

APPENDIX A
FIELD PROCEDURES



APPENDIX A – FIELD PROCEDURES

Soil Sample Collection Procedures – Geoprobe Rig

Drilling of Soil Borings

Soil borings were advanced by Interphase Environmental Inc., using a truck-mounted Geoprobe™ 6600 direct push rig. The borings were advanced using 2.25 inch diameter hollow rods. The lead drilling rod contained a removable 1.5 inch core sampler that was retrieved at the end of each run. Acetate sleeves were used as liners for the core sampler to collect undisturbed soil samples as the rods were advanced.

Sample Identification

All soil samples were identified and labeled at the time of collection. Sample identification followed a specific format that contained the boring identification and sample depth to ensure that all sample numbers were unique.

Sampling Procedure

After retrieval of the soil samples, the acetate sleeve was cut for each desired sampling interval, capped with Teflon tape and plastic caps, then sealed with Parafilm laboratory-grade tape. Soil samples were transferred to glass jars and/or Volatile Organic Analysis (VOA) 60 ml glass vials, depending on analytical requirements.

All samples analyzed for Volatile Organic Constituents (VOCs) were collected using EnCore™ samplers, which were advanced into the undisturbed soils as per EPA Method 5035. The soil cores were placed in VOA containers pre-preserved with methanol and sodium bisulfate, and then sealed. The samples were labeled and stored in a chilled cooler pending delivery to the analytical laboratory. Strict chain-of-custody protocol was followed throughout all phases of the sample handling process.

Equipment Cleaning

To reduce the potential for cross contamination, all equipment and tools were cleaned before introduction borehole. Tools were scrubbed with a laboratory-grade detergent and double-rinsed with distilled water between sampling points.



Groundwater Sample Collection Procedures

Drilling of Soil Borings

Soil borings were advanced to groundwater using a truck-mounted Geoprobe rig or limited access rig. Following soil sample collection, temporary wells were installed in the borings.

To reduce the potential for cross contamination between borings, the Geoprobe rods and sampling equipment were cleaned prior to use at each drilling location.

Sample Identification

All groundwater samples were identified and labeled at the time of collection. Sample identification followed a specific format to ensure that all sample numbers were unique.

Sampling Equipment

A new disposable PVC screenpoint sampler was used for each sampling event. The Screen Point Sampler and associated assemblages were triple-rinsed prior to each installation using an approved non-phosphate detergent solution. Detergent was rinsed from the parts initially with tap water followed by a distilled-water rinse. The disposable microbailer was disposed of after its use.

Groundwater samples were collected by lowering a disposable microbailer through the drive rods to the Screen Point Sampler (or temporary well) using cotton or nylon string.

Groundwater samples were collected in VOA containers pre-preserved with hydrochloric acid (HCl) and sealed. The samples were labeled and stored in a chilled cooler pending delivery to the analytical laboratory. Strict chain-of-custody protocol was followed throughout all phases of the sample handling process.



Soil Vapor Sample Collection Procedures

Installation of Temporary Soil Vapor Monitoring Probes

Temporary soil vapor monitoring probes (VMPs) were constructed by Interphase Environmental Inc. in the same locations as soil borings. Borings were advanced using a GeoProbe™ 6600 direct push rig equipped with hollow drill rods approximately 2.25 inches in diameter. The drill rods were sealed at the bottom end until the desired depth was reached, then the end cap was unlatched and retrieved to expose the native soils ahead of the drill steel. VMPs were constructed inside the drill rods which were retrieved as the annular fill materials were placed.

The VMPs consisted of a 6-inch long stainless steel implant at the desired probe depths. Nylaflo tubing (0.33 inch diameter) was connected from the implant to the ground surface, and terminated above the existing surface with a valve.

At the completion of vapor sampling, the borings were abandoned by removing the tubing and backfilling the borings with hydrated amorphous bentonite. The upper 6-inches of the borings were abandoned using cold-patch asphalt compacted and stained to match the existing surface.

Sample Identification

All soil vapor samples were identified and labeled at the time of collection. Sample identification followed a specific format to ensure that all sample numbers were unique and was recorded on laboratory supplied forms.

Sampling Equipment

After installation, each probe was allowed to stabilize two hours. Prior to sampling, each probe was purged of approximately three well volumes. A sample was collected from each probe by the mobile laboratory staff using a glass syringe, then immediately transported to the mobile laboratory for analysis.

The samples were analyzed for VOCs and oxygenates/gasoline range organics using EPA Method 8260B. Strict chain-of-custody protocol was followed throughout all phases of the sample handling process.



APPENDIX B
FIELD NOTES



Field Activity Report



northgate

environmental management, inc.

24411 Ridge Route Drive, Suite 130, Laguna Hills, CA 92653

main (949) 716-0050; fax (949) 716-0055

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Date: 03/23/2016

Recorded By: Michelle P Hughson

Project Name: CenterCal

Project No.: 2047.06

Client Name: Wactor & Wick

Weather: Clear & Sunny

Temperature: _____

Site Conditions: Hotel and parking lot. Some impacted soils below the surface

NORTHGATE PERSONNEL ON-SITE

Dana Brown
Michelle Hughson

VISITORS

Name	Company/Agency	Time Arrived	Time Left

CONTRACTORS

Contractor Name: Interphase Environmental

Phone No.: _____

Supervisor: _____

Task: Drillers

Company	No. of Supervisors	No. of Workers	Remarks
<u>Interphase Environmental</u>		<u>2</u>	<u>Drillers</u>

EQUIPMENT

Soil, water, vapor sampling kits.
Level D PPE
Camera.

