

#### **RECEIVED**

7:57 am, May 16, 2007

Alameda County Environmental Health

May 9, 2007

Mr. Gopal Nair
Environmental Specialist
Public Works Agency, Environmental Services Division
City of Oakland
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, CA 94612

Subject:

Extraction Well Installations - City of Oakland Municipal Service Center

Site - Plume D

7101 Edgewater Drive, Oakland, CA

Dear Mr. Nair:

URS Corporation (URS) is pleased to present this letter report to the City of Oakland (City) for six extraction well installations (separate phase hydrocarbon, groundwater and soil vapor) at Plume D at the Oakland Municipal Service Center (MSC) Site. The scope of work for this project was specified our proposal of February 16, 2007, as previously specified in your January 17, 2007 email. The work was completed under the Professional or Specialized Service Agreement between the City of Oakland and the Oakland Redevelopment Agency and URS Corporation dated July 1, 2005.

#### Scope-of-Work

The scope of work consisted of drilling borings for and installing six extraction wells (RW-D6 through RW-D11), each to a total depth of approximately 20.5 feet below ground surface (bgs) in the Plume D area of the MSC Site. Well installation permits were obtained by URS from the Alameda County Public Works Department (Attachment A). The existing URS Health and Safety Plan for the MSC Site was modified to incorporate project-specific drilling, well installation and well development activities. Underground utilities were located prior to drilling activities by Cruz Brothers Locators (Cruz Bros.) of Scotts Valley, California, a commercial utility locating firm, and by utility companies and agencies contacted by Underground Services Alert. The drilling and well completions were performed by Gregg Drilling and Testing, Inc. (Gregg) of Martinez, California. One soil sample from each boring was submitted to Severn Trent Laboratories (STL), a State of California Department of Health Services certified analytical laboratory located in Pleasanton, California, for analysis for Diesel Range Organics (DRO) and Motor Oil Range

URS Corporation 1333 Broadway, Suite 800 Oakland, CA 94612-1924 Tel: 510.893.3600 Fax: 510.874.3268

Mr. Gopal Nair May 9, 2007 Page 2 of 5

Organics (MORO) by EPA Method 8015B and Gasoline Range Organics (GRO), benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8260B. The well development was performed by Gregg following the installations. URS field personal included a field geologist to supervise utility locating, drilling, and well installation and development activities, and a senior technician to supervise well development activities. A project professional and senior project professional managed the project, obtained permits, prepared and reviewed reports, and assisted the field geologist and technician, as needed.

## **Field Activities**

Utilities were located prior to drilling by Cruz Bros. on March 28, 2007 using electromagnetic locating equipment. Each borehole was cleared using a hand auger to 5 feet bgs by Gregg prior to drilling on April 2 through 4, 2007. Drilling was done with hollow stem augers (HSA) and included an initial 8-inch diameter boring that was continuously cored to total depth to obtain a complete lithologic profile of materials encountered. The borings were then reamed out to 12-inch diameter to a total depth of approximately 20.5 to 21 feet bgs for installation of 6-inch inside diameter (ID) screen and casing. A URS field geologist logged the cores following the Unified Soil Classification System (USCS). He also screened the cores with a photo-ionization detector (PID) as well as an ultraviolet (UV) light to enhance identification of petroleum hydrocarbon presence. Boring logs are included in Attachment B. One unsaturated zone (or unsaturated/saturated interface zone) soil sample from each boring was collected in Encore® samplers and glass jars, stored on ice in a cooler at 4° C and submitted under chain of custody to STL for DRO & MORO (EPA Method 8015B) and GRO/BTEX/MTBE (EPA Method 8260B) analysis. Chain of custody documentation is included in Attachment C.

The borings were completed as extraction wells RW-D6 through RW-D11 with 6-inch ID schedule 40 PVC casing with 0.02-inch slot size screen from approximately 5 to 20 feet bgs, and a 6-inch ID schedule 40 PVC bottom plug from approximately 20 to 20.5 feet bgs. The filter pack consisted of #3 sand to at least 1 foot above the top of the screen interval, with a 1-foot seal of bentonite and 2 feet of cement grout to within 1 feet of grade. The wellheads were temporarily completed with 12-inch diameter traffic rated well boxes (flush to grade). Well construction details are included in Table 1 and Attachment B. To facilitate easy removal without damaging the well casing, the vault boxes and upper casing/borehole annulus were sealed primarily with bentonite chips from 1 to 0.5 feet bgs, with a thin concrete surface seal around the outside of the vault box. Per discussions with the City these 12-inch diameter well boxes will eventually be removed and refitted with 24-inch diameter

Mr. Gopal Nair May 9, 2007 Page 3 of 5

steel utility vault boxes when the wells are hooked up to remedial system piping (part of a subsequent project to be done by a remedial engineering contractor).

Following completion, the wells RW-D6 through RW-D11 were developed by Gregg on April 11 and 12, 2007 to remove fines from the borehole annulus and surrounding formation to improve well production efficiency. Development was performed by surging and bailing or pumping until dewatering occurred, or until water temperature, pH, conductivity and turbidity parameters had stabilized, or until at least 10 well casing volumes of water were purged. Water and free product levels were measured before, during and after development with a water/product interface probe; measurable free product was not detected in any of the wells, although product sheen was noted in the purged water. A total of 710 gallons of groundwater were purged during development, with approximately 195, 70, 33, 12, 200, and 200 gallons purged from wells RW-D6, RW-D7, RW-D8, RW-D9, RW-D10 and RW-D11, respectively. Well RW-D8 initially contained insufficient water for development, approximately 40 gallons of clean tap water were added to facilitate development prior to surging. Wells RW-D7, RW-D8, and RW-D9 were dewatered during purging. Well development and water level field logs are included in Attachment D.

No water sampling or well elevation/location surveying was included in this scope of work. Drill cuttings and soil core samples were contained in a stockpile and covered with plastic sheeting. The cuttings will be disposed with other soils generated later during well connections to the extraction system. Purge and decontamination water were pumped into either the nearby 1,000-gallon holding tank or the treatment system oil/water separator and will be treated through the treatment system. The City will be responsible for any project related waste disposal.

## Lithology and Hydrogeology

Soils encountered during drilling to depths of approximately 11 to 16 feet bgs were imported fill material consisting primarily of silty to clayey gravel, silty to clayey sand, gravelly sand, and silty to gravelly clay. Concrete, metal, glass, wood, and brick debris was encountered in the fill material. The fill material was underlain by moderate to high plasticity silty clays of the native Bay Mud formation to the total cored depth of 20 feet bgs. Groundwater was first encountered during drilling in fill material at depths ranging from approximately 9.5 to 11.5 feet bgs. Static depth to water in the completed wells ranged from 7.75 to 19.36 feet below top of casing (TOC). Maximum well yield during development was 3.33 gallons per minute (gpm) in well RW-D11, minimum measured yield was 0.47 gpm before dewatering in well RW-D7. The lowest yield was in well RW-D8, which also dewatered, but it could not be measured due to the addition of water prior to development. Based on water level recovery



Mr. Gopal Nair May 9, 2007 Page 4 of 5

data, the estimated yield for RW-D8 is less than 0.00074 gpm. Water level and well yield data is summarized in Table 1.

## **Analytical Results**

Laboratory analytical results are summarized in Table 2. Laboratory analytical reports and chain of custody documents are included in Attachment C. Petroleum hydrocarbons were detected in soil samples from all borings at depths of 6.5 to 11.5 feet bgs. The maximum detected concentrations were in a sample from boring RW-D7 at a depth of 8.5 to 9.0 feet bgs, at 1,600 milligrams per kilogram (mg/kg) DRO, 950 mg/kg MORO, 4,800 mg/kg GRO, 19 mg/kg benzene, 130 mg/kg toluene, 54 mg/kg ethylbenzene, and 360mg/kg total xylenes. MTBE was not detected in any samples analyzed.

#### **UV Soil Core Fluorescence**

The recovered soil cores were scanned with an ultraviolet (UV) lamp at low and high wavelengths (254 and 365 nanometers, respectively) to detect the presence of light non-aqueous phase liquid (LNAPL) hydrocarbons by fluorescence. Faint to intense white, yellow and orange fluorescence characteristic of LNAPL hydrocarbons appeared to be generated primarily by low-range UV in the fill material between approximately 6 to 12 feet bgs, which approximately corresponds with the zone of highest volatile hydrocarbon concentrations as measured by the PID. This zone also correlates with the typical range of water levels and expected free product smear zone. Yellow and orange fluorescence was absent or much less prevalent in the native Bay Mud clays below about 12 feet bgs. Low and especially high-range UV generated scattered bright purplish white and red fluorescence of what appeared to be mineral crystals throughout the core lengths in both fill material and native clays.

#### **DWR Well Completion Reports**

URS completed and submitted the California Department of Water Resources (DWR) Well Completion Report forms for each well to the Alameda County Public Works Department. Copies of the DWR reports are included in Attachment E.

#### **Limitation Of Liability**

This proposal has been prepared on the basis of limited available information and the assumptions noted herein. Opinions and judgments expressed herein, which are based on our

Mr. Gopal Nair May 9, 2007 Page 5 of 5

understanding of current site conditions, should not be construed as legal opinions. No third party shall have the right to rely on URS opinions rendered in connection with services provided to the client or contained in this document without URS written consent and the third party's agreement to be bound to the same conditions and limitations as our client.

We appreciate the opportunity to present this proposal to the City and are looking forward to assisting you with this project. Please call Leonard Niles at (510) 874-1720 or George Muehleck at (510) 874-3080 if you have questions or comments.

Sincerely,

**URS CORPORATION** 

Senior Geologist / Project Manager

Tables:

Table 1

Extraction Well Construction Details and Groundwater Level Data

Table 2

Soil Analytical Data

Figures:

Figure 1

Well Location Map

#### Attachments:

A - Alameda County Public Works Agency Well Permit

B - Boring Logs and Well Construction Diagrams

C - Laboratory Analytical Reports and Chain of Custody Documents

D- Water Level Data and Well Development Field Forms

E – DWR Well Completion Reports

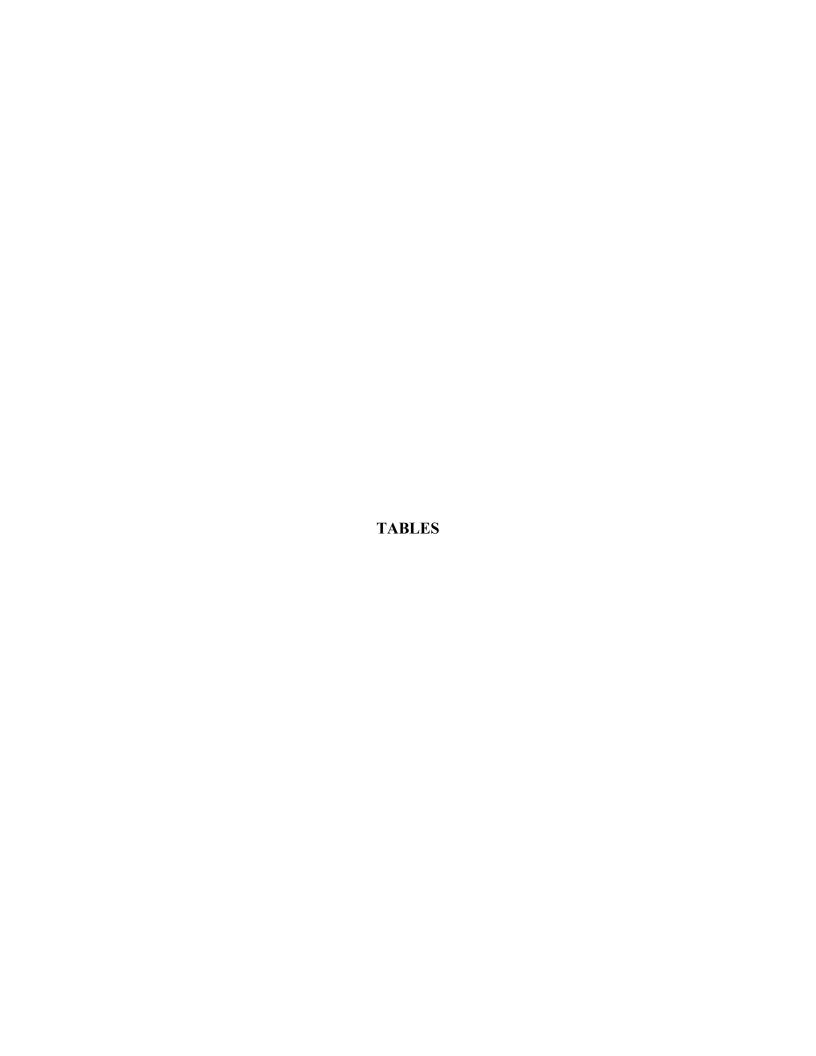


Table 1

Extraction Well Construction Details and Groundwater Level Data

City of Oakland Municipal Service Center, Plume D 7101 Edgewater Drive Oakland, California

Well ID	Well Completion Date	Borehole Diameter (inches)	Casing ID (inches)	Type	TOC Elevation (feet MSL)	TOC Depth (feet bgs)	Casing Total Depth (feet bgs)	Screen Interval (feet bgs)	Slot Size (inches)	Sand Pack Interval (feet bgs)	DTW Measure Date	DTW (Feet below TOC)	DTW (feet bgs)	Product Thickness (feet)	Development Yield (gpm)
RW-D6	4/2/2007	12	6	Sch 40 PVC	NM	0.65	20.78	5-20	0.020	4-20.78	4/11/2007	8.86	9.51		3.05
RW-D7	4/2/2007	12	6	Sch 40 PVC	NM	0.50	20.53	5-20	0.020	4-20.53	4/11/2007	8.31	8.81		0.47
RW-D8	4/4/2007	12	6	Sch 40 PVC	NM	0.45	20.55	5-20	0.020	4-20.55	4/11/2007	19.36	19.81		< 0.00074
RW-D9	4/3/2007	12	6	Sch 40 PVC	NM	0.75	20.56	5-20	0.020	4-20.56	4/11/2007	15.66	16.41		1.20
RW-D10	4/4/2007	12	6	Sch 40 PVC	NM	0.48	20.46	5-20	0.020	4-20.46	4/11/2007	8.39	8.87		3.17
RW-D11	4/3/2007	12	6	Sch 40 PVC	NM	0.98	20.58	5-20	0.020	4-20.58	4/11/2007	7.75	8.73		3.33

#### Abbreviations:

ID = Inside Diameter (inches)

bgs = below ground surface (measured from vault box lid)

TOC = top of casing

MSL = Mean Sea Level

NM = Not Measured

DTW = Depth to Water (measured pre-development)

gpm = gallons per minute --- = not detected

# Table 2 Soil Analytical Data

#### City of Oakland Municipal Service Center, Plume D 7101 Edgewater Drive Oakland, California

Sample ID	Sample Depth (ft. bgs)	Date Sampled	DRO (mg/kg)	MORO (mg/kg)	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
RW-D6-11.0'-11.5'	11.0-11.5	04/02/07	81	93	260	1.1	5.9	3.2	18	ND<0.76
RW-D7-8.5'-9.0'	8.5-9.0	04/02/07	1,600	950	4,800	19	130	54	360	ND<10
RW-D8-7.5'-8.0'	7.5-8.0	04/04/07	74	170	1.6	0.23	0.0057	ND<0.0042	0.024	ND<0.0042
RW-D9-11.0'	11.0-11.3	04/03/07	3.3	ND<50	950	ND<2.0	6.1	9.7	56	ND<2.0
RW-D10-6.7'-7.0'	6.7-7.0	04/04/07	38	ND<50	180	2.2	ND<0.91	4.1	2.2	ND<0.91
RW-D11-6.5'	6.4-6.7	04/03/07	280	83	2,700	7.0	ND<3.8	24	85	ND<3.8

#### Abbreviations:

DRO = Diesel Range Organics, C10 - C28 Range, analyzed by EPA Method 8015B.

MORO = Motor Oil Range Organics, C24 - C36 Range, analyzed by EPA Method 8015B.

GRO = Gasoline Range Organics, C5 - C12 Range, analyzed by EPA Method 8260B.

BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B.

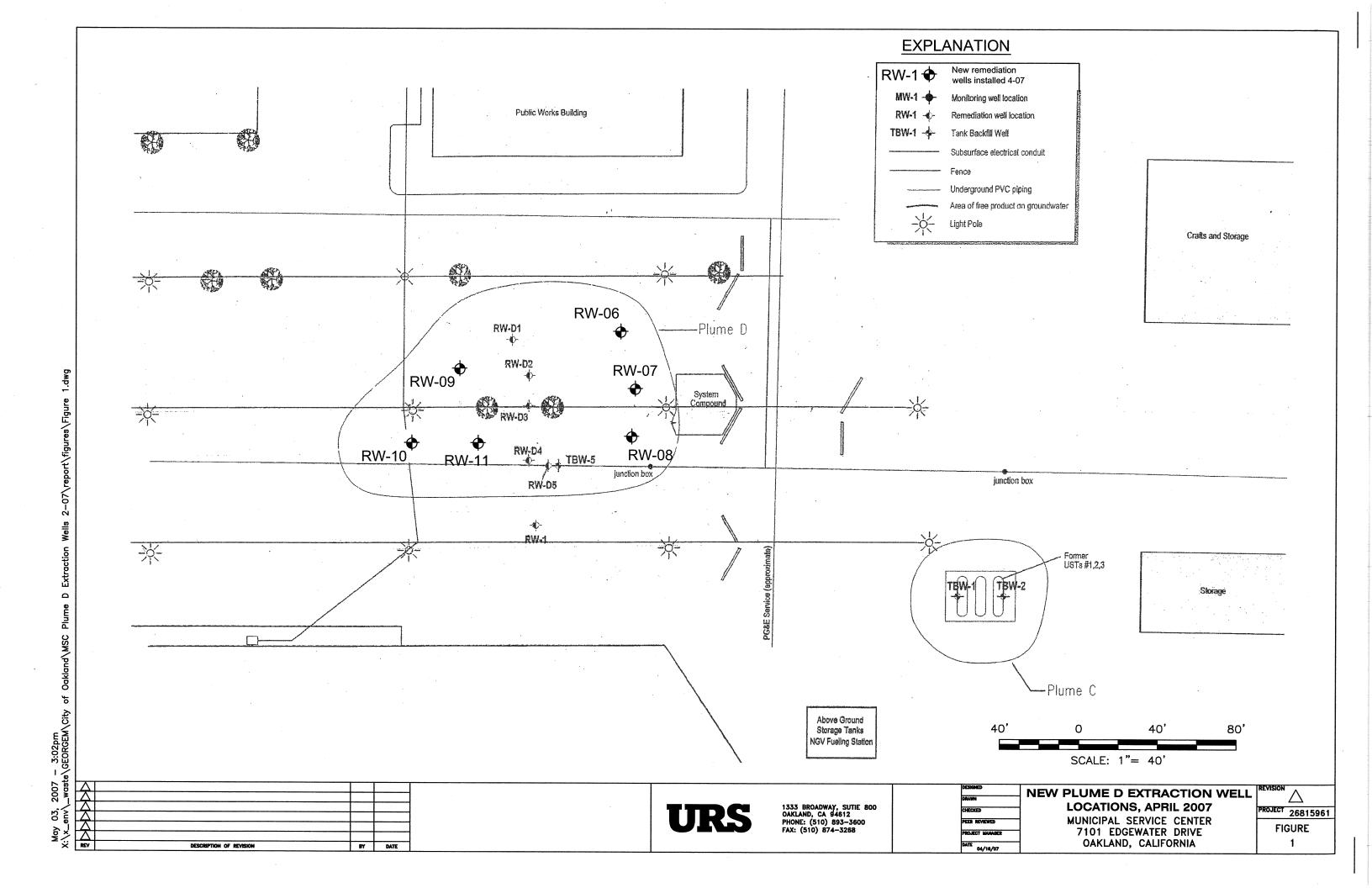
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8260B.

ft. bgs = Feet below ground surface

mg/kg = Milligrams per kilogram
NA = Not Analyzed

ND< = Not detected at or above the laboratory reporting limit.





