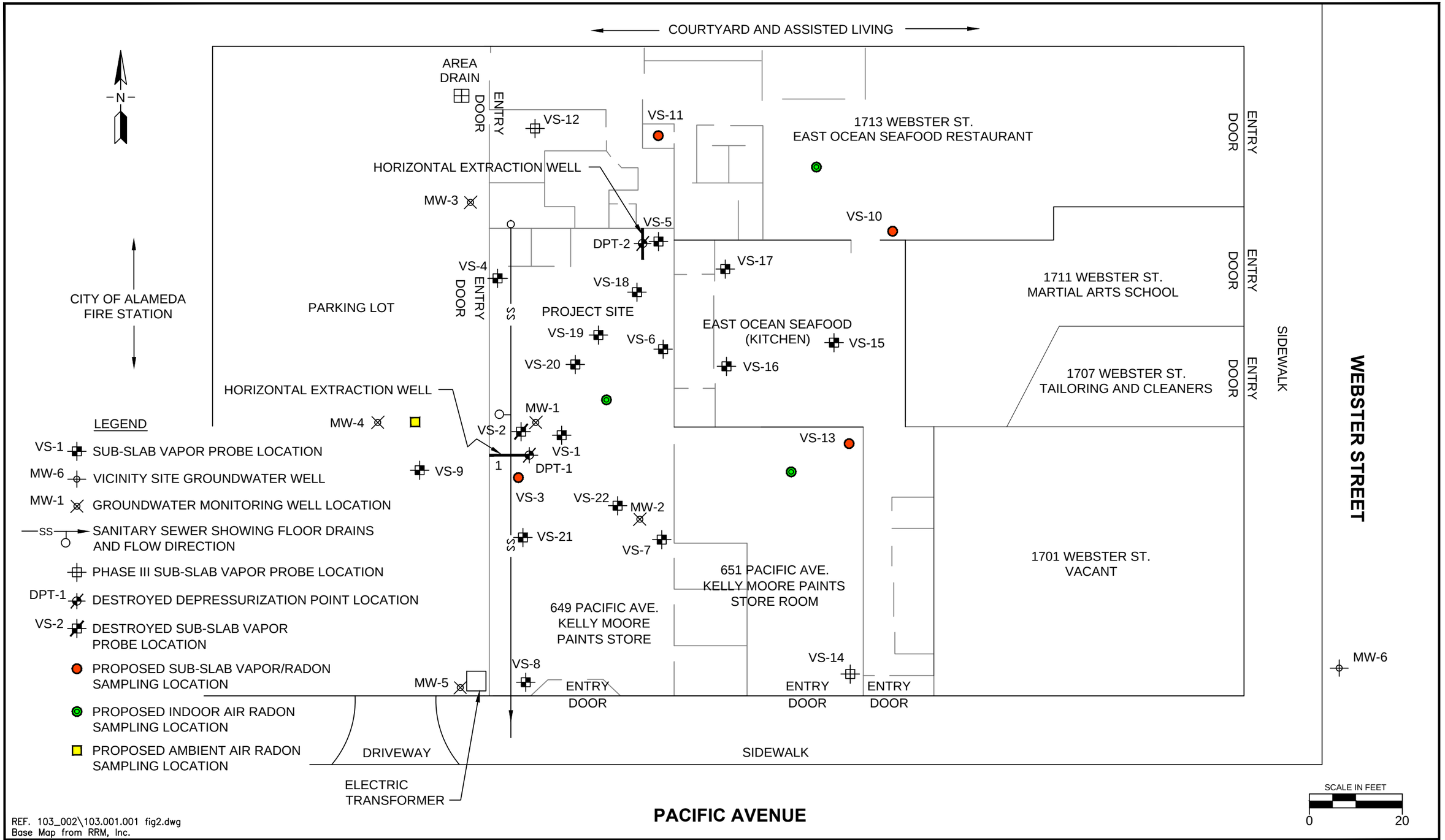
PREPARED BY
TRINITY source group, inc.
500 Chestnut Street, Suite 225
Santa Cruz, CA. 95060
Tel: (831) 426-5600 Fax: (831) 426-5602

SITE LOCATION MAP

Searway Property
649 Pacific Avenue
Alameda, California

PROJECT:
103.001.001

FIGURE:
1



REF. 103_002\103.001.001 fig2.dwg
Base Map from RRM, Inc.