Field Activity Report



24411 Ridge Route Drive, Suite 130, Laguna Hills, CA 92653
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Date: 03/23/2016
 Recorded By: Michelle Hughson

Project Name: CenterCal Project No.: 2047.06
 Client Name: Wactor & Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
06:00	Mobilize to SeaPort hotel in Long Beach for site characterization Personal Vehicle use @ MPH residence: 60362
06:45	Arrive on site: 60393
06:50	Drive to buy ice for samples.
07:00	Return to site
07:00	Meet with Erik and John from Interphase and John the geolocator.
07:15	Map and clear each boring location with John (locator)
	SV1: 43'9" from PCH, perpendicularly. 45'0" from SE edge of hotel (16'10" from hotel corner) SV1 moved 1ft away from PCH on locator's recommendation
	SV2: 38'9" from PCH, perpendicularly 51'0" from parking lot lamp post. (SE of lamp post)
	SV3: 40'1" from PCH, perpendicularly 48'9" NW of parking lot lamp post.
	SV4: 44'7" ⊥ from PCH 31'02" N of south transformer bunker
	SV5: 40'3" from PCH, ⊥ 30'8" south of lamp post near road entrance
	SV6 36'7" ⊥ from PCH 90'6" S of main hotel sign.
	SV7 35'4" ⊥ from PCH 15'10" W ^N west of hotel sign
	SV8/B13: 47'0" ⊥ from PCH 29'9" south of SE corner of the north electrical bunker
	SV9/B3: 49'5" N of NE corner of north electrical bunker 47'1" ⊥ from PCH

Print Name: Dana R. Brown Signature: Michelle Hughson

Field Activity Report



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Date: 03/23/2016

Recorded By: Michelle Hughson

Project Name: Center Cal
 Client Name: Wactor & Wick

Project No.: 2047.06

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
	SV10: 42'6" from the North corner of the planter curb running ~N→S along the east side of the hotel. 42'6" from large corner sign.
	SV11: 21'9" from PCH 32'7" from parking lot light, near north entrance on PCH
	SV12: 52'3" from SE corner of garbage area 59'10" from 2nd street
	GW1/B1: 29'10" from curb along east side of hotel, north of main entrance 6'9" from corner of the planter curb running N→S (SW corner)
	GW2: 16'6" from square tree planter curb (to the east of the curb) 28'0" SW from the lamp post. GW2 is centrally located in the double row of parking to the south of the north electrical bunker.
	GW3: 7'5" from the NW corner of the long planter curb running ~N→S along the east side of the hotel.
	B2: 21'7" from 2nd Street, very near to the entrance. 32'10" from the N corner of the garbage area.
	B4: Within the first NW parking spot of the row to the east of the octagonal/circular building as part of the hotel. (and north are parking row) 19'3" from lamp post 7'4" from the NW corner of the curb.
	B5: In the same row of parking as B4 8'10" N of lamp post 31'4" W of square tree curb
	B6: 11'10" from Hotel edge 7'4" from the point of concrete next to the gazebo

Print Name: Michelle Hughson Signature: Michelle Hughson

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Date: 03/23/2016

Recorded By: Michelle Hughson

Project Name: CenterCal

Project No.: 2047.06

Client Name: Waeter & Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
	B7: 26'2" from BBO P. + 46'9" from play structure
	B8: 6'10" from curb } within the south-most parking spot 8'9" from lamp post } along the SE wall of the hotel.
	B9: In the NW corner of the site, on the SE side of the triangular planter curb. 18'0" from the W curb point 43'4" from the E curb point.
	B10 on the W side of the hotel, near the main entrance 20'4" from lamp post 87'0" from the end of the accessible ramp.
	B11 SW of the octagonal building, near the triangular curb. 20'0" from the lamp post 61'9" from the corner of the patio
	B12 NE of the octagonal building, centered in the main thoroughfare 12'7" from the curb point to the N 28'8" from the curb point to the SE
	B14 66'9" from PCH 94'5" from the lamp post north of the north electrical bunker
	B15 38'5" from the large corner hotel sign 85'4" from the SE corner of the garbage area
	B16 36'2" from the lamp post nearest to the central planter curb on the NW edge of the site 21'11" from the NW corner of the storage area.
10:25	met with Dana and the drillers
10:30	observe the borings by Dana and the drillers.
11:45	Lunch break

Print Name: Michelle Hughson

Signature: Michelle Hughson

Field Activity Report



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Date: 03/23/2016
Recorded By: Michelle Hughson

Project Name: Center Cal Project No.: 2047.06
Client Name: Wastor & Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
12:15	Return from lunch, continue to observe Dana.
13:40	Lead soil vapor probe installation.
	SV1: (All depths below ground surface)
13:45	Advance boring to 5.5' using macrocore with SFI run, OD 2 1/4", ID 2" using nylon tubing for probe. Soil wet below 4.5', probe will be installed in the capillary fringe from 3.5'-4.5'. Soils caving in below 4.5'
	5'-4.5': sand
	3.5'-4.5': probe surrounded with sand
	2.5'-3.5': dry bentonite
	0.5'-2.5': hydrated bentonite
14:05	0'-0.5' valve added to probe end and buried in sand.
	SV2:
14:15	Advance boring to 5.5'. wet below 5.5', no caving in
14:30	Probe between 4' and 5'. Construction as above
	SV3:
14:35	Advance boring to 5.5'. wet below 4.5' and caving in.
14:50	Probe built 3.5'-4.5'. Construction as above
	SV4
15:00	Advance boring to 5.5'. wet below 4' and caving in.
15:20	Probe built 3'4", construction as above
15:30	Leave site
16:30	Arrive home: 60425
17:30	Finish field notes.

Print Name: Michelle Hughson Signature: Michelle Hughson

Field Activity Report



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Date: 03/24/2016

Recorded By: Michelle Hughson

Project Name: CenterPal

Project No.: 2047.06

Client Name: Wachtor & Wick

Weather: Clear and breezy.

Temperature: _____

Site Conditions: Hotel and parking lots. Some impacted soils below the surface.