## ATTACHMENT A

Alameda County Public Works Agency Well Permit

## Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street Hayward, CA 94544-1395 Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 03/21/2007 By jamesy Permit Numbers: W2007-0309 to W2007-0314 Permits Valid from 04/02/2007 to 04/05/2007

**Application Id:** 1174406324361

**Site Location:** 7101 Edgewater Drive, Oakland, CA

Project Start Date: 04/02/2007

**Applicant:** URS Corp - George Muehleck

1333 Broadway #800, Oakland, CA 94612

**Property Owner:** Gopal Nair of City of Oakland

250 F H Ogawa Plaza #5301, Oakland, CA 94612

Client: \*\* same as Property Owner \*\*

Total Due: \$1800.00
Total Amount Paid: \$1800.00

Phone: 510-893-3600

Phone: 510-238-6361

City of Project Site: Oakland

Completion Date: 04/05/2007

Receipt Number: WR2007-0132 Total Amount Paid: \$1800.00
Payer Name: URS Paid By: CHECK PAID IN FULL

**Works Requesting Permits:** 

Well Construction-Monitoring-Monitoring - 6 Wells

Driller: Gregg Drilling & Test - Lic #: 485165 - Method: auger Work Total: \$1800.00

#### **Specifications**

Permit #	Issued Date	Expire Date	Owner Well	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007- 0309	03/21/2007	07/01/2007	EW-1	12.00 in.	6.00 in.	4.00 ft	20.00 ft
W2007- 0310	03/21/2007	07/01/2007	EW-2	12.00 in.	6.00 in.	4.00 ft	20.00 ft
W2007- 0311	03/21/2007	07/01/2007	EW-3	12.00 in.	6.00 in.	4.00 ft	20.00 ft
W2007- 0312	03/21/2007	07/01/2007	EW-4	12.00 in.	6.00 in.	4.00 ft	20.00 ft
W2007- 0313	03/21/2007	07/01/2007	EW-5	12.00 in.	6.00 in.	4.00 ft	20.00 ft
W2007- 0314	03/21/2007	07/01/2007	EW-6	12.00 in.	6.00 in.	4.00 ft	20.00 ft

#### **Specific Work Permit Conditions**

- 1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
- 2. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
- 3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits

## Alameda County Public Works Agency - Water Resources Well Permit

and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

- 4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.
- 5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
- 6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.
- 7. Minimum surface seal thickness is two inches of cement grout placed by tremie
- 8. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.
- 9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

## ATTACHMENT B

**Boring Logs and Well Construction Diagrams** 



Well ID: RW-D6

Total Depth: 20.5'

						-			
		PROJECT INFORMATION					IG INFORM		
		y of Oakland Municipal Services Center					Drilling and	Testing, I	Inc.
		n: 7101 Edgewater Drive, Oakland, CA					Merjivar		
Site N		Oakland MSC			ing Rig				
		ager: Leonard Niles					iger / Hollow	Stem Au	ger
		Leonard Niles	_		ethod:				
Job/C	ost Co	ode Number: 26815961.00001			Depth:		bgs		
PG: I	eonard	Niles, PG/CHG	Date(s	) Drille	ed: 4/2/	2007			
		WELL INFO	RMATI	ON					
		<b>Pr Depth (ft bgs):</b> 9.51 feet bgs (4/11/07)					eatment syste		
_		ng Elevation (ft msl):					orehole: 12 ir	iches)	
Coord	inates	: Latitude Longitude	Screen	ed Inte	erval: 5	-20 f	eet bgs		
Depth (ft)	Symbol	Lithologic Description		nscs	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
<b>0</b>		ASPHALT							Temporary 12" vault
2		FILL: Silty Gravel; Yellowish-brown; angular fine to coars gravel, fine to coarse sand, silty fines, dry; minerals fluoresce purple under UV light	se	GM GC					box; concrete (outside box) to 0.5' bgs Bentonite chips from
4	FILL: Clayey Gravel; Yellowish-brown; subangular to angular fine to coarse gravel, fine to coarse sand, silty to clayey fines, very low plasticity, damp, slight odor; minerals			GC					0.5 to 1 feet bgs  Cement/Bentonite grout from 1 to 3 feet bgs
6		As above; increasing clayey fines at 5' bgs, grades to sar gravelly clay at 6' bgs			5.5				6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
8		FILL: Sandy to Gravelly Clay; Dark olive gray; fine angul gravel, fine to coarse sand, silty-clayey fines, moderate plasticity, damp, odor; minerals fluoresce purple to white under UV light  No recovery from 7.2'-10' bgs		CL	1401				Bentonite chips from 3 to 4 feet bgs #3 sand filter pack from 4 to 20 feet bgs
10		As above; increasing sand and fine gravel, moist, strong large gravel clasts at 11.2' bgs; orange-yellow fluorescen under UV-low light	odor, ce						•
12		FILL: Gravelly Sand; Very dark gray to black with orange red mottling (algae?); coarse subrounded gravel, very fir sand, silty fines, wet, strong HC odor and sheen; contain wood, glass, and metal debris, yellow fluorescence unde UV-low light, glass debris fluoresces purplish-white unde	ne ns er	SW/ SM	1454		RW-D6-11.0 11.5(15:00)		© schedule 40 PVC Screened interval (0.020" screen slot
14		UV-high light.  No recovery from 12.8'-15' bgs Fill/native contact observed at 15' bgs.							size) from 5 to 20 feet bgs
16		SILTY CLAY: Dark olive gray; with dark greenish-gray mottling, minor fine sand, silt, mostly clayey fines, moder to high plasticity, moist, faint odor, contains organic materiand shell fragments; may be native bay mud; minerals flouresce purple to white under UV light	rate erial	CL/ CH	7.4				
18		Pedic structure does not appear to be disturbed							PVC bottom cap 20-25' bgs Bottom of boring 20.5 feet bgs.
<b>20</b>		End of boring at 20.5' bgs			6.1				
22									

Page 1 of 1 Well ID: RW-D6



Well ID: RW-D7 Total Depth: 20.5'

Site Location: 1701 Edgewater Drive, Oakland, CA  Site Name: Oakland MSC  Project Manager: Leonard Niles  Geologist: Leonard Niles  Drilling Method: Hand Auger / Hollow Stem Auger  Sampling Method: Core barrel  Job/Cost Code Number: 26815961.00001  Hand Auger Depth:5 feet bgs  PG: Leonard Niles, PG/CHG  Date(s) Drilled: 4/2/2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8.81 ft bgs (4/11/07)  Well Location: Plume D treatment system  Well Diameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs				Total Depth: 20.5						
Site Name: Oakland MSC Type of Drilling Rig: Mart M10 Project Manager: Leonard Niles Geologist: Leonard Niles Sampling Method: Gore barrel Job/Cost Code Number: 26815961.00001 Hand Auger (Pollow Stem Auger Geologist: Leonard Niles) Job/Cost Code Number: 26815961.00001 Hand Auger (Pollow Stem Auger Geologist: Leonard Niles) Job/Cost Code Number: 26815961.00001 Hand Auger Depth; Seet bgs  WELL INFORMATION Groundwater Depth (ft bgs): 8.81 ft bgs (4/11/07) Well Doameter: 6 inches (bovehole: 12 inches) Coordinates: Latitude Longitude Screened Interval: 5-20 feet bgs  Lithologic Description  ASPHALT FILL: Sity Gravel; Yellowish-brown, angular fine to coarse gravel. fine to coarse sand, sity fines, damp, odor, minerals fluoresce purple to white ander Using in the plasticity, damp to wet, minerals fluoresce purple to white under Using in the plasticity, damp to wet, minerals fluoresce purple to white under Using in the purple to white under Using in the Using i		I	PROJECT INFORMATION							
Type of Drilling Rig: Marl M10   Project Manager: Leonard Niles   Drilling Method: Hand Auger / Hollow Stem Auger	•		*	Drillin	g Con	pany:	Gregg	Drilling and	Testing,	Inc.
Project Manager: Leonard Niles  Goologist: Leonard Niles  Sampling Method: Hand Auger / Hollow Stem Auger  Goologist: Leonard Niles  PG: Leonard N	Site L	ocatio	n: 1701 Edgewater Drive, Oakland, CA	Driller: Fausto Santos, Lu Merjivar						
Goologist: Leonard Niles  Sampling Method: Core barrel  Job/Cost Code Number: 26815961.00001  Hand Auger Depth: Steet bgs  Date(s) Drilled: 4/2:2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8.81 ft bgs (4/11.07)  Well Location: Plume D treatment system  Well Dlameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Lithologic Description  Screened Interval: 5-20 fcet bgs  Well Dlameter: 5-20 fcet bgs  Well Description/  FILL: Silv Gravel: Yellowish-brown: angular fine to coarse fluoresce purple to white under UV light: en coarse gravel, fine to coarse and, increasing clayey fines, low to medium increasing clay content, moderate plasticity, minerals fluoresce purple to write under UV light: clore change to dark greenish-gray at 3.5  Agraphic William (Coarse)  FILL: Silv Sandy, Jamp, HC doder, faint yellow fluorescence under UV light clore change to dark greenish-gray at 3.5  FILL: Silv Sandy, Jamp, HC doder, faint yellow fluorescence under UV light plus for the coarse gravel in the coarse gravel fluorescence under UV light plus fluorescence under UV lig	Site N	ame:	Oakland MSC	Type	of Drill	ing Rig	j: Mai	1 M10		
Job/Cost Code Number: 26815961.00001   Hand Auger Depth:5 feet bgs	Projec	t Man	ager: Leonard Niles	Drillin	g Meth	nod: Ha	nd Aı	iger / Hollow	Stem Au	ger
PG: Leonard Niles, PG/CHG  WELL INFORMATION  Well Location: Plume D treatment system  Top of Casing Elevation (ft msl):  Well Dameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Sample ID and Interval: 5-20 feet bgs  Sample ID and Interval: 5-20 feet bgs  Lithologic Description  ASPHALT  FILL: Sility Gravel; Yellowish-brown, angular fine to coarse gravel, fine to coarse sand, silly fines, damp, odor, minerals fluoresce purple to white under Uvilight Ugisht  Lithologic Description  ASPHALT  FILL: Sility Gravel; Yellowish-brown, angular fine to coarse gravel, fine to coarse sand, silly fines, damp, odor, minerals fluoresce purple to white under Uvilight to coarse sand, increasing clayey fines, to who metium under Uvilight coordings, subangular to angular fine to coarse gravel, fine to coarse sand, increasing clayey fines, to who metium under Uvilight coordings, subangular to angular fine to coarse gravel, fine to coarse angular gravel, fine to coarse sand, increasing clayey fines, to who metium under Uvilight coordings, subangular to angular fine to coarse gravel, fine to coarse angular gravel, fine to coarse gravel, fine to coarse angular gravel, fine to coarse gravel, fine to coarse gravel, fine for gravel fineston to coarse gravel, fine for gravel finest	Geolo	gist: I	Leonard Niles	Samp	ling M	ethod:	Core	barrel		
WELL INFORMATION  Groundwater Depth (ft bgs): 8.81 ft bgs (4/11/07)  Well Location: Plume D treatment system  Well Diameter: 6 inches (borchole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Well Description  ASPHALT  FILL: Silty Grave!: Yellowish-brown: angular fine to coarse gravel, fine to coarse and, silty fines, damp; odor; minerals fluorescep purple to write under UV light; color change to dark greenish-gray at 3.5 ft.  Bentonite chips from outling: subangular to angular fine to coarse gravel, fine to coarse sand, carried in under UV light; color change to dark greenish-gray at 3.5 ft.  Bentonite chips from outling: subangular to angular fine to coarse gravel, fine to coarse sand, silty fines, damp; odor; minerals fluorescep unple to write under UV light; color change to dark greenish-gray at 3.5 ft.  Bentonite chips from 10.5 to 1 feet bgs.  FILL: Gravely Clay, Dark clive brown with drive gray mottling; moderate plasticity, damp, HC odor; faint yellow under UV low light; note or coarse sand, silt, day, moderate plasticity, damp, HC odor; faint yellow under UV low light; note or coarse gravel, fine to coarse sand, silt, day, moderate plasticity, damp, HC odor; faint yellow under UV low light; note or UV low light; note or coarse gravel, fine to coarse sand, silt, day, moderate plasticity, damp, HC odor; faint yellow under UV low light; note or under UV low light; note or coarse gravel, fine to coarse sand, silt, day, moderate plasticity, damp, HC odor, sheen, contains glass and metal debris; land to the property of t	Job/C	ost Co	ode Number: 26815961.00001	Hand	Auger	Depth:	5 fee	t bgs		
Top of Casing Elevation (ft msl):  Well Diameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Well Description  ASPHALT  FILL: Silly Gravel; Yellowish-brown; angular fine to coarse gravel, fine to coarse sand, silly fines, damp; odor; minerals fluoresce purple to white under UV light plasticity, damp to wet minerals fluoresce purple to white under UV low light.  FILL: Gravel; Graylsh-brown with greenish-gray mottling; subangular to angular fine to coarse gravel, fine to coarse sand, silly coarse sand, silly fines, damp; odor; minerals fluoresce purple to white under UV low light.  FILL: Gravel; Graylsh-brown with greenish-gray mottling; subangular to angular fine to coarse gravel, fine to coarse sand, silly	PG: I	Leonard	l Niles, PG/CHG	Date(	s) Drill	ed: 4/2/	2007			
Top of Casing Elevation (ft msl):   Well Diameter: 6 inches (borchole: 12 inches)			WELL INFO	DRMATI	ON					
Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Lithologic Description  ASPHALT  FILL: Silly Gravel; Yellowish-brown; angular fine to coarse gravel, fine to coarse sand, silly fines, damp; odor, minerals fluoresce purple to white under UV light  FILL: Clayer Gravel: Gravel-horown with greenish-gray mottling; subangular fone to dark greenish-gray at 3.5 fluorescence under UV-low light  FILL: Gravel (Dist) Dark gravel, fine to coarse gravel, fine to coarse sand, increasing clayer fines, low to medium plasticity, damp to wet; minerals fluoresce purple to white under UV light light of the plasticity o	Groun	dwate	er Depth (ft bgs): 8.81 ft bgs (4/11/07)	Well L	ocatio	n: Plum	e D tr	eatment syste	m	
Lithologic Description  ASPHALT  FILL: Silty Gravel: Yellowish-brown: angular fine to coarse gravel, fine to coarse sand, silty fines, damp; odor; minerals fluorescence under UV-low light.  Lithologic Description of Comments  ASPHALT  FILL: Silty Gravel: Yellowish-brown: angular fine to coarse gravel, fine to coarse sand, silty fines, damp; odor; minerals fluorescence purple to white under UV light in the coarse sand, silty fines, damp; odor; minerals fluorescence purple to white under UV light in the coarse sand, increasing clayer fines, low to medium plasticity, damp to wet, minerals fluoresce purple to white under UV light color change to dark greenish-gray at 3.5'  ASPANNEY BLL: Clayer gover, forest-brown with plasticity, minerals fluorescence under UV-low light in coarse angular gravel, fine to coarse sand, silt, clay, moderate plasticity, damp to wet, minerals fluorescence under UV-low light.  Ellt: Silty Clayer Dark olive brown with olive gray mottling; fine to coarse angular gravel, fine to coarse sand, silt, clay, moderate plasticity, damp, the Codor; faint yellow fluorescence under UV-low light.  Ellt: Silty Clayer dark olive brown with olive gray mottling; which is to wet, visible with olive gray mottling; which were decreased sand and to a short of the coarse sand, silt, clay, moist, metal wite and glass debris at 12; yellow-orange fluorescence under UV-low and strong white UV-high mineral fluorescence inderval fluorescence	Top of	Casir	Well D	iamete	r: 6 incl	nes (b	orehole: 12 ir	nches)		
ASPHALT  FILL: Silty Gravel; Yellowish-brown; angular fine to coarse gravel, fine to coarse sand, silty fines, damp, odor, minerals fluoresce purple to white under UV light  Fill: Clayer Gravel; Gra	Coord	inates	: Latitude Longitude	Screen	ned Int	erval: 5	5-20 f	eet bgs		
FILL: Sitly Gravel: Yellowish-brown; angular fine to coarse gravel, fine to coarse sand, silty fines, damp; odor; minerals fluoresce purple to white under UV light color change to dark yellowish-brown at 3.8" bgs. Generol gravel, fine to coarse and, increasing clayey fines, low to medium plasticity, damp to wet; minerals fluoresce purple to white under UV light; color change to dark yellowish-brown at 3.8" bgs. Generol gravel for the gravel to th		Symbol	Lithologic Description		nscs	PID	Recovery	and	Well Completion	
FILL: Clayey Gravel: Grayish-brown with greenish-gray mottling; subangular to angular fine to coarse gravel, fine to coarse sand, increasing clayey fines, low to medium plasticity, damp to wet, minerals fluoresce purple to white under UV light; color change to dark yellowish-brown at 3.8° bgs, increasing clay content, moderate plasticity; minerals fluoresce purple to white under UV light  FILL: Gravelly Clay; Dark olive brown with olive gray mottling; fine to coarse angular gravel, fine to coarse sand, silt, clay, moderate plasticity, damp, HC odor; faint yellow fluorescence under UV-low light  FILL: Silty Sand; Dark gray to black with yellow and orange mottling; very fine sand to silt, minor clay, moist, strong HC odor and sheen; yellow-orange UV fluorescence under UV-orange UV fluorescence under UV-orange UV fluorescence under UV-orange UV-low light; no recovery from 9-10° bgs. As above; moist to wet, visible HC sheen  FILL: Silty Clay; dark clive gray, moderate to high plasticity, moist; metal wire and glass debris at 12°; yellow-orange fluorescence under UV-loy and strong white UV-high mineral fluorescence under UV-loy moist; metal wire and glass and metal debris; faint yellow UV-low and strong white UV-high mineral fluorescence; no recovery from 13.8'-15' bgs  SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, nover gene sand, moderate plasticity, moist, moderate pla			FILL: Silty Gravel; Yellowish-brown; angular fine to coal gravel, fine to coarse sand, silty fines, damp; odor; mine		GM			E		box; concrete (outside box) to 0.5' bgs
FILL: Gravelly Clay; Dark olive brown with olive gray mottling; fine to coarse sand, silt, clay, moderate plasticity, damp, HC odor; faint yellow fluorescence under UV-low light  FILL: Silty Sand; Dark gray to black with yellow and orange mottling; very fine sand to silt, minor clay, moist, strong HC odor and sheen; yellow-orange UV fluorescence under UV-low light; no recovery from 9°-10° bgs As above; moist to wet, visible HC sheen  FILL: Silty Clay; dark olive gray, moderate to high plasticity, moist; metal wire and glass debris at 12°; yellow-orange fluorescence under UV light  FILL: Silty Clayey Sand; Dark olive brown; very fine to medium sand, silty to clayey fines, very low plasticity, wet, strong HC odor, sheen, contains glass and metal debris; faint yellow UV-low and strong white UV-high mineral fluorescence; no recovery from 13.8°-15° bgs  SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, no yellow UV fluorescence; only white fluorescence from minerals As above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist, as above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist, no yellow UV-fluorescence; only white fluorescence from minerals As above, decreasing sand below 15.5', moderate to high plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  18	- 4		mottling; subangular to angular fine to coarse gravel, fir coarse sand, increasing clayey fines, low to medium plasticity, damp to wet; minerals fluoresce purple to whi under UV light; color change to dark greenish-gray at 3. hgs; strong HC odor. As above; color change to dark yellowish-brown at 3.8' be increasing clay content, moderate plasticity; minerals flu	to coarse gravel, fine to s, low to medium oresce purple to white c greenish-gray at 3.5'		1714				0.5 to 1 feet bgs Cement/Bentonite grout from 1 to 3 feet bgs 6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
FILL: Silty Sand; Dark gray to black with yellow and orange mottling; very fine sand to silt, minor clay, moist, strong HC odor and sheen; yellow-orange UV fluorescence under UV-low light; no recovery from 9:-10' bgs As above; moist to wet, visible HC sheen  FILL: Silty Clay; dark olive gray, moderate to high plasticity, moist; metal wire and glass debris at 12'; yellow-orange fluorescence under UV light  FILL: Silty Clayey Sand; Dark olive brown; very fine to medium sand, silty to clayey fines, very low plasticity, wet, strong HC odor, sheen, contains glass and metal debris; faint yellow UV-low and strong white UV-high mineral fluorescence; no recovery from 13.8'-15' bgs  SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, no yellow UV fluorescence; only white fluorescence from minerals  As above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist  As above, decreasing sand below 15.5', moderate to high plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  PVC bottom cap 20-20.5' bgs  Bottom of boring 20.5 feet bgs.	- 8		fine to coarse angular gravel, fine to coarse sand, silt, c moderate plasticity, damp, HC odor; faint yellow			1470				to 4 feet bgs #3 sand filter pack
moist; métal wire and glass débris at 12'; yellow-orange fluorescence under UV light  FILL: Silty Clayey Sand; Dark olive brown; very fine to medium sand, silty to clayey fines, very low plasticity, wet, strong HC odor, sheen, contains glass and metal debris; faint yellow UV-low and strong white UV-high mineral fluorescence; no recovery from 13.8'-15' bgs  SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, no yellow UV fluorescence; only white fluorescence from minerals As above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist  As above, decreasing sand below 15.5', moderate to high plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  Total and the fluorescence indeval (0.020" screen slot size) from 5 to 20 fee bgs  CL/ CH  PVC bottom cap 20-20.5' bgs  Bottom of boring 20.5 feet bgs.	- 10		mottling; very fine sand to silt, minor clay, moist, strong odor and sheen; yellow-orange UV fluorescence under UV-low light; no recovery from 9'-10' bgs	nge HC	SM					<b>¥</b>
FILL: Silty Clayey Sand; Dark olive brown; very fine to medium sand, silty to clayey fines, very low plasticity, wet, strong HC odor, sheen, contains glass and metal debris; faint yellow UV-low and strong white UV-high mineral fluorescence; no recovery from 13.8'-15' bgs  SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, no yellow UV fluorescence; only white fluorescence from minerals  As above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist  As above, decreasing sand below 15.5', moderate to high plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  74  74  75  CL/ CH  76  76  76  77  76  77  76  77  76  77  76  77  76  77  76  77  76  77  76  77  76  87  87	- 12		moist; métal wire and glass débris at 12'; yellow-orange fluorescence under UV light	city,		-				•
SILTY CLAY: Olive gray with greenish-gray mottling; minor very fine sand, moderate to high plasticity, moist, no yellow UV fluorescence; only white fluorescence from minerals As above, increased sand and root material from 15'-15.5' bgs; moderate plasticity, moist As above, decreasing sand below 15.5', moderate to high plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  PVC bottom cap 20-20.5' bgs Bottom of boring 20.6 feet bgs.	- 14		medium sand, silty to clayey fines, very low plasticity, w strong HC odor, sheen, contains glass and metal debris faint yellow UV-low and strong white UV-high mineral	et, s;	CL/	74				Screened interval (0.020" screen slot size) from 5 to 20 fee
plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  plasticity, HC odor, damp to moist, minor organic material, shell fragments; native soil  76  PVC bottom cap 20-20.5' bgs Bottom of boring 20.5 feet bgs.	- 16		SILTY CLAY: Olive gray with greenish-gray mottling; mi very fine sand, moderate to high plasticity, moist, no yel UV fluorescence; only white fluorescence from minerals As above, increased sand and root material from 15'-15.	llow S						
	- 18		plasticity, HC odor, damp to moist, minor organic materia	ıh al,		76				20-20.5' bgs Bottom of boring 20.5