PACIFIC AVENUE

PREPARED BY

TRINITY source group, inc.
Environmental Consultants
500 Chestnut Street, Suite 225
Santa Cruz, California 95060
v: 831.426.5600
f: 831.426.5602

SITE LAYOUT AND PROPOSED SAMPLING LOCATIONS

Searway Property
649 Pacific Avenue
Alameda, California

PROJECT: 103.001.001

FIGURE: 2

ATTACHMENT A

ALAMEDA COUNTY ENVIRONMENTAL HEALTH CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

May 19, 2010

FILE COPY

Mr. Donald Lindsey
Timber Del Properties, LLC
2424 Central Avenue
Alameda, CA 94501

Mr. Carl Searway
3032 Dakota Street
Oakland, CA 94602

Subject: SLIC Case No. RO0002584 and Geotracker Global ID SL0600150413, Searway Property, 649 Pacific Avenue, Alameda, CA 94501 – Work Plan Approval

Dear Mr. Lindsey and Mr. Searway:

Alameda County Environmental Health (ACEH) staff has reviewed the Spills, Leaks, Investigations, and Cleanups (SLIC) case file for the above referenced site including the recently submitted document entitled, "*Revised Sub-Slab Attenuation Factor Determination Work Plan*," dated April 5, 2010 (Work Plan). The Work Plan, which was prepared on behalf of Mr. Lindsey by Trinity Source Group, Inc., proposes radon sampling using methods described in McHugh et al (2008) to determine a site-specific attenuation factor for the building floor slabs at the above referenced site.

The proposed scope of work for collecting and analyzing the sub-slab vapor samples, indoor air samples, and ambient air samples is acceptable and may be implemented as proposed. The proposed method for averaging results to calculate a sub-slab attenuation factor may be acceptable. However, we defer approval of the method for calculating an attenuation factor pending review of the consistency of sampling conditions and results.

Based on the minimal concentrations of chemicals of concern detected in groundwater and consistency of recent results, groundwater monitoring may be conducted on an annual basis rather than semi-annual basis. We request that you complete the proposed work and send us the reports requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **September 20, 2010** – Sub-Slab Vapor and Indoor Air Sampling Report and Sub-Slab Depressurization Report
- **February 15, 2011** – Annual Groundwater Monitoring and Sub-slab Vapor Depressurization System Performance Report

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,

Jerry Wickham

Digitally signed by Jerry Wickham
DN: cn=Jerry Wickham, o, ou, email=jerry.wickham@acgov.org, c=US
Date: 2010.05.19 17:27:59 -07'00'

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: David Reinsma, Trinity Source Group, 500 Chestnut Street, Suite 225, Santa Cruz, CA 95060 (*Sent via E-mail to: dar@tsgcorp.net*)

Debra Moser, Trinity Source Group, 500 Chestnut Street, Suite 225, Santa Cruz, CA 95060 (*Sent via E-mail to: djm@tsgcorp.net*)

Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Jerry Wickham, ACEH

Geotracker, File

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: March 27, 2009
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO# use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT B

FIELD DATA SHEETS AND CHAIN-OF-CUSTODY DOCUMENTATION

TRINITY
source group, inc.
Environmental Consultants

500 Chestnut Street, Suite 225
Santa Cruz, California 95060
v: 831.426.5600
f: 831.426.5602

Sub-Slab Depressurization System- ---------- O&M Data

Client: **Timber Del Properties, L.L.C.**
Address: **649 Pacific Ave. Alameda CA**

Project #: **103.001.001**
Date: 6/8/10
Personnel: DJB

Arrival System Status: On / (Off)	If Off Explain Why? Planned off for sampling.
Departure System Status: (On) / Off	If Off Explain Why?
Tedlar Bag Collected? Yes / (No)	Summa Vessel Collected? Yes / (No)

