URS

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

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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

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

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

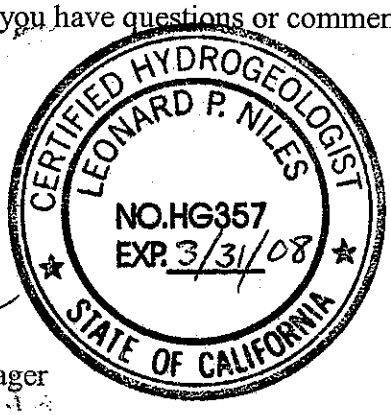
This proposal has been prepared on the basis of limited available information and the assumptions noted herein. Opinions and judgments expressed herein, which are based on our

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



Leonard Niles, P.G., C.H.G.
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

TABLES

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)	Casing 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.

FIGURES

EXPLANATION

- RW-1 — New remediation wells installed 4-07
- MW-1 — Monitoring well location
- RW-1 — Remediation well location
- TBW-1 — Tank Backfill Well
- Subsurface electrical conduit
- Fence
- Underground PVC piping
- Area of free product on groundwater
- Light Pole

Public Works Building

Crafts and Storage

RW-06

RW-D1

Plume D

RW-D2

RW-09

RW-07

System Compound

RW-D3

RW-10

RW-11

RW-D4

TBW-5

RW-08

junction box

RW-D5

junction box

RW-1

PG&E Service (approximate)

Former USTs #1,2,3

TBW-1

TBW-2

Storage

Plume C

Above Ground Storage Tanks NGV Fueling Station

40' 0 40' 80'

SCALE: 1"= 40'

REV	DESCRIPTION OF REVISION	BY	DATE
△			
△			
△			
△			
△			
△			

URS

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PHONE: (510) 893-3600
FAX: (510) 874-3268

DESIGNED
DRAWN
CHECKED
PEER REVIEWED
PROJECT MANAGER
DATE 04/18/07

NEW PLUME D EXTRACTION WELL LOCATIONS, APRIL 2007
MUNICIPAL SERVICE CENTER
7101 EDGEWATER DRIVE
OAKLAND, CALIFORNIA

REVISION △
PROJECT 26815961
FIGURE 1

May 03, 2007 - 3:02pm
X:\x_env_waste\GEORGEM\City of Oakland\MSC Plume D Extraction Wells 2-07\report\figures\Figure 1.dwg

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
City of Project Site: Oakland
Site Location: 7101 Edgewater Drive, Oakland, CA
Project Start Date: 04/02/2007
Completion Date: 04/05/2007

Applicant: URS Corp - George Muehleck
1333 Broadway #800, Oakland, CA 94612
Phone: 510-893-3600

Property Owner: Gopal Nair of City of Oakland
250 F H Ogawa Plaza #5301, Oakland, CA 94612
Phone: 510-238-6361

Client: ** same as Property Owner **

	Total Due:	$1800.00
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 Id	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

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

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1333 Broadway, Suite 800
Oakland, California 94612

MONITORING WELL LOG

Well ID: RW-D6

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing, Inc.
Site Location: 7101 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Lu Merjivar
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**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): 9.51 feet bgs (4/11/07)	**Well Location:** Plume D treatment system
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT						Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		FILL: Silty Gravel; Yellowish-brown; angular fine to coarse gravel, fine to coarse sand, silty fines, dry; minerals fluoresce purple under UV light	GM					Bentonite chips from 0.5 to 1 feet bgs
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 fluoresce purple to white under UV light As above; increasing clayey fines at 5' bgs, grades to sandy gravelly clay at 6' bgs	GC					Cement/Bentonite grout from 1 to 3 feet bgs
6				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 angular 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 As above; increasing sand and fine gravel, moist, strong odor, large gravel clasts at 11.2' bgs; orange-yellow fluorescence under UV-low light	CL	1401				Bentonite chips from 3 to 4 feet bgs #3 sand filter pack from 4 to 20 feet bgs
10								▼
12		FILL: Gravelly Sand; Very dark gray to black with orange and red mottling (algae?); coarse subrounded gravel, very fine sand, silty fines, wet, strong HC odor and sheen; contains wood, glass, and metal debris, yellow fluorescence under UV-low light, glass debris fluoresces purplish-white under UV-high light.	SW/ SM	1454		RW-D6-11.0 11.5(15:00)		▽ 6" schedule 40 PVC Screened interval (0.020" screen slot size) from 5 to 20 feet bgs
14		No recovery from 12.8'-15' bgs Fill/native contact observed at 15' bgs.						
16		SILTY CLAY: Dark olive gray; with dark greenish-gray mottling, minor fine sand, silt, mostly clayey fines, moderate to high plasticity, moist, faint odor, contains organic material and shell fragments; may be native bay mud; minerals flouresce purple to white under UV light	CL/ CH	7.4				
18		Pedic structure does not appear to be disturbed						PVC bottom cap 20-25' bgs
20		End of boring at 20.5' bgs		6.1				Bottom of boring 20.5 feet bgs.
22								

Well ID: RW-D6

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1333 Broadway, Suite 800
Oakland, California 94612

MONITORING WELL LOG

Well ID: RW-D7

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing, Inc.
Site Location: 1701 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Lu Merjivar
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**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
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT						Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		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	GM					Bentonite chips from 0.5 to 1 feet bgs
4		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 greenish-gray at 3.5' bgs; strong HC odor	GC/ CL	1714				Cement/Bentonite grout from 1 to 3 feet bgs
6		As above; color change to dark yellowish-brown at 3.8' bgs, increasing clay content, moderate plasticity; minerals fluoresce purple to white under UV light						6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
8		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	CL					Bentonite chips from 3 to 4 feet bgs
10		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	SM	1470		RW-D7-8.5-9.0(10:15)		#3 sand filter pack from 4 to 20 feet bgs
12		As above; moist to wet, visible HC sheen		1185				
14		FILL: Silty Clay; dark olive gray, moderate to high plasticity, moist; metal wire and glass debris at 12'; yellow-orange fluorescence under UV light	CL					
16		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	SM	74				6" schedule 40 PVC Screened interval (0.020" screen slot size) from 5 to 20 feet bgs
18		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	CL/ CH					
20		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		76				PVC bottom cap 20-20.5' bgs
		End of boring at 20.5' bgs						Bottom of boring 20.5 feet bgs.

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1333 Broadway, Suite 800
Oakland, California 94612

MONITORING WELL LOG

Well ID: RW-D8

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing, Inc.
Site Location: 1701 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Eric Lopez
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**Sampling Method:** Core barrel
Job/Cost Code Number: 26815961.00001	**Hand Auger Depth:** 5 feet bgs
PG: Leonard Niles, PG/CHG	**Date(s) Drilled:** 4/4/2007