Well ID: RW-D8

Total Depth: 20.5'

		<u> </u>			i Otai L	cpu	1. 20.5			
	F	PROJECT INFORMATION			DRI	LLIN	IG INFORM	MATION		
Projec	t: City	y of Oakland Municipal Services Center	Drillin	Drilling Company: Gregg Drilling and Testing, Inc.						
Site Lo	ocatio	n: 1701 Edgewater Drive, Oakland, CA	Drille	r: Faus	to Santo	s, Eri	c Lopez			
Site N	ame:	Oakland MSC	Type	of Drill	ing Rig	j: Mai	1 M10			
Projec	t Man	ager: Leonard Niles	Drillin	ng Meth	า <b>od:</b> Ha	nd Aı	iger / Hollow	Stem Au	ger	
Geolo	gist: L	Leonard Niles	Samp	ling M	ethod:	Core	barrel			
Job/C	ost Co	ode Number: 26815961.00001	Hand	Auger	Depth:	5 fee	t bgs			
PG: I	eonard	Niles, PG/CHG	Date(	s) Drille	ed: 4/4/	2007				
		WELL INF	ORMAT	ION						
Groun	dwate	r Depth (ft bgs): 19.81 (4/11/07)	Well L	ocatio.	<b>n:</b> Plum	e D tr	eatment syste	m		
Top of	Casin	ng Elevation (ft msl):	Well D	iamete	er: 6 incl	nes (b	orehole: 12 ir	iches)		
Coord	inates	: Latitude Longitude	Scree	ned Int	erval: 5	5-20 f	eet bgs			
Depth (ft)	Symbol	Lithologic Description		nscs	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments	
<b>- 0</b>		ASPHALT		GW					Temporary 12" vault	
<u>-</u> -		FILL: Sandy Gravel; Yellowish-brown; fine to coarse a gravel, fine to coarse sand, dry; minerals fluoresce wh	ngular	GC					box; concrete (outside box) to 0.5'	
_ 2		under UV light		CL					bgs Bentonite chips from	
	::\\.\.\	FILL: Clayey Gravel; Dark yellowish-brown; as above, clayey fines, very low plasticity, damp	except						0.5 to 1 feet bgs	
		FILL: Gravelly Clay: Dark vellowish-brown with olive b	own	[					Cement/Bentonite grout from 1 to 3 feet	
<b>- 4</b>		and olive gray mottling; minor coarse sand to fine grav moderate plasticity, damp, slight HC odor; faint yellow	el,	GC	19.2				bgs 6-inch schedule 40	
- -		fluorescence under UV-low light, minerals fluoresce warden UV-high	nite		305				PVC well casing from	
6	.: \ <u>\</u> \	FILL: Clayey Gravel; Dark yellowish-brown with dark		[	211				0 to 5 feet bgs. Bentonite chips from 3	
		greenish-gray mottling, fine to coarse subangular grav to coarse sand, clayey to silty fines, low to very low pla	sticity,						to 4 feet bgs #3 sand filter pack	
- - - 8		damp, strong HC odor; faint yellow fluorescence unde	ınder	CL	_		RW-D8-7.5-		from 4 to 20 feet bgs	
. 0		UV-high		/	917		8.0(10:00)			
-		FILL: Gravelly Clay, very dark grayish brown mottled volive brown to greenish gray, clayey to silty fines, fine	/ith :o							
_ 10	, <u>, , , , , , , , , , , , , , , , , , </u>	coarse sand, fine subangulár grávél, damp, hard, mod plasticity, large gravel clasts blocking core barrel at 8.5	erate				<u> </u> 			
		faint yellow fluorescence under UV-low light, no recovery from 8.5'-10' bgs		/	5.9					
_ _ 12		FILL: Silty Clay with Gravel; Dark grayish-brown, as al	oove.	1						
• •		except <10% fine gravel, stiff, moderate plasticity, dan moist, decreasing angular fine gravel below 10.5' and	p to	1					6" schedule 40 PVC screened interval	
		gravel below 11.5' bgs, faint yellow UV fluorescence		/					(0.020" screen slot size) from 5 to 20 feet	
14		SILTY CLAY: As above, except with dark olive gray m no gravel, soft, moderate to high plasticity moist, contains							bgs	
		organic matter; faint yellow fluorescence under UV-low white mineral fluorescence under UV-high light								
_ _ 16		Times minoral nacrocostics under 5 v riight ngift								
<del>-</del>		As above; minerals fluoresce white and red under UV-l	nigh light		0.4					
			. <b>.</b>						PVC bottom cap 20-20.5' bgs, bottom	
18		No recovery from 18'-20' bgs			1.5				of boring 20.5 feet	
=									bgs.	
-				1	1	1	1	· · ·   · · · ·	I	
									₩	

Page 1 of 1 Well ID: RW-D8



Well ID: RW-D9

Total Depth: 20.5'

					otal L	•			
	F	PROJECT INFORMATION			DRI	LLIN	IG INFORM	MATION	
Project	t: City	y of Oakland Municipal Services Center	Drillin	g Com	pany:	Gregg	Drilling and	Testing, I	nc.
Site Lo	catio	n: 7101 Edgewater Drive, Oakland, CA	Driller	: Faus	to Santo	s, Lu	Merjivar		
Site Na	ıme:	Oakland MSC	Type	of Drill	ing Rig	j: Mar	l M10		
Project	t Mana	ager: Leonard Niles	Drillin	g Meth	od: Ha	nd Au	iger / Hollow	Stem Aug	ger
Geolog	gist: L	eonard Niles	Samp	ling Me	ethod:	Core 1	oarrel		
Job/Co	st Co	de Number: 26815961.00001	Hand	Auger	Depth:	5 feet	bgs		
PG: Le	eonard	Niles, PG/CHG	Date(s	s) Drille	ed: 4/3/	2007			
		WELL INFO	RMATI	ON					
Ground	dwate	r Depth (ft bgs): 16.41' bgs (4/11/07)	Well L	ocatio	1: Plum	e D tr	eatment syste	m	
Top of	Casin	g Elevation (ft msl):	Well D	iamete	r: 6 incl	nes (b	orehole: 12 ir	iches)	
Coordin	nates	: Latitude Longitude	Screen	ned Inte	erval: 5	5-20 fe	eet bgs		
Depth (ft)	Symbol	Lithologic Description		nscs	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
- 0 - 2 - 4 - 6 - 8 - 10 - 12 - 14		FILL: Sandy Gravel; Yellowish-brown; fine to coarse an gravel, fine to coarse sand, few fines, dry; minerals fluo white under UV light  FILL: Clayey Gravel; Dark yellowish-brown; fine to coar angular gravel, fine to coarse sand, clayey to silty fines, plasticity, damp, HC odor; increasing clayey fines and change to dark olive gray at 5' bgs; minerals fluoresce with under UV-high light  FILL: Clayey Gravel; reddish-brown with olive brown me fine to coarse angular gravel, fine to coarse sand, clayes silty fines, very low plasticity, damp, HC odor; faint yellof fluorescence under UV-low light from 10'-13' bgs  SILTY CLAY: Very dark olive gray; little or no sand, clayes itly fines, moderate to high plasticity, moist, strong HC contains organic matter and wood fragments, faint yellof fluorescence under UV-low light; minerals fluoresce which under UV-high light, may be native bay mud  No recovery from 13'-15' bgs  15'20' bgs: as above	ottling; y to w	GC	3.2 115 948 2.6 0.0		RW-D9-11.0 11.5(10:20)		Temporary 12" vault box; concrete (outside box) to 0.5' bgs  Bentonite chips from 0.5 to 1 feet bgs Cement/Bentonite grout from 1 to 3 feet bgs 6-inch schedule 40 PVC well casing from 0 to 5 feet bgs. Bentonite chips from 3 to 4 feet bgs #3 sand filter pack from 4 to 20 feet bgs  6" schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs  PVC bottom cap 20-20.5' bgs Bottom of boring 20.5 feet bgs.

Page 1 of 1 Well ID: RW-D9



Well ID: RW-D10 Total Depth: 20.5'

			ı			-	11. 20.5			
		PROJECT INFORMATION	DRILLING INFORMATION							
•		y of Oakland Municipal Services Center	Drilling Company: Gregg Drilling and Testing, Inc.						Inc.	
Site Lo	ocatio	n: 7101 Edgewater Drive, Oakland, CA	<b>Driller:</b> Fausto Santos, Eric Lopez							
Site N	ame:	Oakland MSC	Type	of Drill	ing Rig	j: Mai	rl M10			
		ager: Leonard Niles	Drillin	g Meth	nod: Ha	nd Aı	uger / Hollow	Stem Au	ger	
Geolo	gist: L	eonard Niles			ethod:					
Job/C	ost Co	de Number: 26815961.00001			Depth:		t bgs			
PG: I	eonard	Niles, PG/CHG	Date(s	s) Drill	ed: 4/4/	2007				
		WELL INFO	RMATI	ON						
Groun	dwate	r Depth (ft bgs): 8.87' bgs (4/11/07)	Well L	ocatio	<b>n:</b> Plum	e D tr	eatment syste	m		
Top of	Casin	g Elevation (ft msl):	Well D	iamete	er: 6 incl	nes (b	orehole: 12 ir	nches)		
Coord	inates	: Latitude Longitude	Screer	ned Int	erval: 5	5-20 f	eet bgs			
Depth (ft)	Symbol	Lithologic Description		nscs	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments	
0		ASPHALT		CW	1				Temporary 12" vaul	
2 4 6 8 10 12		FILL: Sandy Gravel; Yellowish-brown; fine to coarse and gravel to cobbles, fine to coarse sand, dry, mostly white mineral, some yellow fluorescense under UV-low and highlight  FILL: Clayey Gravel; as above, except clayey fines, dam FILL: Gravelly Clay; Dark yellowish-brown with olive brown and greenish-gray mottling; fine to coarse angular grave fine to coarse sand, clayey-silty fines, low plasticity, dam minerals fluoresce white under UV-high, yellow fluoresce under UV-low  FILL: Gravelly Clay; Dark yellowish-brown; fine to coarse subangular gravel, fine to coarse sand, clayey to silty fine hard, damp, HC odor; mottled with olive gray at 6.2' bgs' asphalt chunk blocking core barrel shoe at 7.2' bgs; intervention or ecovery from 7.2'-10' bgs  FILL: Clayey Gravel; Very dark gray to black; fine to coarse subangular gravel (appears to be chunks of asphalt or concrete), fine to coarse sand, clayey to silty fines, loose wet, HC odor; asphalt blocking core barrel shoe at 11.2' no recovery from 11.2'-15' bgs; minerals fluoresce white under UV-high light	gh  pp wn l, ipp, ence es, nse gs; rse e, bgs;	GW GC CL	1219		RW-D10-6.7 - 7.0(13:20)		box; concrete (outside box) to 0.5' bgs  Bentonite chips from 0.5 to 1 feet bgs  Cement/Bentonite grout from 1 to 3 feet bgs  6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.  Bentonite chips from 3 to 4 feet bgs  #3 sand filter pack from 4 to 20 feet bgs  The schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs	
		FILL: Clayey Sand; Very dark gray to black with red clas fine to coarse sand, fine gravel, clayey to silty fines, redo	ts; dish	SC/ GC	1					
16		fine to coarse sand, fine gravel, clayey to silty fines, redo sand grains and brick fragments(?); other various debris loose, wet, slight HC odor, large asphalt concrete gravel clasts at 16'-16.2'; minerals fluoresce white under UV-hid light, faint yellow fluorescence under UV-low from 16'-17 bgs	gh	CL/ CH	-					
20		SILTY CLAY: Olive brown with olive gray and dark yellowish-reddish-brown mottling, little or no sand, claye silty fines (mostly clay), moderate to high plasticity, soft, moist, slight odor, contains wood fragments and other organic matter, appears to be native bay mud; minerals fluoresce white under UV-high light; 19'-20' bgs: no reco	-		5.5				PVC bottom cap 20-20.5' bgs Bottom of boring 20.5 feet bgs.	