Influent initial Summa Vacuum N/A	Influent Final Summa Vacuum	Time
Effluent initial Summa Vacuum N/A	Effluent Final Summa Vacuum	Time

Vapor Concentration Readings in Parts Per Million Vapor (PPMV) using Photo Ionization Detector (PID)

Collected? Yes / No	Effluent (After Vacuum Unit) 0.546	PPMV
~~Collected? Yes / No~~	~~Influent (Before Vacuum Unit)~~ NONE	~~PPMV~~

Effluent Flow Rate (read from digital readout on vacuum control) Stage 1 FPM 45CFM

Effluent Flow Rate and Temperature (measured with hand held Anemometer in discharge pipe slot)

72 FPM 66.5 Degrees F

Vacuum (measured at influent sample port) NOT -inches of mercury (-in Hg)

Smoke Pen Leak Test (Pass) Fail

Notes: Systems been off for 11 days. Arrive @ 0630 and collect indoor air samples and sub-slab from US-3, 11, 10 and 13. Ambient sample from Parking lot.
Restart system after sampling

SOIL GAS INVESTIGATION
PURGE, SAMPLE & LEAK TEST - FIELD DATA SHEET

TRINITY source group, inc. Environmental Consultants

Project No.:	103.001.001	Radon Test Location:	VS-10,11,~~12~~ NOT 12,13 and VS-3
Facility Name:	Kelly Moore and East Ocean Seafood- Searway Property	Sample Method:	Disposable Syringes, Tubing and Y Connectors
Address:	649 Pacific Ave., Alameda	Leak Test Compound (None):	None
Staff:	Dan Birch	Flow Control Syringe(60 ml):	60 ml

Date: Tubing Size (in): 1/4" ID; 3/8" OD Bore Hole Dia. (in): 3/8" OD

Purge Volume Calculation for Tubing and Y Connector

Inner Tubing Radius (inches)	Area of Inner Tubing Radius (r2)	Tubing Length (ft)	Convert feet to inches	Total Tubing Volume (ml)	Bore Hole Radius (inches)	Area of Bore Hole Radius (r2)	Length of Bore Hole (in)	Total Bore Hole Volume (ml)	No. of Tubing + Bore Hole Volumes to Purge	Conv. of cubic inches to ml	Total Purge Volume (ml)	Total Purge Volume (L) [L= ml/1000]	Max. Purge rate (ml/min)	Est. Purge Time (min)	Probe Depth (Feet)
0.085	0.007	0.5	6	2.232	0.4	0.160	0.5	4.119	1	16.387	2	1000	100	0.02	0.5

Notes:

Purge volume for tubing can be calculated as follows:

(a) 3.141593(Pi) * tubing radius r^2 * inches of tubing * 16.3870641(conversion of cubic inches to milliliters)

Purge volume for the bore hole can be calculated as follow:

(b) 3.141593(Pi) * bore hole r^2 * inches of bore hole * 16.3870641(conversion of cubic inches to milliliters)

Total purge volume can be calculated as follows:

a + b * number of tubing/bore hole volume to be purged = total purge volume

Estimated purge time can be calculated as follows:

total purge volume (ml) ÷ purge rate (max of 100 ml/min)

Purging & Sampling Data | **Probe Construction Details**

Sub slab Probe, Indoor Air and Ambient Sample Numbers	Time Start Purging (24 hr)	Time Stop Purging (24 hr)		Cum- ulative Total Volume Purged (ml)	Cum- ulative Total Volume Purged (ml)	Time Start Sampling (24 hr)	Time Stop Sampling (24 hr)	Probe Install Date	Probe Install Time	Required Purge Volume	Probe Depth (Feet)
VS-3	0756	0757		5ml	250ml	0757	0800/250ml				
VS-11	0919	0920		5ml	250ml	0920	0922/250ml				
VS-10	0856	0857		5ml	250ml	0857	0900/250ml				
VS-13	0808	0809		5ml	250ml	0809	0811/250ml				
Indoor- North	0832	0833		5ml	350ml	0833	0836/350ml	None	N/A	N/A	N/A
Indoor- South	0716	0717		5ml	350ml	~~0719~~ 0717	0719/350mL	None	N/A	N/A	N/A
Indoor- West	0637	0638		5ml	350ml	0638	0641/350mL	None	N/A	N/A	N/A
Ambient-Outdoor	0745	0746		5ml	350ml	0746	0749/350ml	None	N/A	N/A	N/A