WELL INFORMATION

Groundwater Depth (ft bgs): 19.81 (4/11/07)	**Well Location:** Plume D treatment system
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT	GW					Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse sand, dry; minerals fluoresce white under UV light	GC					Bentonite chips from 0.5 to 1 feet bgs
		FILL: Clayey Gravel; Dark yellowish-brown; as above, except clayey fines, very low plasticity, damp	CL					Cement/Bentonite grout from 1 to 3 feet bgs
4		FILL: Gravelly Clay; Dark yellowish-brown with olive brown and olive gray mottling; minor coarse sand to fine gravel, moderate plasticity, damp, slight HC odor; faint yellow fluorescence under UV-low light, minerals fluoresce white under UV-high		19.2				6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
			GC	305				
6		FILL: Clayey Gravel; Dark yellowish-brown with dark greenish-gray mottling, fine to coarse subangular gravel, fine to coarse sand, clayey to silty fines, low to very low plasticity, damp, strong HC odor; faint yellow fluorescence under UV-low light from 6'-12' bgs; minerals fluoresce white under UV-high		211				Bentonite chips from 3 to 4 feet bgs
8			CL	917		RW-D8-7.5-8.0(10:00)		#3 sand filter pack from 4 to 20 feet bgs
10		FILL: Gravelly Clay, very dark grayish brown mottled with olive brown to greenish gray, clayey to silty fines, fine to coarse sand, fine subangular gravel, damp, hard, moderate plasticity, large gravel clasts blocking core barrel at 8.5' bgs, 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 above, except <10% fine gravel, stiff, moderate plasticity, damp to moist, decreasing angular fine gravel below 10.5' and no gravel below 11.5' bgs, faint yellow UV fluorescence						6" schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs
14		SILTY CLAY: As above, except with dark olive gray mottling, no gravel, soft, moderate to high plasticity moist, contains organic matter; faint yellow fluorescence under UV-low light, white mineral fluorescence under UV-high light						
16		As above; minerals fluoresce white and red under UV-high light		0.4				
18		No recovery from 18'-20' bgs		1.5				PVC bottom cap 20-20.5' bgs, bottom of boring 20.5 feet bgs.
20								

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MONITORING WELL LOG

Well ID: RW-D9

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing, Inc.
Site Location: 7101 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Lu Merjivar
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**Sampling Method:** Core barrel
Job/Cost Code Number: 26815961.00001	**Hand Auger Depth:** 5 feet bgs
PG: Leonard Niles, PG/CHG	**Date(s) Drilled:** 4/3/2007

WELL INFORMATION

Groundwater Depth (ft bgs): 16.41' bgs (4/11/07)	**Well Location:** Plume D treatment system
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT	GW					Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel, fine to coarse sand, few fines, dry; minerals fluoresce white under UV light	GC					Bentonite chips from 0.5 to 1 feet bgs
4		FILL: Clayey Gravel; Dark yellowish-brown; fine to coarse angular gravel, fine to coarse sand, clayey to silty fines, low plasticity, damp, HC odor; increasing clayey fines and color change to dark olive gray at 5' bgs; minerals fluoresce white under UV-high light						Cement/Bentonite grout from 1 to 3 feet bgs
6				3.2				6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
8								Bentonite chips from 3 to 4 feet bgs
10		FILL: Clayey Gravel; reddish-brown with olive brown mottling; fine to coarse angular gravel, fine to coarse sand, clayey to silty fines, very low plasticity, damp, HC odor; faint yellow fluorescence under UV-low light from 10'-13' bgs		115				#3 sand filter pack from 4 to 20 feet bgs
12			CL	948		RW-D9-11.0 11.5(10:20)		
14		SILTY CLAY: Very dark olive gray; little or no sand, clayey to silty fines, moderate to high plasticity, moist, strong HC odor, contains organic matter and wood fragments, faint yellow fluorescence under UV-low light; minerals fluoresce white under UV-high light, may be native bay mud						6" schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs
16		No recovery from 13'-15' bgs 15'20' bgs: as above		2.6 0.0				▼
18								PVC bottom cap 20-20.5' bgs
20								Bottom of boring 20.5 feet bgs.

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MONITORING WELL LOG

Well ID: RW-D10

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing, Inc.
Site Location: 7101 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Eric Lopez
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**Sampling Method:** Core barrel
Job/Cost Code Number: 26815961.00001	**Hand Auger Depth:** 5 feet bgs
PG: Leonard Niles, PG/CHG	**Date(s) Drilled:** 4/4/2007

WELL INFORMATION

Groundwater Depth (ft bgs): 8.87' bgs (4/11/07)	**Well Location:** Plume D treatment system
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT	GW					Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		FILL: Sandy Gravel; Yellowish-brown; fine to coarse angular gravel to cobbles, fine to coarse sand, dry, mostly white mineral, some yellow fluorescense under UV-low and high light	GC					Bentonite chips from 0.5 to 1 feet bgs
		FILL: Clayey Gravel; as above, except clayey fines, damp	CL					Cement/Bentonite grout from 1 to 3 feet bgs
4		FILL: Gravelly Clay; Dark yellowish-brown with olive brown and greenish-gray mottling; fine to coarse angular gravel, fine to coarse sand, clayey-silty fines, low plasticity, damp, minerals fluoresce white under UV-high, yellow fluorescence under UV-low						6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
6		FILL: Gravelly Clay; Dark yellowish-brown; fine to coarse subangular gravel, fine to coarse sand, clayey to silty fines, hard, damp, HC odor; mottled with olive gray at 6.2' bgs' asphalt chunk blocking core barrel shoe at 7.2' bgs; intense yellow-white fluorescence under UV-low light at 6.5'-7' bgs; no recovery from 7.2'-10' bgs		1219		RW-D10-6.7 7.0(13:20)		Bentonite chips from 3 to 4 feet bgs
8			GC					#3 sand filter pack from 4 to 20 feet bgs
10		FILL: Clayey Gravel; Very dark gray to black; fine to coarse angular 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' bgs; no recovery from 11.2'-15' bgs; minerals fluoresce white under UV-high light		22.9				
12								6" schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs
14								
16		FILL: Clayey Sand; Very dark gray to black with red clasts; fine to coarse sand, fine gravel, clayey to silty fines, reddish 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-high light, faint yellow fluorescence under UV-low from 16'-17' bgs	SC/ GC					
			CL/ CH					
18		SILTY CLAY: Olive brown with olive gray and dark yellowish-reddish-brown mottling, little or no sand, clayey to 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 recovery		5.5				PVC bottom cap 20-20.5' bgs Bottom of boring 20.5 feet bgs.
20								

Well ID: RW-D10

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MONITORING WELL LOG

Well ID: RW-D11

Total Depth: 20.5'

PROJECT INFORMATION	DRILLING INFORMATION
Project: City of Oakland Municipal Services Center	**Drilling Company:** Gregg Drilling and Testing Inc.
Site Location: 7101 Edgewater Drive, Oakland, CA	**Driller:** Fausto Santos, Lu Merijivar
Site Name: Oakland MSC	**Type of Drilling Rig:** Marl M10
Project Manager: Leonard Niles	**Drilling Method:** Hand Auger / Hollow Stem Auger
Geologist: Leonard Niles	**Sampling Method:** Core barrel
Job/Cost Code Number: 26815961.00001	**Hand Auger Depth:** 5 feet bgs
PG: Leonard Niles, PG/CHG	**Date(s) Drilled:** 4/3/2007

WELL INFORMATION

Groundwater Depth (ft bgs): 8.73' bgs (4/11/07)	**Well Location:** Plume D treatment system
Top of Casing Elevation (ft msl):	**Well Diameter:** 6 inches (borehole: 12 inches)
Coordinates: **Latitude** **Longitude**	**Screened Interval:** 5-20 feet bgs