Well ID: RW-D11 Total Depth: 20.5'

Project: City of Oakland Municipal Services Center  Site Location: 7101 Edgewater Drive, Oakland, CA  Drillor: Fausto Santos, Lu Merijivar  Site Name: Oakland MSC  Type of Drilling Rig: Mard M10  Project Manager: Leonard Niles  Goologist: Leonard Niles  Sampling Method: Hand Auger / Hollow Stem Auger  Goologist: Leonard Niles  Job/Cost Code Number: 26815961.00001  Hand Auger Depth: 5 feet bgs  Date(s) Drilled: 4/3/2007  WELL INFORMATION  WELL INFORMATION  Well Location: Plume D treatment system  For of Casing Elevation (ft msl):  Well Dameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Sample ID  ASPHALT  FILL: Sandy Gravel; Yellowish-brown: fine to coarse angular gravel, fine to coarse and, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low light and to 45.5-6 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, white under UV-high, strong yellow to white fluorescence white under UV-high, strong yellow to white fluorescence under UV-low light at 6.5-7 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, white under UV-high, strong yellow to white fluorescence under UV-low light at 6.5-7 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, white under UV-high, strong yellow to white fluorescence under UV-low light at 6.5-7 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, white under UV-high gray to greenish-gray; as above, from 4 to 20 feet bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, from 4 to 20 feet bgs.  FILL: Gravelly Clay; Drive delabers on the gray of gravel in the coarse sand, silly to clayey fines, low to very low plasticity, damp, strong H-O dodr, minerals fluoresce while under UV-high light (FiLL) server on the UV-high gra				Total Depth. 20.3							
Site Location: 7101 Edgewater Drive, Oakland, CA  Driller: Fausts Santos, Li Merijivar  Type of Drilling Rig: Mart M10  Project Manager: Leonard Niles  Geologist: Leonard Niles  Sampling Method: Core barrel  Job/Cost Code Number: 26815961.00001  Hand Auger Depths: See bgs  Dati(s) Drilled: 4/3/2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8 73' bgs (4/11/07)  Well Dati Dati Depth (ft bgs): 8 73' bgs (4/11/07)  Well Dameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 Feet bgs  Well Dameter: 6 inches (borehole: 12 inches)  Coordinates: Latitude  Screened Interval: 5-20 Feet bgs  Well Dameter: 6 inches (borehole: 12 inches)  Fill: Sandy Gravel; Yellowish-brown: fine to oarse angular gravel, fine to coarse sand, dry, minerals fluoresce white under UV-lay laint; laint yellow fluorescence under UV-low plasticity, damp, siting Hold off, minerals fluoresce with under UV-lay plast, strong yello coder, intervals to see the product of the pack plasticity, damp, siting Hold with one brown to sent off the under UV-lay plast, strong yello coder, intervals to see the pack gravel, fine to coarse sand, day to diayey fines, low plasticity, damp, strong yellow to white fluorescence under UV-low at 5.5-6 bgs.  FILL: Cravely Clay: Dark civiles brown: fine to oarse gravel, fine to coarse sand, sity to diayey fines, low to very low plasticity, damp, strong yellow come, fine to oarse sand, sity to diayey fines, low to very low plasticity, damp, strong yellow come, fine to oarse sand, sity to diayey fines, low to very low plasticity, damp, strong Ho door, minerals fluorescence under UV-low plasticy, yellow and orange gravel, fine to coarse sand, sity to diayey fines, low to very low plasticity, we strong HC door, minerals fluorescence under UV-low plasticy, the strong HC door, brok fragments, under the plasticy damp, strong HC door, brok fragments, under the plasticy damp, strong HC door, brok fragments, under the plasticy damp, strong HC door, brok fragments, under the plasticy damp			PROJECT INFORMATION	DRILLING INFORMATION							
Type of Drilling Rig: Mari M10  Project Manager: Leonard Niles  Drilling Method: Hand Auger / Hollow Stem Auger  Sampling Method: Core barrel  Jobi/Cost Code Number: 26815961 00001  Hand Auger Depth: Set bys  Date(s) Drillied: 4/3/2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8.73 bgs (4/11/07)  Well Location: Plume D treatment system  Woll Diameter: 6 inches (borehold: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  ASPHALT  FILL: Saryd Gravet, Yellowish-brown, fine to coarse angular gravel, fine to coarse sand, clayey to slify fines, low and clayer fine for the fine to coarse sand, clayey to slify fines, now fine to coarse sand, clayey to slify fines, moderate pleasitory, damp, slight HC dote, mereals fluorescence  FILL: Gravely Clay, Dark olive brown with olive brown to gravel and slow-gray motifing, fine to coarse sand, slify to clayey fines, low gravel at 6.5-7 bgs  FILL: Gravely Clay, Dark olive brown with olive brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayer fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low brown, and olive-gray motifing, fine to coarse sand, slify to clayey fines, low plasticity, the fluorescence under U-low light at 95 and 8.9° grespectively  FILL: Gravely Clay, Dark reddish-brown, fine to coarse subrounded to subangular grave. How to coarse and, slify to clayer fines, low plasticity, the strong HC odor, on the to the strong HC odor, on the strong		•			-				Testing I	nc.	
Project Manager: Leonard Niles  Geologist: Leonard Niles  Sampling Method: Core barret  Job/Cost Code Number: 26815961.00001  Hand Auger Depth: Seet bys  Bate(s) Drilled: 4/3/2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8.73' bys (4/11/07)  Well Location: Plume D treatment system  Well Diameter: 6 inches (borchole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bys  Lithologic Description  ASPHALT  FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel. fine to coarse sand, day, minerals fluorescence under UV-low light in the Coordinate subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, be subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fine to coarse sand, dayer, to subcrounded for gravel, fi			-								
Sampling Method: Core barrel											
Dob/Cost Code Number: 26815961.00001  Hand Auger Depth: 5 feet bgs  Date(s) Drilled: 4/3/2007  WELL INFORMATION  Groundwater Depth (ft bgs): 8.73 bgs (4/11/07)  Well Location: Plume D treatment system  Well Diameter: 6 inches (borchole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Lithologic Description  ASPHALT  FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse and, dry, minerals fluorescene white under UV-low glat; high, strong yellow to white fluorescene white under UV-low at 5.5-6 bgs.  FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp.  FILL: Gravelly Clay; Dark olive brown with olive brown to gray, fine gravel, fine to coarse sand, dayly to slity fines gravel, fine to coarse sand, clayer to greenish-gray; as above, under UV-low at 5.5-6 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, grounder UV-low at 5.5-6 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, gravel at 6.5-7 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, gravel at 6.5-7 bgs.  FILL: Gravelly Clay; Dark reddish-brown, fine to coarse sand, slity to clayey fines, low to very low plasticity, wrong HC odor, minerals fluorescenes white under UV-high light, yellow and orange lucinescenes white under UV-high light, yellow and orange gravel, fine to coarse sand, slity to clayey fines, low lovely to yellow gravel, fine to coarse sand, slity to clayey fines, low lovely for yellow gravel, fine to coarse sand, slity to clayey fines, low lovely for yellow gravel, fine to coarse sand, slity to clayey fines, low lovely for yellow gravel, fine to coarse sand, slity to clayey fines, lovely fines, from 5 to 20 feet bgs.  FILL: All 8.7-9.5 bgs, brick fragments, formerals wood and concrete debris with strong HC odor, minerals fluorescenes under UV-high light, yellow and orange fluorescenes white under UV-high light, yellow and orange fluorescenes and slity to glayey fines, norsely clayey fines, root of coarse sand, slity									Stem Au	ger	
PG: Leonard Niles, PG/CHG  WELL INFORMATION  Well Location: Plume D treatment system  Top of Casing Elevation (ft ms]):  Well Dameter: 6 inches (borchole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Lithologic Description  Sg	Geolo	gist: I	Leonard Niles								
WELL INFORMATION  Groundwater Depth (ft bgs): 8.73' bgs (4/11/07)  Well Location: Plume D treatment system  Well Diameter: 6 inches (borchole: 12 inches)  Coordinates: Latitude  Longitude  Screened Interval: 5-20 feet bgs  Well Description  Screened Interval: 5-20 feet bgs  Well Description  ASPHALT  FILL: Sandy Gravel; Yellowish-brown, fine to coarse angular gravel, fine to coarse sand, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low (light at 16, 18) and (layer) to silfy fines, moderate plasticity, damp, slight HC odor, minerals fluoresce white under UV-high, strong yellow to white fluorescence under UV-low (layer) fines to coarse sand, clayer to silfy fines, moderate plasticity, damp, slight HC odor, minerals fluoresce white under UV-how at 5-16' bgs.  Fill: Gravelly Clay, Olive gray to greenish-gray, as above, strong HC odor, low to moderate plasticity, grades to clayery gravel at 6.5-7' bgs.  Fill: Gravelly Clay, Olive gray to greenish-gray, as above, strong HC odor, low to moderate plasticity, grades to clayer gravel at 6.5-7' bgs.  Fill: Gravelly Clay, Olive gray to greenish-gray, as above, strong HC odor, low to moderate plasticity, grades to clayer gravel at 6.5-7' bgs.  Fill: Gravelly Clay, Olive gray to greenish-gray, as above, strong HC odor, low to moderate plasticity, grades to clayer gravel, fine to coarse sand, silty to dayer fines, low plasticity, and the down gravel fine for coarse sand, silty to dayer fines, low gravel at 6.5-7' bgs.  Fill: Gravelly Clay, Dark reddish-brown, fine to coarse sand, silty to dayer fines, low gravel at 6.5-7' bgs.  Fill: Gravelly Clay, Dark reddish-brown fine to coarse sand, silty to dayer fines, low gravel fine to coarse sand, silty to dayer fines, low gravel fine to coarse sand, silty to dayer fines, low gravel fine to coarse sand, silty to dayer fines, low gravel fine for coarse sand, silty to dayer fines, low gravel fine for coarse sand, silty to dayer fines, low gravel fines to coarse sand, silty to dayer fines, low g	Job/Co	ost Co	de Number: 26815961.00001					bgs			
Well Location: Plume D treatment system	PG: L	eonard	Niles, PG/CHG	Date(s)	) Drille	ed: 4/3/	2007				
Well Diameter: 6 inches (borchole: 12 inches)			WELL INFO	ORMATION							
Lithologic Description    Comments   Comment	Groun	dwate	r Depth (ft bgs): 8.73' bgs (4/11/07)	Well Lo	catio	1: Plum	e D tr	eatment syste	m		
Lithologic Description    Comparison   Compa	Top of	Casin	g Elevation (ft msl):	Well Dia	amete	<b>r:</b> 6 incl	nes (b	orehole: 12 ir	iches)		
ASPHALT    FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse sand, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low light   FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp.   FILL: Gravelly Clay; Dark olive brown with olive brown to gray; fine gravel, fine to coarse sand, clayey to silty fines, moderate plasticity, damp, slight HC odor, minerals fluorescence white under UV-high light, strong yellow to white fluorescence under UV-high light, strong yellow to white fluorescence under UV-high light, strong yellow to white fluorescence white under UV-high light, strong yellow to white fluorescence under UV-high light, strong yellow to white fluorescence under UV-high light, yellow and orange fluorescence under UV-high light, framents, charred wood and concrete debris with strong HC odor, minerals fluoresce white under UV-high light yellow and orange gravel, fine to coarse sand, silty to clayey fines, to a strong the properties of the propertie	Coordi	inates	: Latitude Longitude	Screen	ed Inte	erval: 5	-20 f	eet bgs			
FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse sand, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low light  FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp.  FILL: Gravelly Clay; Dark olive brown with olive brown to gray; fine gravel, fine to coarse sand, clayey to silty fines, moderate plasticity, damp, slight HC odor, minerals fluoresce white under UV-high, strong yellow to white fluorescence under UV-blow at 5.5-6 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, white under UV-high gray to greenish-gray; as above, strong HC odor, minerals fluorescence under UV-high gray to greenish-brown with olive, brown, and olive-gray mottling; fine to coarse subrounded to subangular gravel, fine to coarse sand, silty to clayey fines, low to were low low light at 6-5° and 6-9° frespectively  FILL: Clayey Gravel; Yellowish- to reddish-brown, fine to coarse gravel, fine to coarse sand, silty to clayey fines, low plasticity, damp, strong HC odor, minerals fluoresce white under UV-high light, yellow and orange gravel, fine to coarse sand, silty to clayey fines, low plasticity, thand, dry, faint HC odor, contains brick fragments, minerals fluoresce white under UV-high light (FILL: At 8-7.9-5 bgs, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments.  CLAY: Clay contact at ~10° bgs apparent from auger cuttings; HC sheen and odor on wet cuttings. No recovery from 19.5-15 bgs  SILTY CLAY: Very dark olive brown to olive gray; little to no sand, minor silty fines, mostly clayey fines, soft to stiff, moist to wet, faint HC odor, contains organic matter and wood	Depth (ft)	Symbol	Lithologic Description		nscs	PID	Recovery	and	Well Completion		
FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse sand, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low light  FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp,  FILL: Gravelly Clay; Dark olive brown with olive brown to gray; fine gravel, fine to coarse sand, clayey to silly fines, moderate plasticity, damp, slight HC odor; minerals fluoresce white under UV-high strong yellow to white fluorescence under UV-low at 5.5-6 bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above, strong HC odor, low to moderate plasticity, grades to clayey gravel at 6.5-7 bgs.  FILL: Gravelly Clay; Olive gray to greenish-brown with olive, brown, and olive-gray mottling; fine to coarse subrounded to subangular gravel, fine to coarse subrounded to subangular gravel, fine to coarse subrounded to subangular gravel, fine to coarse subrounded to gravel, fine to coarse sand, silty to clayey fines, low plasticity, hard, dry, faint HC odor, contains brick fragments, minerals fluoresce white under UV-high light, yellow and orange fluorescene under UV-low light at 6-8 and 8-9 respectively  FILL: Clayey Sand; Dark gray to black; fine sand, sitly to clayey fines, very low plasticity, wet, strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor. brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood and concrete debris with strong HC odor, brick fragments, charred wood	0		ASPHALT	+	CW						
fluoresce white under UV-high light, yellow and orange fluorescence under UV-low light at 6'-8' and 8'-9' respectively  FILL: Gravelly Clay; Dark reddish-brown, fine to coarse gravel, fine to coarse sand, silty to clayey fines, low plasticity, hard, dry, faint HC odor, contains brick fragments, minerals fluoresce white under UV-high light  FILL: At 8.7'-9.5' bgs, brick fragments, charred wood and concrete debris with strong HC odor  FILL: Clayey Sand; Dark gray to black; fine sand, sitly to clayey fines, very low plasticity, wet, strong HC odor, brick fragments  CLAY: Clay contact at ~10' bgs apparent from auger cuttings; HC sheen and odor on wet cuttings. No recovery from 9.5'-15' bgs  SILTY CLAY: Very dark olive brown to olive gray; little to no sand, minor silty fines, mostly clayey fines, soft to stiff, moist to wet, faint HC odor, contains organic matter and wood  PVC bottom cap	- <b>4</b> - 6		gravel, fine to coarse sand, dry, minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-le light  FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp,  FILL: Gravelly Clay; Dark olive brown with olive brown to gray; fine gravel, fine to coarse sand, clayey to silty fines, moderate plasticity, damp, slight HC odor; minerals fluore white under UV-high, strong yellow to white fluorescence under UV-low at 5.5'-6' bgs.  FILL: Gravelly Clay; Olive gray to greenish-gray; as above strong HC odor, low to moderate plasticity, grades to clay gravel at 6.5'-7' bgs  FILL: Clayey Gravel; Yellowish- to reddish-brown with oliv brown, and olive-gray mottling; fine to coarse subrounded subangular gravel, fine to coarse sand, silty to clayey fine	esce e, ye, d to	GC CL FILL	389 718				bgs Bentonite chips from 0.5 to 1 feet bgs Cement/Bentonite grout from 1 to 3 feet bgs 6-inch schedule 40 PVC well casing from 0 to 5 feet bgs. Bentonite chips from 5 to 4 feet bgs #3 sand filter pack from 4 to 20 feet bgs	
CLAY: Clay contact at ~10' bgs apparent from auger cuttings; HC sheen and odor on wet cuttings. No recovery from 9.5'-15' bgs  SILTY CLAY: Very dark olive brown to olive gray; little to no sand, minor silty fines, mostly clayey fines, soft to stiff, moist to wet, faint HC odor, contains organic matter and wood  PVC bottom cap	- 12		fluoresce white under UV-high light, yellow and orange fluorescence under UV-low light at 6'-8' and 8'-9' respective FILL: Gravelly Clay; Dark reddish-brown, fine to coarse gravel, fine to coarse sand, silty to clayey fines, low plasticity, hard, dry, faint HC odor, contains brick fragmen minerals fluoresce white under UV-high light FILL: At 8.7'-9.5' bgs, brick fragments, charred wood and concrete debris with strong HC odor FILL: Clayey Sand; Dark gray to black; fine sand, sitly to clayey fines, very low plasticity, wet, strong HC odor, brick	vely tts,	CL/	1				screened interval (0.020" screen slot size) from 5 to 20 feet	
			CLAY: Clay contact at ~10' bgs apparent from auger cutti HC sheen and odor on wet cuttings. No recovery from 9.5'-15' bgs  SILTY CLAY: Very dark olive brown to olive gray; little to sand, minor silty fines, mostly clayey fines, soft to stiff, mot owet, faint HC odor, contains organic matter and wood	no pist		44.7				PVC bottom cap	

Well ID: RW-D11 Page 1 of 1

## ATTACHMENT C

**Laboratory Analytical Reports and Chain of Custody Documents** 



## **ANALYTICAL REPORT**

Job Number: 720-8489-1

Job Description: Oakland - MSC

For: URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612

Attention: Mr. Leonard Niles

Dimple Sharma

Project Manager I dsharma@stl-inc.com

04/09/2007

Project Manager: Dimple Sharma

## **EXECUTIVE SUMMARY - Detections**

Client: URS Corporation Job Number: 720-8489-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method	
720 8490 4	DW D7 9 51 0 01					
720-8489-1	RW-D7-8.5'-9.0'					
Benzene		19	10	mg/Kg	8260B	
Toluene		130	10	mg/Kg	8260B	
Ethylbenzene		54	10	mg/Kg	8260B	
Xylenes, Total		360	20	mg/Kg	8260B	
Gasoline Range Or	ganics (GRO)-C5-C12	4800	510	mg/Kg	8260B	
Diesel Range Orga		1600	9.9	mg/Kg	8015B	
Motor Oil Range Oi	rganics [C24-C36]	950	500	mg/Kg	8015B	

## **METHOD SUMMARY**

Client: URS Corporation Job Number: 720-8489-1

Description	on	Lab Location	Method	<b>Preparation Method</b>
Matrix:	Solid			
Volatile Org	ganic Compounds by GC/MS	STL SF	SW846 826	60B
	Closed System Purge & Trap/Laboratory	STL SF		SW846 5035
Nonhaloge Range Org	nated Organics using GC/FID -Modified (Diesel anics)	STL SF	SW846 801	5B
0 0	Ultrasonic Extraction	STL SF		SW846 3550B
	Silica Gel Cleanup	STL SF		SW846 3630C