Notes:

TRINITY source group, inc. Environmental Consultants

500 Chestnut Street, Suite 225
Santa Cruz, California 95060

SRG # / Lab No. _____ Page

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Dave Reinsma	California EDF Report? ☑ Yes ☐ No
Company / Address: Trinity Source Group 500 Chestnut Street, Suite 225, Santa Cruz, CA 95060	
Phone Number: 831-426-5600	Global ID: SL0600150413
Fax Number: 831-426-5602	EDF Deliverable To (Email Address): labstrinity@gmail.com
Project #: 103.001.001 / EWO#: NA	Bill to: Trinity Source Group, Inc.
Project Name: Timber Del Properties	Sampler Signature: FEDEX AIRBILL # 8684-3058-1672
Project Address: 649 Pacific Ave, Alameda, California	

Sample Designation	Date	Time	Container: 40 ml VOA	Amber Glass	Glass Jar	Sleeve	Tedlar bag	Preservative: HCl	Na2S2O3	None	4°C	Matrix: Water	Soil	Air	Analysis Request: Radon-Alpha Scintillation Counting	Additional Analysis: Specify analyte(s) and method(s)	TAT: Standard ☑	For Lab Use Only
VS-3-Subslab	6/8/2010	0800					X			1				X	X		X	
VS-13-Subslab	6/8/2010	0811					X			1				X	X		X	
VS-10-Subslab	6/8/2010	0900					X			1				X	X		X	
VS-11-Subslab	6/8/2010	0922					X			1				X	X		X	
Indoor -North	6/8/2010	0836					X			1				X	X		X	
Indoor-South	6/8/2010	0719					X			1				X	X		X	
Indoor -West	6/8/2010	0641					X			1				X	X		X	
Ambient-Outdoor	6/8/2010	0749					X			1				X	X		X	

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 1 hr ☑ Standard

Relinquished by:	Date	Time	Received by:
	6/8/10	1010	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: Sample receipt confirmation required.

Samples shipped to :
Doug Hammond (213) 740-5837
Dept. of Earth Sciences Univ. Souuthern California
3651 Trousdale Pkwy, AHS 117
Los Angeles, CA 90089-0740

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Pres
					Yes /

ATTACHMENT C

LABORATORY ANALYTICAL REPORT

Radon Analysis (EPA Method GS: Grab Sample/Scintillation Cell counting)

For Trinity Source Group

Client Project Number: 103.001.001

Samples Collected by:

Sample Dates: 6/8/10

Sample containers: Tedlar bags

Site: Timber Del Properties

Assumed Site Pressure **1.00** atm

Analysts: Doug Hammond, Christa Wolfe

based on an elevation of Alameda, CA 30 ft

Phone: 310-490-7896

Time Zone adjustment: add to decay time

email: dhammond@usc.edu

0 hours

	Summary	Collection		Analysis					Lab Duplicates			
		Date	time (PDT)	Date	time (PDT)	Vol run (cc)	Conc. pCi/L	±1 sig pCi/L	mean pCi/L	±1ssd pCi/L	Notes	
Received 6/9/10												
1	VS-3-Subslab	6/8/10	8:00	6/10/10	10:59	40	194	10				
2	VS-13-Subslab	6/8/10	8:11	6/10/10	11:02	40	224	11	220	6		
	lab-dup	6/8/10	8:11	6/11/10	7:47	60	216	11				
3	VS-10-Subslab	6/8/10	9:00	6/10/10	11:09	40	165	8				
4	VS-11-Subslab	6/8/10	9:22	6/11/10	13:53	40	1.5	0.4				
5	Indoor-North	6/8/10	8:36	6/11/10	13:56	60	0.15	0.18				
6	Indoor-South	6/8/10	7:19	6/11/10	14:01	120	0.06	0.10				
7	Indoor-West	6/8/10	6:41	6/11/10	14:04	120	0.03	0.10				
8	Ambient-Outdoor	6/8/10	7:49	6/11/10	14:11	60	0.11	0.14				

Uncertainty given in pCi/liter is based on counting statistics for low activity samples. For high activity samples uncertainty is ±5%.