Depth (ft)	Symbol	Lithologic Description	USCS	PID	Recovery	Sample ID and Interval	Well Completion	Well Description/ Comments
0		ASPHALT	GW					Temporary 12" vault box; concrete (outside box) to 0.5' bgs
2		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	GC					Bentonite chips from 0.5 to 1 feet bgs
		FILL: Clayey Gravel; as above, except clayey fines, low plasticity, damp,	CL					Cement/Bentonite grout from 1 to 3 feet bgs
4		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-low at 5.5'-6' bgs.		0.1				6-inch schedule 40 PVC well casing from 0 to 5 feet bgs.
6				389				Bentonite chips from 3 to 4 feet 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	GC	718		RW-D11-6.5 7.0(13:45)		#3 sand filter pack from 4 to 20 feet bgs
8		FILL: Clayey Gravel; Yellowish- to reddish-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 very low plasticity, damp, strong HC odor, minerals fluoresce white under UV-high light, yellow and orange fluorescence under UV-low light at 6'-8' and 8'-9' respectively	CL	29.0				
			FILL					
10			SC	468				
			CL/ CH	7.9				
12		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						6" schedule 40 PVC screened interval (0.020" screen slot size) from 5 to 20 feet bgs
		FILL: At 8.7'-9.5' bgs, brick fragments, charred wood and concrete debris with strong HC odor						
14		FILL: Clayey Sand; Dark gray to black; fine sand, sitly to clayey fines, very low plasticity, wet, strong HC odor, brick fragments						
16		CLAY: Clay contact at ~10' bgs apparent from auger cuttings; HC sheen and odor on wet cuttings. No recovery from 9.5'-15' bgs		44.7				
18		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 fragments, appears to be native bay mud; minerals fluoresce white under UV-high light, faint yellow fluorescence under UV-low light at 16-17' bgs. No recovery from 18.5'-20' bgs						PVC bottom cap 20-20.5' bgs. Bottom of boring 20.5 feet bgs.
20				1.5				

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

Severn Trent Laboratories, Inc.
STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

EXECUTIVE SUMMARY - Detections

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

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-8489-1	**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 Organics (GRO)-C5-C12		4800	510	mg/Kg	8260B
Diesel Range Organics [C10-C28]		1600	9.9	mg/Kg	8015B
Motor Oil Range Organics [C24-C36]		950	500	mg/Kg	8015B

METHOD SUMMARY

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

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260B	
Closed System Purge & Trap/Laboratory	STL SF		SW846 5035
Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	STL SF	SW846 8015B	
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

Client: URS Corporation

Job Number: 720-8489-1

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

Lab Sample ID: 720-8489-1
Client Matrix: Solid

Date Sampled: 04/02/2007 1015
Date Received: 04/02/2007 1500

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 2000
Date Analyzed: 04/05/2007 2016
Date Prepared: 04/05/2007 0945

Analysis Batch: 720-20156
Prep Batch: 720-20162

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\04
Initial Weight/Volume: 4.89 g
Final Weight/Volume: 10 mL

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)-C5-C12		4800		510

Surrogate	%Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	116	60 - 140
Toluene-d8 (Surr)	116	70 - 130

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	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		1600		9.9
Motor Oil Range Organics [C24-C36]		950		500

Surrogate	%Rec	Qualifier	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

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-20156					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	8260B	720-20162
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	8260B	720-20162
MB 720-20162/1-AA	Method Blank	T	Solid	8260B	720-20162
720-8489-1	RW-D7-8.5'-9.0'	T	Solid	8260B	720-20162
Prep Batch: 720-20162					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	5035	
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	5035	
MB 720-20162/1-AA	Method Blank	T	Solid	5035	
720-8489-1	RW-D7-8.5'-9.0'	T	Solid	5035	

Report Basis
T = Total

GC Semi VOA					
Prep Batch: 720-20010					
LCS 720-20010/2-AB	Lab Control Spike	T	Solid	3550B	
LCSD 720-20010/3-AB	Lab Control Spike Duplicate	T	Solid	3550B	
MB 720-20010/1-AB	Method Blank	T	Solid	3550B	
720-8489-1	RW-D7-8.5'-9.0'	T	Solid	3550B	
Analysis Batch:720-20150					
LCS 720-20010/2-AB	Lab Control Spike	T	Solid	8015B	720-20010
LCSD 720-20010/3-AB	Lab Control Spike Duplicate	T	Solid	8015B	720-20010
MB 720-20010/1-AB	Method Blank	T	Solid	8015B	720-20010
720-8489-1	RW-D7-8.5'-9.0'	T	Solid	8015B	720-20010

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
Client Matrix: Solid
Dilution: 200
Date Analyzed: 04/05/2007 1150
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\0
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 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.

Client: URS Corporation

Job Number: 720-8489-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20162

Method: 8260B
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
Prep Batch: 720-20162
Units: mg/Kg

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\0
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

Analyte	% Rec. LCS	% Rec. 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)	94	88	60 - 140
Toluene-d8 (Surr)	104	101	70 - 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
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/04/2007 1557
Date Prepared: 04/03/2007 1339

Analysis Batch: 720-20150
Prep Batch: 720-20010
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.04 g
Final Weight/Volume: 5 mL
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/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20010

Method: 8015B
Preparation: 3550B

LCS Lab Sample ID: LCS 720-20010/2-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/04/2007 1503
Date Prepared: 04/03/2007 1339

Analysis Batch: 720-20150
Prep Batch: 720-20010
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.09 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 720-20010/3-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/04/2007 1530
Date Prepared: 04/03/2007 1339

Analysis Batch: 720-20150
Prep Batch: 720-20010
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.03 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diesel Range Organics [C10-C28]	76	78	50 - 130	2	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
o-Terphenyl	76	77	50 - 130

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

SEVERN TRENT STL

1220 Quarry Lane • Pleasanton, CA 94566-4756
Phone: 925-484-1919 FAX: 925-484-1096
e-mail: sfdocs@stl-inc.com

720-8489

Reference #: 104812
Date 4/2/ Page 1 of 1

Report To

Attn: Leonard Niles
Company: URS corp.
Address: 1333 Broadway Suite 800
Phone: (510)874-1720 Email: Leonard_Niles
Bill To: Sampled By:
Attn: Phone:

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH EPA 8015M/8021 8260B Gas w/ BTEX MTBE	Purgeable Aromatics BTEX EPA - 8021 8260B	TEPH EPA 8015M Silica Gel Diesel Motor Oil Other	Fuel Tests EPA 8260B Gas BTEX Five Oxygenates DCA EDB Ethanol	Purgeable Halocarbons (HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) EPA 8260B 624	Semivolatiles GC/MS EPA 8270 625	Oil and Grease Petroleum (EPA 1664) Total	Pesticides EPA 8081 608 PCBs EPA 8082 608	PNAs by 8270 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: Lead LUFT RCRA Other:	Low Level Metals by EPA 200.8/6020 (ICP-MS):	W.E.T (STLC) TCLP	Hexavalent Chromium pH (24h holdtime for H2O)	Spec Cond. Alkalinity TDS TSS	Anions: Cl SO4 NO3 F Br NO2 PO4	Number of Containers
RW-D7-8.5'-9.0'	4/2/07	10:15	SOIL	NONE	X		X															4

RUSH T3 4/2

Project Info.