NORTHGATE PERSONNEL ON-SITE

Dana Brown
Michelle Hughson

VISITORS

Name	Company/Agency	Time Arrived	Time Left

CONTRACTORS

Contractor Name: Interphase Environmental Phone No.: _____

Supervisor: _____ Task: Drillers

Company	No. of Supervisors	No. of Workers	Remarks
<u>Interphase Environmental</u>		<u>2</u>	<u>Drillers</u>

EQUIPMENT

Soil water, soil vapor sampling kits
Level D PPE
Camera

Field Activity Report



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Date: 03/24/2016
Recorded By: Michelle Hughson

Project Name: Center Cal Project No.: 2047.07
Client Name: Wactor + Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
06:00	Mobilize to Seaford Hotel in Long Beach for site characterization: Personal vehicle use @ MPH residence: 60431
06:30	Stop to pick up ice for samples.
06:45	Arrive at site: 60464
07:00	Meet with drillers and have health and safety talk.
07:20	SV5, boring location was moved 1 yd away from PCH, potential to hit gas line Begin advancing SV5 to 5.5' with macrocore with 5ft run, OD 2 1/4", ID 2" Wet below 4.5' and casing in.
07:35	Soil: brown, sandy mud (60/40). (All depths below ground surface) Building probe between 3.5' and 4.5' # 5.5'-4.5': sand 4.5'-3.5': probe surrounded by sand. 3.5'-2.5': dry bentonite 2.5'-0.5': hydrated bentonite. Cone placed over valve end of probe to protect it from vehicles.
07:45	SV6, boring was moved 1ft from PCH to avoid potential gas line hit. Begin advancing SV6 to 5.5' Wet at 5' but not casing in. Soil: muddy sand (70/30).
07:55	Probe built between 4' and 5'. Construction as above. Type samples 0'-1', 1'-2', and 4.5'-5.5' collected and given to Dana
08:12	SV7, boring moved 1 yd away from PCH and 1ft NW Begin advancing SV7 to 5.5'
08:20	Muddy sand to 4.5', sandy mud 4.5'-5.5', faint petroleum odor Probe built 4'-5'. Construction as above. PID reading: 0.0 ppm
08:42	SV11, Begin advancing SV11 to 5.5'. Wet below 5'. PID Reading 0.0 ppm along whole length. 0'-0.5': coarse sand and gravel 0.5'-4.5': muddy sand, dark grey colored. 4.5'-5.5': sandy mud, dark grey

Print Name: Michelle Hughson Signature: Michelle Hughson

Field Activity Report



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Date: 03/24/2016

Recorded By: Michelle Hughson

Project Name: Center-Cal
 Client Name: Wactor c.w.c

Project No.: 2047.06

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
08:53	Probe installed 4'-5'. Construction at above.
	SV10,
09:00	Begin advancing to 5.5', wet below 5.5ft 0-0.25': gravelly sand 0.25'-5.25': light brown muddy sand (70/30) 5.25'-5.5': dk brown sandy mud (60/40)
09:15	Probe completed 4'-5'. Construction at above.
	SV12,
09:25	Begin advancing to 5.5', water not encountered. Moderate petroleum smell, brown-grey muddy sand whole depth. PID: 1ft: 180.6 ppm 3.5ft: 595.8 ppm 5.5ft: 291.3 ppm
09:35	Probe completed 4'-5'. Construction at above.
	SV9/B3
09:45	Begin advancing to 15'. Soil: 0-0.5': brown sand and gravel 0.5'-3.5': brown muddy sand (mud 25%) 3.5'-5.0': grey sandy mud (sand 40%) 5.0'-6.5': grey muddy sand 6.5'-9.0': grey sandy mud (sand 40%) 9.0'-12.0': grey mud with free product. PID 13.2 ppm 12.0'-15.0': grey sandy mud, saturated at 12'
	Collect samples (two 5035's, and one 4oz jar each)
09:48	B-3-5.0 headspace PID reading: 0.3 ppm
09:50	B-3-10.0 : 198.2 ppm
09:55	B-3-15.0 : 2.3 ppm
10:20	Buildup to 5.5' and complete probe between 4'-5'. Sand surrounding probe, and 6" below, 1ft dry bentonite above, and wet bentonite to 6" below ground surface.

Print Name: Michelle Hughson Signature: Michelle Hughson

Field Activity Report



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Date: 03/24/2016
Recorded By: Michelle Hughson

Project Name: CenterCal Project No.: 2047.06
Client Name: Wactor - Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
	<u>SV8/B13</u>
<u>10:40^{AM}</u>	<u>Advance boring to 15'</u> <u>PID reads 0.0 ppm along whole length of boring</u> <u>Soil profile:</u> <u>0-0.5': coarse sand and gravel</u> <u>0.5'-2': brown sand.</u> <u>2'-5': grey mud</u> <u>5'-6': grey muddy sand</u> <u>6'-13: grey mud, saturated at 11'</u> <u>13'-14: grey muddy sand</u> <u>14'-15: grey mud.</u>
	<u>Collect soil samples (two So35s and 4oz jar at each depth)</u>
<u>10:43</u>	<u>B-13-5.0 headspace PID reading: 1.1 ppm</u>
<u>10:45</u>	<u>B-13-10.0 " : 1.0 ppm</u>
<u>11:00</u>	<u>B-13-15.0 " : 1.4 ppm</u>
<u>10:40</u>	<u>B-13-1.0</u>
<u>11:15</u>	<u>Buildup to 5.5' and complete probe between 4' and 5'. Probe construction as above.</u>
<u>11:35</u>	<u>Advance GW2 to 15ft.</u> <u>Collect 3VOAs and 1L Amber bottle of water using bailer.</u> <u>water is mostly clear, yellowish, no odor, and effervescent with HCl</u>
<u>12:07</u>	<u>water level: 11'6"</u>
	<u>GW1/B1 MH</u>
<u>12:20</u>	<u>Lunch break.</u>
<u>12:50</u>	<u>Return from lunch.</u>
	<u>GW1/B1</u>
<u>13:05</u>	<u>Begin advancing to 15ft</u> <u>PID readings along core length (highest reading taken):</u> <u>0-4' 0 ppm</u> <u>4-8' 13.2 ppm</u> <u>8-12' 80.9 ppm</u> <u>12'-15' 73.9 ppm</u>