The Lower Limit of Detection for Rn (95% confidence level as recommended by EPA 402-R-95-012, Oct. 97) is 0.14 pCi/liter.

Results are reported based on standardization with NIST-traceable radon sources.

These results are for application of naturally-occurring radon as a tracer of soil vapor intrusion, but are not intended for evaluation of radon hazards.

Note Details:

Results corrected to in situ pressure as noted above

The first analysis of VS-11 is not shown above, as it was run in a high background cell. The low sample activity could not be precisely measured with this cell.

Raw Data, Calculation factors, and Analytical Details

		Collection		Analysis														
	Sample ID	Date	Time (PDT)	Date	Time (PDT)	Count in cell/ch	He eff	Air/He eff	Vol run (cc)	Press factor	obs dpm	sig dpm	Decay T (hours)	Decay factor	Concentration dpm/liter	Concentration pCi/liter	count stats pCi/liter ±1 sig	Notes
Received 6/9/10																		
1	VS-3-Subslab	6/8/10	8:00	6/10/10	10:59	Z16/32	0.753	0.99	40	1.00	8.74	0.37	51.0	1.470	431	194	8	
2	VS-13-Subslab	6/8/10	8:11	6/10/10	11:02	58/31	0.893	0.99	40	1.00	12.00	0.43	50.9	1.468	498	224	8	
	lab-dup	6/8/10	8:11	6/11/10	7:47	83/01	0.800	0.98	60	1.00	13.12	0.52	71.6	1.718	479	216	9	
3	VS-10-Subslab	6/8/10	9:00	6/10/10	11:09	74/34	0.939	0.99	40	1.00	9.30	0.38	50.2	1.461	365	165	7	
	VS-11-Subslab	6/8/10	9:22	6/10/10	11:35	Z13/01	0.811	0.99	40	1.00	0.00	0.08	50.2	1.461	0.0	0.0	1.6	Ignore result
4	VS-11-Subslab	6/8/10	9:22	6/11/10	13:53	72/34	0.925	0.99	40	1.00	0.07	0.02	76.5	1.783	3.4	1.5	0.4	
5	Indoor-North	6/8/10	8:36	6/11/10	13:56	73/33	0.894	0.98	60	1.00	0.01	0.01	77.3	1.794	0.34	0.15	0.18	
6	Indoor-South	6/8/10	7:19	6/11/10	14:01	82/32	0.731	0.95	120	1.00	0.01	0.01	78.7	1.812	0.13	0.06	0.10	
7	Indoor-West	6/8/10	6:41	6/11/10	14:04	81/31	0.827	0.95	120	1.00	0.00	0.01	79.4	1.822	0.08	0.03	0.10	
8	Ambient-Outdoor	6/8/10	7:49	6/11/10	14:11	71/22	0.894	0.98	60	1.00	0.01	0.01	78.4	1.808	0.24	0.11	0.14	

Decay correctiions based on Rn decay cons 0.1813 per day

Radon Conc = {(0.4504)(1000)(obs dpm)(decay factor)(Press factor)}/{(cc used)(He eff)(Air/He)}

Conversion from dpm based on 0.4504 pCi/dpm (in pCi/liter)

Blanks are negligible.

Definitions:

Cell/ch:	Counting cell and channel used	sig dpm	uncertainty (± 1 sig) in dpm based on counting statistics
He eff:	Cell and counter efficiency using helium matrix	Decay T:	time elapsed from sampling to analysis
Air/He:	Correction for matrix counting gas density	Decay factor:	Correction factor for decay from collection to analysis
Sample vol:	Volume analyzed (cc)	dpm/liter:	Radon concentration in disintigrations per minute per liter of sample
Press factor:	Correction to in situ pressure based on collection altitude	piC/liter:	Radon concentration in picoCuries per liter
obs dpm:	observed radon activity (disintigrations per minute) when analyzed	count stats:	uncertainty in observed radon based on counting statistics