Project Name: Oakland-MSC
Project#: 26815961.00001
PO#:
Credit Card#:

Sample Receipt

of Containers: 4 (3xEncore, 1xjar)
Head Space:
Temp: 2.0°C
Conforms to record:

TAT: 5 Day (circled) | 72h | 48h | 24h | Other:

Report: Routine Level 3 Level 4 EDD State Tank Fund EDF Global ID

Special Instructions / Comments:

48 hr transfer time for Encore samples

*STL SF reports 8015M from C_9-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Leonard Niles 14:22	1500	
Signature Time	Signature Time	Signature Time
Leonard Niles 4/2/07	Bryan Thomas 4/2/07	Printed Name Date
Printed Name Date	Printed Name Date	
URS corp.	STL-SF	Company
Company	Company	

1) Received by:	2) Received by:	3) Received by:
1422	1500	
Signature Time	Signature Time	Signature Time
Bryan Thomas 4/2/07	I Bullock 4/2/07	Printed Name Date
Printed Name Date	Printed Name Date	
STL-SF	STL-SF	Company
Company	Company	

Rev

LOGIN SAMPLE RECEIPT CHECK LIST

Client: URS Corporation

Job Number: 720-8489-1

Login Number: 8489

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	

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

Severn Trent Laboratories, Inc.
STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566
Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

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		1.1	0.76	mg/Kg	8260B
Ethylbenzene		3.2	0.76	mg/Kg	8260B
Toluene		5.9	0.76	mg/Kg	8260B
Xylenes, Total		18	1.5	mg/Kg	8260B
Gasoline Range Organics (GRO)-C5-C12		260	38	mg/Kg	8260B
Diesel Range Organics [C10-C28]		81	0.99	mg/Kg	8015B
Motor Oil Range Organics [C24-C36]		93	50	mg/Kg	8015B
720-8505-2	**RW-D9-11.0'**				
Ethylbenzene		9.7	2.0	mg/Kg	8260B
Toluene		6.1	2.0	mg/Kg	8260B
Xylenes, Total		56	4.1	mg/Kg	8260B
Gasoline Range Organics (GRO)-C5-C12		950	100	mg/Kg	8260B
Diesel Range Organics [C10-C28]		3.3	0.99	mg/Kg	8015B
720-8505-3	**RW-D11-6.5'**				
Benzene		7.0	3.8	mg/Kg	8260B
Ethylbenzene		24	3.8	mg/Kg	8260B
Xylenes, Total		85	7.6	mg/Kg	8260B
Gasoline Range Organics (GRO)-C5-C12		2700	190	mg/Kg	8260B
Diesel Range Organics [C10-C28]		280	1.0	mg/Kg	8015B
Motor Oil Range Organics [C24-C36]		83	50	mg/Kg	8015B

METHOD SUMMARY

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

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260B	
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 8015B	
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
Client Matrix: Solid

Date Sampled: 04/02/2007 1500
Date Received: 04/03/2007 1720

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5030B-Medium
Dilution: 200
Date Analyzed: 04/07/2007 1121
Date Prepared: 04/07/2007 0930

Analysis Batch: 720-20215
Prep Batch: 720-20227

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\04
Initial Weight/Volume: 6.54 g
Final Weight/Volume: 10 mL

Analyte	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)-C5-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	DryWt 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-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
Client Matrix: Solid

Date Sampled: 04/03/2007 1345
Date Received: 04/03/2007 1720

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 1000
Date Analyzed: 04/10/2007 0020
Date Prepared: 04/05/2007 0945

Analysis Batch: 720-20156
Prep Batch: 720-20162

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\04
Initial Weight/Volume: 6.55 g
Final Weight/Volume: 10 mL

Analyte	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)-C5-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]		81		0.99
Motor Oil Range Organics [C24-C36]		93		50

Surrogate	%Rec		Acceptance Limits
o-Terphenyl	78		50 - 130
Capric Acid (Surr)	9	X	0 - 5

Client: URS Corporation

Job Number: 720-8505-1

Client Sample ID: **RW-D9-11.0'**

Lab Sample ID: 720-8505-2
Client Matrix: Solid

Date Sampled: 04/03/2007 1020
Date Received: 04/03/2007 1720

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

Method: 8015B
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/09/2007 1145
Date Prepared: 04/04/2007 1625

Analysis Batch: 720-20256
Prep Batch: 720-20063

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.22 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		3.3		0.99
Motor Oil Range Organics [C24-C36]		ND		50

Surrogate	%Rec	Acceptance Limits
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
Client Matrix: Solid

Date Sampled: 04/03/2007 1345
Date Received: 04/03/2007 1720

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

Method: 8015B
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/09/2007 1212
Date Prepared: 04/04/2007 1625

Analysis Batch: 720-20256
Prep Batch: 720-20063

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.08 g
Final Weight/Volume: 5 mL
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-C36]		83		50

Surrogate	%Rec		Acceptance Limits
o-Terphenyl	63		50 - 130
Capric Acid (Surr)	21	X	0 - 5

DATA REPORTING QUALIFIERS

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

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

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

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-20156					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	8260B	720-20162
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	8260B	720-20162
MB 720-20162/1-AA	Method Blank	T	Solid	8260B	720-20162
720-8505-3	RW-D11-6.5'	T	Solid	8260B	720-20162
Prep Batch: 720-20162					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	5035	
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	5035	
MB 720-20162/1-AA	Method Blank	T	Solid	5035	
720-8505-3	RW-D11-6.5'	T	Solid	5035	
Analysis Batch:720-20215					
LCS 720-20227/2-AA	Lab Control Spike	T	Solid	8260B	720-20227
LCSD 720-20227/3-AA	Lab Control Spike Duplicate	T	Solid	8260B	720-20227
MB 720-20227/1-AA	Method Blank	T	Solid	8260B	720-20227
720-8505-1	RW-D6-11.0'-11.5'	T	Solid	8260B	720-20227
720-8505-2	RW-D9-11.0'	T	Solid	8260B	720-20227
Prep Batch: 720-20227					
LCS 720-20227/2-AA	Lab Control Spike	T	Solid	5030B	
LCSD 720-20227/3-AA	Lab Control Spike Duplicate	T	Solid	5030B	
MB 720-20227/1-AA	Method Blank	T	Solid	5030B	
720-8505-1	RW-D6-11.0'-11.5'	T	Solid	5030B	
720-8505-2	RW-D9-11.0'	T	Solid	5030B	

Report Basis
T = Total

Client: URS Corporation

Job Number: 720-8505-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 720-20063					
LCS 720-20063/2-AB	Lab Control Spike	T	Solid	3550B	
LCSD 720-20063/3-AB	Lab Control Spike Duplicate	T	Solid	3550B	
MB 720-20063/1-AB	Method Blank	T	Solid	3550B	
720-8505-1	RW-D6-11.0'-11.5'	T	Solid	3550B	
720-8505-1MS	Matrix Spike	T	Solid	3550B	
720-8505-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
720-8505-2	RW-D9-11.0'	T	Solid	3550B	
720-8505-3	RW-D11-6.5'	T	Solid	3550B	
Analysis Batch:720-20256					
LCS 720-20063/2-AB	Lab Control Spike	T	Solid	8015B	720-20063
LCSD 720-20063/3-AB	Lab Control Spike Duplicate	T	Solid	8015B	720-20063
MB 720-20063/1-AB	Method Blank	T	Solid	8015B	720-20063
720-8505-1	RW-D6-11.0'-11.5'	T	Solid	8015B	720-20063
720-8505-1MS	Matrix Spike	T	Solid	8015B	720-20063
720-8505-1MSD	Matrix Spike Duplicate	T	Solid	8015B	720-20063
720-8505-2	RW-D9-11.0'	T	Solid	8015B	720-20063
720-8505-3	RW-D11-6.5'	T	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
Client Matrix: Solid
Dilution: 200
Date Analyzed: 04/05/2007 1150
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\0
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 Limits
Toluene-d8 (Surr)	96	70 - 130
1,2-Dichloroethane-d4 (Surr)	88	60 - 140

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

Client: URS Corporation

Job Number: 720-8505-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20162

Method: 8260B
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
Prep Batch: 720-20162
Units: mg/Kg

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\0
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

Analyte	% Rec. LCS	% Rec. 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
Toluene-d8 (Surr)	104	101	70 - 130
1,2-Dichloroethane-d4 (Surr)	94	88	60 - 140

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

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\0
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 Limits
Toluene-d8 (Surr)	103	50 - 130
1,2-Dichloroethane-d4 (Surr)	91	60 - 140

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

Client: URS Corporation

Job Number: 720-8505-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20227

Method: 8260B
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\0
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