## LAB REFERENCES:

STL SF = STL San Francisco

## **METHOD REFERENCES:**

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## **SAMPLE SUMMARY**

Client: URS Corporation Job Number: 720-8489-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-8489-1	RW-D7-8.5'-9.0'	Solid	04/02/2007 1015	04/02/2007 1500

## **Analytical Data**

Client: URS Corporation Job Number: 720-8489-1

Client Sample ID: RW-D7-8.5'-9.0'

 Lab Sample ID:
 720-8489-1
 Date Sampled:
 04/02/2007
 1015

 Client Matrix:
 Solid
 Date Received:
 04/02/2007
 1500

## 8260B Volatile Organic Compounds by GC/MS

Method: 8260B Analysis Batch: 720-20156 Instrument ID: Varian 3900A

Preparation: 5035 Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04

Dilution: 2000 Initial Weight/Volume: 4.89 g
Date Analyzed: 04/05/2007 2016 Final Weight/Volume: 10 mL

Date Prepared: 04/05/2007 0945

Analyte [	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		19		10
Toluene		130		10
Ethylbenzene		54		10
MTBE		ND		10
Xylenes, Total		360		20
Gasoline Range Organics (GRO)-C	5-C12	4800		510
Surrogate		%Rec		Acceptance Limits
1,2-Dichloroethane-d4 (Surr)		116		60 - 140
Toluene-d8 (Surr)		116		70 - 130

## **Analytical Data**

Client: URS Corporation Job Number: 720-8489-1

Client Sample ID: RW-D7-8.5'-9.0'

 Lab Sample ID:
 720-8489-1
 Date Sampled:
 04/02/2007 1015

 Client Matrix:
 Solid
 Date Received:
 04/02/2007 1500

8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20150 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20010 Lab File ID: N/A

Dilution: 10 Initial Weight/Volume: 30.24 g
Date Analyzed: 04/05/2007 0245 Final Weight/Volume: 5 mL

Date Prepared: 04/03/2007 1339 Injection Volume:

Column ID: PRIMARY

Analyte DryWt Corrected: N Qualifier RL Result (mg/Kg) Diesel Range Organics [C10-C28] 1600 9.9 Motor Oil Range Organics [C24-C36] 950 500 %Rec Surrogate Acceptance Limits o-Terphenyl 0 D 50 - 130 Capric Acid (Surr) 0 0 - 5

## **DATA REPORTING QUALIFIERS**

Client: URS Corporation Job Number: 720-8489-1

Lab Section	Qualifier	Description
GC Semi VOA		
	D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

Client: URS Corporation Job Number: 720-8489-1

## **QC Association Summary**

Cliant Cample ID				
Client Sample ID	Basis	Client Matrix	Method	Prep Batch
3				
Lab Control Spike	Т	Solid	8260B	720-20162
Lab Control Spike Duplicate	Т	Solid	8260B	720-20162
Method Blank	T	Solid	8260B	720-20162
RW-D7-8.5'-9.0'	Т	Solid	8260B	720-20162
Lab Control Spike	Т	Solid	5035	
	Ť	Solid		
• •		Solid		
	· ·			
•	•			
	· ·			
	-			
RW-D7-8.5'-9.0'	Т	Solid	3550B	
)				
Lab Control Spike	Т	Solid	8015B	720-20010
Lab Control Spike Duplicate	Т	Solid	8015B	720-20010
• •	Т	Solid	8015B	720-20010
Method Blank	1	Solid	00100	120-20010
	Lab Control Spike Lab Control Spike Duplicate Method Blank RW-D7-8.5'-9.0'  Lab Control Spike Lab Control Spike Duplicate Method Blank RW-D7-8.5'-9.0'  Lab Control Spike Duplicate Method Blank RW-D7-8.5'-9.0'  Lab Control Spike Lab Control Spike Lab Control Spike	Lab Control Spike T Lab Control Spike Duplicate T Method Blank T RW-D7-8.5'-9.0' T  Lab Control Spike T Lab Control Spike Duplicate T Method Blank T RW-D7-8.5'-9.0' T  Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T Lab Control Spike T	Lab Control Spike T Solid Lab Control Spike Duplicate T Solid Method Blank T Solid RW-D7-8.5'-9.0' T Solid  Lab Control Spike T Solid Lab Control Spike Duplicate T Solid Method Blank T Solid RW-D7-8.5'-9.0' T Solid  Lab Control Spike T Solid RW-D7-8.5'-9.0' T Solid	Lab Control Spike T Solid 8260B Lab Control Spike Duplicate T Solid 8260B Method Blank T Solid 8260B RW-D7-8.5'-9.0' T Solid 8260B  Lab Control Spike T Solid 5035 Lab Control Spike Duplicate T Solid 5035 Method Blank T Solid 5035 RW-D7-8.5'-9.0' T Solid 5035  RW-D7-8.5'-9.0' T Solid 5035  Lab Control Spike T Solid 5035 RW-D7-8.5'-9.0' T Solid 3550B Method Blank T Solid 3550B Method Blank T Solid 3550B Method Blank T Solid 3550B RW-D7-8.5'-9.0' T Solid 3550B  Lab Control Spike T Solid 3550B  Lab Control Spike T Solid 8015B  Lab Control Spike T Solid 8015B  Lab Control Spike Duplicate T Solid 8015B

## Report Basis

T = Total

Client: URS Corporation Job Number: 720-8489-1

Method Blank - Batch: 720-20162 Method: 8260B Preparation: 5035

Lab Sample ID: MB 720-20162/1-AA Analysis Batch: 720-20156 Instrument ID: Varian 3900A

Client Matrix: Solid Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04

Dilution: 200 Units: mg/Kg Initial Weight/Volume: 5.01 g
Date Analyzed: 04/05/2007 1150 Final Weight/Volume: 10 mL

Analyte Result Qual RL

Benzene ND 1.0

Toluene ND 1.0

 Toluene
 ND
 1.0

 Ethylbenzene
 ND
 1.0

 MTBE
 ND
 1.0

 Xylenes, Total
 ND
 2.0

 Gasoline Range Organics (GRO)-C5-C12
 ND
 50

Gasoline Range Organics (GRO)-C5-C12 ND 50

Surrogate % Rec Acceptance Limits

1,2-Dichloroethane-d4 (Surr) 88 60 - 140
Toluene-d8 (Surr) 96 70 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

Date Prepared: 04/05/2007 0945

Client: URS Corporation Job Number: 720-8489-1

Lab Control Spike/ Method: 8260B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20162 Preparation: 5035

LCS Lab Sample ID: LCS 720-20162/2-AA

Client Matrix: Solid

Dilution: 200

Date Analyzed: 04/05/2007 1105 Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156 Instrum

Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.01 g Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-20162/3-AA

Client Matrix: Solid Dilution: 200

Date Analyzed: 04/05/2007 1128 Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156 Instrume

Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04(

Initial Weight/Volume: 5.03 g Final Weight/Volume: 10 mL

	<u>9</u>	<u> 6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	89	91	69 - 129	2	20		
Toluene	97	101	70 - 130	3	20		
MTBE	88	90	65 - 165	2	20		
Surrogate	L	CS % Rec	LCSD %	Rec	Accep	otance Limits	
1,2-Dichloroethane-d4 (Surr)	9	4	88		6	0 - 140	
Toluene-d8 (Surr)	1	04	101		7	0 - 130	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: URS Corporation Job Number: 720-8489-1

Method Blank - Batch: 720-20010 Method: 8015B Preparation: 3550B

Lab Sample ID: MB 720-20010/1-AB

Analysis Batch: 720-20150

Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20010 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.04 g
Date Analyzed: 04/04/2007 1557 Final Weight/Volume: 5 mL

Date Prepared: 04/03/2007 1339 Injection Volume:

Column ID: PRIMARY

 Analyte
 Result
 Qual
 RL

 Diesel Range Organics [C10-C28]
 ND
 1.0

 Motor Oil Range Organics [C24-C36]
 ND
 50

 Surrogate
 % Rec
 Acceptance Limits

 o-Terphenyl
 75
 50 - 130

 Capric Acid (Surr)
 0
 0 - 5

Lab Control Spike/ Method: 8015B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20010 Preparation: 3550B

LCS Lab Sample ID: LCS 720-20010/2-AB Analysis Batch: 720-20150 Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20010 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.09 g
Date Analyzed: 04/04/2007 1503 Final Weight/Volume: 5 mL

Date Prepared: 04/03/2007 1339 Injection Volume: Column ID: PRIMARY

Goldmin D. Trillin III.

LCSD Lab Sample ID: LCSD 720-20010/3-AB Analysis Batch: 720-20150 Instrument ID: HP DRO5 Client Matrix: Solid Prep Batch: 720-20010 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.03 g

Date Analyzed: 04/04/2007 1530 Final Weight/Volume: 5 mL

Date Prepared: 04/03/2007 1339 Injection Volume: Column ID: PRIMARY

Column 15. Transparent

% Rec. Analyte LCS **LCSD** Limit **RPD** RPD Limit LCS Qual LCSD Qual 50 - 130 Diesel Range Organics [C10-C28] 76 78 2 30 Surrogate LCS % Rec LCSD % Rec Acceptance Limits 76 77 50 - 130 o-Terphenyl

Calculations are performed before rounding to avoid round-off errors in calculated results.

STAR STL
----------

	j	· · · ·	ر بیان				 	 ∩∧ ۵,	1566-	., 4756					Refe	rence '	#: <b>/04</b>	812	-
STL STL	12 P	20 Q hori	uarry : <b>7</b>	Lane	4-191		18	con	484-1	096			ate 4	42		Pag	ge	8/2 of_[	=
Report To			111		91103			An	alysis	Requ	est 🗓		3		,	1			
Alln: Leonard Viles			Fuel Tesis EPA 82608: □ Gas □ 81Ex □ Fwe Oxyenales □ DCA, EDB □ Elhanol	Purgeable Halucarburis (HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs)	Semivolatiles GC/MS	Oil and Grease   Petroleum   (EPA 1664 )     Total	Pesticides   D EPA 8081   D 608   PCBs   D EPA 8082   D 608	PNAs by C 8270 C 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: © Lead © LUFT © RCRA	Low Level Metals by EPA 200.8/6020 (ICP-MS):	D WEJ (STLC)	Hexavalent Chromium     ph (24n trotu time for F150)	☐ Spec Cond. ☐ Alkalinity ☐ TSS ☐ TUS ☐	Anions: DCI DSO, DNO, DF DBr DNO, DPO,			Number of Containers
RW-D7-8.5-9.0 4/2/07 10:15 SOIL NONE X		X					<u> </u>						-						
																			+ 1
										<del> </del>							-		
													-						
						3	H	16		Tis	2								
								-									-		
																-			
						<u></u>		1 21	Delicar	ichad h					3) Relin	quished	l by:		
Project Info. Sample Receipt		1) Rel	linquist —— 4.4	ned by:	1-00	. /4	477	2 3	Z Z	ished by	,. 	15	30		:			Ti	me
Project Name: # of Containers: 4 Gx Encove, 1x jan	v)	Signa	lure	ac po	NOKO LILI	Tir	ne	3	nature	1			Time	,	Signatu	re			Date
Project Name:  Oak and -MSC # of Containers:  (3×Eucove, 1× jan)  Project#:  268 (5961.00001  Temp		Printe	on Vam	ud,	Vil	<u>es 4</u>	사 <b>식</b> 의 ale	Pr	inted Na	n   <i>V</i>	Omq.	<u>&gt;                                    </u>	Dale Dale	_	Printed	Name			
1 DC		U	25	C	DVK	0.		-   4	STZ ompany	- SF				_	Compa	iny			
Credit Card# Conforms to record:					- BALLING MARKET			į i	Recely	/		·			3) Rec	eived b	y:		
T 5 72h 48h 24h Other:		1) 17	ceived	by:	2	10	122		M	Man	W	15	00	1	Signal				Time
Report: D Routine D Level 3 D Level 4 D EDD D State Tank Fund ED Special Instructions / Comments:	-	ار اوستم ک	de ryg,		home	Tir	1/2/0	7 5	gnature	Bu//	ocu	4	Time !	2	:	d Name			Dale
48 hr trunsfer time for Encore	e	Printe	ed Nam	1e	<b>√</b> .	C	)ale	P	rinted Ñ	ame' // _	< 1	2	/ Date			_			
samples		Comp		J-5	<u> </u>	<del></del>		-   <del>c</del>	Ompany		رد				Comp	any			Rev
*STL SF reports 8015M from $C_9 \cdot C_{21}$ (industry norm). Default for 8015B is $C_1$	.10-C28	1	, ,																

## LOGIN SAMPLE RECEIPT CHECK LIST

Client: URS Corporation Job Number: 720-8489-1

Login Number: 8489

T/F/NA	Comment
NA	
NA	
True	
	NA NA True True True True True True True True



## **ANALYTICAL REPORT**

Job Number: 720-8505-1

Job Description: Oakland - MSC

For: URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612

Attention: Mr. Leonard Niles

Dimple Sharma

Project Manager I

dsharma@stl-inc.com 04/10/2007

Project Manager: Dimple Sharma

## Case Narrative for job: 720-J8505-1

Client: **URS** Corporation Date: 04/10/2007

## Semi Volatiles GC Analysis

Surrogate - Matrix

Capric acid surrogate recovery for samples 8505-1,3 were outside control limits. These samples show evidence of matrix interference; therefore, re-extraction and/or re-analysis was not performed.

# Affected Items 720-8505-D-3-B

Batch: 720-20256 Method: 720-8015B\_DRO

720-8505-D-1-D

Batch: 720-20256 Method: 720-8015B\_DRO

# **EXECUTIVE SUMMARY - Detections**

Client: URS Corporation Job Number: 720-8505-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-8505-1	RW-D6-11.0'-11.5'				
Benzene Ethylbenzene Toluene Xylenes, Total Gasoline Range Or Diesel Range Orga Motor Oil Range Or		1.1 3.2 5.9 18 260 81 93	0.76 0.76 0.76 1.5 38 0.99	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	8260B 8260B 8260B 8260B 8260B 8015B
720-8505-2	RW-D9-11.0'				
Ethylbenzene Toluene Xylenes, Total Gasoline Range Or Diesel Range Orga	ganics (GRO)-C5-C12 nics [C10-C28]	9.7 6.1 56 950 3.3	2.0 2.0 4.1 100 0.99	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	8260B 8260B 8260B 8260B 8015B
720-8505-3	RW-D11-6.5'				
Benzene Ethylbenzene Xylenes, Total Gasoline Range Or Diesel Range Orga Motor Oil Range Or		7.0 24 85 2700 280 83	3.8 3.8 7.6 190 1.0 50	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	8260B 8260B 8260B 8260B 8015B 8015B

#### **METHOD SUMMARY**

Client: URS Corporation Job Number: 720-8505-1

Description	Lab Location	Method	<b>Preparation Method</b>	
Matrix: Solid				
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260	В	
Purge-and-Trap for Aqueous Samples/High	STL SF		SW846 5030B	
Closed System Purge & Trap/Laboratory	STL SF		SW846 5035	
Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	STL SF	SW846 8015	3	
Ultrasonic Extraction	STL SF		SW846 3550B	
Silica Gel Cleanup	STL SF		SW846 3630C	

#### LAB REFERENCES:

STL SF = STL San Francisco

#### **METHOD REFERENCES:**

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

# **SAMPLE SUMMARY**

Client: URS Corporation Job Number: 720-8505-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received	
720-8505-1	RW-D6-11.0'-11.5'	Solid	04/02/2007 1500	04/03/2007 1720	
720-8505-2	RW-D9-11.0'	Solid	04/03/2007 1020	04/03/2007 1720	
720-8505-3	RW-D11-6.5'	Solid	04/03/2007 1345	04/03/2007 1720	

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D6-11.0'-11.5'

 Lab Sample ID:
 720-8505-1
 Date Sampled:
 04/02/2007
 1500

 Client Matrix:
 Solid
 Date Received:
 04/03/2007
 1720

#### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B Analysis Batch: 720-20215 Instrument ID: Varian 3900A

Preparation: 5030B-Medium Prep Batch: 720-20227 Lab File ID: c:\saturnws\data\200704\04

Dilution: 200 Initial Weight/Volume: 6.54 g

Date Analyzed: 04/07/2007 1121 Final Weight/Volume: 10 mL

Date Prepared: 04/07/2007 0930

Analyte E	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		1.1		0.76
Ethylbenzene		3.2		0.76
Toluene		5.9		0.76
MTBE		ND		0.76
Xylenes, Total		18		1.5
Gasoline Range Organics (GRO)-C	5-C12	260		38
Surrogate		%Rec		Acceptance Limits
Toluene-d8 (Surr)		95		50 - 130
1,2-Dichloroethane-d4 (Surr)		93		60 - 140

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D9-11.0'

 Lab Sample ID:
 720-8505-2
 Date Sampled:
 04/03/2007
 1020

 Client Matrix:
 Solid
 Date Received:
 04/03/2007
 1720

#### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B Analysis Batch: 720-20215 Instrument ID: Varian 3900A

Preparation: 5030B-Medium Prep Batch: 720-20227 Lab File ID: c:\saturnws\data\200704\04

Dilution: 500 Initial Weight/Volume: 6.17 g

Date Analyzed: 04/07/2007 1250 Final Weight/Volume: 10 mL Date Prepared: 04/07/2007 0930

Analyte D	ryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		ND		2.0
Ethylbenzene		9.7		2.0
Toluene		6.1		2.0
MTBE		ND		2.0
Xylenes, Total		56		4.1
Gasoline Range Organics (GRO)-C5	5-C12	950		100
Surrogate		%Rec		Acceptance Limits
Toluene-d8 (Surr)		115		50 - 130
1,2-Dichloroethane-d4 (Surr)		106		60 - 140

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D11-6.5'

Lab Sample ID: 720-8505-3 Date Sampled: 04/03/2007 1345 Client Matrix: Date Received: Solid 04/03/2007 1720

#### 8260B Volatile Organic Compounds by GC/MS

Analysis Batch: 720-20156 Method: 8260B Instrument ID: Varian 3900A

Preparation: Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04 5035

Dilution: 1000

Initial Weight/Volume: 6.55 g 10 mL Date Analyzed: Final Weight/Volume: 04/10/2007 0020

Date Prepared: 04/05/2007 0945

Analyte E	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		7.0		3.8
Toluene		ND		3.8
Ethylbenzene		24		3.8
MTBE		ND		3.8
Xylenes, Total		85		7.6
Gasoline Range Organics (GRO)-C	5-C12	2700		190
Surrogate		%Rec		Acceptance Limits
1,2-Dichloroethane-d4 (Surr)		131		60 - 140
Toluene-d8 (Surr)		128		70 - 130

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D6-11.0'-11.5'

 Lab Sample ID:
 720-8505-1
 Date Sampled:
 04/02/2007
 1500

 Client Matrix:
 Solid
 Date Received:
 04/03/2007
 1720

#### 8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20256 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20063 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.23 g
Date Analyzed: 04/09/2007 1024 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume:

Column ID: PRIMARY

Analyte DryWt Corrected: N Result (mg/Kg) Qualifier RL Diesel Range Organics [C10-C28] 0.99 81 Motor Oil Range Organics [C24-C36] 93 50 %Rec Acceptance Limits Surrogate o-Terphenyl 78 50 - 130 Capric Acid (Surr) 9 Χ 0 - 5

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D9-11.0'

 Lab Sample ID:
 720-8505-2
 Date Sampled:
 04/03/2007
 1020

 Client Matrix:
 Solid
 Date Received:
 04/03/2007
 1720

#### 8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20256 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20063 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.22 g
Date Analyzed: 04/09/2007 1145 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume:

Column ID: PRIMARY

Analyte DryWt Corrected: N Qualifier RL Result (mg/Kg) 3.3 Diesel Range Organics [C10-C28] 0.99 Motor Oil Range Organics [C24-C36] ND 50 %Rec Acceptance Limits Surrogate o-Terphenyl 77 50 - 130 Capric Acid (Surr) 0 0 - 5

Client: URS Corporation Job Number: 720-8505-1

Client Sample ID: RW-D11-6.5'

 Lab Sample ID:
 720-8505-3
 Date Sampled:
 04/03/2007
 1345

 Client Matrix:
 Solid
 Date Received:
 04/03/2007
 1720

#### 8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20256 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20063 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.08 g
Date Analyzed: 04/09/2007 1212 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		280		1.0
Motor Oil Range Organics [C24-C	36]	83		50
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		63		50 - 130
Capric Acid (Surr)		21	Χ	0 - 5

# **DATA REPORTING QUALIFIERS**

Client: URS Corporation Job Number: 720-8505-1

Lab Section	Qualifier	Description	
00.0			
GC Semi VOA			
	X	Surrogate exceeds the control limits	

Client: URS Corporation Job Number: 720-8505-1

# **QC Association Summary**

		Report			
Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-201	156				
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	8260B	720-20162
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	Τ	Solid	8260B	720-20162
MB 720-20162/1-AA	Method Blank	T	Solid	8260B	720-20162
720-8505-3	RW-D11-6.5'	Т	Solid	8260B	720-20162
Prep Batch: 720-20162					
LCS 720-20162/2-AA	Lab Control Spike	Т	Solid	5035	
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	5035	
MB 720-20162/1-AA	Method Blank	Т	Solid	5035	
720-8505-3	RW-D11-6.5'	Т	Solid	5035	
Analysis Batch:720-202	215				
LCS 720-20227/2-AA	Lab Control Spike	Т	Solid	8260B	720-20227
LCSD 720-20227/3-AA	Lab Control Spike Duplicate	Т	Solid	8260B	720-20227
MB 720-20227/1-AA	Method Blank	Т	Solid	8260B	720-20227
720-8505-1	RW-D6-11.0'-11.5'	Т	Solid	8260B	720-20227
720-8505-2	RW-D9-11.0'	Т	Solid	8260B	720-20227
Prep Batch: 720-20227					
LCS 720-20227/2-AA	Lab Control Spike	Т	Solid	5030B	
LCSD 720-20227/3-AA	Lab Control Spike Duplicate	Ť	Solid	5030B	
MB 720-20227/1-AA	Method Blank	Т	Solid	5030B	
720-8505-1	RW-D6-11.0'-11.5'	Ť	Solid	5030B	
720-8505-2	RW-D9-11.0'	Ť	Solid	5030B	
		•			

# Report Basis T = Total

Client: URS Corporation Job Number: 720-8505-1

# **QC Association Summary**

		Report			
Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 720-20063					
LCS 720-20063/2-AB	Lab Control Spike	Т	Solid	3550B	
LCSD 720-20063/3-AB	Lab Control Spike Duplicate	Т	Solid	3550B	
MB 720-20063/1-AB	Method Blank	Т	Solid	3550B	
720-8505-1	RW-D6-11.0'-11.5'	Т	Solid	3550B	
720-8505-1MS	Matrix Spike	Т	Solid	3550B	
720-8505-1MSD	Matrix Spike Duplicate	Т	Solid	3550B	
720-8505-2	RW-D9-11.0'	Т	Solid	3550B	
720-8505-3	RW-D11-6.5'	Т	Solid	3550B	
Analysis Batch:720-20	256				
LCS 720-20063/2-AB	Lab Control Spike	Т	Solid	8015B	720-20063
LCSD 720-20063/3-AB	Lab Control Spike Duplicate	Т	Solid	8015B	720-20063
MB 720-20063/1-AB	Method Blank	Т	Solid	8015B	720-20063
720-8505-1	RW-D6-11.0'-11.5'	Т	Solid	8015B	720-20063
720-8505-1MS	Matrix Spike	Т	Solid	8015B	720-20063
720-8505-1MSD	Matrix Spike Duplicate	Т	Solid	8015B	720-20063
720-8505-2	RW-D9-11.0'	Т	Solid	8015B	720-20063
720-8505-3	RW-D11-6.5'	Т	Solid	8015B	720-20063

#### Report Basis

T = Total

Client: URS Corporation Job Number: 720-8505-1

Method Blank - Batch: 720-20162 Method: 8260B Preparation: 5035

Lab Sample ID: MB 720-20162/1-AA Analysis Batch: 720-20156 Instrument ID: Varian 3900A

Client Matrix: Solid Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04

Dilution: 200 Units: mg/Kg Initial Weight/Volume: 5.01 g
Date Analyzed: 04/05/2007 1150 Final Weight/Volume: 10 mL

Date Analyzed: 04/05/2007 1150 Date Prepared: 04/05/2007 0945

Analyte	Result	Qual	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
MTBE	ND		1.0
Xylenes, Total	ND		2.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
Surrogate	% Rec	Acceptance Limit	s
Toluene-d8 (Surr)	96	70 - 130	
1,2-Dichloroethane-d4 (Surr)	88	60 - 140	

Client: URS Corporation Job Number: 720-8505-1

Lab Control Spike/ Method: 8260B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20162 Preparation: 5035

LCS Lab Sample ID: LCS 720-20162/2-AA

Client Matrix: Solid

Dilution: 200
Date Analyzed: 04/0

Date Analyzed: 04/05/2007 1105 Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156 Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.01 g Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-20162/3-AA

Client Matrix: Solid Dilution: 200

Date Analyzed: 04/05/2007 1128 Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156

Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04(

Initial Weight/Volume: 5.03 g Final Weight/Volume: 10 mL

<u>% Rec.</u>							
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	89	91	69 - 129	2	20		
Toluene	97	101	70 - 130	3	20		
MTBE	88	90	65 - 165	2	20		
Surrogate	L	CS % Rec	LCSD %	Rec	Accep	otance Limits	
Toluene-d8 (Surr)	1	04	101		7	0 - 130	
1,2-Dichloroethane-d4 (Surr)	9	4	88		6	0 - 140	

Client: URS Corporation Job Number: 720-8505-1

Method Blank - Batch: 720-20227

Method: 8260B Preparation: 5030B

Lab Sample ID: MB 720-20227/1-AA

Client Matrix: Solid Dilution: 200

Date Analyzed: 04/07/2007 1048 Date Prepared: 04/07/2007 0930 Analysis Batch: 720-20215 Prep Batch: 720-20227

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.01 g Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
MTBE	ND		1.0
Xylenes, Total	ND		2.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
Surrogate	% Rec	Acceptance Lir	nits
Toluene-d8 (Surr)	103	50 - 130	
1,2-Dichloroethane-d4 (Surr)	91	60 - 140	

Client: URS Corporation Job Number: 720-8505-1

Lab Control Spike/ Method: 8260B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20227 Preparation: 5030B

LCS Lab Sample ID: LCS 720-20227/2-AA

Client Matrix: Solid

Dilution: 200

Date Analyzed: 04/07/2007 1003 Date Prepared: 04/07/2007 0930 Analysis Batch: 720-20215 Prep Batch: 720-20227

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.06 g Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-20227/3-AA

Client Matrix: Solid Dilution: 200

Date Analyzed: 04/07/2007 1025 Date Prepared: 04/07/2007 0930 Analysis Batch: 720-20215 Prep Batch: 720-20227

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04(

Initial Weight/Volume: 5.07 g Final Weight/Volume: 10 mL

	<u>9</u>	<u> 6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	90	110	69 - 129	20	20		
Toluene	100	120	70 - 130	18	20		
MTBE	92	104	65 - 165	12	20		
Surrogate	L	CS % Rec	LCSD %	Rec	Accep	otance Limits	
Toluene-d8 (Surr)	1	07	114		5	0 - 130	
1,2-Dichloroethane-d4 (Surr)	9	0	93		6	0 - 140	

RL

Job Number: 720-8505-1 Client: URS Corporation

Method Blank - Batch: 720-20063 Method: 8015B Preparation: 3550B

Lab Sample ID: MB 720-20063/1-AB Instrument ID: HP DRO5 Analysis Batch: 720-20256

Prep Batch: 720-20063 Client Matrix: Solid Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.01 g Date Analyzed: 04/07/2007 0806 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume:

Column ID: **PRIMARY** 

Result

Analyte Diesel Range Organics [C10-C28] NΩ 1.0 Motor Oil Range Organics [C24-C36] ND 50

Surrogate % Rec Acceptance Limits o-Terphenyl 75 50 - 130 Capric Acid (Surr) 0 0 - 5

Qual

Method: 8015B Lab Control Spike/ Lab Control Spike Duplicate Recovery Report - Batch: 720-20063 Preparation: 3550B

LCS Lab Sample ID: LCS 720-20063/2-AB Analysis Batch: 720-20256 Instrument ID: HP DRO5

Lab File ID: N/A Client Matrix: Solid Prep Batch: 720-20063

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.11 g 04/07/2007 0713 Final Weight/Volume: Date Analyzed: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume: Column ID: **PRIMARY** 

LCSD Lab Sample ID: LCSD 720-20063/3-AB Analysis Batch: 720-20256 Instrument ID: HP DRO5 Client Matrix: Solid Prep Batch: 720-20063 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.07 g

Date Analyzed: 04/07/2007 0739 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume: Column ID: **PRIMARY** 

% Rec. Analyte LCS **LCSD** Limit **RPD** RPD Limit LCS Qual LCSD Qual 75 50 - 130 Diesel Range Organics [C10-C28] 73 3 30 Surrogate LCS % Rec LCSD % Rec Acceptance Limits o-Terphenyl 74 75 50 - 130

**PRIMARY** 

Client: URS Corporation Job Number: 720-8505-1

Matrix Spike/ Method: 8015B
Matrix Spike Duplicate Recovery Report - Batch: 720-20063 Preparation: 3550B

MS Lab Sample ID: 720-8505-1 Analysis Batch: 720-20256 Instrument ID: HP DRO5 Client Matrix: Solid Prep Batch: 720-20063 Lab File ID: N/A

Client Matrix: Solid Prep Batch: 720-20063 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 30

Dilution: 1.0 Initial Weight/Volume: 30.20 g
Date Analyzed: 04/09/2007 1051 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume: Column ID:

MSD Lab Sample ID: 720-8505-1 Analysis Batch: 720-20256 Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20063 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.10 g
Date Analyzed: 04/09/2007 1118 Final Weight/Volume: 5 mL

Date Prepared: 04/04/2007 1625 Injection Volume:

Column ID: PRIMARY

% Rec. Analyte MS MSD Limit **RPD RPD Limit** MS Qual MSD Qual 50 - 130 Diesel Range Organics [C10-C28] 105 75 10 30 MS % Rec Surrogate MSD % Rec Acceptance Limits 50 - 130 o-Terphenyl 61 72

Reference #: 104829 Quarry Lane • Pleasanton CA 94566-4756 SEVERN e (925) 484-1919 ◆ Fax. (925) 484-1096 Email: stlogin@stl-inc.com 1 eonard U. Low Level Melats by EPA 200.B/5020 (ICP-MS); 608 Metals: Ditused DitUFT DIRCRA Address 1333 Broadway Suite 800

Address Oakland, CA 94612

Phone (50) 874-1720 Email Legiard - Viles @

Bill To: URS

Leonard Viles Alkalinity TDS D 0 00,0 οC EPA 8087 EPA 8082 CAM17 Melats [EPA 6010/7470/7471] 00 80.0 Number of Containers W.E.T (STLC) 00 ōă DO Phone (510) 874-1720 00 00 Sample D Date Time Mat Press 44 RW-D6-11.0'-11.5' 4/2/07/1500 Soil None RW-09-11.0' 4/3/07 1020 Soil None RW-D11-6,5' 4/3/07 1345 Soil Work - 1602 JA 2) Relinquished by: 3) Relinquished by: Project Info. Sample Receipt Project Name: # of Containers # 4 City of Oakland-MSC (3x Encoves, 1xgluss jar) Signature 26815961.00001 Date Printed Name WORLD COVIET URS Corp. Company Conforms to record Credit Card# 3) Received by: 1) Received by Other 24h Signature Signature Report @ Routine @ Level 3 @ Level 4 O EDD @ State Tank Fund EDF Special Instructions / Comments: 48 hr transfer time for encore samples

Encore samples

Fax coc to leonard Niles

'STL SF reports 8015M from C. C. Lindustry (dim) Delault for 8015B is C. C. C. R. Date Printed Name Company Company Rev 06/04

SELVER MI	ro ar				1	220.0	Juarn	y Lan	e • F	ieasa	entori	CA 94	4566-	4756					Rele	stence	#:/0	1482	9
SEVERN ST	17	2	>-	8	5	05	19:	5) 48 Email	4-191 : <u>sllo</u> c	19 <b>◆</b> nin@\s	Fax ( <u>Ill-Inc.</u>	<u>com</u> 652) (	484-1 1	เกลค		[	)ate	4/3	107	Pa	ige _	<del></del>	
Report To  Alin: Leonard  Company: LLRS  Address: 333 Broad  Phone (50) 874-172  Bill to URS  Alin: Leonard Ville  Societa	Or your a large of the constitution of the con	TION THE B TINN 19879	n les po tiles t-1720	TOMEPA DAILSON PRING	Purgeable Alonaiks BTEXEPA-CROYI CIRKIB	TESHTOR BYSM' IN QUIEB GEL	if Ex Etherot	Purguabir Hatecathone (HVSCS) EPA 6021 by 6760B	<b>(3</b> )	Starm-displays GCMAS D EPA 8276 D 625	Oil and Blease El Pelialeum (ERA 1664)   Ullotal	President I EPA 8081 (1 608	PNAS Dy CI ET PONAS DI BERNA	CAM 17 Welais [EPA 60100747074711	Metals: D Lead D LUFT D RCRA	LOW Lavel Meists by EA 200,006020 (ICP-MS):	O WET(STLC)	D Mezevaleni Chromium C pH (24h hold lime for HyO)	C Spec Comd CI ANAMONIN	Anlans : a c) a SO, a NO, D F a Br a NS, a Po,			
RW-06-120-165'	4/2/01/1500	Soil	Worl	关		X				ļ													
ew-09-11.0' ew-011-6.5'	4/3/07 1020	Soil	Ware	Ç		<b>\$</b>		†		<del> </del>					-								
ew-011-6,5	4/3/07 1345	5011	Jana	N 4/	5/07	200	4/5	107	ļ														
gan to the state of the state o				7														-					
						ļ				ļ						<u> </u>		1					
				1	ļ	<del></del>				ļ								1					
MALE MALE SPACE STREET		<del> </del>								ļ	1										· · · · · · · · · · · · · · · · · · ·		
4/3 -	(3	C ~	COL	<u>-3</u>	1	1	-16	- 22	34	~ )					<u></u>		Li.	1 7 2	1 T = 1 (x = 1)	uished b			
Project Info.	Sar	pie F	ecein			1   64	1 1-1	ica de fecio						និប្រឧធ ១វ	r; 	17	-	3.	) třenod	ט המוזכול	γ,	.,	
Project Name:	p cu c		15 W	141	2	de	oral	d po	ills	To.	22	Sign	alure	1			ZD me	-   s	ignalure	!	<del></del>		me
ity of Oakland-N	15C BXE	Space	45 XX	10000	4/5/0	1/2	and de	ral X	iles Jile	4	/3/0	7 /	1	The same of the sa	- 4	3	o 7		rinted N		<u> </u>		Date
Project Name: City of Oakland-N Projecta 268 [596].0000]	Temo					Pint	ed ham	ie A	<del></del>	Di	A.P.	Refe	iled Na	me Work	· / A	Conce	)ale '		UDJOB 6	arrie.			
POX	}	10	C			Som	gany	ory	-			Cor	npany	W OX N	ر در سا	<u></u>	1	<u> </u>	ប្រជាជាទារ	,			
Credit Card#	Cum	ums to		,			ceised				1/2	7 2) F	leceive	ar by:	, /	/		3	) Receiv	red by:			
A Day 72h 48h	24h Diher	2 500	CI Sime	iank Fund	EDF		alore		E N	t 2	19-3- Car	Sig	parture	W	M	4/2	ime i	) 	ignalur	₹	<del></del>		Time
Special insulctions / Commer	efer til	m.	Control Co.	Q	بار <del>ت یا دی شد</del>	Print	en Nam	):1/ ne	ماحا	L	1/3,0 ale	Pin	Total Na	Ste//p	حر	17/	Date	-   =	rinted h	lame		Market Services	Date
TON HAND	ample	5	,	-		i		Wo	nlo	Con	dela	-		ST (-	SF			_   _	Yamaaa			<u>.,,</u>	
encore S Fax coc to	Leonard	11	Tile	25		Con	paily					Co	mplany				j		Compan	y			_
Hax CUC	(510) 87	Armi Di	3.6	<b>6</b> 0 158 d	C. Cn																		iles i

#### LOGIN SAMPLE RECEIPT CHECK LIST

Client: URS Corporation Job Number: 720-8505-1

Login Number: 8505

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	analyses not marked off on the coc for each sample
There are no discrepancies between the sample IDs on the containers and the COC.	True	·
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	