Print Name: Michelle Hughson Signature: Michelle Hughson

Field Activity Report



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Date: 03/24/2016

Recorded By: Michelle Hughson

Project Name: Penter Cal

Project No.: 2047.06

Client Name: Wactor & Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
	Soil profile
	4'-6': grey sand (25% mud)
	6'-10': grey muddy sand (40% mud)
	10'-13.5': free product mixed in grey mud, amber coloured, sticky moderate odor
	13.5'-15': grey mud (25% sand)
	Collect soil samples (two 503s and one 4oz jar at each depth)
13:08	B-1-5.0 headspace PID reading: 1.0ppm
13:22	B-1-10.0 " : 887.3 ppm
13:32	B-1-15.0 " : 94.0 ppm
	No water for water samples. Boring covered with pylon to give water time to seep into boring
	GW3
14:05	Begin advancing to 15' for water samples. Refusal at 5'. Boring location moved ~2ft toward 2nd street
14:15	Begin advancing new GW3 boring to 15'.
14:35	Water level 12.6'
	Collect 3VOAs and 1L Amber Bottle of water using bailer. each water is yellowish brown, cloudy, no odor, slight effervescence with HCl
14:38	GW-3: 3VOAs + 1L Amber
13:38	GW-4: 3VOAs + 1L Amber (Duplicate)
15:05	Water level: 13.5'
	GW1/B1
15:18	Uncover boring and remove PVC cap. Water level: 9.3'
	Collect water sample with bailer
	GW-1: 3VOAs + 1L Amber
	At 6' first: water is yellowish with some free product, mostly clear, no odor. Increasing free product with volume of water removed. As much as 10% free product at the end

Print Name: Michelle Hughson

Signature: Michelle Hughson

Field Activity Report



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Date: 03/24/2016
 Recorded By: Michelle Hughson

Project Name: Center Cal Project No.: 2047.06
 Client Name: Wacker & Wick

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
	B-15
15:40 ^{15:48}	Begin advancing to 15ft. PID readings, highest taken in each core section 0'-4': 24.6 ppm 4'-8': 695 ppm 8'-12': 7.8 ppm 12'-15': 1.0 ppm
	Soil profile: 0-0.5': grey sand and gravel 0.5'-3.5': brown muddy sand (some coarse sand ~2.5') 3.5'-8': grey sandy mud, strong odor. Saturated at 8ft. 8'-11': dk grey sandy mud 11'-15': grey-brown sandy mud.
	Collect soil samples (two 503SS and one 4oz jar at each depth)
15:50	B-15-5.0 headspace PID reading:
16:03	B-15-10.0 " "
16:14	B-15-15.0 " "
15:47	B-15-1.0 " "
	B16
16:49	Begin advancing to 15' PID readings, highest taken in each core section: 0'-4' : 0.9 ppm 4'-8' : 0.0 ppm 8'-12' : 0.0 ppm 12'-15' : 0.0 ppm
	Soil Profile: 0-0.5': grey sand & gravel 0.5'-4.5': brown muddy sand 4.5'-6.5': coarse brown sand 6.5'-8.5': grey muddy sand 8.5'-15': grey sandy mud, saturated, very wet at 12'

Print Name: Michelle Hughson Signature: Michelle Hughson

Field Activity Report



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Date: 03/25/2016

Recorded By: Michelle Hughson

Project Name: Center Cal

Project No.: 2017.06

Client Name: Wadsworth

Weather: Sunny

Temperature: _____

Site Conditions: Hotel and parking lot. Some impacted soils below the surface

NORTHGATE PERSONNEL ON-SITE

Michelle Hughson
Dana Brown

VISITORS

Name	Company/Agency	Time Arrived	Time Left

CONTRACTORS

Contractor Name: Interphase Environmental
 Supervisor: _____

Phone No.: _____
 Task: Drillers

Company	No. of Supervisors	No. of Workers	Remarks
<u>Interphase</u>		<u>2</u>	<u>Drillers</u>

EQUIPMENT

Soil, water sampling kits
Level DPPE
Camera

Field Activity Report



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Date: 03/25/2016

Recorded By: Michelle Hughson

Project Name: CenterPal
Client Name: Wardor & Wick

Project No.: 2047.06

ACTIVITIES

Time:	Activities (include event, time, observations, observers, etc.)
13:10	Mobilize to SeaPort Marina Hotel for site characterization: 60523
13:35	Stop to pick up ice for samples.
13:45	Arrive on site: 60532
13:50	Pack ice into new cooler. Dana prepares trip blank
	B17 (Previously labelled B12, located in U of hotel opening north)
13:50	Begin advancing to 15'
	Collect soil samples
13:54	B-17-05.0 PID headspace reading: 0.5 ppm
13:58	B-17-10.0 " : 0.6 ppm
14:02	B-17-15.0 " : 0.3 ppm
13:50	B-17-1.0 " : 6.3 ppm
	PID reading 0.0 ppm along whole boring length
14:30	Soil log given to Dana
	B7/GW7
15:00	Set up LAR at B7. Water and soil samples will be collected.
15:23	Begin advancing to 15'
	Collect soil samples
15:28	B-7-5.0 PID headspace readings: 0.4 ppm
15:34	B-7-10.0 " : 0.3 ppm
15:37	B-7-15.0 " : 0.0 ppm
15:28	B-7-1.0 " : 7.1 ppm
	PID Reading 0.0 ppm along entire length
	Collect water samples.
	GW-7 : 9VOAs
16:05	Water: brown, opaque, no odor, effervescent with HCl
16:10	Water level: 11.4 ppm
	B6 B6
16:25	Set up LAR at B6. Soil samples only will be collected.
16:31	Begin advancing to 15'