Analyte	% Rec. LCS	% Rec. 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	LCS % Rec	LCSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	107	114	50 - 130
1,2-Dichloroethane-d4 (Surr)	90	93	60 - 140

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

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

Method Blank - Batch: 720-20063

Method: 8015B
Preparation: 3550B

Lab Sample ID: MB 720-20063/1-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0806
Date Prepared: 04/04/2007 1625

Analysis Batch: 720-20256
Prep Batch: 720-20063
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.01 g
Final Weight/Volume: 5 mL
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/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20063

Method: 8015B
Preparation: 3550B

LCS Lab Sample ID: LCS 720-20063/2-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0713
Date Prepared: 04/04/2007 1625

Analysis Batch: 720-20256
Prep Batch: 720-20063
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.11 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 720-20063/3-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0739
Date Prepared: 04/04/2007 1625

Analysis Batch: 720-20256
Prep Batch: 720-20063
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.07 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diesel Range Organics [C10-C28]	73	75	50 - 130	3	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
o-Terphenyl	74	75	50 - 130

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

Client: URS Corporation

Job Number: 720-8505-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-20063

Method: 8015B
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
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:	PRIMARY
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
Diesel Range Organics [C10-C28]	105	75	50 - 130	10	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	61	72	50 - 130

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

SEVERN TRENT STL

STL San Francisco Chain of Custody
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 484-1096
Email: sflogin@stl-inc.com

720-8505

Reference #: 104829

Date 4/3/07 Page 1 of 1

Report To

Attn: Leonard Niles
Company: URS Corporation
Address: 1333 Broadway, Suite 800 Oakland, CA 94612
Phone: (510) 874-1720 Email: Leonard_Niles@urscorp.com
Bill To: URS
Sampled By: Leonard Niles
Attn: Leonard Niles
Phone: (510) 874-1720

Analysis Request

TPH EPA - ☐ 8015/8021 ☐ 8260B ☐ Gas w/ ☑ BTEX ☑ MTBE; Purgeable Aromatics BTEX EPA - ☐ 8021 ☐ 8260B; TEPH EPA 8015M* ☑ Silica Gel ☑ Diesel ☑ Motor Oil ☐ Other; Fuel Tests EPA 8260B: ☐ Gas ☐ BTEX ☐ Five Oxygenates ☐ DCA, EDB ☐ Ethanol; Purgeable Halocarbons (HVOCs) EPA 8021 by 8260B; Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624; Semivolatiles GC/MS ☐ EPA 8270 ☐ 625; Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total; Pesticides ☐ EPA 8081 ☐ 608; PCBs ☐ EPA 8082 ☐ 608; PNAs by ☐ 8270 ☐ 8310; CAM17 Metals (EPA 6010/7470/7471); Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other; Low Level Metals by EPA 200.8/6020 (ICP-MS); W.E.T (STLC) ☐ TCLP ☐; Hexavalent Chromium pH (24h hold time for H₂O) ☐ ☐; Spec Cond. ☐ Alkalinity ☐ TSS ☐ TDS ☐; Anions: ☐ Cl ☐ SO₄ ☐ NO₃ ☐ F ☐ Br ☐ NO₂ ☐ PO₄; Number of Containers

Sample ID	Date	Time	Matrix	Preserv	Number of Containers
RW-D6-11.0'-11.5'	4/2/07	1500	Soil	None	4
RW-D9-11.0'	4/3/07	1020	Soil	None	4
RW-D11-6.5'	4/3/07	1345	Soil	None	4

4/3 & (3 ENCORES + 1-16oz JAR)

Project Info.

Project Name: City of Oakland-MSC
Project#: 26815961.00001
PO#:
Credit Card#:

Sample Receipt

# of Containers: 4 (3x Encores, 1x glass jar)
Head Space:
Temp: 6°C
Conforms to record:

TAT: (5 Day) 72h 48h 24h Other:

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF ☐ Global ID

Special Instructions / Comments:
48 hr transfer time for encore samples
Fax COC to Leonard Niles (510) 874-3268

*STL SF reports 8015M from C₉-C₂₄ (industry norm). Default for 8015B is C₁₀-C₂₈

1) Relinquished by: Leonard Niles (signature) Time 16:22; Printed Name: Leonard Niles Date 4/3/07; Company: URS Corp.

2) Relinquished by: F Jimenez (signature) Time 1720; Printed Name: [signature] Date 4/3/07; Company: World Courier

3) Relinquished by: Signature / Time; Printed Name / Date; Company

1) Received by: F JIMENEZ (signature) Time 1622; Printed Name: F Jimenez W Courier Date 4/3/07; Company: World Courier

2) Received by: [signature] Time 1720; Printed Name: T. Bullock Date 4/3/07; Company: STL-SF

3) Received by: Signature / Time; Printed Name / Date; Company

Rev 06/04

SEVERN TRENT **STL** 720-8505

STL San Francisco
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone (925) 484-1919 • Fax (925) 484-1096
Email: sllogin@stl-inc.com

Reference #: 104829
Date 4/3/07 Page 1 of 1

Report To

Attn: Leonard Niles
Company: URS Corporation
Address: 1333 Broadway, Suite 800 Oakland, CA 94612
Phone: (510) 874-1720 Email: Leonard_Niles@urscorp.com
Bill To: URS
Sampled By: Leonard Niles
Attn: Leonard Niles
Phone: (510) 874-1720

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH EPA - 8015M / 8260B ☑ Gas w/ ☑ BTEX ☑ MTBE	Purgeable Aromatics BTEX EPA - 8021 / 8260B	TEPH EPA 8015M ☑ Silica Gel ☑ Diesel ☑ Motor Oil ☐ Other	Fuel Tests EPA 8260B ☐ Gas ☐ BTEX ☐ Five Oxygenates ☐ DCA, EDB ☐ Ethanol	Purgeable Halocarbons (HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum ☐ Total (EPA 1664)	Pesticides ☐ EPA 8081 ☐ 608 / PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other	Low Level Metals by EPA 200.8/6020 (ICP-MS)	W.E.T (STLC) ☐ TCLP ☐	Hexavalent Chromium ☐ pH (24h hold time for H2O) ☐	Spec Cond ☐ Alkalinity ☐ TSS ☐ TDS ☐	Anions: ☐ Cl ☐ SO4 ☐ NO3 ☐ F ☐ Br ☐ NO2 ☐ PO4			
RW-D6-11.0'-11.5'	4/2/07	1500	Soil	None	X		X																	
RW-D9-11.0'	4/3/07	1020	Soil	None	X		X																	
RW-D11-6.5'	4/3/07	1345	Soil	None	X		X																	
					LN 4/5/07		LN 4/5/07																	

4/3 [initials] (3 ENCORES + 1 - 16 oz Jar)

Project Info.

Project Name: City of Oakland-MSC
Project#: 26815961.00001
PO#:
Credit Card#:

Sample Receipt

# of Containers: 12 (3x Encores, 1x glass jar)
Head Space: 3 LN 4/5/07
Temp: 6°C
Conforms to record:

TAT: (5 Day) 72h 48h 24h Other

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF ☐ Global ID

Special Instructions / Comments:
48 hr transfer time for encore samples
Fax COC to Leonard Niles (510) 874-3268

Default for 8015B is C4-C10

1) Relinquished by:
Signature: Leonard Niles Time: 16:22
Printed Name: Leonard Niles Date: 4/3/07
Company: URS Corp.