#### ANALYTICAL REPORT

Job Number: 720-8515-1

Job Description: Oakland - MSC

For: URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612

Attention: Mr. Leonard Niles



Melissa Brewer Project Manager I mbrewer@stl-inc.com 04/11/2007

Project Manager: Dimple Sharma

# **EXECUTIVE SUMMARY - Detections**

Client: URS Corporation Job Number: 720-8515-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method	
720-8515-1	RW-D8-7.5'-8.0'					
Benzene Toluene Xylenes, Total Gasoline Range Or Diesel Range Orga Motor Oil Range O		0.23 0.0057 0.024 1.6 74 170	0.0042 0.0042 0.0084 0.21 0.99 50	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	8260B 8260B 8260B 8260B 8015B 8015B	
720-8515-2	RW-D10-6.7'-7.0'					
Benzene Ethylbenzene Xylenes, Total Gasoline Range Or Diesel Range Orga	rganics (GRO)-C5-C12 inics [C10-C28]	2.2 4.1 2.2 180 38	0.91 0.91 1.8 45 1.0	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	8260B 8260B 8260B 8260B 8015B	

#### **METHOD SUMMARY**

Client: URS Corporation Job Number: 720-8515-1

Description	on	Lab Location	Method	<b>Preparation Method</b>
Matrix:	Solid			
Volatile Org	ganic Compounds by GC/MS	STL SF	SW846 826	60B
	Closed System Purge & Trap/Laboratory	STL SF		SW846 5035
Nonhaloge Range Org	nated Organics using GC/FID -Modified (Diesel anics)	STL SF	SW846 801	5B
0 0	Ultrasonic Extraction	STL SF		SW846 3550B
	Silica Gel Cleanup	STL SF		SW846 3630C

#### LAB REFERENCES:

STL SF = STL San Francisco

#### **METHOD REFERENCES:**

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

# **SAMPLE SUMMARY**

Client: URS Corporation Job Number: 720-8515-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received		
720-8515-1	RW-D8-7.5'-8.0'	Solid	04/04/2007 1000	04/04/2007 1540		
720-8515-2	RW-D10-6.7'-7.0'	Solid	04/04/2007 1320	04/04/2007 1540		

Client: URS Corporation Job Number: 720-8515-1

Client Sample ID: RW-D8-7.5'-8.0'

 Lab Sample ID:
 720-8515-1
 Date Sampled:
 04/04/2007
 1000

 Client Matrix:
 Solid
 Date Received:
 04/04/2007
 1540

#### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B Analysis Batch: 720-20312 Instrument ID: Varian 3900A

Preparation: 5035 Prep Batch: 720-20313 Lab File ID: c:\saturnws\data\200704\04

Dilution: 1.0 Initial Weight/Volume: 5.98 g
Date Analyzed: 04/09/2007 1648 Final Weight/Volume: 10 mL

Date Prepared: 04/04/2007 1328

Analyte D	ryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		0.23		0.0042
Toluene		0.0057		0.0042
Ethylbenzene		ND		0.0042
MTBE		ND		0.0042
Xylenes, Total		0.024		0.0084
Gasoline Range Organics (GRO)-C5	5-C12	1.6		0.21
Surrogate		%Rec		Acceptance Limits
1,2-Dichloroethane-d4 (Surr)		94		60 - 140
Toluene-d8 (Surr)		96		70 - 130

Client: URS Corporation Job Number: 720-8515-1

Client Sample ID: RW-D10-6.7'-7.0'

 Lab Sample ID:
 720-8515-2
 Date Sampled:
 04/04/2007 1320

 Client Matrix:
 Solid
 Date Received:
 04/04/2007 1540

#### 8260B Volatile Organic Compounds by GC/MS

Method: 8260B Analysis Batch: 720-20156 Instrument ID: Varian 3900A

Preparation: 5035 Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04

Dilution: 200 Initial Weight/Volume: 5.52 g

Date Analyzed: 04/05/2007 1315 Final Weight/Volume: 10 mL Date Prepared: 04/05/2007 0945

Analyte	ryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene		2.2		0.91
Toluene		ND		0.91
Ethylbenzene		4.1		0.91
MTBE		ND		0.91
Xylenes, Total		2.2		1.8
Gasoline Range Organics (GRO)-C5	5-C12	180		45
Surrogate		%Rec		Acceptance Limits
1,2-Dichloroethane-d4 (Surr)		88		60 - 140
Toluene-d8 (Surr)		96		70 - 130

Client: URS Corporation Job Number: 720-8515-1

Client Sample ID: RW-D8-7.5'-8.0'

 Lab Sample ID:
 720-8515-1
 Date Sampled:
 04/04/2007
 1000

 Client Matrix:
 Solid
 Date Received:
 04/04/2007
 1540

#### 8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20304 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.20 g
Date Analyzed: 04/09/2007 1521 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume:

Column ID: PRIMARY

Analyte DryWt Corrected: N Result (mg/Kg) Qualifier RL Diesel Range Organics [C10-C28] 74 0.99 Motor Oil Range Organics [C24-C36] 170 50 %Rec Acceptance Limits Surrogate o-Terphenyl 65 50 - 130 Capric Acid (Surr) 0 0 - 5

Client: URS Corporation Job Number: 720-8515-1

Client Sample ID: RW-D10-6.7'-7.0'

 Lab Sample ID:
 720-8515-2
 Date Sampled:
 04/04/2007 1320

 Client Matrix:
 Solid
 Date Received:
 04/04/2007 1540

#### 8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

Method: 8015B Analysis Batch: 720-20304 Instrument ID: HP DRO5

Preparation: 3550B Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.13 g
Date Analyzed: 04/06/2007 2214 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume:

Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28	3]	38		1.0
Motor Oil Range Organics [C24-C	36]	ND		50
Surrogate		%Rec		Acceptance Limits
o-Terphenyl		61		50 - 130
Capric Acid (Surr)		6	Χ	0 - 5

# **DATA REPORTING QUALIFIERS**

Client: URS Corporation Job Number: 720-8515-1

Lab Section	Qualifier	Description
00.0		
GC Semi VOA		
	F	MS or MSD exceeds the control limits
	X	Surrogate exceeds the control limits

Client: URS Corporation Job Number: 720-8515-1

# **QC Association Summary**

Lak Camarla ID	Ni ant Canada ID	Report Basis	Oli 4 Madais	84 - 41 I	Danie Batak
Lab Sample ID C	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-20156					
LCS 720-20162/2-AA	Lab Control Spike	Τ	Solid	8260B	720-20162
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	Τ	Solid	8260B	720-20162
MB 720-20162/1-AA	Method Blank	Т	Solid	8260B	720-20162
720-8515-2	RW-D10-6.7'-7.0'	Т	Solid	8260B	720-20162
Prep Batch: 720-20162					
LCS 720-20162/2-AA	Lab Control Spike	Т	Solid	5035	
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	Ť	Solid	5035	
MB 720-20162/1-AA	Method Blank	Ť	Solid	5035	
720-8515-2	RW-D10-6.7'-7.0'	T	Solid	5035	
Analysia Batah 720 20242					
<b>Analysis Batch:720-20312</b> LCS 720-20313/2-AA	Lab Control Spike	Т	Solid	8260B	720-20313
LCSD 720-20313/3-AA	Lab Control Spike Duplicate	Ť	Solid	8260B	720-20313
MB 720-20313/1-AA	Method Blank	T	Solid	8260B	720-20313
720-8515-1	RW-D8-7.5'-8.0'	Ť	Solid	8260B	720-20313
720-0313-1	1(00-00-7.0-0.0	'	Golid	0200D	720-20010
Prep Batch: 720-20313					
LCS 720-20313/2-AA	Lab Control Spike	Τ	Solid	5035	
LCSD 720-20313/3-AA	Lab Control Spike Duplicate	Т	Solid	5035	
MB 720-20313/1-AA	Method Blank	Τ	Solid	5035	
720-8515-1	RW-D8-7.5'-8.0'	Т	Solid	5035	

#### Report Basis

T = Total

Client: URS Corporation Job Number: 720-8515-1

# **QC Association Summary**

		Report			
Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 720-20094					
LCS 720-20094/2-AB	Lab Control Spike	Т	Solid	3550B	
_CSD 720-20094/3-AB	Lab Control Spike Duplicate	Т	Solid	3550B	
MB 720-20094/1-AB	Method Blank	Т	Solid	3550B	
720-8515-1	RW-D8-7.5'-8.0'	Т	Solid	3550B	
720-8515-1MS	Matrix Spike	Т	Solid	3550B	
720-8515-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
720-8515-2	RW-D10-6.7'-7.0'	Т	Solid	3550B	
Analysis Batch:720-20	304				
LCS 720-20094/2-AB	Lab Control Spike	Т	Solid	8015B	720-20094
LCSD 720-20094/3-AB	Lab Control Spike Duplicate	Т	Solid	8015B	720-20094
MB 720-20094/1-AB	Method Blank	Т	Solid	8015B	720-20094
720-8515-1	RW-D8-7.5'-8.0'	Т	Solid	8015B	720-20094
720-8515-1MS	Matrix Spike	Т	Solid	8015B	720-20094
720-8515-1MSD	Matrix Spike Duplicate	Т	Solid	8015B	720-20094
720-8515-2	RW-D10-6.7'-7.0'	Т	Solid	8015B	720-20094

# Report Basis

T = Total

Client: URS Corporation Job Number: 720-8515-1

Method Blank - Batch: 720-20162 Method: 8260B Preparation: 5035

Lab Sample ID: MB 720-20162/1-AA Analysis Batch: 720-20156 Instrument ID: Varian 3900A

Client Matrix: Solid Prep Batch: 720-20162 Lab File ID: c:\saturnws\data\200704\04

Dilution: 200 Units: mg/Kg Initial Weight/Volume: 5.01 g

Date Analyzed: 04/05/2007 1150 Final Weight/Volume: 10 mL Date Prepared: 04/05/2007 0945

Analyte	Result	Qual	RL
Benzene	ND		1.0
Toluene	ND		1.0
Ethylbenzene	ND		1.0
MTBE	ND		1.0
Xylenes, Total	ND		2.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
Surrogate	% Rec	Accept	ance Limits
1,2-Dichloroethane-d4 (Surr)	88	60	- 140
Toluene-d8 (Surr)	96	70	- 130

Job Number: 720-8515-1 Client: URS Corporation

Lab Control Spike/ Method: 8260B Lab Control Spike Duplicate Recovery Report - Batch: 720-20162 Preparation: 5035

LCS Lab Sample ID: LCS 720-20162/2-AA

Client Matrix: Solid

200 Dilution:

04/05/2007 1105 Date Analyzed: Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156 Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.01 g 10 mL

Final Weight/Volume:

LCSD Lab Sample ID: LCSD 720-20162/3-AA

Client Matrix: Solid Dilution: 200

Date Analyzed: 04/05/2007 1128 Date Prepared: 04/05/2007 0945 Analysis Batch: 720-20156 Prep Batch: 720-20162

Units: mg/Kg

Instrument ID: Varian 3900A

c:\saturnws\data\200704\04( Lab File ID:

Initial Weight/Volume: 5.03 g Final Weight/Volume: 10 mL

<u>% Rec.</u>							
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	89	91	69 - 129	2	20		
Toluene	97	101	70 - 130	3	20		
MTBE	88	90	65 - 165	2	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
1,2-Dichloroethane-d4 (Surr)	9	4	88		6	0 - 140	
Toluene-d8 (Surr)	1	04	101		7	0 - 130	

Client: URS Corporation Job Number: 720-8515-1

Method Blank - Batch: 720-20313 Method: 8260B Preparation: 5035

Lab Sample ID: MB 720-20313/1-AA Analysis Batch: 720-20312 Instrument ID: Varian 3900A

Client Matrix: Solid Prep Batch: 720-20313 Lab File ID: c:\saturnws\data\200704\04

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 5.03 g
Date Analyzed: 04/09/2007 1457 Final Weight/Volume: 10 ml

Date Analyzed: 04/09/2007 1457 Final Weight/Volume: 10 mL Date Prepared: 04/04/2007 1328

Analyte	Result	Qual	RL
Benzene	ND		0.0050
Toluene	ND		0.0050
Ethylbenzene	ND		0.0050
MTBE	ND		0.0050
Xylenes, Total	ND		0.0099
Gasoline Range Organics (GRO)-C5-C12	ND		0.25
Surrogate	% Rec	Acceptance Limi	ts
1,2-Dichloroethane-d4 (Surr)	85	60 - 140	
Toluene-d8 (Surr)	97	70 - 130	

Client: URS Corporation Job Number: 720-8515-1

Lab Control Spike/ Method: 8260B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20313 Preparation: 5035

LCS Lab Sample ID: LCS 720-20313/2-AA

Client Matrix: Solid Dilution: 1.0

Date Analyzed: 04/09/2007 1412 Date Prepared: 04/04/2007 1328 Analysis Batch: 720-20312 Prep Batch: 720-20313

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04

Initial Weight/Volume: 5.0 g Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 720-20313/3-AA

Client Matrix: Solid Dilution: 1.0

Date Analyzed: 04/09/2007 1519 Date Prepared: 04/04/2007 1328 Analysis Batch: 720-20312 Prep Batch: 720-20313

Units: mg/Kg

Instrument ID: Varian 3900A

Lab File ID: c:\saturnws\data\200704\04(

Initial Weight/Volume: 5.0 g Final Weight/Volume: 10 mL

<u>% Rec.</u>							
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	94	85	69 - 129	10	20		
Toluene	103	95	70 - 130	9	20		
MTBE	100	90	65 - 165	10	20		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		;
1,2-Dichloroethane-d4 (Surr)	8	1	81		60 - 140		
Toluene-d8 (Surr)	9	9	96		7	0 - 130	

#### **Quality Control Results**

Client: URS Corporation Job Number: 720-8515-1

Method Blank - Batch: 720-20094 Method: 8015B Preparation: 3550B

Lab Sample ID: MB 720-20094/1-AB

Analysis Batch: 720-20304

Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.01 g
Date Analyzed: 04/07/2007 0056 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume:

Column ID: PRIMARY

 Analyte
 Result
 Qual
 RL

 Diesel Range Organics [C10-C28]
 ND
 1.0

 Motor Oil Range Organics [C24-C36]
 ND
 50

 Surrogate
 % Rec
 Acceptance Limits

 o-Terphenyl
 82
 50 - 130

 Capric Acid (Surr)
 0
 0 - 5

Lab Control Spike/ Method: 8015B
Lab Control Spike Duplicate Recovery Report - Batch: 720-20094 Preparation: 3550B

LCS Lab Sample ID: LCS 720-20094/2-AB Analysis Batch: 720-20304 Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.02 g

Date Analyzed: 04/07/2007 0002 Final Weight/Volume: 5 mL
Date Prepared: 04/05/2007 1212 Injection Volume:

Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 720-20094/3-AB Analysis Batch: 720-20304 Instrument ID: HP DRO5 Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Units: mg/Kg Initial Weight/Volume: 30.03 g

Date Analyzed: 04/07/2007 0029 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume:

Date Prepared: 04/05/2007 1212 Injection Volume: Column ID: PRIMARY

COMMITTE. TRIMART

% Rec. Analyte LCS **LCSD** Limit **RPD** RPD Limit LCS Qual LCSD Qual 74 76 50 - 130 Diesel Range Organics [C10-C28] 2 30 Surrogate LCS % Rec LCSD % Rec Acceptance Limits o-Terphenyl 79 80 50 - 130

Calculations are performed before rounding to avoid round-off errors in calculated results.

#### **Quality Control Results**

**PRIMARY** 

50 - 130

Client: URS Corporation Job Number: 720-8515-1

Matrix Spike/ Method: 8015B
Matrix Spike Duplicate Recovery Report - Batch: 720-20094 Preparation: 3550B

MS Lab Sample ID: 720-8515-1 Analysis Batch: 720-20304 Instrument ID: HP DRO5 Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A

Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A
Dilution: 1.0 Initial Weight/Volume: 30

Dilution: 1.0 Initial Weight/Volume: 30.14 g
Date Analyzed: 04/09/2007 1548 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume: Column ID:

MSD Lab Sample ID: 720-8515-1 Analysis Batch: 720-20304 Instrument ID: HP DRO5

Client Matrix: Solid Prep Batch: 720-20094 Lab File ID: N/A

Dilution: 1.0 Initial Weight/Volume: 30.24 g
Date Analyzed: 04/09/2007 1615 Final Weight/Volume: 5 mL

Date Prepared: 04/05/2007 1212 Injection Volume:

57

o-Terphenyl

Column ID: PRIMARY

% Rec. Analyte MS MSD Limit **RPD RPD Limit** MS Qual MSD Qual 50 - 130 Diesel Range Organics [C10-C28] 68 30 30 F 154 MS % Rec Surrogate MSD % Rec Acceptance Limits

60

STARK ST	ΓL	11	n	_	245	220 (	-02	y Lan- (5) 48 Email	4-191	19 •	Fax. (	925)	1566- 184-1	4756 096		(	Date _	4/4	107	_ Pa	/o.5 ge/	1830 of 1
Reporto Attn Londov d / Company URS C Address, 1333 Byra Address, 1333 Byra Phane (510) 874-172  Elit To: URS  Attn: Leonard Vila  F: Sample D	OF PORT OF THE SE	1 - SU Leonova Durs Co empled By 10 navd none (510)	874-17	20 =	ble Aromatics	TEPH EPA 803514" IQ Silica Gel	<b>1</b> 10 10 10 10 10 10 10 10 10 10 10 10 10	Plurgeatile Halocarbons (HVGCs) EPA-8021 by 8260B					PNAs by (3 8270 (3 8310	CAM17 Melais (EPA 60107476/7471)	Metalt; Dituas Ditust Directa B	EPA 200 &15020	D WET(STLC)	Hexavaleni Chromium     ph (24h hold lime for H <sub>2</sub> O)	O Spec Cond. Cl Alkalinity Cl TSS O TDS Cl	Aniens: CICL D.SO, D.NO, C.F. CIBr. CINO, D.PO.	. :	
RW-D8-7.5-8.0' RW-D10-6.7-7,0'	14/4/0	10:005	ioil no	ACCID		×																
																						C T
																			-		1	
Project Info.	- (	Sample		eipť :	i. 1. 	1) Re	elinquist eonu ature	and v	Villes VIII	2 13 Tim	15-4-7 104/m	7	Jure	shed by	1000	Ti	240 me    Wo 1	-   = :	Relingu	uished by		Time
Project# 131954-0000 1026315961.00 Credit Card#	0001	Temp Contains	30			Profit Com	ed Nam 1RS	CO	rp	Da				SF	(J. 1941)	3 1	)ale	→   <del>c</del>	ompany Receiv	<i>(</i>		Date
T 5 72h 48h Report: O Routine D Level Special instructions / Commen			D Ch	ore Dank Fu obal IO		- 5gn	oute Vale	2	mG:	13 Tim s 4	1 1	Sign	ature 2	Bull	ell	/ //4)	54	O 5	ignalure	2		Time
Encove fr Fax COC	-ans+ copy (510)	er + to U 1874.	ime 20 L -32	=4 /ile :68	8 40 S	Com	ed Nam TZ pany	e	1	Ö:	ile		ted Na S пралу	T C	S	× =	)atei		rinted N ompany			118
*STL SF reports 8015M from 0	Ca-Ca- (ind	ustry narm)	Delault I	lar 80 i 58	15 C at C71	1			-		, , , , , , , , , , , , , , , , , , , ,										_	Re

#### LOGIN SAMPLE RECEIPT CHECK LIST

Client: URS Corporation Job Number: 720-8515-1

Login Number: 8515

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

#### ATTACHMENT D

Water Level Data and Well Development Field Forms

Well Gauging Logs
Valero Refinery; Benicla, Galifornia
City of Oak land -MSC

T.										
		٠.		1	-#	Detph to		Depth to	PID	TOC dept
				Matt D	Charat	Floating	Depth to	bottom of	Reading	TOC depth
	Well No.	Date	Time	Well D	Sheen/	Product	Water*	Well*	at TOC	Vault box
	, yv en inu.			(in.)	Ogor	(feet)	(feet)	(feet)	(ppm)	1. 4
	RW-06	पीता	824	6	OWK	886NU	8.86	7.0.13		.6
	RW-07	h	8:40	6 3.4	n	Me	8.31	20.03	4	,50
	RW-08	. Vi	1:36	6	И	Ma	19.36	20.10	Q	45 3 9
	RW-09	ų	8:30	6	И	NA	13.66	19.81	0	75
	RW-DIO	Ŋ	8:46	6	И	10	8.39	19.78	0	475
	RW-DII	ั น 🧓	8:52	6	Ŋ	NA	7.75	19.60		11.75 (1 (0.98 ft)
	L	_								(0.90 tt)
	NU-M	4/2/07	13:04	6		MA	882			
	KW-07	W.	12:59	6		MA	8.27			, **
	EWAP	4	12:56	6		MA	18.97			Å.
ŀ	RW-119	И	12920	15909 1484 6		1/0	1792			- 1
	MW-010	4	13:12	L		20	7.87			
ŀ	W-pu	ч	13:15				8:42			
╠				-0		<u> </u>	,			
ŀ						· · · · · · · · · · · · · · · · · · ·				
l		•								
╠					:					**************************************
L										
										V
										• *
					• • • • • • • • • • • • • • • • • • • •					
				,						,
r										
┢										
L		<u> </u>								

<sup>\*</sup> From top of casing

		•										
Client: City of Oak and Date: Plant: Plant: MSC Geologist/Technician: MNSC Geologist/Technician: Address: Did Edgewafer Drive Weather Conditions: Location: Plant D Temperature Project #: 26815961,00001 Wind Direction/Speed:												
Total Depth of Well (ft):  Casing Diameter (in): Screen Interval (ft bgs):  Water Column (ft):  Casing Volume (gallons):  Well Information  Depth to Water (ft):  Length:  Water Column (feet)  Water Column (feet)  Gallons per foot (see Table 1.)												
Casing volume (gamons): X // X												
					acij Gi	апопо ћес 1000 (;	see I adie I.)					
		ot Based on										
	meter (in.)	Gallons p		Casing Dian	neter (in.)	Gallons p		3.				
	f	0.2 0.6		8		2.7						
		1.5		10 12		4.1 5.9						
			<u></u>	12		3.9						
Surge Los Screen Inte Purge Los	rval (start):	13:06		evelopment ) /3:37		time: 3L	MINS					
Date: 4/	1/01	Purge Meth	od: BAIL	CA Duran	Durgo Dote	: 3.05 9	- A / A -	1				
Start Time:	E/13:42	Stop Time:		Total Time	/ C	Total vol.:	195,991	-				
Time	Volume Removed (g)	Depth to Water (ft)	рН	Cond. (µS/cm)	Temp. (F or C)	Color	Odor					
13:42				1		DK.CHIV	V65					
13146	15	9.80	7,72	23.7	19.5	17	11					
12:52	30	11.05	7.71	27.4	19.3	n		1				
13:56	45	11.40	2.26	22.3	19.3	h	7					
14:09	10	11.46	2.14	23.6	19.3	ALMOST	sucur					
14:12	75	13.03	7.87	27.3	1917	n	Y65					
<del></del>	/ 3						! <b>/</b> / \					
14:15		14.60	7.19	23.7	19 V	1 -	10.1	· ·				
14:15	90	14.60	7.69	23.7	19.4	OK. CROV	145	,				
19:13 19:18 19:21	90	14.60	7.69	23.7	19.7	1 -	VUS	*				
14:18	90 105 120	14.60	7.69 7.63 7.68	23.7	19.7	OK. CROV	YUS YUS YUS	*				
19:19 19:18 19:21 19:26	90 105 120 135	14.60	7.68	23.7 28.1 23.7 23.2	19.7	OK.CRAY  CRGY  ALMOST  COLOR	YES YES SUAT	*				
19:13 19:18 19:21 19:26 19:31	90 105 120	14.60	7.69 7.63 7.63 7.80 7.80	22-9	19.7	Ope. CAGY  CAGY  ALMOST  CLEAN	YUS YUS YUS SLUAT SLUAT SLUAT	**				
19:19 19:18 19:21 19:26 19:31 19:36	90 105 120 135 150	14.60	7.68 7.80 7.84		19.7	OLLANY  CHOY  LINGY  ALMOST  CLOM  CLOM	YUS YUS YUS SUUAT SUUNT SUUNT	* .				
19:13 19:21 19:21 19:36 19:41 19:41	90 105 120 135 150 165 180	14.60	7.68	22-9	19.7 19.8 18.4 19.1 19.3 15.3	Ope. CALLY  CALLY  CALLY  CALLY  CALL  CLEAN  CLEAN  CLEAN	YUS YUS YUS SUUNT SUUNT SUUNT SUUNT	*				
19:13 19:21 19:21 19:26 19:31 19:41 19:46	90 105 120 135 150	14.60 16.73 16.00 15.59 15.65 15.65	7.68 7.83 7.80 7.94 7.93	22-9	19.7	OLLANY  CHOY  LINGY  ALMOST  CLOM  CLOM	YUS YUS YUS SUUAT SUUNT SUUNT SUUNT SUUNT SUUNT	*				
19:13 19:21 19:21 19:26 19:31 19:36 19:41 19:46 Water Leve	90 105 120 135 150 165 180	14.60 16.40 16.00 15.59 15.65 15.65 15.70 302,55	7.68 7.87 7.87 7.99 7.93	22-9 22-8 22-8 22-9 Water Quality	/9.7 /9.8 /9.4 /9.4 /9.3 /9.3 /9.3	Ope. CALLY  CALLY  CALLY  CALLY  CALL  CLEAN  CLEAN	YUS YUS YUS SUUNT SUUNT SUUNT SUUNT	U-10				

	^<1	$\rho \sim W$	ell Number	r: <u> </u>	<u> </u>		ulu la
Client:	City	of Oakla	nd		1/11/07		
Plant: Address:	7/01	Edgenio	er Nic	Geol	R. MULLAN		
2 x 4 4 1 0 5 5 1	00	Kland,	CA	We	ather Cond	itions	A ALALLO
Location:		me D		710	Tempe:		1011111,000
Project #:	2681	5961,00	001	Wind	Direction/S		
este Table a Martine est		20 N3	Wel	l Informatio			071
Total Dept Casing Dia	h of Well (ft)	: <u>Do 165</u>		De	pth to Wate	er (ft):	8.5/
	rval (ft bgs):	<u> </u>	to	20	<b>T</b>	ength:	151
Water Col	umn (ft):	11.7	<u>L</u> "-		• L	engu:	
		Total Depth -	Depth to Water		<i>;</i>		
Casing Vol	umė (gallone	): <u>17.5</u>	<b>?</b> _	11.75	. 37	15	
Cubing voi	diffe (ganons	). <u> </u>		Vater Column (fe	et) X	Gallons per foot (s	re Table 1 )
Toble 1 W	olumo nau Fa					, , , , , , , , , , , , , , , , , , ,	te Table 1.9
	meter (in.)	ot Based on Gallons			. 4 (1)		
	2	Ganons 0.2		Casing Diam	ieter (in.)	Gallons po	er foot
4	<u>.                                    </u>	0.6		8 10		2.7 4.1	<del></del>
	5)	1.		12		5.9	
	<i>7</i>		<u> </u>				
			Well D	<u>evelopment</u>	Log		
Surge Lo		9:26	,	10:25		/	MUK
Screen Inte	rval (start):	1,04	to (end)	700-3	Total	time:	7,000,00
Purge Lo	g;		•				
Date: 4/11	107	Purge Met	nod: BOUL	C	Purge Rat	te: 0.47	9 pm
Start Time:	11:21	Stop Time:		Total Time:			
Time	Volume	Depth to	pН	Cond.	Temp.	Color	Odor
10:36	Removed (g)	Water (ft)	100	(μS/cm)	(F or C)		
10:44	30	16266	5.68	18-0	20:0	BROWN	Ms
1914 1	00	17.93	7.06	17.0	17.7	CON/BROWN	163
10:57	{ (	18:60	7.5>	17.0	17.8	MY	SUICHT
11.00	_/	19.23	7.43	15.0	20:0	LT. GNBY	SUGUT
12:35		7.58	(7)		3		
12:40	33	14.92	8.11	12.0	19.5	CWIN	165
12:56	70	17.31	8.12	13,2	20.0	0	Vis
					······································		
	·····				-		
<del></del>	<u> </u>						
			···········				
	···						
Water Terre	I Matau Tra	SULINST	0/W ==	Water Quality			KUMBA U-P
Traici Leve	Merce Tabe	· IN I FICE	/0-48	water Quality	/ Meter(s) T	ype:	MALLACIA I.
( 'Ammant	s/Oheaman+	ione					
Comment	s/Observat	ions:					

Client: Plant: Address: Location: Project #:	2101 001 Plun	Oakland 1SC Edgewon Sland, re D 5961,000	ler Dv. CA	Pate: RW-D8 Date: 4/11/07 Geologist/Technician: 4/11/07 Weather Conditions: Temperature Wind Direction/Speed:						
Casing Dian Screen Inte Water Colu Casing Volu	rval (ft bgs): mn (ft): ıme (gallons)	- 6 - 79 Total Depth -	to Depth to Water	70 , 74 Water Column (fe	pth to Water Le	r (ft): ngth: / \ \	19-36 15			
		ot Based on				*·				
Casing Dia		Gallons		Casing Diam	eter (in.)	Gallons pe	er foot			
2		0.2		8		2.7				
16	7	0.6 1.5		10 12		4.1				
	$\nearrow$	14,	<i>.</i>	12		5.9				
Purge Log Date: 4/4 Start Time:	val (start): g: 1/67 /2:07	Purge Meth Stop Time:	to (end nod: Baile 12i25	evelopment    / Li 26  W   Total Time:	Total (	:NA (wat	er addled()			
Time	Volume Removed (g)	Depth to Water (ft)	pН	Cond. (µS/cm)	Temp. (F or C)	Color	Odor			
/L:07  L:11  L:19  L:25	/5 30 33	13.70 18.85 19.70	7.56 7.58 7.09	4.87 5.29 13.1	13.3 13.5 19.3	UT. 6AEY 11	SCAGIOT  A  N			
Comments	Observat Chuch recou	ions:	/21UA 18.97'	at 12156	MING.	DTH	HUNIBAU-1V 1 9.55 1 yield 2			

Date	MSC MSC Edge Water Land, Cx ame D 815961.00	od er Dr, t	We		ions: ature	K. MUTROY SWAY WINA		
Total Depth of Well (ft Casing Diameter (in): Screen Interval (ft bgs) Water Column (ft): Casing Volume (gallon	:	to	20	epth to Water Le	(ft): ngth:	15.66 15		
Table 1. Volume per F						·.		
Casing Diameter (in.)	Gallons		Casing Diar	neter (in.)	Gallons pe	er foot		
2 4	0.2		8 10		2.7	<del></del>		
(6)	1.5		12		4.1 5.9			
Surge Log: Screen Interval (start):	8:11	Well D	Developmen  (1) 8 i 30	t Log Total	ime: _/9/	المرام		
Purge Log:	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		777		
Date: 4/12/07	Purge Meth			Purge Rate		2pm		
Start Time: 8:34 Time Volume	Stop Time:	0 1	Total Time	1	Total vol.:	12.9al		
Removed (g)	Water (ft)	pН	Cond. (µS/cm)	Temp (F of C)	Color	Odor		
8:34	15.05							
813Y 6	17.31	5.98	31.7	19.0	CNOV	YUS		
8:44 12	19.37	8.71	31.6	19.2	LT. OVEY	WS		
		-						
		·						
			<u> </u>					
		·						
Water Level Meter Typ Comments/Observa	e: Jules Pai tions:	E Probe	Water Qualit	y Meter(s) Ty	pe: Hovi	ba U-10		

		a . We	ell Numbe	r: KW -1	010		1/2/2
Client: Plant:	<u>City</u>	15/-		r: <u>                                      </u>	logist/Techni	Date:	A MININA
Address:		deewat	er Dn	GCO	logist/ i centil	cian.	10/10/4204
Location: Project #:	Plus 968		% o(		ather Condit Temper: Direction/Sp	ature	SVM, WIN
v	<del>د بستب</del>	- · · · · · · · ·	- (	.,	Dir Collon, Sp	Joeu.	· · · · · · · · · · · · · · · · · · ·
Casing Dia Screen Inte	rval (ft bgs):	6	wel	l <u>Informatio</u> De	pth to Water	· (ft): ngth:	8-39 _15
Water Colu	ımn (ft):	Total Depth -	Denth to Water	<del>-</del>			
Casing Vol	ume (gallons)	177	=	11.59	X	1.5	
				Water Column (fe	eet) Ga	llons per foot (	see Table 1.)
Table 1. Vo	olume per Fo	ot Based on	Well Diame	ter			
	meter (in.)	Gallons 1		Casing Dian	neter (in.)	Gallons p	er foot
	2	0.2		8		2.7	
7		0.6 1.5		10 12		4.1 5.9	<del></del>
			Well D	evelopment	Log		•
Surge Log Screen Inte	g: rval (start):	10:5	o to (end	11:30	Total t	time: 40	MIN
Purge Lo	σ•						
Date: 4//	2/07	Purge Meth	od: Bailer	/Pump	Purge Rate	. 3 17 0	pm
Start Time:	1	Stop Time:		Total Time		Total vol.:	
Time	Volume Removed (g)	Depth to Water (ft)	pН	Cond. (µS/cm)	Temp (F or C)	Color	Odor
11:39		8.42					
11145	20	8.75	7.12	126	18.5	DIC CLAY	165
1000	40	8.88	7.95	12.4	19.1	И	u
12:07	10	8.29	8.60	12.5	18.8	CEOUDY	i)
12:12	70	8.63	6.10	11.9	18.7	acon	U
12:17	100	8:65	7.75	12.1	19.0	41	n
12:22	120	8.65	1.72	12,2	149	n	11
1811	140	X. 65	7.83	12.1	19.1	n	n
12.50	160	X'65	1.79	11.5	18.9	u	B
12.5	70	8.62	1.19	14.1	19.3	11	a
12.92	200	8.63	1.67	//. 3	18.9	ч	4
		· · · · · · · · · · · · · · · · · · ·					
Water Leve Comment	l Meter Type s/Observat	Soliust : Interfad ions:	o/w Probe	Water Qualit	y Meter(s) T	ype: Hori	ba U-10
1/ ///	- A - A - T.	ni/nn					

X

	1	$\rho \sim W$	ell Numbe	r: RW-1	) (I		4/ 100
Client:	City	of Oak	lane(		,	Date:	1/1401
Plant:		MS C					12 MURAAY
Address:	710	1 Edgewa	fer Dr.		9		
_		land CX	(	We	eather Condi	itions:	SUMMY, WINK
Location:	Plum			*			
Project #:	2681	5961.000	201	Wine	d Direction/S	Speed:	
75 ( 175 )		. 19.60	$\frac{\mathbf{We}}{\mathbf{e}}$				7.75
	h of Well (ft)	:	· · · · · · · · · · · · · · · · · · ·	$\mathbf{D}_{0}$	epth to Wate	er (ft):	( ' ' ' )
	meter (in): erval (ft bgs):	<u> </u>		20	_		151
Water Col		77.36	. <u></u>	<u> </u>	L	ength:	
***************************************		Total Depth –	Depth to Water	~- r			
	•	7	<u> </u>	11.77		10	
Casing Vol	ume (gallons	): <u>/ / /</u>			X	/\J	
			•	Weather Conditions: Temperature Wind Direction/Speed:    Vell Information		(see Table 1.)	
Table 1. V	olume per Fo	ot Based on	Well Diame	ter		. *	
	meter (in.)	Gallons			neter (in.)	Gallons n	er foot
	2	0.3					
	4	0.0					
C	6 )	1.	5				
			·····	· · · · · · · · · · · · · · · · · · ·			is .
•		-	Well D	<u>evelopmen</u>	t Log		2.*
Surge Lo	g:	9101		9,31	·	7/1	. 1
Screen Inte	rval (start):	/	to (end	)_// /	Total	time: 57	MIN
Dunas I -					<del>_</del>	·	
Purge Lo							· · · · · · · · · · · · · · · · · · ·
Date: 4/	2/0/		hod:bailer				gpm
Start Time		Stop Time:	:10:4( '	Total Time	: 60 mil	1 Total vol.:	200
Time	Volume Removed (g)	Depth to	рH			Color	Odor
7141	Removed (g)	Water (ft) 7. 20		(μS/cm)	(For C)		
7:11	20	<del></del>	701	1/1/0	1	<del>                                     </del>	
7.91		7.85	1.75	17.7	18.1		165
10.01	40	8.01	7.99	8.47	179	wer	165
10661	60	8,00	7.66	1-29	18.2	CLOUNY	SLUGGE VES
16:11	OR	9.07	7.29	7.25	183	CLEAN	YUS
10111	100	809	7.92	7.30.	183	Clan	185
10:21	120	7.00	7. 89	7.34	12.7	11	n
10:26	140	7.66	7.14	741	125		0
1031		012.89	729	740	171		U
10136	- "	201	7 00	+/	1073		
10141	200	801	7.92	1.01	1/3:3	<del>                                     </del>	10
6014	200	705	7.97	7.71	187	<u> </u>	1
		<u> </u>					
		Solinst	0/W			.21 -1	
Water Leve	l Meter Type	e: Interfac	e probe	Water Quali	ty Meter(s) T	Type: Hovit	ba U-10
Comment	s/Observa	tions:				-	
	SLAGON O	IN SVA	41. Of	NAGE W	Men		
_		-		1.			

#### ATTACHMENT E

**DWR Well Completion Reports** 

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)