Print Name: Michelle Hughson

Signature: Michelle Hughson

APPENDIX C
BORING LOGS



Boring Log

Project Number: 2047.06		Boring No.: B-1/GW-1	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/24/16	Date Completed: 03/24/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 9.3	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Grab groundwater sample collected in temporary well constructed in the annulus. Boring abandoned with neat cement grout containing 3% w/w bentonite powder. Placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover approximately 4" thick with roadbase below:		
1				SP-SM	Poorly Graded Sand with Silt (SP-SM): Light gray 5Y (7/1), dry, loose, 85% fine Sand, 15% non-plastic fines. No odor or staining.	0.0	
2							
3							
4							
5	B-1-5.0 13:08	×		SM	Silty Sand (SM): Dark gray, damp, loose, 75% fine Sand, 25% non-plastic fines. Vague HC odor.	13.2	
6						1.0	
7							
8				ML	Sandy Silt (ML): Dark gray 10YR (4/1), moist to wet, medium stiff, 40% fine Sand, 60% moderate plastic fines. Strong HC odor. At 10', free product visible in core, amber colored oily staining from 10'-13.5'. Up to 10% free product in recovered water sample. Depth to water = 9.3'		
9						80.9	▽
10	B-1-10.0 13:22	×		CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff, 35% fine Sand, 65% moderate-high plastic fines. Strong-moderate HC odor, oil stained.	887.3	
11							
12							
13						73.8	
14				CH	Sandy Fat Clay (CH): Very dark gray 10YR (3/1), wet, stiff, 35% fine Sand, 65% moderate-high plastic fines. Slight HC odor, no staining.		
15	B-1-15.0 13:32	×				94.0	
16					TD = 15' @ 13:35; 3/24/16		
17							
18							
19							

DRB-ENVIRO BORING 2047.06 P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-2	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/23/16	Date Completed: 03/23/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 10.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 6.25	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover approximately 4" thick, 6" roadbase below:		
1				SP	Poorly Graded Sand (SP): Moderate brown 5YR (3/4) to light olive gray 5Y (5/2) locally. Dry, loose, 95% fine sand, 5% non-plastic fines. No odor or staining.	0.0	
2							
3				SM	Silty Sand (SM): Olive gray 5Y (3/2), moist to wet, medium dense to loose. 55% fine sand, 45% non-plastic fines. No odor or staining.	3.7	▽
4							
5	B-2-5.0 10:10	X					
6							
7							
8							
9							
10							
11					TD = 10' @ 10:21; 3/23/16	0.9	
12							
13							
14							
15							
16							
17							
18							
19							

Boring Log

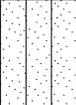
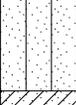
Project Number: 2047.06		Boring No.: B-3/SV-9	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/24/16	Date Completed: 03/24/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 12.0	
Remarks: Boring advanced to 15.0' with continuous coring using Geoprobe 6600. Grouted back to 5.5' using tremie method. Soil vapor probe built after grout stabilized.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover approximately 5" thick, roadbase fill below:		
1				SP-SM	Poorly Graded Sand with Silt (SP-SM): Light gray 5Y (7/1), dry, loose. 75% fine sand, 25% non-plastic fines. No odor or staining.		
2							
3							
4				CL	Lean Clay with Sand (CL): Grayish brown 10YR (5/2), damp, medium stiff. 25% fine sand, 75% moderate-high plastic fines. No odor or staining.		
5	B-3-5.0 09:48	X		SM	Silty Sand (SM): Olive gray 5Y (3/2), moist, medium dense to loose. 60% fine sand, 40% non-plastic fines. No odor or staining.	0.3	
6							
7							
8							
9							
10	B-3-10.0 09:50	X		CH	Fat Clay with Sand (CH): Very dark grey 10YR (3/1), wet, stiff. 30% fine sand, 70% moderate-high plastic fines. Oil staining on core, dark brown, thick from 9'-12' (crude oil?).	198.2	
11						13.2	
12							
13				CL	Sandy Lean Clay (CL): Very dark gray 10YR (4/1), damp to moist, stiff. 35% fine sand, 65% moderate plastic fines. Slight HC odor, no staining.		
14							
15	B-3-15.0 10:43	X			TD = 15' @ 10:43; 3/24/16	2.3	
16							
17							
18							
19							

DRB-ENVIRO BORING 2047.06 PZESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-4	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/23/16	Date Completed: 03/23/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 10.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 10.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover - approximately 4" thick, roadbase fill below:		
1				SM	Silty Sand (SM): Brown, 10YR (5/3), dry, loose. 75% fine sand, 25% non-plastic fines. No odor or staining.	0.0	
2				SM	Silty Sand (SM): Dark gray 10 YR (4/1), damp to moist, loose. 75% fine sand, 25% non-plastic fines. No odor or staining.		
3				SM			
4				SM			
5	B-4-5.0 09:10	X		SC	Clayey Sand (SC): Dark gray 10 YR (4/1), damp, medium stiff. 80% fine sand, 20% moderate-high plastic fines. No odor or staining.	1.6	
6				SC			
7				CL	Lean Clay with Sand (CL): Very dark gray 5Y (3/1), moist, medium stiff. 25% fine sand, 75% moderate-high plastic fines. No odor or staining.		
8				CL			
9	B-4-9.0 09:16	X		CH	Fat Clay (CH): Very dark gray, wet, stiff. 20% fine sand, 80% high plastic fines. Slight sulfur odor, no staining.	2.0	
10				CH			
11					TD = 10' @ 09:16; 3/23/16		
12							
13							
14							
15							
16							
17							
18							
19							

DRB-ENVIRO BORING: 2047.06_P2ESA.GPJ 4/22/16

Boring Log

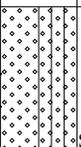
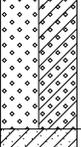
Project Number: 2047.06		Boring No.: B-5	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 8.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover - 4" thick with roadbase fill approximately 4" thick below.		
1	B-5-1.0 10:35	⊗		SP-SM	Poorly Graded Sand with Silt (SP-SM): Light gray 5Y (7/1), dry, loose. 85% fine sand, 15% non-plastic fines. No odor or staining.	13.6	
2							
3							
4				CL	Lean Clay with Sand (CL): Grayish brown 10YR (5/2), damp, medium stiff. 25% fine sand, 75% moderate-high plastic fines. No odor or staining.		
5	B-5-5.0 10:38	⊗		SP	Poorly Graded Sand (SP): Light gray 5Y (7/1), dry, loose. 95% fine sand, 5% non-plastic fines. No odor or staining.		
6							
7							
8							▽
9							
10	B-5-10.0 10:41	⊗		CL	Lean Clay with Sand (CL): Very dark gray 10YR (4/1), damp to moist, stiff. 20% fine sand, 80% moderate plastic fines. No odor or staining.	1.9	
11							
12							
13							
14							
15	B-5-15.0 10:47	⊗		CH	Fat Clay with Sand (CH): Very dark grey 10YR (3/1), wet, stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.	5.9	
16					TD = 15' @ 10:47; 3/25/16	2.4	
17							
18							
19							

DRB-ENVIRO BORING 2047.06_P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-6	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 8.0	
Remarks: Geoprobe 540 limited access rig with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

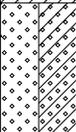
Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-6-1.0 16:32	X		SW-SM	Fill Material: Well Graded Sand with Silt (SW-SM): Brown, dense. 70% fine sand, 30% non-plastic fines. No odor or staining.	8.4	
2							
3							
4							
5	B-6-5.0 16:34	X		SC	Clayey Sand (SC): Dark gray 10 YR (4/1), medium stiff, wet. 80% fine sand, 20% moderate-high plastic fines. No odor or staining.	3.2	
6							
7							
8							
9							
10	B-6-10.0 16:41	X		SW-SC	Well Graded Sand with Clay (SW-SC): Brown 7.5 YR (5/2), dense, wet. 90% fine to medium sub-angular sand, 10% moderate to high-plastic fines. Slight organic odor, no staining.	6.1	
11							
12							
13							
14							
15	B-6-15.0 16:44	X				5.0	
16					TD = 15' @ 16:44; 3/25/16		
17							
18							
19							

DRB-ENVIRO BORING 2047.06_P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-7/GW-7	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 11.4	

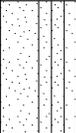
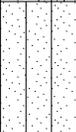
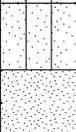
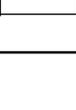
Remarks: Geoprobe 540 LAR, 2.25" macrocore sampler, 1.75" acetate liners. Grab groundwater sample collected in temporary well constructed in the annulus. Boring abandoned with neat cement grout containing 3% w/w bentonite powder. Placed using the tremie method.

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-7-1.0 15:26	X		SM	Silty Sand (SM): Moderate brown, 5YR (3/4), medium dense, dry. 75% fine sand, 25% non-plastic fines. No odor or staining.	7.1	▽ —
2							
3					Clayey Sand (SC): Dark gray 10 YR (4/1), medium stiff, damp to wet. 80% fine sand, 20% moderate-high plastic fines. No odor or staining. (Perched water at 6.5')		
4							
5	B-7-5.0 15:28	X		SC		0.4	
6							
7							
8							
9							
10	B-7-10.0 15:34	X		SW-SC	Well Graded Sand with Clay (SW-SC): Light brown 7.5 YR (6/3), medium stiff, wet. 90% fine to medium sub-angular sand, 10% moderate to high-plastic fines. No odor or staining.	0.3	
11							
12					Clayey Sand (SC): Dark gray 10 YR (4/1), damp, medium stiff. 80% fine sand, 20% moderate-high plastic fines. No odor or staining.		
13							
14							
15	B-7-15.0 15:37	X		CH		0.0	
16					TD = 15' @ 15:37; 3/25/16.		
17					Water sample GW-7 collected, 9 VOAs. Water effervescent when placed in sample bottles.		
18							
19							

DRB-ENVIRO BORING 2047.06 P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-8/GW-8	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/23/16	Date Completed: 03/23/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 10.5	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Grab groundwater sample collected in temporary well constructed in the annulus. Boring abandoned with neat cement grout containing 3% w/w bentonite powder. Placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1				SP-SM	Poorly Graded Sand with Silt (SP-SM): Moderate brown, 5YR (3/4), dry, loose. 85% fine sand, 15% non-plastic fines. No odor or staining.	0.1	
2				SM	Silty Sand (SM): Moderate brown, 5YR (3/4), dry, loose. 75% fine sand, 25% non-plastic fines. No odor or staining.		
3				SM	Color change to dark gray 10YR (4/1) at 4.0'. Slight organic and salt water odor.		
4				SM	Color change to dark gray 10YR (4/1) at 4.0'. Slight organic and salt water odor.		
5	B-8-5.0 11:00	X		SP	Poorly Graded Sand (SM): Dark gray 5Y (3/2), loose to medium-dense, dry. 95% fine sand, 5% moderate plastic fines. No odor or staining.	1.4	
6				SP	Poorly Graded Sand (SM): Dark gray 5Y (3/2), loose to medium-dense, dry. 95% fine sand, 5% moderate plastic fines. No odor or staining.		
7				CH	Sandy Fat Clay (CH): Olive gray 5Y (3/2), stiff, damp to moist. 35% fine sand, 65% moderate plastic fines. Slight organic odor, no staining.		
8				CH	Sandy Fat Clay (CH): Olive gray 5Y (3/2), stiff, damp to moist. 35% fine sand, 65% moderate plastic fines. Slight organic odor, no staining.		
9				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
10	B-8-10.0 11:10	X		CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.	2.0	
11				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
12				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
13				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
14				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
15	B-8-15.0 11:17	X		CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
16				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
17				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
18				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
19				CH	Sandy Fat Clay (CH): Very dark gray 5Y (3/1), wet, medium stiff. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.		
					TD = 15' @ 11:17; 3/23/16. Grab groundwater sample GW-8 collected in boring advanced 5' west on 3/25/16 @ 08:45. 9x40ml VOA vials filled. Water effervescent when placed into sample containers.		

DRB-ENVIRO BORING 2047.06 P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-9	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/23/16	Date Completed: 03/23/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 8.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-9-1.0 12:40	X	AC	AC	Asphalt cover approximately 4" thick with 2" of roadbase fill material below.	1.5	
2			SW	Well Graded Sand (SW): Pale yellowish brown 10YR (6/2), loose, dry. 95% fine-medium subangular sand, 5% non-plastic fines. No odor or staining.			
3	B-9-5.0 12:44	X	SM	SM	Silty Sand (SM): Brown 10YR (5/3), loose to medium dense, dry. 75% fine sand, 25% non-plastic fines. No odor or staining.	0.8	
4			SW	Well Graded Sand (SW): Same as 1.5'.			
5			SW	Capillary fringe at approximately 7.5' - 8.0'; wet at 8.0'.			
6	B-9-10.0 12:50	X	SC	SC	Clayey Sand (SC): Dark gray, medium stiff, wet. 75% fine-medium subangular sand, 25% moderate to high plastic fines. No odor or staining.	0.8	▽
7							
8							
9	B-9-15.0 13:02	X	CH	CH	Sandy Clay (CH): Dark gray 5Y (5/1), stiff, wet. 35% fine sand, 65% moderate-high plastic fines. No odor or staining.	0.4	
10							
11							
12							
13							
14							
15					TD = 15' @ 13:02; 3/23/16		
16							
17							
18							
19							

DRB-ENVIRO BORING: 2047.06_P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-10	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 12.5	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

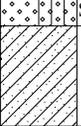
Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt cover approximately 3" thick with 3" roadbase fill below.		
1	B-10-1.0 12:53	X			Poorly Graded Sand (SP): Pale yellowish brown 10YR (6/2), loose, dry. 95% fine subangular sand, 5% non-plastic fines. No odor or staining.	8.5	
2					Coarsening downward - some finer lenses with up to 15% non-plastic fines.		
3							
4				SP			
5	B-10-5.0 12:57	X				3.8	
6							
7							
8					Gradational Contact		
9				SW	Coarsening to mostly fine to medium sand at 8', fines become moderate plastic fines. Color change to light grey 10YR (7/2).		
10	B-10-10.0 13:00	X		SC	Sandy Clay (SC): Dark olive gray 5Y (3/2), medium-stiff, damp to moist. 30% fine sand, 70 % high plastic fines. Moderate organic odor, no staining.	251.9	
11							
12							
13				CH	Fat Clay with Sand (CH): Very dark gray 10YR (3/1), stiff, wet. 20% fine sand, 80% high plastic fines. Moderate HC odor and lenses of blackish decomposing organics to 1/8" thick.		
14							
15	B-10-15.0 13:05	X				108.2	
16					TD = 15' @ 13:05; 3/25/16		
17							
18							
19							

DRB-ENVIRO BORING 2047.06_P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-11	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 12.0	

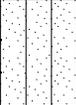
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-11-1.0 12:03	X		AC	Asphalt 4" thick with 2" roadbase fill below.	11.6	
2				SW	Well Graded Sand (SW): Very pale brown 10YR (7/3), loose, dry. 95% fine to medium subangular sand, 5% non-plastic fines. No odor or staining.		
3	B-11-5.0 12:06	X		SW-SM	Well Graded Sand with Silt (SW-SM): Gray 5Y (6/1), medium-dense, damp. 90% fine-medium sand, 10% non to moderate plastic fines. No odor or staining. Some dark (MnO?) fleks to 1/8".	1.0	
4				SC	Clayey Sand (SC): Gray 5Y (5/1), dense, moist. 60% fine sand, 40% moderate to high plastic fines. Vague organic odor. No staining. Some black (MnO?) fleks to 1/8".		
5				SW-SC	Well Graded Sand with Clay (SW-SC): Gray 5Y (5/1), medium-dense, moist to damp. 90% fine-medium sand, 10% moderate-high plastic fines. No odor or staining.		
6				CH	Sandy Clay (CH): Very dark gray 10YR (5/1), dense to very dense, moist to wet. 35% fine sand, 65% moderate-high plastic fines. Some thick, dried out rootlets from 10' - 15'. No odor or staining.		
7	B-11-10.0 12:10	X				0.7	
8							
9							
10	B-11-15.0 12:14	X				0.4	
11							
12							
13							
14							
15					TD = 15' @ 12:14; 3/25/16		
16							
17							
18							
19							

DRB-ENVIRO BORING 2047.06_P2ESA.GPJ 4/22/16

Boring Log

Project Number: 2047.06		Boring No.: B-12	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 12.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				AC	Asphalt Cover 4" thick, approximately 3" roadbase fill below.		
1	B-12-1.0 09:25	X		SM	Fill material - Silty Sand (SM): Brown 10 YR (5/3), loose, dry. 70% fine to medium sand, 30% non-plastic fines. No odor or staining.	3.2	
2				SM	Silty Sand (SM): Brown 10YR (5/3), loose, dry. 75% fine sand, 25% non-plastic fines. No odor or staining. Some 1" lenses of (SW) 95% fine-medium sand, 5% non-plastic fines.		
3	B-12-5.0 09:32	X		SC	Clayey Sand (SC): Dark gray 5Y (5/1), medium stiff, damp. 80% fine sand, 20% moderate to high plastic fines. Vague organic odor. No staining.	2.1	
4				SC	Gradational contact at 7'. Same as above but becoming stained and odorous at depth. Fining downward to 15% high plastic fines at 7'; increasing to 40% high plastic fines at 10'. Strong hydrocarbon odor at 10.5' with some oil staining.		
5				SC			
6	B-12-10.0 09:35	X		SC	Clayey Sand (CH): Same as above but very odorous 11.5' - 12'. Dark black staining.	48.6	
7				CH	Sandy Clay (CH): Dark gray 5Y (5/1), stiff, wet. 35% fine sand, 65% moderate-high plastic fines. Strong HC odor and some visible staining.		
8	B-12-15.0 09:45	X		SC	Grades to SC at 13.5. Up to 65% fine sand, 35% high plastic fines. Slight HC odor.	368.9	
9				SC			
10				SC			
11							
12							
13							
14							
15							
16							
17							
18							
19							
					TD = 15' @ 09:45; 325/16		

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Boring Log

Project Number: 2047.06		Boring No.: B-13/SV-8	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/24/16	Date Completed: 03/24/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 11.0	
Remarks: Boring advanced to 15.0' with continuous coring using Geoprobe 6600. Grouted back to 5.5' using tremie method. Soil vapor probe built after grout stabilized.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-13-1.0 10:40	X	AC	AC	Asphalt Cover 4" thick with 2" roadbase fill below.	0.3	
2			SW	Well Graded Sand (SW): Moderate brown 5YR (3/4), loose, dry. 95% fine to medium subangular sand, 5% non-plastic fines. No odor or staining.			
3	B-13-5.0 10:43	X	SC	SC	Clayey Sand (SC): Dark gray 5Y (4/1), medium-dense, damp to dry. 80% fine sand, 20% moderate-high plastic fines. Slight organic odor. No staining.	1.1	
4			SC	Clayey Sand (SC): Same as above but 60% sand, 40% high plastic fines. No odor or staining.			
5			CH	Sandy Clay (CH): Very dark gray 10YR (5/1), dense, damp to moist. 35% fine sand, 65% moderate to high plastic fines. No odor or staining.			
6	B-13-10.0 10:45	X	CH	CH	Becoming finer down section to 20% fine sand, 80% high plastic fines.	1.0	▽
7			CH	Sandy Clay (CH): Same as 8'. No odor or staining.			
8			CH	Sandy interval from 13' - 14'. 35% fine sand, 65% high plastic fines. No odor or staining.			
9			CH	Sandy Clay (CH): Same as 8'. No odor or staining.			
10	B-13-15.0 11:00	X				1.4	
11							
12					TD = 15' @ 11:00; 3/24/16.		
13							
14							
15							
16							
17							
18							
19							

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Boring Log

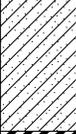
Project Number: 2047.06		Boring No.: B-14	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/25/16	Date Completed: 03/25/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 7.75	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-14-1.0 07:30	X		AC	Asphalt Cover 4" thick. Old asphalt cover below 2" of soil. Concrete slab approximately 3" thick, non-reinforced, below asphalt. Roadbase fill 6" thick below slab.	0.0	
2				SC	Clayey Sand (SC): Dark gray 5Y (4/1), medium-dense to loose, damp. 80% fine sand, 20% moderate-high plastic fines. Slight to moderate hydrocarbon odor from 3' to 4'. No staining.	0.9	
3							
4							
5	B-14-5.0 07:34	X		SC	Clayey Sand (SC): Same as above but becoming stained and odorous with hydrocarbons. Damp to moist.	54.5	
6					Gradational Contact.		
7				SW-SC	Well Graded Sand with Silt (SW-SC): Gray 5Y (5/2), damp to wet, medium dense, 90% fine-medium sand, 10% moderate-high plastic fines. Moderate hydrocarbon odor.		
8					First water at 7.75'.		
9							
10	B-14-10.0 07:40	X		CH	Sandy Clay (CH): Very dark gray 10YR (5/1), dense, wet. 30% fine sand, 70% moderate-high plastic fines. Strong hydrocarbon odor and some blackish staining.	107.9	
11							
12							
13							
14							
15	B-14-15.0 07:46	X			TD = 15' @ 07:46; 3/25/16.	1735	
16							
17							
18							
19							

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Boring Log

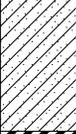
Project Number: 2047.06		Boring No.: B-15	
Project Name: CenterCal Property		Logged by: Michelle Hughson / Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/24/16	Date Completed: 03/24/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 8.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
0				Fill	Roadbase fill 6" thick.		
1	B-15-1.0 15:47	X		SM	Silty Sand (SM): Dark gray 10YR (4/1), medium-dense, dry. 75% fine sand, 25% non-plastic fines. Slight hydrocarbon odor down section. No staining.	0.9	
2							
3							
4							
5	B-15-5.0 15:50	X		SW	Well Graded Sand (SW): Moderate brown 5Y 3/4, loose, dry. 95% fine-medium sand, 5% non-plastic fines. Slight hydrocarbon odor and some staining.		
6							
7							
8				SC	Clayey Sand (SC): Dark gray 5Y (4/1), medium dense, damp to wet. 80% fine sand, 20% high plastic fines. Strong hydrocarbon odor and some darkish staining.	24.6	
9							
10	B-15-10.0 16:03	X		CH	Sandy Clay (CH): Very dark gray 10YR (5/1), stiff to medium stiff, wet. 30% fine sand, 70% moderate-high plastic fines. Slight hydrocarbon odor at top of unit, decreasing to no odor or staining below.	695	
11						7.8	
12							
13							
14							
15	B-15-15.0 16:14	X			TD = 15' @ 16:14; 3/24/16.	1.0	
16							
17							
18							
19							

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Boring Log

Project Number: 2047.06		Boring No.: B-16	
Project Name: CenterCal Property		Logged by: Dana Brown	
Drilling Contractor: InterPhase Environmental		Date Started: 03/24/16	Date Completed: 03/24/16
Drilling Method: Direct Push	Diameter (in): 2.25	Total Depth (ft bgs): 15.0	Surface Elevation (ft MSL):
Surface Completion Type: None.		Depth to Water (ft bgs) during drilling: 12.0	
Remarks: Geoprobe 6600 with 2.25" macrocore sampler, 1.75" acetate liners. Boring abandoned with neat cement grout containing 3% w/w bentonite powder, placed using the tremie method.			

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	10.6 ev PID (ppm)	Water Level
1	B-16-1.0 16:47	×		Fill	Roadbase fill material with some fine gravel to 1.5".		
2				SM	Silty Sand (SM): Dark gray 10YR (4/1), medium-dense, dry. 75% fine sand, 25% moderate to non-plastic fines. No odor or staining.	0.9	
3							
4							
5	B-16-5.0 16:49	×		SW	Well Graded Sand (SW): Moderate brown 5Y 3/4, loose, dry. 95% fine-medium sand, 5% non-plastic fines. Vague hydrocarbon odor, no staining.	5.0	
6							
7				SC	Clayey Sand (SC): Dark gray 5Y (4/1), medium dense, damp. 80% fine sand, 20% moderate-high plastic fines. Vague hydrocarbon odor, no staining.		
8							
9							
10	B-16-10.0 16:53	×		CH	Sandy Clay (CH): Very dark gray 10YR (5/1), medium stiff, damp to wet. 30% fine sand, 70% moderate-high plastic fines. No odor or staining.	4.6	
11							
12							
13							
14							
15	B-16-15.0 17:10	×			TD = 15' @ 17:10; 3/24/16.	3.5	
16							
17							
18							
19							

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