2) Relinquished by:
Signature: F Jimenez Time: 1720
Printed Name: [signature] Date: 4 3 07
Company: WORLD COURIER

3) Relinquished by:
Signature: Time:
Printed Name: Date:
Company:

1) Received by:
Signature: F JIMENEZ Time: 1622
Printed Name: F Jimenez Date: 4/3/07
Company: World Courier

2) Received by:
Signature: [signature] Time: 1720
Printed Name: T. Bullock Date: 4/3/07
Company: STL-SF

3) Received by:
Signature: Time:
Printed Name: Date:
Company:

Rev 06/04

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.	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.	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		0.23	0.0042	mg/Kg	8260B
Toluene		0.0057	0.0042	mg/Kg	8260B
Xylenes, Total		0.024	0.0084	mg/Kg	8260B
Gasoline Range Organics (GRO)-C5-C12		1.6	0.21	mg/Kg	8260B
Diesel Range Organics [C10-C28]		74	0.99	mg/Kg	8015B
Motor Oil Range Organics [C24-C36]		170	50	mg/Kg	8015B
720-8515-2	**RW-D10-6.7'-7.0'**				
Benzene		2.2	0.91	mg/Kg	8260B
Ethylbenzene		4.1	0.91	mg/Kg	8260B
Xylenes, Total		2.2	1.8	mg/Kg	8260B
Gasoline Range Organics (GRO)-C5-C12		180	45	mg/Kg	8260B
Diesel Range Organics [C10-C28]		38	1.0	mg/Kg	8015B

METHOD SUMMARY

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

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS	STL SF	SW846 8260B	
Closed System Purge & Trap/Laboratory	STL SF		SW846 5035
Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)	STL SF	SW846 8015B	
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
Client Matrix: Solid

Date Sampled: 04/04/2007 1000
Date Received: 04/04/2007 1540

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 1.0
Date Analyzed: 04/09/2007 1648
Date Prepared: 04/04/2007 1328

Analysis Batch: 720-20312
Prep Batch: 720-20313

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\04
Initial Weight/Volume: 5.98 g
Final Weight/Volume: 10 mL

Analyte	DryWt 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-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
Client Matrix: Solid

Date Sampled: 04/04/2007 1320
Date Received: 04/04/2007 1540

8260B Volatile Organic Compounds by GC/MS

Method: 8260B
Preparation: 5035
Dilution: 200
Date Analyzed: 04/05/2007 1315
Date Prepared: 04/05/2007 0945

Analysis Batch: 720-20156
Prep Batch: 720-20162

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\04
Initial Weight/Volume: 5.52 g
Final Weight/Volume: 10 mL

Analyte	DryWt 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-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
Client Matrix: Solid

Date Sampled: 04/04/2007 1000
Date Received: 04/04/2007 1540

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

Method: 8015B
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/09/2007 1521
Date Prepared: 04/05/2007 1212

Analysis Batch: 720-20304
Prep Batch: 720-20094

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.20 g
Final Weight/Volume: 5 mL
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

Surrogate	%Rec	Acceptance Limits
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
Client Matrix: Solid

Date Sampled: 04/04/2007 1320
Date Received: 04/04/2007 1540

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

Method: 8015B
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 04/06/2007 2214
Date Prepared: 04/05/2007 1212

Analysis Batch: 720-20304
Prep Batch: 720-20094

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.13 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Diesel Range Organics [C10-C28]		38		1.0
Motor Oil Range Organics [C24-C36]		ND		50

Surrogate	%Rec		Acceptance Limits
o-Terphenyl	61		50 - 130
Capric Acid (Surr)	6	X	0 - 5

DATA REPORTING QUALIFIERS

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

Lab Section	Qualifier	Description
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

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-20156					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	8260B	720-20162
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	8260B	720-20162
MB 720-20162/1-AA	Method Blank	T	Solid	8260B	720-20162
720-8515-2	RW-D10-6.7'-7.0'	T	Solid	8260B	720-20162
Prep Batch: 720-20162					
LCS 720-20162/2-AA	Lab Control Spike	T	Solid	5035	
LCSD 720-20162/3-AA	Lab Control Spike Duplicate	T	Solid	5035	
MB 720-20162/1-AA	Method Blank	T	Solid	5035	
720-8515-2	RW-D10-6.7'-7.0'	T	Solid	5035	
Analysis Batch:720-20312					
LCS 720-20313/2-AA	Lab Control Spike	T	Solid	8260B	720-20313
LCSD 720-20313/3-AA	Lab Control Spike Duplicate	T	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'	T	Solid	8260B	720-20313
Prep Batch: 720-20313					
LCS 720-20313/2-AA	Lab Control Spike	T	Solid	5035	
LCSD 720-20313/3-AA	Lab Control Spike Duplicate	T	Solid	5035	
MB 720-20313/1-AA	Method Blank	T	Solid	5035	
720-8515-1	RW-D8-7.5'-8.0'	T	Solid	5035	

Report Basis
T = Total

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

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 720-20094					
LCS 720-20094/2-AB	Lab Control Spike	T	Solid	3550B	
LCSD 720-20094/3-AB	Lab Control Spike Duplicate	T	Solid	3550B	
MB 720-20094/1-AB	Method Blank	T	Solid	3550B	
720-8515-1	RW-D8-7.5'-8.0'	T	Solid	3550B	
720-8515-1MS	Matrix Spike	T	Solid	3550B	
720-8515-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
720-8515-2	RW-D10-6.7'-7.0'	T	Solid	3550B	
Analysis Batch:720-20304					
LCS 720-20094/2-AB	Lab Control Spike	T	Solid	8015B	720-20094
LCSD 720-20094/3-AB	Lab Control Spike Duplicate	T	Solid	8015B	720-20094
MB 720-20094/1-AB	Method Blank	T	Solid	8015B	720-20094
720-8515-1	RW-D8-7.5'-8.0'	T	Solid	8015B	720-20094
720-8515-1MS	Matrix Spike	T	Solid	8015B	720-20094
720-8515-1MSD	Matrix Spike Duplicate	T	Solid	8015B	720-20094
720-8515-2	RW-D10-6.7'-7.0'	T	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
Client Matrix: Solid
Dilution: 200
Date Analyzed: 04/05/2007 1150
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\0
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 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.

Client: URS Corporation

Job Number: 720-8515-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20162

Method: 8260B
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
Prep Batch: 720-20162
Units: mg/Kg

Instrument ID: Varian 3900A
Lab File ID: c:\saturnws\data\200704\0
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

Analyte	% Rec. LCS	% Rec. 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)	94	88	60 - 140
Toluene-d8 (Surr)	104	101	70 - 130

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

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
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/09/2007 1457
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\0
Initial Weight/Volume: 5.03 g
Final Weight/Volume: 10 mL

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 Limits
1,2-Dichloroethane-d4 (Surr)	85	60 - 140
Toluene-d8 (Surr)	97	70 - 130

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

Client: URS Corporation

Job Number: 720-8515-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20313

Method: 8260B
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\0
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

Analyte	% Rec. LCS	% Rec. 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)	81	81	60 - 140
Toluene-d8 (Surr)	99	96	70 - 130

Calculations are performed before rounding to avoid round-off errors in calculated 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
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0056
Date Prepared: 04/05/2007 1212

Analysis Batch: 720-20304
Prep Batch: 720-20094
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.01 g
Final Weight/Volume: 5 mL
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/
Lab Control Spike Duplicate Recovery Report - Batch: 720-20094

Method: 8015B
Preparation: 3550B

LCS Lab Sample ID: LCS 720-20094/2-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0002
Date Prepared: 04/05/2007 1212

Analysis Batch: 720-20304
Prep Batch: 720-20094
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.02 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 720-20094/3-AB
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 04/07/2007 0029
Date Prepared: 04/05/2007 1212

Analysis Batch: 720-20304
Prep Batch: 720-20094
Units: mg/Kg

Instrument ID: HP DRO5
Lab File ID: N/A
Initial Weight/Volume: 30.03 g
Final Weight/Volume: 5 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diesel Range Organics [C10-C28]	74	76	50 - 130	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.

Client: URS Corporation

Job Number: 720-8515-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-20094

Method: 8015B
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
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:	PRIMARY
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:	
				Column ID:	PRIMARY

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

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	57	60	50 - 130

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

SEVERN TRENT STL

TO 720-8515

STL San Francisco
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone (925) 484-1919 • Fax (925) 484-1096
Email: sflogin@stl-inc.com

Reference #: 104838

Date 4/4/07 Page 1 of 1

Report To

Attn: Leonard Niles
Company: URS Corp.
Address: 1333 Broadway, Suite 800 Oakland, CA 94612
Phone: (510) 874-1720 Email: Leonard_Niles@urscorp.com
Bill To: URS
Sampled By: Leonard Niles
Attn: Leonard Niles
Phone: (510) 874-1720

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH EPA - ☐ 8015/8021 ☐ 8260B ☑ Gas w/ ☑ BTEX ☑ MTBE	Purgeable Aromatics BTEX EPA - ☐ 8021 ☐ 8260B	TEPH EPA 8015M* ☑ Silica Gel ☑ Diesel ☑ Motor Oil ☐ Other	Fuel Tests EPA 8260B ☐ Gas ☐ BTEX ☐ Five Oxygenates ☐ DCA, EDB ☐ Ethanol	Purgeable Halocarbons (HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other	Low Level Metals by EPA 200.8/6020 (ICP-MS):	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4				Number of Containers
RW-D8-7.5'-8.0'	4/4/07	10:00	Soil	none	X		X																		
RW-D10-6.7'-7.0'	4/4/07	13:20	Soil	none	X		X																		

Project Info.

Project Name: Oakland-MSC
Project#: ~~26815961.00001~~
PO# 26815961.00001
Credit Card#:

Sample Receipt

# of Containers: (6x encore, 2x jars) 8
Head Space:
Temp: 3°C
Conforms to record:

T.A.T.: (5 Day) 72h 48h 24h Other:

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF ☐ Global ID

Special Instructions / Comments:
Encore transfer time = 48 hrs
fax COC copy to Len Niles (510) 874-3268

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: Leonard Niles Time: 13:47	Signature: [signature] Time: 1540	Signature: Time:
Printed Name: Leonard Niles Date: 4/4/07	Printed Name: Bryan Thomas Date: 4/4/07	Printed Name: Date:
Company: URS Corp	Company: STL-SF	Company:
1) Received by:	**2) Received by:**	**3) Received by:**
Signature: [signature] Time: 1347	Signature: [signature] Time: 1540	Signature: Time:
Printed Name: Bryan Thomas Date: 4/4/07	Printed Name: T Bullock Date: 4/4/07	Printed Name: Date:
Company: STL-SF	Company: STL-SF	Company:

*STL SF reports 8015M from C_9-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

Rev 06/04

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, Benicia, California~~

City of Oakland - MSC

Well No.	Date	Time	Well D (in.)	Sheen/ Odor	Detph to Floating Product (feet)	Depth to Water* (feet)	Depth to bottom of Well* (feet)	PID Reading at TOC (ppm)	TOC depth below vault box
RW-06	4/11/07	8:24	6	~~SHR~~	~~8.88~~ N/A	8.86	20.13	0	0.65 ft
RW-07	"	8:40	6	"	N/A	8.31	20.03	0	0.50
RW-08	"	8:36	6	"	N/A	19.36	20.10	0	0.45
RW-09	"	8:30	6	"	N/A	15.66	19.81	0	0.75
RW-10	"	8:46	6	"	N/A	8.39	19.98	0	0.475
RW-11	"	8:52	6	"	N/A	7.75	19.60		11.75" (0.98 ft)
RW-06	4/12/07	13:04	6		N/A	8.82			
RW-07	"	12:59	6		N/A	8.27			
RW-08	"	12:56	6		N/A	18.97			
RW-09	"	~~12:52~~ 13:07	6		N/A	17.92			
RW-10	"	13:12	6		N/A	7.82			
RW-11	"	13:15	6		N/A	8.42			

* From top of casing

URS

Well Development Log

Well Number: RW-D6

Client: City of Oakland
Plant: MSC
Address: 7107 Edgewater Drive Oakland, CA
Location: Plume D
Project #: 26815961.00001

Date: 4/11/07 R. HUNTLEY
Geologist/Technician:
Weather Conditions: RAINY, COOL
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 20.13
Casing Diameter (in): 6
Screen Interval (ft bgs): 5 to 20.
Water Column (ft): 11.27 (Total Depth – Depth to Water)

Depth to Water (ft): 8.86
Length:

Casing Volume (gallons): 16.9 = 11.27 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 13:06 to (end) 13:38. Total time: 32 MINS.

Purge Log:

Date: 4/11/06 | Purge Method: BAILER/PUMP | Purge Rate: 3.05 gpm
Start Time: 13:42 | Stop Time: 14:46 | Total Time: 64 min | Total vol.: 195 gal

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp. (F or C)	Color	Odor
13:42						DK. GRAY	YES
13:46	15	9.80	7.72	23.7	19.5	"	"
13:52	30	11.05	7.75	23.4	19.3	"	"
13:56	45	11.40	7.25	23.3	19.3	"	"
14:09	60	11.45	7.14	23.6	19.3	ALMOST CLEAR	SLIGHT
14:12	75	13.03	7.83	23.5	19.2	"	YES
14:15	90	14.60	7.69	23.7	19.4	DK. GRAY	YES
14:18	105	16.95	7.63	24.1	19.7	GRAY	YES
14:21	120	16.40	7.68	23.7	19.8	GRAY	YES
14:26	135	16.00	7.83	23.2	19.4	ALMOST CLEAR	SLIGHT
14:31	150	15.59	7.80	22.9	19.1	CLEAR	SLIGHT
14:36	165	15.51	7.94	22.9	19.3	CLEAR	SLIGHT
14:41	180	15.65	7.93	22.6	19.3	CLEAR	SLIGHT
14:46	195	15.80	7.95	22.4	19.3	CLEAR	SLIGHT

Water Level Meter Type: SOLINST O/W INTERFACE PROBE
Water Quality Meter(s) Type: HORIBA U-10
Comments/Observations: VISIBLE SHEEN IN PURGE WATER AT START

* SWITCHED TO PUMPING INSTEAD OF BAILER

URS

Well Development Log

Well Number: RW-07

Client: City of Oakland
Plant: MSC
Address: 7101 Edgewater Dr. Oakland, CA
Location: Plume D
Project #: 26815961.00001

Date: 4/11/07
Geologist/Technician: R. HUMAN
Weather Conditions: RAINY, COOL
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 20.03
Casing Diameter (in): 6
Screen Interval (ft bgs): 5 to 20. Length: 15'
Water Column (ft): 11.72 (Total Depth – Depth to Water)
Depth to Water (ft): 8.31

Casing Volume (gallons): 17.58 = 11.75 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 9:26 to (end) 10:25. Total time: 1 HOUR

Purge Log:

Date: 4/11/07 | Purge Method: BAILER | Purge Rate: 0.47 gpm
Start Time: 10:28 | Stop Time: 12:56 | Total Time: 150 min | Total vol.: 70 gal

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp. (F or C)	Color	Odor
10:36	5		5.68	18.0	20.0	BROWN	YES
10:44	20	14.45	7.06	17.0	19.7	DARK BROWN	YES
10:55	35	18.60	7.57	17.0	19.8	GRAY	SLIGHT
11:06	40	19.20	7.43	15.0	20.0	LT. GRAY	SLIGHT
12:33		9.88					
12:40	55	14.92	8.11	12.0	19.5	CLEAR	YES
12:56	70	19.31	8.12	13.2	20.0	0	YES

Water Level Meter Type: SOLINST O/W INTERFACE METER Water Quality Meter(s) Type: HORIBA U-10

Comments/Observations:

URS

Well Development Log

Well Number: RW-D8

Client: City of Oakland
Plant: MSC
Address: 2101 Edgewater Dr. Oakland, CA
Location: Plume D
Project #: 26815961.00001

Date: 4/11/07
Geologist/Technician: L. Mellor
Weather Conditions: RAINY, COOL
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 20.10
Casing Diameter (in): 6
Screen Interval (ft bgs): 5 to 20. Length: 15'
Water Column (ft): .74 (Total Depth – Depth to Water)
Depth to Water (ft): 19.36

Casing Volume (gallons): 1.11 = .74 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 11:35 to (end) 12:20. Total time: 45 min

Purge Log:

Date: 4/11/07 | Purge Method: Bailer | Purge Rate: NA (water added)
Start Time: 12:07 | Stop Time: 12:25 | Total Time: 18 min | Total vol.: 33 gal*

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp. (F or C)	Color	Odor
12:07							
12:11	15	13.90	7.56	4.57	18.3	LT. GRAY	SLIGHT
12:19	30	18.65	7.58	5.29	18.5	"	"
12:25	33	19.70	7.09	15.1	19.3	"	"

Water Level Meter Type: SOLINST O/W INTERFACE PROBE Water Quality Meter(s) Type: HORIBA U-10

Comments/Observations:
* 40 GALLONS ADDED PRIOR TO SURGING. DTW 9.55
Based on recovery to 18.97' at 12:56 on 4/12/07, well yield ≈ 1.095 gal / 1471 min ≈ 7.44 × 10⁻⁴ gpm

URS

Well Development Log

Well Number: RW-D9

Client: City of Oakland
Plant: MSC
Address: 7101 Edgewater Dr, Oakland, CA
Location: Plume D
Project #: 26815961.00001

Date: 4/12/07
Geologist/Technician: L. MURRAY
Weather Conditions: SUNNY, WINDY
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 19.81
Casing Diameter (in): 6
Screen Interval (ft bgs): 5 to 20. Length: 15'
Water Column (ft): 4.15 (Total Depth – Depth to Water)
Depth to Water (ft): 15.66

Casing Volume (gallons): 6.22 = 4.15 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 8:11 to (end) 8:30. Total time: 19 MIN.

Purge Log:

Date: 4/12/07 | Purge Method: Bailer | Purge Rate: 1.2 gpm
Start Time: 8:34 | Stop Time: 8:44 | Total Time: 10 min | Total vol.: 12 gal

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp. (F or C)	Color	Odor
8:34		15.05					
8:38	6	17.31	5.98	31.7	19.0	CLOUDY	YES
8:44	12	19.37	8.71	31.6	19.2	LT. CLOUDY	YES

Water Level Meter Type: Solinst Oil/Interface Probe
Water Quality Meter(s) Type: Horiba U-10
Comments/Observations:

URS

Well Development Log

Well Number: RW-D10

Client: City of Oakland
Plant: MSC
Address: 7101 Edgewater Dr Oakland, CA
Location: Plume 1D
Project #: 26815961.00001

Date: 4/12/07
Geologist/Technician: A. MURRAY
Weather Conditions: SUNNY, WINDY
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 19.98
Casing Diameter (in): 6
Screen Interval (ft bgs): 5 to 20. Length: 15'
Water Column (ft): 11.59 (Total Depth – Depth to Water)
Depth to Water (ft): 8.39

Casing Volume (gallons): 17.38 = 11.59 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 10:50 to (end) 11:30. Total time: 40 MIN

Purge Log:

Date: 4/12/07 | Purge Method: Bailer/Pump | Purge Rate: 3.17 gpm
Start Time: 11:39 | Stop Time: 12:42 | Total Time: 63 min | Total vol.: 200 gal

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp (F or C)	Color	Odor
11:39		8.42					
11:45	20	8.45	7.12	12.6	18.5	DK GRAY	YES
12:02	40	8.58	7.95	12.4	19.1	"	"
12:07	60	8.29	8.60	12.2	18.8	CLEAR	"
12:12	80	8.63	6.80	11.9	18.7	CLEAR	"
12:17	100	8.65	7.75	12.1	19.0	"	"
12:22	120	8.65	7.72	12.2	18.9	"	"
12:27	140	8.63	7.83	12.1	19.1	"	"
12:32	160	8.63	7.94	11.5	18.9	"	"
12:37	180	8.62	7.79	11.1	19.3	"	"
12:42	200	8.63	7.67	11.3	18.9	"	"

* SWITCHED TO PUMP

Water Level Meter Type: Solinst o/w Interface Probe
Water Quality Meter(s) Type: Horiba U-10
Comments/Observations:

URS

Well Development Log

Client: City of Oakland
Well Number: RW-011
Plant: MSC
Date: 4/12/07
Address: 7107 Edgewater Dr. Oakland, CA
Geologist/Technician: R. Murray
Location: Plume D
Weather Conditions: SUNNY, WINDY
Project #: 26815961.00001
Temperature
Wind Direction/Speed:

Well Information

Total Depth of Well (ft): 19.60
Depth to Water (ft): 7.75
Casing Diameter (in): 6
Screen Interval (ft bgs): 7.5 to 20. Length: 15'
Water Column (ft): 11.85
Total Depth – Depth to Water

Casing Volume (gallons): 17.77 = 11.85 (Water Column (feet)) X 1.5 (Gallons per foot (see Table 1.))

Table 1. Volume per Foot Based on Well Diameter

Casing Diameter (in.)	Gallons per foot	Casing Diameter (in.)	Gallons per foot
2	0.25	8	2.7
4	0.67	10	4.1
6	1.5	12	5.9

Well Development Log

Surge Log:
Screen Interval (start): 9:01 to (end) 9:36. Total time: 34 MIN

Purge Log:

Date: 4/12/07 | Purge Method: bailer/pump | Purge Rate: 3.33 gpm
Start Time: 9:41 | Stop Time: 10:41 | Total Time: 60 min | Total vol.: 200

Time	Volume Removed (g)	Depth to Water (ft)	pH	Cond. (µS/cm)	Temp. (F or C)	Color	Odor
9:41		7.80					
* 9:48	20	7.85	7.95	14.9	18.1	BROWN	YES
10:01	40	8.01	7.49	8.47	17.9	GREY	YES
10:06	60	8.00	7.66	7.24	18.2	CLOUDY	SLIGHT YES
10:11	80	8.07	7.29	7.25	18.3	CLOUDY	YES
10:16	100	8.09	7.92	7.30	18.3	CLOUDY	YES
10:21	120	8.00	7.89	7.34	18.3	"	"
10:26	140	8.05	8.14	7.41	18.5	"	"
1031	160	8.02 7.89	7.89	7.40	18.4	"	"
10:36	180	8.01	7.92	7.37	18.3	"	"
10:41	200	8.05	7.94	7.41	18.4	"	"

Water Level Meter Type: Solinst O/W Interface Probe
Water Quality Meter(s) Type: Horiba U-10

Comments/Observations:
SLIGHT ON SURFACE OF PURGE WATER
* SWITCHED TO PUMP @ 9:46 PM

ATTACHMENT E

DWR Well Completion Reports

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED