Griswold, Jim, EMNRD

From: Joshua Morrissette@bjservices.com
Sent: Thursday, February 04, 2010 2:11 PM

To: Griswold, Jim, EMNRD

Subject: Re: Former FracMaster Facility in Hobbs (1RP-2)

Attachments: Hobbs Fracmaster Boring Logs.PDF

Here you go Jim. Sorry about that.

Josh

BJ Services Company, USA J. Morrissette HSE Specialist 11211 FM 2920 Tomball, TX 77375 Office: 281.357.2573

Mobile: 713.705.4875 Fax: 281.357.2585

"Griswold, Jim, EMNRD" < Jim.Griswold@state.nm.us>

To < joshua.morrissette@bjservices.com>

CC

02/01/2010 11:36 AM

Subject Former FracMaster Facility in Hobbs (1RP-2)

Josh,

I received a letter from Brown & Caldwell dated 1/15/10 providing responses to my questions regarding the May 2009 field work (report dated 8/24/09) at the Hobbs facility. The letter refers to corrected boring logs as attachments. These corrected logs were not included in the FedEx package I received. Could you have Richard Rexroad please forward them to me. Thank you.

Jim Griswold Senior Hydrologist Environmental Bureau ENMRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

direct: 505.476.3465

email: jim.griswold@state.nm.us

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Project Name: BJ Services Company, U.S.A. - Fracmaster Facility

Project Number: 128125

Sheet 1 of 2

Project Location: Hobbs, NM								Logged By: R. Banda Che			Checked By:R.Rexroad		
Drilli	ing C	ontra	ctor:	TSS								Date Finished: 5/1/09	
Drilli	ing E	quip	nent:	B-59	Driller: C. Perry	mar	1	I	Total Boring Depth: (feet) 61.0 Depth to Static Water: (feet)			Depth to Static Water: (feet)	
Drilli	Drilling Method: Hollow Stem Auger Borehole Diameter: 8"								TOC Elevation: Ground Elevation: 102.21				
Samp	Sampling Method: Split Spoon							Diameter of Well C	and Type Casing: 2	Sched	ule 40 PVC		
Com	Comments:						Slot Size: 0.010 Filter Material: 20/40						
								I	Developn	nent Method:	Subm	ersible Pump	
Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description		PID Readings	Sampled Interval	Recovery (feet)	Sample ID			onitoring Well Remarks	
2- 2- 4-				Gravel, Sand, Silt, etc.		0				the state of the s	100	3 Above-grade completion.	
2 - 4		SP		SAND (SP); Tan; dry; 1/4" gravel	S	0	X	2			でなるのでは		
10-						0				The second secon	The state of the s		
16-				Pinkish tan; very fine to medium sandstone nodules, few gravel	grained, <1/4" lithified	0	X	2		e de la companya de l	the state of the state of		
20-				Pinkish brown; moist		0				The state of the s	Be	ntonite Seal	
24		-				0	X	2		The same of the sa	できる ははないのできないはん		



MW-4

Project Number: 128125 BJ Services Company, U.S.A. - Fracmaster Facility Sheet _2 of _2 Project Name: Readings Sampled Interval USC Soil Type Recovery (feet) Depth to Water Monitoring Well Depth (feet) Sample ID Description Remarks PID 2" Diameter Schedule 40 PVC Riser. SAND (SW); Pinkish brown; moist; very fine grained 32-0 43.0 45.0 0 20/40 Silica filter pack Moist to wet, hydrocarbon odor. 0 53-55' 0.01 slotted PVC screen 60.0 60-2" Diameter Schedule 40 PVC 61.0 Bottom Cap.

This log should not be used separately from the original report.



BROWN AND CALDWELL 1415 Louisiana St. Suite 2500 Monitoring Well:

M	W	<i>I-</i> 5	

Project Name: BJ Services Company, U.S.A. - Fracmaster Facility

Project Number: 128125 Sheet 1 of 2

Project Location: Hobbs, NM								Logged By: R. Rexroad Checked By:L. Teague					
Drilli	ing C	Contra	ctor:	Geoprojects International					Date Started: 4/7/09 Date Finished: 4/7/09				
Drilli	ing E	quip	nent:		Driller: C. Perry	man	 1		Total Boring Depth: (feet) 61.0 Depth to Static Water: (feet)				
Drilli	Drilling Method: Hollow Stem Auger Borehole Diameter:								TOC Elevation: Ground Elevation: 102.41				
Samp	oling	Meth	od:	Split Spoon				,	of Well C	and Type Casing:	2 Schedi	ule 40	
Com	ment	ts:							Slot Size:	0.010	Filter Ma	terial: 20/40	
								7	Developr	nent Method:	Submo	ersible Pump	
Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description		PID Readings	Sampled Interval	Recovery (feet)	Sample ID		Mo	onitoring Well Remarks	
2— 4— 6— 8—		SM		SILTY SAND (SM); Light brown grained sand	dry; very fine to fine	o	· · · · · · · · · · · · · · · · · · ·	.5			3X	3 Above-grade completion.	
12 14 16		SP		SAND (SP); Light tan; very fine to poorly sorted Sand is mostly quartz with <5% for medium grained)		0	高大	.25		我在我就是一个人的人			
20-				Pinkish mostly fine to (40%) med scattered (<1%) dark materials; feldspars	ium quartz sand; slightly moist; 1-2%	0	5 T. S.	.5			Ber	ntonite Seal	
26-		SP		SANDSTONE SAND (SP); very fine to fine grain	ned sand	0	- E	.75					



MW-5

Project Name: BJ Services Company, U.S.A. - Fracmaster Facility Project Number: 128125 Sheet 2 of 2

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID	Monitoring Well Remarks
32 -				SANDSTONE; Light gray; well cemented.	0		1		2" Diameter Schedule 40 PVC Riser.
36-		SP		SAND (SP); Light pinkish brown; dry to moist; sorted very fine grained to moderately coarse sand (80% fine grained with ~5% dark minerals; fine grained sand is subrounded.	0		.25		
32 — 34 — 36 — 40 — 42 — 44 — 46 — 48 —				Decreased grain size to very fine grained; very well sorted; moist.	0		.5		
44-					0		2 .25		45.0
48-									
52-				Moist to wet at 50' bgs.	0		.25	50-51'	20/40 Silica filter pack
56-								54-55'	0.01 slotted PVC screen
58-									60.02" Diameter Schedule 40 PVC Bottom Cap.
				•	•				



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Project Name: BJ Services Company, U.S.A. - Fracmaster Facility

Project Number: 128125

Sheet 1 of 2

Drilling Contractor: TSS Date Started: 4/30/09 Total Boring Depth: (feet) 65.0 Drilling Method: Air Rotary Borehole Diameter: 8" TOC Elevation: Diameter and Type	Date Finished: 4/30/09 Depth to Static Water: (feet) 55.00 Ground Elevation: 102.48
Drilling Equipment: B-59 Driller: C. Perryman Depth: (feet) 65.0 Drilling Method: Air Rotary Borehole Diameter: 8" TOC Elevation:	Water: (feet) 55.00 Ground Elevation: 102.48
	.
Diameter of Trus	Jula 40
Sampling Method: Corebarrel of Well Casing: 2 Sched	iule 40
Comments: Slot Size: 0.010 Filter M	aterial: 20/40
Development Method: Subm	ersible Pump
Depth (feet) USC Soil Type Lithology PID Readings Sampled Interval Recovery (feet) Sample ID	onitoring Well Remarks
	(3 Above-grade completion.
Tan; dry; Limestone, very dense, strong reaction to acid test. Tan; dry; Limestone, very dense, strong reaction to acid test. Pinkish white; Med. density; dry; Caliche, 1/4" gravels	
Pinkish white; Med. density; dry; Caliche, 1/4" gravels	
Pinkish white; Med. density; dry; Caliche, 1/4" gravels SP SAND (SP); Pinkish tan; dry to moist; .255" gravels(sandstone), fine to medium grained sand 0 0	
1979.	
20 - 0 Be	entonite Seal
18— 20— 22— 24— 24— 26— 28— - 28—	
24-	
26-7	
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MW-6

Project Name: BJ Services Company, U.S.A. - Fracmaster Facility Project Number: 128125 Sheet 2 of 2

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description		Sampled Interval	Recovery (feet)	Sample ID	Monitoring Well Remarks
34 - 34 - 34 - 34 - 34 - 34 - 34 - 34 -	Dep	NSA.	Pip	Little gravel at 47' bgs. 1/4" to 1/2" gravels. Wet at 55' bgs.		Same Same Same Same Same Same Same Same	0	24-55°	2" Diameter Schedule 40 PVC Riser. 20/40 Silica filter pack 0.01 slotted PVC screen 2" Diameter Schedule 40 PVC Bottom Cap.
62					0		0		65.0

1RP-2

Former Fracmaster Facility

April-May 2009 Soil and Groundwater Sampling Report

August, 2009

Griswold, Jim, EMNRD

From:

Griswold, Jim, EMNRD

Sent: To: Monday, February 01, 2010 10:36 AM 'joshua.morrissette@bjservices.com'

Subject:

Former FracMaster Facility in Hobbs (1RP-2)

Josh,

I received a letter from Brown & Caldwell dated 1/15/10 providing responses to my questions regarding the May 2009 field work (report dated 8/24/09) at the Hobbs facility. The letter refers to corrected boring logs as attachments. These corrected logs were not included in the FedEx package I received. Could you have Richard Rexroad please forward them to me. Thank you.

Jim Griswold Senior Hydrologist Environmental Bureau ENMRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

direct: 505.476.3465

email: jim.griswold@state.nm.us

Tel: (713) 759-0999 Fax: (713) 308-3886

www.brownandcaldwell.com

RECEIVED OCD

January 15, 2010

2010 JAN 20 A 11: 34:



Mr. Jim Griswold
State of New Mexico
Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Subject: Responses to NMOCD Comments Pertaining to April-May 2009 Soil and

Groundwater Sampling Report

BJ Services (Former FracMaster Facility, Hobbs, New Mexico)

1RP-2

Dear Mr. Griswold:

Brown and Caldwell, on behalf of BJ Services Company, U.S.A. (BJ Services), offers the following responses to verbal comments provided to BJ Services by the New Mexico Oil Conservation Division (NMOCD) pertaining to the subject report, as reported to Brown and Caldwell. For ease of review, the NMOCD comments are listed in italicized font, followed by Brown and Caldwell's response in normal font.

1. Elaborate on the specific difficulties encountered during drilling of MW-4.

On May 1, 2009, air rotary methods were used to attempt the installation of MW-4 in the previously excavated area. Two attempts were made to drill to the required depth but, in both instances, the borehole sidewall collapsed into the drill pipe and bit, almost locking the drill string into the hole. This was attributed to the apparently underconsolidated nature of the backfill materials. It was decided that hollow stem auger technology would be the best approach for installing MW-4, so hollow stem augers were delivered to the site. Even when hollow stem augers were used, gravels in the apparently underconsolidated fill materials tended to accumulate around the outside of the augers and caused them to bind in the hole. After describing the above verbally to NMOCD, approval to move the monitor well location immediately outside and downgradient of the excavated area was granted by NMOCD.

2. Clarify the drilling method for MW-4 and MW-6, the text in the first paragraph of Section 2.0 and the boring logs do not match.

Monitor well MW-4 was drilled using hollow stem augers. Monitor well MW-6 was installed using air rotary. The boring logs (attached) have been amended accordingly.

3. The PID data was not provided on the boring logs as indicated in the first paragraph of Section 2.1.

The PID data had been entered into the boring log program, but it had failed to print out. The attached boring logs now show the PID data.

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4. Clarify that soil samples from each monitor well were collected immediately above the saturated zone. Based on the logs they were collected in the saturated zone, but the text indicates just above. The logs for monitor wells MW-5 and MW-6 indicate sample depths of 50 to 51' bgs and 55 to 60' bgs, respectively. In the text, Section 2.1 paragraph 2, it states that a sample was collected from monitor well MW-5 at the 50' to 51' interval first, which was not enough volume, and an additional sample was collected from 54' to 55' bgs. For monitor well MW-6 it states that the sample interval was 54' to 55' bgs.

It is not always possible to pinpoint the top of the saturated zone during the initial stages of drilling activities at a given drilling location. Only after a monitor well is installed can the depth to the top of the saturated zone be measured to a precision of 0.01 foot. During drilling activities for monitor wells MW-4 through MW-6, field personnel relied on data from boring logs and depth-to-groundwater measurements at existing site monitor wells MW-1 through MW-3, and accordingly attempted to collect soil samples from the interval above where the top of the saturated zone was anticipated. In monitor well MW-4, the soil sample was collected from 53-55 feet, and the depth to water was subsequently recorded at 53 feet (note that the core barrel used for collecting a soil core must be advanced ahead of the drill bit; hence, soil coring within a given interval must be conducted prior to determining whether the top of the saturated zone is actually present within that interval). In monitor well MW-6, the soil sample was collected at 54-55 feet, and the depth to water was subsequently recorded at 55 feet. In monitor well MW-5, soil sampling was performed using a 5-foot core barrel; a soil sample was collected from 50-51 feet, and the depth to water was subsequently recorded at 50 feet. As stated in the report, an insufficient volume of soil was recovered from the 50-51 foot depth interval for all of the required analyses, so a soil core was recovered from the next 5-foot interval at 54-55 feet and submitted for the analyses that could not be performed on the soil recovered from 50-51 feet due to insufficient recovery volume.

5. Confirm that the accuracy of the survey is 0.01 ft on the vertical plane.

The wells were field-surveyed by Brown and Caldwell to a vertical accuracy of 0.01 foot.

6. Based on review the contours on Figure 3, the gradient appears to be more steep from monitor well MW-6 to monitor well MW-4 to monitor well MW-5.

Based strictly on well-to-well groundwater elevation differences between monitor wells MW-6 and MW-4 versus between monitor wells MW-4 and MW-5, the calculated gradient from monitor well MW-6 to monitor well MW-4 is slightly less (0.0093 ft/ft) than the calculated gradient from monitor well MW-4 to monitor well MW-5 (0.0109 ft/ft).

However, when taking into account the groundwater elevation data from all six wells at the site, the groundwater elevation contours are more closely spaced between 48.0' and 48.6' than between 47.4' and 48.0'.

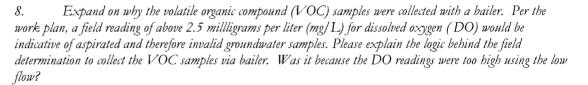
7. Has BJ Services looked into any Salt Water Disposal wells that may be to the south of the property or a pumping water well located to the north of the property? The gradient appears steep for this area and we could be observing the effects of an injection well or an extraction well. A Salt Water Disposal well operating nearby could also be the source of the chlorides.



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BJ Services has not performed a survey to locate salt water disposal wells and pumping wells in the area of the facility.



NMOCD comments pertaining to the February 2006 report submitted by Brown and Caldwell for the subject facility stated that "comparison of the dissolved oxygen levels from the three wells (*i.e.*, monitor wells MW-1, MW-2, and MW-3) potentially indicates the MW-2 sample was improperly aspirated during pumping which could have resulted in the volatilization or degradation of hydrocarbons from the sample".

In response to this NMOCD comment, the work plan for the April-May 2009 site activities stated that "Use of a flow cell in the presence of hydrocarbons may degrade the membrane of the DO probe, resulting in erroneous data. An observed DO level greater than 2.5 mg/L may be considered as indicative of a potentially aspirated (and thus invalid) groundwater sample. If a stabilized groundwater DO level greater than 2.5 mg/L is observed, then the DO measurement will be confirmed through the following procedure:

- a. A dedicated, previously unused, or properly decontaminated bailer will be gently lowered into the well no more than 1 foot below the water table and gently removed from the well.
- b. The DO content of the water will be measured using a HACH Test Kit ampule.
- c. If the HACH Test Kit ampule DO reading is greater than or equal to 2.5 mg/L, then the flow cell DO reading will be considered valid and all sample aliquots will be collected from the monitor well discharge tubing after it is disconnected from the flow cell as described in Section 3.6 (of the work plan).
- d. If the HACH Test Kit ampule DO reading is less than 2.5 mg/L, then the flow cell DO reading will be considered invalid (*i.e.*, aspirated) and the sample aliquot designated for VOCs analysis will be collected by gently lowering a dedicated, previously unused, or properly decontaminated bailer into the well no more than 1 foot below the water table, then gently removing the bailer from the well, then gently filling the VOC sample containers."

This work plan was submitted to and approved by NMOCD prior to implementation of field activities. It was followed during field activities. This is the reason that a bailer was used to collect VOC aliquots from selected wells. The work plan did not indicate that a field reading exceeding 2.5 mg/L was indicative of an invalid groundwater sample. The work plan stated that a confirmatory sample would be collected for DO testing if the flow cell DO reading exceeded 2.5 mg/L, and that the VOC sample aliquot would be collected using a bailer if the DO test on the groundwater recovered using a bailer confirmed (based on a substantially lower DO value in the bailer sample) that use of the pump had aspirated the groundwater.

9. Since monitor well MW-4 was installed on May 1, 2009 and sampled on May 2, 2009, 24 hours did not actually elapse between well development and sampling. Based upon the Groundwater Sampling



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Field Data Sheet for monitor well MW-4, sampling was started at 11 AM on May 2, 2009. Was development of monitor well MW-4 completed by 11 AM on May 1, 2009?

The interval of time that elapsed between the development and sampling of MW-4 was less than 24 hours. Based on the amount of time and resources that were expended in the initial two attempts to install MW-4 at a location within the formerly excavated area using air rotary drilling (and including the subsequent wait for delivery of hollow stem augers to the site for the third unsuccessful attempt to install the well within the formerly excavated area using hollow stem augers), it was necessary to compress the timeframe for development and sampling of MW-4 in order to complete field activities within the allocated timeframe for this phase of the project.

Review of the data pertaining to development and sampling of monitor well MW-4 indicates that the well was properly developed, the groundwater produced at the conclusion of purging was of low turbidity (i.e., 1.5 nephelometric turbidity units), and groundwater geochemical parameters (i.e., pH, temperature, specific conductivity, oxidation-reduction potential, and DO) had stabilized at the conclusion of the purging process prior to groundwater sample collection. Therefore, Brown and Caldwell believes that the data from monitor well MW-4 are representative of groundwater conditions at the site.

If you have any questions pertaining to the information presented herein, please contact Mr. Josh Morrissette of BJ Services at 281-357-2573.

Les Teague

Principal

Sincerely,

BROWN AND CALDWELL

Richard Rexroad Project Manager

Attachments (3)

cc:

Josh Morrissette (BJ Services)

File: 128125

1RP-2

Notes upon review of 8/24/09 Report from Brown & Caldwell *April-May 2009 Soil and Groundwater Sampling Report Hobbs (Fracmaster), New Mexico Facility.*

- •Did not install monitoring well (MW-4) within margins of former excavation as explicitly directed in my approval of 10/22/08. The reason provided in the report was "Substantial drilling difficulties..." and we did have a phone call in this regard. However, those explicit difficulties need to be affirmed in writing.
- •Report text states soil borings for MW-4 and 6 were advanced using air rotary and the boring for MW-5 was advanced via hollow stem auger. Boring/well logs (Appendix A) indicate all borings were advanced via HSA.
- •Text also states the soil headspace data was gathered and is presented as part of the well logs. This is not the case, and furthermore the headspace data is not provided anywhere in the report.
- •The report states the wells were completed with approximately 2.5 feet of casing remaining above grade (page 5). Depth to water from top of casing measured on May 2nd varied from 53.69 to 55.05 ft. That would place the water table at 51 to 52.5 ft below ground surface. This would mean the soil samples submitted for lab analysis from all wells would have been water-saturated.
- •What was the accuracy of the survey? Should be at least 0.1 ft laterally and 0.01 ft vertically.
- •Hydraulic gradients (Figure 3)

```
MW-6 to MW-5: i = (48.79 - 47.36)/142 = 0.0101 = 53.2 ft/mile MW-6 to MW-4: i = (48.79 - 47.95)/88 = 0.0096 = 50.4 ft/mile MW-4 to MW-5: i = (47.95 - 47.36)/53 = 0.0111 = 58.8 ft/mile The steeper gradient, by 17%, is between MW-4 and MW-5, but the contouring reflects the opposite.
```

```
MW-6 to MW-1: i = (48.79 - 47.81)/56 = 0.0175 = 92.4 ft/mile MW-6 to MW-2: i = (48.79 - 47.55)/118 = 0.0105 = 55.5 ft/mile MW-4 to MW-3: i = (47.95 - 47.46)/49 = 0.0100 = 52.8 ft/mile MW-4 to MW-2: i = (47.95 - 47.55)/51 = 0.0078 = 41.4 ft/mile MW-4 to MW-1: i = (47.95 - 47.81)/50 = 0.0028 = 15.8 ft/mile
```

Direction of groundwater flow based on this data is more toward the NW rather than north. The gradients are quite large, 1 to 2% in the downgradient direction, which is perhaps an order of magnitude higher that one might expect unless there is a point of recharge to the south, or someone pumping to the north and the site resides within the drawdown cone. If so, then this could be affecting the dissolved-phase concentrations by not only dilution, but also dissociation from the overlying adsorbed soil contamination.

Change in DTWs

	2/23/06	5/2/09	delta
MW-1	53.64	55.40	1.76
MW-2	52.78	54.50	1.72
MW-3	53.22	54.95	1.73

- •Observed increase in dissolved-phase concentrations in MW-2 in spite of a drop in water levels
- · Change in gradient over time

2/23/06

```
MW-1 to MW-3: i = (49.57 - 49.19)/70 = 0.0054 = 28.7 ft/mile MW-2 to MW-3: i = (49.27 - 49.19)/88 = 0.0009 = 4.8 ft/mile MW-1 to MW-2: i = (49.57 - 49.27)/97 = 0.0031 = 16.3 ft/mile
```

5/2/09

```
MW-1 to MW-3: i = (47.81 - 47.46)/70 = 0.0050 = 26.4 ft/mile (decrease of 9%) MW-2 to MW-3: i = (47.55 - 47.46)/88 = 0.0010 = 5.4 ft/mile (increase of 13%) MW-1 to MW-2: i = (47.81 - 47.55)/97 = 0.0027 = 14.2 ft/mile (decrease of 15%)
```

•Explain the reason for using bailed samples when testing for VOCs, but pumped samples for everything else.

•Change in DOs

		2009	2009
	2/23/06	meter	kit
MW-1	0.6	4.73	1.4
MW-2	4.3	3.78	0.8
MW-3	0.6	1.92	0.6
MW-4		0.54	0.4
MW-5		3.46	0
MW-6		8.79	9.2

It appears MW-4 was sampled the same day it was installed; 5/2/09.

1415 Louisiana Suite 2500 Houston, Texas 77002

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August 24, 2009



2009 AUG 25 P 3: 03



Mr. Jim Griswold
State of New Mexico
Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Subject:

Transmittal of April-May 2009 Soil and Groundwater Sampling Report

BJ Services (Former FracMaster Facility, Hobbs, New Mexico)

1RP-2

Dear Mr. Griswold:

Attached please find a report summarizing soil and groundwater sampling conducted at the BJ Services Company, U.S.A. (BJ Services) former FracMaster facility in Hobbs, New Mexico in April-May 2009.

Based on the results presented herewith, BJ Services proposes an aggressive remedial approach involving use of Oxygen-Release Compound® to address hydrocarbon-impacted groundwater at the site.

Chloride impact to groundwater is present at the site, but is confined to wells that are upgradient of or lateral to the former field waste station and appears to be related to an upgradient off-site source. Wells located downgradient of the former field waste station are not chloride-impacted. On this basis, no further action with regard to chloride at the site appears to be warranted.

After completion of your review of the enclosed report, BJ Services and Brown and Caldwell would like to meet with you to discuss BJ Services' proposed remedial approach for the site. We will contact you shortly to discuss your availability.

Les Teague Principal

Thank you for your attention to this matter.

Sincerely,

BRØŴN AND CALDWELL

Richard Rexroad Project Manager

cc:

Josh Morrissette (BJ Services)

File: 128125

APRIL-MAY 2009 SOIL AND GROUNDWATER SAMPLING REPORT HOBBS (FRACMASTER), NEW MEXICO FACILITY

1RP-2

BJ SERVICES COMPANY, U.S.A.

August 24, 2009

APRIL-MAY 2009 SOIL AND GROUNDWATER SAMPLING REPORT HOBBS (FRACMASTER), NEW MEXICO FACILITY

1RP-2

Prepared for

BJ Services Company, U.S.A. 11211 FM 2920 Tomball, Texas 77375

BC Project Number: 128125

2009 AUG 25 P 3: 03

Richard L. Rexroad Project Manager

August 24, 2009

Brown and Caldwell

1415 Louisiana, Suite 2500 Houston, Texas 77002 - (713) 759-0999

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С	Grou	ndwater Sampling Forms	

1.0 INTRODUCTION

Brown and Caldwell conducted monitor well installation and soil and groundwater sampling activities at the BJ Services Company, U.S.A. (BJ Services) FracMaster facility located at 1329 N. West County Road in Hobbs, New Mexico in April-May 2009. Figure 1 shows the location of the BJ Services FracMaster facility. This report presents a description of the field activities and a summary and evaluation of the analytical results. A site map depicting the locations of the new and previously existing monitor wells at the facility is provided as Figure 2.

A former field waste tank and approximately 1,400 tons of soil were previously removed at the inactive BJ Services FracMaster facility in Hobbs, New Mexico. Post-excavation samples reportedly indicated impacts to soil by gasoline- and diesel-range total petroleum hydrocarbons (TPH-G and TPH-D). Volatile and semivolatile organic compounds (VOCs and SVOCs) were reportedly detected in the post-excavation floor sample; the post-excavation sidewall samples were not analyzed for VOCs and SVOCs. The approximately 25-foot deep excavated area was subsequently backfilled. Subsurface sampling conducted by Brown and Caldwell in July 2005 indicated impacts to vadose zone soils by benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH) at the Sample ES and WS locations to the east and west of the former field waste tank area, as well as impacts to underlying groundwater by benzene, naphthalene, and xylenes.

Three monitor wells were installed in the area of the former field waste tank in February 2006 to determine the direction of groundwater flow and to more fully evaluate impact to groundwater at the site. Soil samples were collected from two of the monitor well soil borings installed in February 2006 to delineate the extent of soil impact determined on the basis of the July 2005 sampling event. Data from monitor wells MW-1, MW-2, and MW-3 indicated that groundwater was present at approximately 49 feet to 50 feet below grade under unconfined conditions in the uppermost aquifer at the formerly excavated area, and that groundwater flow direction is in a generally northward direction. Chloride concentrations measured in cross-gradient monitor well MW-1 and downgradient MW-2 in February 2006 exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard of 250 milligrams per liter (mg/L). TPH-G,

naphthalene, 1,2,4,-trimethylbenzene, and m,p-xylenes were detected in the groundwater sample collected from monitor well MW-2, but concentrations of these constituents were less than applicable NMWQCC criteria.

On August 21, 2008, the New Mexico Oil and Gas Conservation Commission (NMOCD) requested that BJ Services submit a work plan for installation and sampling of three additional monitor wells to further assess soil and groundwater impact in the vicinity of the formerly excavated area. This work plan was submitted on November 13, 2008 and subsequently approved by NMOCD. This report presents the results of the investigation performed per the requirements of the November 13, 2008 work plan.

2.0 FIELD ACTIVITIES

Brown and Caldwell installed three monitor wells in the vicinity of the formerly excavated area using hollow stem auger and air rotary drilling techniques in April-May 2009. Monitor well MW-5 was installed on April 7, 2009 using hollow stem augers. The hollow stem auger drilling rig met refusal at approximately 10 feet below grade at the monitor well MW-6 location, so this boring was plugged and abandoned. Brown and Caldwell remobilized to the site on April 30, 2009 with air rotary drilling and completed the installation of monitor wells MW-4 and MW-6. The following subsections describe the field activities conducted by Brown and Caldwell during the groundwater sampling and soil sampling event. Section 3.0 presents an evaluation of these data.

2.1 Soil Sampling Activities

The soil borings for monitor wells MW-4, MW-5, and MW-6 were sampled at 5-foot intervals from ground surface to the top of the saturated zone. Recovered soil cores were classified in accordance with the Unified Soil Classification System (USCS) and scanned with a calibrated photoionization detector (PID). PID screening was performed by placing a portion of each recovered core in a previously unused zip-lock plastic bag, sealing the bag, allowing the bag to set in sunlight for approximately 5 minutes, then inserting the PID probe into the bag. PID response was measured and recorded on the soil boring and monitor well installation logs presented in Appendix A.

No elevated PID responses were measured, so soil samples were collected for laboratory analysis from the interval immediately above the top of the saturated zone. Samples were collected from the 53- to 55-foot interval in the monitor well MW-4 boring and from the 54- to 55-foot interval in the monitor well MW-6 boring. A soil sample was collected from the 50- to 51-foot interval of the monitor well MW-5 soil boring. The volume of soil recovered from this interval was insufficient for all of the required analyses, so an additional soil sample was collected from the 54- to 55-foot interval of monitor well MW-5 soil boring.

The monitor well MW-4, MW-5, and MW-6 soil samples were analyzed for the following parameters:

- TPH-G, TPH-D, and mineral spirits-range total petroleum hydrocarbons (TPH-M) by Method 8015M;
- VOCs by Method 8260B; and
- SVOCs by Method 8270C.

The soil sample collected from the soil boring installed for the installation of the upgradient monitor well, MW-6, was analyzed for chloride by Method 300.0. Chloride analysis of soil samples collected from the soil borings installed for downgradient monitor wells MW-4 and MW-5 was inadvertently omitted. The effects of this omission on the assessment appear to be minimal because chloride concentrations in the groundwater samples collected from monitor wells MW-5 and MW-5 are less than the NMWQCC standard of 250 mg/L (see Section 3.2).

The soil sample collected from the upgradient monitor well MW-6 location was also analyzed for the following additional parameters:

- RCRA metals;
- Major Anions (i.e., chloride, fluoride, sulfate, nitrate); and
- Major Cations (*i.e.*, calcium, magnesium, potassium, sodium).

The laboratory analytical reports and chain-of-custody documentation for the soil samples are provided in Appendix B.

2.2 Monitor Well Installation and Development Activities

Monitor wells MW-4, MW-5, and MW-6 were installed in the area of the former field waste tank to determine the extent of groundwater impact at the site. Monitor well MW-4 was originally intended to be installed within the lateral boundaries of the formerly excavated area. Substantial drilling difficulties were encountered at the original MW-4 location within the formerly excavated area, so

after discussion with Mr. Jim Griswold of NMOCD, monitor well MW-4 was installed immediately north of the former field waste tank excavation. Monitor well MW-5 was installed further north at a location further downgradient of the former field waste tank excavation, between existing monitor wells MW-2 and MW-3. Monitor well MW-6 was installed approximately 60 feet south of the former field waste tank excavation at an upgradient location.

The monitor well soil borings were advanced to an approximate depth of 61 feet to 65 feet below ground surface, and approximately 10 feet below the observed top of the uppermost saturated zone. The wells were constructed with 15 feet of 2-inch diameter 0.010-inch slotted Schedule 40 PVC screen, a 1-foot Schedule 40 PVC sediment sump, and sufficient 2-inch diameter Schedule 40 PVC riser to extend the top of the riser to approximately 2.5 feet above grade. The well screens were placed to straddle the saturated zone with approximately 5 feet of screen above the apparent top of the saturated zone and approximately 10 feet of screen below the apparent top of the saturated zone. The annular area of each well was backfilled with 20/40-grade filter sand installed from the total depth of the well to approximately 2 feet above the top of the screen. An approximate 2-foot hydrated bentonite seal was placed atop the filter pack, and the remaining annular area was backfilled with bentonite. The wells were constructed with a concrete surface pad measuring approximately 2 feet by 2 feet by 4 inches thick, with an above-grade locking steel protective cover. Construction diagrams for monitor wells MW-4, MW-5, and MW-6 are presented in Appendix A.

The monitor wells were developed with a submersible pump until produced groundwater was clear and reasonably free of suspended sediment. The top-of-casing elevation of each of the six monitor wells at the site was surveyed relative to an arbitrary benchmark of 100.00 feet, located on the concrete surface near the warehouse, using field surveying techniques. The horizontal locations of the wells were measured relative to existing features at the facility.

2.3 Groundwater Sampling Activities

The static depth-to-water from the top-of-casing of each monitor well was measured using a decontaminated oil-water interface probe on May 2, 2009, prior to any purging and sampling activities conducted on that date. Groundwater elevation data for the wells are presented in Table 1.

A groundwater elevation map for May 2, 2009 is presented in Figure 3. The groundwater elevation data indicate that the general direction of groundwater flow is to the north.

The monitor wells were purged with a submersible pump and previously unused down-hole tubing until groundwater stabilization occurred. Low flow/low stress purging was performed to maintain the water level at or near the static water level. Field parameter measurements for pH, temperature, specific conductivity, dissolved oxygen, and redox potential were collected during purging activities. Each well was purged until variability of less than 10 percent for specific conductivity, less than 0.1 standard pH units, and less than 0.5°C for temperature was achieved. Groundwater dissolved oxygen and ferrous iron concentrations were measured in each monitor well upon conclusion of purging activities. Field parameter readings were recorded on the groundwater sampling forms included in Appendix C. Table 2 summarizes groundwater geochemical data for the April-May 2009 sampling event.

Groundwater sample aliquots designated for VOCs analysis were collected using a previously unused disposable bailer. Groundwater sample aliquots for all other analytical parameters were obtained directly from the discharge line of the submersible pump. The groundwater samples were placed in laboratory-prepared, clean glass containers, sealed with Teflon[®]-lined lids, labeled, and placed on ice in an insulated cooler for delivery to Southern Petroleum Laboratory in Houston, Texas for analysis using standard chain-of-custody procedures. The laboratory analytical reports and chain-of-custody documentation for groundwater samples collected during the current sampling event are provided in Appendix B.

Groundwater samples were analyzed for the following parameters:

- TPH-G, TPH-D, and TPH-M by Method 8015M;
- VOCs by Method 8260B;
- SVOCs by Method 8270C;
- Chloride by Method 300;
- Nitrate by Method 300;
- Sulfate by Method 300;
- Methane by Method RSK 147/175; and
- Alkalinity by Method 310.1.

2.4 Quality Assurance / Quality Control (QA/QC) Samples

QA/QC samples were collected throughout the duration of field activities for the project. Trip blanks were submitted at a rate of one trip blank per cooler containing one or more soil or groundwater samples designated for VOCs analysis. Trip blanks were analyzed for VOCs. Field blanks were collected at a rate of one field blank per day on any day during which a soil or groundwater sample designated for VOCs analysis was collected. Field blanks were analyzed for VOCs.

One equipment rinsate blank pertaining to soil sampling equipment and one equipment rinsate blank pertaining to groundwater sampling equipment were collected. The equipment rinsate blank pertaining to soil sampling equipment was collected by pouring distilled water over a decontaminated split spoon sampling device and collecting the runoff in appropriate sample containers. The equipment rinsate blank pertaining to groundwater sampling equipment was collected by pumping distilled water through the decontaminated pump and unused polyethylene tubing used for collection of groundwater samples and collecting the discharged water runoff in appropriate sample containers. The equipment rinsate blanks were analyzed for VOCs, SVOCs, and TPH-D, TPH-G, and TPH-M.

A duplicate groundwater sample, designated as MW-99, was collected from monitor well MW-3 and analyzed for VOCs, SVOCs, and TPH-D, TPH-G, and TPH-M.

2.5 Decontamination and Waste Management

Heavy drilling equipment was decontaminated by washing with high-pressure potable water. Small-scale sampling equipment was decontaminated using distilled water and a non-phosphate detergent. Soil cuttings, decontamination fluids, and produced groundwater were containerized in DOT-approved 55-gallon drums that were moved to a central drum storage area at the site, pending disposal by BJ Services.

3.0 ANALYTICAL RESULTS

The following subsections present the analytical results for soil and groundwater samples collected during the April-May 2009 sampling event.

3.1 Soil Samples

The soil samples collected from the monitor well MW-4, MW-5, and MW-6 borings were analyzed for the parameters listed in Section 2.1. Soil sample analytical results are summarized in Table 3.

TPH and BTEX analysis results were compared to NMOCD criteria listed in "Guidelines for Remediation of Leaks, Spills, and Releases (NMOCD, August 13, 1993). The NMOCD soil remediation action levels for unsaturated contaminated soils (for a NMOCD hazard ranking of >19, based on groundwater occurrence at <50 feet) are benzene at 10 milligrams per kilogram (mg/kg), total benzene, toluene, ethylbenzene, and xylenes (BTEX) at 50 mg/kg, and TPH at 100 mg/kg. The concentrations for TPH and BTEX from the soil samples collected from the monitor well MW-4, MW-5, and MW-6 borings were below the applicable NMOCD remediation action levels.

3.2 Groundwater Samples

The groundwater samples from monitor wells MW-1 through MW-6 were analyzed for the parameters listed in Section 2.3. Table 4 presents analytical results for these groundwater samples.

With the following exceptions, concentrations of TPH-G, TPH-D, TPH-M, and all VOCs and SVOCs are less than applicable NMWQCC standards:

- Benzene in monitor wells MW-2 and MW-4;
- Naphthalene in monitor well MW-4; and
- Chloride in monitor wells MW-1, MW-2, and MW-6.

The detections of benzene in monitor wells MW-2 and MW-4 at respective concentrations of 0.018 mg/L and 0.081 mg/L exceed the NMWQCC standard of 0.010 mg/L for benzene. The downgradient extent of benzene impact in monitor well MW-4 is generally defined by monitor wells MW-3 and MW-5. Benzene concentrations are shown in Figure 4.

Naphthalene was detected in monitor well MW-4 at concentrations of 0.086 mg/L (by Method 8260B analysis) and 0.044 mg/L (by Method 8270C analysis). A NMWQCC standard of 0.03 mg/L exists for naphthalene plus total monomethylnaphthalenes. 2-Methylnaphthalene was detected at a concentration of 0.027 mg/L (Method 8270C analysis) in monitor well MW-4, but was not detected in any other wells at the site. The concentrations of naphthalene and of naphthalene plus monomethylnaphthalene in monitor well MW-4 thus exceed the applicable NMWQCC standard. The downgradient extent of naphthalene plus monomethylnaphthalene impact in monitor well MW-4 is generally defined by monitor wells MW-3 and MW-5. Naphthalene concentrations are shown in Figure 5.

The NMWQCC standard of 250 mg/L for chloride was exceeded in monitor wells MW-1, MW-2, and MW-6 at respective concentrations of 456 mg/L, 452 mg/L, and 624 mg/L. Chloride concentrations are shown in Figure 6. The fact that the highest chloride concentration was measured in upgradient monitor well MW-6 and that chloride concentrations less than the NMWQCC standard of 250 mg/L were measured in monitor wells MW-3, MW-4, and MW-5, which are located directly downgradient of the former field waste tank area, indicates that chloride impact at the site is associated with an upgradient, off-site source. Substantial decreases in chloride concentrations from 1,070 mg/L to 456 mg/L in monitor well MW-1 and from 512 mg/L to 452 mg/L in monitor well MW-2 have occurred between 2006 and 2009.

Naphthalene, 1,2,4,-trimethylbenzene, ethylbenzene, and xylenes were also detected in monitor well MW-2, but at concentrations less than the applicable NMWQCC criteria. TPH-G and TPH-D were also detected in the MW-2 groundwater sample.

3.3 Natural Attenuation Evaluation

Natural attenuation causes the mass of contaminants in a groundwater plume to be reduced through naturally occurring subsurface processes. These processes include sorption, volatilization, advection, diffusion, abiotic degradation, and biotic degradation. Of these mechanisms, biotic and abiotic degradation are destructive, whereas the other processes are non-destructive. Biotic degradation is also known as "Intrinsic Bioremediation" or "Passive Bioremediation".

Intrinsic bioremediation uses indigenous electron acceptors (dissolved oxygen, nitrate, ferric iron, sulfate, and carbon dioxide) to transform contaminants to innocuous end products (carbon dioxide, methane, and water) through biologically mediated oxidation-reduction reactions. To verify that natural attenuation of dissolved contaminants is occurring, contaminant loss as well as the relationship between contaminant concentration and the concentration of electron acceptors and/or reduction products are evaluated.

The primary evidence for the occurrence of natural attenuation is loss of contaminant mass from a plume such that the size or concentration of the plume is stable or decreasing. This may be evidenced by decreases in contaminant concentrations over distance from a source area or by decreases in contaminant concentrations in individual monitor wells over time.

Geochemical data may provide secondary supporting evidence of natural attenuation. During natural attenuation, dissolved oxygen levels decrease as oxygen is consumed by microbial activity. After dissolved oxygen is depleted, nitrate serves as the next available electron acceptor, causing nitrate concentrations to decrease. Ferric iron is the next electron acceptor used during microbial activity. Ferric iron concentrations are not easily measured, so the concentration of ferrous iron, a product of ferric iron reduction during hydrocarbon biodegradation, is measured instead. Thus, concentrations of ferrous iron are expected to increase in areas where natural attenuation of hydrocarbons is occurring. Utilization of sulfate as an electron acceptor may occur after consumption of dissolved oxygen, nitrate, and ferric iron. Therefore, sulfate concentrations may also decrease in areas where natural biodegradation of hydrocarbons is occurring. Methane forms

when carbon dioxide is utilized as an electron acceptor during natural attenuation of hydrocarbons. The oxidation-reduction potential (ORP) of groundwater is often decreased in areas where biodegradation of hydrocarbons is occurring. Fatty acids formed by microbial organisms as metabolic by-products during degradation of hydrocarbons may dissolve carbonates in saturated zone soils, causing alkalinity of groundwater to increase where biodegradation is occurring.

The following subsections present an analysis of site-specific data pertinent to the evaluation of natural attenuation of hydrocarbons at the facility.

3.3.1 Primary Evidence

Table 5 presents current and historic VOCs, SVOCs, TPH, and chloride concentration data for groundwater samples collected from monitor wells MW-1, MW-2, and MW-3. Groundwater concentration data from monitor wells MW-4, MW-5, and MW-6 are not included in Table 5 because these wells have been sampled only once.

Concentrations of VOCs, naphthalene, TPH-D and TPH-G have increased in monitor well MW-2 between 2006 and 2009. It is unclear at present if these concentration increases are due to source area loading or whether they may be related to differences in groundwater elevations between the two groundwater sampling events.

Chloride concentrations in monitor wells MW-1, MW-2, and MW-3 have decreased between 2006 and 2009.

3.3.2 Secondary Evidence

Groundwater geochemical data pertinent to evaluation of the potential for natural attenuation of hydrocarbons in groundwater at the site are presented in Table 2. Indicator-specific discussions of secondary evidence of natural attenuation of hydrocarbons are presented below.

Dissolved Oxygen

Dissolved oxygen concentrations as measured by Hach Test methodology range from 0 mg/L to 0.8 mg/L in monitor wells MW-2, MW-3, MW-4, and MW-5, which are situated at locations generally downgradient of the former field waste station. Corresponding dissolved oxygen concentrations were measured at 1.4 mg/L in cross-gradient monitor well MW-1 and at 9.2 mg/L in upgradient monitor well MW-6.

The decreased dissolved oxygen concentrations measured in groundwater downgradient of the former field waste station suggest that natural attenuation of hydrocarbons is occurring in this area of the site.

Nitrate

Nitrate concentrations ranged from 0.564 mg/L to less than 0.5 mg/L in monitor wells MW-2, MW-3, MW-4, and MW-5, which are situated at locations generally downgradient of the former field waste station. Nitrate was measured at a concentration of 4 mg/L in cross-gradient monitor well MW-1 and less than 0.5 mg/L in upgradient monitor well MW-6.

The depletion of nitrate in wells located downgradient of the former field waste station suggests that nitrate is being used as an electron acceptor during natural attenuation of hydrocarbons at the site.

Nitrate was not detected in upgradient well MW-6; this measurement should be confirmed in future groundwater sampling events.

Ferrous Iron

The elevated ferrous iron concentration of 2.2 mg/L in monitor well MW-2, which had the highest concentration of VOCs during the April-May 2009 sampling event, provides further indication of natural attenuation of hydrocarbons in this portion of the site. Ferrous iron concentrations in

monitor wells MW-3, MW-5, and MW-6 were substantially lower, ranging from 0 mg/L to 0.2 mg/L. The concentration of ferrous iron was not measured in monitor well MW-4.

Sulfate

Sulfate concentrations in downgradient monitor wells MW-2, MW-3, MW-4 and MW-5 ranged from 5.25 mg/L to 89 mg/L, with the lowest sulfate concentration measured in monitor well MW-2, which had the highest concentration of VOCs during the April-May 2009 sampling event. In contrast, sulfate concentrations ranged from 128 mg/L in cross-gradient well MW-1 to 91.9 mg/L in upgradient well MW-6.

The depletion of sulfate in wells located downgradient of the former field waste station suggests that sulfate is being used as an electron acceptor during natural attenuation of hydrocarbons at the site.

Methane

Methane was measured at a concentration of 0.23 mg/L in monitor well MW-2, which had the highest concentration of VOCs measured during the April-May 2009 groundwater sampling event. This methane concentration is two orders of magnitude greater than in any other monitor well at the site.

The elevated methane concentration in hydrocarbon-impacted monitor well MW-2 provides further secondary evidence of natural attenuation of hydrocarbons in the area downgradient of the former field waste station.

Alkalinity

The alkalinity of groundwater in hydrocarbon-impacted monitor wells MW-2 and MW-4 is substantially elevated relative to groundwater in other wells at the site, providing additional secondary evidence of natural attenuation of hydrocarbons at the site.

3.3.3 Summary

Concentrations of chloride in monitor wells MW-1, MW-2, and MW-3 have decreased by 12 percent to 57 percent between 2006 and 2009.

Additional chemical concentration and groundwater elevation data will be needed to determine whether the increases in VOCs concentrations in this well between 2006 and 2009 are a function of source area loading or changes in groundwater elevation.

Data from each of the groundwater geochemical indicators provide evidence that natural attenuation of hydrocarbons is occurring at the site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on information obtained during the April-May 2009 sampling event at the BJ Services FracMaster Hobbs, New Mexico facility.

4.1 Conclusions

- Groundwater elevation data indicate an overall northward direction of groundwater flow at the site.
- Chloride impact to groundwater appears to be related to an upgradient, off-site source. The highest chloride concentration is present in the upgradient monitor well at the site. Chloride concentrations less than the NMWQCC standard of 250 mg/L were measured in wells directly downgradient of the former field waste station, thus defining the downgradient extent of this chloride impact. On this basis, no further action is warranted with respect to chloride at the site.
- Benzene was measured at concentrations exceeding the applicable NMWQCC standard
 in the groundwater samples collected from monitor wells MW-2 and MW-4 during the
 current sampling event. The downgradient extent of benzene impact in monitor well
 MW-4 is defined by monitor wells MW-3 and MW-5, but the downgradient extent of
 benzene impact to groundwater at the monitor well MW-2 location is not defined.
- The concentration of naphthalene and the concentration of naphthalene plus monomethylnaphthalenes in monitor well MW-4 exceed the applicable NMWQCC standard of 0.03 mg/L. The downgradient extent of this impact is defined by monitor wells MW-2, MW-3, and MW-5.

4.2 Recommendations

• Add Oxygen-Release Compound® (ORC) to hydrocarbon-impacted monitor wells MW-2 and MW-4.

• Conduct follow-up gauging and sampling of site monitor wells to assess concentration trends in these wells. If hydrocarbon concentrations decrease in monitor wells MW-2 and MW-4 following addition of ORC to these wells, then inject ORC directly to the aquifer in the area of the former field waste station and downgradient to the area of monitor wells MW-2 and MW-4.

DISTRIBUTION

April-May 2009 Soil and Groundwater Sampling Report BJ Services Company, U.S.A. Hobbs (Fracmaster), New Mexico Facility

August 24, 2009

Final Distribution as follows:

1 copy to: State of New Mexico

Energy, Minerals, and Natural Resources Department

Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, New Mexico 87505

Attention: Mr. Jim Griswold

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1625 N. French Dr. Post Office Box 1980 Hobbs, New Mexico 88240

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Attention: Mr. John Adcock

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11211 FM 2920

Tomball, Texas 77375

Attention: Ms. Jo Ann Cobb

1 copy to: Brown and Caldwell Project File

ALITY CONTROL REVIEWER

Les Teague Principal

FIGURES

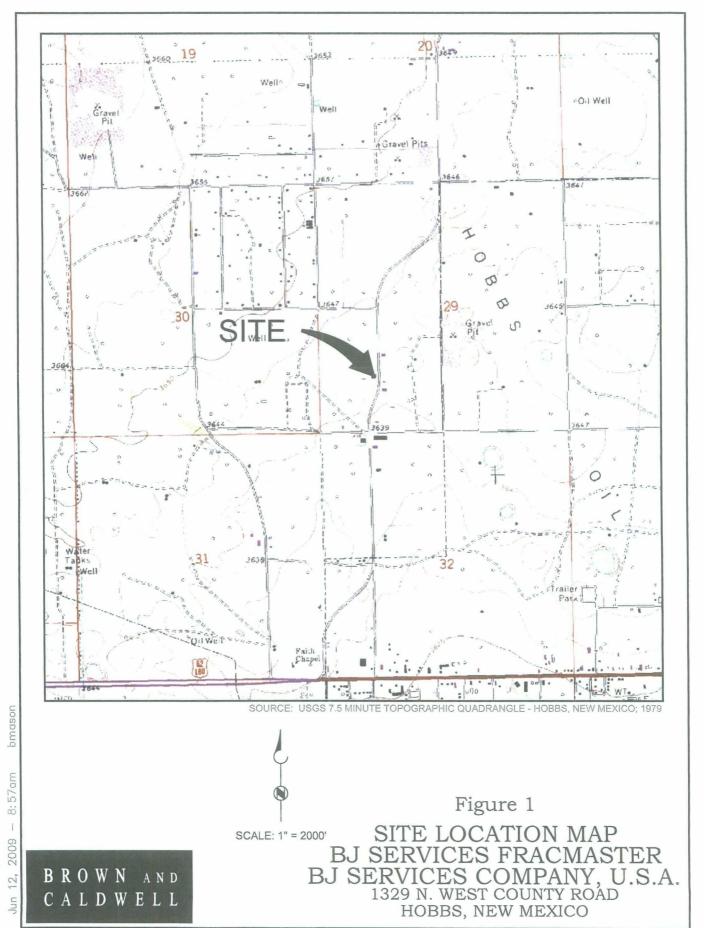
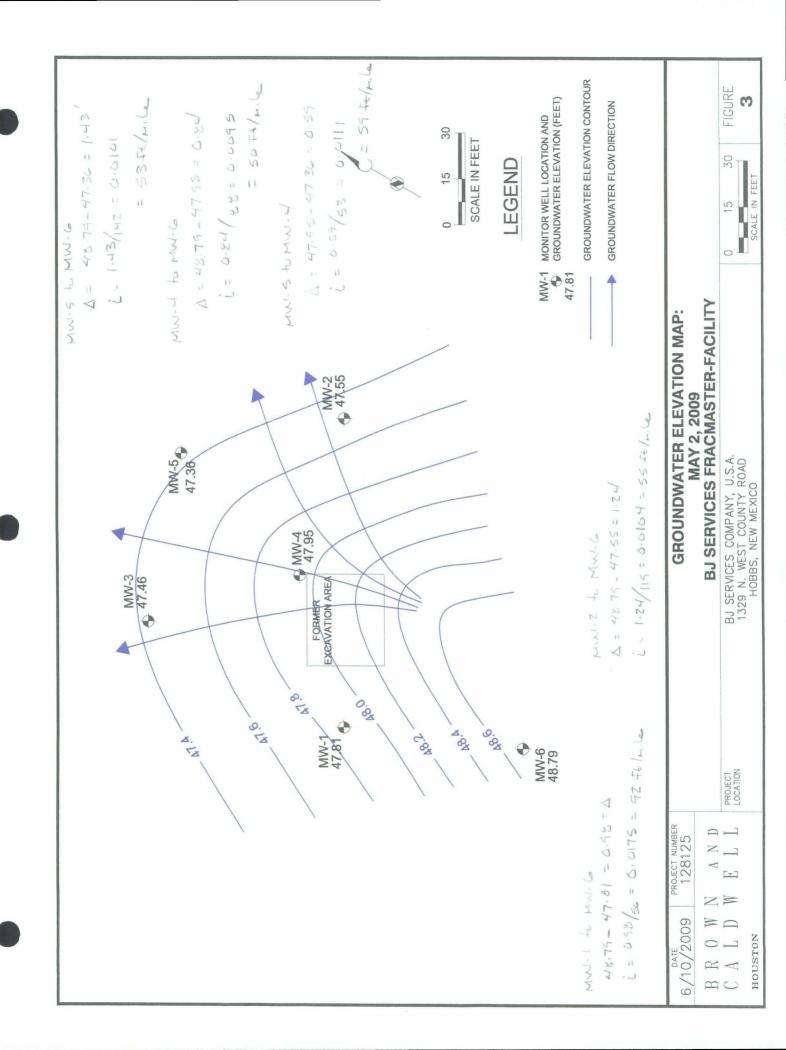
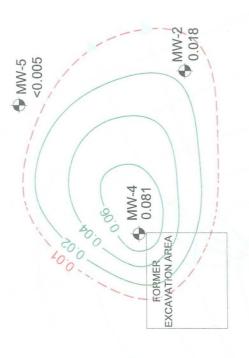


Figure 2
SITE MAP
BJ SERVICES FRACMASTER
BJ SERVICES COMPANY, U.S.A.
1329 N. WEST COUNTY ROAD
HOBBS, NEW MEXICO 1329 N. West County RD. Gravel lot Warehouse Office MONITOR WELL LOCATIONS PROPERTY BOUNDARY FENCE LINE SITE PLAN LEGEND 0 0 25 50 SCALE IN FEET Concrete Ramp Concrete Catch Basin BROWN AND CALDWELL (West Property Boundary not defined) nut 2, 2009 - 10:49am P.RJ Services Co USA/128125 - BJ FracMaster Hobbs/Drawings/ES/May209/Fig2-SiteMap.dwg







MW-1 4

30 SCALE IN FEET 15

LEGEND

MW-6 <0.005

MW-2 MONITOR WELL LOCATION AND BENZENE CONCENTRATION (mg/L) 0.018

BENZENE ISOCONCENTRATION CONTOUR GROUNDWATER FLOW DIRECTION NMWQCC STANDARD 0.010 mg/L **GROUNDWATER ELEVATIONS**

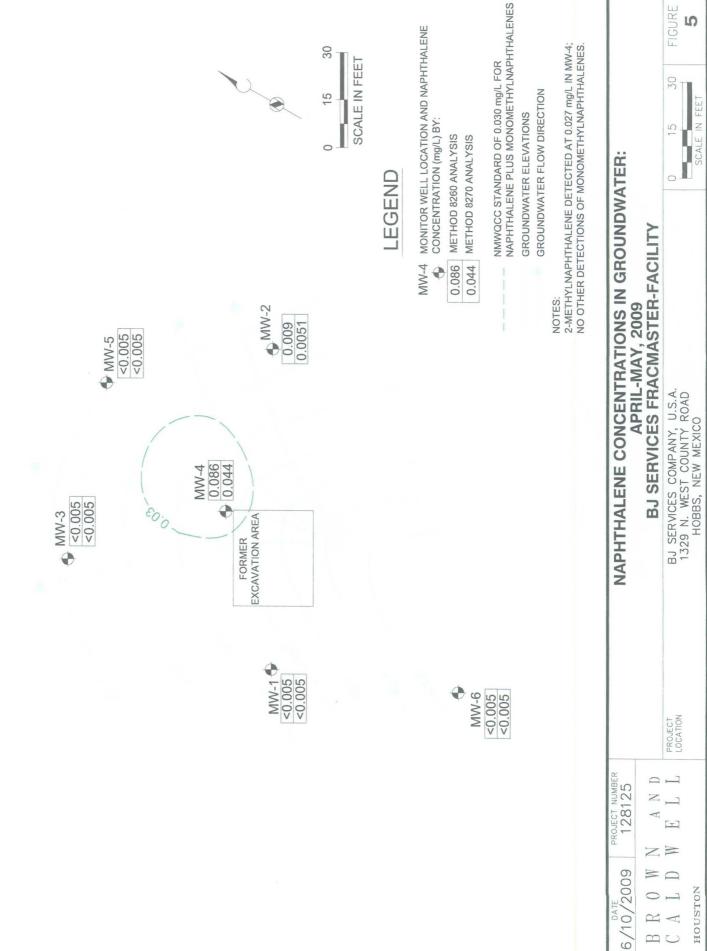
BENZENE CONCENTRATIONS IN GROUNDWATER:
APRIL-MAY, 2009
BJ SERVICES FRACMASTER-FACILITY

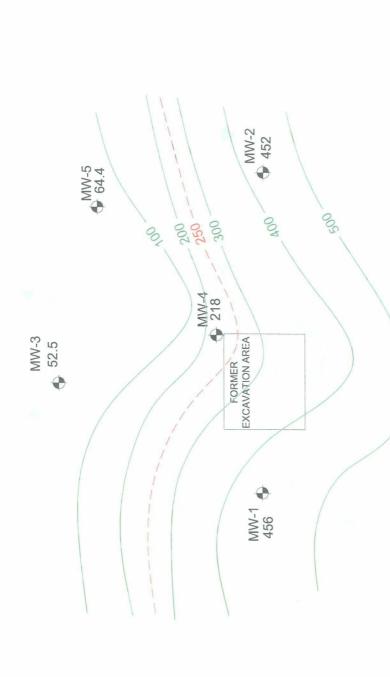
	PROJECT
PROJECT NUMBER 128125	N A N D W E L L
6/10/2009	B R O W C A L D

HOUSTON

U.S.A.	ROAD	
COMPANY,	EST COUNTY	NFW MFXICO
SERVICES	329 N. WES	HORRS
B	-	

Layout: Layout2





30 SCALE IN FEET 15

LEGEND

MONITOR WELL LOCATION AND CHLORIDE CONCENTRATION (mg/L) 456 MW-1

009

MW-6 624

CHLORIDE ISOCONCENTRATION CONTOUR NAWQCC STANDARD 250 mg/L

GROUNDWATER ELEVATIONS GROUNDWATER FLOW DIRECTION

	PROJECT	
PROJECT NUMBER 128125	N A N D PF	
6/26/2009	B R O W C A L D	HOUSTON

TER:		0		
CHLORIDE CONCENTRATIONS IN GROUNDWATER: APRIL-MAY, 2009	BJ SERVICES FRACIMAS I ER-FACILITY	BJ SERVICES COMPANY, U.S.A.	1329 N. WEST COUNTY ROAD	HOBBS, NEW MEXICO



TABLES

Table 1
Groundwater Elevation Data
BJ Services FracMaster Facility
Hobbs, New Mexico

Well Number	Date	Top-of-Casing Elevation (ft) ⁽¹⁾	Depth to Groundwater (ft)	Groundwater Elevation (ft) ⁽¹⁾	Depth to Product	Product Thickness
MW-1	5/2/09	103.21	55.40	47.81	-	-
MW-2	5/2/09	102.05	54.50	47.55	-	-
MW-3	5/2/09	102.41	54.95	47.46	-	-
MW-4	5/2/09	102.21	54.26	47.95	-	-
MW-5	5/2/09	102.41	55.05	47.36	-	-
MW-6	5/2/09	102.48	53.69	48.79	-	-

^{(1) -} Relative to an arbitrary site datum of 100.00 feet

Table 2
Groundwater Geochemical Data
BJ Services FracMaster Facility
Hobbs, New Mexico

Well	Sample	Hd	Specific	Oxidation-	Dissolved Oxygen (mg/L)	ygen (mg/L)	Ferrous	Nitrate	Sulfate	Methane	Alkalinity
Number	Date	(std. units)	(µs/cm)	Potential (mv)	YSI Meter	Hach Test	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	4/7/09	7.15	2.059	-4.7	4.73	1.4	2.2	4	128	0.0014	198
MW-2	4/7/09	69.9	2.057	-72.1	3.78	0.8	2.2	0.564	5.25	0.23	585
MW-3	4/8/09	7.80	0.547	14.0	1.92	9.0	0	<0.5	83.6	<0.0012	174
MW-4	5/2/09	6.72	1.938	-128	0.54	0.4	0.0	0.553	46.4	<0.0012	477
MW-5	4/9/09	8.04	0.583	-56.9	3.46	. 0	NM ⁽¹⁾	<0.5	89	0.0039	195
MW-6	5/1/09	6.77	2.330	72	8.79	9.2	0.0	<0.5	91.9	<0.0012	192

(1) - NM = Not Measured

Table 3 Analytical Results⁽¹⁾ for Soil Samples April-May 2009 Sampling Event BJ Services FracMaster Facility Hobbs, New Mexico

	Samp	le ID / Sample D	lepth (ft. below o	ırade)
Parameter	MW4-52-55	MW-5-50-51	MW-5-54-55	MW-6-54-55
	52-55	50-51	54-55	54-55
VOCs	ND ⁽²⁾	ND	NA	ND
SVOCs	ND	NA ⁽³⁾	ND	ND
TPH-D_	6.3	NA	36	12
TPH-G	<0.1	<0.1	NA	<0.1
TPH-M	<10	NA	<10	<10
Alkalinity ⁽⁴⁾	NA	NA	NA	190
Chloride	NA	NA	NA	61.1
Fluoride	NA	NA	NA	<5
Nitrate	NA	NA	NA	<5
Nitrite	NA	NA	NA	<5
Sulfate_	NA	NA	NA	20.2
Arsenic	NA	NA	NA	1.2
Barium_	NA	NA	NA	85.7
Cadmium	NA	NA	NA	<0.5
Calcium	NA	NA	NA	39600
Chromium	NA	NA	NA	4.03
Lead	NA	NA	NA	1.51
Magnesium	NA	NA	NA	1520
Mercury	NA	NA	NA	< 0.03
Selenium	NA	NA	NA	<0.5
Silver	NA	NA	NA	<0.5
Sodium	NA	NA	NA	125

^{(1) -} in milligrams per kilogram (mg/kg).

^{(2) -} ND indicates none detected.

^{(3) -} NA indicates not analyzed.

^{(4) -} Bicarbonate alkalinity.

Table 4 Analytical Results⁽¹⁾ for Detected Constituents in Groundwater Samples April-May 2009 Sampling Event **BJ Services FracMaster Facility Hobbs, New Mexico**

	NMWQCC		Мо	nitor Well /	Sample Da	ate	
Analytes	Standard	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	(mg/L)	4/7/09	4/7/09	4/8/09	5/2/09	4/9/09	5/1/09
VOCs							
1,2,4-Trimethylbenzene	NL ⁽²⁾	<0.005	0.063	<0.005	0.440	<0.005	<0.005
1,3,5-Trimethylbenzene	NL	<0.005	<0.005	<0.005	0.019	<0.005	<0.005
4-Isopropyltoluene	NL	<0.005	<0.005	<0.005	0.0096	<0.005	<0.005
Benzene	0.01	<0.005	0.018	<0.005	0.081	<0.005	<0.005
Ethylbenzene	0.75	<0.005	0.024	<0.005	0.530	<0.005	<0.005
Isopropylbenzene	NL	<0.005	<0.005	<0.005	0.041	<0.005	<0.005
Naphthalene	0.03 ⁽³⁾	<0.005	0.009	<0.005	0.086	<0.005	<0.005
n-Butylbenzene	NL	<0.005	<0.005	<0.005	0.028	<0.005	<0.005
n-Propylbenzene	NL	<0.005	<0.005	<0.005	0.045	<0.005	<0.005
sec-Butylbenzene	NL	<0.005	<0.005	<0.005	0.018	<0.005	< 0.005
m,p-Xylene	NL	<0.005	0.110	<0.005	0.730	<0.005	<0.005
o-Xylene	NL	<0.005	0.026	<0.005	0.220	<0.005	<0.005
Xylenes, Total	0.62	<0.005	0.136	<0.005	0.950	<0.005	<0.005
SVOCs							
Di-n-butyl phthalate	NL	<0.005	<0.005	<0.005	0.0083	<0.005	0.011
2-Methylnaphthalene	0.03 ⁽³⁾	<0.005	<0.005	< 0.005	0.027	<0.005	<0.005
Naphthalene	0.03 ⁽³⁾	<0.005	0.0051	<0.005	0.044	<0.005	<0.005
TPH-G	NL	<0.1	0.64	<0.1	4.7	<0.1	<0.1
TPH-D	NL	<0.1	2.3	<0.1	2.4	0.14	0.21
TPH-M	NL	<0.1	<0.1	<0.1	2.1	<0.1	<0.1
Chloride	250	456	452	52.5	218	64.4	624

^{(1) -} in milligrams per liter (mg/L) (2) - NL = Not Listed

^{(3) -} Total naphthalene plus monomethylnaphthalenes

Table 5
Current and Historic Analytical Results⁽¹⁾ for Detected Constituents in Groundwater Samples
BJ Services FracMaster Facility
Hobbs, New Mexico

<u> </u>	NMWQCC		Sample D	ate			
Analytes	Standard	MV	V-1	MV	V-2	MV	V-3
	(mg/L)	2/23/06	4/7/09	2/23/06	4/7/09	2/23/06	4/8/09
VOCs							
1,2,4-Trimethylbenzene	NL ⁽²⁾	<0.005	<0.005	0.019	0.063	<0.005	<0.005
Benzene	0.01	<0.005	< 0.005	<0.005	0.018	<0.005	<0.005
Ethylbenzene	0.75	<0.005	<0.005	<0.005	0.024	<0.005	<0.005
Naphthalene	0.03 ⁽³⁾	<0.005	<0.005	0.006	0.009	<0.005	<0.005
m,p-Xylene	NL	<0.005	<0.005	0.056	0.110	<0.005	<0.005
o-Xylene	NL	<0.005	<0.005	<0.005	0.026	<0.005	<0.005
Xylenes, Total	0.62	< 0.005	<0.005	0.056	0.136	<0.005	< 0.005
SVOCs	_						
Naphthalene	0.03 ⁽³⁾	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005
TPH-G	NL	<0.1	<0.1	0.19	0.64	<0.1	<0.1
TPH-D	NL	<1.0	<0.1	<1.0	2.3	<1.0	<0.1
TPH-M	NL	NM ⁽⁴⁾	<0.1	NM	<0.1	NM	<0.1
Chloride	250	1070	456	512	452	66.6	52.5

^{(1) -} in milligrams per liter (mg/L)



^{(2) -} NL = Not Listed

^{(3) -} Total naphthalene plus monomethylnaphthalenes

^{(4) -} NM = Not Measured

APPENDICES

APPENDIX A

Boring Logs and Monitor Well Construction Diagrams: Monitor Wells MW-4, MW-5, and MW-6



28

Monitoring Well:

MW-4

BJ Services Company, U.S.A. - Fracmaster Facility Sheet <u>1</u> of <u>2</u> 128125 Project Number: Project Name: Project Location: Hobbs, NM Logged By: R. Banda Checked By: R. Rexroad Drilling Contractor: TSS Date Started: 5/1/09 Date Finished: 5/1/09 Total Boring Depth to Static Water: (feet) B-59 Driller: C. Perryman Depth: (feet) 61.0 Drilling Equipment: Borehole Diameter: 8" Drilling Method: **Hollow Stem Auger** TOC Elevation: Ground Elevation: 102.21 Diameter and Type of Well Casing: 2 Schedule 40 PVC Sampling Method: Split Spoon Comments: Slot Size: 0.010 Filter Material: 20/40 Development Method: Submersible Pump Readings Sampled Interval Depth to Water USC Soil Type Recovery (feet) Monitoring Well Depth (feet) Lithology Description Sample ID Remarks Gravel, Sand, Silt, etc. 3X3 Above-grade completion. SP SAND (SP); Tan; dry; 1/4" gravels Pinkish tan; very fine to medium grained, <1/4" lithified HOUSTON 4 128125_CH FOR CROSS SECTIONS.GPJ CHRIS10.GDT 6/11/09 sandstone nodules, few gravel 16 18-20-Pinkish brown; moist Bentonite Seal 22 24 26



MW-4

Project Name: BJ Services Company, U.S.A. - Fracmaster Facility Project Number: 128125 Sheet 2 of 2

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID	Monitoring Well Remarks
32 — 34 — 36 — 38 — 40 — 44 — 44 — 46 — 48 — 48 — 48 — 48 — 48		SW		SAND (SW); Pinkish brown; moist; very fine grained sand					2" Diameter Schedule 40 PVC Riser.
HOUSTON 4 128125 CH FOR CROSS SECTIONS GPJ CHRIS10 GDT 6/11/09				Moist to wet, hydrocarbon odor.					0.01 slotted PVC screen 2" Diameter Schedule 40 PVC Bottom Cap.



MW-5

BJ Services Company, U.S.A. - Fracmaster Facility 128125 Sheet <u>1</u> of <u>2</u> Project Number: Project Name: Project Location: Hobbs, NM Logged By: R. Rexroad Checked By:L. Teague **Geoprojects International** Date Started: 4/7/09 Date Finished: 4/7/09 Drilling Contractor: Total Boring Depth to Static B-59 C. Perryman 61.0 Drilling Equipment: Driller: Depth: (feet) Water: (feet) **Hollow Stem Auger** Borehole Diameter: 102.41 Drilling Method: TOC Elevation: Ground Elevation: Diameter and Type of Well Casing: 2 Schedule 40 Sampling Method: Split Spoon Comments: Slot Size: 0.010 Filter Material: 20/40 Development Method: Submersible Pump Sampled Interval Readings Recovery (feet) Depth to Water USC Soil Type Monitoring Well Depth (feet) Sample ID Lithology Description Remarks PID SM SILTY SAND (SM); Light brown; dry; very fine to fine 3X3 Above-grade completion. grained sand SP SAND (SP); Light tan; very fine to fine grained sand; poorly sorted Sand is mostly quartz with <5% feldspar(pink, fine to HOUSTON 4 128125 CH FOR CROSS SECTIONS.GPJ CHRIS10.GDT 6/11/09 medium grained) 16 20-Pinkish mostly fine to (40%) medium quartz sand; Bentonite Seal scattered (<1%) dark materials; slightly moist; 1-2% feldspars 22-24 26 28 SANDSTONE SAND (SP); very fine to fine grained sand



MW-5

BJ Services Company, U.S.A. - Fracmaster Facility 128125 Sheet 2 of 2 Project Name: Project Number: Sampled Interval Readings Depth to Water Recovery (feet) USC Soil Type Monitoring Well Depth (feet) Sample ID Description Remarks Lithology 2" Diameter Schedule 40 PVC SANDSTONE; Light gray; well cemented. 32-SAND (SP); Light pinkish brown; dry to moist; sorted very fine grained to moderately coarse sand (80% fine grained with ~5% dark minerals; fine grained 36sand is subrounded. 38-40-Decreased grain size to very fine grained; very well sorted; moist. 43.0 45.0 46 50-20/40 Silica filter pack Moist to wet at 50' bgs. 128125_CH FOR CROSS SECTIONS.GPJ CHRIS10.GDT 6/11/09 0.01 slotted PVC screen 58-60.0 60 2" Diameter Schedule 40 PVC 61.0 Bottom Cap.

В	R.	0	W	N	A N D	
C	Á	Ļ	D	W	ELL	

MW-6

BJ Services Company, U.S.A. - Fracmaster Facility 128125 Sheet <u>1</u> of <u>2</u> Project Number: Project Name: Hobbs, NM Logged By: R. Banda Checked By: R.Rexroad Project Location: Drilling Contractor: TSS Date Started: 4/30/09 Date Finished: 4/30/09 Total Boring Depth to Static 65.0 55.00 B-59 Driller: C. Perryman Drilling Equipment: Depth: (feet) Water: (feet) **Hollow Stem Auger** Borehole Diameter: Ground Elevation: 102.48 Drilling Method: TOC Elevation: Diameter and Type of Well Casing: 2 Schedule 40 Corebarrel Sampling Method: Comments: Filter Material: 20/40 Slot Size: 0.010 Development Method: Submersible Pump Readings Sampled Interval Depth to Water Recovery (feet) USC Soil Type Monitoring Well Depth (feet) Description Sample ID Remarks SILTY SAND; Gray; dry SM 3X3 Above-grade completion. Tan; dry; Limestone, very dense, strong reaction to acid test. 10 Pinkish white; Med. density; dry; Caliche, 1/4" gravels 12 SP SAND (SP); Pinkish tan; dry to moist; .25-.5" gravels(sandstone), fine to medium grained sand HOUSTON 4 128125 CH FOR CROSS SECTIONS.GPJ CHRIS10.GDT 6/11/09 20 Bentonite Seal 26 28

B.	R	0	W.	N	A N	D :
C	A	Ŀ	D	W	E . L	ŗ.

MW-6

Project Number: 128125 BJ Services Company, U.S.A. - Fracmaster Facility Project Name: Sheet _2 of _2 Readings Sampled Interval Recovery (feet) Depth to Water USC Soil Type Monitoring Well Remarks Depth (feet) Sample ID Description Lithology PID 2" Diameter Schedule 40 PVC Riser. 43.0 45.0 Little gravel at 47' bgs. 48-50-1/4" to 1/2" gravels. 20/40 Silica filter pack 52-54-HOUSTON 4 128125 CH FOR CROSS SECTIONS GPJ CHRIS10.GDT 6/11/09 Wet at 55' bgs. 0.01 slotted PVC screen 56 60.0 2" Diameter Schedule 40 PVC 61.0 Bottom Cap. 62-65.0

APPENDIX B

Laboratory Analytical Reports



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09040281

Report To:	Project Name: Fracmaster BJ Service,#128125
Brown & Caldwell	Site: Hobbs NM
Rick Rexroad	Site Address:
1415 Louisiana	
Suite 2500	BO Number:
Houston	PO Number:
TX	State: New Mexico
77002-	State Cert. No.:
ph: (713) 759-0999 fax:	Date Reported: 4/23/2009

This Report Contains A Total Of 45 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number:

09040281

Report To: Fracmaster BJ Service,#128125 Project Name: Site: Hobbs NM **Brown & Caldwell** Rick Rexroad Site Address: 1415 Louisiana **Suite 2500** PO Number: Houston **New Mexico** State: ΤX 77002-State Cert. No.: ph: (713) 759-0999 fax: 4/23/2009 **Date Reported:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID: 89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Your sample ID "FB-4-7-09" (SPL ID:09040281-03) was randomly selected for use in SPL's quality control program for the Volatile Organics analysis by SW846 Method 8260B (Batch ID:270264). The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were outside of the advisable quality control limits due to possible matrix interference for the following analytes:

2-Chloroethyl vinyl ether n-Butylbenzene

A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits,

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

Agnes V. Vickeaire

09040281 Page 1

4/23/2009

Agnes V. Vicknair

Date



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09040281

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Agnes V-Victure

09040281 Page 2 4/23/2009

Agnes V. Vicknair



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040281

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad

1415 Louisiana **Suite 2500**

Houston

ΤX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Project Name:

Fracmaster BJ Service,#128125

Site:

Hobbs NM

Site Address:

PO Number: State:

New Mexico

State Cert. No.:

Date Reported:

4/23/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW5-50-51	09040281-01	Soil	4/7/2009 11:26:00 AM	4/9/2009 10:00:00 AM	322328	
MW-2	09040281-02	Water	4/7/2009 11:44:00 AM	4/9/2009 10:00:00 AM	322329	
FB-4-7-09	09040281-03	Water	4/7/2009 12:43:00 PM	4/9/2009 10:00:00 AM	322329	
TB-4-7-09	09040281-04	Water	4/7/2009 12:46:00 PM	4/9/2009 10:00:00 AM	322329	

Ignes V. Vickeaire

4/23/2009

Date

Kesavalu M. Bagawandoss Laboratory Director

> Ted Yen Quality Assurance Officer

Agnes V. Vicknair

Project Manager



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW5-50-51 Collected: 04/07/2009 11:26 SPL Sample ID: 09040281-01

Site: Hobbs NM

Analyses/Method	Result	QUAL	Re	p.Limit	Di	l. Facto	r Date Anal	yzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS					MCL	S	W8015B	Ur	nits: mg/Kg	
Gasoline Range Organics	ND			0.1		1	04/14/09	5:51	EMB	4985034
Surr: 1,4-Difluorobenzene	95.8		%	63-142		1	04/14/09	5:51	EMB	4985034
Surr: 4-Bromofluorobenzene	98.0		%	50-159		1	04/14/09	5:51	EMB	4985034

Prep Method	Prep Date	Prep Initials	
SW5030B	04/13/2009 11:53	XML	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW5-50-51

Collected: 04/07/2009 11:26

SPL Sample ID:

09040281-01

Site:	Hobbs	. AIRA
Site.	ทบมมร	IVIV

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B		MCL SV	V8260B Ur	nits: ug/kg	
1,1,1,2-Tetrachloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,1,1-Trichloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,1,2,2-Tetrachloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,1,2-Trichloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,1-Dichloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,1-Dichloroethene	ND	5	1	04/13/09 18:26	E_G	4983601
1,1-Dichloropropene	ND	5	1	04/13/09 18:26	E_G	4983601
1,2,3-Trichlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,2,3-Trichloropropane	ND	5	1	04/13/09 18:26	E_G	4983601
1,2,4-Trichlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,2,4-Trimethylbenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,2-Dibromo-3-chloropropane	ND	5	1	04/13/09 18:26	E_G	4983601
1,2-Dibromoethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,2-Dichlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,2-Dichloroethane	ND	5	1	04/13/09 18:26	E_G	4983601
1,2-Dichloropropane	ND	5	1	04/13/09 18:26	E_G	4983601
1,3,5-Trimethylbenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,3-Dichlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
1,3-Dichloropropane	ND	5	1	04/13/09 18:26	E_G	4983601
1,4-Dichlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
2,2-Dichloropropane	ND	5	1	04/13/09 18:26	E_G	4983601
2-Butanone	ND	20	1	04/13/09 18:26	E_G	4983601
2-Chloroethyl vinyl ether	ND	10	1	04/13/09 18:26	E_G	4983601
2-Chlorotoluene	ND	5	1	04/13/09 18:26	E_G	4983601
2-Hexanone	ND	10	1	04/13/09 18:26	E_G	4983601
4-Chlorotoluene	ND	5	1	04/13/09 18:26	E_G	4983601
4-Isopropyltoluene	ND	5	1	04/13/09 18:26	E_G	4983601
4-Methyl-2-pentanone	ND	10	1	04/13/09 18:26	E_G	4983601
Acetone	ND	100	1	04/13/09 18:26	E_G	4983601
Acrylonitrile	ND	50	1	04/13/09 18:26	E_G	4983601
Benzene	ND	5	1	04/13/09 18:26	E_G	4983601
Bromobenzene	ND	5	1	04/13/09 18:26	E_G	4983601
Bromochloromethane	ND	5	1	04/13/09 18:26	E_G	4983601
Bromodichloromethane	ND	5	1	04/13/09 18:26	E_G	4983601
Bromoform	ND	5	1	04/13/09 18:26	E_G	4983601
Bromomethane	ND	. 10	1	04/13/09 18:26	E_G	4983601
Carbon disulfide	ND	5	1	04/13/09 18:26	E_G	4983601
Carbon tetrachloride	ND	5	1	04/13/09 18:26	E_G	4983601
Chlorobenzene	ND	5	1	04/13/09 18:26	E_G	4983601

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW5-50-51

Collected: 04/07/2009 11:26

SPL Sample ID:

09040281-01

			Site	: Н	obbs NM				
Analyses/Method	Result	QUAL	Re	p.Limi	t	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10)	1	04/13/09 18:26	E_G	4983601
Chloroform	ND				;	1	04/13/09 18:26	E_G	4983601
Chloromethane	ND			10)	1	04/13/09 18:26	E_G	4983601
Dibromochloromethane	ND			5	5	1	04/13/09 18:26	E_G	4983601
Dibromomethane	ND				5	1	04/13/09 18:26	E_G	4983601
Dichlorodifluoromethane	ND			10)	1	04/13/09 18:26	E_G	4983601
Ethylbenzene	ND				5	1	04/13/09 18:26	E_G	4983601
Hexachlorobutadiene	ND			į	5	1	04/13/09 18:26	E_G	4983601
Isopropylbenzene	ND				5	1	04/13/09 18:26	E_G	4983601
Methyl tert-butyl ether	ND				5	1	04/13/09 18:26	E_G	4983601
Methylene chloride	ND				5	1	04/13/09 18:26	E_G	4983601
Naphthalene	ND			į	5	1	04/13/09 18:26	E_G	4983601
n-Butylbenzene	ND			ţ	5	1	04/13/09 18:26	E_G	4983601
n-Propylbenzene	ND				5	1	04/13/09 18:26	E_G	4983601
sec-Butylbenzene	ND				5	1	04/13/09 18:26	E_G	4983601
Styrene	ND				5	1	04/13/09 18:26	E_G	4983601
tert-Butylbenzene	ND				5	1	04/13/09 18:26	E_G	4983601
Tetrachloroethene	ND			,	5	1	04/13/09 18:26	E_G	4983601
Toluene	ND				5	1	04/13/09 18:26	E_G	4983601
Trichloroethene	ND				5	1	04/13/09 18:26	E_G	4983601
Trichlorofluoromethane	ND				5	1	04/13/09 18:26	E_G	4983601
Vinyl acetate	ND			10)	1	04/13/09 18:26	E_G	4983601
Vinyl chloride	ND			10)	1	04/13/09 18:26	E_G	4983601
cis-1,2-Dichloroethene	ND				5	1	04/13/09 18:26	E_G	4983601
cis-1,3-Dichloropropene	ND			ļ	5	1	04/13/09 18:26	E_G	4983601
m,p-Xylene	ND				5	1	04/13/09 18:26	E_G	4983601
o-Xylene	ND				5	1	04/13/09 18:26	E_G	4983601
trans-1,2-Dichloroethene	ND			;	5	1	04/13/09 18:26	E_G	4983601
trans-1,3-Dichloropropene	ND				5	1	04/13/09 18:26	E_G	4983601
Xylenes,Total	ND				5	1	04/13/09 18:26	E_G	4983601
1,2-Dichloroethene (total)	ND				5	1	04/13/09 18:26	E_G	4983601
Surr: 1,2-Dichloroethane-d4	98.0		%	64-11	5	1	04/13/09 18:26	E_G	4983601
Surr: 4-Bromofluorobenzene	100		%	65-13	1	1	04/13/09 18:26	E_G	4983601
Surr: Toluene-d8	. 104		%	75-13	3	1	04/13/09 18:26	E_G	4983601

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5030B	04/13/2009 11:56	E_G	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-2 Collected: 04/07/2009 11:44 SPL Sample ID: 09040281-02

Site: Hobbs NM QUAL Analyses/Method Result Rep.Limit Dil. Factor Date Analyzed Analyst Seq. # ALKALINITY (AS CACO3), TOTAL MCL E310.1 Units: mg/L Alkalinity, Total (As CaCO3) 585 2 04/13/09 11:20 PAC 4982663 **GASOLINE RANGE ORGANICS** MCL SW8015B Units: mg/L 0.64 Gasoline Range Organics 0.5 04/13/09 17:18 CLJ 4984673 Surr: 1,4-Difluorobenzene 93.1 % 60-155 5 04/13/09 17:18 CLJ 4984673 Surr: 4-Bromofluorobenzene 106 % 50-158 04/13/09 17:18 CLJ 5 4984673 **HEADSPACE GAS ANALYSIS** MCL **RSK147** Units: mg/L 0.0024 0.23 2 04/20/09 15:19 V_L 4990878 E300.0 ION CHROMATOGRAPHY MCL Units: mg/L 4985117 Chloride 452 25 50 04/14/09 22:35 BDG Sulfate 5.25 0.5 04/09/09 11:26 BDG 4984922 1 04/09/09 11:26 BDG 4984859 Nitrogen, Nitrate (As N) 0.564 0.5 1

SEMIVOLATILE HYDROCARBOI	NS		MCL	S	W8015B	Units: mg/L	
Diesel Range Organics	2.3	0.1		1	04/17/09 0	:20 NW	4987514
Mineral Spirits Range Organics	ND	0.1		1	04/17/09 0	:20 NW	4987514
Surr: n-Pentacosane	40.2	% 20-150		1	04/17/09 0	:20 NW	4987514

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-2

Collected: 04/07/2009 11:44

SPL Sample ID:

09040281-02

Site:	HA	bbs	NIM
one.	по	DDS	IN IV

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Un	its: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/22/09 12:55	GY	4992753
1,2-Dichlorobenzene	ND	5	1	04/22/09 12:55	GY	4992753
1,2-Diphenylhydrazine	ND	10	1	04/22/09 12:55	GY	4992753
1,3-Dichlorobenzene	ND	5	1	04/22/09 12:55	GY	4992753
1,4-Dichlorobenzene	ND	5	1	04/22/09 12:55	GY	4992750
2,4,5-Trichlorophenol	ND	10	1	04/22/09 12:55	GY	4992753
2,4,6-Trichlorophenol	ND	5	1	04/22/09 12:55	GY	4992753
2,4-Dichlorophenol	ND	5	1	04/22/09 12:55	GY	4992750
2,4-Dimethylphenol	ND	5	1	04/22/09 12:55	GY	4992753
2,4-Dinitrophenol	ND	25	1	04/22/09 12:55	GY	4992753
2,4-Dinitrotoluene	ND	5	1	04/22/09 12:55	GY	4992753
2,6-Dinitrotoluene	ND	5	1	04/22/09 12:55	GY	4992753
2-Chloronaphthalene	ND	5	1	04/22/09 12:55	GY	4992753
2-Chlorophenol	ND	5	1	04/22/09 12:55	GY	4992753
2-Methylnaphthalene	ND	5	1	04/22/09 12:55	GY	4992753
2-Nitroaniline	ND	25	1	04/22/09 12:55	GY	4992753
2-Nitrophenol	ND	5	1	04/22/09 12:55	GY	4992750
3,3'-Dichlorobenzidine	ND	10	1	04/22/09 12:55	GY	4992753
3-Nitroaniline	ND	25	1	04/22/09 12:55	GY	4992753
4,6-Dinitro-2-methylphenol	ND	25	1	04/22/09 12:55	GY	499275
4-Bromophenyl phenyl ether	ND	5	1	04/22/09 12:55	GY	499275
4-Chloro-3-methylphenol	ND	5	1	04/22/09 12:55	GY	499275
4-Chloroaniline	ND	5	1	04/22/09 12:55	GY	499275
4-Chlorophenyl phenyl ether	ND	5	1	04/22/09 12:55	GY	499275
4-Nitroaniline	ND	25	1	04/22/09 12:55	GY	499275
4-Nitrophenol	ND	25	1	04/22/09 12:55	GY	4992753
Acenaphthene	ND	5	1	04/22/09 12:55	GY	499275
Acenaphthylene	ND	5	1	04/22/09 12:55	GY	499275
Aniline	ND	5	1	04/22/09 12:55	GY	499275
Anthracene	ND	5	1	04/22/09 12:55	GY	499275
Benz(a)anthracene	ND	5	1	04/22/09 12:55	GY	499275
Benzo(a)pyrene	ND	5	1	04/22/09 12:55	GY	499275
Benzo(b)fluoranthene	ND	5	1	04/22/09 12:55	GY	499275
Benzo(g,h,i)perylene	ND	5	1	04/22/09 12:55	GY	499275
Benzo(k)fluoranthene	ND	5	1	04/22/09 12:55	GY	499275
Benzoic acid	ND	25	1	04/22/09 12:55	GY	499275
Benzyl alcohol	ND	5	1	04/22/09 12:55	GY	499275
Bis(2-chloroethoxy)methane	ND	5	1	04/22/09 12:55	GY	499275
Bis(2-chloroethyl)ether	МD	5	1	04/22/09 12:55	GY	499275

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-2 Collected: 04/07/2009 11:44 SI

SPL Sample ID: 09

09040281-02

Site:	Hobbs	NM

Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Bis(2-chloroisopropyl)ether	ND			5	1	04/22/09 12:55	GY	4992753
Bis(2-ethylhexyl)phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Butyl benzyl phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Carbazole	ND	•		5	1	04/22/09 12:55	GY	4992753
Chrysene	ND			5	1	04/22/09 12:55	GY	4992753
Dibenz(a,h)anthracene	ND			5	1	04/22/09 12:55	GY	4992753
Dibenzofuran	ND			5	1	04/22/09 12:55	GY	4992753
Diethyl phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Dimethyl phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Di-n-butyl phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Di-n-octyl phthalate	ND			5	1	04/22/09 12:55	GY	4992753
Fluoranthene	ND			5	1	04/22/09 12:55	GY	4992753
Fluorene	ND			5	1	04/22/09 12:55	GY	4992753
Hexachlorobenzene	ND			5	1	04/22/09 12:55	GY	4992753
Hexachlorobutadiene	ND			5	1	04/22/09 12:55	GY	4992753
Hexachlorocyclopentadiene	ND			5	1	04/22/09 12:55	GY	4992753
Hexachloroethane	ND			5	1	04/22/09 12:55	GY	4992753
Indeno(1,2,3-cd)pyrene	ND			5	1	04/22/09 12:55	GY	4992753
Isophorone	ND	·-		5	1	04/22/09 12:55	GY	4992753
Naphthalene	5.1			5	1	04/22/09 12:55	GY	4992753
Nitrobenzene	ND			5	1	04/22/09 12:55	GY	499275
N-Nitrosodi-n-propylamine	ND			5	1	04/22/09 12:55	GY	4992753
N-Nitrosodiphenylamine	ND			5	1	04/22/09 12:55	GY	4992753
Pentachlorophenol	ND			25	1	04/22/09 12:55	GY	4992753
Phenanthrene	ND			5	1	04/22/09 12:55	GY	499275
Phenol	ND			5	1	04/22/09 12:55	GY	499275
Pyrene	ND			5	1	04/22/09 12:55	GY	499275
Pyridine	ND			5	1	04/22/09 12:55	GY	499275
2-Methylphenol	ND			5	1	04/22/09 12:55	GY	499275
3 & 4-Methylphenol	ND	-		5	1	04/22/09 12:55	GY	499275
Surr: 2,4,6-Tribromophenol	106		%	10-123	1	04/22/09 12:55	GY	499275
Surr: 2-Fluorobiphenyl	77.4		%	23-116	1	04/22/09 12:55	GY	499275
Surr: 2-Fluorophenol	81.6		%	16-110	1	04/22/09 12:55	GY	499275
Surr: Nitrobenzene-d5	75.8		%	21-114	1	04/22/09 12:55	GY	499275
Surr: Phenol-d5	63.9		%	10-110	1	04/22/09 12:55	GY	499275
Surr: Terphenyl-d14	62.8	-	%	22-141	1	04/22/09 12:55	GY	499275

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-2

Collected: 04/07/2009 11:44 SPL S

SPL Sample ID:

09040281-02

Site: Hobbs	N	N	ı
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Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyze	d Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B	Jnits: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 20:3	0 JC	4985228
1,1,1-Trichloroethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,1,2-Trichloroethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,1-Dichloroethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,1-Dichloroethene	ND	-	5	1	04/14/09 20:3	30 JC	4985228
1,1-Dichloropropene	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2,3-Trichloropropane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2,4-Trimethylbenzene	63		5	1	04/14/09 20:3	30 JC	4985228
1,2-Dibromo-3-chloropropane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2-Dibromoethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2-Dichlorobenzene	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2-Dichloroethane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,2-Dichloropropane	ND		5	1	04/14/09 20:3	30 JC	4985228
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 20:	30 JC	4985228
1,3-Dichlorobenzene	ND		5	1	04/14/09 20:	30 JC	4985228
1,3-Dichloropropane	ND		5	1	04/14/09 20:	30 JC	4985228
1,4-Dichlorobenzene	ND		5	1	04/14/09 20:	30 JC	4985228
2,2-Dichloropropane	ND		5	1	04/14/09 20:	30 JC	4985228
2-Butanone	ND		20	1	04/14/09 20:	30 JC	498522
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 20:	30 JC	498522
2-Chlorotoluene	ND		5	1	04/14/09 20:	30 JC	498522
2-Hexanone	ND		10	1	04/14/09 20:	30 JC	498522
4-Chlorotoluene	ND		5	1	04/14/09 20:	30 JC	498522
4-Isopropyltoluene	ND		5	1	04/14/09 20:	30 JC	498522
4-Methyl-2-pentanone	ND		10	1	04/14/09 20:	30 JC	498522
Acetone	ND		20	1	04/14/09 20:	30 JC	498522
Acrylonitrile	ND		10	1	04/14/09 20:	30 JC	498522
Benzene	18		5	1	04/14/09 20:	30 JC	498522
Bromobenzene	ND		5	1	04/14/09 20:	30 JC	498522
Bromochloromethane	ND		5	1	04/14/09 20:	30 JC	498522
Bromodichloromethane	ND		5	1	04/14/09 20:	30 JC	498522
Bromoform	ND		5	1	04/14/09 20:	30 JC	498522
Bromomethane	ND		10	1	04/14/09 20:	30 JC	498522
Carbon disulfide	ND		5	1	04/14/09 20:	30 JC	498522
Carbon tetrachloride	ND		5	1	04/14/09 20:	30 JC	498522
Chlorobenzene	ND		5	1	04/14/09 20:	30 JC	498522

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-2 Collected: 04/07/2009 11:44 SPL Sample ID: 09040281-02

			Site	e:	Hobbs NM				
Analyses/Method	Result	QUAL	Re	p.Lin	it	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND				0	1	04/14/09 20:30	JC	4985228
Chloroform	ND				5	1 .	04/14/09 20:30	JC	4985228
Chloromethane	ND			-	0	1	04/14/09 20:30	JC	4985228
Dibromochloromethane	ND				5	1	04/14/09 20:30	JC	4985228
Dibromomethane	ND				5	1	04/14/09 20:30	JC	4985228
Dichlorodifluoromethane	ND	,			0	1	04/14/09 20:30	JC	4985228
Ethylbenzene	24				5	1	04/14/09 20:30	JC	4985228
Hexachlorobutadiene	ND				5	1	04/14/09 20:30	JC	4985228
Isopropylbenzene	ND				5	1	04/14/09 20:30	JC	4985228
Methyl tert-butyl ether	ND				5	1	04/14/09 20:30	JC	4985228
Methylene chloride	ND				5	1	04/14/09 20:30	JC	4985228
Naphthalene	9				5	1	04/14/09 20:30	JC	4985228
n-Butylbenzene	ND				5	1	04/14/09 20:30	JC	4985228
n-Propylbenzene	ND				5	1	04/14/09 20:30	JC	4985228
sec-Butylbenzene	ND				5	1	04/14/09 20:30	JC	4985228
Styrene	ND				5	1	04/14/09 20:30	JC	4985228
tert-Butylbenzene	ND	-			5	1	04/14/09 20:30	JC	4985228
Tetrachloroethene	ND				5	1	04/14/09 20:30	JC	4985228
Toluene	ND				5	1	04/14/09 20:30	JC	4985228
Trichloroethene	ND				5	1	04/14/09 20:30	JC	4985228
Trichlorofluoromethane	ND				5	1	04/14/09 20:30	JC	4985228
Vinyl acetate	ND				10	1	04/14/09 20:30	JC	4985228
Vinyl chloride	ND				2	1	04/14/09 20:30	JC	4985228
cis-1,2-Dichloroethene	ND				5	1	04/14/09 20:30	JC	4985228
cis-1,3-Dichloropropene	ND				5	1	04/14/09 20:30	JC	4985228
m,p-Xylene	110				5	1	04/14/09 20:30	JC	4985228
o-Xylene	26				5	1	04/14/09 20:30	JC	4985228
trans-1,2-Dichloroethene	ND				5	1	04/14/09 20:30	JC	4985228
trans-1,3-Dichloropropene	ND				5	1	04/14/09 20:30	JC	4985228
1,2-Dichloroethene (total)	ND				5	1	04/14/09 20:30	JC	4985228
Xylenes,Total	136				5	1	04/14/09 20:30	JC	4985228
Surr: 1,2-Dichloroethane-d4	98.0		%	65-1	11	1	04/14/09 20:30	JC	4985228
Surr: 4-Bromofluorobenzene	110		%	87-1	20	1	04/14/09 20:30	JC	4985228
Surr: Toluene-d8	96.0		%	88-1	16	1	04/14/09 20:30	JC	4985228

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-7-09

Collected: 04/07/2009 12:43

Hobbs NM

SPL Sample ID:

09040281-03

Analyses/Method	Result QUAL	Rep.Limit	Dil. Facto	r Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MI	ETHOD 8260B		MCL S	W8260B U	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	1	04/14/09 17:19) JC	4985221
1,1,1-Trichloroethane	ND	5	1	04/14/09 17:19) JC	4985221
1,1,2,2-Tetrachloroethane	ND	5	1	04/14/09 17:19) JC	4985221
1,1,2-Trichloroethane	ND	5	1	04/14/09 17:19) JC	4985221
1,1-Dichloroethane	ND	5	1	04/14/09 17:19) JC	4985221
1,1-Dichloroethene	ND	5	1	04/14/09 17:19) JC	4985221
1,1-Dichloropropene	ND .	5	1	04/14/09 17:19) JC	4985221
1,2,3-Trichlorobenzene	ND	5	1	04/14/09 17:19) JC	4985221
4 2 2 Triphlananana	ND			04/44/00 47:4/) (C	4005001

Site:

1,1,1-Trichloroethane	ND	5	1	04/14/09 17:19 JC	4985221
1,1,2,2-Tetrachloroethane	ND	5	1	04/14/09 17:19 JC	4985221
1,1,2-Trichloroethane	ND	5	1	04/14/09 17:19 JC	4985221
1,1-Dichloroethane	ND	5	1	04/14/09 17:19 JC	4985221
1,1-Dichloroethene	ND	5	1	04/14/09 17:19 JC	4985221
1,1-Dichloropropene	ND	. 5	1	04/14/09 17:19 JC	4985221
1,2,3-Trichlorobenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,2,3-Trichloropropane	ND	5	1	04/14/09 17:19 JC	4985221
1,2,4-Trichlorobenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,2,4-Trimethylbenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,2-Dibromo-3-chloropropane	ND	5	1	04/14/09 17:19 JC	4985221
1,2-Dibromoethane	ND	5	1	04/14/09 17:19 JC	4985221
1,2-Dichlorobenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,2-Dichloroethane	ND	5	1	04/14/09 17:19 JC	4985221
1,2-Dichloropropane	ND	5	1	04/14/09 17:19 JC	4985221
1,3,5-Trimethylbenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,3-Dichlorobenzene	ND	5	1	04/14/09 17:19 JC	4985221
1,3-Dichloropropane	ND	5	1	04/14/09 17:19 JC	4985221
1,4-Dichlorobenzene	ND	5	1	04/14/09 17:19 JC	4985221
2,2-Dichloropropane	ND	5	1	04/14/09 17:19 JC	4985221
2-Butanone	ND	20	1	04/14/09 17:19 JC	4985221
2-Chloroethyl vinyl ether	ND J	10	1	04/14/09 17:19 JC	4985221
2-Chlorotoluene	ND	5	1	04/14/09 17:19 JC	4985221
2-Hexanone	ND	10	1	04/14/09 17:19 JC	4985221
4-Chlorotoluene	ND	5	1	04/14/09 17:19 JC	4985221
4-Isopropyltoluene	ND	5	1	04/14/09 17:19 JC	4985221
4-Methyl-2-pentanone	ND	10	1	04/14/09 17:19 JC	4985221
Acetone	ND .	20	1	04/14/09 17:19 JC	4985221
Acrylonitrile	ND	10	1	04/14/09 17:19 JC	4985221
Benzene	ND	5	1	04/14/09 17:19 JC	4985221
Bromobenzene	ND	5	1	04/14/09 17:19 JC	4985221
Bromochloromethane	ND	5	1	04/14/09 17:19 JC	4985221
Bromodichloromethane	ND	5	1	04/14/09 17:19 JC	4985221
Bromoform	ND	5	1	04/14/09 17:19 JC	4985221
Bromomethane	ND	10	1	04/14/09 17:19 JC	4985221
Carbon disulfide	ND	5	1	04/14/09 17:19 JC	4985221
Carbon tetrachloride	ND	5	1	04/14/09 17:19 JC	4985221

Qualifiers:

Chlorobenzene

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

ND

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

04/14/09 17:19 JC

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

4985221



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-7-09

Collected: 04/07/2009 12:43 SPL Sample ID:

09040281-03

			Site	e: 1	MN addol				
Analyses/Method	Result	QUAL	Re	p.Lim	it	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			1	0	1	04/14/09 17:19	JC	4985221
Chloroform	ND				5	1	04/14/09 17:19	JC	4985221
Chloromethane	ND			1	0	1	04/14/09 17:19	JC	4985221
Dibromochloromethane	ND				5	1	04/14/09 17:19	JC	4985221
Dibromomethane	ND				5	1	04/14/09 17:19	JC	4985221
Dichlorodifluoromethane	ND			1	0	1	04/14/09 17:19	JC	4985221
Ethylbenzene	ND				5	1	04/14/09 17:19	JC	4985221
Hexachlorobutadiene	ND				5	1	04/14/09 17:19	JC	4985221
Isopropylbenzene	ND				5	1	04/14/09 17:19	JC	4985221
Methyl tert-butyl ether	ND		·		5	1	04/14/09 17:19	JC	4985221
Methylene chloride	ND				5	1	04/14/09 17:19	JC	4985221
Naphthalene	ND				5	1	04/14/09 17:19	JC	4985221
n-Butylbenzene	ND				5	1	04/14/09 17:19	JC	4985221
n-Propylbenzene	ND			•	5	1	04/14/09 17:19	JC	4985221
sec-Butylbenzene	ND				5	1	04/14/09 17:19	JC	4985221
Styrene	ND				5	1	04/14/09 17:19	JC	4985221
tert-Butylbenzene	ND				5	1	04/14/09 17:19	JC	4985221
Tetrachloroethene	ND				5	1	04/14/09 17:19	JC	4985221
Toluene	ND				5	1	04/14/09 17:19	JC	4985221
Trichloroethene	ND				5	1	04/14/09 17:19	JC	4985221
Trichlorofluoromethane	ND				5	1	04/14/09 17:19	JC	4985221
Vinyl acetate	ND				0	1	04/14/09 17:19	JC	4985221
Vinyl chloride	ND				2	1	04/14/09 17:19	JC	4985221
cis-1,2-Dichloroethene	ND				5	1	04/14/09 17:19	JC	4985221
cis-1,3-Dichloropropene	ND				5	1	04/14/09 17:19	JC	4985221
m,p-Xylene	ND				5	1	04/14/09 17:19	JC	4985221
o-Xylene	ND		_		5	1	04/14/09 17:19	JC	4985221
trans-1,2-Dichloroethene	ND				5	1	04/14/09 17:19	JC	4985221
trans-1,3-Dichloropropene	ND				5	1	04/14/09 17:19	JC	4985221
1,2-Dichloroethene (total)	ND				5	1	04/14/09 17:19	JC	4985221
Xylenes,Total	ND				5	1	04/14/09 17:19	JC	4985221
Surr: 1,2-Dichloroethane-d4	98.0		%	65-1	11	1	04/14/09 17:19	JC	4985221
Surr: 4-Bromofluorobenzene	108		%	87-1	20	1	04/14/09 17:19	JC	4985221
Surr: Toluene-d8	94.0		%	88-1	16	_ 1	04/14/09 17:19	JC	4985221

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:TB-4-7-09

Collected: 04/07/2009 12:46 SPL

SPL Sample ID:

09040281-04

_		
Site:	Hobbs	KIR#
JILE.	nouus	IAIAI

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B		MCL SV	V8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	1	04/14/09 20:02	JC	4985227
1,1,1-Trichloroethane	ND	5	1	04/14/09 20:02	JC	4985227
1,1,2,2-Tetrachloroethane	ND	5	1	04/14/09 20:02	JC	4985227
1,1,2-Trichlorœthane	ND	5	1	04/14/09 20:02	JC	4985227
1,1-Dichloroethane	ND	5	1	04/14/09 20:02	JC	4985227
1,1-Dichloroethene	ND	5	1	04/14/09 20:02	JC	4985227
1,1-Dichloropropene	ND	5	1	04/14/09 20:02	JC	4985227
1,2,3-Trichlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227
1,2,3-Trichloropropane	ND	5	1	04/14/09 20:02	JC	4985227
1,2,4-Trichlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227
1,2,4-Trimethylbenzene	ND	5	1	04/14/09 20:02	JC	4985227
1,2-Dibromo-3-chloropropane	ND	5	1	04/14/09 20:02	JC	4985227
1,2-Dibromoethane	ND	5	1	04/14/09 20:02	JC	4985227
1,2-Dichlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227
1,2-Dichloroethane	ND	5	1	04/14/09 20:02	JC	4985227
1,2-Dichloropropane	ND	5	1	04/14/09 20:02	JC	4985227
1,3,5-Trimethylbenzene	ND	. 5	1	04/14/09 20:02	JC	4985227
1,3-Dichlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227
1,3-Dichloropropane	ND	5	1	04/14/09 20:02	JC	4985227
1,4-Dichlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227
2,2-Dichloropropane	ND	5	1	04/14/09 20:02	JC	4985227
2-Butanone	ND	20	1	04/14/09 20:02	JC	4985227
2-Chloroethyl vinyl ether	ND J	10	1	04/14/09 20:02	JC	4985227
2-Chlorotoluene	ND	5	1	04/14/09 20:02	JC	4985227
2-Hexanone	ND	10	1	04/14/09 20:02	JC	4985227
4-Chlorotoluene	ND	5	1	04/14/09 20:02	JC	4985227
4-Isopropyltoluene	ND	5	1	04/14/09 20:02	JC	498522
4-Methyl-2-pentanone	ND	10	1	04/14/09 20:02	JC	4985227
Acetone	ND	20	1	04/14/09 20:02	JC	4985227
Acrylonitrile	ND	10	1	04/14/09 20:02	JC	498522
Benzene	ND	5	1	04/14/09 20:02	JC	4985227
Bromobenzene	ND	5	. 1	04/14/09 20:02	JC	498522
Bromochloromethane	ND	5	1	04/14/09 20:02	JC	498522
Bromodichloromethane	ND	5	1	04/14/09 20:02	JC	498522
Bromoform	ND	5	1	04/14/09 20:02	JC	498522
Bromomethane	ND	10	1	04/14/09 20:02	JC	498522
Carbon disulfide	ND	5	1	04/14/09 20:02	JC	4985227
Carbon tetrachloride	ND	5	1	04/14/09 20:02	JC	498522
Chlorobenzene	ND	5	1	04/14/09 20:02	JC	4985227

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-4-7-09 Collected: 04/07/2009 12:46 SPL Sample ID: 09040281-04

			Site:	Hobbs	NM			
Analyses/Method	Result	QUAL	Rep.	Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/14/09 20:02	JC	4985227
Chloroform	ND			5	1	04/14/09 20:02	JC	4985227
Chloromethane	ND			10	1	04/14/09 20:02	JC	4985227
Dibromochloromethane	ND			5	1	04/14/09 20:02	JC	4985227
Dibromomethane	ND			5	1	04/14/09 20:02	JC	4985227
Dichlorodifluoromethane	ND		_	10	1	04/14/09 20:02	JC	4985227
Ethylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
Hexachlorobutadiene	ND			5	1	04/14/09 20:02	JC	4985227
Isopropylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
Methyl tert-butyl ether	ND			5	1	04/14/09 20:02	JC	4985227
Methylene chloride	ND			5	1	04/14/09 20:02	JC	4985227
Naphthalene	ND			5	1	04/14/09 20:02	JC	4985227
n-Butylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
n-Propylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
sec-Butylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
Styrene	ND			5	1	04/14/09 20:02	JC	4985227
tert-Butylbenzene	ND			5	1	04/14/09 20:02	JC	4985227
Tetrachloroethene	ND	· · · · · · · · · · · · · · · · · · ·		5	1	04/14/09 20:02	JC	4985227
Toluene	ND			5	1	04/14/09 20:02	JC	4985227
Trichloroethene	ND			5	1	04/14/09 20:02	JC	4985227
Trichlorofluoromethane	ND			5	1	04/14/09 20:02	JC	4985227
Vinyl acetate	ND			10	1	04/14/09 20:02	JC	4985227
Vinyl chloride	ND			2	1	04/14/09 20:02	JC	4985227
cis-1,2-Dichloroethene	ND			5	1	04/14/09 20:02	JC	4985227
cis-1,3-Dichloropropene	ND			5	1	04/14/09 20:02	JC	4985227
m,p-Xylene	ND			5	1	04/14/09 20:02	JC	4985227
o-Xylene	ND		-	5	1	04/14/09 20:02	JC	4985227
trans-1,2-Dichloroethene	ND			5	1	04/14/09 20:02	JC	4985227
trans-1,3-Dichloropropene	ND			5	1	04/14/09 20:02	JC	4985227
1,2-Dichloroethene (total)	ND			5	1	04/14/09 20:02	JC	4985227
Xylenes,Total	ND			5	1	04/14/09 20:02	JC	4985227
Surr: 1,2-Dichloroethane-d4	96.0		% 6	5-111	1	04/14/09 20:02	JC	4985227
Surr: 4-Bromofluorobenzene	110		% 8	37-120	1	04/14/09 20:02	JC	4985227
Surr: Toluene-d8	94.0		% 8	8-116	1	04/14/09 20:02	JC	4985227

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

Fracmaster BJ Service,#128125

WorkOrder:

09040281

Lab Batch ID:

89427

Method Blank

HP_V_090416B-4987505

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/14/2009 23:43

Analyst: NW 09040281-02C

MW-2

Preparation Date:

04/13/2009 14:10

Prep By:

N_M Method SW3510C

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	51.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090416B-4987506

mg/L NW

Analysis Date:

04/15/2009 0:03

Units: Analyst:

Preparation Date:

04/13/2009 14:10

Prep By:

N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics	1.00	0.895	89.5	1.00	0.880	88.0	1.7	40	21	150
Surr: n-Pentacosane	0.0500	0.0494	98.8	0.0500	0.0485	97.0	1.8	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Headspace Gas Analysis

Method:

RunID:

RSK147

WorkOrder:

Samples in Analytical Batch:

09040281

Lab Batch ID:

R270691

Method Blank

VARC_090420A-4990870

Units:

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/20/2009 12:47

Analyst: V_L 09040281-02E

MW-2

Analyte	Result	Rep Limit
Methane	ND	0.0012

Sample Duplicate

Original Sample:

09040240-01

RunID:

VARC_090420A-4990871

Units:

mg/L

Analysis Date:

04/20/2009 13:03

Analyst:

 V_L

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Methane	ND	ND	0	50

Qualifiers:

ND/U - Not Detected at the Reporting Limit

BN - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Gasoline Range Organics

Method:

RunID:

SW8015B

demaster bo der vice,#120125

WorkOrder:

09040281

Lab Batch ID:

R270269

Method Blank

Units:

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

HP_P_090413A-4984662

Date: 04/13/2009 5:20

Analyst:

mg/L

CLJ

09040281-02D

MW-2

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RuniD:

HP P 090413A-4984660

Units:

mg/L

Analysis Date:

04/13/2009 4:22

Analyst:

: CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP_P_090413A-4984664

Units:

mg/L

Analysis Date:

04/13/2009 10:44

Analyst: CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1	0.852	85.2	1	0.868	86.8	1.92	36	22	174
Surr: 1,4-Difluorobenzene	ND	0.1	0.0922	92.2	0.1	0.0932	93.2	1.08	30	60	155
Surr: 4-Bromofluorobenzene	ND	0.1	0.105	105	0.1	0.107	107	1.41	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Gasoline Range Organics

Method:

RunID:

SW8015B

WorkOrder:

Samples in Analytical Batch:

09040281

Lab Batch ID:

R270293

Method Blank

HP_O_090414B-4985033

Units: mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

04/14/2009 5:22

Analyst: **EMB** 09040281-01A

MW 5-50-51

Preparation Date: 04/14/2009 5:22 Prep By:

Method SW5030B

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	98.4	63-142
Surr: 4-Bromofluorobenzene	103.3	50-159

Laboratory Control Sample (LCS)

RunID:

HP_O_090414B-4985047

Units:

mg/Kg **EMB**

Analysis Date:

Preparation Date:

04/14/2009 22:02 04/14/2009 22:02 Analyst: Prep By:

Method SW5030B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.862	86.2	70	130
Surr: 1,4-Difluorobenzene	0.100	0.0992	99.2	63	142
Surr: 4-Bromofluorobenzene	0.100	0.101	101	50	159

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040277-01

HP_O_090414B-4985040

Units:

Analysis Date:

04/14/2009 14:11

mg/Kg Analyst: **EMB**

Preparation Date:

04/13/2009 13:12

Prep By: XML Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	0.910	1	1.02	11.3 *	1	1.12	21.3 *	9.27	50	26	147
Surr: 1,4-Difluorobenzene	ND	0.1	0.0962	96.2	0.1	0.100	100	4.17	30	63	142
Surr: 4-Bromofluorobenzene	ND	0.1	0.14	140	0.1	0.146	146	4.13	30	50	159

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 20



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040281

Lab Batch ID:

89412

Method Blank

RunID:

H_090417E-4992370

Units:

ug/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

09040281-02B

MW-2

Analysis Date: Preparation Date: 04/13/2009 8:15

04/17/2009 9:40

Analyst:

GY

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limi
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1.3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	1(
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	2!
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	10
3-Nitroaniline	ND	2:
4,6-Dinitro-2-methylphenol	ND	2
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroanifine	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	2
Acenaphthene	ND	5.0
Acenaphthylene	ND	5.0
Aniline	ND	5.0
Anthracene	ND	5.0
Benz(a)anthracene	ND	5.4
Benzo(a)pyrene	ND	5.0
Benzo(b)fluoranthene	ND	5.0
Benzo(g,h,i)perylene	ND	5.0
Benzo(k)fluoranthene	ND	5.1
Benzoic acid	ND	2
Benzyl alcohol	ND	5.1
Bis(2-chloroethoxy)methane	ND	5.
Bis(2-chloroethyl)ether	. ND	5.
Bis(2-chloroisopropyl)ether	. ND	5.
Bis(2-ethylhexyl)phthalate	ND	5.
Butyl benzyl phthalate	ND	5.
Carbazole	ND	5.
	ND	5.
Chrysene	ND ND	
Dibenz(a,h)anthracene		5.0
Dibenzofuran	ND ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

09040281 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040281

Lab Batch ID:

89412

Method Blank

RuntD:

H_090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

Analyst: GΥ

Preparation Date:

04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND	_5.0
Phenol	ND	<u>5</u> .0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenol	ND	5.0
3 & 4-Methylphenoi	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	10-110
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst:

GΥ

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1,2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	8.1	50	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

 $\ensuremath{\mathsf{B}}\xspace{\mathsf{N}}\xspace$ - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

SW8270C Method:

Units:

WorkOrder: Lab Batch ID: 09040281 89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

ug/L

Analysis Date:

04/17/2009 10:42

GΥ Analyst:

Preparation Date: 04/13/2009 8:15 Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63.2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinitro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 23

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040281

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RuniD:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst:

GY

04/13/2009 8:15 Preparation Date:

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis(2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis(2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis(2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Dimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachloroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
Isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenot	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service.#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040281

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

Analysis Date:

04/17/2009 10:42

ug/L Analyst:

GY

Preparation Date:

04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenol-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141



Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270194

Method Blank

Samples in Analytical Batch:

RunID:

L 090413B-4983600

Units:

ug/kg E_G

Lab Sample ID

Client Sample ID

Analysis Date:

04/13/2009 15:44

Analyst:

09040281-01A

MW 5-50-51

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	
1,2,3-Trichlorobenzene	ND	
1,2,3-Trichloropropane	ND	
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	
1,2-Dibromoethane	ND	5.0
1.2-Dichlorobenzene	ND	
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	
1,3,5-Trimethylbenzene	ND	
1,3-Dichlorobenzene	ND	
1,3-Dichloropropane	ND	
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	5.0
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	
2-Chlorotoluene	ND	5.0
2-Hexanone	ND	10
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND	5.0
4-Methyl-2-pentanone	ND	
Acetone	ND	
Acrylonitrile	ND	
Benzene	ND	
Bromobenzene	ND ND	
Bromochloromethane	ND	
Bromodichloromethane	ND	
Bromoform	ND	
Bromomethane	ND	
Carbon disulfide	ND ND	
Carbon distille	ND	
Chlorobenzene	ND	+
Chloroethane	ND	
Chloroform	ND	
Chloromethane	ND	
Dibromochloromethane	ND	
Dibromomethane	ND	
Dichlorodifluoromethane	ND	
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 26

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270194

Method Blank

RunID:

L_090413B-4983600

Units:

ug/kg

Analysis Date:

04/13/2009 15:44

Analyst:

 E_G

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND.	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND.	5.0
Toluene	ND	5.0
Trichloroethene	ND.	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	. 10
Vinyi chloride	ND	10
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND.	5.0
Xylenes,Total	ND ND	5.0
Surr: 1,2-Dichloroethane-d4	90.0	64-115
Surr: 4-Bromofluorobenzene	96.0	65-131
Surr: Toluene-d8	102.0	75-136

Laboratory Control Sample (LCS)

RunID:

L_090413B-4983900

Units:

ug/kg

Analysis Date:

04/13/2009 15:15

Analyst: E_G

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	18.0	90.0	56	140
1,1,1-Trichloroethane	20.0	15.0	75.0	58	135
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	52	139
1,1,2-Trichloroethane	20.0	20.0	100	81	138
1,1-Dichloroethane	20.0	17.0	85.0	56	137

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 27

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270194

Laboratory Control Sample (LCS)

RunID:

L_090413B-4983900

Units:

ug/kg

Analysis Date:

04/13/2009 15:15

Analyst:

E_G

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	17.0	85.0	56	13
1,1-Dichloropropene	20.0	16.0	80.0	62	13:
1,2,3-Trichlorobenzene	20.0	17.0	85.0	53	14
1,2,3-Trichloropropane	20.0	9.00	45.0	44	14
1,2,4-Trichlorobenzene	20.0	16.0	80.0	51	14:
1,2,4-Trimethylbenzene	20.0	17.0	85.0	59	14
1,2-Dibromo-3-chloropropane	20.0	16.0	80.0	53	14
1,2-Dibromoethane	20.0	18.0	90.0	55	13
1,2-Dichlorobenzene	20.0	18.0	90.0	63	13
1,2-Dichloroethane	20.0	16.0	80.0	56	13
1,2-Dichloropropane	20.0	18.0	90.0	62	13
1,3,5-Trimethylbenzene	20.0	16.0	80.0	54	14
1,3-Dichlorobenzene	20.0	16.0	80.0	66	13
1,3-Dichloropropane	20.0	20.0	100	59	13
1,4-Dichlorobenzene	20.0	17.0	85.0	61	14
2,2-Dichloropropane	20.0	13.0	65.0	55	13
2-Butanone	20.0	24.0	120	10	19
2-Chloroethyl vinyl ether	20.0	12.0	60.0	10	18
2-Chlorotoluene	20.0	17.0	85.0	64	13
2-Hexanone	20.0	18.0	90.0	18	18
4-Chlorotoluene	20.0	17.0	85.0	63	13
4-Isopropyltoluene	20.0	17.0	85.0	59	15
4-Methyl-2-pentanone	20.0	16.0	80.0	10	16
Acetone	20.0	29.0	145	10	20
Acrylonitrile	20.0	23.0	115	38	16
Benzene	20.0	17.0	85.0	64	13
Bromobenzene	20.0	18.0	90.0	58	13
Bromochloromethane	20.0	18.0	90.0	66	12
Bromodichloromethane	20.0	16.0	80.0	59	13
Bromoform	20.0	18.0	90.0	65	13
Bromomethane	20.0	15.0	75.0	40	13
Carbon disulfide	20.0	16.0	80.0	53	13
Carbon tetrachloride	20.0	16.0	80.0	61	13
Chlorobenzene	20.0	18.0	90.0	60	14

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 28

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

SW8260B Method:

WorkOrder:

09040281

Lab Batch ID:

R270194

Laboratory Control Sample (LCS)

RunID:

L 090413B-4983900

Units:

ug/kg

Analysis Date:

04/13/2009 15:15

Analyst:

 E_G

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	17.0	85.0	45	140
Chloroform	20.0	17.0	85.0	64	131
Chloromethane	20.0	20.0	100	39	140
Dibromochloromethane	20.0	17.0	85.0	54	138
Dibromomethane	20.0	17.0	85.0	64	131
Dichlorodifluoromethane	20.0	11.0	55.0	35	133
Ethylbenzene	20.0	18.0	90.0	58	143
Hexachlorobutadiene	20.0	16.0	80.0	56	166
Isopropylbenzene	20.0	16.0	80.0	58	133
Methyl tert-butyl ether	40.0	20.0	50.0	50	132
Methylene chloride	20.0	17.0	85.0	52	144
Naphthalene	20.0	18.0	90.0	51	139
n-Butylbenzene	20.0	17.0	85.0	59	164
n-Propylbenzene	20.0	18.0	90.0	57	140
sec-Butylbenzene	20.0	16.0	80.0	63	146
Styrene	20.0	17.0	85.0	57	134
tert-Butylbenzene	20.0	16.0	80.0	57	144
Tetrachloroethene	20.0	17.0	85.0	41	156
Toluene	20.0	19.0	95.0	63	139
Trichloroethene	20.0	17.0	85.0	62	135
Trichlorofluoromethane	20.0	15.0	75.0	53	140
Vinyl acetate	20.0	17.0	85.0	17	163
Vinyl chloride	20.0	15.0	75.0	45	148
cis-1,2-Dichloroethene	20.0	18.0	90.0	70	129
cis-1,3-Dichloropropene	20.0	17.0	85.0	58	132
m,p-Xylene	40.0	37.0	92.5	64	137
o-Xylene	20.0	20.0	100	64	143
trans-1,2-Dichloroethene	20.0	17.0	85.0	63.	130
trans-1,3-Dichloropropene	20.0	16.0	80.0	58	128
1,2-Dichloroethene (total)	40	35	88	63	130
Xylenes,Total	60	57	95	64	143
Surr: 1,2-Dichloroethane-d4	50.0	47	94.0	64	115
Surr: 4-Bromofluorobenzene	50.0	50	100	65	131
Surr: Toluene-d8	50.0	54	108	75	136

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 29

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270194

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-01

RunID:

L_090413B-4983602

Units:

ug/kg

Analysis Date:

04/13/2009 18:51

Analyst:

 E_G

Preparation Date: 04/13/2009 11:57 Prep By:

E_G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	21.0	105	20	20.0	100	4.88	30	38	129
1,1,1-Trichloroethane	ND	20	16.0	80.0	20	16.0	80.0	0	30	44	154
1,1,2,2-Tetrachloroethane	ND	20	21.0	105	20	21.0	105	0	30	14	143
1,1,2-Trichloroethane	ND	20	23.0	115	20	23.0	115	0	30	34	135
1,1-Dichloroethane	ND	20	18.0	90.0	20	17.0	85.0	5.71	30	42	146
1,1-Dichloroethene	ND	20	19.0	95.0	20	19.0	95.0	0	22	39	168
1,1-Dichloropropene	ND	20	18.0	90.0	20	17.0	85.0	5.71	30	42	156
1,2,3-Trichlorobenzene	ND	20	14.0	70.0	20	14.0	70.0	0	30	10	125
1,2,3-Trichloropropane	ND	20	12.0	60.0	20	11.0	55.0	8.70	30	10	154
1,2,4-Trichlorobenzene	ND	20	13.0	65.0	20	13.0	65.0	0	30	10	128
1,2,4-Trimethylbenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	30	22	139
1,2-Dibromo-3-chloropropane	ND	20	20.0	100	20	20.0	100	0	30	23	139
1,2-Dibromoethane	ND	20	22.0	110	20	21.0	105	4.65	30	32	129
1,2-Dichforobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	30	17	130
1,2-Dichloroethane	ND	20	16.0	80.0	20	16.0	80.0	0	30	15	158
1,2-Dichloropropane	ND	20	19.0	95.0	20	19.0	95.0	0	30	42	133
1,3,5-Trimethylbenzene	ND	20	16.0	80.0	20	14.0	70.0	13.3	30	22	135
1,3-Dichlorobenzene	ND	20	16.0	80.0	20	14.0	70.0	13.3	30	22	130
1,3-Dichloropropane	ND	20	22.0	110	20	22.0	110	0	30	37	131
1,4-Dichlorobenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	30	20	129
2,2-Dichloropropane	ND	20	15.0	75.0	20	15.0	75.0	0	30	39	155
2-Butanone	ND	20	30.0	150	20	28.0	140	6.90	30	10	200
2-Chloroethyl vinyl ether	ND	20	18.0	90.0	20	16.0	80.0	11.8	30	10	168
2-Chlorotoluene	ND	20	17.0	85.0	20	15.0	75.0	12.5	30	30	133
2-Hexanone	ND	20	21.0	105	20	21.0	105	0	30	14	151
4-Chiorotoluene	ND	20	17.0	85.0	20	15.0	75.0	12.5	30	24	133
4-Isopropyltoluene	ND	20	15.0	75.0	20	14.0	70.0	6.90	30	17	143
4-Methyl-2-pentanone	ND	20	21.0	105	20	20.0	100	4.88	30	10	176
Acetone	ND	20	44.0	140	20	42.0	130	4.65	30	10	200
Acrylonitrile	ND	20	27.0	135	20	25.0	125	7.69	30	10	200

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 30

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

RunID:

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270194

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-01

L_090413B-4983602

Units:

ug/kg

Analysis Date: Preparation Date: 04/13/2009 18:51 04/13/2009 11:57 Analyst: E_G

Prep By: E_G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	19.0	95.0	20	18.0	90.0	5.41	21	49	135
Bromobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	30	29	127
Bromochloromethane	ND	20	19.0	95.0	20	19.0	95.0	0	30	27	147
Bromodichloromethane	ND	20	17.0	85.0	20	17.0	85.0	0	30	32	138
Bromoform	ND	20	22.0	110	20	21.0	105	4.65	30	27	129
Bromomethane	ND	20	17.0	85.0	20	17.0	85.0	0	30	32	142
Carbon disulfide	ND	20	17.0	85.0	20	17.0	85.0	0	30	25	168
Carbon tetrachloride	ND	20	17.0	85.0	20	17.0	85.0	0	30	48	151
Chlorobenzene	ND	20	19.0	95.0	20	18.0	90.0	5.41	21	38	130
Chloroethane	ND	20	18.0	90.0	20	16.0	80.0	11.8	30	29	161
Chloroform	ND	20	17.0	85.0	20	17.0	85.0	0	30	34	153
Chloromethane	ND	20	20.0	100	20	21.0	105	4.88	30	31	151
Dibromochloromethane	ND	20	20.0	100	20	20.0	100	0	30	31	127
Dibromomethane	ND	20	19.0	95.0	20	18.0	90.0	5.41	30	30	141
Dichlorodifluoromethane	ND	20	13.0	65.0	20	12.0	60.0	8.00	30	15	167
Ethylbenzene	ND	20	19.0	95.0	20	18.0	90.0	5.41	30	39	135
Hexachlorobutadiene	ND	20	12.0	60.0	20	12.0	60.0	0	30	10	149
Isopropylbenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	30	25	142
Methyl tert-butyl ether	ND	40	26.0	65.0	40	25.0	62.5	3.92	30	19	142
Methylene chloride	ND	20	19.0	95.0	20	18.0	90.0	5.41	30	13	170
Naphthalene	ND	20	18.0	90.0	20	18.0	90.0	0	30	10	124
n-Butylbenzene	ND	20	14.0	70.0	20	13.0	65.0	7.41	30	10	156
n-Propylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	30	20	141
sec-Butylbenzene	ND	20	15.0	75.0	20	14.0	70.0	6.90	30	29	142
Styrene	ND	20	19.0	95.0	20	18.0	90.0	5.41	30	28	133
tert-Butylbenzene	ND	20	15.0	75.0	20	14.0	70.0	6.90	30	26	141
Tetrachloroethene	ND	20	19.0	95.0	20	19.0	95.0	0	30	33	149
Toluene	ND	20	21.0	105	20	20.0	100	4.88	21	49	133
Trichloroethene	ND	20	18.0	90.0	20	18.0	90.0	0	24	51	142
Trichlorofluoromethane	ND	20	16.0	80.0	20	16.0	80.0	0	30	24	184
Vinyl acetate	ND	20	16.0	80.0	20	15.0	75.0	6.45	30	10	174
Vinyl chloride	ND	20	16.0	80.0	20	16.0	80.0	0	30	29	177

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 31

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

Fracmaster BJ Service,#128125

WorkOrder:

09040281

Lab Batch ID:

R270194

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040281-01

L_090413B-4983602

Units:

ug/kg

ug/kg

Analysis Date: Preparation Date: 04/13/2009 18:51 04/13/2009 11:57 Analyst: E_G

Prep By: E_G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	19.0	95.0	20	19.0	95.0	0	30	38	151
cis-1,3-Dichloropropene	ND	20	18.0	90.0	20	18.0	90.0	0	30	31	131
m,p-Xylene	ND	40	39.0	97.5	40	37.0	92.5	5.26	30	32	140
o-Xylene	ND	20	20.0	100	20	20.0	100	0	30	36	142
trans-1,2-Dichloroethene	ND	20	19.0	95.0	20	18.0	90.0	5.41	30	41	153
trans-1,3-Dichloropropene	ND	20	17.0	85.0	20	17.0	85.0	0	30	27	128
1,2-Dichloroethene (total)	ND	40	38	95	40	37	92	2.7	30	38	153
Xylenes,Total	ND	60	59	98	60	57	95	3.4	30	32	142
Surr: 1,2-Dichloroethane-d4	ND	50	47	94.0	50	47.0	94.0	0	30	64	115
Surr: 4-Bromofluorobenzene	ND	50	50	100	50	50.0	100	0	30	65	131
Surr: Toluene-d8	ND	50	53	106	50	53.0	106	0	30	75	136

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 32

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

Analysis Date:

Preparation Date:

SW8260B

04/14/2009 14:10

04/14/2009 14:10

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WorkOrder:

09040281

Lab Batch ID:

R270264

Method Blank

RunID: Q_090414A-4985214

Units: Analyst:

Prep By:

ug/L JC

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

09040281-02A

MW-2

09040281-03A

FB-4-7-09

IVI	ęи	IC	u	

09040281-04A

TB-4-7-09

Analyte	Result	Rep Limit
1.1.1.2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1.1-Dichloroethane	ND	5.0
1.1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1.2.3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1.2.4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1.2-Dibromoethane	ND	5.0
1.2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1.2-Dichloropropane	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
1.3-Dichlorobenzene	ND	5.0
1,3-Dichloropropane	ND	
1.4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	-
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	·
2-Chlorotoluene	ND	5.0
2-Hexanone	ND	
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND	
4-Methyl-2-pentanone	ND	
Acetone	ND	
Acrylonitrile	ND	
Benzene	ND	
Bromobenzene	ND	
Bromochloromethane	ND	
Bromodichloromethane	ND	
Bromoform	ND	+
Bromomethane	ND	
Carbon disulfide	ND	
Carbon tetrachloride	ND	
Chlorobenzene	ND	
Chloroethane	ND	
Chloroform	ND	
Chloromethane	ND	
Dibromochloromethane	ND	•
Dibromomethane	ND	
Dichlorodifluoromethane	ND	
	ND	1
Ethylbenzene	I ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

nod Blank D - R

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 33

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

Fracmaster BJ Service,#128125

09040281

WorkOrder: Lab Batch ID:

R270264

Method Blank

RunID:

Q_090414A-4985214

Units:

ug/L

Analysis Date:

04/14/2009 14:10

JC Analyst:

Method

Preparation Date: 04/14/2009 14:10 Prep By:

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND.	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	1(
Vinyl chloride	ND.	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND.	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND.	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	98.0	65-111
Surr: 4-Bromofluorobenzene	108.0	87-120
Surr: Toluene-d8	92.0	88-116

Laboratory Control Sample (LCS)

RunID:

Q 090414A-4985213

Units:

ug/L JC

Analysis Date: Preparation Date:

04/14/2009 13:43 04/14/2009 13:43

Analyst: Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	19.0	95.0	71	128
1,1,1-Trichloroethane	20.0	20.0	100	61	135
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	60	133
1,1,2-Trichloroethane	20.0	18.0	90.0	77	127
1,1-Dichloroethane	20.0	20.0	100	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 34

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Analysis Date:

04/14/2009 13:43

ug/L JC

Preparation Date:

04/14/2009 13:43

Analyst: Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	22.0	110	65	134
1,1-Dichloropropene	20.0	18.0	90.0	68	126
1,2,3-Trichlorobenzene	20.0	16.0	80.0	36	154
1,2,3-Trichloropropane	20.0	19.0	95.0	38	153
1,2,4-Trichlorobenzene	20.0	16.0	80.0	69	144
1,2,4-Trimethylbenzene	20.0	14.0	70.0	64	128
1,2-Dibromo-3-chloropropane	20.0	14.0	70.0	44	14
1,2-Dibromoethane	20.0	19.0	95.0	75	124
1,2-Dichlorobenzene	20.0	16.0	80.0	68	124
1,2-Dichloroethane	20.0	18.0	90.0	61	138
1,2-Dichloropropane	20.0	18.0	90.0	76	123
1,3,5-Trimethylbenzene	20.0	14.0	70.0	61	12
1,3-Dichlorobenzene	20.0	16.0	80.0	68	12
1,3-Dichloropropane	20.0	17.0	85.0	76	12
1,4-Dichlorobenzene	20.0	15.0	75.0	68	12
2,2-Dichloropropane	20.0	19.0	95.0	42	14
2-Butanone	20.0	20.0	100	22	18
2-Chloroethyl vinyl ether	20.0	18.0	90.0	10	17
2-Chlorotoluene	20.0	15.0	75.0	64	13
2-Hexanone	20.0	16.0	80.0	31	17
4-Chlorotoluene	20.0	15.0	75.0	61	13
4-Isopropyltoluene	20.0	14.0	70.0	63	13
4-Methyl-2-pentanone	20.0	16.0	80.0	10	15
Acetone	20.0	25.0	125	10	20
Acrylonitrile	20.0	20.0	100	54	15
Benzene	20.0	18.0	90.0	74	12
Bromobenzene	20.0	15.0	75.0	68	12
Bromochloromethane	20.0	21.0	105	71	12
Bromodichloromethane	20.0	19.0	95.0	72	12
Bromoform	20.0	19.0	95.0	81	13
Bromomethane	20.0	21.0	105	53	13
Carbon disulfide	20.0	27.0	135	41	14
Carbon tetrachloride	20.0	21.0	105	59	14
Chlorobenzene	20.0	18.0	90.0	75	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 35

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

Fracmaster BJ Service,#128125

WorkOrder:

09040281

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q 090414A-4985213

Units:

ug/L JC

Analysis Date:

04/14/2009 13:43

Analyst:

Preparation Date: 04/14/2009 13:43 Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.0	100	60	134
Chloroform	20.0	20.0	100	71	127
Chloromethane	20.0	16.0	80.0	50	139
Dibromochloromethane	20.0	18.0	90.0	65	130
Dibromomethane	20.0	20.0	100	79	124
Dichlorodifluoromethane	20.0	17.0	85.0	22	162
Ethylbenzene	20.0	17.0	85.0	72	127
Hexachlorobutadiene	20.0	16.0	80.0	45	152
Isopropylbenzene	20.0	15.0	75.0	58	130
Methyl tert-butyl ether	40.0	40.0	100	63	123
Methylene chloride	20.0	21.0	105	61	135
Naphthalene	20.0	16.0	80.0	33	148
n-Butylbenzene	20.0	14.0	70.0	62	136
n-Propylbenzene	20.0	14.0	70.0	57	131
sec-Butylbenzene	20.0	14.0	70.0	63	131
Styrene	20.0	17.0	85.0	69	120
tert-Butylbenzene	20.0	14.0	70.0	59	131
Tetrachloroethene	20.0	21.0	105	45	173
Toluene	20.0	17.0	85.0	74	126
Trichloroethene	20.0	20.0	100	79	131
Trichlorofluoromethane	20.0	23.0	115	49	153
Vinyl acetate	20.0	16.0	80.0	10	167
Vinyl chloride	20.0	20.0	100	51	148
cis-1,2-Dichloroethene	20.0	20.0	100	71	128
cis-1,3-Dichloropropene	20.0	17.0	85.0	67	128
m,p-Xylene	40.0	35.0	87.5	71	129
o-Xylene	20.0	18.0	90.0	74	130
trans-1,2-Dichloroethene	20.0	21.0	105	66	128
trans-1,3-Dichloropropene	20.0	16.0	80.0	60	128
1,2-Dichloroethene (total)	40	41	100	66	128
Xylenes,Total	60	53	88	71	130
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	65	11
Surr: 4-Bromofluorobenzene	50.0	56	112	87	120
Surr: Toluene-d8	50.0	46	92.0	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

MI - Matrix Interference D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 36

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	68	124
1,1,1-Trichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	69	123
1,1,2,2-Tetrachloroethane	ND	20	20.0	100	20	20.0	100	0	20	69	130
1,1,2-Trichloroethane	ND	20	20.0	100	20	20.0	100	0	20	75	126
1,1-Dichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	65	129
1,1-Dichloroethene	ND	20	23.0	115	20	23.0	115	0	22	61	139
1,1-Dichloropropene	ND	20	21.0	105	20	20.0	100	4.88	20	69	121
1,2,3-Trichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	53	127
1,2,3-Trichloropropane	ND	20	20.0	100	20	19.0	95.0	5.13	20	79	124
1,2,4-Trichlorobenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	58	118
1,2,4-Trimethylbenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	43	132
1,2-Dibromo-3-chloropropane	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	46	131
1,2-Dibromoethane	ND	20	20.0	100	20	20.0	100	0	20	76	122
1,2-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	74	110
1,2-Dichloroethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	60	129
1,2-Dichloropropane	ND	20	20.0	100	20	19.0	95.0	5.13	20	76	116
1,3,5-Trimethylbenzene	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	51	121
1,3-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	71	110
1,3-Dichloropropane	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	80	119
1,4-Dichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	69	110
2,2-Dichloropropane	ND	20	22.0	110	20	22.0	110	0	20	52	122
2-Butanone	ND	20	21.0	105	20	21.0	105	0	20	10	133
2-Chloroethyl vinyl ether	ND	20	0	0 *	20	0	0 *	0	20	10	182
2-Chlorotoluene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	69	112
2-Hexanone	ND	20	16.0	80.0	20	16.0	80.0	0	20	10	163
4-Chlorotoluene	ND	20	17.0	85.0	20	17.0	85.0	0	20	37	110
4-Isopropyltoluene	ND	20	16.0	80.0	20	16.0	80.0	0	20	65	116
4-Methyl-2-pentanone	ND	20	17.0	85.0	20	17.0	85.0	0	20	10	103
Acetone	ND	20	22.0	110	20	22.0	110	0	20	10	160
Acrylonitrile	ND	20	20.0	100	20	20.0	100	0	20	45	155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply

TNTC - Too numerous to count

09040281 Page 37

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

RunID:

Method:

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	21.0	105	20	20.0	100	4.88	22	70	124
Bromobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	72	11
Bromochloromethane	ND	20	25.0	125	20	, 24.0	120	4.08	20	73	126
Bromodichloromethane	ND	20	20.0	100	20	18.0	90.0	10.5	20	68	12
Bromoform	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	44	132
Bromomethane	ND	20	23.0	115	20	21.0	105	9.09	20	50	140
Carbon disulfide	ND	20	21.0	105	20	20.0	100	4.88	20	46	143
Carbon tetrachloride	ND	20	20.0	100	20	20.0	100	0	20	66	126
Chlorobenzene	ND	20	21.0	105	20	20.0	100	4.88	21	68	123
Chloroethane	ND	20	22.0	110	20	21.0	105	4.65	20	59	134
Chloroform	ND	20	21.0	105	20	20.0	100	4.88	20	68	-
Chloromethane	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	51	13
Dibromochloromethane	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	58	13
Dibromomethane	ND	20	22.0	110	20	20.0	100	9.52	20	82	12:
Dichlorodifluoromethane	ND	20	16.0	80.0	20	17.0	85.0	6.06	20	35	14:
Ethylbenzene	ND	20	20.0	100	20	19.0	95.0	5.13	20	76	12
Hexachlorobutadiene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	43	13
Isopropylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	57	12
Methyl tert-butyl ether	ND	40	43.0	108	40	42.0	105	2.35	20	10	20
Methylene chloride	ND	20	23.0	115	20	22.0	110	4.44	20	70	13
Naphthalene	ND	20	16.0	80.0	20	16.0	80.0	0	20	42	14
n-Butylbenzene	ND	20	16.0	80.0 *	20	16.0	80.0 *	0	20	82	11:
n-Propylbenzene	ND	20	16.0	80.0	20	16.0	80.0	0	20	73	10
sec-Butylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	76	11
Styrene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	58	15
tert-Butylbenzene	ND	20	15.0	75.0	20	15.0	75.0	0	20	66	12
Tetrachloroethene	ND	20	25.0	. 125	20	25.0	125	0	20	71	13
Toluene	ND	20	20.0	100	20	20.0	100	0	24	80	11
Trichloroethene	ND	20	23.0	115	20	22.0	110	4.44	21	82	12
Trichlorofluoromethane	ND	20	21.0	105	20	21.0	105	0	20	74	13
Vinyl acetate	ND	20	18.0	90.0	20	18.0	90.0	0	20	66	13
Vinyl chloride	ND	20	20.0	100	20	19.0	95.0	5.13		45	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 38

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040281

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

Q_090414A-4985222

Units:

RunID: Analysis Date:

uq/L

04/14/2009 17:46 Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	25.0	125	20	23.0	115	8.33	20	67	132
cis-1,3-Dichloropropene	ND	20	18.0	90.0	20	16.0	80.0	11.8	20	67	116
m,p-Xylene	ND	40	40.0	100	40	38.0	95.0	5.13	20	69	127
o-Xylene	ND	20	21.0	105	20	20.0	100	4.88	20	84	114
trans-1,2-Dichloroethene	ND	20	24.0	120	20	23.0	115	4.26	20	68	131
trans-1,3-Dichloropropene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	56	131
1,2-Dichloroethene (total)	ND	40	49	120	40	46	120	6.3	20	67	132
Xylenes,Total	ND	60	61	100	60	58	97	5.0	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	49	98.0	50	49.0	98.0	0	30	65	111
Surr: 4-Bromofluorobenzene	ND	50	53	106	50	54.0	108	1.87	30	87	120
Surr: Toluene-d8	ND	50	47	94.0	50	48.0	96.0	2.11	30	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 39

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Alkalinity (as CaCO3), Total

Analysis: Method:

RunID:

E310.1

Fracmaster BJ Service,#128125

WorkOrder:

09040281

Lab Batch ID:

R270144

Method Blank

WET_090413F-4982657

Units: mg/L

PAC

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/13/2009 11:20

Analyst:

09040281-02F

MW-2

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RunID:

WET_090413F-4982659

Units:

mg/L

Analysis Date:

04/13/2009 11:20

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Total (As CaCO3)	38.70	39.00	100.8	90	110

Sample Duplicate

Original Sample:

09040278-01

WET_090413F-4982660

Units: mg/L

Analysis Date:

RunID:

04/13/2009 11:20

Analyst: PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Total (As CaCO3)	174	175	0.573	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 40



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell

Analysis:

Ion Chromatography

Method:

E300.0

Fracmaster BJ Service,#128125

WorkOrder:

09040281

Lab Batch ID:

R270277A

Method Blank

Samples in Analytical Batch:

RunID:

IC2_090409A-4984862

Units:

mg/L BDG

Lab Sample ID

Client Sample ID

Analysis Date:

04/09/2009 12:18

Analyst:

09040281-02F

MW-2

Analyte	Result	Rep Limit
Nitrogen, Nitrate (As N)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090409A-4984863

Units:

mg/L

Analysis Date:

04/09/2009 12:36

BDG Analyst:

	Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1	Nitrogen Nitrate (As N)	10.00	9 147	91 47	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040169-02

IC2_090409A-4984879

Units: mg/L

Analysis Date:

RuniD:

04/09/2009 18:26

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	ND	10	10.10	101.0	10	10.09	100.9	0.06932	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 41

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Ion Chromatography

Method:

RunID:

E300.0

WorkOrder:

09040281

Lab Batch ID:

R270281

Method Blank

IC2_090414B-4984924

Units:

mg/L BDG

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/09/2009 12:18

Analyst:

09040281-02F

MW-2

Analyte	Result	Rep Limit
Sulfate	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090414B-4984925

Units:

mg/L

Analysis Date:

04/09/2009 12:36

Analyst: BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Sulfate	10.00	9.751	97.51	85	

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040009-04

RunID:

IC2_090414B-4984929

Units:

mg/L

Analysis Date:

04/09/2009 17:51

Analyst:

BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Sulfate	9.802	10	22.03	122.3 *	10	21.47	116.7	2.565	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 42

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Ion Chromatography

Method:

RunID:

E300.0

ister bo cervice,# izo izo

WorkOrder:

09040281

Lab Batch ID:

R270297

Method Blank

IC2_090414D-4985092

Units:

mg/L BDG

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/14/2009 10:38

Analyst:

09040281-02F

MW-2

	Analyte	Result	Rep Limit
Chloride		ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090414D-4985093

Units:

mg/L

Analysis Date:

04/14/2009 10:55

Analyst: BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	10.52	105.2	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040254-01

IC2_090414D-4985097

Units:

mg/L

Analysis Date:

RuniD:

04/14/2009 12:05

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	ND	10	10.68	106.8	10	10.66	106.6		20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040281 Page 43

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Sample Receipt Checklist And Chain of Custody



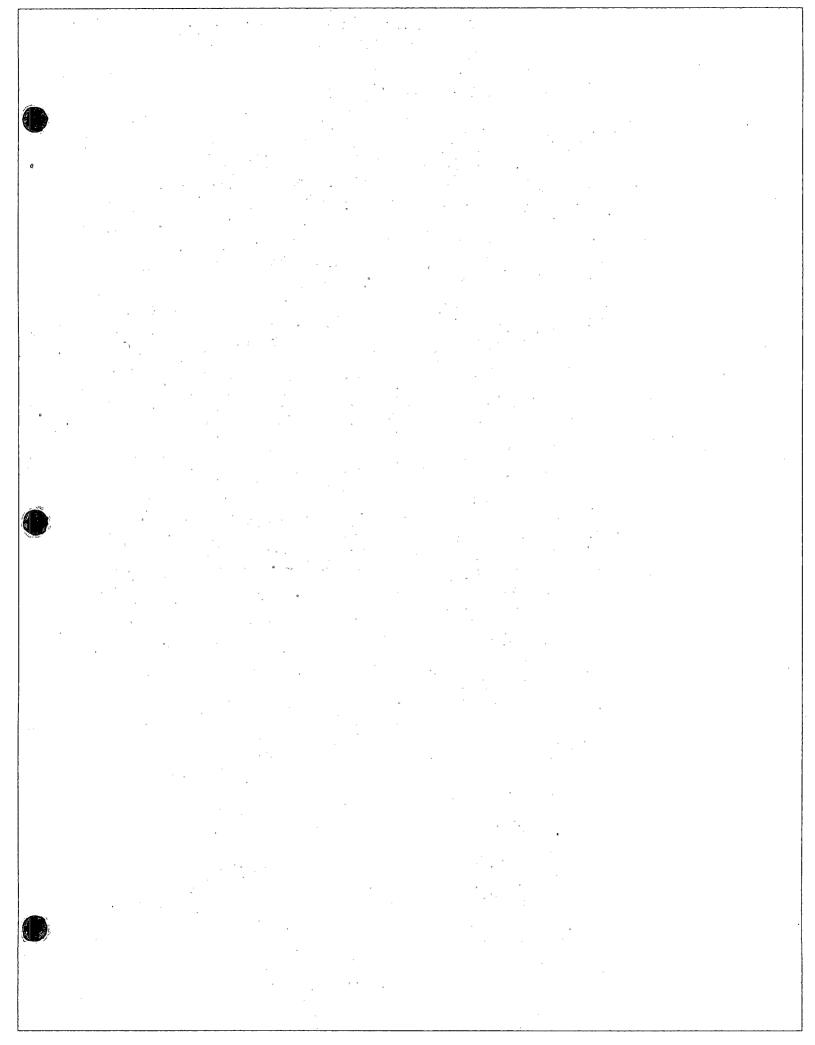
8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Date	rkorder: e and Time Received: aperature:	09040281 4/9/2009 10:00:00 AM 3.0°C			Received Carrier na	ame:	BF FedEx Water Ice	
1.	Shipping container/co	oler in good condition?	Yes	✓	No 🗌		Not Present	
2.	Custody seals intact o	n shippping container/cooler?	Yes	✓	No 🗌		Not Present	
3.	Custody seals intact of	n sample bottles?	Yes		No 🗔		Not Present	~
4.	Chain of custody pres	ent?	Yes	\checkmark	No 🗌			
5.	Chain of custody sign	ed when relinquished and received?	Yes	✓	No 🗌			
6.		es with sample labels? HCL for CH4 Methane but not written on chain, r Methane.	Yes		No 🗹			
7.	Samples in proper con	ntainer/bottle?	Yes	~	No 🗌			
8.	Sample containers int	act?	Yes	•	No 🗌			
9.	Sufficient sample volu	ime for indicated test?	Yes	✓	No 🗌			
10.	All samples received v	within holding time?	Yes	✓	No 🗆			
11.	Container/Temp Blank	temperature in compliance?	Yes	✓	No 🗌			
12.	Water - VOA vials hav	e zero headspace?	Yes	~	No \square	VOA Vi	als Not Present	
13.	Water - Preservation of	checked upon receipt (except VOA*)?	Yes		No 🗌		Not Applicable	✓
	*VOA Preservation Ch	ecked After Sample Analysis						
	SPL Representati	ve: Rodriguez, Alisha C.	Cont	act Date & T	ime: 4/9/200	09 2:53:00	PM	
	Client Name Contact	ed: Rick Rexroad w/Brown & Caldwell						
	Non Conformance Issues:							
	Client Instructions: Cli	ent emailed back at 13:31 on Monday 04/13/09	reques	ting that the e	extra vials be	analyzed f	or Methane only	



				SPL Workorder No.	.Ng.	328	322328
SPL, Inc. Analysis Request & Chain of Custody Record				18504090	1800	page /	of
Client Same: MOUND and Collabell		matrix bottle	size	pres.	Redu	Requested Analysi	ysis
1114 #3500 State TK State TK STOCK Email: RES L/ (67 \ \sum \lambda \) The Kroud The Kroud	1002 (2 Brancab	V=water S=soil O=oil A=a L=sludge E=encore X=otho	Selas	=HCI Z=HNO3 =HCI Z=HNO3 EHZSO4 X=other Interpreted SOISIN	(OC (NOTES 8UC)	164-66 (Mathad 3001 194-6 / VOCS	<i>ש</i> ניעו)
5	TIME comp grab		7 1 8	ε	7.	Y X	
11/2 / 1/2 /	X	Ţ	111104	X /7/9m/	X	×	
FB-4-7-09	£3 X	3	131	8 -	X>		
2) ,	X	3		7			
							107
Client/Consultant Remarks:	Laboratory remarks:	` .				Intact? Tee?	
Special Reporting Requirements Standard ON Level 3 QC L. Le	Fax BEm	ail Prof	Special Dete	Special Detection Limits (specify):	ccify);	W. C.	review (initial):
Standard 1. Relificationed by Sampler:	date	10/02	time	2. Received by:	y:		
es prior notice	date	50/6/	time 1000	6. Received.	6. Received by Laboratory:	4 6.5	4
S880 Interchange Drive Houston, TX 77054 (713) 660-0901	500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775	affery Parl 37) 237-477	kway ,	Tra	459 verse City N	7	ve 1) 947-5777





Rick Rexroad

Houston

ΤX 77002-

1415 Louisiana **Suite 2500**

ph: (713) 759-0999

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09040283

Report To: **Brown & Caldwell**

fax: (713) 308-3886

Project Name:

Fracmaster BJ Service -#128125

Site:

Hobbs NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

4/23/2009

This Report Contains A Total Of 24 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: **Brown & Caldwell**

Certificate of Analysis Number:

09040283

Report To:

Project Name:

Fracmaster BJ Service -#128125

Brown & Caldwell

Site:

Hobbs NM

Rick Rexroad 1415 Louisiana Site Address:

Suite 2500 Houston

PO Number:

New Mexico

TX

State:

77002-

ph: (713) 759-0999

fax: (713) 308-3886

State Cert. No.: **Date Reported:**

4/23/2009

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID: 89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW 846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Ismes V. Vickeaire

09040283 Page 1

4/23/2009

Agnes V. Vicknair

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040283

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad 1415 Louisiana Suite 2500 Houston

TX 77002-

ph: (713) 759-0999

fax: (713) 308-3886

Brown & Caldwell Rick Rexroad

fax: (713) 308-3886

Project Name:

Fracmaster BJ Service -#128125

Site:

Hobbs NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported: 4/23/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-99	09040283-01	Water	4/8/2009 10:11:00 AM	4/9/2009 10:00:00 AM	322331	

Agnes V. Vickeaire

4/23/2009

Date

Kesavalu M. Bagawandoss Laboratory Director

Ted Yen
Quality Assurance Officer

Agnes V. Vicknair

Project Manager



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-99 Collected: 04/08/2009 10:11 SPL Sample ID: 09040283-01

Site:	Hobbs NM

			311	- 1105	D2 MM					
Analyses/Method	Result	QUAL	Re	ep.Limit	(Dil. Fact	or Date Ana	yzed	Analyst	Seq.#
GASOLINE RANGE ORGANICS					MCL		SW8015B	Ur	nits: mg/L	
Gasoline Range Organics	ND			0.1		1	04/13/09	17:47	CLJ	4984674
Surr: 1,4-Difluorobenzene	91.2		%	60-155		1	04/13/09	17:47	CLJ	4984674
Surr: 4-Bromofluorobenzene	105		%	50-158		1	04/13/09	17:47	CLJ	4984674
SEMIVOLATILE HYDROCARBON	S				MCL		SW8015B	Ur	nits: mg/L	
Diesel Range Organics	0.24			0.1		1	04/17/09	9 0:40	NW	4987515
Mineral Spirits Range Organics	ND			0.1		1	04/17/09	9 0:40	NW	4987515
Surr: n-Pentacosane	86.8		%	20-150		1	04/17/0	9 0:40	NW	4987515

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-99

Collected: 04/08/2009 10:11 SPL

SPL Sample ID:

09040283-01

Site:	Hobbs	NM
-------	-------	----

Analyses/Method	Result QUA	AL Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C	;	MCL SV	V8270C Un	its: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/17/09 17:41	GY	4992376
1,2-Dichlorobenzene	ND	5	1	04/17/09 17:41	GY	4992376
1,2-Diphenylhydrazine	ND	10	1	04/17/09 17:41	GY	4992376
1,3-Dichlorobenzene	ND	5	1	04/17/09 17:41	GY	4992376
1,4-Dichlorobenzene	ND	5	1	04/17/09 17:41	GY	4992376
2,4,5-Trichlorophenol	ND	10	1	04/17/09 17:41	GY	4992376
2,4,6-Trichlorophenol	ND	5	1	04/17/09 17:41	GY	4992376
2,4-Dichlorophenol	ND	5	1	04/17/09 17:41	GY	499237
2,4-Dimethylphenol	ND	5	1	04/17/09 17:41	GY	4992376
2,4-Dinitrophenol	ND	25	1	04/17/09 17:41	GY	4992376
2,4-Dinitrotoluene	ND	5	1	04/17/09 17:41	GY	4992370
2,6-Dinitrotoluene	ND	5	1	04/17/09 17:41	GY	4992376
2-Chloronaphthalene	ND	5	1	04/17/09 17:41	GY	4992376
2-Chlorophenol	ND	5	1	04/17/09 17:41	GY	4992376
2-Methylnaphthalene	ND	5	1	04/17/09 17:41	GY	4992376
2-Nitroaniline	ND	25	1	04/17/09 17:41	GY	499237
2-Nitrophenol	ND	5	1	04/17/09 17:41	GY	499237
3,3'-Dichlorobenzidine	ND	10	1	04/17/09 17:41	GY	4992370
3-Nitroaniline	ND	25	1	04/17/09 17:41	GY	499237
4,6-Dinitro-2-methylphenol	ND	25	1	04/17/09 17:41	GY	499237
4-Bromophenyl phenyl ether	ND	5	1	04/17/09 17:41	GY	499237
4-Chloro-3-methylphenol	ND	5	1	04/17/09 17:41	GY	499237
4-Chloroaniline	ND	5	1	04/17/09 17:41	GY	499237
4-Chlorophenyl phenyl ether	ND	5	1	04/17/09 17:41	GY	499237
4-Nitroaniline	ND	25	. 1	04/17/09 17:41	GY	499237
4-Nitrophenol	ND	25	1	04/17/09 17:41	GY	499237
Acenaphthene	ND	5	1	04/17/09 17:41	GY	499237
Acenaphthylene	ND	5	1	04/17/09 17:41	GY	499237
Aniline	ND	5	1	04/17/09 17:41	GY	499237
Anthracene	ND	5	1	04/17/09 17:41	GY	499237
Benz(a)anthracene	ND	5	1	04/17/09 17:41	GY	499237
Benzo(a)pyrene	ND	5	1	04/17/09 17:41	GY	499237
Benzo(b)fluoranthene	ND	5	1	04/17/09 17:41	GY	499237
Benzo(g,h,i)perylene	ND	5	1	04/17/09 17:41	GY	499237
Benzo(k)fluoranthene	ND	5	1	04/17/09 17:41	GY	499237
Benzoic acid	ND	25	1	04/17/09 17:41	GY	499237
Benzyl alcohol	ND	5	1	04/17/09 17:41	GY	499237
Bis(2-chloroethoxy)methane	ND	5	1	04/17/09 17:41	GY	499237
Bis(2-chloroethyl)ether	ND	5	1	04/17/09 17:41	GY	499237

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-99 Collected: 04/08/2009 10:11 SPL Sample ID: 09040283-01

Analyses/Mothod	Result	QUAL	Ron	Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Analyses/Method Bis(2-chloroisopropyl)ether	ND	QUAL	Kep	5.Limit	Dir. Factor	04/17/09 17:41	GY	4992376
Bis(2-ethylhexyl)phthalate	ND			5	1	04/17/09 17:41	GY	4992376
Butyl benzyl phthalate	ND				<u>'</u>	04/17/09 17:41	GY	4992376
Carbazole	ND			5 	<u>'</u>	04/17/09 17:41	GY	4992376
	ND			5 5	1	04/17/09 17:41	GY	4992376
Chrysene Dibenz(a,h)anthracene	ND			5 	<u>'</u>	04/17/09 17:41	GY	4992376
	ND ND			5			GY	
Dibenzofuran	ND ND				1	04/17/09 17:41		4992376
Diethyl phthalate					1	04/17/09 17:41	GY	4992376
Dimethyl phthalate	ND			5	1	04/17/09 17:41	GY	4992376
Di-n-butyl phthalate	ND			5	1	04/17/09 17:41	GY	4992376
Di-n-octyl phthalate	ND			5	1	04/17/09 17:41	GY	4992376
Fluoranthene	ND			5	1	04/17/09 17:41	GY	4992376
Fluorene	ND			5	11	04/17/09 17:41	GY	4992376
Hexachlorobenzene	ND			5	1	04/17/09 17:41	GY	4992376
Hexachlorobutadiene	ND			5	1	04/17/09 17:41	GY	4992376
Hexachlorocyclopentadiene	ND			5	1	04/17/09 17:41	GY	4992376
Hexachloroethane	ND			5	1	04/17/09 17:41	GY	4992376
Indeno(1,2,3-cd)pyrene	ND			5	1	04/17/09 17:41	GY	4992376
Isophorone	ND			5	1	04/17/09 17:41	GY	4992376
Naphthalene	ND			5	1	04/17/09 17:41	GY	4992376
Nitrobenzene	ND			5	1	04/17/09 17:41	GY	4992376
N-Nitrosodi-n-propylamine	ND	-		5	1	04/17/09 17:41	GY	4992376
N-Nitrosodiphenylamine	ND			5	1	04/17/09 17:41	GY	4992376
Pentachlorophenol	ND			25	1	04/17/09 17:41	GY	4992376
Phenanthrene	ND			5	1	04/17/09 17:41	GY	4992376
Phenol	ND			5	1	04/17/09 17:41	GY	4992376
Pyrene	ND		-	5	1	04/17/09 17:41	GY	4992376
Pyridine	ND			5	1	04/17/09 17:41	GY	4992376
2-Methylphenol	ND		-	5	1	04/17/09 17:41	GY	4992376
3 & 4-Methylphenol	ND		-	5	1	04/17/09 17:41	GY	4992376
Surr: 2,4,6-Tribromophenol	81.9		%	10-123	1	04/17/09 17:41	GY	4992376
Surr: 2-Fluorobiphenyl	61.4		%	23-116	1	04/17/09 17:41	GY	4992376
Surr: 2-Fluorophenol	49.1		%	16-110	1	04/17/09 17:41	GY	4992370
Surr: Nitrobenzene-d5	58.0	-		21-114	1	04/17/09 17:41	GY	4992376
Surr: Phenol-d5	33.5		%	10-110	1	04/17/09 17:41	GY	4992370
Surr: Terphenyl-d14	55.0		%	22-141	1	04/17/09 17:41	GY	4992370

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-99

Collected: 04/08/2009 10:11

SPL Sample ID:

09040283-01

			Site:	Hobl	bs NM		_			_
Analyses/Method	Result	QUAL	Rep.L	imit		Dil. Factor	Date An	alyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	HOD 8260B				MCL	SV	V8260B	Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1,1-Trichloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1,2,2-Tetrachloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1,2-Trichloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1-Dichloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1-Dichloroethene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,1-Dichloropropene	ND	<u> </u>		5		1	04/14/0	9 20:57	JC	4985229
1,2,3-Trichlorobenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2,3-Trichloropropane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2,4-Trichlorobenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2,4-Trimethylbenzene	ND	_		5	-	1	04/14/0	9 20:57	JC	4985229
1,2-Dibromo-3-chloropropane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2-Dibromoethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2-Dichlorobenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2-Dichloroethane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,2-Dichloropropane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,3,5-Trimethylbenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,3-Dichlorobenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
1,3-Dichloropropane	ND			5		1	04/14/0	9 20:57	JC	4985229
1,4-Dichlorobenzene	ND			5		1	04/14/0	9 20:57	JC	4985229
2,2-Dichloropropane	ND			5		1	04/14/0	9 20:57	JC	4985229
2-Butanone	ND			20		1	04/14/0	9 20:57	JC	4985229
2-Chloroethyl vinyl ether	ND J			10		1	04/14/0	9 20:57	JC	4985229
2-Chlorotoluene	ND			5		1	04/14/0	9 20:57	JC	4985229
2-Hexanone	ND			10		1	04/14/0	9 20:57	JC	4985229
4-Chlorotoluene	ND			5		1	04/14/0		JC	4985229
4-Isopropyltoluene	ND			5		1	04/14/0	9 20:57	JC	4985229
4-Methyl-2-pentanone	ND			10		1	04/14/0	9 20:57	JC	4985229
Acetone	ND			20		1	04/14/0	9 20:57	JC	4985229
Acrylonitrile	ND			10		1	04/14/0	9 20:57	JC	4985229
Benzene	ND			5		1		9 20:57	JC	4985229
Bromobenzene	ND			5		1	04/14/0		JC	4985229
Bromochloromethane	ND			5		1		9 20:57	JC	4985229
Bromodichloromethane	ND			5		1		9 20:57	JC	4985229
Bromoform	ND			5		1		9 20:57	JC	4985229
Bromomethane	ND			10		1		9 20:57	JC	4985229
Carbon disulfide	ND			5		1		9 20:57	JC	4985229
Carbon tetrachloride	ND			5		1		9 20:57	JC	4985229
Chlorobenzene	ND			5		1		9 20:57	JC	4985229

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-99

Collected: 04/08/2009 10:11

SPL Sample ID:

09040283-01

			Site	: H	obbs NM				
Analyses/Method	Result	QUAL	Rep	p.Limi	t	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10)	1	04/14/09 20:57	JC	4985229
Chloroform	ND				5	1	04/14/09 20:57	JC	4985229
Chloromethane	ND			1()	1	04/14/09 20:57	JC	4985229
Dibromochloromethane	ND			į	5	1	04/14/09 20:57	JC	4985229
Dibromomethane	ND				5	1	04/14/09 20:57	JC	4985229
Dichlorodifluoromethane	ND	· 		10)	1	04/14/09 20:57	JC	4985229
Ethylbenzene	ND			į	5	1	04/14/09 20:57	JC	4985229
Hexachlorobutadiene	ND				5	1	04/14/09 20:57	JC	4985229
Isopropylbenzene	ND				5	1	04/14/09 20:57	JC	4985229
Methyl tert-butyl ether	ND				5	1	04/14/09 20:57	JC	4985229
Methylene chloride	ND				5	1	04/14/09 20:57	JC	4985229
Naphthalene	ND				5	1	04/14/09 20:57	JC	4985229
n-Butylbenzene	ND				5	1	04/14/09 20:57	JC	4985229
n-Propylbenzene	ND				5	1	04/14/09 20:57	JC	4985229
sec-Butylbenzene	ND				5	1	04/14/09 20:57	JC	4985229
Styrene	ND				5	1	04/14/09 20:57	JC	4985229
tert-Butylbenzene	ND				5	1	04/14/09 20:57	JC	4985229
Tetrachloroethene	ND				 5	1	04/14/09 20:57	JC	4985229
Toluene	ND				5	1	04/14/09 20:57	JC	4985229
Trichloroethene	ND				5	1	04/14/09 20:57	JC	4985229
Trichlorofluoromethane	ND				5	1	04/14/09 20:57	JC	4985229
Vinyl acetate	ND			1	0	1	04/14/09 20:57	JC	4985229
Vinyl chloride	ND				2	1	04/14/09 20:57	JC	4985229
cis-1,2-Dichloroethene	ND				5	1	04/14/09 20:57	JC	4985229
cis-1,3-Dichloropropene	ND				5	1	04/14/09 20:57	JC	4985229
m,p-Xylene	ND				5	1	04/14/09 20:57	JC	4985229
o-Xylene	ND				5	1	04/14/09 20:57	JC	4985229
trans-1,2-Dichloroethene	ND				5	1	04/14/09 20:57	JC	4985229
trans-1,3-Dichloropropene	ND				5	1	04/14/09 20:57	JC	4985229
1,2-Dichloroethene (total)	ND				5	1	04/14/09 20:57	JC	498522
Xylenes,Total	ND				5	1	04/14/09 20:57	JC	498522
Surr: 1,2-Dichloroethane-d4	98.0		%	65-11	1	1	04/14/09 20:57	JC	498522
Surr: 4-Bromofluorobenzene	108		%	87-12	0	1	04/14/09 20:57	JC	498522
Surr: Toluene-d8	94.0		%	88-11	 6	1	04/14/09 20:57	JC	4985229

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis:

Semivolatile Hydrocarbons

Method:

Run(D:

SW8015B

WorkOrder:

Samples in Analytical Batch:

09040283

Lab Batch ID:

89427

Method Blank

HP_V_090416B-4987505

Units:

mg/L NW

Lab Sample ID

Client Sample ID

Analysis Date:

04/14/2009 23:43

Analyst:

09040283-010

MW-99

Preparation Date:

04/13/2009 14:10

Prep By:

N_M Method SW3510C

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	51.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090416B-4987506

mg/L

NW

Analysis Date:

04/15/2009 0:03

Units: Analyst:

Preparation Date:

04/13/2009 14:10

Prep By: N M Method SW3510C

Analyte LCS LCS LCS LCSD LCSD LCSD RPD RPD Lower Upper Spike Result Percent Spike Result Percent Limit Limit Limit Added Recovery Added Recovery Diesel Range Organics 1.00 0.895 89.5 1.00 0.880 88.0 1.7 40 21 150 Surr: n-Pentacosane 0.0500 0.0494 98.8 0.0500 0.0485 97.0 1.8 30 20 150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 9

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis:

Gasoline Range Organics

Method:

SW8015B

4011120101 DV 0017100 // 120120

WorkOrder:

09040283

Lab Batch ID:

R270269

Method Blank

RunID: HP_P_090413A-4984662

Units:

Lab Sample ID

Client Sample ID

Analysis Date:

04/13/2009 5:20

Analyst: CLJ

mg/L

09040283-01B

Samples in Analytical Batch:

MW-99

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RunID:

HP P 090413A-4984660

Units: mg/L

......

Analysis Date:

04/13/2009 4:22

Analyst:

t: CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP_P_090413A-4984664

Units:

Analysis Date:

04/13/2009 10:44

Analyst:

mg/L CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1	0.852	85.2	1	0.868	86.8	1.92	36	22	174
Surr: 1,4-Difluorobenzene	ND	0.1	0.0922	92.2	0.1	0.0932	93.2	1.08	30	60	155
Surr: 4-Bromofluorobenzene	ND	0.1	0.105	105	0.1	0.107	107	1.41	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 10

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040283

Lab Batch ID:

89412

Method Blank

RunID:

Analysis Date:

H_090417E-4992370

Units:

ug/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

09040283-01C

MW-99

Preparation Date:

04/17/2009 9:40 04/13/2009 8:15 Analyst: GΥ

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1.4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2.4-Dinitrophenol	ND	25
2.4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	
3,3'-Dichlorobenzidine	ND	
3-Nitroaniline	ND	25
4,6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	
Acenaphthene	ND	5.0
Acenaphthylene	ND	5.0
Aniline	ND	5.0
Anthracene	ND	
Benz(a)anthracene	ND	5.0
Benzo(a)pyrene	ND	5.0
Benzo(b)fluoranthene	ND	
Benzo(g,h,i)perylene	ND	
Benzo(k)fluoranthene	ND	5.0
Benzoic acid	ND	
Benzyl alcohol	ND	
Bis(2-chloroethoxy)methane	ND	
Bis(2-chloroethyl)ether	ND	
Bis(2-chloroisopropyl)ether	ND	
Bis(2-ethylhexyl)phthalate	ND	
Butyl benzyl phthalate	ND	
Carbazole	ND	
Chrysene	ND	
Dibenz(a,h)anthracene	ND	
Dibenzofuran	ND ND	
Dipenzoraran	I	1. 5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 11

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040283

Lab Batch ID:

89412

Method Blank

RunID:

H_090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

Analyst: GY

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	_ ND	5.0
Hexachioroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND	5.0
Phenol	ND	5.0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenol	ND	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	10-110
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

ug/L

Analysis Date: Preparation Date: 04/17/2009 10:42 04/13/2009 8:15

Analyst: GΥ

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1,2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	8.1	50	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 12

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040283

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units: uc

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GY

Preparation Date: 04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63.2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinítro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	. 20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 13

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040283

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GY

Preparation Date: 04

04/13/2009 8:15 Prep

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis (2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis (2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis (2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Dimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachloroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
Isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenol	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 14

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040283

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

Lab Batch ID:

89412

Analysis Date:

04/17/2009 10:42

ug/L Analyst:

GY

Preparation Date:

04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenoi-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

Fracmaster BJ Service -#128125

WorkOrder:

09040283

Lab Batch ID:

R270264

Method Blank

Q 090414A-4985214 RunID:

Units:

ug/L

Lab Sample ID 09040283-01A

Samples in Analytical Batch:

Client Sample ID

MW-99

Analysis Date: Preparation Date: 04/14/2009 14:10 04/14/2009 14:10 Analyst: Prep By:

Method

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	
1.2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	
1,2-Dichloropropane	ND	5.0
	ND	
1,3,5-Trimethylbenzene	ND ND	
1,3-Dichlorobenzene		
1,3-Dichloropropane	ND ND	
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND ND	
2-Butanone	ND ND	
2-Chloroethyl vinyl ether	ND ND	
2-Chlorotoluene	ND ND	
2-Hexanone	ND ND	
4-Chlorotoluene	ND ND	
4-Isopropyltoluene	ND	
4-Methyl-2-pentanone	ND	
Acetone	ND ND	
Acrylonitrile	ND ND	
Benzene	ND.	
Bromobenzene	ND	
Bromochloromethane	ND	
Bromodichloromethane	ND.	
Bromoform	ND	
Bromomethane	ND.	10
Carbon disulfide	ND.	5.0
Carbon tetrachloride	NDND	+
Chlorobenzene	ND	5.0
Chloroethane	ND	10
Chloroform	ND	5.0
Chloromethane	ND	10
Dibromochloromethane	ND	5.0
Dibromomethane	ND	5.0
Dichlorodifluoromethane	ND	1
Ethylbenzene	ND	5.1

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 16

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service -#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040283

Lab Batch ID:

R270264

Method Blank

RunID: Analysis Date:

Q_090414A-4985214

Units:

ug/L

04/14/2009 14:10

Analyst:

JC

Preparation Date:

04/14/2009 14:10

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachioroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichtorofluoromethane	ND	5.0
Vinyl acetate	ND.	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes, Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	98.0	65-111
Surr: 4-Bromofluorobenzene	108.0	87-120
Surr: Toluene-d8	92.0	88-116

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Prep By:

ug/L

Analysis Date: Preparation Date: 04/14/2009 13:43 04/14/2009 13:43 Analyst: JC

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	19.0	95.0	71	128
1,1,1-Trichloroethane	20.0	20.0	100	61	135
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	60	133
1,1,2-Trichloroethane	20.0	18.0	90.0	77	127
1,1-Dichloroethane	20.0	20.0	100	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service -#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040283

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Analysis Date:

04/14/2009 13:43

ug/L

Analyst: JC

Preparation Date:

04/14/2009 13:43

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	22.0	110	65	134
1,1-Dichloropropene	20.0	18.0	90.0	68	126
1,2,3-Trichlorobenzene	20.0	16.0	80.0	36	154
1,2,3-Trichloropropane	20.0	19.0	95.0	38	153
1,2,4-Trichlorobenzene	20.0	16.0	80.0	69	144
1,2,4-Trimethylbenzene	20.0	14.0	70.0	64	128
1,2-Dibromo-3-chloropropane	20.0	14.0	70.0	44	141
1,2-Dibromoethane	20.0	19.0	95.0	75	124
1,2-Dichlorobenzene	20.0	16.0	80.0	68	124
1,2-Dichloroethane	20.0	18.0	90.0	61	138
1,2-Dichloropropane	20.0	18.0	90.0	76	123
1,3,5-Trimethylbenzene	20.0	14.0	70.0	61	127
1,3-Dichlorobenzene	20.0	16.0	80.0	68	127
1,3-Dichloropropane	20.0	17.0	85.0	76	125
1,4-Dichlorobenzene	20.0	15.0	75.0	68	124
2,2-Dichloropropane	20.0	19.0	95.0	42	142
2-Butanone	20.0	20.0	100	22	183
2-Chloroethyl vinyl ether	20.0	18.0	90.0	10	179
2-Chlorotoluene	20.0	15.0	75.0	64	132
2-Hexanone	20.0	16.0	80.0	31	178
4-Chlorotoluene	20.0	15.0	75.0	61	132
4-Isopropyltoluene	20.0	14.0	70.0	63	136
4-Methyl-2-pentanone	20.0	16.0	80.0	10	159
Acetone	20.0	25.0	125	10	200
Acrylonitrile	20.0	20.0	100	54	155
Benzene	20.0	18.0	90.0	74	123
Bromobenzene	20.0	15.0	75.0	68	129
Bromochloromethane	20.0	21.0	105	71	124
Bromodichloromethane	20.0	19.0	95.0	72	128
Bromoform	20.0	19.0	95.0	81	138
Bromomethane	20.0	21.0	105	53	130
Carbon disulfide	20.0	27.0	135	41	143
Carbon tetrachloride	20.0	21.0	105	59	142
Chlorobenzene	20.0	18.0	90.0	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service -#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040283

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Analysis Date:

04/14/2009 13:43

ug/L JC Analyst:

Preparation Date:

04/14/2009 13:43

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.0	100	60	134
Chloroform	20.0	20.0	100	71	127
Chloromethane	20.0	16.0	80.0	50	139
Dibromochloromethane	20.0	18.0	90.0	65	130
Dibromomethane	20.0	20.0	100	79	124
Dichlorodifluoromethane	20.0	17.0	85.0	22	162
Ethylbenzene	20.0	17.0	85.0	72	127
Hexachlorobutadiene	20.0	16.0	80.0	45	152
Isopropylbenzene	20.0	15.0	75.0	58	130
Methyl tert-butyl ether	40.0	40.0	100	63	123
Methylene chloride	20.0	21.0	105	61	135
Naphthalene	20.0	16.0	80.0	33	148
n-Butylbenzene	20.0	14.0	70.0	62	136
n-Propylbenzene	20.0	14.0	70.0	57	131
sec-Butylbenzene	20.0	14.0	70.0	63	131
Styrene	20.0	17.0	85.0	69	120
tert-Butylbenzene	20.0	14.0	70.0	59	131
Tetrachloroethene	20.0	21.0	105	45	173
Toluene	20.0	17.0	85.0	74	126
Trichloroethene	20.0	20.0	100	79	131
Trichlorofluoromethane	20.0	23.0	115	49	153
Vinyl acetate	20.0	16.0	80.0	10	167
Vinyl chloride	20.0	20.0	100	51	148
cis-1,2-Dichloroethene	20.0	20.0	100	71	128
cis-1,3-Dichloropropene	20.0	17.0	85.0	67	128
m,p-Xylene	40.0	35.0	87.5	71	129
o-Xylene	20.0	18.0	90.0	74	130
trans-1,2-Dichloroethene	20.0	21.0	105	66	128
trans-1,3-Dichloropropene	20.0	16.0	80.0	60	128
1,2-Dichloroethene (total)	40	41	100	66	128
Xylenes,Total	60	53	88	71	130
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	65	111
Surr: 4-Bromofluorobenzene	50.0	56	112	87	120
Surr: Toluene-d8	50.0	46	92.0	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service #128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

WorkOrder:

09040283

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

MS MS MS % MSD MSD MSD % RPD RPD Analyte Sample Low High Result Spike Result Recovery Spike Result Recovery Limit Limit Limit Added Added ND 20 21.0 1,1,1,2-Tetrachloroethane 105 20 20.0 100 4.88 20 68 124 20 20 20 1,1,1-Trichloroethane ND 21.0 105 20.0 100 4.88 69 123 20 ND 20.0 20 20 1,1,2,2-Tetrachloroethane 100 20.0 100 0 69 130 1,1,2-Trichloroethane ND 20 20.0 100 20 100 0 20 126 20.0 75 ND 20 21.0 105 20 20.0 4.88 1,1-Dichloroethane 100 20 65 129 ND 20 23.0 20 22 1,1-Dichloroethene 115 23.0 115 0 61 139 1,1-Dichloropropene ND 20 21.0 105 20 20.0 100 4.88 20 69 121 ND 20 20 1,2,3-Trichlorobenzene 17.0 85.0 85.0 0 20 53 127 17.0 20 1,2,3-Trichloropropane ND 20.0 100 20 19.0 95.0 5.13 20 79 124 20 1,2,4-Trichlorobenzene ND 17.0 85.0 20 16.0 80.0 6.06 20 58 118 20 ND 16.0 0.08 20 15.0 75.0 6.45 20 43 1,2,4-Trimethylbenzene 132 20 1,2-Dibromo-3-chloropropane ND 15.0 75.0 20 14.0 70.0 6.90 20 131 46 20 1,2-Dibromoethane ND 20.0 20 100 20 100 20.0 n 76 122 20 20 NΩ 18.0 90.0 1,2-Dichlorobenzene 17.0 85.0 5.71 20 74 110 ND 20 18.0 1,2-Dichloroethane 90.0 20 18.0 90.0 0 20 60 129 1,2-Dichloropropane 20 ND 20.0 100 20 19.0 95.0 5.13 20 76 116 1,3,5-Trimethylbenzene ND 20 15.0 75.0 20 14.0 70.0 6.90 20 51 121 20 1,3-Dichlorobenzene ND 18.0 90.0 20 17.0 85.0 5.71 20 71 110 20 ND 19.0 95.0 20 90.0 5.41 20 119 1,3-Dichloropropane 18.0 80 1,4-Dichlorobenzene ND 20 17.0 85.0 20 17.0 85.0 0 20 110 20 2,2-Dichloropropane ND 22.0 110 20 22.0 110 0 20 52 122 20 NΩ 21.0 105 20 21.0 105 0 20 10 2-Butanone 133 2-Chloroethyl vinyl ether ND 20 0 0 * 20 0 * 0 20 10 182 0 2-Chlorotoluene NΩ 20 18.0 90.0 20 17.0 85.0 5.71 20 69 112 20 ND 16.0 80.0 20 16.0 0.08 20 10 163 2-Hexanone 0 4-Chlorotoluene ND 20 17.0 85.0 20 37 17.0 85.0 0 20 110 4-Isopropyltoluene ND 20 16.0 80.0 20 16.0 80.0 0 20 116 65 ND 20 17.0 20 4-Methyl-2-pentanone 85.0 17.0 85.0 0 20 10 103 ND 20 Acetone 22.0 110 20 22.0 110 0 20 10 160 NΩ 20 20.0 100 20 0 Acrylonitrile 20.0 100 20 45 155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve * - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply

09040283 Page 20

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service #128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

acmaster BJ Service -#128125

WorkOrder:

09040283

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040281-03

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	21.0	105	20	20.0	100	4.88	22	70	124
Bromobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	72	111
Bromochloromethane	ND	20	25.0	125	20	24.0	120	4.08	20	73	126
Bromodichloromethane	ND	20	20.0	100	20	18.0	90.0	10.5	20	68	125
Bromoform	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	44	132
Bromomethane	ND	20	23.0	115	20	21.0	105	9.09	20	50	140
Carbon disulfide	ND	20	21.0	105	20	20.0	100	4.88	20	46	143
Carbon tetrachloride	ND	20	20.0	100	20	20.0	100	0	20	66	126
Chlorobenzene	ND	20	21.0	105	20	20.0	100	4.88	21	68	123
Chloroethane	ND	20	22.0	110	20	21.0	105	4.65	20	59	134
Chloroform	ND	20	21.0	105	20	20.0	100	4.88	20	68	127
Chloromethane	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	51	137
Dibromochloromethane	ND	20	18.0	90.0	. 20	17.0	85.0	5.71	20	58	131
Dibromomethane	ND	20	22.0	110	20	20.0	100	9.52	20	82	123
Dichlorodifluoromethane	ND	20	16.0	80.0	20	17.0	85.0	6.06	20	35	143
Ethylbenzene	ND	20	20.0	100	20	19.0	95.0	5.13	20	76	122
Hexachlorobutadiene	ND	20	18.0	90.0	20	17.0	85.0	5.71	.20	43	137
Isopropylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	57	124
Methyl tert-butyl ether	ND	40	43.0	108	40	42.0	105	2.35	20	10	200
Methylene chloride	ND	20	23.0	115	20	22.0	110	4.44	20	70	134
Naphthalene	ND	20	16.0	80.0	20	16.0	80.0	0	20	42	140
n-Butylbenzene	ND	20	16.0	80.0 *	20	16.0	80.0 *	0	20	82	112
n-Propylbenzene	ND	20	16.0	80.0	20	16.0	80.0	0	20	73	108
sec-Butylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	76	110
Styrene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	58	152
tert-Butylbenzene	ND	20	15.0	75.0	20	15.0	75.0	0	20	66	120
Tetrachloroethene	ND	20	25.0	125	20	25.0	125	0	20	71	130
Toluene	ND	20	20.0	100	20	20.0	100	0	24	80	117
Trichloroethene	ND	20	23.0	115	20	22.0	110	4.44	21	82	121
Trichlorofluoromethane	ND	20	21.0	105	20	21.0	105	0	20	74	138
Vinyl acetate	ND	20	18.0	90.0	20	18.0	90.0	0	20	66	135
Vinyl chloride	ND	20	20.0	100	20	19.0	95.0	5.13	20	45	143

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service -#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

10/0

WorkOrder:

09040283

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	25.0	125	20	23.0	115	8.33	20	67	132
cis-1,3-Dichloropropene	ND	20	18.0	90.0	20	16.0	80.0	11.8	20	67	116
m,p-Xylene	ND	40	40.0	100	40	38.0	95.0	5.13	20	69	127
o-Xylene	ND	20	21.0	105	20	20.0	100	4.88	20	84	114
trans-1,2-Dichloroethene	ND	20	24.0	120	20	23.0	115	4.26	20	68	131
trans-1,3-Dichloropropene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	56	131
1,2-Dichloroethene (total)	ND	40	49	120	40	46	120	6.3	20	67	132
Xylenes,Total	ND	60	61	100	60	58	97	5.0	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	49	98.0	50	49.0	98.0	0	30	65	111
Surr: 4-Bromofluorobenzene	ND	50	53	106	50	54.0	108	1.87	30	87	120
Surr: Toluene-d8	ND	50	47	94.0	50	48.0	96.0	2.11	30	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040283 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Sample Receipt Checklist And Chain of Custody





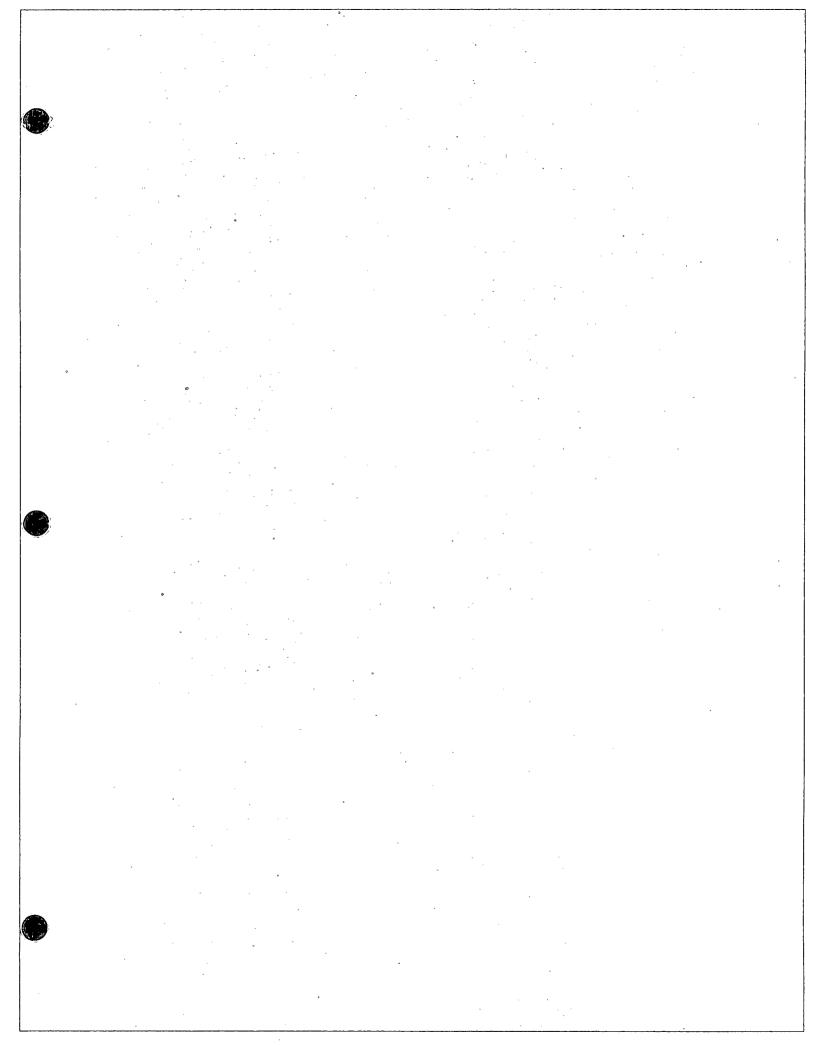
8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Workorder: 09040283 Date and Time Received: 4/9/2009 10:0	0:00 AM		Received By: Carrier name:	BF FedEx
Temperature: 3.5°C			Chilled by:	Water Ice
1. Shipping container/cooler in good co	ondition?	Yes 🔽	No 🗆	Not Present
2. Custody seals intact on shippping co	ontainer/cooler?	Yes 🗸	No 🗆	Not Present
3. Custody seals intact on sample bott	les?	Yes	No 🗆	Not Present 🗹
4. Chain of custody present?		Yes 🔽	No 🗌	
5. Chain of custody signed when reline	quished and received?	Yes 🗸	No 🗌	
6. Chain of custody agrees with sample	e labels?	Yes 🗹	No 🗆	
7. Samples in proper container/bottle?		Yes 🔽	No 🗌	
8. Sample containers intact?		Yes 🗹	No 🗌	
9. Sufficient sample volume for indicate	ted test?	Yes 🗸	No 🗆	
10. All samples received within holding	time?	Yes 🗹	No 🗌	
11. Container/Temp Blank temperature	in compliance?	Yes 🗹	No 🗌	
12. Water - VOA vials have zero headsp	ace?	Yes 🔽	No 🗌 VO	A Vials Not Present
13. Water - Preservation checked upon	receipt (except VOA*)?	Yes	No 🗆	Not Applicable ✓
*VOA Preservation Checked After S	ample Analysis			
SPL Representative:		Contact Date 8	Time:	
Client Name Contacted:				
Non Conformance Issues:				
Client Instructions:				



		SPL Workorder No.	322331
Analysis Reques	SPL, Inc. Analysis Request & Chain of Custody Record	09040033	pageof
Tient Name: Brolly and al	matrix bottle size	pres. Requested	sted Analysis
15 LOW STORE # 5 5 Lon 713 - 759 - 6 713 - 759 - 6 FOLWASKE B SAMPLE ID R R.	DATE TIME Comp Paralli XR excell Consulti XR excell XR excell Consulti XR excell XR e	X MH - D 6 M (8015) S = H204 X = other X M2 (82.70) X M2 (82.70) X M3 = H204 X = other X M4 = D 6 M (8015) M = D 6 M	
Thent/Consultant Remarks:	Laboratory remarks:		Intact? TY N Ice? Y N Temp: 3, St.
	Special Reporting Requirements Results: Fax Email X PDF Special Det Standard QC Leyer 3 Pecial Level 4 QC TX TRRP LA RECAP	Special Detection Limits (specify):	PM review (initial):
Standard	1. Relinquisher by Sampler: date time 30	2. Received by: 4. Received by:	-
es prior notice	date /4/69	6. Received by Laboratory:	4
☐ 8880 Interchange Drive Houston, TX 77054 (713) 660-0901	ive	Traverse City, MI	/ 459 Hughes Drive Traverse City, MI 49686 (231) 947-5777





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09040279

Report To:	Project Name: Fracmaster
Brown & Caldwell	Site: Hobbs NM
Rick Rexroad	Site Address:
1415 Louisiana	
Suite 2500	PO Number:
Houston	
TX	State: New Mexico
77002-	State Cert. No.:
ph: (713) 759-0999 fax:	Date Reported: 4/27/2009

This Report Contains A Total Of 43 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09040279

Report To: Project Name: Fracmaster Hobbs NM Site: **Brown & Caldwell** Rick Rexroad Site Address: 1415 Louisiana **Suite 2500** PO Number: Houston State: **New Mexico** TX 77002-State Cert. No.: ph: (713) 759-0999 fax: **Date Reported:** 4/27/2009

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs. Prep Comments for PR3510_DRO, Sample 09040279-02C: Unpreserved bottle

Agnes V-Vickeaire

09040279 Page 1

4/27/2009

Agnes V. Vicknair

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040279

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad 1415 Louisiana

Suite 2500 Houston

TX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Ismes V. Vicheave

Project Name:

Fracmaster

Site:

Hobbs NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

4/27/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW 5-54-55	09040279-01	Soil	4/7/2009 2:31:00 PM	4/9/2009 10:00:00 AM	322330	
MW-1	09040279-02	Water	4/7/2009 3:09:00 PM	4/9/2009 10:00:00 AM	322329	
TB-4-8-09B	09040279-03	Water	4/8/2009 10:07:00 AM	4/9/2009 10:00:00 AM	322329	
FB-4-8-09B	09040279-04	Water	4/8/2009 10:10:00 AM	4/9/2009 10:00:00 AM	322329	

Agnes V. Vicknair Project Manager

4/27/2009

Date

Kesavalu M. Bagawandoss Laboratory Director

Ted Yen Quality Assurance Officer





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

09040279-01

Client Sample ID: MW5-54-55 Collected: 04/07/2009 14:31 SPL Sample ID:

Site: Hobbs NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil.	Facto	or Date Anal	yzed	Analyst	Seq. #
SEMIVOLATILE HYDROCARBON	S			MCL		SW8015B	Un	its: mg/kg	
Diesel Range Organics	36		5	_	1	04/16/09	23:19	NW	4987380
Mineral Spirits Range Organics	ND		10		1	04/16/09	23:19	NW	4987380
Surr: n-Pentacosane	84.2		% 20-154		1	04/16/09	23:19	NW	4987380

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/13/2009 16:58	QMT	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040279 Page 3 4/27/2009 5:02:01 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

09040279-01

Client Sample ID: MW5-54-55 Collected: 04/07/2009 14:31 SPL Sample ID:

Site: Hobbs NM

Site: Hobbs NM									
Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #			
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Ur	nits: ug/kg				
1,2,4-Trichlorobenzene	ND	330	1	04/16/09 1:52	E_R	4986262			
1,2-Dichlorobenzene	ND	330	1	04/16/09 1:52	E_R	4986262			
1,2-Diphenylhydrazine	ND	330	1	04/16/09 1:52	E_R	4986262			
1,3-Dichlorobenzene	ND	330	1	04/16/09 1:52	E_R	4986262			
1,4-Dichlorobenzene	ND	330	1	04/16/09 1:52	E_R	4986262			
2,4,5-Trichlorophenol	ND	800	1	04/16/09 1:52	E_R	4986262			
2,4,6-Trichlorophenol	ND	330	1	04/16/09 1:52	E_R	4986262			
2,4-Dichlorophenol	ND	330	. 1	04/16/09 1:52	E_R	4986262			
2,4-Dimethylphenol	ND	330	1	04/16/09 1:52	E_R	4986262			
2,4-Dinitrophenol	ND	800	1	04/16/09 1:52	ER	4986262			
2,4-Dinitrotoluene	ND	800	1	04/16/09 1:52	E_R	4986262			
2,6-Dinitrotoluene	ND	330	1	04/16/09 1:52	E R	4986262			
2-Chloronaphthalene	ND	330	1	04/16/09 1:52	E R	4986262			
2-Chlorophenol	ND	330	1	04/16/09 1:52	E R	4986262			
2-Methylnaphthalene	ND	330	1	04/16/09 1:52	E R	4986262			
2-Nitroaniline	ND	800	1	04/16/09 1:52	E R	4986262			
2-Nitrophenol	ND	330	1	04/16/09 1:52	E R	4986262			
3,3'-Dichlorobenzidine	ND	330	1	04/16/09 1:52	 E_R	4986262			
3-Nitroaniline	ND	800	1	04/16/09 1:52	E_R	4986262			
4,6-Dinitro-2-methylphenol	ND	800	1	04/16/09 1:52	ER	4986262			
4-Bromophenyl phenyl ether	ND	330	1	04/16/09 1:52	ER	4986262			
4-Chloro-3-methylphenol	ND	330	1	04/16/09 1:52	 E_R	4986262			
4-Chloroaniline	ND	330	1	04/16/09 1:52	ER	4986262			
4-Chlorophenyl phenyl ether	ND	330	1	04/16/09 1:52	E_R	4986262			
4-Nitroaniline	ND	800	1	04/16/09 1:52	E R	4986262			
4-Nitrophenol	ND	800	1	04/16/09 1:52		4986262			
Acenaphthene	ND	330	1	04/16/09 1:52	E_R	4986262			
Acenaphthylene	ND	330	1	04/16/09 1:52	E_R	4986262			
Aniline	ND	330	1	04/16/09 1:52	E_R	4986262			
Anthracene	ND	330	1	04/16/09 1:52	E_R	4986262			
Benz(a)anthracene	ND	330	1	04/16/09 1:52	 E_R	4986262			
Benzo(a)pyrene	ND	330	1	04/16/09 1:52	 E_R	4986262			
Benzo(b)fluoranthene	ND	330	1	04/16/09 1:52	E_R	4986262			
Benzo(g,h,i)perylene	ND	330	1	04/16/09 1:52	 E_R	4986262			
Benzo(k)fluoranthene	ND	330	1	04/16/09 1:52	E_R	4986262			
Benzoic acid	ND	1600	1	04/16/09 1:52	 E_R	4986262			
Benzyl alcohol	ND	330	1	04/16/09 1:52	E_R	4986262			
Bis(2-chloroethoxy)methane	ND	330	1	04/16/09 1:52	 E_R	4986262			
Bis(2-chloroethyl)ether	ND	330	1	04/16/09 1:52	E_R	4986262			

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW5-54-55

Collected: 04/07/2009 14:31

SPL Sample ID:

09040279-01

			Site	: Hobbs	NM			
Analyses/Method	Result	QUAL	Rep	o.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND			330	1	04/16/09 1:52	E_R	498626
Bis(2-ethylhexyl)phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Butyl benzyl phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Carbazole	ND			330	1	04/16/09 1:52	E_R	498626
Chrysene	ND			330	1	04/16/09 1:52	E_R	498626
Dibenz(a,h)anthracene	ND			330	1	04/16/09 1:52	E_R	498626
Dibenzofuran	ND		-	330	1	04/16/09 1:52	E_R	498626
Diethyl phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Dimethyl phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Di-n-butyl phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Di-n-octyl phthalate	ND			330	1	04/16/09 1:52	E_R	498626
Fluoranthene	ND			330	1	04/16/09 1:52	E_R	498626
Fluorene	ND		-	330	1	04/16/09 1:52	E_R	498626
Hexachlorobenzene	ND			330	1	04/16/09 1:52	E_R	498626
Hexachlorobutadiene	ND			330	1	04/16/09 1:52	E_R	498626
Hexachlorocyclopentadiene	ND			330	1	04/16/09 1:52	E_R	498626
Hexachloroethane	ND			330	1	04/16/09 1:52	E_R	498626
Indeno(1,2,3-cd)pyrene	ND			330	1	04/16/09 1:52	E_R	498626
Isophorone	ND			330	1	04/16/09 1:52	E_R	498626
Naphthalene	ND			330	1	04/16/09 1:52	E_R	498626
Nitrobenzene	ND			330	1	04/16/09 1:52	E_R	498626
N-Nitrosodi-n-propylamine	ND			330	1	04/16/09 1:52	E_R	498626
N-Nitrosodiphenylamine	ND			330	1	04/16/09 1:52	E_R	498626
Pentachlorophenol	ND			800	1	04/16/09 1:52	E_R	498626
Phenanthrene ·	ND			330	1	04/16/09 1:52	E_R	498626
Phenol	ND	-		330	1	04/16/09 1:52	E_R	498626
Pyrene	ND			330	1	04/16/09 1:52	E_R	498626
Pyridine	ND			330	1	04/16/09 1:52	E_R	498626
2-Methylphenol	ND			330	1	04/16/09 1:52	E_R	498626
3 & 4-Methylphenol	ND			330	1	04/16/09 1:52	E_R	498626
Surr: 2,4,6-Tribromophenol	59.6		%	19-135	1	04/16/09 1:52	E_R	498626
Surr: 2-Fluorobiphenyl	41.7		%	15-140	1	04/16/09 1:52	E_R	498626
Surr: 2-Fluorophenol	54.8		%	15-122	1	04/16/09 1:52	 E_R	498626
Surr: Nitrobenzene-d5	37.1		%	10-134	1	04/16/09 1:52	E_R	498626
Surr: Phenol-d5	56.4		%	10-123	1	04/16/09 1:52	E_R	498626
Surr: Terphenyl-d14	40.2		%	18-166	1	04/16/09 1:52	E_R	498626

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	04/13/2009 11:33	QMT	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-1 Collected: 04/07/2009 15:09 SPL Sample ID: 09040279-02

			Sit	e: Hob	bs NM					
Analyses/Method	Result	QUAL	R	ep.Limit	Di	l. Facto	r Date Ana	lyzed	Analyst	Seq. #
ALKALINITY (AS CACO3), TOTA	AL.				MCL		E310.1	Uni	ts: mg/L	
Alkalinity, Total (As CaCO3)	198			2		1	04/13/09	11:20	PAC	4982662
GASOLINE RANGE ORGANICS					MCL	S	W8015B	Uni	ts: mg/L	
Gasoline Range Organics	ND			0.1		1	04/13/09	16:49	CLJ	4984672
Surr: 1,4-Difluorobenzene	91.0		%	60-155		1	04/13/09	16:49	CLJ	4984672
Surr: 4-Bromofluorobenzene	105		%	50-158		1	04/13/09	16:49	CLJ	4984672
HEADSPACE GAS ANALYSIS					MCL		RSK147	Uni	its: mg/L	
Methane	0.0014			0.0012		1	04/24/09	14:48	V_L	4996392
ION CHROMATOGRAPHY					MCL		E300.0	Uni	its: mg/L	
Chloride	456			25		50	04/14/09	22:18	BDG	4985116
Sulfate	128			25		50	04/14/09	22:18	BDG	4985116
Nitrogen,Nitrate (As N)	4			0.5		1	04/09/09	11:43	BDG	4984860
SEMIVOLATILE HYDROCARBO	NS			-	MCL	5	SW8015B	Uni	its: mg/L	
Diesel Range Organics	ND			0.1		1	04/17/0	9 0:00	NW	4987513
Mineral Spirits Range Organics	ND			0.1		1	04/17/0	9 0:00	NW	4987513
Surr: n-Pentacosane	41.8		%	20-150		1	04/17/0	9 0:00	NW	4987513

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00



ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-1

Collected: 04/07/2009 15:09

SPL Sample ID:

09040279-02

		Site: Hob	bs NM				
Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #	
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Ur	its: ug/L		
1,2,4-Trichlorobenzene	ND	5	1	04/17/09 16:37	GY	4992374	
1,2-Dichlorobenzene	ND	5	1	04/17/09 16:37	GY	4992374	
1,2-Diphenylhydrazine	ND	10	1	04/17/09 16:37	GY	4992374	
1,3-Dichlorobenzene	ND	5	1	04/17/09 16:37	GY	4992374	
1,4-Dichlorobenzene	ND	5	1	04/17/09 16:37	GY	4992374	
2,4,5-Trichlorophenol	ND	10	1	04/17/09 16:37	GY	4992374	
2,4,6-Trichlorophenol	ND	5	1	04/17/09 16:37	GY	4992374	
2,4-Dichlorophenol	ND	5	1	04/17/09 16:37	GY	4992374	
2,4-Dimethylphenol	ND	5	1	04/17/09 16:37	GY	4992374	
2,4-Dinitrophenol	ND	25	1	04/17/09 16:37	GY	4992374	
2,4-Dinitrotoluene	ND	5	1	04/17/09 16:37	GY	4992374	
2,6-Dinitrotoluene	ND	5	1	04/17/09 16:37	GY	4992374	
2-Chloronaphthalene	ND	5	1	04/17/09 16:37	GY	4992374	
2-Chlorophenol	ND	5	1	04/17/09 16:37	GY	4992374	
2-Methylnaphthalene	ND	5	1	04/17/09 16:37	GY	4992374	
2-Nitroaniline	ND	25	1	04/17/09 16:37	GY	499237	
2-Nítrophenol	ND	5	1	04/17/09 16:37	GY	499237	
3,3'-Dichlorobenzidine	ND	10	1	04/17/09 16:37	GY	499237	
3-Nitroaniline	ND	25	1	04/17/09 16:37	GY	499237	
4,6-Dinitro-2-methylphenol	ND	25	1	04/17/09 16:37	GY	499237	
4-Bromophenyl phenyl ether	ND	5	1	04/17/09 16:37	GY	499237	
4-Chloro-3-methylphenol	ND	5	1	04/17/09 16:37	GY	499237	
4-Chloroaniline	ND	5	1	04/17/09 16:37	GY	499237	
4-Chlorophenyl phenyl ether	ND	5	1	04/17/09 16:37	GY	499237	
4-Nitroaniline	ND	25	1	04/17/09 16:37	GY	499237	
4-Nitrophenol	ND	25	1	04/17/09 16:37	GY	499237	
Acenaphthene	ND	5	1	04/17/09 16:37	GY	499237	
Acenaphthylene	ND	5	1	04/17/09 16:37	GY	499237	
Aniline	ND	5	1	04/17/09 16:37	GY	499237	
Anthracene	ND	5	1	04/17/09 16:37	GY	499237	
Benz(a)anthracene	ND	5	1	04/17/09 16:37	GY	499237	
Benzo(a)pyrene	ND	5	1	04/17/09 16:37	GY	499237	
Benzo(b)fluoranthene	ND	5	1	04/17/09 16:37	GY	499237	
Benzo(g,h,i)perylene	ND	5	1	04/17/09 16:37	GY	499237	
- 412							

5

25

5

5

5

Qualifiers:

Benzo(k)fluoranthene

Bis(2-chloroethoxy)methane

Bis(2-chloroethyl)ether

Benzoic acid

Benzyl alcohol

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

ND

ND

ND

ND

ND

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

04/17/09 16:37 GY

04/17/09 16:37 GY

GΥ

GY

04/17/09 16:37

04/17/09 16:37

04/17/09 16:37

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

1

1

1

1

1

4992374

4992374

4992374

4992374

4992374



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-1

Collected: 04/07/2009 15:09

SPL Sample ID:

09040279-02

			Site:	Hobbs	NM			
Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Bis(2-chloroisopropyl)ether	ND			5	1	04/17/09 16:37	GY	4992374
Bis(2-ethylhexyl)phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Butyl benzyl phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Carbazole	ND			5	1	04/17/09 16:37	GY	4992374
Chrysene	ND			5	1	04/17/09 16:37	GY	4992374
Dibenz(a,h)anthracene	ND			5	1	04/17/09 16:37	GY	4992374
Dibenzofuran	ND			5	1	04/17/09 16:37	GY	4992374
Diethyl phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Dimethyl phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Di-n-butyl phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Di-n-octyl phthalate	ND			5	1	04/17/09 16:37	GY	4992374
Fluoranthene	ND			5	1	04/17/09 16:37	GY	4992374
Fluorene	ND			5	1	04/17/09 16:37	GY	4992374
Hexachlorobenzene	ND			5	1	04/17/09 16:37	GY	4992374
Hexachlorobutadiene	ND			5	1	04/17/09 16:37	GY	4992374
Hexachlorocyclopentadiene	ND			5	1	04/17/09 16:37	GY	4992374
Hexachloroethane	ND			5	1	04/17/09 16:37	GY	4992374
Indeno(1,2,3-cd)pyrene	ND			5	1	04/17/09 16:37	GY	4992374
Isophorone	ND			5	1	04/17/09 16:37	GY	4992374
Naphthalene	ND			5	1	04/17/09 16:37	GY	499237
Nitrobenzene	ND			5	1	04/17/09 16:37	GY	4992374
N-Nitrosodi-n-propylamine	ND			5	1	04/17/09 16:37	GY	4992374
N-Nitrosodiphenylamine	ND			5	1	04/17/09 16:37	GY	4992374
Pentachlorophenol	ND			25	1	04/17/09 16:37	GY	499237
Phenanthrene	ND			5	1	04/17/09 16:37	GY	4992374
Phenol	ND			5	1	04/17/09 16:37	GY	4992374
Pyrene	ND			5	1	04/17/09 16:37	GY	499237
Pyridine	ND			5	1	04/17/09 16:37	GY	499237
2-Methylphenol	ND			5	1	04/17/09 16:37	GY	499237
3 & 4-Methylphenol	ND			5	1	04/17/09 16:37	GY	499237
Surr: 2,4,6-Tribromophenol	81.6		%	10-123	1	04/17/09 16:37	GY	499237
Surr: 2-Fluorobiphenyl	63.8		% 2	23-116	1	04/17/09 16:37	GY	499237
Surr: 2-Fluorophenol	60.9		%	16-110	1	04/17/09 16:37	GY	499237
Surr: Nitrobenzene-d5	61.8		% 2	21-114	1	04/17/09 16:37	GY	499237
Surr: Phenol-d5	41.3		%	10-110	1	04/17/09 16:37	GY	499237
Surr: Terphenyl-d14	55.8		% 2	22-141	1	04/17/09 16:37	GY	499237

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-1

Collected: 04/07/2009 15:09

SPL Sample ID:

09040279-02

Site: Hobbs NM

Analyses/Method	Result	QUAL	Rep.Limit	Dìl. Factor	Date Analyzed	Analyst	Seq.#
OLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B U		
1,1,1,2-Tetrachloroethane	ND		5	1	04/13/09 18:22	JC	498455
1,1,1-Trichloroethane	ND		5	1	04/13/09 18:22	JC	498455
1,1,2,2-Tetrachloroethane	ND		5	1	04/13/09 18:22	JC	498455
1,1,2-Trichloroethane	ND		5	1	04/13/09 18:22	JC	498455
1,1-Dichloroethane	ND		5	1	04/13/09 18:22	JC	498455
1,1-Dichloroethene	ND		5	1	04/13/09 18:22	JC	498455
1,1-Dichloropropene	ND		5	1	04/13/09 18:22	JC	498455
1,2,3-Trichlorobenzene	ND		5	1	04/13/09 18:22	JC	498455
1,2,3-Trichloropropane	ND		5	1	04/13/09 18:22	JC	498455
1,2,4-Trichlorobenzene	ND		5	1	04/13/09 18:22	JC	498455
1,2,4-Trimethylbenzene	ND		5	1	04/13/09 18:22	. JC	498455
1,2-Dibromo-3-chloropropane	ND		5	1	04/13/09 18:22	JC	498455
1,2-Dibromoethane	ND		5	1	04/13/09 18:22	JC	498455
1,2-Dichlorobenzene	ND		5	1	04/13/09 18:22	. JC	498455
1,2-Dichloroethane	ND		5	1	04/13/09 18:22	! JC	498455
1,2-Dichloropropane	ND		5	1	04/13/09 18:22	JC	498455
1,3,5-Trimethylbenzene	ND		5	1	04/13/09 18:22	. JC	498455
1,3-Dichlorobenzene	ND	_	. 5	1	04/13/09 18:22	. JC	498455
1,3-Dichloropropane	ND		5	1	04/13/09 18:22	. JC	498455
1,4-Dichlorobenzene	ND		5	1	04/13/09 18:22	. JC	498455
2,2-Dichloropropane	ND		5	1	04/13/09 18:22	. JC	498455
2-Butanone	ND		20	1	04/13/09 18:22	. JC	498455
2-Chloroethyl vinyl ether	ND J		10	1	04/13/09 18:22	JC .	49845
2-Chlorotoluene	ND		5	1	04/13/09 18:22	2 JC	49845
2-Hexanone	ND		10	1	04/13/09 18:22	2 JC	49845
4-Chlorotoluene	ND		5	1	04/13/09 18:22	2 JC	49845
4-Isopropyltoluene	ND		5	1	04/13/09 18:22	2 JC	49845
4-Methyl-2-pentanone	ND		10	1	04/13/09 18:22	2 JC	49845
Acetone	ND		20	1	04/13/09 18:22	2 JC	49845
Acryfonitrile	ND		10	1	04/13/09 18:22	2 JC	49845
Benzene	ND		5	1	04/13/09 18:22	JC	49845
Bromobenzene	ND		5	1	04/13/09 18:22	2 JC	49845
Bromochloromethane	ND		5	1	04/13/09 18:22	2 JC	49845
Bromodichloromethane	ND		5	1	04/13/09 18:22	2 JC	49845
Bromoform	ND		5	1	04/13/09 18:22	Z JC	49845
Bromomethane	ND		10	1	04/13/09 18:22	2 JC	49845
Carbon disulfide	ND		5	1	04/13/09 18:22	JC	49845
Carbon tetrachloride	ND		5	1	04/13/09 18:22	Z JC	49845
Chlorobenzene	ND		5	1	04/13/09 18:22	2 JC	49845

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-1 Collected: 04/07/2009 15:09 SPL Sample ID: 09040279-02

			Site	: Hobbs N	IM			
Analyses/Method	Result	QUAL	Rep	o.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/13/09 18:22	JC	4984550
Chloroform	ND			5	1	04/13/09 18:22	JC	4984550
Chloromethane	ND			10	1	04/13/09 18:22	JC	4984550
Dibromochloromethane	ND			5	1	04/13/09 18:22	JC	4984550
Dibromomethane	ND			5	1	04/13/09 18:22	JC	4984550
Dichlorodifluoromethane	ND			10	1	04/13/09 18:22	JC	4984550
Ethylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
Hexachlorobutadiene	ND			5	1	04/13/09 18:22	JC	4984550
Isopropylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
Methyl tert-butyl ether	ND			5	1	04/13/09 18:22	JC	4984550
Methylene chloride	ND			5	1	04/13/09 18:22	JC	4984550
Naphthalene	ND			5	1	04/13/09 18:22	JC	4984550
n-Butylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
n-Propylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
sec-Butylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
Styrene	ND			5	1	04/13/09 18:22	JC	4984550
tert-Butylbenzene	ND			5	1	04/13/09 18:22	JC	4984550
Tetrachloroethene	ND			5	1	04/13/09 18:22	JC	4984550
Toluene	ND			5	1	04/13/09 18:22	JC	4984550
Trichloroethene	ND			5	1	04/13/09 18:22	JC	4984550
Trichlorofluoromethane	ND			5	1	04/13/09 18:22	JC	4984550
Vinyl acetate	ND			10	1	04/13/09 18:22	JC	4984550
Vinyl chloride	ND			2	1	04/13/09 18:22	JC	4984550
cis-1,2-Dichloroethene	ND			5	1	04/13/09 18:22	JC	4984550
cis-1,3-Dichloropropene	ND			5	1	04/13/09 18:22	JC	4984550
m,p-Xylene	ND			5	1	04/13/09 18:22	JC	4984550
o-Xylene	ND			5	1	04/13/09 18:22	JC	4984550
trans-1,2-Dichloroethene	ND			5	1	04/13/09 18:22	JC	4984550
trans-1,3-Dichloropropene	ND			5	1	04/13/09 18:22	JC	4984550
1,2-Dichloroethene (total)	ND			5	1	04/13/09 18:22	JC	4984550
Xylenes,Total	ND			5	1	04/13/09 18:22	JC	4984550
Surr: 1,2-Dichloroethane-d4	100		%	65-111	1	04/13/09 18:22	JC	4984550
Surr: 4-Bromofluorobenzene	108		%	87-120	1	04/13/09 18:22	JC	4984550
Surr: Toluene-d8	92.0		%	88-116	1	04/13/09 18:22	JC	4984550

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-4-8-09B Collected: 04/08/2009 10:07 SPL Sample ID: 09040279-03

		Site: Hobb	s NM			
Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B		MCL SV	V8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	1	04/13/09 18:49	JC	4984551
1,1,1-Trichloroethane	ND	5	1	04/13/09 18:49	JC	4984551
1,1,2,2-Tetrachloroethane	ND	5	1	04/13/09 18:49	JC	4984551
1,1,2-Trichloroethane	ND	5	1	04/13/09 18:49	JC	4984551
1,1-Dichloroethane	NĎ	5	1	04/13/09 18:49	JC	4984551
1,1-Dichloroethene	ND	5	1	04/13/09 18:49	JC	4984551
1,1-Dichloropropene	ND	5	1	04/13/09 18:49	JC	4984551
1,2,3-Trichlorobenzene	ND	5	. 1	04/13/09 18:49	JC	4984551
1,2,3-Trichloropropane	ND	5	1	04/13/09 18:49	JC	4984551
1,2,4-Trichlorobenzene	ND	5	1	04/13/09 18:49	JC	4984551
1,2,4-Trimethylbenzene	ND	5	1	04/13/09 18:49	JC	4984551
1,2-Dibromo-3-chloropropane	ND	5	1	04/13/09 18:49	JC	4984551
1,2-Dibromoethane	ND	5	1	04/13/09 18:49	JC	4984551
1,2-Dichlorobenzene	ND	5	1	04/13/09 18:49	JC	4984551
1,2-Dichloroethane	ND	5	1	04/13/09 18:49	JC	4984551
1,2-Dichloropropane	ND	5	1	04/13/09 18:49	JC	4984551
1,3,5-Trimethylbenzene	ND	5	1	04/13/09 18:49	JC	4984551
1,3-Dichlorobenzene	ND	5	1	04/13/09 18:49	JC	4984551
1,3-Dichloropropane	ND	5	1	04/13/09 18:49	JC	4984551
1,4-Dichlorobenzene	ND	5	1	04/13/09 18:49	JC	4984551
2,2-Dichloropropane	ND	5	1	04/13/09 18:49	JC	4984551
2-Butanone	ND	20	1	04/13/09 18:49	JC	4984551
2-Chloroethyl vinyl ether	ND J	10	1	04/13/09 18:49	JC	4984551
2-Chlorotoluene	ND	5		04/13/09 18:49	JÇ	4984551
2-Hexanone	ND	10	1	04/13/09 18:49	JC	4984551
4-Chlorotoluene	ND	5	1	04/13/09 18:49	JC	4984551
4-Isopropyltoluene	ND	5	1	04/13/09 18:49	JC	4984551
4-Methyl-2-pentanone	ND	10	1	04/13/09 18:49	JC	4984551
Acetone	ND	20	1	04/13/09 18:49	JC	4984551
Acrylonitrile	ND	10	1	04/13/09 18:49	JC	4984551
Benzene	ND	5	1	04/13/09 18:49	JC	4984551
Bromobenzene	ND	5	1	04/13/09 18:49	JC	4984551
Bromochloromethane	ND	5	1	04/13/09 18:49	JC	4984551
Bromodichloromethane	ND	5	1	04/13/09 18:49	JC	4984551
Bromoform	ND	5	1	04/13/09 18:49	JC	4984551
Bromomethane	ND	10	1	04/13/09 18:49	JC	4984551
Carbon disulfide	ND	5	1	04/13/09 18:49	JC	4984551
Carbon tetrachloride	ND	5	1	04/13/09 18:49	JC	4984551
Chlorobenzene	ND	5		04/13/09 18:49	JC	4984551
				2 17 107 00 10.10		1001001

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:TB-4-8-09B Collected: 04/08/2009 10:07 SPL Sample ID: 09040279-03

								
			Site:	Hobb	s NM			
Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/13/09 18:49	JC	4984551
Chloroform	ND			5	1	04/13/09 18:49	JC	4984551
Chloromethane	ND	-		10	1	04/13/09 18:49	JC	4984551
Dibromochloromethane	ND			5	1	04/13/09 18:49	JC	4984551
Dibromomethane	ND			5	1	04/13/09 18:49	JC	4984551
Dichlorodifluoromethane	ND			10	1	04/13/09 18:49	JC	4984551
Ethylbenzene	ND			5	1	04/13/09 18:49	JC	4984551
Hexachlorobutadiene	ND			5	1	04/13/09 18:49	JC	4984551
Isopropylbenzene	ND			5	1	04/13/09 18:49	JC	4984551
Methyl tert-butyl ether	ND			5	1	04/13/09 18:49	JC	498455
Methylene chloride	ND			5	1	04/13/09 18:49	JC	4984551
Naphthalene	ND			5	1	04/13/09 18:49	JC	4984551
n-Butylbenzene	ND			5	1	04/13/09 18:49	JC	498455
n-Propylbenzene	ND			5	1	04/13/09 18:49	JC	498455
sec-Butylbenzene	ND			5	1	04/13/09 18:49	JC	498455
Styrene	ND			5	1	04/13/09 18:49	JC	498455
tert-Butylbenzene	ND			5	1	04/13/09 18:49	JC	498455
Tetrachloroethene	ND			5	1	04/13/09 18:49	JC	498455
Toluene	ND			5	1	04/13/09 18:49	JC	498455
Trichloroethene	ND			5	1	04/13/09 18:49	JC	498455
Trichlorofluoromethane	ND			5	1	04/13/09 18:49	JC	498455
Vinyl acetate	ND			10	1	04/13/09 18:49	JC	498455
Vinyl chloride	ND			2	1	04/13/09 18:49	JC	498455
cis-1,2-Dichloroethene	ND			5	1	04/13/09 18:49	JC	498455
cis-1,3-Dichloropropene	ND			5	1	04/13/09 18:49	JC	498455
m,p-Xylene	ND			5	1	04/13/09 18:49	JC	498455
o-Xylene	ND			5	1	04/13/09 18:49	JC	498455
trans-1,2-Dichloroethene	ND			5	1	04/13/09 18:49	JC	498455
trans-1,3-Dichloropropene	ND			5	1	04/13/09 18:49	JC	498455
1,2-Dichloroethene (total)	ND			5	1	04/13/09 18:49	JC	498455
Xylenes,Total	ND			5	1	04/13/09 18:49	JC	498455
Surr: 1,2-Dichloroethane-d4	98.0		% 6	65-111	1	04/13/09 18:49	JC	498455
Surr: 4-Bromofluorobenzene	108		% 8	37-120	1	04/13/09 18:49	JC	498455

% 88-116

Qualifiers:

Surr: Toluene-d8

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

92.0

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

04/13/09 18:49

JC

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

4984551



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: FB-4-8-09B Collected: 04/08/2009 10:10 SPL Sample ID: 09040279-04

Site: Hobbs NM

	Result QUAL		Dil Factor	Data Analyza	Anglest	Sc. #
Analyses/Method	Result QUAL	. Rep.Limit		Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME					its: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	1	04/13/09 19:17	JC	4984552
1,1,1-Trichloroethane	ND ND	5	1	04/13/09 19:17	JC	4984552
1,1,2,2-Tetrachloroethane	ND	5	1	04/13/09 19:17	JC	4984552
1,1,2-Trichloroethane	ND	5	1	04/13/09 19:17	JC	4984552
1,1-Dichloroethane	ND	5	1	04/13/09 19:17	JC	4984552
1,1-Dichloroethene	ND	5	1	04/13/09 19:17	JC	4984552
1,1-Dichloropropene	ND	5	1	04/13/09 19:17	JC	4984552
1,2,3-Trichlorobenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,2,3-Trichloropropane	ND	5	1	04/13/09 19:17	JC	4984552
1,2,4-Trichlorobenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,2,4-Trimethylbenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,2-Dibromo-3-chloropropane	ND	5	1	04/13/09 19:17	JC	4984552
1,2-Dibromoethane	ND	5	1	04/13/09 19:17	JC	4984552
1,2-Dichlorobenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,2-Dichloroethane	ND	5	1	04/13/09 19:17	JC	4984552
1,2-Dichloropropane	ND	5	1	04/13/09 19:17	JC	4984552
1,3,5-Trimethylbenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,3-Dichlorobenzene	ND	5	1	04/13/09 19:17	JC	4984552
1,3-Dichloropropane	ND	5	1	04/13/09 19:17	JC	4984552
1,4-Dichlorobenzene	ND	5	1	04/13/09 19:17	JC	4984552
2,2-Dichloropropane	ND	5	1	04/13/09 19:17	JC	4984552
2-Butanone	ND	20	1	04/13/09 19:17	JC	4984552
2-Chloroethyl vinyl ether	ND J	10	1	04/13/09 19:17	JC	4984552
2-Chlorotoluene	ND	5	1	04/13/09 19:17	JC	4984552
2-Hexanone	ND	10	1	04/13/09 19:17	JC	4984552
4-Chlorotoluene	ND	5	1	04/13/09 19:17	JC	4984552
4-Isopropyltoluene	ND	5	1	04/13/09 19:17	JC	4984552
4-Methyl-2-pentanone	ND	10	1	04/13/09 19:17	JC	4984552
Acetone	ND	20	1	04/13/09 19:17	JC	4984552
Acrylonitrile	ND	10	1	04/13/09 19:17	JC	4984552
Benzene	ND	5	1	04/13/09 19:17	JC	4984552
Bromobenzene	ND	5	1	04/13/09 19:17	JC	4984552
Bromochloromethane	ND	5	1	04/13/09 19:17	JC	4984552
Bromodichloromethane	ND	5	1	04/13/09 19:17	JC	4984552
Bromoform	ND	5	1	04/13/09 19:17	JC	4984552
Bromomethane	ND	10	1	04/13/09 19:17	JC	498455
Carbon disulfide	ND	5	1	04/13/09 19:17	JC	498455
Carbon tetrachloride	ND	5	1	04/13/09 19:17	JC	498455
Chlorobenzene	ND	5	<u>_</u>	04/13/09 19:17	JC	4984552
				0 17 10,00 10.17		100-100

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-8-09B

Collected: 04/08/2009 10:10

SPL Sample ID:

09040279-04

Site	:	Но	bbs	NM
	•		~~~	

Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND		-	10	1	04/13/09 19:17	JC	4984552
Chloroform	ND			5	1	04/13/09 19:17	JC	4984552
Chloromethane	ND			10	1	04/13/09 19:17	JC	4984552
Dibromochloromethane	ND			5	1	04/13/09 19:17	JC	4984552
Dibromomethane	ND			5	1	04/13/09 19:17	JC	4984552
Dichlorodifluoromethane	ND			10	1	04/13/09 19:17	JC	4984552
Ethylbenzene	ND			5	1	04/13/09 19:17	JC	4984552
Hexachlorobutadiene	ND			5	1	04/13/09 19:17	JC	4984552
Isopropylbenzene	ND			5	1	04/13/09 19:17	JC	4984552
Methyl tert-butyl ether	ND			5	1	04/13/09 19:17	JC	4984552
Methylene chloride	ND			5	1	04/13/09 19:17	JC	4984552
Naphthalene	ND			5	1	04/13/09 19:17	JC	4984552
n-Butylbenzene	ND			5	1	04/13/09 19:17	JC	4984552
n-Propylbenzene	ND			5	1	04/13/09 19:17	JC	4984552
sec-Butylbenzene	ND			5	1	04/13/09 19:17	JC	4984552
Styrene	ND			5	1	04/13/09 19:17	JC	4984552
tert-Butylbenzene	ND		_	5	1	04/13/09 19:17	JC	4984552
Tetrachloroethene	ND			5	1	04/13/09 19:17	JC	4984552
Toluene	ND			5	1	04/13/09 19:17	JC	4984552
Trichloroethene	ND			5	1	04/13/09 19:17	JC	4984552
Trichlorofluoromethane	ND			5	1	04/13/09 19:17	JC	4984552
Vinyl acetate	ND			10	1	04/13/09 19:17	JC	4984552
Vinyl chloride	ND			2	1	04/13/09 19:17	JC	4984552
cis-1,2-Dichloroethene	ND			5	1	04/13/09 19:17	JC	4984552
cis-1,3-Dichloropropene	ND			5	1	04/13/09 19:17	JC	4984552
m,p-Xylene	ND		_	5	1	04/13/09 19:17	JC	4984552
o-Xylene	ND			5	1	04/13/09 19:17	JC	4984552
trans-1,2-Dichloroethene	ND			5	1	04/13/09 19:17	JC	4984552
trans-1,3-Dichloropropene	ND			5	1	04/13/09 19:17	JC	4984552
1,2-Dichloroethene (total)	ND			5	1	04/13/09 19:17	JC	4984552
Xylenes,Total	ND			5	1	04/13/09 19:17	JC	4984552
Surr: 1,2-Dichloroethane-d4	100		%	65-111	1	04/13/09 19:17	JC	4984552
Surr: 4-Bromofluorobenzene	108		%	87-120	1	04/13/09 19:17	JC	4984552
Surr: Toluene-d8	92.0		%	88-116	1	04/13/09 19:17	JÇ	4984552

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

WorkOrder:

09040279

Lab Batch ID:

Samples in Analytical Batch:

89427

Method Blank

Lab Sample ID

Client Sample ID

Analysis Date:

HP_V_090416B-4987505

Units:

09040279-02C

Preparation Date:

04/14/2009 23:43

04/13/2009 14:10

Analyst: Prep By:

N M Method SW3510C

MW-1

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	51.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090416B-4987506

mg/L

NW

mg/L

Analysis Date:

04/15/2009 0:03

Analyst: NW

Units:

Preparation Date: 04/13/2009 14:10

N_M Method SW3510C Prep By:

LCS LCS LCS LCSD LCSD LCSD RPD RPD Lower Analyte Upper Spike Result Percent Spike Result Percent Limit Limit Limit Added Recovery Added Recovery Diesel Range Organics 1.00 0.895 89.5 1.00 0.880 88.0 1.7 40 21 150 Surr: n-Pentacosane 0.0500 0.0494 98.8 0.0500 0.0485 1.8 30 97.0 20 150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 16

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

WorkOrder:

09040279

Lab Batch ID:

89434

Method Blank

Units:

l al

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

Analysis Date:

HP_V_090414C-4987373

04/14/2009 12:47

Analyst:

NW

mg/kg

09040279-01A

MW 5-54-55

Preparation Date:

04/13/2009 16:58

Prep By:

QMT Method SW3550B

Analyte	Result	Rep Limit
Diesel Range Organics	ND	5.0
Mineral Spirits Range Organics	ND	10
Surr: n-Pentacosane	92.8	20-154

Laboratory Control Sample (LCS)

Run(D:

HP_V_090414C-4987374

Units:

its: mg/kg

Analysis Date:

Preparation Date:

04/14/2009 13:07 04/13/2009 16:58 Analyst: NW

Prep By: QMT Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Diesel Range Organics	33.3	29.6	88.9	57	150
Surr: n-Pentacosane	1.66	1.55	93.6	20	154

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

H0904023700

RunID:

HP_V_090414C-4987376

Units: mg/kg

Analysis Date:

04/14/2009 15:37

Analyst: NW

Preparation Date:

04/13/2009 16:58

Prep By: QMT Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Diesel Range Organics	8150	33.3	8990	N/C	33.3	9400	N/C	N/C	50	21	175
Surr: n-Pentacosane	ND	1.66	D	D	1.66	D	D	D	30	20	154

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Headspace Gas Analysis

Method:

RunID:

RSK147

WorkOrder:

09040279

Lab Batch ID:

R271083

Method Blank

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

VARC_090424A-4996391

04/24/2009 14:37

Analyst: V_L

09040279-02E

MW-1

Analyte	Result	Rep Limit
Methane	ND	0.0012

Sample Duplicate

Original Sample:

09040488-02

RunID:

VARC_090424A-4996394

Units:

mg/L

Analysis Date:

04/24/2009 15:14

Analyst: V_L

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Methane	0.0037	0.00379	2.8	50

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Gasoline Range Organics

Method:

SW8015B

Samples in Analytical Batch:

09040279

WorkOrder: Lab Batch ID:

R270269

Method Blank

RunID: HF

HP_P_090413A-4984662

Units:

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/13/2009 5:20

Analyst:

CŁJ

09040279-02D

MW-1

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RunID:

HP_P_090413A-4984660

Units:

mg/L

Analysis Date:

04/13/2009 4:22

Analyst: CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP P_090413A-4984664

Units:

Analysis Date:

04/13/2009 10:44

Analyst:

mg/L CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1	0.852	85.2	1	0.868	86.8	1.92	36	22	174
Surr: 1,4-Difluorobenzene	ND	0.1	0.0922	92.2	0.1	0.0932	93.2	1.08	30	60	155
Surr: 4-Bromofluorobenzene	ND	0.1	0.105	105	0.1	0.107	107	1.41	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

RunID:

SW8270C

WorkOrder:

Samples in Analytical Batch:

09040279

Lab Batch ID:

89412

Method Blank

H_090417E-4992370

Units:

ug/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/17/2009 9:40

Analyst: GΥ 09040279-02B

MW-1

Preparation Date: 04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	10
3-Nitroaniline	ND	25
4,6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	25
Acenaphthene	ND	5.0
Acenaphthylene	ND	5.0
Aniline	ND	5.0
Anthracene	ND	5.0
Benz(a)anthracene	ND	5.0
Benzo(a)pyrene	ND	5.0
Benzo(b)fluoranthene	ND	5.0
Benzo(g,h,i)perylene	ND	5.0
Benzo(k)fluoranthene	ND	5.0
Benzoic acid	ND	25
Benzyl alcohol	ND	5.0
Bis(2-chloroethoxy)methane	ND	5.0
Bis(2-chloroethyl)ether	ND	5.0
Bis(2-chloroisopropyl)ether	ND	5.0
Bis(2-ethylhexyl)phthalate	ND	5.0
Butyl benzyl phthalate	ND	5.0
Carbazole	ND	5.0
Chrysene	ND	5.0
Dibenz(a,h)anthracene	DN	5.0
Dibenzofuran	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 20

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89412

Method Blank

RunID:

H_090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

Analyst:

t: GY

Preparation Date: 04/13/2009 8:15

Prep By:

N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND.	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND.	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND	5.0
Pentachiorophenol	ND	25
Phenanthrene	ND	5.0
Phenoi	ND	5.0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenol	ND.	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

ug/L GY

Analysis Date: Preparation Date:

04/17/2009 10:42 04/13/2009 8:15 Analyst:

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1,2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	8.1	50	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder: Lab Batch ID: 09040279

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst:

ĢΥ

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63.2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinitro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GΥ

Preparation Date:

04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis(2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis(2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis(2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Jimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachioroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	- 25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenol	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 23

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GΥ

Preparation Date: 04/13/2009 8:15 Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	. 17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenol-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141



ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

04/16/2009 0:41

WorkOrder:

Samples in Analytical Batch:

09040279

Lab Batch ID:

89418

Method Blank

RunID: Analysis Date:

R_090415F-4986260

Units:

Analyst:

ug/kg E_R

Prep By: QMT Method SW3550B

Lab Sample ID

Client Sample ID

09040279~01A

MW 5-54-55

Preparation Date:	04/13/2009 11:33

Analyte	Result	Rep Limit
richlorobenzene	ND	330
hlorobenzene	ND	330
henylhydrazine	ND	330
hlorobenzene	ND	330
hlorobenzene	ND	330
	N.D.	000

1,2-Dichlorobenzene	ND	330
1,2-Diphenylhydrazine	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
2,4,5-Trichlorophenol	ND	800
2,4,6-Trichlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	800
2,4-Dinitrotoluene	ND	800
2,6-Dinitrotoluene	ND	330
2-Chloronaphthalene	ND	330
2-Chlorophenol	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	800
2-Nitrophenol	ND	330
3,3'-Dichlorobenzidine	ND	330
3-Nitroaniline	ND	800
4,6-Dinitro-2-methylphenol	ND	800
4-Bromophenyl phenyl ether	ND	330
4-Chioro-3-methylphenol	ND	330
4-Chloroaniline	ND	330
4-Chlorophenyl phenyl ether	ND	330
4-Nitroaniline	ND	800
4-Nitrophenol	ND	800
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benz(a)anthracene	ND	330
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(g,h,i)perylene	ND	330
Benzo(k)fluoranthene	ND	330
Benzoic acid	ND	1600
Benzyl alcohol	ND	330
Bis(2-chloroethoxy)methane	ND ND	330
Bis(2-chloroethyl)ether	ND	330
Bis(2-chloroisopropyl)ether	ND ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Butyl benzyl phthalate	ND	330
Carbazole	ND ND	330
Chrysene	ND	330
Dibenz(a,h)anthracene	ND ND	330
Dibenzofuran	ND	330

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Method Blank

RunID:

R_090415F-4986260

Units:

ug/kg

Analysis Date:

04/16/2009 0:41

Analyst:

ΕR

Preparation Date:

04/13/2009 11:33

Prep By:

QMT Method SW3550B

Analyte	Result	Rep Limit
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Di-n-butyl phthalate	ND	330
Di-n-octyl phthalate	_ ND	330
Fluoranthene	ND	330
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Pentachiorophenol	ND	800
Phenanthrene	ND	330
Phenol	ND	330
Pyrene	ND	330
Pyridine	ND_	330
2-Methylphenol	ND	330
3 & 4-Methylphenol	ND	330
Surr: 2,4,6-Tribromophenol	128.8	19-135
Surr: 2-Fluorobiphenyl	85.9	15-140
Surr: 2-Fluorophenol	114.8	15-122
Surr: Nitrobenzene-d5	78.2	10-134
Surr: Phenol-d5	115.6	10-123
Surr: Terphenyl-d14	89.4	18-166

Laboratory Control Sample (LCS)

RunID:

R_090415F-4986261

Units:

ug/kg · FR

Analysis Date:

04/16/2009 1:17

Analyst: E_R

Preparation Date: 04/13/2009 11:33

5 D D

Prep By: QMT Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	850	437	51.4	34	116
1,2-Dichlorobenzene	850	444	52.2	32	129
1,2-Diphenylhydrazine	850	430	50.6	10	256

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 26

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Laboratory Control Sample (LCS)

RunID:

R 090415F-4986261

Units:

Battii ID.

8941

Analysis Date:

04/16/2009 1:17

Analyst:

t: ER

ug/kg

Preparation Date: 0

04/13/2009 11:33

Prep By:

QMT Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,3-Dichlorobenzene	850	434	51.1	10	172
1,4-Dichlorobenzene	850	426	50.1	20	124
2,4,5-Trichlorophenol	850	421	49.5	40	150
2,4,6-Trichlorophenol	850	470	55.3	37	144
2,4-Dichlorophenol	850	445	52.4	39	135
2,4-Dimethylphenol	850	443	52.1	32	119
2,4-Dinitrophenol	850	276	32.5	10	191
2,4-Dinitrotoluene	850	409	48.1	30	150
2,6-Dinitrotoluene	850	419	49.3	30	150
2-Chloronaphthalene	850	460	54.1	20	175
2-Chlorophenol	850	463	54.5	23	134
2-Methylnaphthalene	850	427	50.2	30	135
2-Nitroaniline	850	400	47.1	20	175
2-Nitrophenol	850	421	49.5	29	182
3,3'-Dichlorobenzidine	850	421	49.5	10	261
3-Nitroaniline	850	389	45.8	20	175
4,6-Dinitro-2-methylphenol	850	260	30.6	10	181
4-Bromophenyl phenyl ether	850	450	52.9	20	175
4-Chloro-3-methylphenol	850	469	55.2	22	147
4-Chloroaniline	850	443	52.1	20	175
4-Chlorophenyl phenyl ether	850	443	52.1	25	158
4-Nitroaniline	850	396	46.6	20	175
4-Nitrophenol	850	446	52.5	10	132
Acenaphthene	850	433	50.9	30	160
Acenaphthylene	850	449	52.8	10	150
Aniline	1700	846	49.8	10	160
Anthracene	850	441	51.9	27	133
Benz(a)anthracene	850	454	53.4	33	143
Benzo(a)pyrene	850	368	43.3	17	163
Benzo(b)fluoranthene	850	432	50.8	24	159
Benzo(g,h,i)perylene	850	439	51.6	10	219
Benzo(k)fluoranthene	850	420	49.4	11	162
Benzoic acid	850	127	14.9	10	450
Benzyl alcohol	850	500	58.8	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 27

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Laboratory Control Sample (LCS)

RunID:

R 090415F-4986261

Units:

Analysis Date:

04/16/2009 1:17

ug/kg ΕR Analyst:

Preparation Date: 04/13/2009 11:33

Prep By: QMT Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Bis(2-chloroethoxy)methane	850	419	49.3	33	184
Bis(2-chloroethyl)ether	850	438	51.5	28	158
Bis(2-chloroisopropyl)ether	850	412	48.5	36	166
Bis(2-ethylhexyl)phthalate	850	389	45.8	10	158
Butyl benzyl phthalate	850	412	48.5	10	152
Carbazole	850	430	50.6	45	135
Chrysene	850	450	52.9	17	168
Dibenz(a,h)anthracene	850	442	52.0	10	227
Dibenzofuran	850	447	52.6	30	160
Diethyl phthalate	850	421	49.5	10	160
Dimethyl phthalate	850	438	51.5	10	112
Di-n-butyl phthalate	850	411	48.4	40	132
Di-n-octyl phthalate	850	433	50.9	10	146
Fluoranthene	850	459	54.0	26	137
Fluorene	850	435	51.2	35	135
Hexachlorobenzene	850	466	54.8	10	152
Hexachlorobutadiene	850	427	50.2	20	140
Hexachlorocyclopentadiene	850	344	40.5	10	152
Hexachloroethane	850	396	46.6	25	118
Indeno(1,2,3-cd)pyrene	850	515	60.6	10	171
Isophorone	850	444	52.2	21	196
Naphthalene	850	433	50.9	21	133
Nitrobenzene	850	397	46.7	35	180
N-Nitrosodi-n-propylamine	850	418	49.2	10	230
N-Nitrosodiphenylamine	1700	1070	62.9	30	160
Pentachlorophenol	850	420	49.4	14	176
Phenanthrene	850	428	50.4	35	135
Phenol	850	495	58.2	44	120
Pyrene	850	442	52.0	34	138
Pyridine	1700	767	45.1	10	150
2-Methylphenol	850	472	55.5	40	160
3 & 4-Methylphenol	850	420	49.4	40	160
Surr: 2,4,6-Tribromophenol	2500	1780	71.2	19	135
Surr: 2-Fluorobiphenyl	1700	851	50.1	15	140

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Laboratory Control Sample (LCS)

RunID:

R_090415F-4986261

Units:

Analysis Date:

04/16/2009 1:17

ug/kg

E_R Analyst:

Preparation Date: 04/13/2009 11:33

Prep By: QMT Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Surr: 2-Fluorophenol	2500	1720	68.8	15	122
Surr: Nitrobenzene-d5	1700	783	46.1	32	153
Surr: Phenol-d5	2500	1710	68.4	10	123
Surr: Terphenyl-d14	1700	807	47.5	18	166

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040279-01

R_090416C-4987093

Units: ug/kg

E_R

Analysis Date: Preparation Date:

RunID:

04/16/2009 15:41 04/13/2009 11:33 Analyst: Prep By:

QMT Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	NÐ	850	727	85.5	850	732	86.1	0.685	28	34	116
1,2-Dichlorobenzene	ND	850	710	83.5	850	715	84.1	0.702	60	32	129
1,2-Diphenylhydrazine	ND	850	710	83.5	850	736	86.6	3.60	60	10	256
1,3-Dichlorobenzene	ND	850	693	81.5	850	688	80.9	0.724	60	10	172
1,4-Dichlorobenzene	ND	850	687	80.8	850	696	81.9	1.30	28	20	124
2,4,5-Trichlorophenol	ND	850	775	91.2	850	741	87.2	4.49	60	40	150
2,4,6-Trichlorophenol	ND	850	776	91.3	850	796	93.6	2.54	60	37	144
2,4-Dichlorophenol	ND	850	763	89.8	850	760	89.4	0.394	60	39	135
2,4-Dimethylphenol	ND	850	769	90.5	850	749	88.1	2.64	60	32	119
2,4-Dinitrophenol	ND	850	502	59.1	850	359	42.2	33.2	60	10	191
2,4-Dinitrotoluene	ND	850	796	93.6	850	742	87.3	7.02	50	30	150
2,6-Dinitrotoluene	ND	850	753	88.6	850	739	86.9	1.88	60	30	150
2-Chloronaphthalene	ND	850	745	87.6	850	754	88.7	1.20	60	20	175
2-Chlorophenol	ND	850	764	89.9	850	774	91.1	1.30	40	23	134
2-Methylnaphthalene	ND	850	726	85.4	850	727	85.5	0.138	60	30	135
2-Nitroaniline	ND	850	727	85.5	850	703	82.7	3.36	60	20	175
2-Nitrophenol	ND	850	749	88.1	850	744	87.5	0.670	60	29	182
3,3'-Dichlorobenzidine	ND	850	680	80.0	850	702	82.6	3.18	60	10	261

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

BN - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 29

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040279-01

R_090416C-4987093

Units:

ug/kg

Analyst: E R

Analysis Date: Preparation Date:

04/16/2009 15:41 04/13/2009 11:33

Prep By:

QMT Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
3-Nitroaniline	ND	850	776	91.3	850	722	84.9	7.21	60	20	175
4,6-Dinitro-2-methylphenol	ND	850	594	69.9	850	430	50.6	32.0	60	10	181
4-Bromophenyl phenyl ether	ND	850	732	86.1	850	760	89.4	3.75	60	20	175
4-Chloro-3-methylphenol	ND	850	831	97.8	850	816	96.0	1.82	42	22	147
4-Chloroaniline	ND	850	782	92.0	850	760	89.4	2.85	60	20	175
4-Chlorophenyl phenyl ether	ND	850	747	87.9	850	750	88.2	0.401	60	25	158
4-Nitroaniline	ND	850	759	89.3	850	685	80.6	10.2	60	20	175
4-Nitrophenol	ND	850	777	91.4	850	671	78.9	14.6	50	10	132
Acenaphthene	ND	850	726	85.4	850	729	85.8	0.412	31	30	160
Acenaphthylene	ND	850	752	88.5	850	749	88.1	0.400	50	10	150
Aniline	ND	1700	1430	84.1	1700	1380	81.2	3.56	60	10	160
Anthracene	ND	850	764	89.9	850	756	88.9	1.05	50	27	133
Benz(a)anthracene	ND	850	788	92.7	850	791	93.1	0.380	50	33	143
Benzo(a)pyrene	ND	850	632	74.4	850	645	75.9	2.04	60	17	163
Benzo(b)fluoranthene	ND	850	737	86.7	850	767	90.2	3.99	60	24	159
Benzo(g,h,i)perylene	ND	850	773	90.9	850	770	90.6	0.389	60	10	219
Benzo(k)fluoranthene	ND	850	752	88.5	850	718	84.5	4.63	60	11	162
Benzoic acid	ND	850	248	29.2	850	185	21.8	29.1	60	10	450
Benzyl alcohol	ND	850	864	102	850	866	102	0.231	60	30	160
Bis(2-chloroethoxy)methane	ND	850	711	83.6	850	706	83.1	0.706	60	33	184
Bis(2-chloroethyl)ether	ND	850	710	83.5	850	718	84.5	1.12	60	28	158
Bis(2-chloroisopropyl)ether	ND	850	670	78.8	850	674	79.3	0.595	60	36	166
Bis(2-ethylhexyl)phthalate	ND	850	731	86.0	850	734	86.4	0.410	60	10	158
Butyl benzyl phthalate	ND	850	737	86.7	850	729	85.8	1.09	60	10	152
Carbazole	ND	850	767	90.2	850	736	86.6	4.13	60	45	135
Chrysene	ND	850	784	92.2	850	770	90.6	1.80	60	17	168
Dibenz(a,h)anthracene	ND	850	776	91.3	850	809	95.2	4.16	60	10	227
Dibenzofuran	ND	850	756	88.9	850	751	88.4	0.664	60	45	135
Diethyl phthalate	ND	850	723	85.1	850	716	84.2	0.973	60	10	160
Dimethyl phthalate	ND	850	746	87.8	850	732	86.1	1.89	60	10	112
Di-n-butyl phthalate	ND	850	756	88.9	850	750	88.2	0.797	60	40	132
Di-n-octyl phthalate	ND	850	675	79.4	850	701	82.5	3.78	60	10	146

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 30

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040279

Lab Batch ID:

89418

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040279-01

R_090416C-4987093

Units:

ug/kg

RunID: Analysis Date:

04/16/2009 15:41

Analyst:

 E_R

Preparation Date:

04/13/2009 11:33

Prep By: QMT Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Fluoranthene	ND	850	822	96.7	850	782	92.0	4.99	60	26	137
Fluorene	ND	850	748	88.0	850	735	86.5	1.75	60	45	135
Hexachlorobenzene	ND	850	773	90.9	850	791	93.1	2.30	60	10	152
Hexachlorobutadiene	ND	850	686	80.7	850	702	82.6	2.31	60	20	140
Hexachlorocyclopentadiene	ND	850	651	76.6	850	547	64.4	17.4	60	10	152
Hexachloroethane	ND	850	639	75.2	850	640	75.3	0.156	60	25	118
Indeno(1,2,3-cd)pyrene	ND	850	782	92.0	850	826	97.2	5.47	60	10	171
Isophorone	ND	850	759	89.3	850	750	88.2	1.19	60	21	196
Naphthalene	ND	850	732	86.1	850	720	84.7	1.65	60	21	133
Nitrobenzene	ND.	850	693	81.5	850	671	78.9	3.23	60	35	180
N-Nitrosodi-n-propylamine	ND	850	693	81.5	850	699	82.2	0.862	38	10	230
N-Nitrosodiphenylamine	ND	1700	1780	105	1700	1840	108	3.31	60	30	160
Pentachlorophenol	ND	850	681	80.1	850	690	81.2	1.31	50	14	176
Phenanthrene	ND	850	737	86.7	850	735	86.5	0.272	60	45	135
Phenol	ND	850	861	101	850	828	97.4	3.91	42	44	120
Pyrene	ND	850	774	91.1	850	757	89.1	2.22	31	26	127
Pyridine	ND	1700	1230	72.4	1700	1200	70.6	2.47	60	10	150
2-Methylphenol	ND	850	814	95.8	850	796	93.6	2.24	60	40	160
3 & 4-Methylphenol	ND	850	737	86.7	850	724	85.2	1.78	60	40	160
Surr: 2,4,6-Tribromophenol	ND	2500	3160	126	2500	3060	122	3.22	30	19	135
Surr: 2-Fluorobiphenyl	ND	1700	1390	81.8	1700	1410	82.9	1.43	30	15	140
Surr: 2-Fluorophenol	ND	2500	2850	114	2500	2800	112	1.77	30	15	122
Surr: Nitrobenzene-d5	ND	1700	1340	78.8	1700	1310	77.1	2.26	30	10	134
Surr: Phenol-d5	ND	2500	2930	117	2500	2840	114	3.12	30	10	123
Surr: Terphenyl-d14	ND	1700	1390	81.8	1700	1380	81.2	0.722	30	18	166

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 31

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

04/13/2009 9:17

04/13/2009 9:17

WorkOrder:

09040279

Lab Batch ID:

R270179

Method Blank

RunID: Q_09

Analysis Date:

Preparation Date:

Q_090413A-4983274

Units: Analyst:

Prep By:

ug/L JC

Lab Sample ID

Client Sample ID

09040279-02A

Samples in Analytical Batch:

MW-1

09040279-03A 09040279-04A TB-4-8-09B FB-4-8-09B

Method

Analyte Result Rep Limit 1,1,1,2-Tetrachloroethane ND 5.0 ND 5.0 1,1,1-Trichloroethane ND 1,1,2,2-Tetrachloroethane 5.0 ND 5.0 1,1,2-Trichloroethane 1,1-Dichloroethane ND 5.0 ND 5.0 1,1-Dichloroethene 1,1-Dichloropropene ND 5.0 1,2,3-Trichlorobenzene ND 5.0 1,2,3-Trichloropropane ND 5.0 1,2,4-Trichlorobenzene ND 5.0 ND 5.0 1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane ND 5.0 1,2-Dibromoethane ND 5.0 1,2-Dichlorobenzene ND 5.0 1,2-Dichloroethane ND 5.0 5.0 ND 1,2-Dichloropropane ND 1,3,5-Trimethylbenzene 5.0 ND 1,3-Dichlorobenzene 5.0 1,3-Dichloropropane ND 5.0 5.0 1,4-Dichlorobenzene ND 2,2-Dichloropropane ND 5.0 2-Butanone ND 20 2-Chloroethyl vinyl ether ND 10 2-Chlorotoluene ND 5.0 2-Hexanone ND 10 4-Chlorotoluene ND 5.0 4-Isopropyltoluene ND 5.0 4-Methyl-2-pentanone ND 10 20 Acetone ND ND 10 Acrylonitrile 5.0 Benzene ND Bromobenzene ND 5.0 Bromochloromethane ND 5.0 ND 5.0 Bromodichloromethane Bromoform ND 5.0 Bromomethane ND 10 Carbon disulfide ND 5.0 Carbon tetrachloride ND 5.0 Chlorobenzene ND 5.0 Chloroethane ND 10 Chloroform ND 5.0 Chloromethane ND 10 Dibromochloromethane ND 5.0 Dibromomethane ND 5.0 Dichlorodifluoromethane ND 10 Ethylbenzene ND 5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve * - Recovery Outside Advisable QC Limits

TNTC - Too numerous to count

09040279 Page 32

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040279

Lab Batch ID:

R270179

Method Blank

RunID:

Q 090413A-4983274

Units:

Analysis Date:

04/13/2009 9:17

ug/L

Analyst: JC

Preparation Date:

04/13/2009 9:17

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND.	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	<u>5</u> .0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	100.0	62-130
Surr: 4-Bromofluorobenzene	108.0	70-130
Surr: Toluene-d8	94.0	74-122

Laboratory Control Sample (LCS)

RunID:

Q 090413A-4983272

Units:

ug/L JC

Analysis Date: Preparation Date: 04/13/2009 8:49 04/13/2009 8:49 Analyst: Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	21.0	105	71	136
1,1,1-Trichloroethane	20.0	22.0	110	66	132
1,1,2,2-Tetrachloroethane	20.0	21.0	105	55	139
1,1,2-Trichloroethane	20.0	21.0	105	70	130
1,1-Dichloroethane	20.0	21.0	105	67	131

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

racmaster

WorkOrder:

09040279

Lab Batch ID:

R270179

Laboratory Control Sample (LCS)

RunID:

Q_090413A-4983272

Units:

ug/L

Analysis Date:

04/13/2009 8:49

Analyst: JC

.

Preparation Date:

04/13/2009 8:49

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	24.0	120	71	146
1,1-Dichloropropene	20.0	20.0	100	59	138
1,2,3-Trichlorobenzene	20.0	18.0	90.0	37	155
1,2,3-Trichloropropane	20.0	20.0	100	70	145
1,2,4-Trichlorobenzene	20.0	17.0	85.0	39	133
1,2,4-Trimethylbenzene	20.0	17.0	85.0	53	147
1,2-Dibromo-3-chloropropane	20.0	16.0	80.0	43	137
1,2-Dibromoethane	20.0	21.0	105	63	126
1,2-Dichlorobenzene	20.0	18.0	90.0	70	130
1,2-Dichloroethane	20.0	19.0	95.0	64	150
1,2-Dichloropropane	20.0	20.0	100	76	124
1,3,5-Trimethylbenzene	20.0	17.0	85.0	57	140
1,3-Dichlorobenzene	20.0	18.0	90.0	72	13
1,3-Dichloropropane	20.0	19.0	95.0	78	131
1,4-Dichlorobenzene	20.0	18.0	90.0	70	13
2,2-Dichloropropane	20.0	18.0	90.0	45	15
2-Butanone	20.0	20.0	100	20	23
2-Chloroethyl vinyl ether	20.0	18.0	90.0	13	179
2-Chlorotoluene	20.0	18.0	90.0	64	12
2-Hexanone	20.0	18.0	90.0	34	18.
4-Chlorotoluene	20.0	18.0	90.0	64	14:
4-Isopropyltoluene	20.0	17.0	85.0	60	13
4-Methyl-2-pentanone	20.0	18.0	90.0	11	14
Acetone	20.0	21.0	105	13	38
Acrylonitrile	20.0	20.0	100	43	19
Benzene	20.0	21.0	105	76	12
Bromobenzene	20.0	18.0	90.0	70	13
Bromochloromethane	20.0	24.0	120	63	13
Bromodichloromethane	20.0	21.0	105	77	13
Bromoform	20.0	20.0	100	55	12
Bromomethane	20.0	24.0	120	58	14
Carbon disulfide	20.0	22.0	110	46	14
Carbon tetrachloride	20.0	21.0	105	66	13
Chlorobenzene	20.0	21.0	105	67	13

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040279

Lab Batch ID:

R270179

Laboratory Control Sample (LCS)

RunID:

Q_090413A-4983272

Units:

ug/L

JC

Analysis Date:

04/13/2009 8:49

Analyst:

Method

Droporation	Data	0.4
Preparation	Date:	04

4/13/2009 8:49

Prep By:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	22.0	110	50	137
Chloroform	20.0	22.0	110	70	135
Chloromethane	20.0	19.0	95.0	51	140
Dibromochloromethane	20.0	20.0	100	69	12
Dibromomethane	20.0	21.0	105	74	13
Dichlorodifluoromethane	20.0	18.0	90.0	32	16
Ethylbenzene	20.0	20.0	100	67	12:
Hexachlorobutadiene	20.0	16.0	80.0	43	14
Isopropylbenzene	20.0	17.0	85.0	60	13
Methyl tert-butyl ether	40.0	47.0	118	48	16
Methylene chloride	20.0	23.0	115	52	14
Naphthalene	20.0	17.0	85.0	24	15
n-Butylbenzene	20.0	16.0	80.0	50	14
n-Propylbenzene	20.0	16.0	80.0	62	13
sec-Butylbenzene	20.0	17.0	85.0	66	12
Styrene	20.0	20.0	100	60	13
tert-Butylbenzene	20.0	17.0	85.0	67	14
Tetrachloroethene	20.0	26.0	130	26	20
Toluene	20.0	20.0	100	70	13
Trichloroethene	20.0	22.0	110	64	13
Trichlorofluoromethane	20.0	23.0	115	46	16
Vinyl acetate	20.0	15.0	75.0	10	19
Vinyl chloride	20.0	21.0	105	31	14
cis-1,2-Dichloroethene	20.0	24.0	120	70	14
cis-1,3-Dichloropropene	20.0	17.0	85.0	61	13
m,p-Xylene	40.0	41.0	102	72	15
o-Xylene	20.0	21.0	105	78	14
trans-1,2-Dichloroethene	20.0	24.0	120	67	14
trans-1,3-Dichloropropene	20.0	16.0	80.0	56	13
1,2-Dichloroethene (total)	40	48	120	73	13
Xylenes,Total	60	62	100	72	15
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	62	13
Surr: 4-Bromofluorobenzene	50.0	54	108	70	13
Surr: Toluene-d8	50.0	47	94.0	74	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 35

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040279

Lab Batch ID:

R270179

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040341-01

RunID:

Q_090413A-4983276

Units:

ug/L

Analysis Date:

04/13/2009 10:12

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	19.0	95.0	20	19.0	95.0	0	20	35	175
1,1,1-Trichloroethane	ND	20	18.0	90.0	20	19.0	95.0	5.41	20	35	175
1,1,2,2-Tetrachloroethane	ND	20	12.0	60.0	20	13.0	65.0	8.00	20	35	175
1,1,2-Trichloroethane	ND	20	10.0	50.0	20	10.0	50.0	0	20	35	175
1,1-Dichloroethane	ND	20	19.0	90.0	20	18.0	85.0	5.41	· 20	35	175
1,1-Dichloroethene	ND	20	19.0	95.0	20	19.0	95.0	0	22	61	145
1,1-Dichloropropene	ND	20	20.0	100	20	20.0	100	0	20	35	175
1,2,3-Trichlorobenzene	ND	20	17.0	85.0	20	18.0	90.0	5.71	20	27	187
1,2,3-Trichloropropane	ND	20	22.0	110	20	23.0	115	4.44	20	35	175
1,2,4-Trichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	34	150
1,2,4-Trimethylbenzene	260	20	250	N/C	20	250	N/C	N/C	20	35	175
1,2-Dibromo-3-chloropropane	ND	20	24.0	120	20	23.0	115	4.26	20	15	175
1,2-Dibromoethane	380	20	390	N/C	20	380	N/C	N/C	20	35	175
1,2-Dichlorobenzene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
1,2-Dichloroethane	900	20	880	N/C	20	870	N/C	N/C	20	35	175
1,2-Dichloropropane	ND	20	27.0	135	20	27.0	135	0	20	35	175
1,3,5-Trimethylbenzene	190	20	190	N/C	20	. 190	N/C	N/C	20	35	175
1,3-Dichlorobenzene	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	35	175
1,3-Dichloropropane	ND	20	60.0	300 *	20	62.0	310 *	3.28	20	35	175
1,4-Dichlorobenzene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
2,2-Dichloropropane	ND	20	15.0	75.0	20	16.0	80.0	6.45	20	35	175
2-Butanone	3400	20	3400	N/C	20	3200	N/C	N/C	20	10	230
2-Chloroethyl vinyl ether	ND	20	2.00	10.0	20	1.00	5.00 *	66.7 *	20	10	250
2-Chlorotoluene	ND	20	19.0	95.0	20	19.0	95.0	0	20	31	175
2-Hexanone	320	20	320	N/C	20	280	N/C	N/C	20	10	250
4-Chlorotoluene	ND	20	17.0	85.0	20	17.0	85.0	0	20	31	175
4-Isopropyltoluene	ND	20	21.0	105	20	20.0	100	4.88	20	35	175
4-Methyl-2-pentanone	110	20	120	N/C	20	110	N/C	N/C	20	10	175
Acetone	2100	20	1800	N/C	20	1800	N/C	N/C	20	10	400
Acrylonitrile	ND	20	26.0	130	20	24.0	120	8.00	20	15	250

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 36

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040279

Lab Batch ID:

R270179

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040341-01

Q_090413A-4983276

Units:

ug/L

Analysis	Date:	

04/13/2009 10:12

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	1100	20	1000	N/C	20	1000	N/C	N/C	22	76	127
Bromobenzene	ND	20	20.0	100	20	19.0	95.0	5.13	20	35	175
Bromochloromethane	ND	20	21.0	105	20	22.0	110	4.65	20	35	175
Bromodichloromethane	ND	20	19.0	95.0	20	19.0	95.0	0	20	35	175
Bromoform	ND	20	0	0 *	20	0	0 *	0	20	35	175
Bromomethane	ND	20	16.0	80.0	20	18.0	90.0	11.8	20	35	175
Carbon disulfide	ND	20	21.0	90.0	20	21.0	90.0	0	20	30	225
Carbon tetrachloride	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	35	175
Chlorobenzene	ND	20	20.0	100	20	20.0	100	0	21	70	130
Chloroethane	ND	20	20.0	75.0	20	20.0	75.0	0	20	35	175
Chlorof <i>o</i> rm	ND	20	21.0	105	20	21.0	105	0	20	35	175
Chloromethane	ND	20	13.0	65.0	20	14.0	70.0	7.41	20	35	175
Dibromochloromethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Dibromomethane	ND	20	19.0	95.0	20	19.0	95.0	0	20	35	175
Dichlorodifluoromethane	ND	20	13.0	65.0	20	13.0	65.0	0	20	35	175
Ethylbenzene	960	20	930	N/C	20	930	N/C	N/C	20	35	175
Hexachlorobutadiene	ND	20	16.0	80.0	20	16.0	80.0	0	20	43	144
Isopropylbenzene	60.0	20	74.0	70.0	20	73.0	65.0	1.36	20	35	175
Methyl tert-butyl ether	750	40	750	N/C	40	740	N/C	N/C	20	35	175
Methylene chloride	ND	20	18.0	90.0	20	19.0	95.0	5.41	20	52	143
Naphthalene	240	20	230	N/C	20	230	N/C	N/C	20	20	210
n-Butylbenzene	15.0	20	31.0	80.0	20	31.0	80.0	0	20	35	175
n-Propylbenzene	160	20	180	N/C	20	170	N/C	N/C	20	35	175
sec-Butylbenzene	ND	20	26.0	130	20	26.0	130	0	20	35	175
Styrene	ND	20	18.0	85.0	20	19.0	90.0	5.41	20	35	175
tert-Butylbenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	35	175
Tetrachloroethene	ND	20	25.0	125	20	26.0	130	3.92	20	30	250
Toluene	1600	20	1400	N/C	20	1400	N/C	N/C	24	70	131
Trichloroethene	ND	20	22.0	110	20	21.0	105	4.65	21	60	140
Trichlorofluoromethane	ND	20	16.0	80.0	20	16.0	80.0	0	20	17	250
Vinyl acetate	ND	20	15.0	75.0	20	15.0	75.0	0	20	10	250
Vinyl chloride	ND	20	17.0	85.0	20	17.0	85.0	0	20	35	175

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 37

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040279

Lab Batch ID:

R270179

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040341-01

RunID:

Q 090413A-4983276

Units:

ug/L

Analysis Date:

04/13/2009 10:12

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	21.0	105	20	22.0	110	4.65	20	35	175
cis-1,3-Dichloropropene	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	35	175
m,p-Xylene	1200	40	1200	N/C	40	1200	N/C	N/C	20	35	175
o-Xylene	920	20	860	N/C	20	880	N/C	N/C	20	35	175
trans-1,2-Dichloroethene	ND	20	19.0	95.0	20	19.0	95.0	0	20	35	175
trans-1,3-Dichloropropene	ND	20	18.0	90.0	20	15.0	75.0	18.2	20	35	175
1,2-Dichloroethene (total)	ND	40	40	100	40	41	100	2.5	20	35	175
Xylenes,Total	2120	60	2060	N/C	60	2080	N/C	N/C	20	35	175
Surr: 1,2-Dichloroethane-d4	ND	50	43	86.0	50	42.0	84.0	2.35	30	62	130
Surr: 4-Bromofluorobenzene	ND	50	50	100	50	51.0	102	1.98	30	70	130
Surr: Toluene-d8	ND	50	47	94.0	50	48.0	96.0	2.11	30	74	122

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040279 Page 38

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Alkalinity (as CaCO3), Total

Method:

RunID:

E310.1

WorkOrder:

09040279

Lab Batch ID:

R270144

Method Blank

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

WET_090413F-4982657

04/13/2009 11:20

Analyst: PAC 09040279-02F

MW-1

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RunID:

WET_090413F-4982659

Units:

mg/L

Analysis Date:

04/13/2009 11:20

PAC Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Total (As CaCO3)	38.70	39.00	100.8	90	110

Sample Duplicate

Original Sample:

09040278-01

RunID:

WET_090413F-4982660

Units: mg/L

Analysis Date:

04/13/2009 11:20

PAC Analyst:

Analyte	Sample . Result	DUP Result	RPD	RPD Limit
Alkalinity, Total (As CaCO3)	174	175	0.573	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

ion Chromatography

Method:

RunID:

E300.0

WorkOrder:

09040279

Lab Batch ID:

R270277A

Method Blank

Samples in Analytical Batch:

IC2_090409A-4984862

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/09/2009 12:18

Units: Analyst:

BDG

09040279-02F

MW-1

Analyte	Result	Rep Limit
Nitrogen, Nitrate (As N)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090409A-4984863

Units:

mg/L

Analysis Date:

04/09/2009 12:36

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen, Nitrate (As N)	10.00	9.147	91.47	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040169-02

RunID:

IC2_090409A-4984879

Units:

mg/L

Analysis Date:

04/09/2009 18:26

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	ND	10	10.10	101.0	10	10.09	100.9	0.06932	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

BN - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Ion Chromatography

Method:

RuniD:

E300.0

uomuotoi

WorkOrder:

09040279

Lab Batch ID:

R270297

Method Blank

Units:

mg/L BDG

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

IC2_090414D-4985092

04/14/2009 10:38

Analyst:

09040279-02F

MW-1

	Analyte	Result	Rep Limit
Chloride		ND	0.50
Sulfate		ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2 090414D-4985093

Units:

mg/L

Analysis Date:

04/14/2009 10:55

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	10.52	105.2	85	115
Sulfate	10.00	10.57	105.7	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040254-01

IC2 090414D-4985097

Units:

s: mg/L

Analysis Date:

04/14/2009 12:05

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	ND	10	10.68	106.8	10	10.66	106.6	0.2155	20	80	120
Sulfate	ND	10	11.07	110.7	10	10.07	100.7	9.423	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

Sample Receipt Checklist And Chain of Custody



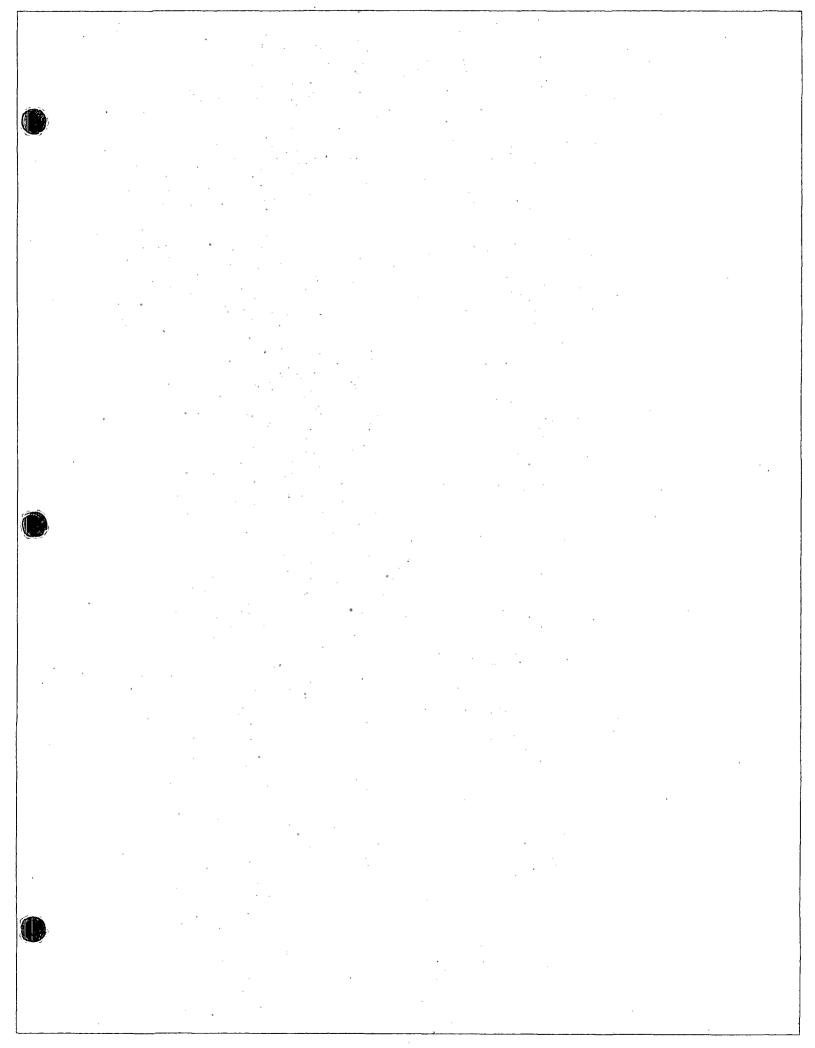
8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Workorder: 09040279 Date and Time Received: 4/9/2009 10:00:00 AM Temperature: 3.0°C		Received By: Carrier name: Chilled by:	BF Fedex-Standard Overnight Water Ice
1. Shipping container/cooler in good condition?	Yes 🔽	No 🗌	Not Present
2. Custody seals intact on shippping container/cooler?	Yes 🔽	No 🗀	Not Present
3. Custody seals intact on sample bottles?	Yes 🗌	No 🗌	Not Present
4. Chain of custody present?	Yes 🔽	No 🗌	
5. Chain of custody signed when relinquished and received?	Yes 🔽	No 🗔	
Chain of custody agrees with sample labels? Received 3 vials w/HCL for CH4 Methane but not written on chain placed on hold.	Yes 🗌	No 🗹	
7. Samples in proper container/bottle?	Yes 🔽	No 🗌	
8. Sample containers intact?	Yes 🔽	No 🗌	
9. Sufficient sample volume for indicated test?	Yes 🗹	No 🗌	
10. All samples received within holding time?	Yes 🗹	No 🗌	
11. Container/Temp Blank temperature in compliance?	Yes 🗸	No 🗌	
12. Water - VOA vials have zero headspace?	Yes 🔽	No 🗌 VOA	Vials Not Present
13. Water - Preservation checked upon receipt (except VOA*)?	Yes	No 🗹	Not Applicable
*VOA Preservation Checked After Sample Analysis			
SPL Representative: Rodriguez, Alisha C. Client Name Contacted: Rick Rexroad w/Brown & Caldwell	Contact Date	& Time: 4/9/2009 2:53:0	00 PM
Non Conformance Issues:			
Client Instructions: Client emailed back at 13:31 on Monday 04/13/0	9 requesting that	the extra vials be analyze	d for Methane only



							SPL Wo	SPL Workorder No.	Š		`	000	000	
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3 Business Days	3. Relinquished by:		date		time		4. Re	4. Received by:						
Other	5. Relinquished by:		date	19/09	time	38	6. Re	6. Received by Laboratory:	Labora	tory:	1 X	+		
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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number:

09040278

Report To: **Project Name:** Fracmaster Site: **Hobbs NM Brown & Caldwell** Rick Rexroad Site Address: 1415 Louisiana **Suite 2500** PO Number: Houston State: **New Mexico** ΤX 77002-State Cert. No.: ph: (713) 759-0999 fax: Date Reported: 4/27/2009

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Isnes V. Vicheare

Agnes V. Vicknair

09040278 Page 1

4/27/2009

Project Manager

Date



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040278

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad 1415 Louisiana Suite 2500

Houston TX 77002-

ph: (713) 759-0999

fax: (713) 308-3886

Isnes V. Vicheaire

Project Name:

Fracmaster

Site:

Hobbs NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

4/27/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COCID	HOLD
MW-3	09040278-01	Water	4/8/2009 8:12:00 AM	4/9/2009 10:00:00 AM	322329	
TB-4-8-09A	09040278-02	Water	4/8/2009 8:32:00 AM	4/9/2009 10:00:00 AM	322329	
FB-4-8-09A	09040278-03	Water	4/8/2009 9:03:00 AM	4/9/2009 10:00:00 AM	322329	

Agnes V. Vicknair Project Manager 4/27/2009

Date

Kesavalu M. Bagawandoss Laboratory Director

Ted Yen
Quality Assurance Officer



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-3 Collected: 04/08/2009 8:12 09040278-01 SPL Sample ID:

			Sit	e: Hob	bs NM					
Analyses/Method	Result	QUAL	R	ep.Limit	D	il. Facto	r Date Ana	lyzed	Analyst	Seq. #
ALKALINITY (AS CACO3), TOTAL					MCL		E310.1	Ur	nits: mg/L	
Alkalinity, Total (As CaCO3)	174			2		1	04/13/09	11:20	PAC	4982660
GASOLINE RANGE ORGANICS					MCL	s	W8015B	Ur	nits: mg/L	
Gasoline Range Organics	ND			0.1		1	04/13/09	16:21	CLJ	4984671
Surr: 1,4-Difluorobenzene	92.0		%	60-155		1	04/13/09	16:21	CLJ	4984671
Surr: 4-Bromofluorobenzene	104		%	50-158		1	04/13/09	16:21	CLJ	4984671
HEADSPACE GAS ANALYSIS					MCL		RSK147	Ur	nits: mg/L	=======================================
Methane	ND			0.0012		1	04/24/09	16:07	V_L	4996399
ION CHROMATOGRAPHY					MCL	· · · · · ·	E300.0	Ur	nits: mg/L	
Chloride	52.5			5		10	04/14/09	22:00	BDG	4985115
Sulfate	83.6			5		10	04/14/09	22:00	BDG	4985115
Nitrogen,Nitrate (As N)	ND			0.5		1	04/09/09	15:13	BDG	4984872
SEMIVOLATILE HYDROCARBON	S				MCL	S	W8015B	Uı	nits: mg/L	
Diesel Range Organics	ND			0.1		1	04/16/09	23:39	NW	4987512
Mineral Spirits Range Organics	ND			0.1		1	04/16/09	23:39	NW	4987512
Surr: n-Pentacosane	48.4		%	20-150		1	04/16/09	23:39	NW	4987512

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-3

Collected: 04/08/2009 8:12

SPL Sample ID:

09040278-01

Site:	4-6	L -	BIRA
one:	Hob	DS	IAIAI

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Un	its: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/17/09 15:26	GY	4992373
1,2-Dichlorobenzene	ND	5	1	04/17/09 15:26	GY	4992373
1,2-Diphenylhydrazine	ND	10	1	04/17/09 15:26	GY	4992373
1,3-Dichlorobenzene	ND	5	_ 1	04/17/09 15:26	GY	4992373
1,4-Dichlorobenzene	ND	5	1	04/17/09 15:26	GY	4992373
2,4,5-Trichlorophenol	ND	10	1	04/17/09 15:26	GY	4992373
2,4,6-Trichlorophenol	ND	5	1	04/17/09 15:26	GY	4992373
2,4-Dichlorophenol	ND	5	1	04/17/09 15:26	GY	4992373
2,4-Dimethylphenol	ND	5	1	04/17/09 15:26	GY	4992373
2,4-Dinitrophenol	ND	25	1	04/17/09 15:26	GY	4992373
2,4-Dinitrotoluene	ND	5	1	04/17/09 15:26	GY	4992373
2,6-Dinitrotoluene	ND	5	1	04/17/09 15:26	GY	4992373
2-Chloronaphthalene	ND	5	1	04/17/09 15:26	GY	4992373
2-Chlorophenol	ND	5	1	04/17/09 15:26	GY	4992373
2-Methylnaphthalene	ND	5	1	04/17/09 15:26	GY	4992373
2-Nitroaniline	ND	25	1	04/17/09 15:26	GY	4992373
2-Nítrophenol	ND	5	1	04/17/09 15:26	GY	4992373
3,3'-Dichlorobenzidine	ND	10	1	04/17/09 15:26	GY	4992373
3-Nítroaniline	ND	25	1	04/17/09 15:26	GY	4992373
4,6-Dinitro-2-methylphenol	ND	25	1	04/17/09 15:26	GY	4992373
4-Bromophenyl phenyl ether	ND	5	1	04/17/09 15:26	GY	4992373
4-Chloro-3-methylphenol	ND	5	1	04/17/09 15:26	GY	4992373
4-Chloroaniline	ND	5	1	04/17/09 15:26	GY	4992373
4-Chlorophenyl phenyl ether	ND	5	1	04/17/09 15:26	GY	4992373
4-Nitroaniline	ND	25	1	04/17/09 15:26	GY	4992373
4-Nitrophenol	ND	25	1	04/17/09 15:26	GY	4992373
Acenaphthene	ND	5	1	04/17/09 15:26	GY	4992373
Acenaphthylene	ND	5	1	04/17/09 15:26	GY	4992373
Aniline	ND	5	1	04/17/09 15:26	GY	4992373
Anthracene	ND	5	1	04/17/09 15:26	GY	4992373
Benz(a)anthracene	ND	5	1	04/17/09 15:26	GY	4992373
Benzo(a)pyrene	ND	5	1	04/17/09 15:26	GY	4992373
Benzo(b)fluoranthene	ND	5	1	04/17/09 15:26	GY	4992373
Benzo(g,h,i)perylene	ND	5	1	04/17/09 15:26	GY	4992373
Benzo(k)fluoranthene	ND	5	1	04/17/09 15:26	GY	4992373
Benzoic acid	ND	25	1	04/17/09 15:26	GY	4992373
Benzyl alcohol	ND	5	1	04/17/09 15:26	GY	4992373
Bis(2-chloroethoxy)methane	ND	5	1	04/17/09 15:26	GY	4992373
Bis(2-chloroethyl)ether	ND	5	1	04/17/09 15:26	GY	4992373

Qualifiers:

ND/U - Not Detected at the Reporting Limit

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TNTC - Too numerous to count

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-3 Collected: 04/08/2009 8:12 SPL Sample ID: 09040278-01

Analyses/Method	Result	QUAL	Ren	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND		<u> </u>	5	1	04/17/09 15:26	GY	4992373
Bis(2-ethylhexyl)phthalate	ND			5	1	04/17/09 15:26	GY	4992373
Butyl benzyl phthalate	ND		· · · · · · -	5	1	04/17/09 15:26	GY	4992373
Carbazole	ND	•		5	1	04/17/09 15:26	GY	4992373
Chrysene	ND			5	1	04/17/09 15:26	GY	4992373
Dibenz(a,h)anthracene	ND			5	1	04/17/09 15:26	GY	4992373
Dibenzofuran	ND	-		5	1	04/17/09 15:26	GY	4992373
Diethyl phthalate	ND			5	1	04/17/09 15:26	GY	4992373
Dimethyl phthalate	ND			5	1	04/17/09 15:26	GY	4992373
Di-n-butyl phthalate	ND			5	1	04/17/09 15:26	GY	4992373
Di-n-octyl phthalate	ND			5	1	04/17/09 15:26	GY	4992373
Fluoranthene	ND			5	1	04/17/09 15:26	GY	4992373
Fluorene	ND			5	1	04/17/09 15:26	GY	4992373
Hexachtorobenzene	ND	···		5	1	04/17/09 15:26	GY	4992373
Hexachlorobutadiene	ND			5	1	04/17/09 15:26	GY	4992373
Hexachlorocyclopentadiene	ND			5	1	04/17/09 15:26	GY	4992373
Hexachloroethane	ND			5	1	04/17/09 15:26	GY	4992373
Indeno(1,2,3-cd)pyrene	ДN			5	1	04/17/09 15:26	GY	4992373
Isophorone	ND			5	1	04/17/09 15:26	GY	4992373
Naphthalene	ND			5	1	04/17/09 15:26	GY	4992373
Nitrobenzene	ND			5	1	04/17/09 15:26	GY	4992373
N-Nitrosodi-n-propylamine	ND			5	1	04/17/09 15:26	GY	4992373
N-Nitrosodiphenylamine	ND			5	1	04/17/09 15:26	GY	4992373
Pentachlorophenol	ND			25	1	04/17/09 15:26	GY	4992373
Phenanthrene	ND			5	1	04/17/09 15:26	GY	4992373
Phenol	ND			5	1	04/17/09 15:26	GY	4992373
Pyrene	ND	_		5	1	04/17/09 15:26	GY	4992373
Pyridine	ND			5	1	04/17/09 15:26	GY	4992373
2-Methylphenol	ND			5	1	04/17/09 15:26	GY	4992373
3 & 4-Methylphenol	ND			5	1	04/17/09 15:26	GY	4992373
Surr: 2,4,6-Tribromophenol	108		%	10-123	1	04/17/09 15:26	GY	4992373
Surr: 2-Fluorobiphenyl	82.4		%	23-116	1	04/17/09 15:26	GY	4992373
Surr: 2-Fluorophenol	70.1		%	16-110	1	04/17/09 15:26	GY	4992373
Surr: Nitrobenzene-d5	78.8		%	21-114	1	04/17/09 15:26	GY	4992373
Surr: Phenol-d5	50.5		%	10-110	1	04/17/09 15:26	GY	4992373
Surr: Terphenyl-d14	73.2		%	22-141	1	04/17/09 15:26	GY	4992373

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

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09040278 Page 5 4/27/2009 4:46:39 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-3

Collected: 04/08/2009 8:12

SPL Sample ID:

09040278-01

		Site: Ho	bbs NM			
Analyses/Method	Result Q	UAL Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	THOD 8260B		MCL SV	V8260B Ur	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	11	04/11/09 22:20	LU_L	4981669
1,1,1-Trichloroethane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,1,2,2-Tetrachloroethane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,1,2-Trichloroethane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,1-Dichloroethane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,1-Dichloroethene	ND	5	1	04/11/09 22:20	LU_L	4981669
1,1-Dichloropropene	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2,3-Trichlorobenzene	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2,3-Trichloropropane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2,4-Trichlorobenzene	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2,4-Trimethylbenzene	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2-Dibromo-3-chloropropane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2-Dibromoethane	ND	5	1	04/11/09 22:20	LU_L	4981669
1,2-Dichlorobenzene	ND	5	1	04/11/09 22:20	LU L	4981669
1,2-Dichloroethane	ND	5	1	04/11/09 22:20	LU L	4981669
1,2-Dichloropropane	ND	5	1	04/11/09 22:20	LUL	4981669
1,3,5-Trimethylbenzene	ND	5	1	04/11/09 22:20	LU L	4981669
1,3-Dichlorobenzene	ND	5	1	04/11/09 22:20	LU L	4981669
1,3-Dichloropropane	ND		1	04/11/09 22:20	LU L	4981669
1,4-Dichlorobenzene	ND	5	1	04/11/09 22:20		4981669
2,2-Dichloropropane	ND		<u></u>	04/11/09 22:20		4981669
2-Butanone	ND	20	1	04/11/09 22:20	LU L	4981669
2-Chloroethyl vinyl ether	ND J	10	1	04/11/09 22:20	LU L	4981669
2-Chlorotoluene	ND	5		04/11/09 22:20	LU L	4981669
2-Hexanone	ND	10	1	04/11/09 22:20	LU L	4981669
4-Chlorotoluene	ND	5	1	04/11/09 22:20	LU L	4981669
4-Isopropyltoluene	ND	5	1	04/11/09 22:20	LU L	4981669
4-Methyl-2-pentanone	ND	10	1	04/11/09 22:20		4981669
Acetone	ND	20	1	04/11/09 22:20	LU L	4981669
Acrylonitrile	ND	10	1	04/11/09 22:20		4981669
Benzene	ND	5	1	04/11/09 22:20		4981669
Bromobenzene	ND	5	1	04/11/09 22:20		4981669
Bromochloromethane	ND	5	1	04/11/09 22:20		4981669
Bromodichloromethane	ND	5	1	04/11/09 22:20		4981669
Bromoform	ND	5	1	04/11/09 22:20		4981669
Bromomethane	ND	10	1	04/11/09 22:20		4981669
Carbon disulfide	ND	5	· 1	04/11/09 22:20		498166
Carbon tetrachloride	ND	5	1 .	04/11/09 22:20		498166
Chlorobenzene	ND	5	1	04/11/09 22:20		498166



ND/U - Not Detected at the Reporting Limit

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J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-3 Collected: 04/08/2009 8:12 SPL Sample ID: 09040278-01

			Site:	Hobbs NM				
Analyses/Method	Result	QUAL.	Rep.	Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/11/09 22:20	LU_L	4981669
Chloroform	ND			5	1	04/11/09 22:20	LU_L	4981669
Chloromethane	ND			10	1	04/11/09 22:20	LU_L	4981669
Dibromochloromethane	ND			5	1	04/11/09 22:20	LU_L	4981669
Dibromomethane	ND			5	1	04/11/09 22:20	LU_L	4981669
Dichlorodifluoromethane	ND		_	10	1	04/11/09 22:20	LU_L	4981669
Ethylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
Hexachlorobutadiene	ND			5	1	04/11/09 22:20	LU_L	4981669
Isopropylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
Methyl tert-butyl ether	ND			5	1	04/11/09 22:20	LU_L	4981669
Methylene chloride	ND			5	1	04/11/09 22:20	LU_L	4981669
Naphthalene	ND			5	1	04/11/09 22:20	LU_L	4981669
n-Butylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
n-Propylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
sec-Butylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
Styrene	ND			5	1	04/11/09 22:20	LU_L	4981669
tert-Butylbenzene	ND			5	1	04/11/09 22:20	LU_L	4981669
Tetrachloroethene	ND			5	1	04/11/09 22:20	LU_L	4981669
Toluene	ND			5	1	04/11/09 22:20	LU_L	4981669
Trichloroethene	ND			5	1	04/11/09 22:20	LU_L	4981669
Trichlorofluoromethane	ND			5	1	04/11/09 22:20	LU_L	4981669
Vinyl acetate	ND			10	1	04/11/09 22:20	LU_L	4981669
Vinyl chloride	ND			2	1	04/11/09 22:20	LU_L	4981669
cis-1,2-Dichloroethene	ND			5	1	04/11/09 22:20	LU_L	4981669
cis-1,3-Dichloropropene	ND		· -	5	1	04/11/09 22:20	LU_L	4981669
m,p-Xylene	ND			5	1	04/11/09 22:20	LU_L	4981669
o-Xylene	ND			5	1	04/11/09 22:20	LU_L	4981669
trans-1,2-Dichloroethene	ND			5	1	04/11/09 22:20	LU_L	4981669
trans-1,3-Dichloropropene	NĐ			5	1	04/11/09 22:20	LU_L	4981669
1,2-Dichloroethene (total)	ND			5	1	04/11/09 22:20	LU_L	4981669
Xylenes,Total	ND			5	_ 1	04/11/09 22:20	LU_L	4981669
Surr: 1,2-Dichloroethane-d4	92.0		% 6	62-130	1	04/11/09 22:20	LU_L	4981669
Surr: 4-Bromofluorobenzene	108		% 7	70-130	1	04/11/09 22:20	LU_L	4981669
Surr: Toluene-d8	96.0		% 7	74-122	1	04/11/09 22:20	LU_L	4981669

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E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

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D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-4-8-09A Collected: 04/08/2009 8:32 SPL Sample ID: 09040278-02

Site: Hobbs NM

		Site: Hob	DS INIVI		
Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed Analyst	Seq. #
VOLATILE ORGANICS BY MET	THOD 8260B		MCL S	W8260B Units: ug/L	
1,1,1,2-Tetrachloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1,1-Trichloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1,2,2-Tetrachloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1,2-Trichloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1-Dichloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1-Dichloroethene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,1-Dichloropropene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2,3-Trichlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2,3-Trichloropropane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2,4-Trichlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2,4-Trimethylbenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2-Dibromo-3-chloropropane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2-Dibromoethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2-Dichlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2-Dichloroethane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,2-Dichloropropane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,3,5-Trimethylbenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,3-Dichlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
1,3-Dichloropropane	ND	5	1	04/11/09 21:23 LU_L	4981667
1,4-Dichlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
2,2-Dichloropropane	ND	5	1	04/11/09 21:23 LU_L	4981667
2-Butanone	ND	20	1	04/11/09 21:23 LU_L	4981667
2-Chloroethyl vinyl ether	ND J	10	1	04/11/09 21:23 LU_L	4981667
2-Chlorotoluene	ND	5	1	04/11/09 21:23 LU_L	4981667
2-Hexanone	ND	10	1	04/11/09 21:23 LU_L	4981667
4-Chlorotoluene	ND	5	1	04/11/09 21:23 LU_L	4981667
4-Isopropyltoluene	ND	5	1	04/11/09 21:23 LU_L	4981667
4-Methyl-2-pentanone	ND	10	1	04/11/09 21:23 LU_L	4981667
Acetone	ND	20	1	04/11/09 21:23 LU_L	4981667
Acrylonitrile	ND	10	1	04/11/09 21:23 LU_L	4981667
Benzene	ND_	5	1	04/11/09 21:23 LU_L	4981667
Bromobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667
Bromochloromethane	ND	5	111	04/11/09 21:23 LU_L	4981667
Bromodichloromethane	ND	5	1	04/11/09 21:23 LU_L	4981667
Bromoform	ND	5	1	04/11/09 21:23 LU_L	4981667
Bromomethane	ND	10	1	04/11/09 21:23 LU_L	4981667
Carbon disulfide	ND	5	1	04/11/09 21:23 LU_L	4981667
Carbon tetrachloride	ND	5	1	04/11/09 21:23 LU_L	4981667
Chlorobenzene	ND	5	1	04/11/09 21:23 LU_L	4981667

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

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TNTC - Too numerous to count

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-4-8-09A Collected: 04/08/2009 8:32 SPL Sample ID: 09040278-02

Site:	Hobbs	NM
Oite.	110003	1411

			Site:	RadoH	NIVI			
Analyses/Method	Result	QUAL	Rep.L	.imit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/11/09 21:23	LU_L	4981667
Chloroform	ND			5	1	04/11/09 21:23	LU_L	4981667
Chloromethane	ND			10	1	04/11/09 21:23	LU_L	4981667
Dibromochloromethane	ND			5	1	04/11/09 21:23	LU_L	4981667
Dibromomethane	ND			5	1	04/11/09 21:23	LU_L	4981667
Dichlorodifluoromethane	ND			10	1	04/11/09 21:23	LU_L	4981667
Ethylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
Hexachlorobutadiene	ND			5	1	04/11/09 21:23	LU_L	4981667
Isopropylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
Methyl tert-butyl ether	ND			5	1	04/11/09 21:23	LU_L	4981667
Methylene chloride	ND			5	1	04/11/09 21:23	LU_L	4981667
Naphthalene	ND			5	1	04/11/09 21:23	LU_L	4981667
n-Butylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
n-Propylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
sec-Butylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
Styrene	ND			5	1	04/11/09 21:23	LU_L	4981667
tert-Butylbenzene	ND			5	1	04/11/09 21:23	LU_L	4981667
Tetrachloroethene	ND			5	1	04/11/09 21:23	LU_L	4981667
Toluene	ND			5	1	04/11/09 21:23	LU_L	4981667
Trichloroethene	ND			5	1	04/11/09 21:23	LU_L	4981667
Trichlorofluoromethane	ND			5	1	04/11/09 21:23	LU_L	4981667
Vinyl acetate	ND			10	1	04/11/09 21:23	LU_L	4981667
Vinyl chloride	ND			2	1	04/11/09 21:23	LU_L	4981667
cis-1,2-Dichloroethene	ND			5	1	04/11/09 21:23	LU_L	4981667
cis-1,3-Dichloropropene	ND			5	1	04/11/09 21:23	LU_L	4981667
m,p-Xylene	ND			5	1	04/11/09 21:23	LU_L	4981667
o-Xylene	ND			5	1	04/11/09 21:23	LU_L	4981667
trans-1,2-Dichloroethene	ND			5	1	04/11/09 21:23	LU_L	4981667
trans-1,3-Dichloropropene	ND			5	1	04/11/09 21:23	LU_L	4981667
1,2-Dichloroethene (total)	ND			5	1	04/11/09 21:23	LU_L	4981667
Xylenes,Total	ND		· -	5	1	04/11/09 21:23	LU_L	4981667
Surr: 1,2-Dichloroethane-d4	96.0		% 62	2-130	1	04/11/09 21:23	LU_L	4981667
Surr: 4-Bromofluorobenzene	104		% 70)-130	1	04/11/09 21:23	LU_L	4981667
Surr: Toluene-d8	98.0		% 74	l-122	1	04/11/09 21:23	LU_L	4981667

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-8-09A

Collected: 04/08/2009 9:03

SPL Sample ID:

09040278-03

Site:	Hobbs	MM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B Units: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1,1-Trichloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1,2,2-Tetrachloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1,2-Trichloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1-Dichloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1-Dichloroethene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,1-Dichloropropene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2,3-Trichlorobenzene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2,3-Trichloropropane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2,4-Trichlorobenzene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2,4-Trimethylbenzene	ND		. 5	1	04/11/09 21:52 LU_L	4981668
1,2-Dibromo-3-chloropropane	ND	•	5	1	04/11/09 21:52 LU_L	4981668
1,2-Dibromoethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2-Dichlorobenzene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2-Dichloroethane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,2-Dichloropropane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,3,5-Trimethylbenzene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,3-Dichlorobenzene	ND		5	1	04/11/09 21:52 LU_L	4981668
1,3-Dichloropropane	ND		5	1	04/11/09 21:52 LU_L	4981668
1,4-Dichlorobenzene	ND		5	1	04/11/09 21:52 LU_L	498166
2,2-Dichloropropane	ND		5	1	04/11/09 21:52 LU_L	498166
2-Butanone	ND		20	1	04/11/09 21:52 LU_L	498166
2-Chloroethyl vinyl ether	ND J		10	1	04/11/09 21:52 LU_L	498166
2-Chlorotoluene	ND		5	1	04/11/09 21:52 LU_L	498166
2-Hexanone	ND		10	1	04/11/09 21:52 LU_L	498166
4-Chlorotoluene	ND		5	1	04/11/09 21:52 LU_L	498166
4-Isopropyltoluene	ND		5	1	04/11/09 21:52 LU_L	498166
4-Methyl-2-pentanone	ND		10	1	04/11/09 21:52 LU_L	498166
Acetone	ND		20	1	04/11/09 21:52 LU_L	498166
Acrylonitrile	ND		10	1	04/11/09 21:52 LU_L	498166
Benzene	ND		5	1	04/11/09 21:52 LU_L	498166
Bromobenzene	ND		5	1	04/11/09 21:52 LU_L	498166
Bromochloromethane	ND		5	1	04/11/09 21:52 LU_L	498166
Bromodichloromethane	ND		5	1	04/11/09 21:52 LU_L	498166
Bromoform	ND		5	1	04/11/09 21:52 LU_L	498166
Bromomethane	ND		10	1	04/11/09 21:52 LU_L	498166
Carbon disulfide	ND		5	1	04/11/09 21:52 LU_L	498166
Carbon tetrachloride	ND		5	1	04/11/09 21:52 LU_L	498166
Chlorobenzene	ND		5	1	04/11/09 21:52 LU_L	498166

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Site:	Hobbs NM	
JILE.	PRODUS MIN	

			Site:	Hobbs N	IM			
Analyses/Method	Result	QUAL	Rep.	Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10	1	04/11/09 21:52	LU_L	4981668
Chloroform	ND			5	1	04/11/09 21:52	LU_L	4981668
Chloromethane	ND			10	1	04/11/09 21:52	LU_L	4981668
Dibromochloromethane	ND			5	11	04/11/09 21:52	LU_L	4981668
Dibromomethane	ND			5	1	04/11/09 21:52	LU_L	4981668
Dichlorodifluoromethane	ND			10	1	04/11/09 21:52	LU_L	4981668
Ethylbenzene	ND			5	1	04/11/09 21:52	LU_L	4981668
Hexachlorobutadiene	ND			5	1	04/11/09 21:52	LU_L	4981668
Isopropylbenzene	ND	_		5	1	04/11/09 21:52	LU_L	4981668
Methyl tert-butyl ether	ND			5	1	04/11/09 21:52	LU_L	4981668
Methylene chloride	ND			5	1	04/11/09 21:52	LU_L	4981668
Naphthalene	ND			5	1	04/11/09 21:52	LU_L	4981668
n-Butylbenzene	ND			5	1	04/11/09 21:52	LU_L	4981668
n-Propylbenzene	ND			5	1	04/11/09 21:52	LU_L	4981668
sec-Butylbenzene	ND			5	1	04/11/09 21:52	LU_L	4981668
Styrene	ND			5	1	04/11/09 21:52	LU_L	4981668
tert-Butylbenzene	ND			5	1	04/11/09 21:52	LU_L	4981668
Tetrachloroethene	ND			5	1	04/11/09 21:52	LU_L	4981668
Toluene	ND			5	1	04/11/09 21:52	LU_L	4981668
Trichloroethene	ND			5	1	04/11/09 21:52	LU_L	4981668
Trichlorofluoromethane	ND			5	1	04/11/09 21:52	LU_L	4981668
Vinyl acetate	ND			10	1	04/11/09 21:52	LU_L	4981668
Vinyl chloride	ND			2	1	04/11/09 21:52	LU_L	4981668
cis-1,2-Dichloroethene	ND			5	1	04/11/09 21:52	LU_L	4981668
cis-1,3-Dichloropropene	ND			5	1	04/11/09 21:52	LU_L	4981668
m,p-Xylene	ND			5	1	04/11/09 21:52	LU_L	4981668
o-Xylene	ND			5	1	04/11/09 21:52	LU_L	4981668
trans-1,2-Dichloroethene	ND			5	1	04/11/09 21:52	LU_L	4981668
trans-1,3-Dichloropropene	ND			5	1	04/11/09 21:52	LU_L	4981668
1,2-Dichloroethene (total)	ND			5	1	04/11/09 21:52	LU_L	4981668
Xylenes, Total	ND			5	1	04/11/09 21:52	LU_L	4981668
Surr: 1,2-Dichloroethane-d4	98.0		% 6	2-130	1	04/11/09 21:52	LU_L	4981668
Surr: 4-Bromofluorobenzene	106		% 7	0-130	1	04/11/09 21:52	LU_L	4981668
Surr: Toluene-d8	96.0		% 7	4-122	1	04/11/09 21:52	LU_L	4981668

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

HP_V_090416B-4987505

WorkOrder:

Samples in Analytical Batch:

09040278

Lab Batch ID:

89427

Method Blank

Units: mg/L

NW

Lab Sample ID

Client Sample ID

Analysis Date:

Analyst:

09040278-01C

MW-3

Preparation Date: 04/13/2009 14:10

04/14/2009 23:43

Prep By:

N M Method SW3510C

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	51.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090416B-4987506

mg/L

Analysis Date:

04/15/2009 0:03

Analyst:

Units:

Preparation Date: 04/13/2009 14:10

NW Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics	1.00	0.895	89.5	1.00	0.880	88.0	1.7	40	21	150
Surr: n-Pentacosane	0.0500	0.0494	98.8	0.0500	0.0485	97.0	1.8	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 13

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Headspace Gas Analysis

Method:

RSK147

WorkOrder:

09040278

Lab Batch ID:

R271083

Method Blank

Samples in Analytical Batch:

RunID:

VARC_090424A-4996391

Units:

mg/L V_L

Lab Sample ID

Client Sample ID

Analysis Date:

04/24/2009 14:37

Analyst:

09040278-01E

MW-3

Analyte	Result	Rep Limit
Methane	ND	0.0012

Sample Duplicate

Original Sample:

09040488-02

RunID:

VARC_090424A-4996394

Units:

mg/L

Analysis Date:

04/24/2009 15:14

Analyst: V_L

Analyte	Sample	DUP	RPD	RPD
	Result	Result		Limit
Methane	0.0037	0.00379	2.8	50

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 14

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Gasoline Range Organics

Method:

RunID:

SW8015B

WorkOrder:

09040278

Lab Batch ID:

R270269

Method Blank

HP_P_090413A-4984662

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/13/2009 5:20

Analyst:

CLJ

09040278-01D

MW-3

		1
Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RunID:

HP_P_090413A-4984660

Units:

mg/L

Analysis Date:

04/13/2009 4:22

Analyst:

CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP_P_090413A-4984664

Units:

mg/L

Analysis Date:

04/13/2009 10:44

Analyst: CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1	0.852	85.2	1	0.868	86.8	1.92	36	22	174
Surr: 1,4-Difluorobenzene	ND	0.1	0.0922	92.2	0.1	0.0932	93.2	1.08	30	60	155
Surr: 4-Bromofluorobenzene	ND	0.1	0.105	105	0.1	0.107	107	1.41	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

RunID:

SW8270C

04/13/2009 8:15

WorkOrder:

09040278

Lab Batch ID:

89412

Method Blank

H_090417E-4992370

Units:

ug/L

Lab Sample ID

09040278-01B

Samples in Analytical Batch:

Client Sample ID MW-3

Analysis Date: Preparation Date:

04/17/2009 9:40

Analyst:

GΥ

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	10
3-Nitroaniline	ND	25
4.6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	25
Acenaphthene	ND	
Acenaphthylene	ND	
Aniline	ND	
Anthracene	ND	
Benz(a)anthracene	ND	
Benzo(a)pyrene	ND	5.0
Benzo(b)fluoranthene	ND	
Benzo(g,h,i)perylene	ND	
Benzo(k)fluoranthene	ND	
Benzoic acid	ND	25
Benzyl alcohol	ND	
Bis(2-chloroethoxy)methane	ND	5.0
Bis(2-chloroethyl)ether	ND	5.0
Bis(2-chloroisopropyl)ether	ND	5.0
Bis(2-ethy/hexyl)phthalate	ND	
Butyl benzyl phthalate	ND	5.0
Carbazole	ND	
Chrysene	ND	
Dibenz(a,h)anthracene	ND	
Dibenzofuran	ND	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

TNTC - Too numerous to count

09040278 Page 16 4/27/2009 4:46:43 PM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method: SV

SW8270C

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WorkOrder:

09040278

Lab Batch ID:

89412

Method Blank

RunID: H

H_090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

Analyst: GY

Preparation Date: 04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND	5.0
Pentachlorophenol	ND.	25
Phenanthrene	ND	5.0
Phenol	ND.	5.0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenol	ND	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	10-110
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

ug/L

Analysis Date: Preparation Date: 04/17/2009 10:42 04/13/2009 8:15 Analyst: GY

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1,2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	8.1	50	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040278

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

Analysis Date:

04/17/2009 10:42

Analyst: GY

ug/L

04/13/2009 8:15 Preparation Date:

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63.2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinitro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040278

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GΥ

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis (2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis(2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis(2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Dimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachloroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
Isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenol	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040278

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

Analysis Date:

04/17/2009 10:42

ug/L

GΥ Analyst:

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenol-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141



Qualifiers:

ND/U - Not Detected at the Reporting Limit

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J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 20

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

04/11/2009 12:58

04/11/2009 12:58

WorkOrder:

09040278

Lab Batch ID:

R270073

Method Blank

RunID: Analysis Date:

Preparation Date:

N_090411A-4981661

Units: Analyst:

Prep By:

ug/L LU L

Method

Lab Sample ID

Client Sample ID

09040278-01A

Samples in Analytical Batch:

MW-3

09040278-02A

TB-4-8-09A

09040278-03A

FB-4-8-09A

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,3-Dichloropropane	ND	5.0
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	
2-Chlorotoluene	ND	
2-Hexanone	ND	10
4-Chlorotoluene	ND	
	ND	
4-Isopropyltoluene	ND ND	
4-Methyl-2-pentanone	ND	
Acetone	ND ND	
Acrylonitrile		
Benzene	ND	+
Bromobenzene	ND	
Bromochloromethane Bromodichloromethane	ND	
	ND ND	
Bromoform	ND ND	
Bromomethane	ND	+
Carbon disulfide	ND	+
Carbon tetrachloride	ND ND	
Chlorobenzene	ND	-
Chloroethane	ND ND	
Chloroform	ND ND	
Chloromethane	ND	
Dibromochloromethane	ND	
Dibromomethane	ND	
Dichlorodifluoromethane	ND ND	
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

09040278

WorkOrder: Lab Batch ID:

R270073

Method Blank

RunID:

N 090411A-4981661

Units:

ug/L

Analysis Date:

04/11/2009 12:58

Analyst:

LU L

Preparation Date:

04/11/2009 12:58

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND.	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	94.0	62-130
Surr: 4-Bromofluorobenzene	104.0	70-130
Surr: Toluene-d8	96.0	74-122

Laboratory Control Sample (LCS)

RunID:

N_090411A-4981660

Units:

ug/L LU L

Analysis Date: Preparation Date: 04/11/2009 11:50 04/11/2009 11:50 Analyst: Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	25.0	125	71	136
1,1,1-Trichloroethane	20.0	26.0	130	66	132
1,1,2,2-Tetrachloroethane	20.0	25.0	125	55	139
1,1,2-Trichloroethane	20.0	25.0	125	70	130
1,1-Dichloroethane	20.0	22.0	110	67	131

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

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TNTC - Too numerous to count

09040278 Page 22

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040278

Lab Batch ID:

R270073

Laboratory Control Sample (LCS)

RunID:

N 090411A-4981660

Units:

ug/L

Analysis Date:

04/11/2009 11:50

Analyst: LU L

Preparation Date:

04/11/2009 11:50

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	23.0	115	71	146
1,1-Dichloropropene	20.0	25.0	125	59	138
1,2,3-Trichlorobenzene	20.0	21.0	105	37	155
1,2,3-Trichloropropane	20.0	26.0	130	70	145
1,2,4-Trichlorobenzene	20.0	23.0	115	39	133
1,2,4-Trimethylbenzene	20.0	22.0	110	53	147
1,2-Dibromo-3-chloropropane	20.0	24.0	120	43	137
1,2-Dibromoethane	20.0	25.0	125	63	126
1,2-Dichlorobenzene	20.0	23.0	115	70	130
1,2-Dichloroethane	20.0	24.0	120	64	150
1,2-Dichloropropane	20.0	24.0	120	76	124
1,3,5-Trimethylbenzene	20.0	23.0	115	57	146
1,3-Dichlorobenzene	20.0	22.0	110	72	134
1,3-Dichloropropane	20.0	24.0	120	78	130
1,4-Dichlorobenzene	20.0	22.0	110	70	130
2,2-Dichloropropane	20.0	26.0	130	45	156
2-Butanone	20.0	30.0	150	20	235
2-Chloroethyl vinyl ether	20.0	22.0	110	13	179
2-Chlorotoluene	20.0	24.0	120	64	122
2-Hexanone	20.0	31.0	155	34	182
4-Chlorotoluene	20.0	23.0	115	64	142
4-Isopropyltoluene	20.0	22.0	110	60	134
4-Methyl-2-pentanone	20.0	27.0	135	11	145
Acetone	20.0	34.0	170	13	386
Acrylonitrile	20.0	25.0	125	43	194
Benzene	20.0	24.0	120	76	126
Bromobenzene	20.0	22.0	110	70	130
Bromochloromethane	20.0	25.0	125	63	131
Bromodichloromethane	20.0	24.0	120	77	138
Bromoform	20.0	25.0	125	55	129
Bromomethane	20.0	20.0	100	58	148
Carbon disulfide	20.0	22.0	110	46	146
Carbon tetrachloride	20.0	27.0	135	66	137
Chlorobenzene	20.0	24.0	120	67	136

Qualifiers:

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B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

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09040278 Page 23

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

WorkOrder:

09040278

Lab Batch ID:

R270073

Laboratory Control Sample (LCS)

RuniD:

N_090411A-4981660

Units:

Analysis Date:

04/11/2009 11:50

Analyst:

ug/L LU_L

Method

Preparation Date: 04/11/2009 11:50 Prep By:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.0	100	50	137
Chloroform	20.0	24.0	120	70	135
Chloromethane	20.0	20.0	100	51	140
Dibromochloromethane	20.0	25.0	125	69	12
Dibromomethane	20.0	26.0	130	74	130
Dichlorodifluoromethane	20.0	22.0	110	32	16
Ethylbenzene	20.0	24.0	120	67	12
Hexachlorobutadiene	20.0	26.0	130	43	14
Isopropylbenzene	20.0	22.0	110	60	13
Methyl tert-butyl ether	40.0	46.0	115	48	16
Methylene chloride	20.0	22.0	110	52	14
Naphthalene	20.0	22.0	110	24	15
n-Butylbenzene	20.0	24.0	120	50	14
n-Propylbenzene	20.0	23.0	115	62	13
sec-Butylbenzene	20.0	23.0	115	66	12
Styrene	20.0	24.0	120	60	13
tert-Butylbenzene	20.0	23.0	115	67	14
Tetrachloroethene	20.0	27.0	135	26	20
Toluene	20.0	24.0	120	70	13
Trichloroethene	20.0	27.0	135	64	13
Trichlorofluoromethane	20.0	24.0	120	46	16
Vinyl acetate	20.0	24.0	120	10	19
Vinyl chloride	20.0	20.0	100	31	14
cis-1,2-Dichloroethene	20.0	24.0	120	70	14
cis-1,3-Dichloropropene	20.0	25.0	125	61	13
m,p-Xylene	40.0	49.0	123	72	15
o-Xylene	20.0	25.0	125	78	14
trans-1,2-Dichloroethene	20.0	23.0	115	67	14
trans-1,3-Dichloropropene	20.0	26.0	130	56	13
1,2-Dichloroethene (total)	40	47	120	73	13
Xylenes,Total	60	74	120	72	15
Surr: 1,2-Dichloroethane-d4	50.0	47	94.0	62	13
Surr: 4-Bromofluorobenzene	50.0	54	108	70	13
Surr: Toluene-d8	50.0	48	96.0	74	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040278

Lab Batch ID:

R270073

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040124-02

N 090411A-4981665

Units:

ug/L

Analysis Date:

RunID:

04/11/2009 18:35

Analyst:

LU L

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	20.0	100	20	21.0	105	4.88	20	35	175
1,1,1-Trichloroethane	ND	20	22.0	110	20	24.0	120	8.70	20	35.	175
1,1,2,2-Tetrachloroethane	ND	20	23.0	115	20	22.0	110	4.44	20	35	175
1,1,2-Trichloroethane	ND	20	22.0	110	20	22.0	110	0	20	35	175
1,1-Dichloroethane	ND	20	20.0	100	20	21.0	105	4.88	20	35	175
1,1-Dichloroethene	ND	20	20.0	100	20	21.0	105	4.88	22	61	145
1,1-Dichloropropene	ND	20	22.0	110	20	22.0	110	0	20	35	175
1,2,3-Trichlorobenzene	ND	20	10.0	50.0	20	11.0	55.0	9.52	20	27	187
1,2,3-Trichloropropane	ND	20	25.0	125	20	23.0	115	8.33	20	35	175
1,2,4-Trichlorobenzene	ND	20	13.0	65.0	20	13.0	65.0	0	20	34	150
1,2,4-Trimethylbenzene	ND	20	20.0	90.0	20	20.0	90.0	0	20	35	175
1,2-Dibromo-3-chloropropane	ND	20	18.0	90.0	20	18.0	90.0	0	20	15	175
1,2-Dibromoethane	ND	20	23.0	115	20	22.0	110	4.44	20	35	175
1,2-Dichlorobenzene	ND	20	19.0	95.0	20	19.0	95.0	0	20	35	175
1,2-Dichloroethane	ND	20	22.0	110	20	22.0	110		20	35	175
1,2-Dichloropropane	ND	20	21.0	105	20	21.0	105	0	20	35	175
1,3,5-Trimethylbenzene	ND	20	19.0	90.0	20	20.0	95.0	5.13	20	35	175
1,3-Dichlorobenzene	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	35	175
1,3-Dichloropropane	ND	20	22.0	110	20	22.0	110	0	20	35	175
1,4-Dichlorobenzene	ND	20	18.0	90.0	20	19.0	95.0	5.41	20	35	175
2,2-Dichloropropane	ND	20	25.0	125	20	24.0	120	4.08	20	35	175
2-Butanone	ND	20	20.0	100	20	21.0	105	4.88	20	10	230
2-Chloroethyl vinyl ether	ND	20	0	0 *	20	0	0 *	0	20	10	250
2-Chiorotoluene	ND	20	20.0	100	20	20.0	100	0	20	31	175
2-Hexanone	ND	20	27.0	135	20	26.0	130	3.77	20	10	250
4-Chlorotoluene	ND	20	19.0	95.0	20	19.0	95.0	0	20	31	175
4-Isopropyltoluene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
4-Methyl-2-pentanone	ND	20	26.0	130	20	25.0	125	3.92	20	10	175
Acetone	ND	20	20.0	100	20	21.0	105	4.88	20	10	400
Acrylonitrile	ND	20	22.0	110	20	22.0	110	0	20	15	250

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09

09040278

Lab Batch ID:

R270073

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040124-02

RunID:

N_090411A-4981665

Units:

ug/L

Analysis Date:

04/11/2009 18:35

Analyst:

LU L

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	21.0	105	20	22.0	110	4.65	22	76	127
Bromobenzene	ND	20	20.0	100	. 20	19.0	95.0	5.13	20	35	175
Bromochloromethane	ND	20	23.0	115	20	21.0	105	9.09	20	35	175
Bromodichloromethane	ND	20	21.0	105	20	21.0	105	0	20	35	175
Bromoform	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Bromomethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Carbon disulfide	ND	20	19.0	95.0	20	20.0	100	5.13	20	30	225
Carbon tetrachloride	ND	20	23.0	115	20	23.0	115	0	20	35	175
Chlorobenzene	ND	20	21.0	105	20	20.0	100	4.88	21	70	130
Chloroethane	ND	20	18.0	90.0	20	19.0	95.0	5.41	20	35	175
Chloroform	ND	20	23.0	115	20	21.0	105	9.09	20	35	175
Chloromethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Dibromochloromethane	ND	20	20.0	100	20	19.0	95.0	5.13	20	35	175
Dibromomethane	ND	20	22.0	110	20	24.0	120	8.70	20	35	175
Dichlorodifluoromethane	ND	20	19.0	95.0	20	20.0	100	5.13	20	35	175
Ethylbenzene	ND	20	21.0	105	20	21.0	105	0	20	35	175
Hexachlorobutadiene	ND	20	11.0	55.0	20	10.0	50.0	9.52	20	43	144
Isopropylbenzene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Methyl tert-butyl ether	70.0	40	110	100	40	110	100	0	20	35	175
Methylene chloride	ND	20	19.0	95.0	20	20.0	100	5.13	20	35	175
Naphthalene	ND	20	14.0	70.0	20	14.0	70.0	0	20	20	210
n-Butylbenzene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
n-Propylbenzene	ND	20	19.0	90.0	20	20.0	95.0	5.13	20	35	175
sec-Butylbenzene	ND	20	18.0	90.0	20	18.0	90.0	0	20	35	175
Styrene	ND	20	20.0	100	20	20.0	100	0	20	35	175
tert-Butylbenzene	ND	20	18.0	85.0	20	18.0	85.0	0	20	35	175
Tetrachloroethene	ND	20	22.0	110	20	22.0	110	0	20	30	250
Toluene	ND	20	21.0	105	20	21.0	105	0	24	70	131
Trichloroethene	ND	20	23.0	115	20	23.0	115	0	21	60	140
Trichlorofluoromethane	ND	20	21.0	105	20	22.0	110	4.65	20	17	250
Vinyl acetate	ND	20	20.0	100	20,	20.0	100	0	20	10	250
Vinyl chloride	ND	20	18.0	90.0	20	19.0	95.0	5.41	20	35	175

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 26

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040278

Lab Batch ID:

R270073

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040124-02

RunID:

N_090411A-4981665

Units:

ug/L

Analysis Date:

04/11/2009 18:35

Analyst:

LU L

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	22.0	110	20	21.0	105	4.65	20	35	175
cis-1,3-Dichloropropene	ND	20	20.0	100	20	21.0	105	4.88	20	35	175
m,p-Xylene	ND	40	42.0	100	40	42.0	100	0	20	35	175
o-Xylene	ND	20	23.0	105	20	23.0	105	0	20	35	175
trans-1,2-Dichloroethene	ND	20	20.0	100	20	20.0	100	0	20	35	175
trans-1,3-Dichloropropene	ND	20	20.0	100	20	20.0	100	0	20	35	175
1,2-Dichloroethene (total)	ND	40	42	100	40	41	100	2.4	20	35	175
Xylenes,Total	ND	60	65	100	60	65	100	0	20	35	175
Surr: 1,2-Dichloroethane-d4	ND	50	47	94.0	50	48.0	96.0	2.11	30	62	130
Surr: 4-Bromofluorobenzene	ND	50	52	104	50	52.0	104	0	30	70	130
Surr: Toluene-d8	ND	50	48	96.0	50	48.0	96.0	0	30	74	122

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve MI - Matrix Interference

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

resorting outside haviouble QO E

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

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09040278 Page 27

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Alkalinity (as CaCO3), Total

Method:

RunID:

E310.1

WET 090413F-4982657

WorkOrder:

09040278

Lab Batch ID:

R270144

Method Blank

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/13/2009 11:20

Units: Analyst:

PAC

09040278-01F

Samples in Analytical Batch:

MW-3

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RunID:

WET_090413F-4982659

Units:

mg/L

Analysis Date:

04/13/2009 11:20

PAC Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit	
Alkalinity, Total (As CaCO3)	38.70	39.00	100.8	90	110	

Sample Duplicate

Original Sample:

09040278-01

WET_090413F-4982660

Units:

Analysis Date:

RunID:

04/13/2009 11:20

Analyst: PAC

mg/L

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Total (As CaCO3)	174	175	0.573	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 28



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Ion Chromatography

Method:

RunID:

E300.0

WorkOrder:

09040278

Lab Batch ID:

R270277A

Method Blank

Units:

Analyst:

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

IC2 090409A-4984862

04/09/2009 12:18

mg/L BDG

09040278-01F

MW-3

Analyte	Result	Rep Limit
Nitrogon Nitroto (An NI)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2 090409A-4984863

Units: mg/L

Analysis Date:

04/09/2009 12:36

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen, Nitrate (As N)	10.00	9.147	91.47	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RuntD:

09040169-02

IC2_090409A-4984879

Units:

mg/L

Analysis Date:

04/09/2009 18:26

BDG Analyst:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	ND	10	10.10	101.0	10	10.09	100.9	0.06932	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040278 Page 29



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster

Analysis:

Ion Chromatography

Method:

RunID:

E300.0

WorkOrder:

09040278

Lab Batch ID:

R270297

Method Blank

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

IC2 090414D-4985092

04/14/2009 10:38

Analyst:

BDG

09040278-01F

MW-3

	Analyte	Result	Rep Limit
Chloride		ND	0.50
Sulfate		 l ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090414D-4985093

Units:

mg/L

Analysis Date:

04/14/2009 10:55

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	10.52	105.2	85	115
Sulfate	10.00	10.57	105.7	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

Analysis Date:

RunID:

09040254-01

10

10

ND

ND

IC2 090414D-4985097 04/14/2009 12:05

Units:

106.8

110.7

mg/L Analyst: BDG

10

10

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	. L

10.68

11.07

Qualifiers:

Chloride

Sulfate

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

10.66

10.07

106.6

100.7

0.2155

9.423

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply. TNTC - Too numerous to count

09040278 Page 30

Low

Limit

80

80

20

20

High

Limit

120

120

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules





Sample Receipt Checklist And Chain of Custody





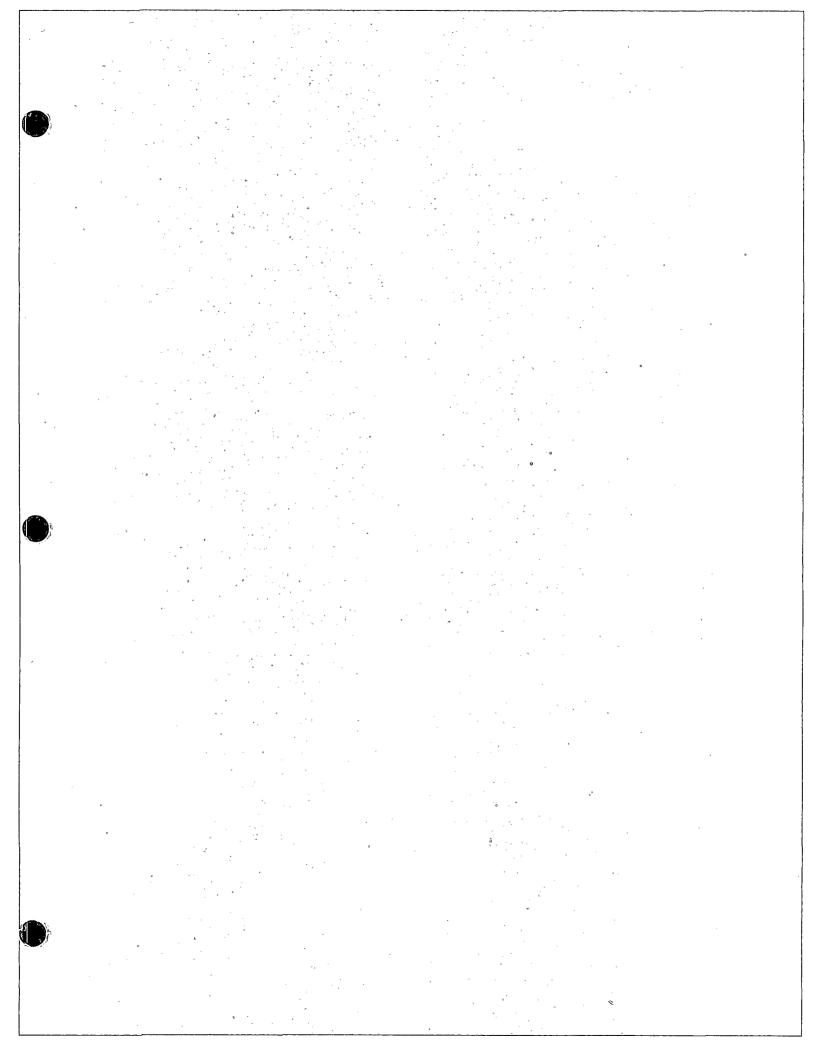
8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Date and Time Received:	09040278 4/9/2009 10:00:00 AM 2.0°C			Received By Carrier name Chilled by:		BF FedEx Water Ice	
1. Shipping container/coo	oler in good condition?	Yes	V	No 🗌		Not Present	
2. Custody seals intact or	n shippping container/cooler?	Yes	✓	No 🗌		Not Present	
3. Custody seals intact or	n sample bottles?	Yes		No 🗌		Not Present	V
4. Chain of custody prese	ent?	Yes	>	No 🗌			
5. Chain of custody signe	ed when relinquished and received?	Yes	✓	No 🗌			
6. Chain of custody agree 1 Received 3 vials w/H placed on hold.	es with sample labels? CL for CH4 Methane but not written on chain,	Yes		No 🗹			
7. Samples in proper con	tainer/bottle?	Yes	✓	No 🗆			
8. Sample containers inta	act?	Yes	✓	No 🗌			
9. Sufficient sample volu	me for indicated test?	Yes	✓	No 🗀			
10. All samples received w	vithin holding time?	Yes	✓	No 🗌			
11. Container/Temp Blank	temperature in compliance?	Yes	V	No 🗌			
12. Water - VOA vials have	zero headspace?	Yes	✓	No 🗀	VOA Via	als Not Present	
13. Water - Preservation c	hecked upon receipt (except VOA*)?	Yes		No 🗌		Not Applicable	V
*VOA Preservation Ch	ecked After Sample Analysis						
SPL Representativ	re: Rodriguez, Alisha C.	Cont	tact Date & T	Fime: 4/9/2009	2:53:00	PM	
Client Name Contacte	d: Rick Rexroad w/Brown & Caldwell						<u> </u>
Non Conformance Issues:							
Client Instructions: Client	ent emailed back at 13:31 on Monday 04/13/09	reques	ting that the	extra vials be an	alyzed fo	or Methane only	



					S	I, Work	SPL, Workorder No.			322329	329	
	SPL, Inc.				1_	6	1	1	-	-	\	
Analysis Re-	Analysis Request & Chain of Custody Record	ģ				20	07640478	70	page	\	/ Jo	
Tient Name: Drown and	Pollwell		ma	natrix bottle	size pres.			Regu	ested	Requested Analysis	is	
15 Low's raw	# 0250	TOU'LL MILL	is=A lic	is=A lic X=othe selg redict	ther ther		(2	519	(8.00	£218		
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SAMPLE ID	DATE	TIME comp	grab 7	S	1	<u> </u>		4	7 / }			
MW-3	1/8/09	7180	×	VAF FOIL	401/6 LAB	4	<u>^</u> X	X	K	X	7	
ACO-8-4-87		2832	×	> _	do Lab	4	×					
TR-4-8-09A	>	0902	×	7	de 1 2	3	×				_	
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tract	Standard Och Long 3-00 -	☐ Level 4 QC ☐ TX TRRP		AP 🗀				ı			,	
Standard	1. /	Q 2	date 4/8	/SS time	200	2. Received by:	ved by:					
3 Business Days	3. Relinquished by:		date	time	e	4. Received by:	ved by:					
Other Sush TAT requires prior notice	5. Relinquished by:		date /8/1	time 10	ve 60	6. Reca	Legar.	6. Received by Laboratory	7			
8880 Interchange Drive	Drive	500 Ambassador Caffery Parkway	ador Caffer	y Parkwa	ri v		Traver	6 City	9 Hugh MI 496	☐ 459 Hughes Drive Traverse City, MI 49686 (231) 947-5777	947-5777	7
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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040323

Report To:

Brown & Caldwell
Rick Rexroad
1415 Louisiana
Suite 2500

Houston TX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Project Name:

Fracmaster BJ Service,#128125

Site:

Hobbs NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

4/27/2009

This Report Contains A Total Of 32 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09040323

Report To:		Project Name:	Fracmaster BJ Service,#128125
Brown & Caldwell		Site:	Hobbs NM
Rick Rexroad		Site Address:	
1415 Louisiana			
Suite 2500		PO Number:	
Houston			
TX		State:	New Mexico
77002-		State Cert. No .:	
ph: (713) 759-0999 fax: (71	3) 308-3886	<u>Date Reported:</u>	4/27/2009

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Isnes V. Vicheaire

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs. Prep Comments for PR3510 DRO, Sample 09040323-01C: Unpreserved bottle

09040323 Page 1

4/27/2009

Agnes V. Vicknair



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040323

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad

1415 Louisiana

Suite 2500

Houston

77002-

Rick Rexroad

ph: (713) 759-0999 Brown & Caldwell

fax: (713) 308-3886

fax: (713) 308-3886

Project Name:

Fracmaster BJ Service,#128125

Site:

State:

Hobbs NM

Site Address:

PO Number:

New Mexico

State Cert. No.:

Date Reported:

4/27/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-5	09040323-01	Water	4/9/2009 8:45:00 AM	4/9/2009 10:00:00 AM	322332	
TB-4-9-09	09040323-02	Water	4/9/2009 9:25:00 AM	4/9/2009 10:00:00 AM	322332	
FB-4-9-09	09040323-03	Water	4/9/2009 9:31:00 AM	4/9/2009 10:00:00 AM	322332	

Ignes V. Vicheave

4/27/2009

Date

Agnes V. Vicknair Project Manager

> Kesavalu M. Bagawandoss Laboratory Director

Ted Yen Quality Assurance Officer





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-5

Collected: 04/09/2009 8:45

SPL Sample ID:

09040323-01

Site:	Hobbs	NM
	110000	,

Analyses/Method	Result	QUAL	Re	ep.Limit	Di	l. Factor	r Date Ana	lyzed	Analyst	Seq. #
ALKALINITY (AS CACO3), TOT	AL.				MCL		E310.1	Ur	nits: mg/L	
Alkalinity, Total (As CaCO3)	195			2		1	04/13/09	11:20	PAC	4982664
GASOLINE RANGE ORGANICS					MCL	s	W8015B	Ur	nits: mg/L	
Gasoline Range Organics	ND			0.1	·	1	04/13/09	18:16	CLJ	4984675
Surr: 1,4-Diffuorobenzene	91.6		%	60-155		1	04/13/09	18:16	CLJ	4984675
Surr: 4-Bromofluorobenzene	105		%	50-158		1	04/13/09	18:16	CLJ	4984675
HEADSPACE GAS ANALYSIS					MCL		RSK147	Ur	nits: mg/L	
Methane	0.0039			0.0012		1	04/23/09	18:57	V_L	4994608
ION CHROMATOGRAPHY					MCL		E300.0	Ur	nits: mg/L	
Chloride	64.4			5		10	04/14/09	23:28	BDG	4985120
Sulfate	89			5		10	04/14/09	23:28	BDG	4985120
Nitrogen,Nitrate (As N)	ND			0.5		1	04/10/09	17:13	BDG	4982582
SEMIVOLATILE HYDROCARBO	NS				MCL	s	W8015B	Uı	nits: mg/L	
Diesel Range Organics	0.14			0.1		1	04/17/0	9 1:01	NW	4987516
Mineral Spirits Range Organics	ND			0.1		1	04/17/0	9 1:01	NW	4987516
Surr: n-Pentacosane	82.8		%	20-150		1	04/17/0	9 1:01	NW	4987516

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-5

Collected: 04/09/2009 8:45

SPL Sample ID:

09040323-01

Site: Hobbs	NN
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Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyz	ed Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C	Units: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/22/09 17	.05 GY	4993775
1,2-Dichlorobenzene	ND	5	1	04/22/09 17	:05 GY	4993775
1,2-Diphenylhydrazine	ND	10	1	04/22/09 17	:05 GY	4993775
1,3-Dichlorobenzene	ND	5	1	04/22/09 17	:05 GY	4993775
1,4-Dichlorobenzene	ND	5	1	04/22/09 17	:05 GY	4993775
2,4,5-Trichlorophenol	ND	10	1	04/22/09 17	:05 GY	4993775
2,4,6-Trìchlorophenol	ND	5	1	04/22/09 17	:05 GY	4993775
2,4-Dichlorophenol	ND	5	1	04/22/09 17	:05 GY	4993775
2,4-Dimethylphenol	ND	5	1	04/22/09 17	:05 GY	4993775
2,4-Dinitrophenol	ND	25	1	04/22/09 17	:05 GY	4993775
2,4-Dinitrotoluene	ND	5	1	04/22/09 17	:05 GY	4993775
2,6-Dinitrotoluene	ND	5	1	04/22/09 17	:05 GY	4993775
2-Chloronaphthalene	ND	5	1	04/22/09 17	:05 GY	4993775
2-Chlorophenol	ND	5	1	04/22/09 17	:05 GY	4993775
2-Methylnaphthalene	ND	5	1	04/22/09 17	:05 GY	4993775
2-Nitroaniline	ND	25	1	04/22/09 17	:05 GY	499377
2-Nitrophenol	ND	5	1	04/22/09 17	:05 GY	4993775
3,3'-Dichlorobenzidine	ND	10	1	04/22/09 17	:05 GY	4993775
3-Nitroaniline	ND	25	1	04/22/09 17	:05 GY	4993775
4,6-Dinitro-2-methylphenol	ND	25	1	04/22/09 17	:05 GY	4993775
4-Bromophenyl phenyl ether	ND	5	1	04/22/09 17	:05 GY	499377
4-Chloro-3-methylphenol	ND	5	1	04/22/09 17	:05 GY	499377
4-Chloroaniline	ND	5	1	04/22/09 17	:05 GY	499377
4-Chlorophenyl phenyl ether	ND	5	1	04/22/09 17	:05 GY	4993775
4-Nitroaniline	ND	25	1	04/22/09 17	:05 GY	4993775
4-Nitrophenol	ND	25	1	04/22/09 17	:05 GY	4993775
Acenaphthene	ND	5	1	04/22/09 17	:05 GY	4993775
Acenaphthylene	ND	5	1	04/22/09 17	:05 GY	499377
Aniline	ND	5	1	04/22/09 17	:05 GY	4993775
Anthracene	ND	5	1	04/22/09 17	:05 GY	4993775
Benz(a)anthracene	ND	5	1	04/22/09 17	:05 GY	4993775
Benzo(a)pyrene	ND	5	1	04/22/09 17	:05 GY	4993775
Benzo(b)fluoranthene	ND	5	1	04/22/09 17	:05 GY	4993775
Benzo(g,h,i)perylene	ND	5	1	04/22/09 17	:05 GY	499377
Benzo(k)fluoranthene	ND	5	1	04/22/09 17	:05 GY	499377
Benzoic acid	ND	25	1	04/22/09 17	:05 GY	4993775
Benzyl alcohol	ND	5	1	04/22/09 17	:05 GY	499377
Bis(2-chloroethoxy)methane	ND	5	1	04/22/09 17	:05 GY	499377
Bis(2-chloroethyl)ether	ND	5	1	04/22/09 17	:05 GY	499377

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-5

Collected: 04/09/2009 8:45

SPL Sample ID:

09040323-01

Site: I	dobbs	MM
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Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND			5	1	04/22/09 17:05	GY	4993775
Bis(2-ethylhexyl)phthalate	ND			5	1	04/22/09 17:05	GY	4993775
Butyl benzyl phthalate	ND		,	5	1	04/22/09 17:05	GY	4993775
Carbazole	ND			5	1	04/22/09 17:05	GY	4993775
Chrysene	ND			5	1	04/22/09 17:05	GY	4993775
Dibenz(a,h)anthracene	ND			5	1	04/22/09 17:05	GY	4993775
Dibenzofuran	ND			5	1	04/22/09 17:05	GY	4993775
Diethyl phthalate	ND			5	1	04/22/09 17:05	GY	4993775
Dimethyl phthalate	ND			5	1	04/22/09 17:05	GY	4993775
Di-n-butyl phthalate	ND			5	1	04/22/09 17:05	GY	4993775
Di-n-octyl phthalate	ND			5	1	04/22/09 17:05	GY	4993775
Fluoranthene	ND			5	1	04/22/09 17:05	GY	4993775
Fluorene	ND			5	1	04/22/09 17:05	GY	4993775
Hexachlorobenzene	ND			5	1	04/22/09 17:05	GY	4993775
Hexachlorobutadiene	ND			5	1	04/22/09 17:05	GY	4993775
Hexachlorocyclopentadiene	ND			5	1	04/22/09 17:05	GY	4993775
Hexachloroethane	ND			5	1	04/22/09 17:05	GY	4993775
Indeno(1,2,3-cd)pyrene	ND			5	1	04/22/09 17:05	GY	4993775
Isophorone	ND			5	1	04/22/09 17:05	GY	4993775
Naphthalene	ND			5	1	04/22/09 17:05	GY	4993775
Nitrobenzene	ND			5	1	04/22/09 17:05	GY	4993775
N-Nitrosodi-n-propylamine	ND			5	1	04/22/09 17:05	GY	4993775
N-Nitrosodiphenylamine	ND			5	1	04/22/09 17:05	GY	4993775
Pentachlorophenol	ND			25	1	04/22/09 17:05	GY	4993775
Phenanthrene	ND			5	1	04/22/09 17:05	GY	4993775
Phenol	ND			5	1	04/22/09 17:05	GY	4993775
Pyrene	ND			5	1	04/22/09 17:05	GY	4993775
Pyridine	ND			5	1	04/22/09 17:05	GY	4993775
2-Methylphenol	ND			5	1	04/22/09 17:05	GY	4993775
3 & 4-Methylphenol	ND			5	1	04/22/09 17:05	GY	4993775
Surr: 2,4,6-Tribromophenol	74.7		%	10-123	1	04/22/09 17:05	GY	4993775
Surr: 2-Fluorobiphenyl	57.2		%	23-116	1	04/22/09 17:05	GY	4993775
Surr: 2-Fluorophenol	49.6		%	16-110	1	04/22/09 17:05	GY	4993775
Surr: Nitrobenzene-d5	56.2		%	21-114	1	04/22/09 17:05	GY	4993775
Surr: Phenol-d5	32.0		%	10-110	1	04/22/09 17:05	GY	4993775
Surr: Terphenyl-d14	49.6		%	22-141	1	04/22/09 17:05	GY	4993775

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-5

Collected: 04/09/2009 8:45

SPL Sample ID:

09040323-01

Site:	Hobbs	NM
OILE.	110003	14141

Analyses/Method	Result	QUAL	Rep.Limit	Dìl. Factor	Date Analyzed	Analyst	Seq. #	
VOLATILE ORGANICS BY MET	THOD 8260B	D 8260B		MCL SV	V8260B U	nits: ug/L		
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,1,1-Trichloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,1,2-Trichloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,1-Dichloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,1-Dichloroethene	ND		5	1	04/14/09 21:24	JC	4985230	
1,1-Dichloropropene	ND		5	1	04/14/09 21:24	JC	4985230	
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,2,3-Trichloropropane	ND		5	1	04/14/09 21:24	JC	4985230	
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,2,4-Trimethylbenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,2-Dibromo-3-chloropropane	ND		5	1	04/14/09 21:24	JC	4985230	
1,2-Dibromoethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,2-Dichlorobenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,2-Dichloroethane	ND		5	1	04/14/09 21:24	JC	4985230	
1,2-Dichloropropane	ND		5	1	04/14/09 21:24	JC	4985230	
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,3-Dichlorobenzene	ND		5	1	04/14/09 21:24	JC	4985230	
1,3-Dichloropropane	ND		5	1	04/14/09 21:24	JC	4985230	
1,4-Dichlorobenzene	ND		5	1	04/14/09 21:24	JC	4985230	
2,2-Dichloropropane	ND		5	1	04/14/09 21:24	JC	4985230	
2-Butanone	ND		20	1	04/14/09 21:24	JC	4985230	
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 21:24	JC	4985230	
2-Chlorotoluene	ND		5	1	04/14/09 21:24	JC	4985230	
2-Hexanone	ND		10	1	04/14/09 21:24	JC	4985230	
4-Chlorotoluene	ND		5	1	04/14/09 21:24	JC	4985230	
4-Isopropyltoluene	ND		5	1	04/14/09 21:24	JC	4985230	
4-Methyl-2-pentanone	ND		10	1	04/14/09 21:24	JC	4985230	
Acetone	ND		20	1	04/14/09 21:24	JC	4985230	
Acrylonitrile	ND		10	1	04/14/09 21:24	JC	498523	
Benzene	ND		5	1	04/14/09 21:24	JC	4985230	
Bromobenzene	ND		5	1	04/14/09 21:24	JC	498523	
Bromochloromethane	ND		5	1	04/14/09 21:24	JC	498523	
Bromodichloromethane	ND		5	1	04/14/09 21:24	JC	498523	
Bromoform	ND		. 5	1	04/14/09 21:24	JC	498523	
Bromomethane	ND		10	1	04/14/09 21:24	JC	498523	
Carbon disulfide	ND		5	1	04/14/09 21:24	JC	498523	
Carbon tetrachloride	ND		5	1	04/14/09 21:24	JC	498523	
Chlorobenzene	ND		5	1	04/14/09 21:24	JC	498523	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040323 Page 6 4/27/2009 5:16:02 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-5

Collected: 04/09/2009 8:45

SPL Sample ID:

09040323-01

			Site	e: l	Hobbs NM				
Analyses/Method	Result	QUAL	Re	p.Lim	iit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			1	10	1	04/14/09 21:24	JC	4985230
Chloroform	ND				5	1	04/14/09 21:24	JC	4985230
Chloromethane	ND			1	10	1	04/14/09 21:24	JC	4985230
Dibromochloromethane	ND				5	1	04/14/09 21:24	JC	4985230
Dibromomethane	ND				5	1	04/14/09 21:24	JC	4985230
Dichlorodifluoromethane	ND			-	10	1	04/14/09 21:24	JC	4985230
Ethylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
Hexachlorobutadiene	ND				5	1	04/14/09 21:24	JC	4985230
Ísopropylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
Methyl tert-butyl ether	ND				5	1	04/14/09 21:24	JC	4985230
Methylene chloride	ND				5	1	04/14/09 21:24	JC	4985230
Naphthalene	ND				5	1	04/14/09 21:24	JC	4985230
n-Butylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
n-Propylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
sec-Butylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
Styrene	ND				5	1	04/14/09 21:24	JC	4985230
tert-Butylbenzene	ND				5	1	04/14/09 21:24	JC	4985230
Tetrachloroethene	ND				5	1	04/14/09 21:24	JC	4985230
Toluene	ND				5	1	04/14/09 21:24	JC	4985230
Trichloroethene	ND				5	1	04/14/09 21:24	JC	4985230
Trichlorofluoromethane	ND				5	1	04/14/09 21:24	JC	4985230
Vinyl acetate	ND				10	1	04/14/09 21:24	JC	4985230
Vinyl chloride	ND				2	1	04/14/09 21:24	JC	4985230
cis-1,2-Dichloroethene	ND				5	1	04/14/09 21:24	JC	4985230
cis-1,3-Dichloropropene	ND				5	1	04/14/09 21:24	JC	4985230
m,p-Xylene	ND				5	1	04/14/09 21:24	JC	4985230
o-Xylene	ND				5	1	04/14/09 21:24	JC	4985230
trans-1,2-Dichloroethene	D				5	1	04/14/09 21:24	JC	4985230
trans-1,3-Dichloropropene	ND				5	1	04/14/09 21:24	JC	4985230
1,2-Dichloroethene (total)	ND				5	1	04/14/09 21:24	JC	4985230
Xylenes,Total	ND				5	1	04/14/09 21:24	JC	4985230
Surr: 1,2-Dichloroethane-d4	96.0		%	65-1	11	1	04/14/09 21:24	JC	4985230
Surr: 4-Bromofluorobenzene	108		%	87-1	20	1	04/14/09 21:24	JC	4985230
Surr: Toluene-d8	96.0		%	88-1	16	1	04/14/09 21:24	JC	4985230
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Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:TB-4-9-09

Collected: 04/09/2009 9:25

SPL Sample ID:

09040323-02

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY MET	THOD 8260B			MCL S\	W8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 21:51	JC .	4985231
1,1,1-Trichloroethane	ND		5	1	04/14/09 21:51	JC	4985231
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 21:51	JC	4985231
1,1,2-Trichloroethane	ND		5	1	04/14/09 21:51	JC	4985231
1,1-Dichloroethane	ND		5	1	04/14/09 21:51	JC	4985231
1,1-Dichloroethene	ND		5	1	04/14/09 21:51	JC	4985231
1,1-Dichloropropene	ND		5	1	04/14/09 21:51	JC	4985231
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 21:51	JC	4985231
1,2,3-Trichloropropane	ND		5	1	04/14/09 21:51	JC	498523
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 21:51	JC	4985231
1,2,4-Trimethylbenzene	ND		5	1	04/14/09 21:51	JC	4985231
1,2-Dibromo-3-chloropropane	ND	-	5	1	04/14/09 21:51	JC	4985231
1,2-Dibromoethane	ND		5	1	04/14/09 21:51	JC	498523
1,2-Dichlorobenzene	ND		5	1	04/14/09 21:51	JC	498523
1,2-Dichloroethane	ND		5	1	04/14/09 21:51	JC	498523
1,2-Dichloropropane	ND		5	1	04/14/09 21:51	JC	498523
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 21:51	JC	498523
1,3-Dichlorobenzene	ND		5	1	04/14/09 21:51	JC	498523
1,3-Dichloropropane	ND		5	1	04/14/09 21:51	JC	498523
1,4-Dichlorobenzene	ND		5	1	04/14/09 21:51	JC	498523
2,2-Dichloropropane	ND		5	1	04/14/09 21:51	JC	498523
2-Butanone	ND		20	1	04/14/09 21:51	JC	498523
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 21:51	JC	498523
2-Chlorotoluene	ND		5	1	04/14/09 21:51	JC	498523
2-Hexanone	ND		10	1	04/14/09 21:51	JC	498523
4-Chlorotoluene	ND		5	1	04/14/09 21:51	JC	498523
4-Isopropyltoluene	ND		5	1	04/14/09 21:51	JC	498523
4-Methyl-2-pentanone	ND		10	1	04/14/09 21:51	JC	498523
Acetone	ND	_	20	1	04/14/09 21:51	JC	498523
Acrylonitrile	ND		10	1	04/14/09 21:51	JC	498523
Benzene	ND		5	1	04/14/09 21:51	JC	498523
Bromobenzene	ND		5	1	04/14/09 21:51	JC	498523
Bromochloromethane	ND		5	1	04/14/09 21:51	JC	498523
Bromodichloromethane	ND		5	1	04/14/09 21:51	JC	498523
Bromoform	ND		5	1	04/14/09 21:51	JC	498523
Bromomethane	ND		10	1	04/14/09 21:51	JC	498523
Carbon disulfide	ND		5	1	04/14/09 21:51	JC	498523
Carbon tetrachloride	ND		5	111	04/14/09 21:51	JC	498523
Chlorobenzene	ND		5	1	04/14/09 21:51	JC	498523

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-4-9-09 Collected: 04/09/2009 9:25 SPL Sample ID: 09040323-02

			Site	: Н	MN addo				
Analyses/Method	Result	QUAL	Rep	o.Limit		Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10		1	04/14/09 21:51	JC	4985231
Chloroform	ND			5		1	04/14/09 21:51	JC	4985231
Chloromethane	ND			10		1	04/14/09 21:51	JC	4985231
Dibromochloromethane	ND			5		1	04/14/09 21:51	JC	4985231
Dibromomethane	ND			5		1	04/14/09 21:51	JC	4985231
Dichlorodifluoromethane	ND		~	10		1	04/14/09 21:51	JC	4985231
Ethylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
Hexachlorobutadiene	ND			5		1	04/14/09 21:51	JC	4985231
Isopropylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
Methyl tert-butyl ether	ND			5		1	04/14/09 21:51	JC	4985231
Methylene chloride	ND			5		1	04/14/09 21:51	JC	4985231
Naphthalene	ND			5		1	04/14/09 21:51	JC	4985231
n-Butylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
n-Propylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
sec-Butylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
Styrene	ND			5		1	04/14/09 21:51	JC	4985231
tert-Butylbenzene	ND			5		1	04/14/09 21:51	JC	4985231
Tetrachloroethene	ND	-		5		1	04/14/09 21:51	JC	4985231
Toluene	ND			5		1	04/14/09 21:51	JC	4985231
Trichloroethene	ND			5		1	04/14/09 21:51	JC	4985231
Trichlorofluoromethane	ND			5		1	04/14/09 21:51	JC	4985231
Vinyl acetate	ND			10		1	04/14/09 21:51	JC	4985231
Vinyl chloride	ND			2		1	04/14/09 21:51	JC	4985231
cis-1,2-Dichloroethene	ND		-	5		1	04/14/09 21:51	JC	4985231
cis-1,3-Dichloropropene	ND			5		1	04/14/09 21:51	JC	4985231
m,p-Xylene	ND			5		1	04/14/09 21:51	JC	4985231
o-Xylene	ND			5		1	04/14/09 21:51	JC	4985231
trans-1,2-Dichloroethene	ND			5		1	04/14/09 21:51	JC	4985231
trans-1,3-Dichloropropene	ND			5		1	04/14/09 21:51	JC	4985231
1,2-Dichloroethene (total)	ND			5		1	04/14/09 21:51	JC	4985231
Xylenes,Total	ND			5		1	04/14/09 21:51	JC	4985231
Surr: 1,2-Dichloroethane-d4	98.0		%	65-111		1	04/14/09 21:51	JC	4985231
Surr: 4-Bromofluorobenzene	108		%	87-120		1	04/14/09 21:51	JC	4985231
Surr: Toluene-d8	94.0		%	88-116		1	04/14/09 21:51	JC	4985231

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040323 Page 9 4/27/2009 5:16:02 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-9-09

Collected: 04/09/2009 9:31

SPL Sample ID:

09040323-03

Site: Hob	bs l	NM
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nalyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analy	zed	Analyst	Seq. #
OLATILE ORGANICS BY MET	HOD 8260B			MCL SV	/8260B	Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1,1-Trichloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1,2-Trichloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1-Dichloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1-Dichloroethene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,1-Dichloropropene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2,3-Trichloropropane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2,4-Trimethylbenzene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2-Dibromo-3-chloropropane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2-Dibromoethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2-Dichlorobenzene	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2-Dichloroethane	ND		5	1	04/14/09 2	2:19	JC	4985232
1,2-Dichloropropane	ND		5	1	04/14/09 2	2:19	JC	498523
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 2	2:19	JC	498523
1,3-Dichlorobenzene	ND		5	1	04/14/09 2	22:19	JC	498523
1,3-Dichloropropane	ND		5	1	04/14/09 2	22:19	JC	498523
1,4-Dichlorobenzene	ND		5	1	04/14/09 2	22:19	JC	498523
2,2-Dichloropropane	ND		5	1	04/14/09 2	22:19	JC	498523
2-Butanone	ND		20	1	04/14/09 2	22:19	JC	498523
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 2	22:19	JC	498523
2-Chlorotoluene	ND		5	1	04/14/09 2	22:19	JC	4985232
2-Hexanone	ND		10	1	04/14/09 2	22:19	JC	4985232
4-Chlorotoluene	ND		5	1	04/14/09 2	22:19	JC	4985232
4-Isopropyltoluene	ND		5	1	04/14/09 2	22:19	JC	498523
4-Methyl-2-pentanone	ND		10	1	04/14/09 2	22:19	JÇ	498523
Acetone	ND		20	1	04/14/09 2	22:19	JC	498523
Acrylonitrile	ND		10	1	04/14/09 2	22:19	JC	498523
Benzene	ND		5	1	04/14/09 2	22:19	JC	498523
Bromobenzene	ND		5	1	04/14/09 2	22:19	JC	498523
Bromochloromethane	ND		5	1	04/14/09 2	22:19	JC	498523
Bromodichloromethane	ND		5	1	04/14/09 2	22:19	JC	498523
Bromoform	ND		5	1	04/14/09 2	22:19	JC	498523
Bromomethane	ND		10	1	04/14/09 2	22:19	JC	498523
Carbon disulfide	ND		5	1	04/14/09	22:19	JC	498523
Carbon tetrachloride	ND		. 5	1	04/14/09 2	22:19	JC	498523
Chlorobenzene	ND		5	1	04/14/09	22:19	JC	498523

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-4-9-09 Collected: 04/09/2009 9:31 SPL Sample ID: 09040323-03

			Site:	Hol	obs NM			
Analyses/Method	Result	QUAL	Rep.	Limit	Dil. Facto	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	04/14/09 22:19	JC	4985232
Chloroform	ND			5	1	04/14/09 22:19	JC	4985232
Chloromethane	ND			10	1	04/14/09 22:19	JC	4985232
Dibromochloromethane	ND			5	1	04/14/09 22:19	JC	4985232
Dibromomethane	ND			5	1	04/14/09 22:19	JC	4985232
Dichlorodifluoromethane	ND			10	1	04/14/09 22:19	JC	4985232
Ethylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
Hexachlorobutadiene	ND			5	1	04/14/09 22:19	JC	4985232
Isopropylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
Methyl tert-butyl ether	ND			5	1	04/14/09 22:19	JC	4985232
Methylene chloride	ND			5	1	04/14/09 22:19	JC	4985232
Naphthalene	ND			5	1	04/14/09 22:19	JC	4985232
n-Butylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
n-Propylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
sec-Butylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
Styrene	ND			5	1	04/14/09 22:19	JC	4985232
tert-Butylbenzene	ND			5	1	04/14/09 22:19	JC	4985232
Tetrachloroethene	ND			5	1	04/14/09 22:19	JC	4985232
Toluene	ND			5	1	04/14/09 22:19	JC	4985232
Trichloroethene	ND			5	1	04/14/09 22:19	JC	4985232
Trichlorofluoromethane	ND			5	1	04/14/09 22:19	JC	4985232
Vinyl acetate	ND			10	1	04/14/09 22:19	JC	4985232
Vinyl chloride	ND			2	1	04/14/09 22:19	JC	4985232
cis-1,2-Dichloroethene	ND			5	1	04/14/09 22:19	JC	4985232
cis-1,3-Dichloropropene	ND			5	1	04/14/09 22:19	JC	4985232
m,p-Xylene	ND			5	1	04/14/09 22:19	JC	4985232
o-Xylene	ND			5	1	04/14/09 22:19	JC	4985232
trans-1,2-Dichloroethene	ND			5	1	04/14/09 22:19	JC	4985232
trans-1,3-Dichloropropene	ND			5	1	04/14/09 22:19	JC	4985232
1,2-Dichloroethene (total)	ND			5	1	04/14/09 22:19	JC	4985232
Xylenes,Total	ND			5	1	04/14/09 22:19	JC	4985232
Surr: 1,2-Dichloroethane-d4	98.0		% 6	35-111	1	04/14/09 22:19	JC	4985232
Surr: 4-Bromofluorobenzene	108		% 8	37-120	1	04/14/09 22:19	JC	4985232

% 88-116

Qualifiers:

Surr: Toluene-d8

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

92.0

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

04/14/09 22:19 JC

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

4985232

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

RunID:

Semivolatile Hydrocarbons

Method:

SW8015B

Surr: n-Pentacosane

Fracmaster BJ Service,#128125

WorkOrder:

09040323

Lab Batch ID:

89427

Method Blank

HP_V_090416B-4987505

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/14/2009 23:43

Analyst: NW 09040323-01C

MW-5

Preparation Date:

04/13/2009 14:10

Prep By:

N_M Method SW3510C

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirite Range Organice	ND	0.10

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

20-150

RunID:

HP_V_090416B-4987506

51.2

Units:

mg/L

Analysis Date: Preparation Date: 04/15/2009 0:03 04/13/2009 14:10 Analyst: NW

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics	1.00	0.895	89.5	1.00	0.880	88.0	1.7	40	21	150
Surr: n-Pentacosane	0.0500	0.0494	98.8	0.0500	0.0485	97.0	1.8	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply

TNTC - Too numerous to count

09040323 Page 13

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

RunID:

Headspace Gas Analysis

Method: **RSK147** WorkOrder:

09040323

Lab Batch ID:

R270984

Method Blank

VARC_090423A-4994604

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/23/2009 15:49

Analyst: V_L 09040323-01E

MW-5

Analyte	Result	Rep Limit
Methane	ND	0.0012

Sample Duplicate

Original Sample:

H0904040100

RunID: Analysis Date: VARC_090423A-4994605

Units: mg/L

04/23/2009 16:06

Analyst: V L

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Methane	ND	ND	0	50

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 14

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

RuniD:

Gasoline Range Organics

Method: SW8015B

WorkOrder:

09040323

Lab Batch ID:

R270269

Method Blank

Units: mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/13/2009 5:20

HP P 090413A-4984662

Analyst:

CLJ

09040323-01D

MW-5

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RunID:

HP_P_090413A-4984660

Units:

mg/L

Analysis Date:

04/13/2009 4:22

Analyst:

CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP_P_090413A-4984664

Units:

mg/L CLJ

Analysis Date:

04/13/2009 10:44

Analyst:

MSD % MS MS MS % MSD RPD RPD Low Analyte Sample MSD High Result Spike Result Spike Recovery Result Recovery Limit Limit Limit Added Added ND 0.852 Gasoline Range Organics 85.2 0.868 86.8 1.92 36 22 174 Surr: 1,4-Difluorobenzene ND 0.1 0.0922 92.2 0.1 0.0932 93.2 1.08 30 60 155 Surr: 4-Bromofluorobenzene 0.105 ND 0.1 105 0.1 0.107 107 1.41 30 50 158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

WorkOrder:

09040323

Method:

SW8270C

Lab Batch ID:

89412

Method Blank

RunID: H_090417E-4992370 Units:

Lab Sample ID

Client Sample ID

Analysis Date:

04/17/2009 9:40

Analyst: GY

ug/L

09040323-01B

Samples in Analytical Batch:

MW-5

Preparation Date:

04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	10
3-Nitroaniline	ND	25
4,6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	25
Acenaphthene	ND	5.0
	ND	5.0
Acenaphthylene Aniline	ND	5.0
····		
Anthracene	ND ND	5.0
Benz(a)anthracene	ND ND	5.0
Benzo(a)pyrene	ND ND	5.0
Benzo(b)fluoranthene	ND ND	5.0
Benzo(g,h,i)perylene	ND ND	5.0
Benzo(k)fluoranthene	ND ND	5.0
Benzoic acid	ND	25
Benzyl alcohol		5.0
Bis(2-chloroethoxy)methane	ND ND	5.0
Bis(2-chloroethyl)ether		5.0
Bis(2-chloroisopropyl)ether	ND	5.0
Bis(2-ethylhexyl)phthalate	ND ND	5.0
Butyl benzyl phthalate	ND ND	5.0
Carbazole	ND ND	5.0
Chrysene	ND ND	5.0
Dibenz(a,h)anthracene	ND.	5.0
Dibenzofuran	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 16

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040323

Lab Batch ID:

89412

Method Blank

RuniD:

H 090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

GY

Analyst: G

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	_ 5.0
Di-n-butyl phthalate	DИ	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND ND	5.0
N-Nitrosodiphenylamine	ND.	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND	5.0
Phenol	ND.	5.0
Pyrene	ND	5.0
Pyridine	ND.	5.0
2-Methylphenol	ND	5.0
3 & 4-Methylphenoi	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	10-110
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GY

Preparation Date: 04/13/2009 8:15

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1,2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	8.1	50	20	150

Qualifiers:

 $\ensuremath{\mathsf{ND/U}}$ - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040323

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

Lab Batch ID:

89412

Analysis Date:

04/17/2009 10:42

ug/L

GΥ Analyst:

Preparation Date: 04/13/2009 8:15

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	. 5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63.2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinitro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply

TNTC - Too numerous to count

09040323 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

Lab Batch ID:

09040323

<u>Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)</u>

RunID:

H_090417E-4992371

Units:

WorkOrder:

89412

Analysis Date:

04/17/2009 10:42

ug/L

GΥ

Preparation Date:

Analyst:

Prep By: N_M Method SW3510C 04/13/2009 8:15

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis(2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis(2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis (2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Dimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachloroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
Isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenol	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040323

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

ug/L

Analysis Date:

04/17/2009 10:42

Analyst: GY

Preparation Date: 04/13/2009 8:15

Prep By:

N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenol-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 20

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



04/14/2009 14:10

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040323

Lab Batch ID:

R270264

Method Blank

RunID: Q_090414

Analysis Date:

Q_090414A-4985214

Units: ug

ug/L JC

Lab Sample ID

Client Sample ID

09040323-01A 09040323-02A

Samples in Analytical Batch:

MW-5

09040323-03A

TB-4-9-09 FB-4-9-09

Preparation Date:	04/14/2009 14:10

Analyst: Prep By:

Method

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1.2-Dibromoethane	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	
1,3,5-Trimethylbenzene	ND	
1,3-Dichlorobenzene	ND	
	ND	
1,3-Dichloropropane		
1,4-Dichlorobenzene	ND ND	
2,2-Dichloropropane		
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	
2-Chlorotoluene	ND ND	
2-Hexanone	ND	
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND	
4-Methyl-2-pentanone	ND	
Acetone	ND	
Acrylonitrile	ND	1
Benzene	ND	
Bromobenzene	ND ND	
Bromochloromethane	ND	
Bromodichloromethane	ND	
Bromoform	ND	
Bromomethane	ND	
Carbon disulfide	ND	
Carbon tetrachloride	ND	
Chlorobenzene	ND	
Chloroethane	ND	
Chloroform	ND	
Chloromethane	ND	
Dibromochloromethane	ND	5.0
Dibromomethane	ND.	-
Dichlorodifluoromethane	ND	10
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

.........

WorkOrder:

09040323

Lab Batch ID:

R270264

Method Blank

RunID: Q_0

Q_090414A-4985214

Units:

ug/L

Analysis Date: 04/14/2

04/14/2009 14:10

Analyst:

JC

Preparation Date: 04/14/2009 14:10

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND.	5.0
Toluene	_ ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND.	2.0
cis-1,2-Dichloroethene	ND.	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND.	5.0
o-Xylene	ND.	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	98.0	65-111
Surr: 4-Bromofluorobenzene	108.0	87-120
Surr: Toluene-d8	92.0	88-116

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Prep By:

ug/L

Analysis Date: Preparation Date:

04/14/2009 13:43 04/14/2009 13:43 Analyst: JC

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	19.0	95.0	71	128
1,1,1-Trichloroethane	20.0	20.0	100	61	135
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	60	133
1,1,2-Trichloroethane	20.0	18.0	90.0	77	127
1,1-Dichloroethane	20.0	20.0	100	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

Fracmaster BJ Service,#128125

WorkOrder:

09040323

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

ug/L

Analysis Date:

04/14/2009 13:43

Analyst: JC

Preparation Date: 04/14/2009 13:43

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	22.0	110	65	134
1,1-Dichloropropene	20.0	18.0	90.0	68	126
1,2,3-Trichlorobenzene	20.0	16.0	80.0	36	154
1,2,3-Trichloropropane	20.0	19.0	95.0	38	153
1,2,4-Trichlorobenzene	20.0	16.0	80.0	69	144
1,2,4-Trimethylbenzene	20.0	14.0	70.0	64	12
1,2-Dibromo-3-chloropropane	20.0	14.0	70.0	44	14
1,2-Dibromoethane	20.0	19.0	95.0	75	12
1,2-Dichlorobenzene	20.0	16.0	80.0	68	12
1,2-Dichloroethane	20.0	18.0	90.0	61	13
1,2-Dichloropropane	20.0	18.0	90.0	76	12
1,3,5-Trimethylbenzene	20.0	14.0	70.0	61	12
1,3-Dichlorobenzene	20.0	16.0	80.0	68	12
1,3-Dichloropropane	20.0	17.0	85.0	76	12
1,4-Dichlorobenzene	20.0	15.0	75.0	68	12
2,2-Dichloropropane	20.0	19.0	95.0	42	14
2-Butanone	20.0	20.0	100	22	18
2-Chloroethyl vinyl ether	20.0	18.0	90.0	10	17
2-Chlorotoluene	20.0	15.0	75.0	64	13
2-Hexanone	20.0	16.0	80.0	31	17
4-Chlorotoluene	20.0	15.0	75.0	61	13
4-Isopropyltoluene	20.0	14.0	70.0	63	13
4-Methyl-2-pentanone	20.0	16.0	80.0	10	15
Acetone	20.0	25.0	125	10	20
Acrylonitrile	20.0	20.0	100	54	15
Benzene	20.0	18.0	90.0	74	12
Bromobenzene	20.0	15.0	75.0	68	12
Bromochloromethane	20.0	21.0	105	71	12
Bromodichloromethane	20.0	19.0	95.0	72	12
Bromoform	20.0	19.0	95.0	81	13
Bromomethane	20.0	21.0	105	53	13
Carbon disulfide	20.0	27.0	135	41	14
Carbon tetrachloride	20.0	21.0	105	59	14
Chlorobenzene	20.0	18.0	90.0	75	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 23

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040323

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q 090414A-4985213

Units:

ug/L

Analysis Date:

04/14/2009 13:43

Analyst:

JC

Preparation Date: 04/14/2009 13:43

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.0	100	60	134
Chloroform	20.0	20.0	100	71	127
Chloromethane	20.0	16.0	80.0	50	139
Dibromochloromethane	20.0	18.0	90.0	65	130
Dibromomethane	20.0	20.0	100	79	124
Dichlorodifluoromethane	20.0	17.0	85.0	22	162
Ethylbenzene	20.0	17.0	85.0	72	127
Hexachlorobutadiene	20.0	16.0	80.0	45	152
Isopropylbenzene	20.0	15.0	75.0	58	130
Methyl tert-butyl ether	40.0	40.0	100	63	123
Methylene chloride	20.0	21.0	105	61	135
Naphthalene	20.0	16.0	80.0	33	148
n-Butylbenzene	20.0	14.0	70.0	62	136
n-Propylbenzene	20.0	14.0	70.0	57	131
sec-Butylbenzene	20.0	14.0	70.0	63	131
Styrene	20.0	17.0	85.0	69	120
tert-Butylbenzene	20.0	14.0	70.0	59	131
Tetrachloroethene	20.0	21.0	105	45	173
Toluene	20.0	17.0	85.0	74	126
Trichloroethene	20.0	20.0	100	79	131
Trichlorofluoromethane	20.0	23.0	115	49	153
Vinyl acetate	20.0	16.0	80.0	10	167
Vinyl chloride	20.0	20.0	100	51	148
cis-1,2-Dichloroethene	20.0	20.0	100	71	128
cis-1,3-Dichloropropene	20.0	17.0	85.0	67	128
m,p-Xylene	40.0	35.0	87.5	71	129
o-Xylene	20.0	18.0	90.0	74	130
trans-1,2-Dichloroethene	20.0	21.0	105	66	128
trans-1,3-Dichloropropene	20.0	16.0	80.0	60	128
1,2-Dichloroethene (total)	40	41	100	66	128
Xylenes,Total	60	53	88	71	130
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	65	111
Surr: 4-Bromofluorobenzene	50.0	56	112	87	120
Surr: Toluene-d8	50.0	46	92.0	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service.#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040323

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	68	124
1,1,1-Trichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	69	123
1,1,2,2-Tetrachloroethane	ND	20	20.0	100	20	20.0	100	0	20	69	130
1,1,2-Trichloroethane	ND	20	20.0	100	20	20.0	100	0	20	75	126
1,1-Dichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	65	129
1,1-Dichloroethene	ND	20	23.0	115	20	23.0	115	0	22	61	139
1,1-Dichloropropene	ND	20	21.0	105	20	20.0	100	4.88	20	69	121
1,2,3-Trichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	53	127
1,2,3-Trichloropropane	· ND	20	20.0	100	20	19.0	95.0	5.13	20	79	124
1,2,4-Trichlorobenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	58	118
1,2,4-Trimethylbenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	43	132
1,2-Dibromo-3-chloropropane	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	46	131
1,2-Dibromoethane	ND	20	20.0	100	20	20.0	100	0	20	76	122
1,2-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	74	110
1,2-Dichloroethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	60	129
1,2-Dichloropropane	ND	20	20.0	100	20	19.0	95.0	5.13	20	76	116
1,3,5-Trimethylbenzene	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	51	121
1,3-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	71	110
1,3-Dichloropropane	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	80	119
1,4-Dichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	69	110
2,2-Dichloropropane	ND	20	22.0	110	20	22.0	110	0	20	52	122
2-Butanone	ND	20	21.0	105	20	21.0	105	0	20	10	133
2-Chloroethyl vinyl ether	ND	20	0	0 *	20	0	0 *	0	20	10	182
2-Chlorotoluene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	69	112
2-Hexanone	ND	20	16.0	80.0	20	16.0	80.0	0	20	10	163
4-Chlorotoluene	ND	20	17.0	85.0	20	17.0	85.0	0	20	37	110
4-Isopropyltoluene	ND.	20	16.0	80.0	20	16.0	80.0	0	20	65	116
4-Methyl-2-pentanone	ND	20	17.0	85.0	20	17.0	85.0	0	20	10	103
Acetone	ND	20	22.0	110	20	22.0	110	0	20	10	160
Acrylonitrile	ND	20	20.0	100	20	20.0	100	0	20	45	155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040323

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units: u

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

RPD MS MS % MSD MSD % RPD Analyte Sample MS MSD Low High Spike Result Limit Result Recovery Spike Result Recovery Limit Limit Added Added ND 21.0 100 20 105 20 20.0 4.88 22 70 124 Benzene ND 20 17.0 85.0 20 72 Bromobenzene 20 17.0 85.0 0 111 Bromochloromethane ND 20 25.0 125 20 24.0 120 4.08 20 73 126 ND 20 20.0 20 90.0 10.5 68 125 Bromodichloromethane 100 18.0 20 Bromoform ND 20 16.0 80.0 20 15.0 75.0 6.45 20 44 132 ND 20 23.0 115 20 21.0 105 9.09 20 50 140 Bromomethane ND 20 21.0 105 20 20.0 100 4.88 20 46 143 Carbon disulfide ND 20 20.0 100 20 20.0 100 20 66 126 Carbon tetrachloride 0 ND 20 21.0 105 20 20.0 100 4.88 21 68 123 Chlorobenzene Chloroethane ND 20 22.0 110 20 21.0 105 4.65 20 59 134 ND 20 21.0 20 100 Chloroform 105 20.0 4.88 20 68 127 ND 20 20 85.0 18.0 90.0 17.0 5 71 20 51 137 Chloromethane ND Dibromochloromethane 20 18.0 90.0 20 17.0 85.0 5.71 20 58 131 Dibromomethane ND 20 22.0 110 20 20.0 100 9.52 20 82 123 ND 20 16.0 80.0 85.0 6.06 35 Dichlorodifluoromethane 20 17.0 20 143 Ethylbenzene ND 20 20.0 100 20 19.0 95.0 5.13 20 76 122 Hexachlorobutadiene ND 20 18.0 90.0 20 17.0 85.0 5.71 20 43 137 20 17.0 57 ND 85.0 Isopropylbenzene 20 16.0 80.0 6.06 20 124 ND 40 43.0 2.35 Methyl tert-butyl ether 108 40 42.0 105 20 10 200 Methylene chloride ND 20 23.0 4.44 115 20 22.0 110 70 134 20 Naphthalene ND 20 16.0 80.0 20 16.0 80.0 0 20 42 140 ND 20 80.0 * n-Butylbenzene 16.0 20 16.0 80.0 * 0 20 82 112 ND 20 16.0 20 73 80.0 16.0 0 20 108 n-Propylbenzene 80.0 ND 20 sec-Butylbenzene 17.0 85.0 20 16.0 80.0 6.06 20 76 110 Styrene ND 20 18.0 90.0 20 17.0 85.0 5.71 20 58 152 ND 20 15.0 75.0 20 75.0 66 tert-Butylbenzene 15.0 0 20 120 ND 20 25.0 20 71 Tetrachloroethene 125 25.0 125 0 20 130 ND 20 20.0 Toluene 100 20 20.0 100 0 24 80 117 ND 20 Trichloroethene 23.0 115 20 22.0 110 4.44 21 82 121 20 Trichlorofluoromethane ND 21.0 105 20 21.0 105 0 20 74 138 20 Vinyl acetate ND 18.0 90.0 20 18.0 90.0 n 20 66 135 Vinyl chloride ND 20 20.0 100 20 19.0 95.0 5.13 20 45 143

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 26

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service.#128125

Analysis: Method:

Volatile Organics by Method 8260B

RunID:

SW8260B

WorkOrder:

09040323

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

-

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	25.0	125	20	23.0	115	8.33	20	67	132
cis-1,3-Dichloropropene	ND	20	18.0	90.0	20	16.0	80.0	11.8	20	67	116
m,p-Xylene	ND	40	40.0	100	40	38.0	95.0	5.13	20	69	127
o-Xylene	ND	20	21.0	105	20	20.0	100	4.88	20	84	114
trans-1,2-Dichloroethene	ND	20	24.0	120	20	23.0	115	4.26	20	68	131
trans-1,3-Dichloropropene	ND	. 20	16.0	80.0	20	15.0	75.0	6.45	20	56	131
1,2-Dichloroethene (total)	ND	40	49	120	40	46	120	6.3	20	67	132
Xylenes,Total	ND	60	61	100	60	58	97	5.0	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	49	98.0	50	49.0	98.0	0	30	65	111
Surr: 4-Bromofluorobenzene	ND	50	53	106	50	54.0	108	1.87	30	87	120
Surr: Toluene-d8	ND	50	47	94.0	50	48.0	96.0	2.11	30	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated Value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 27

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

RunID:

Ion Chromatography

E300.0

IC2_090410A-4982576

WorkOrder:

Samples in Analytical Batch:

09040323

Lab Batch ID:

R270143

Method Blank

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

04/10/2009 14:46

Units:

09040323-01F

MW-5

BDG Analyst:

Analyte	Result	Rep Limit
Nitrogen, Nitrate (As N)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090410A-4982577

Units:

mg/L

Analysis Date:

04/10/2009 15:04

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen,Nitrate (As N)	10.00	10.48	104.8	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040324-01

RunID:

IC2_090410A-4982583

Units:

mg/L

Analysis Date:

04/10/2009 17:30

BDG Analyst:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	11.59	10	24.43	128.4 *	10	24.35	127.6 *	0.3075	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 28

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Alkalinity (as CaCO3), Total

Method:

E310.1

WorkOrder:

09040323

Lab Batch ID:

R270144

Method Blank

RunID: WET 090413F-4982657

Units:

mg/L

PAC

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/13/2009 11:20

Analyst:

09040323-01F

MW-5

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RunID:

WET 090413F-4982659

Units:

mg/L

Analysis Date:

04/13/2009 11:20

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Total (As CaCO3)	38.70	39.00	100.8	90	110

Sample Duplicate

Original Sample:

09040278-01

WET_090413F-4982660

Units:

mg/L PAC

175

0.573

20

RunID: Analysis Date:

Alkalinity, Total (As CaCO3)

04/13/2009 11:20

Analyst:

Analyte Sample DUP RPD RPD Result Limit Result

174

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank J - Estimated value between MDL and PQL

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 29

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Ion Chromatography

Method:

E300.0

WorkOrder:

Samples in Analytical Batch:

09040323

Lab Batch ID:

R270297

Method Blank

RuniD: IC

IC2_090414D-4985092

Units:

mg/L BDG

Lab Sample ID

Client Sample ID

Analysis Date:

04/14/2009 10:38

Analyst:

09040323-01F

MW-5

	Analyte	Result	Rep Limit
Chloride		N(0.50
Sulfate		NI	0.50

Laboratory Control Sample (LCS)

RunID:

IC2 090414D-4985093

Units:

mg/L

Analysis Date:

04/14/2009 10:55

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	10.52	105.2	85	115
Sulfate	10.00	10.57	105.7	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040254-01

IC2_090414D-4985097

Units:

mg/L

Analysis Date:

04/14/2009 12:05

Analyst:

BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	ND	10	10.68	106.8	10	10.66	106.6	0.2155	20	80	120
Sulfate	ND	10	11.07	110.7	10	10.07	100.7	9.423	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040323 Page 30

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



Sample Receipt Checklist And Chain of Custody





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Workorder: 09040323 Date and Time Received: 4/10/2009 10:00:00 AM Temperature: 3.5°C		Received By: Carrier name: Chilled by:	BF FedEx Water Ice
1. Shipping container/cooler in good condition?	Yes 🗸	No 🗔	Not Present
2. Custody seals intact on shippping container/cooler?	Yes 🗸	No 🗌	Not Present
3. Custody seals intact on sample bottles?	Yes	No 🗀	Not Present
4. Chain of custody present?	Yes 🗹	No 🗌	
5. Chain of custody signed when relinquished and received?	Yes 🗸	No 🗌	
6. Chain of custody agrees with sample labels?	Yes 🔽	No 🗌	
7. Samples in proper container/bottle?	Yes 🗸	No 🗌	
8. Sample containers intact?	Yes 🔽	No 🗌	
9. Sufficient sample volume for indicated test?	Yes 🔽	No 🗌	
10. All samples received within holding time?	Yes 🔽	No 🗌	
11. Container/Temp Blank temperature in compliance?	Yes 🗹	No 🗆	
12. Water - VOA vials have zero headspace?	Yes	No 🗌 VOA	Vials Not Present 🗹
13. Water - Preservation checked upon receipt (except VOA*)?	Yes 🗌	No 🗆	Not Applicable
*VOA Preservation Checked After Sample Analysis			
SPL Representative: Rodriguez, Alisha C. Client Name Contacted: Rick Rexroad w/Brown & Caldwell	Contact Date &	& Time: 4/9/2009 2:53:	00 PM
Non Conformance Issues:			
Client Instructions: Client emailed back at 13:31 on Monday 04/13/0	09 requesting that th	e extra vials be analyze	d for Methane only



	, and					SPL	SPL Workorder No.	ler No.			322	2332	
Analysis Requ	SFL, Inc. Analysis Request & Chain of Custody Record	ırd				0	106	99040 333	23	page	7	Jo	/
Chent Name: Drown and	aldwell			matrix bottle	ottle size	pres.			Regu	Requested	1 St	gaalysis	-
Address 1415 Louisiand City Housfor	# s	Zip STT	180	is=A 1 orlio=X	lsiv		<u> </u>	(9/	5/0	, y	ן נוינוי		
Phone Fax: 713-10-112	2 713-308-3	<i>X</i> 36	Bringalk		ч10=х	лек 103	iners	128	8)	1/-	0 11 0		
Project Name/No.: 128125	By Services	1	161		20 =	X=0{} 5=HV	Contai	3)	म/o	DP.	fr.		
Site Name: Free WASACT	I VY				[=9]	70) 10 1	5) 16	1/9		1/3 () () () () () () () () () (·-·
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SAMPLE ID	DATE		comp grab		=1	=ε =I	ıN VI	5	1	, Y	7		
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Requested TAT Spe	Special Reporting Requirements Results:	ts Results: Fax	Email PDF	7	Special Detection Limits (specify):	tection I	imits (s)	ecify):			<u>a</u>) \$ (i) \$ (ii) \$ (ii) \$ (iii)	(initial);
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Standard	dores	May	date	60/6	20 2 Junio	ä	2. Received by:	pk:					
ness Days	3. Relinquished by:		date		time	4.	4. Received by:	by:					
Other 5. R Rush TAT requires prior notice	5. Relinquished by:		date /	10/03	time 10:03	3/	C. Received.	Tab	Laboratory:	19	7	3	
B880 Interchange Drive Houston, TX 77054 (713) 660-0901	ive 50-0901	Scott, LA	500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775	fery Par 237-477	kway 5	-3	į	averse	1459 City N	459 Hughes Drive 3, MI 49686 (231)	es Dri 86 (23	☐ 459 Hughes Drive Traverse City MI 49686 (231) 947-5777	777

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09040326

Report To:		Project Name:	Fracmaster BJ Service,#128125
Brown & Caldwell		Site:	Hobbs NM
Rick Rexroad		Site Address:	
1415 Louisiana			
Suite 2500		PO Number:	
Houston		FO Number.	
тх	•	State:	New Mexico
77002-		State Cert. No.:	
ph: (713) 759-0999	fax:	Date Reported:	4/24/2009

This Report Contains A Total Of 29 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09040326

Report To:		Project Name:	Fracmaster BJ Service,#128125
Brown & Caldwell		Site:	Hobbs NM
Rick Rexroad		Site Address:	
1415 Louisiana			
Suite 2500		PO Number:	
Houston			
тх		State:	New Mexico
77002-		State Cert. No .:	
ph: (713) 759-0999	fax:	Date Reported:	4/24/2009

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID: 89427 for the Semivolatile Hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID:89412 for the Semivolatile Organics analysis by SW 846 Method 8270C. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Somes V. Vicheare

09040326 Page 1

4/24/2009

Agnes V. Vicknair

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Fracmaster BJ Service,#128125

Brown & Caldwell

Certificate of Analysis Number:

09040326

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad

1415 Louisiana **Suite 2500**

Houston ΤX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Site:

Site Address:

Project Name:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

4/24/2009

Hobbs NM

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COCID	HOLD
ERB-4-8-09	09040326-01	Water	4/8/2009 12:03:00 PM	4/10/2009 10:00:00 AM	322331	
ERB-4-9-09	09040326-02	Water	4/9/2009 10:16:00 AM	4/10/2009 10:00:00 AM	322331	

Ignes V. Vickeaire Agnes V. Vicknair

4/24/2009

Date

Project Manager

Kesavalu M. Bagawandoss Laboratory Director

Ted Yen Quality Assurance Officer



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-8-09

Collected: 04/08/2009 12:03

SPL Sample ID:

09040326-01

	Sit	te:	Нο	bbs	NM
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Analyses/Method	Result	QUAL	Re	p.Limit		Dil. Factor	Date Ana	lyzed	Analyst	Seq.#
GASOLINE RANGE ORGANICS					MCL	S	W8015B	Ur	nits: mg/L	
Gasoline Range Organics	ND			0.1		1	04/13/09	18:44	CLJ	4984676
Surr: 1,4-Difluorobenzene	92.6		%	60-155		1	04/13/09	18:44	CLJ	4984676
Surr: 4-Bromofluorobenzene	106		%	50-158		1	04/13/09	18:44	CLJ	4984676
SEMIVOLATILE HYDROCARBO	NS				MCL	S'	W8015B	Ur	nits: mg/L	
Diesel Range Organics	ND		-	0.1		1	04/17/0	9 1:21	NW	4987517
Mineral Spirits Range Organics	ND		_	0.1		1	04/17/0	9 1:21	NW	4987517
Surr: n-Pentacosane	59.6		%	20-150		1	04/17/0	9 1:21	NW	4987517

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040326 Page 3 4/24/2009 11:17:26 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-8-09

Collected: 04/08/2009 12:03

SPL Sample ID:

09040326-01

Site: Hobbs N	N	١	١							į			١	١					ĺ		į	į										ı	١	١	١	١	١	i	ì	į				١													۱		ì				١	۱	١	ď	ı	į		ĺ		١	١						١	١	١	١								ľ	ľ	l				ŀ	١	١	1		l		١	i	١	١	١				ĺ	ί	ĺ	ł		۱	١		•			۱	ı	ı	ı			۱	١	Į																
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Analyses/Method	Result QU	AL Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
SEMIVOLATILE ORGANICS B	Y METHOD 82700	3	MCL SV	V8270C Uni	ts: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/17/09 18:13	GY	4992377
1,2-Dichlorobenzene	ND	5	1	04/17/09 18:13	GY	4992377
1,2-Diphenylhydrazine	ND	10	1	04/17/09 18:13	GY	4992377
1,3-Dichlorobenzene	ND	5	1	04/17/09 18:13	GY	4992377
1,4-Dichlorobenzene	ND	5	1	04/17/09 18:13	GY	4992377
2,4,5-Trichlorophenol	ND	10	1	04/17/09 18:13	GY	4992377
2,4,6-Trichlorophenol	ND	5	1	04/17/09 18:13	GY	4992377
2,4-Dichlorophenol	ND	5	1	04/17/09 18:13	GY	4992377
2,4-Dimethylphenol	ND	5	1	04/17/09 18:13	GY	4992377
2,4-Dinitrophenol	ND	25	1	04/17/09 18:13	GY	4992377
2,4-Dinitrotoluene	ND	5	1	04/17/09 18:13	GY	4992377
2,6-Dinitrotoluene	ND	5	1	04/17/09 18:13	GY	4992377
2-Chloronaphthalene	ND	5	1	04/17/09 18:13	GY	4992377
2-Chlorophenol	ND	5	1	04/17/09 18:13	GY	4992377
2-Methylnaphthalene	ND	5	1	04/17/09 18:13	GY	4992377
2-Nitroaniline	ND	25	1	04/17/09 18:13	GY	4992377
2-Nitrophenol	ND	5	1	04/17/09 18:13	GY	4992377
3,3´-Dichlorobenzidine	ND	10	1	04/17/09 18:13	GY	4992377
3-Nitroaniline	ND	25	1	04/17/09 18:13	GY	4992377
4,6-Dinitro-2-methylphenol	ND	25	1	04/17/09 18:13	GY	4992377
4-Bromophenyl phenyl ether	ND	5	1	04/17/09 18:13	GY	4992377
4-Chloro-3-methylphenol	ND	5	1	04/17/09 18:13	GY	4992377
4-Chloroaniline	ND	5	1	04/17/09 18:13	GY	4992377
4-Chlorophenyl phenyl ether	ND	5	1	04/17/09 18:13	GY	4992377
4-Nitroaniline	ND	25	1	04/17/09 18:13	GY	4992377
4-Nitrophenol	ND	25	1	04/17/09 18:13	GY	4992377
Acenaphthene	ND	5	1	04/17/09 18:13	GY	4992377
Acenaphthylene	ND	5	1	04/17/09 18:13	GY	4992377
Aniline	ND	5	11	04/17/09 18:13	GY	4992377
Anthracene	ND	5	1	04/17/09 18:13	GY	4992377
Benz(a)anthracene	ND	5	1	04/17/09 18:13	GY	4992377
Benzo(a)pyrene	ND	5	1	04/17/09 18:13	GY	4992377
Benzo(b)fluoranthene	ND	5	1	04/17/09 18:13	GY	4992377
Benzo(g,h,i)perylene	ND	5	1	04/17/09 18:13	GY	4992377
Benzo(k)fluoranthene	ND	5	1	04/17/09 18:13	GY	4992377
Benzoic acid	ND	25	1	04/17/09 18:13	GY	4992377
Benzyl alcohol	DD	5	1	04/17/09 18:13	GY	4992377
Bis(2-chloroethoxy)methane	ND	5	1	04/17/09 18:13	GY	4992377
Bis(2-chloroethyl)ether	ND	5	1	04/17/09 18:13	GY	4992377

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

Mi - Matrix Interference

09040326 Page 4 4/24/2009 11:17:26 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-8-09

Collected: 04/08/2009 12:03

SPL Sample ID:

09040326-01

Site:	н	lob	he	N	ı	4
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			Site	: nous				
Analyses/Method	Result	QUAL	Re	o.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND			5	1	04/17/09 18:13	GY	4992377
Bis(2-ethylhexyl)phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Butyl benzyl phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Carbazole	ND			5	1	04/17/09 18:13	GY	4992377
Chrysene	ND			5	1	04/17/09 18:13	GY	4992377
Dibenz(a,h)anthracene	ND			5	1	04/17/09 18:13	GY	4992377
Dibenzofuran	ND			5	1	04/17/09 18:13	GY	4992377
Diethyl phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Dimethyl phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Di-n-butyl phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Di-n-octyl phthalate	ND			5	1	04/17/09 18:13	GY	4992377
Fluoranthene	ND			5	1	04/17/09 18:13	GY	4992377
Fluorene	ND			5	1	04/17/09 18:13	GY	4992377
Hexachlorobenzene	ND			5	1	04/17/09 18:13	GY	4992377
Hexachlorobutadiene	ND			5	1	04/17/09 18:13	GY	4992377
Hexachlorocyclopentadiene	ND			5	1	04/17/09 18:13	GY	4992377
Hexachloroethane	ND			5	1	04/17/09 18:13	GY	4992377
Indeno(1,2,3-cd)pyrene	ND			5	1	04/17/09 18:13	GY	4992377
Isophorone	ND			5	1	04/17/09 18:13	GY	4992377
Naphthalene	ND			5	1	04/17/09 18:13	GY	4992377
Nitrobenzene	ND	-		5	1	04/17/09 18:13	GY	4992377
N-Nitrosodi-n-propylamine	ND			5	1	04/17/09 18:13	GY	4992377
N-Nitrosodiphenylamine	ND		,	5	1	04/17/09 18:13	GY	4992377
Pentachlorophenol	ND			25	1	04/17/09 18:13	GY	4992377
Phenanthrene	ND			5	1	04/17/09 18:13	GY	4992377
Phenol	ND			5	1	04/17/09 18:13	GY	4992377
Pyrene	ND			5	1	04/17/09 18:13	GY	4992377
Pyridine	ND			5	1	04/17/09 18:13	GY	4992377
2-Methylphenol	ND			5	1	04/17/09 18:13	GY	4992377
3 & 4-Methylphenol	ND			5	1	04/17/09 18:13	GY	4992377
Surr: 2,4,6-Tribromophenol	106		%	10-123	1	04/17/09 18:13	GY	4992377
Surr: 2-Fluorobiphenyl	80.6		%	23-116	1	04/17/09 18:13	GY	4992377
Surr: 2-Fluorophenol	72.8		%	16-110	1	04/17/09 18:13	GY	4992377
Surr: Nitrobenzene-d5	81.6		%	21-114	1	04/17/09 18:13	GY	4992377
Surr: Phenol-d5	51.3		%	10-110	1	04/17/09 18:13	GY	4992377
Surr: Terphenyl-d14	80.8		%	22-141	1	04/17/09 18:13	GY	4992377

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-8-09

Collected: 04/08/2009 12:03 SP

SPL Sample ID:

09040326-01

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,1,1-Trichloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,1,2-Trichloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,1-Dichloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,1-Dichloroethene	ND		5	1	04/14/09 22:46	JC .	4990091
1,1-Dichloropropene	ND		5	1	04/14/09 22:46	JC	4990091
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,2,3-Trichloropropane	ND		5	1	04/14/09 22:46	JC	4990091
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,2,4-Trimethylbenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,2-Dibromo-3-chloropropane	ND		5	1	04/14/09 22:46	JC	4990091
1,2-Dibromoethane	ND		5	1	04/14/09 22:46	JC	4990091
1,2-Dichlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,2-Dichloroethane	ND		5	1	04/14/09 22:46	JC	4990091
1,2-Dichloropropane	ND		5	· 1	04/14/09 22:46	JC	4990091
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,3-Dichlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091
1,3-Dichloropropane	ND		5	1	04/14/09 22:46	JC	4990091
1,4-Dichlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091
2,2-Dichloropropane	ND		5	1	04/14/09 22:46	JC	4990091
2-Butanone	ND		20	1	04/14/09 22:46	JC	4990091
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 22:46	JC	4990091
2-Chlorotoluene	ND		5	1	04/14/09 22:46	JC	4990091
2-Hexanone	ND		10	1	04/14/09 22:46	JC	4990091
4-Chlorotoluene	ND		5	1	04/14/09 22:46	JC	4990091
4-Isopropyltoluene	ND		5	1	04/14/09 22:46	JC	4990091
4-Methyl-2-pentanone	ND		10	1	04/14/09 22:46	JC	4990091
Acetone	ND		20	1	04/14/09 22:46	JC	4990091
Acrylonitrile	ND		10	1	04/14/09 22:46	JC	4990091
Benzene	ND		5	11	04/14/09 22:46	JC	4990091
Bromobenzene	ND		5	1	04/14/09 22:46	JC	4990091
Bromochloromethane	ND		5	1	04/14/09 22:46	JC	4990091
Bromodichloromethane	ND		5	1	04/14/09 22:46	JC	4990091
Bromoform	ND		5	1	04/14/09 22:46	JC	4990091
Bromomethane	ND		10	1	04/14/09 22:46	JC	4990091
Carbon disulfide	ND		5	1	04/14/09 22:46	JC	4990091
Carbon tetrachloride	ND		5	1	04/14/09 22:46	JC	4990091
Chlorobenzene	ND		5	1	04/14/09 22:46	JC	4990091

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040326 Page 6 4/24/2009 11:17:26 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-8-09

Collected: 04/08/2009 12:03

SPL Sample ID:

09040326-01

			Site	. поы	os NM				
Analyses/Method	Result	QUAL	Rep	o.Limit	Dil. Fac	ctor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1		04/14/09 22:46	JC	4990091
Chloroform	ND			5	1		04/14/09 22:46	JC	4990091
Chloromethane	ND			10	1		04/14/09 22:46	JC	4990091
Dibromochloromethane	ND			5	1		04/14/09 22:46	JC	4990091
Dibromomethane	ND			5	1		04/14/09 22:46	JC	4990091
Dichlorodifluoromethane	ND			10	1		04/14/09 22:46	JC	4990091
Ethylbenzene	ND			5	1		04/14/09 22:46	JC	4990091
Hexachlorobutadiene	ND			5	1		04/14/09 22:46	JC	4990091
Isopropylbenzene	ND		-	5	1		04/14/09 22:46	JC	4990091
Methyl tert-butyl ether	ND			5	1		04/14/09 22:46	JC	4990091
Methylene chloride	ND			5	1		04/14/09 22:46	JC	4990091
Naphthalene	ND			5	1		04/14/09 22:46	JC	4990091
n-Butylbenzene	ND			5	1		04/14/09 22:46	JC	4990091
n-Propylbenzene	ND			5	1		04/14/09 22:46	JC	4990091
sec-Butylbenzene	ND			5	1		04/14/09 22:46	JC	4990091
Styrene	ND			5	1		04/14/09 22:46	JC	4990091
tert-Butylbenzene	ND			5	1		04/14/09 22:46	JC	4990091
Tetrachloroethene	ND			5	1		04/14/09 22:46	JC	4990091
Toluene	ND			5	1		04/14/09 22:46	JC	4990091
Trichloroethene	ND			5	1		04/14/09 22:46	JC	4990091
Trichlorofluoromethane	ND			5	1		04/14/09 22:46	JC	4990091
Vinyl acetate	ND			10	1		04/14/09 22:46	JC	4990091
Vinyl chloride	ND			2	1		04/14/09 22:46	JC	4990091
cis-1,2-Dichloroethene	ND			5	1		04/14/09 22:46	JC	4990091
cis-1,3-Dichloropropene	ND			5	1		04/14/09 22:46	JC	4990091
m,p-Xylene	ND			5	1		04/14/09 22:46	JC	4990091
o-Xylene	ND.			5	1		04/14/09 22:46	JC	4990091
trans-1,2-Dichloroethene	ND			5	1		04/14/09 22:46	JC	4990091
trans-1,3-Dichloropropene	ND			5	1		04/14/09 22:46	JC	4990091
1,2-Dichloroethene (total)	ND			5	1		04/14/09 22:46	JC	4990091
Xylenes,Total	ND			5	1		04/14/09 22:46	JC	4990091
Surr: 1,2-Dichloroethane-d4	100		%	70-120	1		04/14/09 22:46	JC	4990091
Surr: 4-Bromofluorobenzene	108		%	75-120	1		04/14/09 22:46	JC	4990091
Surr: Toluene-d8	86.0		%	85-120	1		04/14/09 22:46	JC	4990091

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040326 Page 7 4/24/2009 11:17:27 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-9-09

Collected: 04/09/2009 10:16 SF

SPL Sample ID: 09

09040326-02

Site: I	lobbs	NM
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Analyses/Method	Result	QUAL	Re	ep.Limit	D	il. Facto	or Date Analy	zed	Analyst	Seq. #
GASOLINE RANGE ORGANICS					MCL		SW8015B	Ur	nits: mg/L	
Gasoline Range Organics	ND			0.1		1	04/13/09 2	0:39	CLJ	4984680
Surr: 1,4-Difluorobenzene	92.3		%	60-155		1	04/13/09 2	20:39	CLJ	4984680
Surr: 4-Bromofluorobenzene	105		%	50-158		1	04/13/09 2	0:39	CLJ	4984680
SEMIVOLATILE HYDROCARBON	S				MCL		SW8015B	Ur	nits: mg/L	
Diesel Range Organics	0.2			0.1		1	04/17/09	1:41	NW	4987518
Mineral Spirits Range Organics	ND			0.1		1	04/17/09	1:41	NW	4987518
Surr: n-Pentacosane	54.2		%	20-150		1	04/17/09	1:41	NW	4987518

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 14:10	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

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D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040326 Page 8 4/24/2009 11:17:27 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-9-09

 09040326-02

Site:	Hobbs	NM
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Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyze	d Analyst	Seq.#
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C L	 Jnits: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	04/22/09 17:3	6 GY	4993776
1,2-Dichlorobenzene	ND	5	1	04/22/09 17:3	6 GY	4993776
1,2-Diphenylhydrazine	ND	10	1	04/22/09 17:3	6 GY	4993776
1,3-Dichlorobenzene	ND	5	1	04/22/09 17:3	6 GY	4993776
1,4-Dichlorobenzene	ND	5	1	04/22/09 17:3	6 GY	4993776
2,4,5-Trichlorophenol	ND	10	1	04/22/09 17:3	6 GY	4993776
2,4,6-Trichlorophenol	ND	5	1	04/22/09 17:3	6 GY	4993776
2,4-Dichlorophenol	ND	5	1	04/22/09 17:3	6 GY	4993776
2,4-Dimethylphenol	ND	5	1	04/22/09 17:3	6 GY	4993776
2,4-Dinitrophenol	ND	25	1	04/22/09 17:3	6 GY	4993770
2,4-Dinitrotoluene	ND	5	1	04/22/09 17:3	6 GY	4993776
2,6-Dinitrotoluene	ND	5	1	04/22/09 17:3	6 GY	499377
2-Chloronaphthalene	ND	5	1	04/22/09 17:3	6 GY	499377
2-Chlorophenol	ND	5	1	04/22/09 17:3	6 GY	499377
2-Methylnaphthalene	ND	5	1	04/22/09 17:3	6 GY	499377
2-Nitroaniline	ND	25	1	04/22/09 17:3	6 GY	499377
2-Nitrophenol	ND	5	1	04/22/09 17:3	6 GY	499377
3,3´-Dichlorobenzidine	ND	10	1	04/22/09 17:3	6 GY	499377
3-Nitroaniline	ND	25	1	04/22/09 17:3	6 GY	499377
4,6-Dinitro-2-methylphenol	ND	25	1	04/22/09 17:3	6 GY	499377
4-Bromophenyl phenyl ether	ND	5	1	04/22/09 17:3	6 GY	499377
4-Chloro-3-methylphenol	ND	5	1	04/22/09 17:3	6 GY	499377
4-Chloroaniline	ND	5	1	04/22/09 17:3	6 GY	499377
4-Chlorophenyl phenyl ether	ND	5	1	04/22/09 17:3	6 GY	499377
4-Nitroaniline	ND	25	1	04/22/09 17:3	6 GY	499377
4-Nitrophenol	ND	25	1	04/22/09 17:3	6 GY	499377
Acenaphthene	ND	5	1	04/22/09 17:3	6 GY	499377
Acenaphthylene	ND	5	1	04/22/09 17:3	6 GY	499377
Aniline	ND	5	1	04/22/09 17:3	6 GY	499377
Anthracene	ND	5	1	04/22/09 17:3	6 GY	499377
Benz(a)anthracene	ND	5	1	04/22/09 17:3	6 GY	499377
Benzo(a)pyrene	ND	5	1	04/22/09 17:3	6 GY	499377
Benzo(b)fluoranthene	ND	5	1	04/22/09 17:3	6 GY	499377
Benzo(g,h,i)perylene	ND	5	1	04/22/09 17:3	6 GY	499377
Benzo(k)fluoranthene	ND	5	1	04/22/09 17:3	6 GY	499377
Benzoic acid	ND	25	1	04/22/09 17:3	6 GY	499377
Benzyl alcohol	ND	5	1	04/22/09 17:3	6 GY	499377
Bis(2-chloroethoxy)methane	ND	5	1	04/22/09 17:3	6 GY	499377
Bis(2-chloroethyl)ether	ND	5	1	04/22/09 17:3	6 GY	499377

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-9-09

Collected: 04/09/2009 10:16 SPL Sample ID:

09040326-02

Site: F	lobbs	NM
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			Site: Hopps i	14141			
Analyses/Method	Result	QUAL	Rep.Limit	Dit. Factor	Date Analyzed	Analyst	Seq. #
Bis(2-chloroisopropyl)ether	ND		5	1	04/22/09 17:36	GY	4993776
Bis(2-ethylhexyl)phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Butyl benzyl phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Carbazole	ND		5	1	04/22/09 17:36	GY	4993776
Chrysene	ND		5	1	04/22/09 17:36	GY	4993776
Dibenz(a,h)anthracene	ND		5	1	04/22/09 17:36	GY	4993776
Dibenzofuran	ND		5	1	04/22/09 17:36	GY	4993776
Diethyl phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Dimethyl phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Di-n-butyl phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Di-n-octyl phthalate	ND		5	1	04/22/09 17:36	GY	4993776
Fluoranthene	ND		5	1	04/22/09 17:36	GY	4993776
Fluorene	ND		5	1	04/22/09 17:36	GY	4993776
Hexachlorobenzene	ND		5	1	04/22/09 17:36	GY	4993776
Hexachlorobutadiene	ND		5	1	04/22/09 17:36	GY	4993776
Hexachlorocyclopentadiene	ND		5	1	04/22/09 17:36	GY	4993776
Hexachloroethane	ND		5	1	04/22/09 17:36	GY	4993776
Indeno(1,2,3-cd)pyrene	ND		5	1	04/22/09 17:36	GY	4993776
Isophorone	ND		5	1	04/22/09 17:36	GY	4993776
Naphthalene	ND		5	1	04/22/09 17:36	GY	4993776
Nitrobenzene	ND		5	1	04/22/09 17:36	GY	4993776
N-Nitrosodi-n-propylamine	ND		5	1	04/22/09 17:36	GY	4993776
N-Nitrosodiphenylamine	ND		5	1	04/22/09 17:36	GY	4993776
Pentachlorophenol	ND	· -	25	1	04/22/09 17:36	GY	4993776
Phenanthrene	ND		5	1	04/22/09 17:36	GY	4993776
Phenol	ND		5	1	04/22/09 17:36	GY	4993776
Pyrene	ND		5	1	04/22/09 17:36	GY	4993776
Pyridine	ND		5	1	04/22/09 17:36	GY	4993776
2-Methylphenol	ND		5	1	04/22/09 17:36	GY	4993776
3 & 4-Methylphenol	ND		5	1	04/22/09 17:36	GY	4993776
Surr: 2,4,6-Tribromophenol	103		% 10-123	1	04/22/09 17:36	GY	4993776
Surr: 2-Fluorobiphenyl	78.4		% 23-116	1	04/22/09 17:36	GY	4993776
Surr: 2-Fluorophenol	73.9		% 16-110	1	04/22/09 17:36	GY	4993776
Surr: Nitrobenzene-d5	75.4		% 21-114	1	04/22/09 17:36	GY	4993776
Surr: Phenol-d5	54.7		% 10-110	1	04/22/09 17:36	GY	4993776
Surr: Terphenyl-d14	76.6		% 22-141	1	04/22/09 17:36	GY	4993776

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	04/13/2009 8:15	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09040326 Page 10 4/24/2009 11:17:27 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-9-09

Collected: 04/09/2009 10:16 SPL Sample ID:

09040326-02

Site:	Hobbs	NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analy	zed An	alyst	Seq. #
OLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B	Units:	ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1,1-Trichloroethane	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1,2,2-Tetrachloroethane	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1,2-Trichloroethane	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1-Dichloroethane	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1-Dichloroethene	ND		5	1	04/14/09 23	3:13 JC		4985234
1,1-Dichloropropene	ND		5	1	04/14/09 23	3:13 JC		4985234
1,2,3-Trichlorobenzene	ND		5	1	04/14/09 23	3:13 JC		4985234
1,2,3-Trichloropropane	ND		5	1	04/14/09 23	3:13 JC		498523
1,2,4-Trichlorobenzene	ND		5	1	04/14/09 2	3:13 JC		498523
1,2,4-Trimethylbenzene	ND		5	1	04/14/09 2	3:13 JC		498523
1,2-Dibromo-3-chloropropane	ND		5	1	04/14/09 2	3:13 JC		4985234
1,2-Dibromoethane	ND		5	1	04/14/09 2	3:13 JC		498523
1,2-Dichlorobenzene	ND		5	1	04/14/09 2	3:13 JC		498523
1,2-Dichloroethane	ND		5	1	04/14/09 2	3:13 JC		498523
1,2-Dichloropropane	ND		5	1	04/14/09 2	3:13 JC		498523
1,3,5-Trimethylbenzene	ND		5	1	04/14/09 2	3:13 JC		498523
1,3-Dichlorobenzene	ND		5	1	04/14/09 2	3:13 JC	:	498523
1,3-Dichloropropane	ND		5	1	04/14/09 2	3:13 JC		498523
1,4-Dichlorobenzene	ND		5	1	04/14/09 2	3:13 JC		498523
2,2-Dichloropropane	ND		5	1	04/14/09 2	3:13 JC		498523
2-Butanone	ND		20	1	04/14/09 2	3:13 JC		498523
2-Chloroethyl vinyl ether	ND J		10	1	04/14/09 2	3:13 JC		498523
2-Chlorotoluene	ND		5	1	04/14/09 2	3:13 JC		498523
2-Hexanone	ND		10	1	04/14/09 2	3:13 JC		498523
4-Chlorotoluene	ND		5	1	04/14/09 2	3:13 JC		498523
4-Isopropyltoluene	ND		5	1	04/14/09 2	3:13 JC		498523
4-Methyl-2-pentanone	ND		10	1	04/14/09 2	3:13 JC		498523
Acetone	ND		20	1	04/14/09 2	3:13 JC		498523
Acrylonitrile	ND	~	10	1	04/14/09 2	3:13 JC		498523
Benzene	ND		5	1	04/14/09 2	3:13 JC	;	498523
Bromobenzene	ND		5	1	04/14/09 2	3:13 JC		498523
Bromochloromethane	ND		5	1	04/14/09 2	3:13 JC	;	498523
Bromodichloromethane	ND		5	1	04/14/09 2	3:13 JC	;	498523
Bromoform	ND		5	1	04/14/09 2	3:13 JC	;	498523
Bromomethane	ND		10	1	04/14/09 2	3:13 JC	;	498523
Carbon disulfide	ND		5	1	04/14/09 2	3:13 JC	;	498523
Carbon tetrachloride	ND		5	1	04/14/09 2	3:13 JC	;	498523
Chlorobenzene	ND		5	1	04/14/09 2	3:13 JC	;	498523

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: ERB-4-9-09 Collected: 04/09/2009 10:16 SPL Sample ID: 09040326-02

		Site:	Hobbs NN	1			
Analyses/Method	Result	QUAL Rep.	Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND		10	1	04/14/09 23:13	JC	4985234
Chloroform	ND		5	1	04/14/09 23:13	JC	4985234
Chloromethane	ND.		10	1	04/14/09 23:13	JC	4985234
Dibromochloromethane	ND		5	1	04/14/09 23:13	JC	4985234
Dibromomethane	ND		5	1	04/14/09 23:13	JC	4985234
Dichlorodifluoromethane	ND		10	1	04/14/09 23:13	JC	4985234
Ethylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
Hexachlorobutadiene	ND		5	1	04/14/09 23:13	JC	4985234
Isopropylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
Methyl tert-butyl ether	ND		5	1	04/14/09 23:13	JC	4985234
Methylene chloride	ND		5	1	04/14/09 23:13	JC	4985234
Naphthalene	ND		5	1	04/14/09 23:13	JC	4985234
n-Butylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
n-Propylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
sec-Butylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
Styrene	ND		5	1	04/14/09 23:13	JC	4985234
tert-Butylbenzene	ND		5	1	04/14/09 23:13	JC	4985234
Tetrachloroethene	ND		5	1	04/14/09 23:13	JC	4985234
Toluene	ND		5	1	04/14/09 23:13	JC	4985234
Trichloroethene	ND		5	1	04/14/09 23:13	JC	4985234
Trichlorofluoromethane	ND		5	1	04/14/09 23:13	JC	4985234
Vinyl acetate	ND		10	1	04/14/09 23:13	JC	4985234
Vinyl chloride	ND		2	1	04/14/09 23:13	JC	4985234
cis-1,2-Dichloroethene	ND		5	1	04/14/09 23:13	JC	4985234
cis-1,3-Dichloropropene	ND_		5	1	04/14/09 23:13	JC	4985234
m,p-Xylene	ND		5	1	04/14/09 23:13	1C	4985234
o-Xylene	ND		5	1	04/14/09 23:13	JC	4985234
trans-1,2-Dichloroethene	ND		5	1	04/14/09 23:13	JC	4985234
trans-1,3-Dichloropropene	ND		5	1	04/14/09 23:13	JC	4985234
1,2-Dichloroethene (total)	ND		5	1	04/14/09 23:13	JC	4985234
Xylenes,Total	ND		5	1	04/14/09 23:13	JC	4985234
Surr: 1,2-Dichloroethane-d4	96.0		5-111	1	04/14/09 23:13	JC	4985234
Surr: 4-Bromofluorobenzene	108		7-120	11	04/14/09 23:13	JC	4985234
Surr: Toluene-d8	92.0	% 8	8-116	1	04/14/09 23:13	JC	4985234

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

WorkOrder:

09040326

Lab Batch ID:

89427

Method Blank

HP_V_090416B-4987505

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/14/2000 2

Analyst:

NW

09040326-01D

ERB-4-8-09

Preparation Date:

04/14/2009 23:43 04/13/2009 14:10

Prep By:

N_M Method SW3510C

09040326-02D

ERB-4-9-09

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.10
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	51.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

Units:

RunID:

HP V 090416B-4987506

mg/L

04/15/2009 0:03

Analyst: NW

Analysis Date: Preparation Date:

04/13/2009 14:10

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics	1.00	0.895	89.5	1.00	0.880	88.0	1.7	40	21	150
Surr: n-Pentacosane	0.0500	0.0494	98.8	0.0500	0.0485	97.0	1.8	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

BN - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 14 4/24/2009 11:17:29 AM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis:

Gasoline Range Organics

Method:

RunID:

Analysis Date:

SW8015B

WorkOrder:

09040326

Lab Batch ID:

R270269

Method Blank

HP_P_090413A-4984662 04/13/2009 5:20 Units: Analyst:

Lab Sample ID

Client Sample ID

mg/L

CLJ

09040326-01B

Samples in Analytical Batch:

ERB-4-8-09

09040326-02B

ERB-4-9-09

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.5	60-155
Surr: 4-Bromofluorobenzene	104.0	50-158

Laboratory Control Sample (LCS)

RunID:

HP P 090413A-4984660

Units:

mg/L

Analysis Date:

04/13/2009 4:22

Analyst:

CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.859	85.9	42	136
Surr: 1,4-Difluorobenzene	0.100	0.0949	94.9	60	155
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040343-01

RunID:

HP_P_090413A-4984664

Units:

mg/L

Analysis Date:

04/13/2009 10:44

Analyst: CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1	0.852	85.2	1	0.868	86.8	1.92	36	22	174
Surr: 1,4-Difluorobenzene	ND	0.1	0.0922	92.2	0.1	0.0932	93.2	1.08	30	60	155
Surr: 4-Bromofluorobenzene	ND	0.1	0.105	105	0.1	0.107	107	1.41	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

4/24/2009 11:17:29 AM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040326

Lab Batch ID:

89412

Method Blank

RunID:

H_090417E-4992370

Units:

ug/L

Lab Sample ID 09040326-01C

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

04/17/2009 9:40

Analyst:

GY

ERB-4-8-09

Preparation Date:

04/13/2009 8:15

N M Method SW3510C Prep By:

09040326-02C

ERB-4-9-09

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	
2,6-Dinitrotoluene	ND	
2-Chloronaphthalene	ND	
2-Chlorophenol	ND	
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	
2-Nitrophenol	ND	
3.3´-Dichlorobenzidine	ND	
3-Nitroaniline	ND	
4,6-Dinitro-2-methylphenol	ND	
4-Bromophenyl phenyl ether	ND	
4-Chloro-3-methylphenol	ND	
4-Chloroaniline	ND	
4-Chlorophenyl phenyl ether	ND	
4-Nitroaniline	ND	
	ND	
4-Nitrophenol		,
Acenaphthene	ND	
Acenaphthylene	ND ND	
Aniline	ND	
Anthracene	ND ND	+
Benz(a)anthracene	ND	
Benzo(a)pyrene	ND	
Benzo(b)fluoranthene	ND	
Benzo(g,h,i)perylene	ND	
Benzo(k)fluoranthene	ND ND	
Benzoic acid	ND	
Benzyl aicohol	ND	
Bis(2-chloroethoxy)methane	ND	
Bis(2-chloroethyl)ether	ND	
Bis(2-chloroisopropyl)ether	ND ND	
Bis(2-ethylhexyl)phthalate	ND	
Butyl benzyl phthalate	ND ND	
Carbazole	ND	
Chrysene	ND	
Dibenz(a,h)anthracene	ND ND	5.0
Dibenzofuran	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 16

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service.#128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09040326

Lab Batch ID:

89412

Method Blank

RunID:

H 090417E-4992370

Units:

ug/L

Analysis Date:

04/17/2009 9:40

Analyst:

GY

04/13/2009 8:15 Preparation Date:

Prep By:

N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND.	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND.	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND.	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND	5.0
Phenol	ND	5.0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenol	ND ND	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	95.2	10-123
Surr: 2-Fluorobiphenyl	72.6	23-116
Surr: 2-Fluorophenol	76.1	16-110
Surr: Nitrobenzene-d5	68.4	21-114
Surr: Phenol-d5	62.5	10-110
Surr: Terphenyl-d14	68.4	22-141

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RuniD:

H_090417E-4992371

Units:

04/17/2009 10:42

Analyst: GY

Analysis Date: Preparation Date:

04/13/2009 8:15

Prep By: N_M Method SW3510C

ug/L

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	39	21	120
1.2-Dichlorobenzene	25.0	15.4	61.6	25.0	16.7	66.8	81	50	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040326

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units:

Analysis Date:

ug/L GY

Preparation Date:

04/17/2009 10:42 04/13/2009 8:15

Analyst:

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
1,2-Diphenylhydrazine	25.0	16.5	66.0	25.0	17.6	70.4	6.5	50	10	251
1,3-Dichlorobenzene	25.0	15.4	61.6	25.0	16.5	66.0	6.9	50	20	150
1,4-Dichlorobenzene	25.0	15.3	61.2	25.0	16.2	64.8	5.7	45	20	150
2,4,5-Trichlorophenol	25.0	14.9	59.6	25.0	15.4	61.6	3.3	50	30	150
2,4,6-Trichlorophenol	25.0	15.2	60.8	25.0	16.0	64.0	5.1	50	30	150
2,4-Dichlorophenol	25.0	14.5	58.0	25.0	15.9	63.6	9.2	50	30	150
2,4-Dimethylphenol	25.0	15.4	61.6	25.0	16.0	64.0	3.8	50	32	140
2,4-Dinitrophenol	25.0	11.9	47.6	25.0	12.8	51.2	7.3	50	10	160
2,4-Dinitrotoluene	25.0	16.1	64.4	25.0	16.3	65.2	1.2	50	30	150
2,6-Dinitrotoluene	25.0	15.8	63.2	25.0	15.7	62.8	0.6	50	30	150
2-Chloronaphthalene	25.0	15.8	63,2	25.0	16.5	66.0	4.3	50	30	150
2-Chlorophenol	25.0	15.4	61.6	25.0	15.9	63.6	3.2	40	23	134
2-Methylnaphthalene	25.0	15.1	60.4	25.0	15.9	63.6	5.2	50	20	170
2-Nitroaniline	25.0	14.8	59.2	25.0	15.9	63.6	7.2	50	20	160
2-Nitrophenol	25.0	14.9	59.6	25.0	15.8	63.2	5.9	50	29	182
3,3'-Dichlorobenzidine	25.0	13.3	53.2	25.0	13.7	54.8	3.0	50	30	200
3-Nitroaniline	25.0	14.4	57.6	25.0	14.8	59.2	2.7	50	20	160
4,6-Dinitro-2-methylphenol	25.0	13.7	54.8	25.0	14.2	56.8	3.6	50	10	160
4-Bromophenyl phenyl ether	25.0	15.6	62.4	25.0	15.8	63.2	1.3	50	30	150
4-Chloro-3-methylphenol	25.0	15.2	60.8	25.0	16.1	64.4	5.8	42	25	160
4-Chloroaniline	25.0	15.5	62.0	25.0	16.2	64.8	4.4	50	20	160
4-Chlorophenyl phenyl ether	25.0	15.7	62.8	25.0	16.3	65.2	3.8	50	25	158
4-Nitroaniline	25.0	13.9	55.6	25.0	14.8	59.2	6.3	50	20	160
4-Nitrophenol	25.0	13.0	52.0	25.0	14.8	59.2	12.9	50	10	132
Acenaphthene	25.0	15.3	61.2	25.0	16.3	65.2	6.3	31	30	150
Acenaphthylene	25.0	15.4	61.6	25.0	16.4	65.6	6.3	50	33	250
Aniline	50.0	29.9	59.8	50.0	30.9	61.8	3.3	50	10	135
Anthracene	25.0	15.6	62.4	25.0	16.5	66.0	5.6	50	27	133
Benz(a)anthracene	25.0	15.6	62.4	25.0	16.4	65.6	5.0	50	33	143
Benzo(a)pyrene	25.0	12.2	48.8	25.0	12.7	50.8	4.0	50	17	163
Benzo(b)fluoranthene	25.0	14.9	59.6	25.0	15.2	60.8	2.0	50	24	159
Benzo(g,h,i)perylene	25.0	15.7	62.8	25.0	15.9	63.6	1.3	50	30	160
Benzo(k)fluoranthene	25.0	15.0	60.0	25.0	15.2	60.8	1.3	50	11	162

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040326

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H_090417E-4992371

Units: ug/L

Analysis Date:

Analyst:

GY

Preparation Date: 04

04/17/2009 10:42 04/13/2009 8:15

Prep By:

N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Benzoic acid	25.0	15.7	62.8	25.0	16.0	64.0	1.9	50	10	400
Benzyl alcohol	25.0	14.7	58.8	25.0	16.2	64.8	9.7	50	30	160
Bis (2-chloroethoxy)methane	25.0	15.2	60.8	25.0	15.8	63.2	3.9	50	33	184
Bis(2-chloroethyl)ether	25.0	15.8	63.2	25.0	16.7	66.8	5.5	50	12	158
Bis (2-chloroisopropyl)ether	25.0	15.6	62.4	25.0	16.1	64.4	3.2	50	20	160
Bis(2-ethylhexyl)phthalate	25.0	16.1	64.4	25.0	17.0	68.0	5.4	50	10	158
Butyl benzyl phthalate	25.0	16.3	65.2	25.0	17.0	68.0	4.2	50	30	160
Carbazole	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	30	150
Chrysene	25.0	15.0	60.0	25.0	16.0	64.0	6.5	50	17	168
Dibenz(a,h)anthracene	25.0	15.5	62.0	25.0	15.7	62.8	1.3	50	30	160
Dibenzofuran	25.0	15.7	62.8	25.0	16.4	65.6	4.4	50	30	150
Diethyl phthalate	25.0	16.0	64.0	25.0	17.1	68.4	6.6	50	30	160
Dimethyl phthalate	25.0	15.7	62.8	25.0	16.8	67.2	6.8	50	30	160
Di-n-butyl phthalate	25.0	16.6	66.4	25.0	17.1	68.4	3.0	50	30	160
Di-n-octyl phthalate	25.0	16.2	64.8	25.0	17.0	68.0	4.8	50	20	150
Fluoranthene	25.0	15.9	63.6	25.0	16.3	65.2	2.5	50	26	137
Fluorene	25.0	15.4	61.6	25.0	16.3	65.2	5.7	50	30	150
Hexachlorobenzene	25.0	15.4	61.6	25.0	16.6	66.4	7.5	50	20	150
Hexachlorobutadiene	25.0	15.0	60.0	25.0	15.9	63.6	5.8	50	20	140
Hexachlorocyclopentadiene	25.0	17.2	68.8	25.0	19.1	76.4	10.5	50	10	150
Hexachloroethane	25.0	15.0	60.0	25.0	16.3	65.2	8.3	50	14	120
Indeno(1,2,3-cd)pyrene	25.0	16.3	65.2	25.0	17.5	70.0	7.1	50	30	160
Isophorone	25.0	16.2	64.8	25.0	17.3	69.2	6.6	50	21	196
Naphthalene	25.0	15.4	61.6	25.0	16.2	64.8	5.1	50	21	133
Nitrobenzene	25.0	15.3	61.2	25.0	16.0	64.0	4.5	50	20	160
N-Nitrosodi-n-propylamine	25.0	15.6	62.4	25.0	15.4	61.6	1.3	38	30	160
N-Nitrosodiphenylamine	50.0	38.0	76.0	50.0	40.4	80.8	6.1	50	30	150
Pentachlorophenol	25.0	11.5	46.0	25.0	12.8	51.2	10.7	50	14	176
Phenanthrene	25.0	15.3	61.2	25.0	16.1	64.4	5.1	50	10	140
Phenol	25.0	15.2	60.8	25.0	15.8	63.2	3.9	42	40	132
Pyrene	25.0	15.8	63.2	25.0	16.6	66.4	4.9	38	30	150
Pyridine	50.0	27.0	54.0	50.0	29.4	58.8	8.5	50	10	150
2-Methylphenol	25.0	15.7	62.8	25.0	16.2	64.8	3.1	50	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

Mi - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

 ${\rm J}$ - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 19

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09040326

Lab Batch ID:

89412

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

H 090417E-4992371

Units:

Analysis Date:

04/17/2009 10:42

ug/L

Analyst: GY

Preparation Date:

04/17/2009 10:42

....,-...

Prep By: N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
3 & 4-Methylphenol	25.0	16.6	66.4	25.0	17.2	68.8	3.6	50	10	160
Surr: 2,4,6-Tribromophenol	75.0	61.1	81.5	75.0	60.8	81.1	0.5	30	10	123
Surr: 2-Fluorobiphenyl	50.0	28.6	57.2	50.0	29.5	59.0	3.1	30	23	116
Surr: 2-Fluorophenol	75.0	50.0	66.7	75.0	50.8	67.7	1.6	30	16	110
Surr: Nitrobenzene-d5	50.0	29.0	58.0	50.0	30.0	60.0	3.4	30	21	114
Surr: Phenol-d5	75.0	43.1	57.5	75.0	44.2	58.9	2.5	30	10	110
Surr: Terphenyl-d14	50.0	28.4	56.8	50.0	28.7	57.4	1.1	30	22	141

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 20

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09040326

Lab Batch ID:

R270264

Method Blank

RunID: Q 090414A-4985214 Units: ug/L Lab Sample ID

Client Sample ID

Analysis Date:

09040326-01A

Samples in Analytical Batch:

ERB-4-8-09

04/14/2009 14:10

Analyst: JC

09040326-02A

Preparation Date:

04/14/2009 14:10

Prep By:

Method

ERB-4-9-09

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ИD	5.0
1,3,5-Trimethylbenzene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,3-Dichloropropane	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,2-Dichloropropane	ND	5.0
2-Butanone	ND	20
2-Chloroethyl vinyl ether	ND	10
2-Chlorotoluene	ND	5.0
2-Hexanone	ND	10
4-Chlorotoluene	ND	5.0
4-Isopropyltoluene	ND.	5.0
4-Methyl-2-pentanone	ND	10
Acetone	ND.	20
Acrylonitrile	ND.	10
Benzene	ND.	5.0
Bromobenzene	ND	5.0
Bromochloromethane	ND.	5.0
Bromodichloromethane	ND.	5.0
Bromoform	ND ND	5.0
Bromomethane	ND	10
Carbon disulfide	ND	5.0
Carbon tetrachloride	ND	5.0
Chlorobenzene	ND ND	5.0
Chloroethane	ND.	10
Chloroform	ND	5.0
Chloromethane	ND	10
Dibromochloromethane	ND	5.0
Dibromomethane	ND ND	5.0
Dichlorodifluoromethane	ND	10
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040326

Lab Batch ID:

R270264

Method Blank

RunID:

Q_090414A-4985214

Units:

ug/L

Analysis Date: Preparation Date: 04/14/2009 14:10 04/14/2009 14:10 Analyst: Prep By:

JC

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND.	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes, Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	98.0	65-111
Surr: 4-Bromofluorobenzene	108.0	87-120
Surr: Toluene-d8	92.0	88-116

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

ug/L

Analysis Date:

04/14/2009 13:43

Analyst: JC

Allalyst. J

Preparation Date: 04/14/2009 13:43

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	19.0	95.0	71	128
1,1,1-Trichloroethane	20.0	20.0	100	61	135
1,1,2,2-Tetrachloroethane	20.0	18.0	90.0	60	133
1,1,2-Trichloroethane	20.0	18.0	90.0	77	127
1,1-Dichloroethane	20.0	20.0	100	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

Fracmaster BJ Service,#128125

WorkOrder:

09040326

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

Analysis Date:

04/14/2009 13:43

ug/L

Analyst: JC

Preparation Date: 04/14/2009 13:43 Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	22.0	110	65	134
1,1-Dichloropropene	20.0	18.0	90.0	68	126
1,2,3-Trichlorobenzene	20.0	16.0	80.0	36	154
1,2,3-Trichloropropane	20.0	19.0	95.0	38	153
1,2,4-Trichlorobenzene	20.0	16.0	80.0	69	144
1,2,4-Trimethylbenzene	20.0	14.0	70.0	64	128
1,2-Dibromo-3-chloropropane	20.0	14.0	70.0	44	141
1,2-Dibromoethane	20.0	19.0	95.0	75	124
1,2-Dichlorobenzene	20.0	16.0	80.0	68	124
1,2-Dichloroethane	20.0	18.0	90.0	61	138
1,2-Dichloropropane	20.0	18.0	90.0	76	123
1,3,5-Trimethylbenzene	20.0	14.0	70.0	61	127
1,3-Dichlorobenzene	20.0	16.0	80.0	68	12
1,3-Dichloropropane	20.0	17.0	85.0	76	125
1,4-Dichlorobenzene	20.0	15.0	75.0	68	124
2,2-Dichloropropane	20.0	19.0	95.0	42	14:
2-Butanone	20.0	20.0	100	22	183
2-Chloroethyl vinyl ether	20.0	18.0	90.0	10	179
2-Chlorotoluene	20.0	15.0	75.0	64	132
2-Hexanone	20.0	16.0	80.0	31	178
4-Chlorotoluene	20.0	15.0	75.0	61	132
4-Isopropyltoluene	20.0	14.0	70.0	63	130
4-Methyl-2-pentanone	20.0	16.0	80.0	10	159
Acetone	20.0	25.0	125	10	20
Acrylonitrile	20.0	20.0	100	54	15
Benzene	20.0	18.0	90.0	74	12
Bromobenzene	20.0	15.0	75.0	68	12
Bromochloromethane	20.0	21.0	105	71	12
Bromodichloromethane	20.0	19.0	95.0	72	12
Bromoform	20.0	19.0	95.0	81	13
Bromomethane	20.0	21.0	105	53	13
Carbon disulfide	20.0	27.0	135	41	14
Carbon tetrachloride	20.0	21.0	105	59	14.
Chlorobenzene	20.0	18.0	90.0	75	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 23

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040326

Lab Batch ID:

R270264

Laboratory Control Sample (LCS)

RunID:

Q_090414A-4985213

Units:

ug/L

Analysis Date:

04/14/2009 13:43

Analyst:

JC

Preparation Date:	04/14/2009 13:43	Pt	ер Ву:	Method
Analy	√te	Spike	Result	Percent

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.0	100	60	134
Chloroform	20.0	20.0	100	71	127
Chloromethane	20.0	16.0	80.0	50	139
Dibromochloromethane	20.0	18.0	90.0	65	130
Dibromomethane	20.0	20.0	100	79	124
Dichlorodifluoromethane	20.0	17.0	85.0	22	162
Ethylbenzene	20.0	17.0	85.0	72	127
Hexachlorobutadiene	20.0	16.0	80.0	45	152
Isopropylbenzene	20.0	15.0	75.0	58	130
Methyl tert-butyl ether	40.0	40.0	100	63	123
Methylene chloride	20.0	21.0	105	61	135
Naphthalene	20.0	16.0	80.0	33	148
n-Butylbenzene	20.0	14.0	70.0	62	136
n-Propylbenzene	20.0	14.0	70.0	57	131
sec-Butylbenzene	20.0	14.0	70.0	63	131
Styrene	20.0	17.0	85.0	69	120
tert-Butylbenzene	20.0	14.0	70.0	59	131
Tetrachloroethene	20.0	21.0	105	45	173
Toluene	20.0	17.0	85.0	74	126
Trichloroethene	20.0	20.0	100	79	131
Trichlorofluoromethane	20.0	23.0	115	49	153
Vinyl acetate	20.0	16.0	80.0	10	167
Vinyl chloride	20.0	20.0	100	51	148
cis-1,2-Díchloroethene	20.0	20.0	100	71	128
cis-1,3-Dichloropropene	20.0	17.0	85.0	67	128
m,p-Xylene	40.0	35.0	87.5	71	129
o-Xylene	20.0	18.0	90.0	74	130
trans-1,2-Dichloroethene	20.0	21.0	105	66	128
trans-1,3-Dichloropropene	20.0	16.0	80.0	60	128
1,2-Dichloroethene (total)	40	41	100	66	128
Xylenes,Total	60	53	88	71	130
Surr: 1,2-Dichloroethane-d4	50.0	48	96.0	65	111
Surr: 4-Bromofluorobenzene	50.0	56	112	87	120
Surr: Toluene-d8	50.0	46	92.0	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040326

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RuniD:

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	68	124
1,1,1-Trichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	69	123
1,1,2,2-Tetrachloroethane	ND	20	20.0	100	20	20.0	100	0	20	69	130
1,1,2-Trichloroethane	ND	20	20.0	100	20	20.0	100	0	20	75	126
1,1-Dichloroethane	ND	20	21.0	105	20	20.0	100	4.88	20	65	129
1,1-Dichloroethene	ND	20	23.0	115	20	23.0	115	0	22	61	139
1,1-Dichloropropene	ND	20	21.0	105	20	20.0	100	4.88	20	69	121
1,2,3-Trichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	53	127
1,2,3-Trichloropropane	ND	20	20.0	100	20	19.0	95.0	5.13	20	79	124
1,2,4-Trichlorobenzene	ND	20	17.0	85.0	20	16.0	80.0	6.06	20	58	118
1,2,4-Trimethylbenzene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	43	132
1,2-Dibromo-3-chloropropane	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	46	131
1,2-Dibromoethane	ND	20	20.0	100	20	20.0	100	0	20	76	122
1,2-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	74	110
1,2-Dichloroethane	ND	20	18.0	90.0	20	18.0	90.0	0	20	60	129
1,2-Dichloropropane	ND	20	20.0	100	20	19.0	95.0	5.13	20	76	116
1,3,5-Trimethylbenzene	ND	20	15.0	75.0	20	14.0	70.0	6.90	20	51	121
1,3-Dichlorobenzene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	71	110
1,3-Dichloropropane	ND	20	19.0	95.0	20	18.0	90.0	5.41	20	80	119
1,4-Dichlorobenzene	ND	20	17.0	85.0	20	17.0	85.0	0	20	69	110
2,2-Dichloropropane	ND	20	22.0	110	20	22.0	110	0	20	52	122
2-Butanone	ND	20	21.0	105	20	21.0	105	0	20	10	133
2-Chloroethyl vinyl ether	ND	20	0	0 *	20	0	0 *	0	20	10	182
2-Chiorotoluene	ND	20	18.0	90.0	20	17.0	85.0	5.71	20	69	112
2-Hexanone	ND	20	16.0	80.0	20	16.0	80.0	0	20	10	163
4-Chlorotoluene	ND	20	17.0	85.0	20	17.0	85.0	0	20	37	110
4-Isopropyltoluene	ND	20	16.0	80.0	20	16.0	80.0	0	20	65	116
4-Methyl-2-pentanone	ND	20	17.0	85.0	20	17.0	85.0	0	20	10	103
Acetone	ND	20	22.0	110	20	22.0	110	0	20	10	160
Acrylonitrile	ND	20	20.0	100	20	20.0	100	0	20	45	155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell Fracmaster BJ Service,#128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09040326

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09040281-03

RunID:

Q_090414A-4985222

Units: ug/L

Analysis Date:

04/14/2009 17:46

Analyst: JC

MS MS MS % MSD MSD MSD % RPD RPD Sample Low High Analyte Result Spike Result Recovery Spike Result Recovery Limit Limit Limit Added Added 22 20 21.0 105 20 20.0 100 4.88 70 124 Benzene ND ND 20 17.0 85.0 20 17.0 85.0 72 111 Bromobenzene 0 20 ND 20 25.0 125 20 24.0 120 4.08 20 73 126 Bromochloromethane Bromodichloromethane ND 20 20.0 100 20 18.0 90.0 10.5 20 68 125 ND 20 16.0 0.08 20 15.0 75.0 6.45 20 44 132 Bromoform ND 20 23.0 115 20 21.0 105 9.09 20 50 140 Bromomethane ND 20¹ 21.0 105 20 20.0 100 4.88 20 Carbon disulfide 46 143 ND 20 20.0 100 20 20.0 100 20 66 126 Carbon tetrachloride 0 20 ND 21.0 105 20 20.0 100 21 Chlorobenzene 4.88 68 123 ND 20 22.0 105 Chloroethane 110 20 21.0 4.65 20 59 134 ND 21.0 20 105 20 20.0 100 4.88 20 68 127 Chloroform 20 Chloromethane ND 18.0 90.0 20 17.0 85.0 5.71 20 51 137 Dibromochloromethane ND 20 18.0 90.0 20 17.0 85.0 5.71 20 58 131 22.0 Dibromomethane ND 20 110 20 20.0 100 9.52 20 82 123 Dichlorodifluoromethane ND 20 16.0 80.0 20 17.0 85.0 6.06 20 35 143 Ethylbenzene ND 20 20.0 100 20 19.0 95.0 5.13 20 76 122 20 Hexachlorobutadiene ND 18.0 90.0 20 17.0 85.0 5.71 20 43 137 Isopropylbenzene ND 20 17.0 85.0 20 16.0 80.0 6.06 20 57 124 ND 40 43.0 108 40 42.0 105 2.35 20 200 Methyl tert-butyl ether 10 Methylene chloride ND 20 23.0 115 20 22.0 110 4.44 20 70 134 Naphthalene ND 20 16.0 80.0 20 16.0 80.0 0 20 140 42 NΩ 20 16.0 80.0 * 20 16.0 80.0 * 82 n-Butylbenzene 20 112 0 20 n-Propylbenzene ND 20 16.0 80.0 16.0 80.0 O, 20 73 108 sec-Butylbenzene ND 20 17.0 85.0 20 16.0 80.0 6.06 20 76 110 ND 20 18.0 90.0 20 20 17.0 85.0 5.71 58 152 Styrene tert-Butylbenzene ND 20 15.0 75.0 20 15.0 75.0 20 0 66 120 Tetrachloroethene ND 20 25.0 125 20 25.0 125 0 20 71 130 20.0 ND 20 100 20 Toluene 20.0 100 0 24 80 117 Trichloroethene ND 20 23.0 115 20 22.0 110 4.44 21 82 121 Trichlorofluoromethane ND 20 21.0 105 20 21.0 105 0 20 74 138 ND 20 Vinyl acetate 18.0 90.0 20 18.0 90.0 0 20 135 66 Vinyl chloride ND 20 20.0 100 20 19.0 95.0 20 5.13 45 143

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 26 4/24/2009 11:17:31 AM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Fracmaster BJ Service,#128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09040326

Lab Batch ID:

R270264

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09040281-03

Q_090414A-4985222

Units:

ug/L

Analysis Date:

04/14/2009 17:46

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	25.0	125	20	23.0	115	8.33	20	67	132
cis-1,3-Dichloropropene	ND	20	18.0	90.0	20	16.0	80.0	11.8	20	67	116
m,p-Xylene	ND	40	40.0	100	40	38.0	95.0	5.13	20	69	127
o-Xylene	ND	20	21.0	105	20	20.0	100	4.88	20	84	114
trans-1,2-Dichloroethene	ND	20	24.0	120	20	23.0	115	4.26	20	68	131
trans-1,3-Dichloropropene	ND	20	16.0	80.0	20	15.0	75.0	6.45	20	56	131
1,2-Dichloroethene (total)	ND	40	49	120	40	46	120	6.3	20	67	132
Xylenes,Total	ND	60	61	100	60	58	97	5.0	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	49	98.0	50	49.0	98.0	0	30	65	111
Surr: 4-Bromofluorobenzene	ND	50	53	106	50	54.0	108	1.87	30	87	120
Surr: Toluene-d8	ND	50	47	94.0	50	48.0	96.0	2.11	30	88	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09040326 Page 27

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Sample Receipt Checklist And Chain of Custody





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Workorder: 09040326		Received By:	BF
Date and Time Received: 4/10/2009 10:00:00 AM		Carrier name:	FedEx
Temperature: 3.0°C		Chilled by:	Water Ice
1. Shipping container/cooler in good condition?	Yes 🗸	No 🗌	Not Present
2. Custody seals intact on shippping container/cooler?	Yes 🔽	No 🗆	Not Present
3. Custody seals intact on sample bottles?	Yes	No 🗌	Not Present 🗹
4. Chain of custody present?	Yes 🔽	No 🗌	
5. Chain of custody signed when relinquished and received?	Yes 🔽	No 🗌	
6. Chain of custody agrees with sample labels?	Yes 🔽	No 🗌	
7. Samples in proper container/bottle?	Yes 🔽	No 🗌	
8. Sample containers intact?	Yes 🔽	No 🗆	
9. Sufficient sample volume for indicated test?	Yes 🔽	No 🗌	
10. All samples received within holding time?	Yes 🗸	No 🗌	
11. Container/Temp Blank temperature in compliance?	Yes 🗹	No 🗆	
12. Water - VOA vials have zero headspace?	Yes 🗌	No 🗌 V	OA Vials Not Present
13. Water - Preservation checked upon receipt (except VOA*)?	Yes	No 🗆	Not Applicable 🗹
*VOA Preservation Checked After Sample Analysis			
SPL Representative:	Contact Date	& Time:	
Client Name Contacted:			
Non Conformance Issues:			
Client Instructions:			



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Houston, TX 77054 (713) 660-0901	106	Scott, LA	70583 (337	7 237-47	775			Fravers	Traverse City, MI 49686 (231) 947-5777	11 49686	(231)94	7-5777

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8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09050091

Report To:	Project Name: BJ-Fracmaster 128125
Brown & Caldwell	<u>Site:</u> Hobbs, NM
Rick Rexroad	Site Address:
1415 Louisiana	
Suite 2500	PO Number:
Houston	
TX	State: New Mexico
77002-	State Cert. No.:
ph: (713) 759-0999 fax:	Date Reported: 6/12/2009

This Report Contains A Total Of 67 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09050091

Report To:	Project Name: BJ-Fracmaster 128125
Brown & Caldwell	Site: Hobbs, NM
Rick Rexroad	Site Address:
1415 Louisiana	
Suite 2500	PO Number:
Houston	
тх	State: New Mexico
77002-	State Cert. No.:
ph: (713) 759-0999 fax:	Date Reported: 6/12/2009

REVISED REPORT: This report is revised to include Mineral Spiris by Method 8015B per your request.

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID: 89962 for the Semivolatile hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met. Volatile Organics:

Your sample ID "MW-4-52-55" (SPL ID:09050091-01) was randomly selected for use in SPL's quality control program for the Semivolatile Organics analysis by SW 846 Method 8270C (Batch ID:90048). The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) recoveries were outside of the advisable quality control limits due to possible matrix interference for the following analytes:

2,4,5-Trichlorophenol
2,4-Dichlorophenol
2,4-Dichlorophenol
2,4-Dinitrophenol
4,6-Dinitro-2-methylphenol
Benzoic Acid
Cxarbazole
Dibenzofuran
Di-n-butyl phthalate
Fluorene
Pentachlorophenol
Phenanthrene
Phenol
3 & 4-Methylphenol

A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits

sous V. Vickeaire

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

09050091 Page 1

6/12/2009

Agnes V. Vicknair

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09050091

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Agnes V. Vickeaire

09050091 Page 2 6/12/2009



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09050091

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad

1415 Louisiana Suite 2500

Houston

TX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Project Name:

BJ-Fracmaster 128125

Site:

Hobbs, NM

Site Address:

PO Number: State:

New Mexico

State Cert. No.:

Date Reported:

6/12/2009

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COCID	HOLD
MW-4-52-55	09050091-01	Soil	5/2/2009 7:15:00 AM	5/4/2009 9:30:00 AM	322327	
MVV-4	09050091-02	Water	5/2/2009 12:00:00 PM	5/4/2009 9:30:00 AM	322327	
RB-050209-1	09050091-03	Water	5/2/2009 12:10:00 PM	5/4/2009 9:30:00 AM	322326	
FB-050209-1	09050091-04	Water	5/2/2009 12:15:00 PM	5/4/2009 9:30:00 AM	322326	
TB-050209-1	09050091-05	Water	5/2/2009 12:15:00 PM	5/4/2009 9:30:00 AM	322326	

Ignes V. Vichiaire Agnes V. Vicknair

Project Manager

6/12/2009

Date

Kesavalu M. Bagawandoss Ph.D., J.D. Laboratory Director

> Ted Yen Quality Assurance Officer



Surr: n-Pentacosane

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

05/12/09 23:44 AM

5063334

Client Sample ID: MW-4-52-55 Collected: 05/02/2009 7:15 SPL Sample ID: 09050091-01

Analyses/Method		Result	QUAL	Rep	o.Limit	D	il. Facto	r Date Anaiy	zed	Analyst	Seq.#
DIESEL RANGE ORG	ANICS					MCL	s	W8015B	Ur	its: mg/Kg	
Diesel Range Organics (C10-C28)	6.3			5		1	05/12/09 2	3:44	NW	5017047
Surr: n-Pentacosane		100		%	20-154		1	05/12/09 2	3:44	NW	5017047
Prep Method	Prep Date		Prep Initials	Prep F	actor						
SW3550B	05/05/2009 11:45	5	FAK	1.00							
GASOLINE RANGE C	RGANICS					MCL	S	W8015B	Ur	nits: mg/Kg	
Gasoline Range Organic	S	ND			0.1		1	05/08/09 2	3:24	EMB	5012654
Surr: 1,4-Difluorobenz	ene	102		%	63-142		1	05/08/09 2	23:24	EMB	5012654
Surr: 4-Bromofluorobe	enzene	104		%	50-159		1	05/08/09 2	3:24	EMB	5012654
Prep Method	Prep Date		Prep Initials	Prep f	Factor						
SW5030B	05/07/2009 11:05	5	XML	1.00							
SEMIVOLATILE HYD	ROCARBONS					MCL	S	W8015B	Ur	nits: mg/kg	
Mineral Spirits Range O	rganics	ND			10		1	05/12/09 2	3.44	AM	5063334

% 20-154

1

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	05/05/2009 11:45		1.00

100

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 4 6/12/2009 4:23:24 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-4-52-55

Collected: 05/02/2009 7:15

SPL Sample ID:

09050091-01

Site: I	Hobbs,	MM
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Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Un	its: ug/kg	
1,2,4-Trichlorobenzene	ND	330	1	05/08/09 19:45	GY	5017904
1,2-Dichlorobenzene	ND	330	1	05/08/09 19:45	GY	5017904
1,2-Diphenylhydrazine	ND	330	1	05/08/09 19:45	GY	5017904
1,3-Dichlorobenzene	ND	330	1	05/08/09 19:45	GY	5017904
1,4-Dichlorobenzene	ND	330	1	05/08/09 19:45	GY	5017904
2,4,5-Trichlorophenol	ND	800	1	05/08/09 19:45	GY	5017904
2,4,6-Trichlorophenol	ND	330	1	05/08/09 19:45	GY	5017904
2,4-Dichlorophenol	ND	330	1	05/08/09 19:45	GY	5017904
2,4-Dimethylphenol	ND	330	1	05/08/09 19:45	GY	5017904
2,4-Dinitrophenol	ND	800	1	05/08/09 19:45	GY	5017904
2,4-Dinitrotoluene	ND	800	1	05/08/09 19:45	GY	5017904
2,6-Dinitrotoluene	ND	330	1	05/08/09 19:45	GY	5017904
2-Chloronaphthalene	ND	330	1	05/08/09 19:45	GY	5017904
2-Chlorophenol	ND	330	1	05/08/09 19:45	GY	5017904
2-Methylnaphthalene	ND	330	1	05/08/09 19:45	GY	5017904
2-Nitroaniline	ND	800	1	05/08/09 19:45	GY	5017904
2-Nitrophenol	ND	330	1	05/08/09 19:45	GY	5017904
3,3'-Dichlorobenzidine	ND	330	1	05/08/09 19:45	GY	5017904
3-Nitroaniline	ND	800	1	05/08/09 19:45	GY	5017904
4,6-Dinitro-2-methylphenol	ND	800	1	05/08/09 19:45	GY	5017904
4-Bromophenyl phenyl ether	ND	. 330	1	05/08/09 19:45	GY	5017904
4-Chloro-3-methylphenol	ND	330	1	05/08/09 19:45	GY	5017904
4-Chloroaniline	ND	330	1	05/08/09 19:45	GY	5017904
4-Chlorophenyl phenyl ether	ND	330	1	05/08/09 19:45	GY	5017904
4-Nitroaniline	ND	800	1	05/08/09 19:45	GY	5017904
4-Nitrophenol	ND	800	1	05/08/09 19:45	GY	5017904
Acenaphthene	ND	330	1	05/08/09 19:45	GY	5017904
Acenaphthylene	ND	330	1	05/08/09 19:45	GY	5017904
Aniline	ND	330	1	05/08/09 19:45	GY	5017904
Anthracene	ND	330	1	05/08/09 19:45	GY	5017904
Benz(a)anthracene	ND	330	1	05/08/09 19:45	GY	5017904
Benzo(a)pyrene	ND	330	1	05/08/09 19:45	GY	5017904
Benzo(b)fluoranthene	ND	330	1	05/08/09 19:45	GY	501790
Benzo(g,h,i)perylene	ND	330	1	05/08/09 19:45	GY	5017904
Benzo(k)fluoranthene	ND	330	1	05/08/09 19:45	GY	5017904
Benzoic acid	ND	1600	1	05/08/09 19:45	GY	5017904
Benzyl alcohol	ND	330	1	05/08/09 19:45	GY	5017904
Bis(2-chloroethoxy)methane	ND	330	1	05/08/09 19:45	GY	501790
Bis(2-chloroethyl)ether	ND	330	1	05/08/09 19:45	GY	5017904

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 5 6/12/2009 4:23:24 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-4-52-55

Collected: 05/02/2009 7:15

SPL Sample ID:

09050091-01

Site: Hobbs, NN	

		01101	Site. Hobbs, N			Bata Analysis of	A l	
Analyses/Method	Result	QUAL	Kep	.Limit		05/08/09 19:45	Analyst GY	Seq. # 5017904
Bis(2-chloroisopropyl)ether	ND			330	1			
Bis(2-ethylhexyl)phthalate	ND			330	1	05/08/09 19:45	GY	5017904
Butyl benzyl phthalate	ND			330	1	05/08/09 19:45	GY	5017904
Carbazole	ND ND			330	11	05/08/09 19:45	GY	5017904
Chrysene	ND			330	11	05/08/09 19:45	GY	5017904
Dibenz(a,h)anthracene	ND			330	1	05/08/09 19:45	GY	5017904
Dibenzofuran	ND			330	1	05/08/09 19:45	GY	5017904
Diethyl phthalate	ND			330	1	05/08/09 19:45	GY	5017904
Dimethyl phthalate	ND			330	1	05/08/09 19:45	GY	5017904
Di-n-butyl phthalate	ND			330	11	05/08/09 19:45	GY	5017904
Di-n-octyl phthalate	ND			330	1	05/08/09 19:45	GY	5017904
Fluoranthene	ND			330	1	05/08/09 19:45	GY	5017904
Fluorene	ND			330	1	05/08/09 19:45	GY	5017904
Hexachlorobenzene	ND			330	1	05/08/09 19:45	GY	5017904
Hexachlorobutadiene	ND			330	1	05/08/09 19:45	GY	5017904
Hexachlorocyclopentadiene	ND			330	1	05/08/09 19:45	GY	5017904
Hexachloroethane	ND			330	1	05/08/09 19:45	GY	5017904
Indeno(1,2,3-cd)pyrene	ND			330	1	05/08/09 19:45	GY	5017904
Isophorone	ND			330	1	05/08/09 19:45	GY	5017904
Naphthalene	ND			330	1	05/08/09 19:45	GY	5017904
Nitrobenzene	ND			330	1	05/08/09 19:45	GY	5017904
N-Nitrosodi-n-propylamine	ND			330	1	05/08/09 19:45	GY	5017904
N-Nitrosodiphenylamine	ND			330	1	05/08/09 19:45	GY	5017904
Pentachlorophenol	ND			800	1	05/08/09 19:45	GY	5017904
Phenanthrene	ND			330	1	05/08/09 19:45	GY	5017904
Phenol	ND			330	1	05/08/09 19:45	GY	5017904
Pyrene	ND			330	1	05/08/09 19:45	GY	5017904
Pyridine	ND		-	330	1	05/08/09 19:45	GY	5017904
2-Methylphenol	ND			330	1	05/08/09 19:45	GY	5017904
3 & 4-Methylphenol	ND			330	1	05/08/09 19:45	GY	5017904
Surr: 2,4,6-Tribromophenol	79.2		%	19-135	1	05/08/09 19:45	GY	5017904
Surr: 2-Fluorobiphenyl	55.5		%	15-140	1	05/08/09 19:45	GY	5017904
Surr: 2-Fluorophenol	71.6		%	15-122	1	05/08/09 19:45	GY	5017904
Surr: Nitrobenzene-d5	56.9		%	10-134	1	05/08/09 19:45	GY	5017904
Surr: Phenol-d5	76.8		%	10-123	1	05/08/09 19:45	GY	5017904
Surr: Terphenyl-d14	58.2		%	18-166	1	05/08/09 19:45	GY	5017904

Prep Method	Prep Date	Prep Initials	Prep Factor	
SW3550C	05/06/2009 15:27	QMT	1.00	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-4-52-55

Collected: 05/02/2009 7:15

SPL Sample ID:

09050091-01

Site: Hobbs, NM

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY METHOD 8260B			MCL SV	W8260B Units: ug/kg		
1,1,1,2-Tetrachloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,1,1-Trichloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,1,2,2-Tetrachloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,1,2-Trichloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,1-Dichloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,1-Dichloroethene	ND	5	1	05/07/09 21:34	TLE	5012049
1,1-Dichloropropene	ND	5	1	05/07/09 21:34	TLE	5012049
1,2,3-Trichlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,2,3-Trichloropropane	ND	5	1	05/07/09 21:34	TLE	5012049
1,2,4-Trichlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,2,4-Trimethylbenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,2-Dibromo-3-chloropropane	ND	5	1	05/07/09 21:34	TLE	5012049
1,2-Dibromoethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,2-Dichlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,2-Dichloroethane	ND	5	1	05/07/09 21:34	TLE	5012049
1,2-Dichloropropane	ND	5	1	05/07/09 21:34	TLE	5012049
1,3,5-Trimethylbenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,3-Dichlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
1,3-Dichloropropane	ND	5	1	05/07/09 21:34	TLE	5012049
1,4-Dichlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
2,2-Dichloropropane	ND	5	1	05/07/09 21:34	TLE	5012049
2-Butanone	ND	20	1	05/07/09 21:34	TLE	5012049
2-Chloroethyl vinyl ether	ND	10	1	05/07/09 21:34	TLE	5012049
2-Chlorotoluene	ND	5	1	05/07/09 21:34	TLE	5012049
2-Hexanone	ND	10	1	05/07/09 21:34	TLE	5012049
4-Chlorotoluene	ND	5	1	05/07/09 21:34	TLE	5012049
4-Isopropyltoluene	ND	5	1	05/07/09 21:34	TLE	5012049
4-Methyl-2-pentanone	ND	10	1	05/07/09 21:34	TLE	5012049
Acetone	ND	100	1	05/07/09 21:34	TLE	5012049
Acrylonitrile	ND	50	1	05/07/09 21:34	TLE	5012049
Benzene	ND	5	1	05/07/09 21:34	TLE	5012049
Bromobenzene	ND	5	1	05/07/09 21:34	TLE	5012049
Bromochloromethane	ND	5	1	05/07/09 21:34	TLE	5012049
Bromodichloromethane	ND	5	1	05/07/09 21:34	TLE	5012049
Bromoform	ND	5	1	05/07/09 21:34	TLE	5012049
Bromomethane	ND	10	1	05/07/09 21:34	TLE	5012049
Carbon disulfide	ND	5	1	05/07/09 21:34		5012049
Carbon tetrachloride	ND	5	1	05/07/09 21:34	TLE	5012049
Chlorobenzene	ND	5	1	05/07/09 21:34	TLE	5012049

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

			Site	Hobbs,	NM			
Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10	1	05/07/09 21:34	TLE	5012049
Chloroform	ND			5	1	05/07/09 21:34	TLE	5012049
Chloromethane	ND			10	1	05/07/09 21:34	TLE	5012049
Dibromochloromethane	ND			5	1	05/07/09 21:34	TLE	5012049
Dibromomethane	ND			5	1	05/07/09 21:34	TLE	5012049
Dichlorodifluoromethane	ND			10	1	05/07/09 21:34	TLE	5012049
Ethylbenzene	ND			5	1	05/07/09 21:34	TLE	5012049
Hexachlorobutadiene	ND			5	1	05/07/09 21:34	TLE	5012049
Isopropylbenzene	ND	, ,		5	1	05/07/09 21:34	TLE	5012049
Methyl tert-butyl ether	ND			5	1	05/07/09 21:34	TLE	5012049
Methylene chloride	ND			5	1	05/07/09 21:34	TLE	5012049
Naphthalene	ND			5	1	05/07/09 21:34	TLE	5012049
n-Butylbenzene	ND		-	5	1	05/07/09 21:34	TLE	5012049
n-Propylbenzene	ND			5	1	05/07/09 21:34	TLE	5012049
sec-Butylbenzene	ND			5	1	05/07/09 21:34	TLE	5012049
Styrene	ND			5	1	05/07/09 21:34	TLE	5012049
tert-Butylbenzene	ND			5	1	05/07/09 21:34	TLE	5012049
Tetrachloroethene	ND			5	1	05/07/09 21:34	TLE	5012049
Toluene	ND			5	1	05/07/09 21:34	TLE	5012049
Trichloroethene	ND			5	1	05/07/09 21:34	TLE	5012049
Trichlorofluoromethane	ND			5	1	05/07/09 21:34	TLE	5012049
Vinyl acetate	ND		_	10	1	05/07/09 21:34	TLE	5012049
Vinyl chloride	ND			10	1	05/07/09 21:34	TLE	5012049
cis-1,2-Dichloroethene	ND			5	1	05/07/09 21:34	TLE	5012049
cis-1,3-Dichloropropene	ND			5	1	05/07/09 21:34	TLE	5012049
m,p-Xylene	ND			5	1	05/07/09 21:34	TLE	5012049
o-Xylene	ND			5	1	05/07/09 21:34	TLE	5012049
trans-1,2-Dichloroethene	ND			5	1	05/07/09 21:34	TLE	5012049
trans-1,3-Dichloropropene	ND			5	1	05/07/09 21:34	TLE	5012049
Xylenes,Total	ND			5	1	05/07/09 21:34	TLE	5012049
1,2-Dichloroethene (total)	ND			5	1	05/07/09 21:34	TLE	5012049
Surr: 1,2-Dichloroethane-d4	97.4		%	64-115	1	05/07/09 21:34	TLE	5012049
Surr: 4-Bromofluorobenzene	113		%	65-131	1	05/07/09 21:34	TLE	5012049
Surr: Toluene-d8	90.8		%	75-136	1	05/07/09 21:34	TLE	5012049

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5030B	05/05/2009 18:04	XML	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

05/04/09 11:59 BDG

Client Sample ID:MW-4			Colle	cted: 05	5/02/2009	9 12:00	SPL Sar	nple	I D : 09050	0091-02
			Site:	Hobi	bs, NM					
Analyses/Method	Result	QUAL	Rep	.Limit		il. Factor	Date Ana	lyzed	Analyst	Seq.#
ALKALINITY (AS CACO3), TOTAL					MCL		E310.1	Ur	nits: mg/L	
Alkalinity, Total (As CaCO3)	477			2		1	06/10/09	16:00	PAC	5061242
DIESEL RANGE ORGANICS					MCL	SI	W8015B	Uı	nits: mg/L	
Diesel Range Organics (C10-C28)	2.4			0.1		1	05/06/09	22:45	NW	5014281
Surr: n-Pentacosane	50.4		% 2	20-150		1	05/06/09	22:45	NW	5014281
Prep Method Prep Date		Prep Initials	Prep F	actor						
SW3510C 05/04/2009 1	4:15	N_M	1.00							
GASOLINE RANGE ORGANICS					MCL	S	W8015B	Uı	nits: mg/L	
Gasoline Range Organics	4.7		-	0.5		5	05/08/09	11:48	CLJ	5014443
Surr: 1,4-Difluorobenzene	89.4		% (60-155		5	05/08/09	11:48	CLJ	5014443
Surr: 4-Bromofluorobenzene	114		% !	50-158		5	05/08/09	11:48	CLJ	5014443
HEADSPACE GAS ANALYSIS					MCL		RSK147	Uı	nits: mg/L	
Methane	ND		(0.0012		1	05/07/09	10:33	V_L	5009411
ION CHROMATOGRAPHY					MCL		E300.0	Uı	nits: mg/L	
Chloride	218			25		50	05/15/09	12:11	BDG	5022191
Sulfate	46.4			25		50	05/15/09	12:11	BDG	5022191

0.5

Qualifiers:

Nitrogen, Nitrate (As N)

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

0.553

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

5008121



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-4

Collected: 05/02/2009 12:00 **SPL Sample ID:**

09050091-02

Site: H	obbs,	NM
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		Site: Hobi	os, ivivi			
Analyses/Method	Result QU	JAL Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270	С	MCL SV	V8270C Ur	nits: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	05/11/09 17:47	E_R	5015639
1,2-Dichlorobenzene	ND	5	1	05/11/09 17:47	E_R	5015639
1,2-Diphenylhydrazine	ND	10	1	05/11/09 17:47	E_R	5015639
1,3-Dichlorobenzene	ND	5	1	05/11/09 17:47	E_R	5015639
1,4-Dichlorobenzene	ND	5	1	05/11/09 17:47	E_R	5015639
2,4,5-Trichlorophenol	ND	10	1	05/11/09 17:47	E_R	5015639
2,4,6-Trichlorophenol	ND	5	1	05/11/09 17:47	E_R	5015639
2,4-Dichlorophenol	ND	5	1	05/11/09 17:47	E_R	5015639
2,4-Dimethylphenol	ND	5	1	05/11/09 17:47	E_R	501563
2,4-Dinitrophenol	ND	25	1	05/11/09 17:47	E_R	5015639
2,4-Dinitrotoluene	ND	5	1	05/11/09 17:47	E_R	5015639
2,6-Dinitrotoluene	ND	5	1	05/11/09 17:47	E_R	5015639
2-Chloronaphthalene	ND	5	1	05/11/09 17:47	E_R	501563
2-Chlorophenol	ND	5	1	05/11/09 17:47	E_R	501563
2-Methylnaphthalene	27	5	1	05/11/09 17:47	E_R	5015639
2-Nitroaniline	ND	25	1	05/11/09 17:47	E_R	501563
2-Nitrophenol	ND	5	1	05/11/09 17:47	E_R	501563
3,3'-Dichlorobenzidine	ND	10	1	05/11/09 17:47	E_R	501563
3-Nitroaniline	ND	25	1	05/11/09 17:47	ER	501563
4,6-Dinitro-2-methylphenol	ND	25	1	05/11/09 17:47	E_R	501563
4-Bromophenyl phenyl ether	ND	5	1	05/11/09 17:47	E_R	501563
4-Chloro-3-methylphenol	ND	5	1	05/11/09 17:47	E_R	501563
4-Chloroaniline	ND	5	1	05/11/09 17:47	E_R	501563
4-Chlorophenyl phenyl ether	ND	5	1	05/11/09 17:47	E_R	501563
4-Nitroaniline	ND	25	1	05/11/09 17:47	E_R	501563
4-Nitrophenol	ND	25	1	05/11/09 17:47	E_R	501563
Acenaphthene	ND	5	1	05/11/09 17:47	E_R	501563
Acenaphthylene	ND	5	1	05/11/09 17:47	E_R	501563
Aniline	ND	5	1	05/11/09 17:47	E_R	501563
Anthracene	ND	5	1	05/11/09 17:47	E_R	501563
Benz(a)anthracene	ND	5	1	05/11/09 17:47	E_R	501563
Benzo(a)pyrene	ND	5	1	05/11/09 17:47	E_R	501563
Benzo(b)fluoranthene	ND	5	1	05/11/09 17:47	E_R	501563
Benzo(g,h,i)perylene	ND	5	1	05/11/09 17:47	E_R	501563
Benzo(k)fluoranthene	ND	5	1	05/11/09 17:47	E_R	501563
Benzoic acid	ND	25	1	05/11/09 17:47	E_R	501563
Benzyl alcohol	ND	5	1	05/11/09 17:47	E_R	501563
Bis(2-chloroethoxy)methane	ND	5	1	05/11/09 17:47	E_R	501563
Bis(2-chloroethyl)ether	ND	5	1	05/11/09 17:47	ER	501563

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-4 Collected: 05/02/2009 12:00 SPL Sample ID: 09050091-02

			Site:	Hobbs,	, NM			
Analyses/Method	Result	QUAL	Rep.l	_imit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Bis(2-chloroisopropyl)ether	ND			5	1	05/11/09 17:47	E_R	5015639
Bis(2-ethylhexyl)phthalate	ND			5	1	05/11/09 17:47	E_R	5015639
Butyl benzyl phthalate	ND			5	1	05/11/09 17:47	E_R	5015639
Carbazole	ND			5	1	05/11/09 17:47	E_R	5015639
Chrysene	ND			5	1	05/11/09 17:47	E_R	5015639
Dibenz(a,h)anthracene	ND			5	1	05/11/09 17:47	E_R	5015639
Dibenzofuran	ND			5	1	05/11/09 17:47	E_R	5015639
Diethyl phthalate	ND			5	1	05/11/09 17:47	E_R	5015639
Dimethyl phthalate	ND	_		5	1	05/11/09 17:47	E_R	5015639
Di-n-butyl phthalate	8.3			5	1	05/11/09 17:47	E_R	5015639
Di-n-octyl phthalate	ND			5	1	05/11/09 17:47	E_R	5015639
Fluoranthene	ND			5	1	05/11/09 17:47	E_R	5015639
Fluorene	ND			5	1	05/11/09 17:47	E_R	5015639
Hexachlorobenzene	ND		_	5	1	05/11/09 17:47	E_R	5015639
Hexachlorobutadiene	ND		-	5	1	05/11/09 17:47	E_R	5015639
Hexachlorocyclopentadiene	ND			5	1	05/11/09 17:47	E_R	5015639
Hexachloroethane	ND			5	1	05/11/09 17:47	E_R	5015639
Indeno(1,2,3-cd)pyrene	ND			5	1	05/11/09 17:47	E_R	5015639
Isophorone	ND			5	1	05/11/09 17:47	E_R	5015639
Naphthalene	44			5	1	05/11/09 17:47	E_R	5015639
Nitrobenzene	ND			5	1	05/11/09 17:47	E_R	5015639
N-Nitrosodi-n-propylamine	ND			5	1	05/11/09 17:47	E_R	5015639
N-Nitrosodiphenylamine	ND			5	1	05/11/09 17:47	E_R	5015639
Pentachlorophenol	ND			25	1	05/11/09 17:47	E_R	5015639
Phenanthrene	ND			5	1	05/11/09 17:47	E_R	5015639
Phenol	ND			5	1	05/11/09 17:47	E_R	5015639
Pyrene	ND			5	1	05/11/09 17:47	E_R	5015639
Pyridine	ND			5	1	05/11/09 17:47	E_R	5015639
2-Methylphenol	ND			5	1	05/11/09 17:47	E_R	5015639
3 & 4-Methylphenol	ND			5	1	05/11/09 17:47	E_R	5015639
Surr: 2,4,6-Tribromophenol	95.7		% 10	0-123	1	05/11/09 17:47	E_R	5015639
Surr: 2-Fluorobiphenyl	59.4		% 2	3-116	1	05/11/09 17:47	E_R	5015639
Surr: 2-Fluorophenol	66.5		% 10	6-110	1	05/11/09 17:47	E_R	5015639
Surr: Nitrobenzene-d5	52.0		% 2	1-114	1	05/11/09 17:47	E_R	5015639
Surr: Phenol-d5	54.1		% 1	0-110	1	05/11/09 17:47	E_R	5015639
Surr: Terphenyl-d14	60.4		% 2	2-141	1	05/11/09 17:47	E_R	5015639
				•				

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 15:05	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-4

Collected: 05/02/2009 12:00

SPL Sample ID:

09050091-02

Site: H	lobbs,	MM
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Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyz	zed Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B	Units: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/11/09 18		5015579
1,1,1-Trichloroethane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,1,2,2-Tetrachloroethane	ND		5	1	05/11/09 18	3:54 JC	5015579
1,1,2-Trichloroethane	ND		5	1	05/11/09 18	B:54 JC	5015579
1,1-Dichloroethane	ND		5	1	05/11/09 18	3:54 JC	5015579
1,1-Dichloroethene	ND		5	1	05/11/09 18	3:54 JC	5015579
1,1-Dichloropropene	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2,3-Trichlorobenzene	ND		5	1	05/11/09 18	3:54 JC	5015579
1,2,3-Trichloropropane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2,4-Trichlorobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2,4-Trimethylbenzene	440		25	5	05/12/09 13	3:29 JC	5018930
1,2-Dibromo-3-chloropropane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2-Dibromoethane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2-Dichlorobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2-Dichloroethane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,2-Dichloropropane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,3,5-Trimethylbenzene	19		5	1	05/11/09 18	8:54 JC	5015579
1,3-Dichlorobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579
1,3-Dichloropropane	ND		5	1	05/11/09 18	8:54 JC	5015579
1,4-Dichlorobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579
2,2-Dichloropropane	ND		5	1	05/11/09 18	8:54 JC	5015579
2-Butanone	ND		20	1	05/11/09 18	8:54 JC	5015579
2-Chloroethyl vinyl ether	ND J		10	1	05/11/09 18	8:54 JC	5015579
2-Chlorotoluene	ND		5	1	05/11/09 18	8:54 JC	5015579
2-Hexanone	ND		10	1	05/11/09 18	8:54 JC	5015579
4-Chlorotoluene	ND		5	1	05/11/09 18	8:54 JC	5015579
4-Isopropyltoluene	9.6		5	1	05/11/09 18	8:54 JC	5015579
4-Methyl-2-pentanone	ND		10	1	05/11/09 18	8:54 JC	5015579
Acetone	ND		20	1	05/11/09 18	8:54 JC	5015579
Acrylonitrile	ND		10	1	05/11/09 18	8:54 JC	5015579
Benzene	81		5	1	05/11/09 18	8:54 JC	5015579
Bromobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579
Bromochloromethane	ND		5	1	05/11/09 18	8:54 JC	5015579
Bromodichloromethane	ND		5	1	05/11/09 18	8:54 JC	5015579
Bromoform	ND		5	1	05/11/09 18	8:54 JC	5015579
Bromomethane	ND		10	1	05/11/09 18	8:54 JC	5015579
Carbon disulfide	ND		5	1	05/11/09 18	8:54 JC	5015579
Carbon tetrachloride	ND		5	1	05/11/09 18	8:54 JC	5015579
Chlorobenzene	ND		5	1	05/11/09 18	8:54 JC	5015579

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: MW-4 Collected: 05/02/2009 12:00 SPL Sample ID: 09050091-02

			Site	e: -	lobbs, NN	<u> </u>			
Analyses/Method	Result	QUAL	Re	p.Limi	t	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			1	0	1	05/11/09 18:54	JC	5015579
Chloroform	ND				5	1	05/11/09 18:54	JC	5015579
Chloromethane	ND			1	0	1	05/11/09 18:54	JC	5015579
Dibromochloromethane	ND				5	1	05/11/09 18:54	JC	5015579
Dibromomethane	ND				5	1	05/11/09 18:54	JC	5015579
Dichlorodifluoromethane	ND			1	0	1	05/11/09 18:54	JC	5015579
Ethylbenzene	530			2	5	5	05/12/09 13:29	JC	5018930
Hexachlorobutadiene	ND			•	5	1	05/11/09 18:54	JC	5015579
Isopropylbenzene	41				5	1	05/11/09 18:54	JC	5015579
Methyl tert-butyl ether	ND				5	1	05/11/09 18:54	JC	5015579
Methylene chloride	ND				5	1	05/11/09 18:54	JC	5015579
Naphthalene	86				5	1	05/11/09 18:54	JC	5015579
n-Butylbenzene	28				5	1	05/11/09 18:54	JC	5015579
n-Propyibenzene	45				5	1	05/11/09 18:54	JC	5015579
sec-Butylbenzene	18				5	1	05/11/09 18:54	JC	5015579
Styrene	ND				5	1	05/11/09 18:54	JC	5015579
tert-Butylbenzene	ND				5	1	05/11/09 18:54	JC	5015579
Tetrachloroethene	ND				5	1	05/11/09 18:54	JC	5015579
Toluene	ND				5	1	05/11/09 18:54	JC	5015579
Trichloroethene	ND				5	1	05/11/09 18:54	JC	5015579
Trichlorofluoromethane	ND				5	1	05/11/09 18:54	JC	5015579
Vinyl acetate	ND			1	0	1	05/11/09 18:54	JC	5015579
Vinyl chloride	ND				2	1	05/11/09 18:54	JC	5015579
cis-1,2-Dichloroethene	ND				5	1	05/11/09 18:54	JC	5015579
cis-1,3-Dichloropropene	ND				5	1	05/11/09 18:54	JC	5015579
m,p-Xylene	730			2	5	5	05/12/09 13:29	JC	5018930
o-Xylene	220		_	2	5	5	05/12/09 13:29	JC	5018930
trans-1,2-Dichloroethene	ND				5	1	05/11/09 18:54	JC	5015579
trans-1,3-Dichloropropene	ND				5	1	05/11/09 18:54	JC	5015579
1,2-Dichloroethene (total)	ND				5	1	05/11/09 18:54	JC	5015579
Xylenes,Total	950			2	5	5	05/12/09 13:29	JC	5018930
Surr: 1,2-Dichloroethane-d4	92.4		%	78-11	6	1	05/11/09 18:54	JC	5015579
Surr: 1,2-Dichloroethane-d4	102		%	78-11	6	5	05/12/09 13:29	JC	5018930
Surr: 4-Bromofluorobenzene	114		%	74-12	5	1	05/11/09 18:54	JC	5015579
Surr: 4-Bromofluorobenzene	102		%	74-12	5	5	05/12/09 13:29	JC	5018930

% 82-118

82-118

%

Qualifiers:

Surr: Toluene-d8

Surr: Toluene-d8

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

99.3

99.0

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

05/12/09 13:29

05/11/09 18:54

JC

JC

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 13 6/12/2009 4:23:29 PM

5018930

5015579



Surr: 4-Bromofluorobenzene

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

05/08/09 12:16 CLJ

5014444

Client Sample ID: RB-050209-1 Collected: 05/02/2009 12:10 09050091-03 SPL Sample ID:

Site: Hobbs NM		
	0:4	

				Site	: Hobl	os, NM					
Analyses/Method		Result	QUAL	Re	p.Limit	Di	l. Factor	Date Anal	yzed	Analyst	Seq. #
DIESEL RANGE OR	GANICS					MCL	S	W8015B	Un	its: mg/L	
Diesel Range Organics	(C10-C28)	ND			0.1	<u> </u>	1	05/06/09	23:05	NW	5014282
Surr: n-Pentacosane	•	77.2		%	20-150		1	05/06/09	23:05	NW	5014282
Prep Method	Prep Date		Prep Initials	Prep	Factor						
SW3510C	05/04/2009 14:1	5	N_M	1.00							
GASOLINE RANGE	ORGANICS					MCL	S'	W8015B	Un	its: mg/L	
Gasoline Range Organ	ics	ND			0.1		1	05/08/09	12:16	CLJ	5014444
Surr: 1,4-Difluorober	nzene	90.2		%	60-155	-	1	05/08/09	12:16	CLJ	5014444

% 50-158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

104

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 14 6/12/2009 4:23:29 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:RB-050209-1

Collected: 05/02/2009 12:10 SPL Sample ID:

09050091-03

Site: Hobbs, NI	VI.
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Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #	
SEMIVOLATILE ORGANICS BY METHOD 8270C			MCL SV	V8270C Un	its: ug/L		
1,2,4-Trichlorobenzene	ND ·	5	1	05/11/09 18:22	E_R	5015640	
1,2-Dichlorobenzene	ND	5	1	05/11/09 18:22	E_R	5015640	
1,2-Diphenylhydrazine	ND	10	1	05/11/09 18:22	E_R	5015640	
1,3-Dichlorobenzene	ND	5	1	05/11/09 18:22	E_R	5015640	
1,4-Dichlorobenzene	ND	5	1	05/11/09 18:22	E_R	5015640	
2,4,5-Trichlorophenol	ND	10	1	05/11/09 18:22	E_R	5015640	
2,4,6-Trichlorophenol	ND	5	1	05/11/09 18:22	E_R	5015640	
2,4-Dichlorophenol	ND	5	1	05/11/09 18:22	E_R	5015640	
2,4-Dimethylphenol	ND	5	1	05/11/09 18:22	E_R	5015640	
2,4-Dinitrophenol	ND	25	1	05/11/09 18:22	E_R	5015640	
2,4-Dinitrotoluene	ND	5	1	05/11/09 18:22	E_R	5015640	
2,6-Dinitrotoluene	ND	5	1	05/11/09 18:22	E_R	5015640	
2-Chloronaphthalene	ND	5	1	05/11/09 18:22	E_R	5015640	
2-Chlorophenol	ND	5	1	05/11/09 18:22	ER	5015640	
2-Methylnaphthalene	ND	5	1	05/11/09 18:22	ER	5015640	
2-Nitroaniline	ND	25	1	05/11/09 18:22	ER	5015640	
2-Nitrophenol	ND	. 5	1	05/11/09 18:22	E R	5015640	
3,3'-Dichlorobenzidine	ND	10	1	05/11/09 18:22	ER	5015640	
3-Nitroaniline	ND	25	1	05/11/09 18:22	ER	5015640	
4,6-Dinitro-2-methylphenol	ND	25	1	05/11/09 18:22	E_R	5015640	
4-Bromophenyl phenyl ether	ND	5	1	05/11/09 18:22	E_R	5015640	
4-Chloro-3-methylphenol	ND	5	1	05/11/09 18:22	ER	5015640	
4-Chloroaniline	ND	5	1	05/11/09 18:22	E_R	5015640	
4-Chlorophenyl phenyl ether	ND	5	1	05/11/09 18:22	E_R	5015640	
4-Nitroaniline	ND	25	1	05/11/09 18:22	ER	5015640	
4-Nitrophenol	ND	25	1	05/11/09 18:22	E_R	5015640	
Acenaphthene	ND	5	1	05/11/09 18:22	E.R	5015640	
Acenaphthylene	ND	5	1	05/11/09 18:22	E_R	5015640	
Aniline	ND	5	1	05/11/09 18:22	ER	5015640	
Anthracene	ND	5	1	05/11/09 18:22	ER	5015640	
Benz(a)anthracene	ND	5	1	05/11/09 18:22	E R	5015640	
Benzo(a)pyrene	ND	5	1	05/11/09 18:22	 E_R	5015640	
Benzo(b)fluoranthene	ND	5	1	05/11/09 18:22	E_R	5015640	
Benzo(g,h,i)perylene	ND	5	1	05/11/09 18:22	E_R	501564	
Benzo(k)fluoranthene	ND	5	1	05/11/09 18:22		5015640	
Benzoic acid	ND	25	1	05/11/09 18:22	E_R	5015640	
Benzyl alcohol	ND	5	1	05/11/09 18:22	ER	501564	
Bis(2-chloroethoxy)methane	ND	5	1	05/11/09 18:22		501564	
Bis(2-chloroethyl)ether	ND	5	1	05/11/09 18:22	E R	5015640	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

 $\ensuremath{\mathsf{B/\!V}}$ - Analyte detected in the associated Method Blank

- * Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:RB-050209-1

Collected: 05/02/2009 12:10 SPL Sample ID:

09050091-03

OILE. HODDOS, MIN	Site:	Hobbs,	NΜ
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			Site	. nobbs,	IAIAI	·		
Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND			5	1	05/11/09 18:22	E_R	5015640
Bis(2-ethylhexyl)phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Butyl benzyl phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Carbazole	ND			5	1	05/11/09 18:22	E_R	5015640
Chrysene	ND			5	1	05/11/09 18:22	E_R	5015640
Dibenz(a,h)anthracene	ND			5	1	05/11/09 18:22	E_R	5015640
Dibenzofuran	ND			5	1	05/11/09 18:22	E_R	5015640
Diethyl phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Dimethyl phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Di-n-butyl phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Di-n-octyl phthalate	ND			5	1	05/11/09 18:22	E_R	5015640
Fluoranthene	ND			5	1	05/11/09 18:22	E_R	5015640
Fluorene	ND			5	1	05/11/09 18:22	E_R	5015640
Hexachlorobenzene	ND			5	1	05/11/09 18:22	E_R	5015640
Hexachlorobutadiene	ND			5	1	05/11/09 18:22	E_R	5015640
Hexachlorocyclopentadiene	ND			5	1	05/11/09 18:22	E_R	501564
Hexachloroethane	ND			5	1	05/11/09 18:22	E_R	5015640
Indeno(1,2,3-cd)pyrene	ND			5	1	05/11/09 18:22	E_R	5015640
Isophorone	ND	-		5	1	05/11/09 18:22	E_R	501564
Naphthalene	ND			5	1	05/11/09 18:22	E_R	5015640
Nitrobenzene	ND			5	1	05/11/09 18:22	E_R	501564
N-Nitrosodi-n-propylamine	ND			5	1	05/11/09 18:22	E_R	501564
N-Nitrosodiphenylamine	ND			5	1	05/11/09 18:22	E_R	5015640
Pentachlorophenol	ND			25	1	05/11/09 18:22	E_R	5015640
Phenanthrene	ND			5	1	05/11/09 18:22	E_R	5015640
Phenol	ND			5	1	05/11/09 18:22	E_R	5015640
Pyrene	ND			5	1	05/11/09 18:22	E_R	5015640
Pyridine	ND			5	1	05/11/09 18:22	E_R	5015640
2-Methylphenol	ND			5	1	05/11/09 18:22	E_R	5015640
3 & 4-Methylphenol	ND			5	1	05/11/09 18:22	E_R	5015640
Surr: 2,4,6-Tribromophenol	80.8		%	10-123	1	05/11/09 18:22	E_R	5015640
Surr: 2-Fluorobiphenyl	57.4		%	23-116	1	05/11/09 18:22	E_R	501564
Surr: 2-Fluorophenol	61.9		%	16-110	1	05/11/09 18:22	E_R	501564
Surr: Nitrobenzene-d5	50.2		%	21-114	1	05/11/09 18:22	E_R	501564
Surr: Phenol-d5	52.3		%	10-110	1	05/11/09 18:22	E_R	501564
Surr: Terphenyl-d14	66.2		%	22-141	1	05/11/09 18:22	E_R	5015640

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 15:05	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: RB-050209-1

Collected: 05/02/2009 12:10 SPL Sample ID:

09050091-03

Site:	Hobbs,	ММ
Jile.	nopps,	LAIAI

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/12/09 13:00	JC	5018929
1,1,1-Trichloroethane	ND		5	1	05/12/09 13:00	JC	5018929
1,1,2,2-Tetrachloroethane	ND		5	1	05/12/09 13:00	JC	5018929
1,1,2-Trichloroethane	ND		5	1	05/12/09 13:00	JC	5018929
1,1-Dichloroethane	ND		. 5	1	05/12/09 13:00	JC	5018929
1,1-Dichloroethene	ND		5	1	05/12/09 13:00	JC	5018929
1,1-Dichloropropene	ND		5	1	05/12/09 13:00	JC	5018929
1,2,3-Trichlorobenzene	ND		5	1	05/12/09 13:00	JC	5018929
1,2,3-Trichloropropane	ND		5	1	05/12/09 13:00	JC	5018929
1,2,4-Trichlorobenzene	ND	*	5	1	05/12/09 13:00	JC	5018929
1,2,4-Trimethylbenzene	ND		5	1	05/12/09 13:00	JC	5018929
1,2-Dibromo-3-chloropropane	ND		5	1	05/12/09 13:00	JC	5018929
1,2-Dibromoethane	ND		5	1	05/12/09 13:00	JC	5018929
1,2-Dichlorobenzene	ND		5	1	05/12/09 13:00	JC	5018929
1,2-Dichloroethane	ND		5	1	05/12/09 13:00	JC	5018929
1,2-Dichloropropane	ND		5	1	05/12/09 13:00	JC	5018929
1,3,5-Trimethylbenzene	ND		5	1	05/12/09 13:00	JC	5018929
1,3-Dichlorobenzene	ND		5	1	05/12/09 13:00	JC	5018929
1,3-Dichloropropane	ND		5	1	05/12/09 13:00	JC	5018929
1,4-Dichlorobenzene	ND		5	1	05/12/09 13:00	JC	5018929
2,2-Dichloropropane	ND		5	1	05/12/09 13:00	JC	5018929
2-Butanone	ND		20	1	05/12/09 13:00	JC	5018929
2-Chloroethyl vinyl ether	ND J		10	1	05/12/09 13:00	JC	5018929
2-Chlorotoluene	ND		5	1	05/12/09 13:00	JC	5018929
2-Hexanone	ND	<u> </u>	10	1	05/12/09 13:00	JC	5018929
4-Chlorotoluene	ND		5	1	05/12/09 13:00	JC	5018929
4-Isopropyltoluene	ND		5	1	05/12/09 13:00	JC	5018929
4-Methyl-2-pentanone	ND		10	1	05/12/09 13:00	JC	5018929
Acetone	ND		20	1	05/12/09 13:00	JC	5018929
Acrylonitrile	ND		10	1	05/12/09 13:00	JC	5018929
Benzene	ND		5	1	05/12/09 13:00	JC	5018929
Bromobenzene	ND		5	1	05/12/09 13:00	JC	5018929
Bromochloromethane	ND		5	1	05/12/09 13:00	JC	501892
Bromodichloromethane	ND		5	1	05/12/09 13:00	JC	501892
Bromoform	ND		5	1	05/12/09 13:00	JC	501892
Bromomethane	ND		10	1	05/12/09 13:00	JC	501892
Carbon disulfide	ND		5	1	05/12/09 13:00	JC	501892
Carbon tetrachloride	ND		5	1	05/12/09 13:00	JC	501892
Chlorobenzene	ND		5	1	05/12/09 13:00	JC	501892

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:RB-050209-1

Collected: 05/02/2009 12:10 **SPL Sample ID:**

09050091-03

Site:	Hobbs,	NM
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			- Onto	· 110005,	IAIAI			
Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	05/12/09 13:00	JC	5018929
Chloroform	ND			5	1	05/12/09 13:00	JC	5018929
Chloromethane	ND			10	1	05/12/09 13:00	JC	5018929
Dibromochloromethane	ND			5	1	05/12/09 13:00	JC	5018929
Dibromomethane	ND			5	1	05/12/09 13:00	JC	5018929
Dichlorodifluoromethane	ND			10	1	05/12/09 13:00	JC	5018929
Ethylbenzene	ND	_		5	1	05/12/09 13:00	JC	5018929
Hexachlorobutadiene	ND			5	1	05/12/09 13:00	JC	5018929
Isopropylbenzene	ND			5	1	05/12/09 13:00	JC	5018929
Methyl tert-butyl ether	ND			5	1	05/12/09 13:00	JC	5018929
Methylene chloride	ND			5	1	05/12/09 13:00	JC	5018929
Naphthalene	ND			5	1	05/12/09 13:00	JC	5018929
n-Butylbenzene	ND			5	1	05/12/09 13:00	JC	5018929
n-Propylbenzene	ND			5	1	05/12/09 13:00	JC	5018929
sec-Butylbenzene	ND			5	1	05/12/09 13:00	JC	5018929
Styrene	ND			5	1	05/12/09 13:00	JC	5018929
tert-Butylbenzene	ND			5	1	05/12/09 13:00	JC	5018929
Tetrachloroethene	ND			5	1	05/12/09 13:00	JC	5018929
Toluene	ND			5	1	05/12/09 13:00	JC	5018929
Trichloroethene	ND			5	1	05/12/09 13:00	JC	5018929
Trichlorofluoromethane	ND			5	1	05/12/09 13:00	JC	5018929
Vinyl acetate	ND			10	1	05/12/09 13:00	JC	5018929
Vinyl chloride	ND			2	1	05/12/09 13:00	JC	5018929
cis-1,2-Dichloroethene	ND			5	1	05/12/09 13:00	JC	5018929
cis-1,3-Dichloropropene	ND			5	1	05/12/09 13:00	JC	5018929
m,p-Xylene	ND			5	1	05/12/09 13:00	JC	5018929
o-Xylene	ND			5	1	05/12/09 13:00	JC	5018929
trans-1,2-Dichloroethene	ND			5	1	05/12/09 13:00	JC	5018929
trans-1,3-Dichloropropene	ND			5	1	05/12/09 13:00	JC	5018929
1,2-Dichloroethene (total)	ND			5	1	05/12/09 13:00	JC	5018929
Xylenes,Total	ND			5	1	05/12/09 13:00	JC	5018929
Surr: 1,2-Dichloroethane-d4	105		%	78-116	1	05/12/09 13:00	JC	5018929
Surr: 4-Bromofluorobenzene	100		%	74-125	1	05/12/09 13:00	JC	5018929
Surr: Toluene-d8	97.1		%	82-118	1	05/12/09 13:00	JC	5018929

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-050209-1

Collected: 05/02/2009 12:15 **SPL Sample ID:**

09050091-04

Site:	Hobbs,	NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B Ui	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/11/09 19:53	JC	5015580
1,1,1-Trichlorœthane	ND		5	1	05/11/09 19:53	JC	5015580
1,1,2,2-Tetrachloroethane	ND		5	1	05/11/09 19:53	JC	5015580
1,1,2-Trichloroethane	ND		5	1	05/11/09 19:53	JC	5015580
1,1-Dichloroethane	ND		5	1	05/11/09 19:53	JC	5015580
1,1-Dichloroethene	ND		5	1	05/11/09 19:53	JC	5015580
1,1-Dichloropropene	ND		5	1	05/11/09 19:53	JC	5015580
1,2,3-Trichlorobenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,2,3-Trichloropropane	ND		5	1	05/11/09 19:53	JC	5015580
1,2,4-Trichlorobenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,2,4-Trimethylbenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,2-Dibromo-3-chloropropane	ND		5	1	05/11/09 19:53	JC	5015580
1,2-Dibromoethane	ND		5	1	05/11/09 19:53	JC	5015580
1,2-Dichlorobenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,2-Dichloroethane	ND		5	1	05/11/09 19:53	JC	5015580
1,2-Dichloropropane	ND		5	1	05/11/09 19:53	JC	5015580
1,3,5-Trimethylbenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,3-Dichlorobenzene	ND		5	1	05/11/09 19:53	JC	5015580
1,3-Dichloropropane	ND		5	1	05/11/09 19:53	JC	5015580
1,4-Dichlorobenzene	ND		5	1	05/11/09 19:53	JC	5015580
2,2-Dichloropropane	ND		5	1	05/11/09 19:53	JC	5015580
2-Butanone	ND		20	1	05/11/09 19:53	JC	5015580
2-Chloroethyl vinyl ether	ND J		10	1	05/11/09 19:53	JC	5015580
2-Chlorotoluene	ND		5	1	05/11/09 19:53	JC	5015580
2-Hexanone	ND		10	1	05/11/09 19:53	JC	5015580
4-Chlorotoluene	ND		5	1	05/11/09 19:53	JC	5015580
4-Isopropyltoluene	ND		5	1	05/11/09 19:53	JC	5015580
4-Methyl-2-pentanone	ND		10	1	05/11/09 19:53	JC	5015580
Acetone	ND		20	1	05/11/09 19:53	JC	5015580
Acrylonitrile	ND		10	1	05/11/09 19:53	JC	5015580
Benzene	ND		5	1	05/11/09 19:53	JC	5015580
Bromobenzene	ND		5	1	05/11/09 19:53	JC	5015580
Bromochloromethane	ND		5	1	05/11/09 19:53	JC	5015580
Bromodichloromethane	ND		5	1	05/11/09 19:53	JC	501558
Bromoform	ND		5	1	05/11/09 19:53	JC	501558
Bromomethane	ND		10	1	05/11/09 19:53	JC	501558
Carbon disulfide	ND		5	1	05/11/09 19:53	JC	501558
Carbon tetrachloride	ND		5	1	05/11/09 19:53	JC	501558
Chlorobenzene	ND		5	1	05/11/09 19:53	JC	501558

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 19 6/12/2009 4:23:33 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:FB-050209-1 Collected: 05/02/2009 12:15 SPL Sample ID: 09050091-04

			Site	: Hobb	s, NM			
Analyses/Method	Result	QUAL	Rep	o.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	05/11/09 19:53	JC	5015580
Chloroform	ND			5	1	05/11/09 19:53	JC	5015580
Chloromethane	ND			10	1	05/11/09 19:53	JC	5015580
Dibromochloromethane	ND		_	5	1	05/11/09 19:53	JC	5015580
Dibromomethane	ND			5	1	05/11/09 19:53	JC	5015580
Dichlorodifluoromethane	ND			10	1	05/11/09 19:53	JC	5015580
Ethylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
Hexachlorobutadiene	ND			5	1	05/11/09 19:53	JC	5015580
Isopropylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
Methyl tert-butyl ether	ND			5	1	05/11/09 19:53	JC	5015580
Methylene chloride	ND			5	1	05/11/09 19:53	JC	5015580
Naphthalene	ND			5	1	05/11/09 19:53	JC	5015580
n-Butylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
n-Propylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
sec-Butylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
Styrene	ND		5		1	05/11/09 19:53	JC	5015580
tert-Butylbenzene	ND			5	1	05/11/09 19:53	JC	5015580
Tetrachloroethene	ND			5	1	05/11/09 19:53	JC	5015580
Toluene	ND			5	1	05/11/09 19:53	JC	5015580
Trichloroethene	ND	,		5	1	05/11/09 19:53	JC	5015580
Trichlorofluoromethane	ND			5	1	05/11/09 19:53	JC	5015580
Vinyl acetate	ND			10	1	05/11/09 19:53	JC	5015580
Vinyl chloride	ND			2	1	05/11/09 19:53	JC	5015580
cis-1,2-Dichloroethene	ND			5	1	05/11/09 19:53	JC	5015580
cis-1,3-Dichloropropene	ND			5	1	05/11/09 19:53	JC	5015580
m,p-Xylene	ND			5	1	05/11/09 19:53	JC	5015580
o-Xylene	ND			5	1	05/11/09 19:53	JC	5015580
trans-1,2-Dichloroethene	ND			5	1	05/11/09 19:53	JC	5015580
trans-1,3-Dichloropropene	ND			5	1	05/11/09 19:53	JC	5015580
1,2-Dichloroethene (total)	ND			5	1	05/11/09 19:53	JC	5015580
Xylenes,Total	ND			5	1	05/11/09 19:53	JC	5015580
Surr: 1,2-Dichloroethane-d4	89.6		%	78-116	1	05/11/09 19:53	JC	5015580
Surr: 4-Bromofluorobenzene	106			74-125	1	05/11/09 19:53	JC	5015580
Surr: Toluene-d8	97.4		%	82-118	1	05/11/09 19:53	JC	5015580

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID: TB-050209-1 Collected: 05/02/2009 12:15 SPL Sample ID: 09050091-05

Site: Hobbs, NM

				DS, INIVI			
Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV		its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,1,1-Trichloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,1,2,2-Tetrachloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,1,2-Trichloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,1-Dichloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,1-Dichloroethene	ND		5	1	05/11/09 20:22	JC	5015581
1,1-Dichloropropene	ND		5	1	05/11/09 20:22	JC	5015581
1,2,3-Trichlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,2,3-Trichloropropane	ND		5	1	05/11/09 20:22	JC	5015581
1,2,4-Trichlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,2,4-Trimethylbenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,2-Dibromo-3-chloropropane	ND		5	1	05/11/09 20:22	JC	5015581
1,2-Dibromoethane	ND		5	1	05/11/09 20:22	JC	5015581
1,2-Dichlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,2-Dichloroethane	ND		5	1	05/11/09 20:22	JC	5015581
1,2-Dichloropropane	ND		5	1	05/11/09 20:22	JC	5015581
1,3,5-Trimethylbenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,3-Dichlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581
1,3-Dichloropropane	ND		5	1	05/11/09 20:22	JC	5015581
1,4-Dichlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581
2,2-Dichloropropane	ND		5	1	05/11/09 20:22	JC	5015581
2-Butanone	ND		20	1	05/11/09 20:22	JC	5015581
2-Chloroethyl vinyl ether	ND J		10	1	05/11/09 20:22	JC	5015581
2-Chlorotoluene	ND		5	1	05/11/09 20:22	JC	5015581
2-Hexanone	ND		10	1	05/11/09 20:22	JC	5015581
4-Chlorotoluene	ND		5	1	05/11/09 20:22	JC	5015581
4-Isopropyltoluene	ND		5	1	05/11/09 20:22	JC	5015581
4-Methyl-2-pentanone	ND		10	1	05/11/09 20:22	JC	5015581
Acetone	ND		20	1	05/11/09 20:22	JC	5015581
Acrylonitrile	ND		10	1	05/11/09 20:22	JC	5015581
Benzene	ND		5	1	05/11/09 20:22	JC	5015581
Bromobenzene	ND		5	1	05/11/09 20:22	JC	5015581
Bromochloromethane	ND		5	1	05/11/09 20:22	JC	5015581
Bromodichloromethane	ND		5	1	05/11/09 20:22	JC	5015581
Bromoform	ND		5	1	05/11/09 20:22	JC	5015581
Bromomethane	ND		10	1	05/11/09 20:22	JC	5015581
Carbon disulfide	ND		5	1	05/11/09 20:22	JC	5015581
Carbon tetrachloride	ND		5	1	05/11/09 20:22	JC	5015581
Chlorobenzene	ND		5	1	05/11/09 20:22	JC	5015581

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

- * Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050091 Page 21 6/12/2009 4:23:33 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:TB-050209-1

Collected: 05/02/2009 12:15 **SPL Sample ID:** 09050091-05

Site: Hobbs, NM

			Site	: Hopps	, INIVI			
Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Chloroethane	ND			10	1	05/11/09 20:22	JC	5015581
Chloroform	ND			5	1	05/11/09 20:22	JC	5015581
Chloromethane	ND			10	1	05/11/09 20:22	JC	5015581
Dibromochloromethane	ND			5	1	05/11/09 20:22	JC	5015581
Dibromomethane	ND			5	1	05/11/09 20:22	JC	5015581
Dichlorodifluoromethane	ND			10	1	05/11/09 20:22	JC	5015581
Ethylbenzene	ND			5	1	05/11/09 20:22	JC	5015581
Hexachlorobutadiene	ND			5	1	05/11/09 20:22	JC	5015581
Isopropylbenzene	ND			5	1	05/11/09 20:22	JC	5015581
Methyl tert-butyl ether	ND			5	1	05/11/09 20:22	JC	5015581
Methylene chloride	ND			5	1	05/11/09 20:22	JC	5015581
Naphthalene	ND			5	1	05/11/09 20:22	JC	5015581
n-Butylbenzene	ND			5	1	05/11/09 20:22	JC	5015581
n-Propylbenzene	ND			5	1	05/11/09 20:22	JC	5015581
sec-Butylbenzene	ND			5	1	05/11/09 20:22	JC	5015581
Styrene	ND			5	1	05/11/09 20:22	JC	501558
tert-Butylbenzene	ND			5	1	05/11/09 20:22	JC	501558
Tetrachloroethene	ND			5	1	05/11/09 20:22	JC	501558
Toluene	ND			5	1	05/11/09 20:22	JC	501558
Trichloroethene	ND			5	1	05/11/09 20:22	JC	5015581
Trichlorofluoromethane	ND			5	1	05/11/09 20:22	JC	5015581
Vinyl acetate	ND			10	1	05/11/09 20:22	JC	5015581
Vinyl chloride	ND			2	1	05/11/09 20:22	JC	5015581
cis-1,2-Dichloroethene	ND			5	1	05/11/09 20:22	JC	5015581
cis-1,3-Dichloropropene	ND			5	1	05/11/09 20:22	JC	501558
m,p-Xylene	ND			5	1	05/11/09 20:22	JC	5015581
o-Xylene	ND			5	1	05/11/09 20:22	JC	501558
trans-1,2-Dichloroethene	ND			5	1	05/11/09 20:22	JC	501558
trans-1,3-Dichloropropene	ND			5	1	05/11/09 20:22	JC	501558
1,2-Dichloroethene (total)	ND			5	1	05/11/09 20:22	JC	501558
Xylenes,Total	ND			5	1	05/11/09 20:22	JC	501558
Surr: 1,2-Dichloroethane-d4	94.2		%	78-116	1	05/11/09 20:22	JC	501558
Surr: 4-Bromofluorobenzene	104		%	74-125	1	05/11/09 20:22	JC	501558
Surr: Toluene-d8	96.7		%	82-118	1	05/11/09 20:22	JC	5015581

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

RunID:

Diesel Range Organics

Method: SW8015B

Samples in Analytical Batch:

09050091

WorkOrder: Lab Batch ID:

89962

Method Blank

Units:

mg/L Lab Sample ID Client Sample ID

Analysis Date:

HP_V_090506B-5014268

09050091-02C

MW-4

05/06/2009 16:19

Analyst: NW

09050091-03C

Preparation Date:

05/04/2009 12:29

Prep By:

N_M Method SW3510C

RB-050209-1

Analyte	Result	Rep Limit
Diesel Range Organics (C10-C28)	ND	0.10
Surr: n-Pentacosane	40.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090506B-5014269

Units:

Analysis Date:

05/06/2009 16:39

Analyst: NW

Preparation Date: 05/04/2009 12:29 Prep By: N_M Method SW3510C

mg/L

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics (C10-C28)	1.00	0.792	79.2	1.00	0.802	80.2	1.3	20	21	130
Surr: n-Pentacosane	0.0500	0.0334	66.8	0.0500	0.0321	64.2	4.0	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply. TNTC - Too numerous to count

09050091 Page 24

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Hydrocarbons

Method:

SW8015B

WorkOrder:

09050091

Lab Batch ID:

89983

Method Blank

RunID:

HP_V_090611B-5063332

Units:

mg/kg

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

05/12/2009 23:03

Analyst: AM 09050091-01D

MW-4-52-55

Preparation Date: 05/05/2009 11:45 Prep By:

FAK Method SW3550B

Analyte	Result	Rep Limit
Mineral Spirits Range Organics	ND	10
Surr: n-Pentacosane	69.4	20-154

Laboratory Control Sample (LCS)

RunID:

HP V_090611B-5063333

Units:

mg/kg

Analysis Date:

05/12/2009 23:23

Analyst: ΑM

Preparation Date: 05/05/2009 11:45 Prep By: FAK Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Mineral Spirits Range Organics	33.3	27.4	82.1	50	150
Surr: n-Pentacosane	1.66	1.34	81.0	20	154

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: RunID:

09050091-01

HP_V_090611B-5063335

Units:

mg/kg

Analysis Date: Preparation Date: 05/13/2009 0:04 05/05/2009 11:45 Analyst: AM

Prep By:

Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Mineral Spirits Range Organics	ND	33.3	27.8	83.4	33.3	28.0	84.2	0.908	50	50	150
Surr: n-Pentacosane	ND	1.66	1.54	92.7	1.66	1.32	79.6	15.1	30	20	154

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply. 09050091 Page 25

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/12/2009 4:23:39 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Hydrocarbons

Method:

RunID:

SW8015B

WorkOrder:

09050091

Lab Batch ID:

89983

Method Blank

HP_V_090512B-5017045

Units:

mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

NW

09050091-01C

Samples in Analytical Batch:

Preparation Date:

05/12/2009 23:03 05/05/2009 11:45 Analyst: Prep By:

FAK Method SW3550B

MW-4-52-55

Analyte	Result	Rep Limit
Diesel Range Organics (C10-C28)	ND	5.0
Surr: n-Pentacosane	69.4	20-154

Laboratory Control Sample (LCS)

RunID:

HP V 090512B-5017046

Units:

mg/Kg

Analysis Date: Preparation Date: 05/12/2009 23:23

NW Analyst:

05/05/2009 11:45

Prep By: FAK Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Diesel Range Organics (C10-C28)	33.3	27.4	82.1	57	150
Surr: n-Pentacosane	1.66	1.34	81.0	20	154

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

HP_V_090512B-5017048

Units:

mg/Kg

RuniD: Analysis Date:

05/13/2009 0:04

Analyst: NW

Preparation Date:

05/05/2009 11:45

Prep By: FAK Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Diesel Range Organics (C10-C28)	6.26	33.3	27.8	64.6	33.3	28.0	65.4	0.908	50	21	175
Surr: n-Pentacosane	ND	1.66	1.54	92.7	1.66	1.32	79.6	15.1	30	20	154

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 26

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Headspace Gas Analysis

Method:

RunID:

RSK147

.. ,20,20

WorkOrder:

09050091

Lab Batch ID:

R272023

Method Blank

VARC_090507A-5009408

Units:

mg/L V_L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

05/07/2009 9:46

Analyst:

09050091-02F

MW -4

Analyte	Result	Rep Limit
Methane	ND	0.0012

Sample Duplicate

Original Sample:

09050065-04

VARC_090507A-5009409

Units:

mg/L

Analysis Date:

RunID:

05/07/2009 10:08

Analyst: V_L

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Methane	ND	ND	0	50

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 27

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/12/2009 4:23:39 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Gasoline Range Organics

Method:

SW8015B

WorkOrder:

Samples in Analytical Batch:

09050091

Lab Batch ID:

R272171

Method Blank

RunID: HP.

HP_S_090508A-5011642

Units:

mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

05/08/2009 8:55

Analyst: I

EMB

09050091-01B

MW-4-52-55

Preparation Date:

05/08/2009 8:55

Prep By:

Method SW5030B

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	100.3	63-142
Surr: 4-Bromofluorobenzene	101.6	50-159

Laboratory Control Sample (LCS)

RunID:

HP_S_090508A-5011643

Units:

mg/Kg

Analysis Date: Preparation Date: 05/08/2009 9:52 05/08/2009 9:52 Analyst:

t: EMB

Prep By: Method SW5030B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.962	96.2	70	130
Surr: 1,4-Difluorobenzene	0.100	0.102	102	63	142
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	159

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050292-01

RunID:

HP_S_090508A-5012651

Units:

mg/kg-dry

Analysis Date:

05/08/2009 21:58

Analyst: (

EMB

Preparation Date:

05/08/2009 9:19

Prep By:

by: XML Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1.98	0.762	38.4	1.98	0.668	33.7	13.3	50	26	147
Surr: 1,4-Difluorobenzene	ND	0.198	0.214	108	0.198	0.211	106	1.59	30	63	142
Surr: 4-Bromoffuorobenzene	ND	0.198	0.205	103	0.198	0.206	104	0.483	30	50	159

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 28

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/12/2009 4:23:39 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Gasoline Range Organics

Method:

RunID:

Analysis Date:

SW8015B

05/08/2009 5:40

BJ-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R272349

Method Blank

HP_P_090508A-5014432

Units: Analyst: mg/L CLJ

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

09050091-02B

MW-4

09050091-03B

RB-050209-1

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	90.2	60-155
Surr: 4-Bromofluorobenzene	103.9	50-158

Laboratory Control Sample (LCS)

RunID:

HP_P_090508A-5014430

Units:

mg/L

Analysis Date:

05/08/2009 4:43

Analyst: CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	1.03	103	42	136
Surr: 1,4-Difluorobenzene	0.100	0.101	101	60	155
Surr: 4-Bromofluorobenzene	0.100	0.107	107	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050042-26

RunID:

HP_P_090508A-5014436

Units:

Analysis Date:

05/08/2009 8:30

Analyst: (

mg/L CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	4.30	10	11.9	75.9	10	12.2	79.4	2.90	36	22	174
Surr: 1,4-Difluorobenzene	ND	1	0.983	98.3	1	0.986	98.6	0.274	30	60	155
Surr: 4-Bromofluorobenzene	ND	1	1.07	107	1	1.06	106	1.08	30	50	158

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

09050091 Page 29

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

RunID:

Semivolatile Organics by Method 8270C

Method: SW8270C

WorkOrder:

09050091

Lab Batch ID:

89968

Method Blank

R_090508B-5011969

Units:

ug/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

05/08/2009 10:32

Analyst:

E_R

09050091-02D

MW-4

Preparation Date:

05/04/2009 15:05

Prep By: N_M Method SW3510C

09050091-03D

RB-050209-1

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1.4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2.4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	11
3-Nitroaniline	ND	2
4,6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenoi	ND ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	2:
4-Nitrophenol	ND	2
Acenaphthene	ND	5.0
Acenaphthylene	ND	5.0
Aniline	ND	5.0
Anthracene	ND	5.0
Benz(a)anthracene	ND	
Benzo(a)pyrene	ND	
Benzo(b)fluoranthene	ND	
Benzo(g,h,i)perylene	ND	
Benzo(k)fluoranthene	ND	5.0
Benzoic acid	ND	2:
Benzyl alcohol	ND	5.
Bis(2-chloroethoxy)methane	ND	
Bis(2-chloroethyl)ether	ND	5.
Bis(2-chloroisopropyl)ether	ND	
Bis(2-ethylhexyl)phthalate	ND	
Butyl benzyl phthalate	ND	5.
Carbazole	ND	
Chrysene	ND	
Dibenz(a,h)anthracene	ND	
Dibenzofuran	ND	
Dibenzoldiali		

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 30

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09050091

Lab Batch ID:

89968

Method Blank

RunID:

R_090508B-5011969

Units:

ug/L

Analysis Date:

05/08/2009 10:32

Analyst:

 E_R

Preparation Date: 05/04/2009 15:05

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND	<u>5</u> .0
Fluorene	ND.	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND.	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND_ND	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND.	5.0
Phenol	ND.	5.0
Pyrene	ND	5.0
Pyridine	ND	5.0
2-Methylphenoi	ND	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	111.6	10-123
Surr: 2-Fluorobiphenyl	78.2	23-116
Surr: 2-Fluorophenol	98.7	16-110
Surr: Nitrobenzene-d5	68.6	21-114
Surr: Phenol-d5	104.4	10-110
Surr: Terphenyl-d14	88.4	22-141

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

RuniD:

R_090508B-5011971

Units:

05/08/2009 14:03

ug/L E_R Analyst:

Analysis Date: Preparation Date:

05/04/2009 15:05

Prep By: N M Method SW3510C

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 31

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C

WorkOrder: 0
Lab Batch ID: 8

09050091 89968

Metrica. 51102700	Edu Batch ID. 09900										
Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	ND	25	19.3	77.2	25	19.3	77.2	0	39	10	142
1,2-Dichlorobenzene	ND	25	19.3	77.2	25	19.2	76.8	0.519	50	20	150
1,2-Diphenylhydrazine	ND	25	18.7	74.8	25	18.9	75.6	1.06	50	10	251
1,3-Dichlorobenzene	ND	25	18.3	73.2	25	18.6	74.4	1.63	50	20	150
1,4-Dichlorobenzene	ND	25	18.4	73.6	25	18.6	74.4	1.08	45	20	150
2,4,5-Trichlorophenol	ND	25	19.8	79.2	25	19.4	77.6	2.04	50	30	150
2,4,6-Trichlorophenol	ND	25	21.5	86.0	25	21.0	84.0	2.35	50	30	150
2,4-Dichlorophenol	ND	25	19.8	79.2	25	19.0	76.0	4.12	50	30	150
2,4-Dimethylphenol	ND	25	19.0	76.0	25	18.3	73.2	3.75	50	32	140
2,4-Dinitrophenol	ND	25	19.9	79.6	25	17.5	70.0	12.8	50	10	160
2,4-Dinitrotoluene	ND	25	21.4	85.6	25	20.8	83.2	2.84	50	30	150
2,6-Dinitrotoluene	ND	25	20.6	82.4	25	20.4	81.6	0.976	50	30	150
2-Chloronaphthalene	ND	25	20.5	82.0	25	20.4	81.6	0.489	50	30	150
2-Chlorophenol	ND	25	19.8	79.2	25	20.2	80.8	2.00	40	23	134
2-Methylnaphthalene	ND	25	19.9	79.6	25	19.9	79.6	0	50	20	170
2-Nitroaniline	ND	25	19.3	77.2	25	18.8	75.2	2.62	50	20	160
2-Nitrophenol	ND	25	20.3	81.2	25	19.9	79.6	1.99	50	29	182
3,3'-Dichlorobenzidine	ND	25	18.8	75.2	25	18.8	75.2	0	50	30	200
3-Nitroaniline	ND	25	16.9	67.6	25	17.0	68.0	0.590	50	20	160
4,6-Dinitro-2-methylphenol	ND	25	18.4	73.6	25	18.2	72.8	1.09	50	10	160
4-Bromophenyl phenyl ether	ND	25	19.3	77.2	25	19.2	76.8	0.519	50	30	150
4-Chloro-3-methylphenol	ND	25	20.9	83.6	25	20.5	82.0	1.93	42	25	160
4-Chloroaniline	ND	25	14.0	56.0	25	13.1	52.4	6.64	50	20	160
4-Chlorophenyl phenyl ether	ND	25	20.4	81.6	25	20.3	81.2	0.491	50	25	158
4-Nitroaniline	ND	25	18.9	75.6	25	18.7	74.8	1.06	50	20	160
4-Nitrophenol	ND	25	10.2	40.8	25	10.3	41.2	0.976	50	10	132
Acenaphthene	ND	25	19.6	78.4	25	19.8	79.2	1.02	31	30	150
Acenaphthylene	ND	25	20.5	82.0	25	20.4	81.6	0.489	50	33	250
Aniline	ND	50	0	0 *	50	0	0 *	0	50	10	135
Anthracene	ND	25	20.0	80.0	25	20.3	81.2	1.49	50	27	133
Benz(a)anthracene	ND	25	19.1	76.4	25	18.9	75.6	1.05	50	33	143
Benzo(a)pyrene	ND	25	16.5	66.0	25	16.3	65.2	1.22	50	17	163
Benzo(b)fluoranthene	ND	25	18.2	72.8	25	17.0	68.0	6.82	50	24	159
Benzo(g,h,i)perylene	ND	25	18.1	72.4	25	18.2	72.8	0.551	50	30	160
Benzo(k)fluoranthene	ND	25	16.7	66.8	25	17.8	71.2	· 6.38	50	11	162
Benzoic acid	ND	25	22.8	91.2	25	21.7	86.8	4.94	50	10	400
Benzył alcohol	ND	25	17.0	68.0	25	15.5	62.0	9.23	50	30	160
Bis (2-chloroethoxy)methane	ND	25	19.0	76.0	25	18.4	73.6	3.21	50	33	184
Bis (2-chloroethyl)ether	ND	25	19.3	77.2	25	19.3	77.2	0	50	12	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 32

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09050091

Lab Batch ID:

89968

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

RunID:

R_090508B-5011971

Units:

ug/L

Analysis Date:

05/08/2009 14:03

ΕR Analyst:

Preparation Date: 05/04/2009 15:05 Prep By: N_M Method SW3510C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Bis(2-chloroisopropyl)ether	ND	25	20.2	80.8	25	20.3	81.2	0.494	50	20	160
Bis (2-ethylhexyl)phthalate	ND	25	16.7	66.8	25	16.3	65.2	2.42	50	10	158
Butyl benzyl phthalate	ND	25	17.6	70.4	25	17.5	70.0	0.570	50	30	160
Carbazole	ND	25	19.9	79.6	25	19.9	79.6	0	50	30	150
Chrysene	ND	25	19.0	76.0	25	19.0	76.0	0	50	17	168
Dibenz(a,h)anthracene	ND	25	17.6	70.4	25	18.6	74.4	5.52	50	30	160
Dibenzofuran	ND	25	20.7	82.8	25	20.6	82.4	0.484	50	30	150
Diethyl phthalate	ND	25	19.4	77.6	25	19.4	77.6	0	50	30	160
Dimethyl phthalate	ND	25	20.0	80.0	25	20.0	80.0	0	50	30	160
Di-n-butyl phthalate	ND	25	19.1	76.4	25	18.7	74.8	2.12	50	30	160
Di-n-octyl phthalate	ND	25	16.8	67.2	25	17.1	68.4	1.77	50	20	150
Fluoranthene	ND	25	20.5	82.0	25	21.0	84.0	2.41	50	26	137
Fluorene	ND	25	20.0	80.0	25	20.2	80.8	0.995	50	30	150
Hexachlorobenzene	ND	25	19.8	79.2	25	19.7	78.8	0.506	50	20	150
Hexachlorobutadiene	ND	25	18.0	72.0	25	17.7	70.8	1.68	50	20	140
Hexachlorocyclopentadiene	ND	25	24.8	99.2	25	24.4	97.6	1.63	50	10	150
Hexachloroethane	ND	25	16.7	66.8	25	17.0	68.0	1.78	50	10	140
Indeno(1,2,3-cd)pyrene	ND	25	20.6	82.4	25	20.3	81.2	1.47	50	30	160
Isophorone	ND	25	19.8	79.2	25	19.6	78.4	1.02	50	21	196
Naphthalene	ND	25	20.3	81.2	25	20.2	80.8	0.494	50	21	133
Nitrobenzene	ND	25	18.2	72.8	25	17.9	71.6	1.66	50	20	160
N-Nitrosodi-n-propylamine	ND	25	18.3	73.2	25	18.4	73.6	0.545	38	30	160
N-Nitrosodiphenylamine	ND	50	47.8	95.6	50	48.2	96.4	0.833	50	30	150
Pentachlorophenol	ND	25	19.9	79.6	25	19.3	77.2	3.06	50	14	176
Phenanthrene	ND	25	19.8	79.2	25	19.9	79.6	0.504	50	10	140
Phenol	ND	25	11.2	44.8	25	11.2	44.8	0	42	40	132
Pyrene	ND	25	19.0	76.0	25	18.6	74.4	2.13	38	30	150
Pyridine	ND	50	6.26	12.5	50	5.96	11.9	4.91	50	10	150
2-Methylphenol	ND	25	19.2	76.8	25	19.1	76.4	0.522	50	30	160
3 & 4-Methylphenol	ND	25	16.5	66.0	25	16.0	64.0	3.08	50	10	160
Surr: 2,4,6-Tribromophenol	ND	75	77	103	75	75.0	100	2.63	30	10	123
Surr: 2-Fluorobiphenyl	ND	50	35	70.0	50	34.9	69.8	0.286	30	23	116

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 33

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050091

Lab Batch ID:

89968

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

RunID:

R_090508B-5011971

Units:

ug/L

Analysis Date: Preparation Date: 05/08/2009 14:03 05/04/2009 15:05

Analyst: E_R

Prep By: N_M Method SW3510C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Surr: 2-Fluorophenol	ND	75	49.5	66.0	75	48.6	64.8	1.83	30	16	110
Surr: Nitrobenzene-d5	ND	50	32	64.0	50	32.2	64.4	0.623	30	21	114
Surr: Phenol-d5	ND	75	39.4	52.5	75	39.4	52.5	0	30	10	110
Surr: Terphenyl-d14	ND	50	29.9	59.8	50	29.6	59.2	1.01	30	22	141



Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 34

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09050091

Lab Batch ID:

90048

Method Blank

RunID:

H_090513B-5017953

Units:

ug/kg

Lab Sample ID 09050091-01C

Samples in Analytical Batch:

Client Sample ID

MW-4-52-55

Analysis Date: Preparation Date:

05/13/2009 10:00 05/06/2009 15:27 Analyst: GY

Prep By: QMT Method SW3550C

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
1,2-Diphenylhydrazine	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
2,4,5-Trichlorophenol	ND	800
2,4,6-Trichlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	800
2,4-Dinitrotoluene	ND	800
2,6-Dinitrotoluene	ND	330
2-Chloronaphthalene	ND	330
2-Chlorophenol	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	80
2-Nitrophenol	ND	330
3,3'-Dichlorobenzidine	ND	33
3-Nitroaniline	ND	80
4,6-Dinitro-2-methylphenol	ND	80
4-Bromophenyl phenyl ether	ND	330
4-Chloro-3-methylphenol	ND	330
4-Chloroaniline	ND	330
4-Chlorophenyl phenyl ether	ND	330
4-Nitroaniline	ND	80
4-Nitrophenol	ND	800
Acenaphthene	ND	331
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	33
Benz(a)anthracene	ND	33
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	33
Benzo(g,h,i)perylene	ND	330
Benzo(k)fluoranthene	ND	331
Benzoic acid	ND	160
Benzyl alcohol	ND	330
Bis(2-chloroethoxy)methane	ND	331
Bis(2-chloroethyl)ether	ND	33
Bis(2-chloroisopropyl)ether	ND	33
Bis(2-ethylhexyl)phthalate	ND	330
Butyl benzyl phthalate	ND	33
Carbazole	ND	33
Chrysene	ND	33
Dibenz(a,h)anthracene	ND	330
=	ND	330

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 35

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09050091

Lab Batch ID:

90048

Method_Blank

RunID:

H_090513B-5017953

Units:

ug/kg

Analysis Date:

05/13/2009 10:00

Analyst:

GY

05/06/2009 15:27 Preparation Date:

Prep By: QMT Method SW3550C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Di-n-butyl phthalate	ND	330
Di-n-octyl phthalate	ND	330
Fluoranthene	ND	330
Fluorene	ND	330
Hexachiorobenzene	ND	330
Hexachlorobutadiene	ND.	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Pentachlorophenol	ND	800
Phenanthrene	ND	330
Phenol	ND.	330
Pyrene	ND	330
Pyridine	ND	330
2-Methylphenol	ND.	330
3 & 4-Methylphenol	ND	330
Surr: 2,4,6-Tribromophenol	90.4	19-135
Surr: 2-Fluorobiphenyl	67.1	15-140
Surr: 2-Fluorophenol	8.88	15-122
Surr: Nitrobenzene-d5	69.4	10-134
Surr: Phenol-d5	94.4	10-123
Surr: Terphenyl-d14	70.6	18-166

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

ug/kg

Analysis Date:

05/13/2009 10:29

Analyst: GΥ

Preparation Date: 05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	850	384	45.2	34	116
1,2-Dichlorobenzene	850	402	47.3	32	129
1,2-Diphenylhydrazine	850	464	54.6	10	256

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference D - Recovery Unreportable due to Dilution

B/V - Analyte detected in the associated Method Blank J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 36

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050091

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

Analysis Date:

05/13/2009 10:29

Analyst: GΥ

ug/kg

Preparation Date: 05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,3-Dichlorobenzene	850	393	46.2	10	172
1,4-Dichlorobenzene	850	398	46.8	20	124
2,4,5-Trichlorophenol	850	391	46.0	40	150
2,4,6-Trichlorophenol	850	382	44.9	37	144
2,4-Dichlorophenol	850	373	43.9	39	135
2,4-Dimethylphenol	850	413	48.6	32	119
2,4-Dinitrophenol	850	266	31.3	10	191
2,4-Dinitrotoluene	850	404	47.5	30	150
2,6-Dinitrotoluene	850	413	48.6	30	150
2-Chloronaphthalene	850	506	59.5	20	175
2-Chlorophenol	850	416	48.9	23	134
2-Methylnaphthalene	850	410	48.2	30	135
2-Nitroaniline	850	417	49.1	20	175
2-Nitrophenol	850	395	46.5	29	182
3,3'-Dichlorobenzidine	850	338	39.8	10	261
3-Nitroaniline	850	406	47.8	20	175
4,6-Dinitro-2-methylphenol	850	310	36.5	10	181
4-Bromophenyl phenyl ether	850	423	49.8	20	175
4-Chloro-3-methylphenol	850	413	48.6	22	147
4-Chloroaniline	850	533	62.7	20	175
4-Chlorophenyl phenyl ether	850	399	46.9	25	158
4-Nitroaniline	850	376	44.2	20	175
4-Nitrophenol	850	312	36.7	10	132
Acenaphthene	850	401	47.2	30	160
Acenaphthylene	850	413	48.6	10	150
Aniline	1700	860	50.6	10	160
Anthracene	850	435	51.2	27	133
Benz(a)anthracene	850	414	48.7	33	143
Benzo(a)pyrene	850	362	42.6	17	163
Benzo(b)fluoranthene	850	409	48.1	24	159
Benzo(g,h,i)perylene	850	421	49.5	10	219
Benzo(k)fluoranthene	850	413	48.6	11	162
Benzoic acid	850	471	55.4	10	450
Benzyl alcohol	850	458	53.9	30	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 37

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C WorkOrder:

09050091

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

Analysis Date:

05/13/2009 10:29

ug/kg

GY Analyst:

Preparation Date:

05/06/2009 15:27

Prep By:

QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Bis(2-chloroethoxy)methane	850	408	48.0	33	184
Bis(2-chloroethyl)ether	850	434	51.1	28	158
Bis(2-chloroisopropyl)ether	850	447	52.6	36	166
Bis(2-ethylhexyl)phthalate	850	374	44.0	10	158
Butyl benzyl phthalate	850	408	48.0	10	152
Carbazole	850	413	48.6	45	135
Chrysene	850	411	48.4	17	168
Dibenz(a,h)anthracene	850	397	46.7	10	227
Dibenzofuran	850	415	48.8	30	160
Diethyl phthalate	850	397	46.7	10	160
Dimethyl phthalate	850	402	47.3	10	112
Di-n-butyl phthalate	850	401	47.2	40	132
Di-n-octyl phthalate	850	360	42.4	10	140
Fluoranthene	850	431	50.7	26	13
Fluorene	850	399	46.9	35	13
Hexachlorobenzene	850	425	50.0	10	152
Hexachlorobutadiene	850	365	42.9	20	140
Hexachlorocyclopentadiene	850	578	68.0	10	152
Hexachloroethane	850	389	45.8	25	118
Indeno(1,2,3-cd)pyrene	850	412	48.5	10	17
Isophorone	850	440	51.8	21	190
Naphthalene	850	416	48.9	21	133
Nitrobenzene	850	404	47.5	35	180
N-Nitrosodi-n-propylamine	850	396	46.6	10	230
N-Nitrosodiphenylamine	1700	1040	61.2	30	160
Pentachlorophenol	850	147	17.3	14	170
Phenanthrene	850	420	49.4	35	13
Phenol	850	455	53.5	44	12
Pyrene	850	438	51.5	34	13
Pyridine	1700	741	43.6	10	15
2-Methylphenol	850	436	51.3	40	16
3 & 4-Methylphenol	850	396	46.6	40	16
Surr: 2,4,6-Tribromophenol	2500	1580	63.2	19	13
Surr: 2-Fluorobiphenyl	1700	807	47.5	15	14

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 38

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C

WorkOrder:

09050091

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

_

Analysis Date:
Preparation Date:

05/13/2009 10:29 05/06/2009 15:27 Analyst: GY

Analyst. C

Prep By: QMT Method SW3550C

ug/kg

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Surr: 2-Fluorophenol	2500	1660	66.4	15	122
Surr: Nitrobenzene-d5	1700	837	49.2	32	153
Surr: Phenol-d5	2500	1720	68.8	10	123
Surr: Terphenyl-d14	1700	816	48.0	18	166

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09050091-01

H_090508E-5017905 Ur

Units:

ug/kg

Analysis Date:

05/08/2009 20:15

Analyst: GY

Preparation Date: 05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	ND	850	437	51.4	850	292	34.4	39.8 *	28	34	116
1,2-Dichlorobenzene	ND	850	443	52.1	850	329	38.7	29.5	60	32	129
1,2-Diphenylhydrazine	ND	850	500	58.8	850	326	38.4	42.1	60	10	256
1,3-Dichlorobenzene	ND	850	417	49.1	850	318	37.4	26.9	60	10	172
1,4-Dichlorobenzene	ND	850	425	50.0	850	314	36.9	30.0 *	28	20	124
2,4,5-Trichlorophenol	ND	850	477	56.1	850	297	34.9 *	46.5	60	40	150
2,4,6-Trichlorophenol	ND	850	448	52.7	850	303	35.6 *	38.6	60	37	144
2,4-Dichlorophenol	ND	850	429	50.5	850	283	33.3 *	41.0	60	39	135
2,4-Dimethylphenol	ND	850	458	53.9	850	303	35.6	40.7	60	32	119
2,4-Dinitrophenol	ND	850	0	0 *	850	0	0 *	0	60	10	191
2,4-Dinitrotoluene	ND	850	485	57.1	850	301	35.4	46.8	50	30	150
2,6-Dinitrotoluene	ND	850	470	55.3	850	292	34.4	46.7	60	30	150
2-Chloronaphthalene	ND	850	486	57.2	850	335	39.4	36.8	60	20	175
2-Chlorophenol	ND	850	465	54.7	850	327	38.5	34.8	40	23	134
2-Methylnaphthalene	ND	850	476	56.0	850	318	37.4	39.8	60	30	135
2-Nitroaniline	ND	850	478	56.2	850	307	36.1	43.6	60	20	175
2-Nitrophenol	ND	850	434	51.1	850	296	34.8	37.8	60	29	182
3,3'-Dichlorobenzidine	ND	850	451	53.1	850	271	31.9	49.9	60	10	261

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

 $\ensuremath{\mathsf{B/\!V}}$ - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 39

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C WorkOrder:

09050091

Lab Batch ID:

90048

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

RunID:

H_090508E-5017905

Units:

ug/kg Analyst:

Analysis Date: Preparation Date:

05/08/2009 20:15 05/06/2009 15:27 GΥ

Prep By: QMT Method SW3550C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
3-Nitroaniline	ND	850	441	51.9	850	267	31.4	49.2	60	20	175
4,6-Dinitro-2-methylphenol	ND	850	43.9	5.16 *	850	27.8	3.27 *	44.9	60	10	181
4-Bromophenyl phenyl ether	ND	850	459	54.0	850	298	35.1	42.5	60	20	175
4-Chloro-3-methylphenol	ND	850	501	58.9	850	311	36.6	46.8 *	42	22	147
4-Chloroaniline	ND	850	561	66.0	850	353	41.5	45.5	60	20	175
4-Chlorophenyl phenyl ether	ND	850	447	52.6	850	305	35.9	37.8	60	25.	158
4-Nitroaniline	ND	850	448	52.7	850	274	32.2	48.2	60	20	175
4-Nitrophenol	ND	850	480	56.5	850	243	28.6	65.6 *	50	10	132
Acenaphthene	ND	850	459	54.0	850	303	35.6	40.9 *	31	30	160
Acenaphthylene	ND	850	464	54.6	850	312	36.7	39.2	50	10	150
Aniline	ND	1700	911	53.6	1700	631	37.1	36.3	60	10	160
Anthracene	ND	850	493	58.0	850	303	35.6	47.7	50	27	133
Benz(a)anthracene	ND	850	522	61.4	850	321	37.8	47.7	50	33	143
Benzo(a)pyrene	ND	850	452	53.2	850	282	33.2	46.3	60	17	163
Benzo(b)fluoranthene	ND	850	479	56.4	850	304	35.8	44.7	60	24	159
Benzo(g,h,i)perylene	ND	850	468	55.1	850	286	33.6	48.3	60	10	219
Benzo(k)fluoranthene	ND	850	514	60.5	850	310	36.5	49.5	60	11	162
Benzoic acid	ND	850	0	0 *	850	0	0 *	0	60	10	450
Benzyl alcohol	ND	850	453	53.3	850	290	34.1	43.9	60	30	160
Bis (2-chloroethoxy)methane	ND	850	461	54.2	850	302	35.5	41.7	60	33	184
Bis (2-chloroethyl)ether	ND	850	474	55.8	850	323	38.0	37.9	60	28	158
Bis (2-chloroisopropyl)ether	ND	850	484	56.9	850	346	40.7	33.3	60	36	166
Bis (2-ethylhexyl)phthalate	ND	850	534	62.8	850	317	37.3	51.0	60	10	158
Butyl benzyl phthalate	ND	850	529	62.2	850	326	38.4	47.5	60	10	152
Carbazole	ND	850	491	57.8	850	301	35.4 *	48.0	60	45	135
Chrysene	ND	850	508	59.8	850	318	37.4	46.0	60	17	168
Dibenz(a,h)anthracene	ND	850	479	56.4	850	278	32.7	53.1	60	10	227
Dibenzofuran	ND	850	462	54.4	850	309	36.4 *	39.7	60	45	135
Diethyl phthalate	ND	850	466	54.8	850	299	35.2	43.7	60	10	160
Dimethyl phthalate	ND	850	. 471	55.4	850	306	36.0	42.5	60	10	112
Di-n-butyl phthalate	ND	850	516	60.7	850	304	35.8 *	51.7	60	40	132
Di-n-octyl phthalate	ND	850	518	60.9	850	313	36.8	49.3	60		ļ

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 40

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Semivolatile Organics by Method 8270C

RunID:

Method:

SW8270C

WorkOrder:

09050091

Lab Batch ID:

90048

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

H_090508E-5017905

Units:

Analyst:

ug/kg GΥ

Analysis Date: Preparation Date:

05/08/2009 20:15 05/06/2009 15:27

Prep By:

QMT Method SW3550C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Fluoranthene	ND	850	521	61.3	850	328	38.6	45.5	60	26	137
Fluorene	ND	850	455	53.5	850	304	35.8 *	39.8	60	45	135
Hexachlorobenzene	ND	850	468	55.1	850	292	34.4	46.3	60	10	152
Hexachlorobutadiene	ND	850	424	49.9	850	278	32.7	41.6	60	20	140
Hexachlorocyclopentadiene	ND	850	460	54.1	850	321	37.8	35.6	60	10	152
Hexachloroethane	ND	850	433	50.9	850	308	36.2	33.7	60	25	118
Indeno(1,2,3-cd)pyrene	ND	850	466	54.8	850	287	33.8	47.5	60	10	171
Isophorone	ND	850	505	59.4	850	316	37.2	46.0	60	21	196
Naphthalene	ND	850	461	54.2	850	316	37.2	37.3	60	21	133
Nitrobenzene	ND	850	436	51.3	850	305	35.9	35.4	60	35	180
N-Nitrosodi-n-propylamine	ND	850	483	56.8	850	338	39.8	35.3	38	10	230
N-Nitrosodiphenylamine	ND	1700	1160	68.2	1700	739	43.5	44.3	60	30	160
Pentachlorophenol	ND	850	219	25.8	850	103	12.1 *	72.0 *	50	14	176
Phenanthrene	ND	850	476	56.0	850	303	35.6 *	44.4	60	45	135
Phenol	ND	850	492	57.9	850	350	41.2 *	33.7	42	44	120
Pyrene	ND	850	530	62.4	850	325	38.2	48.0 *	31	26	127
Pyridine	ND	1700	685	40.3	1700	492	28.9	32.8	60	10	150
2-Methylphenol	ND	850	490	57.6	850	349	41.1	33.6	60	40	160
3 & 4-Methylphenol	ND	850	445	52.4	850	ND	35.3 *	38.9	60	40	160
Surr: 2,4,6-Tribromophenol	ND	2500	1860	74.4	2500	1140	45.6	48.0 *	30	19	135
Surr: 2-Fluorobiphenyl	ND	1700	884	52.0	1700	599	35.2	38.4 *	30	15	140
Surr: 2-Fluorophenol	ND	2500	1700	68.0	2500	1200	48.0	34.5 *	30	15	122
Surr: Nitrobenzene-d5	ND	1700	901	53.0	1700	597	35.1	40.6 *	30	10	134
Surr: Phenol-d5	ND	2500	1860	74.4	2500	1260	50.4	38.5 *	30	10	123
Surr: Terphenyl-d14	ND	1700	959	56.4	1700	577	33.9	49.7 *	30	18	166

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 41

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R272205

Method Blank

RunID:

Analysis Date:

M 090507E-5012044

Units:

ug/kg TLE

Lab Sample ID

Client Sample ID

05/07/2009 14:32

Analyst:

09050091-01A

Samples in Analytical Batch:

MW-4-52-55

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	5.0
1,3,5-Trimethylbenzene	ND	
1,3-Dichlorobenzene	ND	
	ND	
1,3-Dichloropropane		
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	
2-Butanone	ND	20
2-Chloroethyl vinyl ether	ND ND	
2-Chlorotoluene	ND	
2-Hexanone	ND	
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND ND	
4-Methyl-2-pentanone	ND	
Acetone	ND	
Acrylonitrile	ND	
Benzene	ND	1
Bromobenzene	ND	5.0
Bromochloromethane	ND	5.0
Bromodichloromethane	ND	
Bromoform	ND	5.0
Bromomethane	ND	10
Carbon disulfide	ND.	5.0
Carbon tetrachloride	ND	5.0
Chlorobenzene	ND	5.0
Chloroethane	ND	10
Chloroform	ND	5.0
Chloromethane	ND	10
Dibromochloromethane	ND	
Dibromomethane	ND	
Dichlorodifluoromethane	ND	
Ethylbenzene	ND	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 42

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272205

Method Blank

RunID: N

M_090507E-5012044

Units:

ug/kg

Analysis Date:

05/07/2009 14:32

Analyst:

TLE

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	_5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	10
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	87.4	64-115
Surr: 4-Bromofluorobenzene	106.5	65-131
Surr: Toluene-d8	95.5	75-136

Laboratory Control Sample (LCS)

RuniD:

M_090507E-5012043

Units:

ug/kg

Analysis Date:

05/07/2009 12:31

Analyst: TLE

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	20.3	102	56	140
1,1,1-Trichloroethane	20.0	21.2	106	58	135
1,1,2,2-Tetrachloroethane	20.0	19.9	99.3	52	139
1,1,2-Trichloroethane	20.0	20.2	101	81	138
1,1-Dichloroethane	20.0	20.1	101	56	137

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 43

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

radillaster 120120

WorkOrder:

09050091

Lab Batch ID:

R272205

Laboratory Control Sample (LCS)

RunID:

M_090507E-5012043

Units:

1/2:220

Analysis Date:

05/07/2009 12:31

Ullito.

ug/kg

Analyst: TLE

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	16.2	81.0	56	135
1,1-Dichloropropene	20.0	21.2	106	62	132
1,2,3-Trichlorobenzene	20.0	22.9	115	53	144
1,2,3-Trichloropropane	20.0	19.9	99.3	44	141
1,2,4-Trichlorobenzene	20.0	21.9	109	51	143
1,2,4-Trimethylbenzene	20.0	18.8	94.0	59	148
1,2-Dibromo-3-chloropropane	20.0	19.2	96.2	53	144
1,2-Dibromoethane	20.0	20.8	104	55	138
1,2-Dichlorobenzene	20.0	20.1	101	63	137
1,2-Dichloroethane	20.0	20.5	103	56	135
1,2-Dichloropropane	20.0	21.1	106	62	132
1,3,5-Trimethylbenzene	20.0	18.4	91.8	54	145
1,3-Dichlorobenzene	20.0	20.1	101	66	137
1,3-Dichloropropane	20.0	19.6	98.0	59	138
1,4-Dichlorobenzene	20.0	19.9	99.5	61	142
2,2-Dichloropropane	20.0	19.4	97.2	55	138
2-Butanone	20.0	25.0	125	10	191
2-Chloroethyl vinyl ether	20.0	25.9	129	10	181
2-Chlorotoluene	20.0	19.5	97.6	64	139
2-Hexanone	20.0	19.8	98.8	18	182
4-Chlorotoluene	20.0	19.0	95.0	63	138
4-Isopropyltoluene	20.0	19.4	97.0	59	156
4-Methyl-2-pentanone	20.0	20.3	102	10	166
Acetone	20.0	25.5	128	10	200
Acrylonitrile	20.0	19.8	98.9	38	169
Benzene	20.0	20.8	104	64	130
Bromobenzene	20.0	19.0	95.0	58	139
Bromochloromethane	20.0	24.4	122	66	127
Bromodichloromethane	20.0	21.5	108	59	134
Bromoform	20.0	19.5	97.3	65	135
Bromomethane	20.0	20.3	101	40	134
Carbon disulfide	20.0	18.1	90.4	53	130
Carbon tetrachloride	20.0	19.2	96.1	61	132
Chlorobenzene	20.0	21.2	106	60	140
t Detected at the Reporting Limit		Matrix Int			

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 44



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050091

Lab Batch ID:

R272205

Laboratory Control Sample (LCS)

RunID:

M 090507E-5012043

Units:

Analysis Date:

05/07/2009 12:31

Ar

ug/kg

nalyst: TLI	
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Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	16.9	84.7	45	140
Chloroform	20.0	21.2	106	64	131
Chloromethane	20.0	18.3	91.5	39	140
Dibromochloromethane	20.0	19.4	97.1	54	138
Dibromomethane	20.0	23.1	115	64	131
Dichlorodifluoromethane	20.0	15.1	75.3	35	133
Ethylbenzene	20.0	20.9	104	58	143
Hexachlorobutadiene	20.0	25.0	125	56	166
Isopropylbenzene	20.0	18.5	92.3	58	133
Methyl tert-butyl ether	40.0	41.8	104	50	132
Methylene chloride	20.0	18.9	94.6	52	144
Naphthalene	20.0	20.5	103	51	13
n-Butylbenzene	20.0	19.3	96.5	59	16
n-Propylbenzene	20.0	18.7	93.6	57	14
sec-Butylbenzene	20.0	19.2	95.9	63	140
Styrene	20.0	21.1	105	57	13
tert-Butylbenzene	20.0	18.6	93.2	57	14
Tetrachloroethene	20.0	22.5	113	41	15
Toluene	20.0	20.2	101	63	13
Trichloroethene	20.0	23.6	118	62	13
Trichlorofluoromethane	20.0	17.2	85.9	53	14
Vinyl acetate	20.0	19.2	96.2	17	16
Vinyl chloride	20.0	19.3	96.6	45	14
cis-1,2-Dichloroethene	20.0	23.4	117	70	12
cis-1,3-Dichloropropene	20.0	22.0	110	58	13
m,p-Xylene	40.0	42.5	106	64	13
o-Xylene	20.0	21.6	108	64	14
trans-1,2-Dichloroethene	20.0	22.8	114	63	13
trans-1,3-Dichloropropene	20.0	21.1	105	58	12
1,2-Dichloroethene (total)	40.0	46.2	116	63	13
Xylenes,Total	60.0	64.1	107	64	14
Surr: 1,2-Dichloroethane-d4	50.0	46.1	92.3	64	11
Surr: 4-Bromofluorobenzene	50.0	52.8	106	65	13
Surr: Toluene-d8	50.0	47	94.0	75	13

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 45

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09050250-03

M_090507E-5012046

Units: ug/kg-dry

Analysis Date:

05/07/2009 16:03

Analyst: TLE

Preparation Date:

05/07/2009 11:01

Prep By: E G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	25.3	20.6	81.5	25.3	20.8	82.1	0.679	30	38	129
1,1,1-Trichloroethane	ND	25.3	27.7	109	25.3	28.5	112	2.79	30	44	154
1,1,2,2-Tetrachloroethane	ND	25.3	14.6	57.8	25.3	15.1	59.8	3.39	30	14	143
1,1,2-Trichloroethane	ND	25.3	17.0	67.1	25.3	17.2	68.0	1.21	30	34	135
1,1-Dichloroethane	ND	25.3	24.8	98.1	25.3	24.7	97.4	0.696	30	42	146
1,1-Dichloroethene	ND	25.3	20.5	80.8	25.3	18.7	73.7	9.15	22	39	168
1,1-Dichloropropene	ND	25.3	28.7	113	25.3	29.0	115	1.12	30	42	156
1,2,3-Trichlorobenzene	ND	25.3	16.9	66.9	25.3	17.6	69.4	3.68	30	10	125
1,2,3-Trichloropropane	ND	25.3	14.9	58.8	25.3	15.5	61.4	4.39	30	10	154
1,2,4-Trichlorobenzene	ND	25.3	17.4	68.7	25.3	18.0	71.1	3.55	30	10	128
1,2,4-Trimethylbenzene	ND	25.3	19.4	76.6	25.3	19.6	77.6	1.25	30	22	139
1,2-Dibromo-3-chloropropane	ND	25.3	14.1	55.8	25.3	15.8	62.6	11.5	30	23	139
1,2-Dibromoethane	ND	25.3	16.3	64.4	25.3	16.5	65.0	0.897	30	32	129
1,2-Dichlorobenzene	ND	25.3	17.4	68.6	25.3	17.9	70.7	3.10	30	17	130
1,2-Dichloroethane	ND	25.3	19.3	76.1	25.3	19.7	77.9	2.39	30	15	158
1,2-Dichloropropane	ND	25.3	23.1	91.1	25.3	22.6	89.2	2.10	30	42	133
1,3,5-Trimethylbenzene	ND	25.3	20.2	79.7	25.3	20.5	80.9	1.41	30	22	135
1,3-Dichlorobenzene	ND	25.3	19.2	75.8	25.3	19.3	76.1	0.362	30	22	130
1,3-Dichloropropane	ND	25.3	16.4	64.7	25.3	16.4	64.8	0.193	30	37	131
1,4-Dichlorobenzene	ND	25.3	18.2	71.8	25.3	18.4	72.8	1.35	30	20	129
2,2-Dichloropropane	ND	25.3	25.0	98.8	25.3	25.6	101	2.35	30	39	155
2-Butanone	ND	25.3	25.5	101	25.3	26.2	103	2.64	30	10	200
2-Chloroethyl vinyl ether	ND	25.3	15.3	60.5	25.3	16.7	66.0	8.69	30	10	168
2-Chlorotoluene	ND	25.3	20.2	79.8	25.3	20.5	80.9	1.47	30	30	133
2-Hexanone	ND	25.3	14.6	57.6	25.3	16.1	63.8	10.1	30	14	151
4-Chlorotoluene	ND	25.3	18.8	74.4	25.3	19.0	75.0	0.870	30	24	133
4-Isopropyltoluene	ND	25.3	21.8	86.1	25.3	22.1	87.4	1.50	30	17	143
4-Methyl-2-pentanone	ND	25.3	15.6	61.6		16.9	66.9	8.20	30	10	176
Acetone	ND	25.3	26.9	106	25.3	30.1	119	11.2	30	10	200
Acrylonitrile	ND	25.3	17.8	70.4	25.3	19.8	78.3	10.6	30	10	200

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 46

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050091

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050250-03

RunID:

M_090507E-5012046

Units: ug/kg-dry

Analysis Date:

05/07/2009 16:03

Analyst: TLE

Preparation Date: 05/07/2009 11:01 Prep By: E_G Method SW5030B

Analyte	Sample	MS	MS	MS %	MSD	MSD	MSD %	RPD	RPD	Low	High
	Result	Spike Added	Result	Recovery	Spike Added	Result	Recovery		Limit	Limit	Limit
Benzene	ND	25.3	25.3	99.8	25.3	25.3	99.9	0.110	21	49	135
Bromobenzene	ND	25.3	17.3	68.5	25.3	17.5	69.0	0.829	30	29	127
Bromochloromethane	ND	25.3	20.8	82.3	25.3	21.3	83.9	2.02	30	27	147
Bromodichloromethane	ND	25.3	21.4	84.4	25.3	21.0	83.1	1.61	30	32	138
Bromoform	ND	25.3	15.3	60.3	25.3	15.7	62.0	2.85	30	27	129
Bromomethane	ND	25.3	24.2	95.6	25.3	23.6	93.2	2.64	30	32	142
Carbon disulfide	ND	25.3	24.6	97.3	25.3	24.2	95.4	1.96	30	25	168
Carbon tetrachloride	ND	25.3	26.4	104	25.3	26.4	104	0.216	30	48	151
Chlorobenzene	ND	25.3	23.0	90.7	25.3	22.6	89.3	1.54	21	38	130
Chloroethane	ND	25.3	19.4	76.7	25.3	21.2	83.8	8.88	30	29	161
Chloroform	ND	25.3	23.9	94.3	25.3	24.4	96.5	2.27	30	34	153
Chloromethane	ND	25.3	22.4	88.7	25.3	23.4	92.6	4.34	30	31	151
Dibromochloromethane	ND	25.3	17.1	67.6	25.3	17.1	67.5	0.155	30	31	127
Dibromomethane	ND	25.3	19.6	77.3	25.3	20.3	80.2	3.69	30	30	141
Dichlorodifluoromethane	ND	25.3	20.9	82.4	25.3	21.4	84.4	2.36	30	15	167
Ethylbenzene	ND	25.3	25.2	99.3	25.3	24.7	97.7	1.71	30	39	135
Hexachlorobutadiene	ND	25.3	27.1	107	25.3	27.9	110	2.92	30	10	149
Isopropylbenzene	ND	25.3	23.0	90.7	25.3	22.7	89.6	1.25	30	25	142
Methyl tert-butyl ether	ND	50.6	35.3	69.7	50.6	36.6	72.3	3.71	30	19	142
Methylene chloride	ND	25.3	15.7	61.9	25.3	17.9	70.6	13.0	30	13	170
Naphthalene	ND	25.3	13.1	51.8	25.3	14.4	57.0	9.56	30	10	124
n-Butylbenzene	ND	25.3	21.8	86.1	25.3	22.1	87.1	1.14	30	10	156
n-Propylbenzene	ND	25.3	21.7	85.6	25.3	21.4	84.7	1.07	30	20	141
sec-Butylbenzene	ND	25.3	22.2	87.8	25.3	22.6	89.4	1.83	30	29	142
Styrene	ND	25.3	21.8	86.2	25.3	21.5	85.0	1.37	30	28	133
tert-Butylbenzene	ND	25.3	21.7	85.9	25.3	22.0	87.0	1.29	30	26	141
Tetrachloroethene	ND	25.3	27.5	109	25.3	27.6	109	0.487	30	33	149
Toluene	ND	25.3	24.1	95.1	25.3	24.2	95.5	0.435	21	49	133
Trichloroethene	ND	25.3	30.3	120	25.3	30.2	119	0.494	_ 24	51	142
Trichlorofluoromethane	ND	25.3	23.4	92.4	25.3	22.1	87.2	5.77	30	24	184
Vinyl acetate	ND	25.3	14.3	56.4	25.3	14.7	57.9	2.61	30	10	174
Vinyl chloride	ND	25.3	27.6	109	25.3	27.8	110	0.978	30	29	177

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 47

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050250-03

M_090507E-5012046

Units:

ug/kg-dry

Analysis Date:

RunID:

05/07/2009 16:03

Analyst: TLE

Preparation Date: 05/07/2009 11:01 Prep By: E_G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	25.3	25.2	99.5	25.3	23.5	92.7	7.12	30	38	151
cis-1,3-Dichloropropene	ND	25.3	21.5	85.0	25.3	21.7	85.6	0.663	30	31	131
m,p-Xylene	ND	50.6	50.1	99.0	50.6	49.6	98.0	1.02	30	32	140
o-Xylene	ND	25.3	24.8	97.8	25.3	24.0	94.7	3.19	30	36	142
trans-1,2-Dichloroethene	ND	25.3	29.1	115	25.3	29.2	115	0.152	30	41	153
trans-1,3-Dichloropropene	ND	25.3	19.1	75.5	25.3	19.2	75.7	0.271	30	27	128
1,2-Dichloroethene (total)	ND	50.6	54.3	107	50.6	52.7	104	3.16	30	38	153
Xylenes,Total	ND	75.9	74.9	98.6	75.9	73.6	96.9	1.73	30	32	142
Surr: 1,2-Dichloroethane-d4	ND	63.3	57.8	91.3	63.3	55.4	87.6	4.16	30	64	115
Surr: 4-Bromofluorobenzene	ND	63.3	70.7	112	63.3	69.1	109	2.28	30	65	131
Surr: Toluene-d8	ND	63.3	59.1	93.4	63.3	58.3	92.2	1.29	30	75	136

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 48

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Analysis Date:

Preparation Date:

Volatile Organics by Method 8260B

Method:

SW8260B

05/11/2009 10:29

05/11/2009 10:29

WorkOrder:

09050091

Lab Batch ID:

R272416

Method Blank

K_090511A-5015562 RunID:

Units: Analyst:

Prep By:

ug/L JC

09050091-02A

Client Sample ID

Lab Sample ID 09050091-04A

Samples in Analytical Batch:

MW-4

09050091-05A

FB-050209-1 TB-050209-1

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Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ИD	5.0
1,2-Dichlorobenzene	ND	_ 5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,3-Dichloropropane	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,2-Dichloropropane	ND	5.0
2-Butanone	ND	20
2-Chloroethyl vinyl ether	ND	10
2-Chlorotoluene	ND	5.0
2-Hexanone	ND	10
4-Chlorotoluene	ND	5.0
4-Isopropyltoluene	ND	5.0
4-Methyl-2-pentanone	ND	10
Acetone	ND	20
Acrylonitrile	ND	
Benzene	ND	
Bromobenzene	ND	
Bromochloromethane	ND.	
Bromodichloromethane	ND	
Bromoform	ND.	
Bromomethane	ND	
Carbon disulfide	ND	
Carbon tetrachloride	ND	-
Chlorobenzene	ND	
Chloroethane	ND	
Chloroform	ND	+
Chloromethane	ND ND	
Dibromochloromethane	ND	
Dibromomethane	ND	1
Dichlorodifluoromethane	ND.	
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 49

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272416

Method Blank

RunID:

K_090511A-5015562

Units:

ug/L

Analysis Date:

05/11/2009 10:29

Analyst:

st: JC

Preparation Date:

05/11/2009 10:29

Prep By:

Method

Analyte	Result	Rep Limit
Hexachiorobutadiene	ND	5.0
Isopropyibenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND.	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes, Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	90.5	78-116
Surr: 4-Bromofluorobenzene	105.5	74-125
Surr: Toluene-d8	96.5	82-118

Laboratory Control Sample (LCS)

RunID:

K_090511A-5015561

Units:

Analyst: JC

ug/L

Analysis Date: Preparation Date:

05/11/2009 9:59 05/11/2009 9:59

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	18.3	91.4	71	128
1,1,1-Trichloroethane	20.0	22.0	110	61	135
1,1,2,2-Tetrachloroethane	20.0	16.1	80.6	60	133
1,1,2-Trichloroethane	20.0	17.1	85.4	77	127
1,1-Dichloroethane	20.0	17.0	85.2	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 50

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272416

Laboratory Control Sample (LCS)

RuniD:

K_090511A-5015561

Units:

Analysis Date:

05/11/2009 9:59

ug/L JC

Analyst:

Preparation Date: 05/11/2009 9:59 Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	17.8	88.8	65	134
1,1-Dichloropropene	20.0	19.4	97.0	68	126
1,2,3-Trichlorobenzene	20.0	18.1	90.5	36	154
1,2,3-Trichloropropane	20.0	17.6	88.2	38	153
1,2,4-Trichlorobenzene	20.0	17.1	85.4	69	144
1,2,4-Trimethylbenzene	20.0	18.5	92.7	64	128
1,2-Dibromo-3-chloropropane	20.0	23.5	118	44	14
1,2-Dibromoethane	20.0	17.6	87.8	75	124
1,2-Dichlorobenzene	20.0	17.9	89.6	68	124
1,2-Dichloroethane	20.0	21.8	109	61	138
1,2-Dichloropropane	20.0	18.0	90.1	76	123
1,3,5-Trimethylbenzene	20.0	18.8	94.2	61	12
1,3-Dichlorobenzene	20.0	17.9	89.7	68	12
1,3-Dichloropropane	20.0	16.6	82.8	76	12
1,4-Dichlorobenzene	20.0	17.8	89.2	68	124
2,2-Dichloropropane	20.0	21.8	109	42	14:
2-Butanone	20.0	17.1	85.7	22	183
2-Chloroethyl vinyl ether	20.0	17.4	87.0	10	179
2-Chlorotoluene	20.0	18.2	91.1	64	132
2-Hexanone	20.0	15.6	77.8	31	178
4-Chlorotoluene	20.0	17.9	89.4	61	133
4-Isopropyltoluene	20.0	19.3	96.7	63	136
4-Methyl-2-pentanone	20.0	15.7	78.7	10	159
Acetone	20.0	16.5	82.6	10	200
Acrylonitrile	20.0	14.3	71.4	54	15
Benzene	20.0	17.6	88.1	74	12:
Bromobenzene	20.0	17.4	87.0	68	12:
Bromochloromethane	20.0	17.5	87.7	71	12
Bromodichloromethane	20.0	21.0	105	72	128
Bromoform	20.0	18.7	93.5	81	13:
Bromomethane	20.0	13.8	69.1	53	13
Carbon disulfide	20.0	16.0	79.8	41	14:
Carbon tetrachloride	20.0	24.6	123	59	14:
Chlorobenzene	20.0	16.7	83.4	75	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 51

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

Fracillaster 120125

WorkOrder:

09050091

Lab Batch ID:

R272416

Laboratory Control Sample (LCS)

RunID:

K_090511A-5015561

Units:

ug/L

Analysis Date:

05/11/2009 9:59

Analyst: JC

Preparation Date: 05/11/2009 9:59

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	13.7	68.7	60	134
Chloroform	20.0	18.4	91.8	71	127
Chloromethane	20.0	15.3	76.3	50	139
Dibromochloromethane	20.0	18.2	91.1	65	130
Dibromomethane	20.0	20.6	103	79	124
Dichlorodifluoromethane	20.0	27.4	137	22	162
Ethylbenzene	20.0	17.0	85.0	72	127
Hexachlorobutadiene	20.0	21.5	107	45	152
Isopropylbenzene	20.0	15.4	77.2	58	130
Methyl tert-butyl ether	40.0	38.8	97.0	63	123
Methylene chloride	20.0	16.4	81.8	61	135
Naphthalene	20.0	16.4	81.8	33	148
n-Butylbenzene	20.0	19.7	98.6	62	136
n-Propylbenzene	20.0	17.4	87.0	57	13
sec-Butylbenzene	20.0	19.1	95.4	63	13
Styrene	20.0	16.1	80.7	69	120
tert-Butylbenzene	20.0	21.6	108	59	131
Tetrachloroethene	20.0	17.7	88.6	45	173
Toluene	20.0	16.6	83.1	74	126
Trichloroethene	20.0	19.6	98.1	79	13
Trichlorofluoromethane	20.0	23.2	116	49	150
Vinyl acetate	20.0	12.0	60.1	10	167
Vinyl chloride	20.0	16.9	84.4	51	148
cis-1,2-Dichloroethene	20.0	17.0	85.1	71	128
cis-1,3-Dichloropropene	20.0	19.9	99.7	67	128
m,p-Xylene	40.0	33.5	83.8	71	129
o-Xylene	20.0	17.1	85.4	74	130
trans-1,2-Dichloroethene	20.0	17.6	87.9	66	128
trans-1,3-Dichloropropene	20.0	20.7	103	60	128
1,2-Dichloroethene (total)	40.0	34.6	86.5	66	128
Xylenes,Total	60.0	50.6	84.3	71	13
Surr: 1,2-Dichloroethane-d4	50.0	47.6	95.2	78	11
Surr: 4-Bromofluorobenzene	50.0	52	104	74	12
Surr: Toluene-d8	50.0	47.5	95.0	82	11

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 52

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050091

Lab Batch ID:

R272416

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050028-17

RunID:

K_090511A-5015573

Units:

ug/L

Analysis Date:

05/11/2009 15:56

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	20.7	104	20	19.5	97.4	6.31	20	68	124
1,1,1-Trichloroethane	ND	20	22.9	115	20	22.7	113	1.14	20	69	123
1,1,2,2-Tetrachloroethane	ND	20	19.4	96.8	20	17.4	87.1	10.5	20	69	130
1,1,2-Trichloroethane	ND	20	18.4	92.0	20	18.8	94.0	2.13	20	75	126
1,1-Dichloroethane	ND	20	20.2	101	20	19.9	99.6	1.20	20	65	129
1,1-Dichloroethene	ND	20	20.0	99.8	20	19.3	96.7	3.17	22	61	139
1,1-Dichloropropene	ND	20	20.1	100	20	20.5	103	2.07	20	69	121
1,2,3-Trichlorobenzene	ND	20	16.6	83.1	20	17.2	85.9	3.30	20	53	127
1,2,3-Trichloropropane	ND	20	18.8	94.0	20	18.9	94.7	0.742	20	79	124
1,2,4-Trichlorobenzene	ND	20	15.5	77.3	20	14.9	74.7	3.49	20	58	118
1,2,4-Trimethylbenzene	ND	20	17.5	87.7	20	15.9	79.7	9.56	20	43	132
1,2-Dibromo-3-chloropropane	ND	20	21.0	105	20	18.6	92.8	12.4	20	46	131
1,2-Dibromoethane	ND	20	19.7	98.4	20	18.2	91.1	7.71	20	76	122
1,2-Dichlorobenzene	ND	20	17.8	88.9	20	17.6	88.1	0.899	20	74	110
1,2-Dichloroethane	ND	20	22.5	112	20	24.0	120	6.45	20	60	129
1,2-Dichloropropane	ND	20	19.0	94.8	20	19.4	97.0	2.27	20	76	116
1,3,5-Trimethylbenzene	ND	20	18.1	90.4	20	16.7	83.5	7.95	20	51	121
1,3-Dichlorobenzene	ND	20	18.4	92.2	20	17.4	87.1	5.68	20	71	110
1,3-Dichloropropane	ND	20	18.8	94.2	20	18.8	94.1	0.106	20	80	119
1,4-Dichlorobenzene	ND	20	18.8	94.1	20	17.1	85.6	9.53	20	69	110
2,2-Dichloropropane	ND	20	23.2	116	20	22.8	114	1.86	20	52	122
2-Butanone	ND	20	20.2	101	20	19.1	95.4	5.64	20	10	133
2-Chloroethyl vinyl ether	ND	20	0.817	4.09 *	20	0	0 *	200 *	20	10	182
2-Chlorotoluene	ND	20	18.2	91.0	20	17.4	87.0	4.45	20	69	112
2-Hexanone	ND	20	17.5	87.4	20	17.5	87.4	0.0400	20	10	163
4-Chlorotoluene	ND	20	16.6	82.8	20	17.2	85.8	3.58	20	37	110
4-Isopropyltoluene	ND	20	18.7	93.6	20	16.2	80.9	14.6	20	65	116
4-Methyl-2-pentanone	ND	20	16.5	82.7	20	18.0	90.2	8.66	20	10	103
Acetone	ND	20	18.5	92.7	20	17.5	87.7	5.51	20	10	160
Acrylonitrile	ND	20	18.1	90.5	20	19.6	98.0	8.04	20	45	155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 53

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272416

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050028-17

RunID:

K_090511A-5015573

Units: ug/L

Analysis Date:

05/11/2009 15:56

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	19.7	98.3	20	18.7	93.5	4.95	22	70	124
Bromobenzene	ND	20	18.2	90.8	20	17.0	84.8	6.88	20	72	111
Bromochloromethane	ND	20	19.6	97.9	20	18.4	92.2	6.07	20	73	126
Bromodichloromethane	ND	20	22.6	113	20	20.9	104	8.07	20	68	125
Bromoform	ND	20	18.5	92.6	20	17.4	86.9	6.33	20	44	132
Bromomethane	ND	20	16.4	82.2	20	15.4	77.0	6.50	20	50	140
Carbon disulfide	ND	20	18.0	89.9	20	17.5	87.6	2.57	20	46	143
Carbon tetrachloride	ND	20	24.8	124	20	23.2	116	6.82	20	66	126
Chlorobenzene	ND	20	19.0	94.8	20	18.1	90.6	4.56	21	68	123
Chloroethane	ND	20	14.9	74.7	20	15.9	79.5	6.31	20	59	134
Chloroform	ND	20	20.3	102	20	20.7	103	1.56	20	68	127
Chloromethane	ND	20	17.1	85.7	20	16.6	83.1	3.12	20	51	137
Dibromochloromethane	ND	20	19.0	94.8	20	18.7	93.7	1.12	20	58	131
Dibromomethane	ND	20	21.6	108	20	21.2	106	2.28	20	82	123
Dichlorodifluoromethane	ND	20	24.1	120	20	22.7	114	5.78	20	35	143
Ethylbenzene	ND	20	18.5	92.5	20	17.5	87.6	5.36	20	76	122
Hexachlorobutadiene	ND	20	21.5	108	20	21.1	105	2.09	20	43	137
Isopropylbenzene	ND	20	17.0	84.8	20	15.5	77.5	8.92	20	57	124
Methyl tert-butyl ether	ND	40	43.7	109	40	44.3	111	1.36	20	10	200
Methylene chloride	ND	20	18.9	94.7	20	17.1	85.3	10.4	20	70	134
Naphthalene	ND	20	16.1	80.4	20	15.7	78.4	2.44	20	42	140
n-Butylbenzene	ND	20	20.6	103	20	17.9	89.5	13.9	20	82	112
n-Propylbenzene	ND	20	18.6	93.1	20	16.3	81.4	13.5	20	73	108
sec-Butylbenzene	ND	20	19.6	97.9	20	17.7	88.5	10.1	20	76	110
Styrene	ND	20	16.9	84.5	20	16.8	84.2	0.243	20	58	152
tert-Butylbenzene	ND	20	21.8	109	20	19.0	94.9	13.6	20	66	120
Tetrachloroethene	ND	20	19.3	96.3	20	18.6	93.2	3.20	20	71	130
Toluene	ND	20	18.6	93.0	20	18.2	90.9	2.31	24	80	117
Trichloroethene	ND	20	20.7	104	20	19.0	95.2	8.49	21	82	121
Trichlorofluoromethane	ND	20	22.8	114	20	22.5	113	1.49	20	74	138
Vinyl acetate	ND	20	16.5	82.7	20	17.3	86.7	4.67	20	66	135
Vinyl chloride	ND	20	19.7	98.3	20	17.8	89.0	9.86	20	45	143

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

 $\ensuremath{\mathsf{B}}\ensuremath{\mathcal{N}}$ - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 54

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272416

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09050028-17

K_090511A-5015573

Units:

ug/L

Analysis Date:

05/11/2009 15:56

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	20	19.4	97.2	20	19.9	99.3	2.12	20	67	132
cis-1,3-Dichloropropene	ND	20	20.9	105	20	19.9	99.6	4.77	20	67	116
m,p-Xylene	ND	40	36.1	90.3	40	35.9	89.7	0.658	20	69	127
o-Xylene	ND	20	19.2	95.9	20	19.1	95.4	0.512	20	84	114
trans-1,2-Dichloroethene	ND	20	19.3	96.6	20	21.0	105	8.22	20	68	131
trans-1,3-Dichloropropene	ND	20	21.4	107	20	21.6	108	0.818	20	56	131
1,2-Dichloroethene (total)	ND	40	38.7	96.9	40	40.9	102	5.21	20	67	132
Xylenes,Total	ND	60	55.3	92.2	60	55.0	91.6	0.607	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	48	96.1	50	49.2	98.4	2.35	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	55.3	111	50	53.9	108	2.57	30	74	125
Surr: Toluene-d8	ND	50	48.4	96.8	50	47.0	94.0	2.91	30	82	118

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

TNTC - Too numerous to count

09050091 Page 55

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

05/12/2009 12:04

05/12/2009 12:04

Samples in Analytical Batch:

09050091

WorkOrder: Lab Batch ID:

R272496

Method Blank

RuniD: Analysis Date:

Preparation Date:

Q_090512A-5018927

Units: Analyst:

Prep By:

ug/L JC

Method

Lab Sample ID

Client Sample ID

09050091-02A

MW-4

09050091-03A

RB-050209-1

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND ND	5.0
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND.	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	5.0
1.2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	5.0
1,2-Dichloropropane	ND	
1,3,5-Trimethylbenzene	ND	
	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,3-Dichloropropane		
1,4-Dichlorobenzene	ND ND	
2,2-Dichloropropane	ND	5.0
2-Butanone	ND ND	20
2-Chloroethyl vinyl ether	ND ND	10
2-Chlorotoluene	ND.	5.0
2-Hexanone	ND	10
4-Chlorotoluene	ND	5.0
4-Isopropyltoluene	ND	5.0
4-Methyl-2-pentanone	ND_	10
Acetone	ND.	20
Acrylonitrile	ND	10
Benzene	ND ND	5.0
Bromobenzene	ND	
Bromochloromethane	ND ND	5.0
Bromodichloromethane	ND	
Bromoform	ND ND	
Bromomethane	ND ND	10
Carbon disulfide	ND ND	
Carbon tetrachloride	ND	
Chlorobenzene	ND	5.0
Chloroethane	ND	
Chloroform	ND.	
Chloromethane	ND	
Dibromochloromethane	ND	
Dibromomethane	ND	
Dichlorodifluoromethane	ND	10
Ethylbenzene	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 56

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

J-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R272496

Method Blank

RuniD: Q_09

Q_090512A-5018927

Units:

ug/L

Analysis Date:

05/12/2009 12:04

Analyst:

JC

_

Preparation Date:

05/12/2009 12:04

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	101.5	78-116
Surr: 4-Bromofluorobenzene	101.8	74-125
Surr: Toluene-d8	102.1	82-118

Laboratory Control Sample (LCS)

RunID:

Q_090512A-5018926

Units:

ug/L st: JC

Analysis Date: Preparation Date: 05/12/2009 11:36 05/12/2009 11:36 Analyst: Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	16.7	83.6	71	128
1,1,1-Trichloroethane	20.0	20.4	102	61	135
1,1,2,2-Tetrachloroethane	20.0	19.9	99.5	60	133
1,1,2-Trichloroethane	20.0	20.1	100	77	127
1,1-Dichloroethane	20.0	21.2	106	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 57

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272496

Laboratory Control Sample (LCS)

RunID:

Q_090512A-5018926

Units:

ug/L

Analysis Date:

05/12/2009 11:36

Analyst: JC

Method

Preparation Date: 05/12/2009 11:36

Prep By:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	21.4	107	65	134
1,1-Dichloropropene	20.0	19.1	95.4	68	126
1,2,3-Trichlorobenzene	20.0	17.2	85.8	36	154
1,2,3-Trichloropropane	20.0	19.0	94.9	38	153
1,2,4-Trichlorobenzene	20.0	16.2	81.2	69	144
1,2,4-Trimethylbenzene	20.0	17.1	85.6	64	128
1,2-Dibromo-3-chloropropane	20.0	17.0	85.1	44	14
1,2-Dibromoethane	20.0	18.8	93.8	75	124
1,2-Dichlorobenzene	20.0	18.4	91.8	68	124
1,2-Dichloroethane	20.0	20.2	101	61	138
1,2-Dichloropropane	20.0	19.9	99.6	76	123
1,3,5-Trimethylbenzene	20.0	16.5	82.4	61	12
1,3-Dichlorobenzene	20.0	16.7	83.6	68	12
1,3-Dichloropropane	20.0	19.5	97.4	76	12
1,4-Dichlorobenzene	20.0	18.0	89.8	68	12-
2,2-Dichloropropane	20.0	19.0	95.2	42	14:
2-Butanone	20.0	20.2	101	22	18
2-Chloroethyl vinyl ether	20.0	21.1	106	10	17
2-Chlorotoluene	20.0	17.4	87.0	64	13.
2-Hexanone	20.0	22.1	110	31	17
4-Chlorotoluene	20.0	16.9	84.7	61	13
4-isopropyltoluene	20.0	16.9	84.7	63	13
4-Methyl-2-pentanone	20.0	20.0	100	10	15
Acetone	20.0	21.3	106	10	20
Acrylonitrile	20.0	21.9	110	54	15
Benzene	20.0	18.9	94.4	74	12
Bromobenzene	20.0	16.7	83.6	68	12
Bromochloromethane	20.0	20.6	103	71	12
Bromodichloromethane	20.0	18.0	90.0	72	12
Bromoform	20.0	17.6	88.0	81	13
Bromomethane	20.0	17.0	84.9	53	13
Carbon disulfide	20.0	19.0	95.1	41	14
Carbon tetrachloride	20.0	16.8	83.9	59	14
Chlorobenzene	20.0	18.0	90.1	75	12

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

BN - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 58

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050091

Lab Batch ID:

R272496

Laboratory Control Sample (LCS)

RunID:

Q_090512A-5018926

Units:

ug/L

JC

Analysis Date:

05/12/2009 11:36

Analyst:

Preparation Date: 05/12/2009 11:36 Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	18.4	92.0	60	134
Chloroform	20.0	18.9	94.6	71	127
Chloromethane	20.0	20.5	103	50	139
Dibromochloromethane	20.0	15.7	78.4	65	130
Dibromomethane	20.0	18.5	92.6	79	124
Dichlorodifluoromethane	20.0	21.8	109	22	162
Ethylbenzene	20.0	17.8	89.2	72	127
Hexachlorobutadiene	20.0	16.1	80.7	45	152
Isopropylbenzene	20.0	15.2	76.0	58	130
Methyl tert-butyl ether	40.0	36.9	92.3	63	123
Methylene chloride	20.0	21.0	105	61	13
Naphthalene	20.0	17.6	87.8	33	148
n-Butylbenzene	20.0	17.6	87.9	62	136
n-Propylbenzene	20.0	17.7	88.4	57	13
sec-Butylbenzene	20.0	17.9	89.5	63	13
Styrene	20.0	17.6	88.1	69	120
tert-Butylbenzene	20.0	17.4	86.8	59	13
Tetrachloroethene	20.0	18.9	94.3	45	173
Toluene	20.0	18.2	91.1	74	120
Trichloroethene	20.0	18.8	93.9	79	13
Trichlorofluoromethane	20.0	18.2	91.1	49	15
Vinyl acetate	20.0	13.1	65.4	10	16
Vinyl chloride	20.0	22.2	111	51	14
cis-1,2-Dichloroethene	20.0	20.3	102	71	12
cis-1,3-Dichloropropene	20.0	19.3	96.4	67	12
m,p-Xylene	40.0	37.0	92.4	71	12
o-Xylene	20.0	18.0	90.0	74	13
trans-1,2-Dichloroethene	20.0	20.1	100	66	12
trans-1,3-Dichloropropene	20.0	18.5	92.6	60	12
1,2-Dichloroethene (total)	40.0	40.4	101	66	12
Xylenes,Total	60	55	92	71	13
Surr: 1,2-Dichloroethane-d4	50.0	52.1	104	78	11
Surr: 4-Bromofluorobenzene	50.0	49.2	98.3	74	12
Surr: Toluene-d8	50.0	49.4	98.9	82	11

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

MI - Matrix Interference

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 59

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272496

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050393-10

RunID:

Q_090512A-5018933

Units: ug

ug/L

Analysis Date:

05/12/2009 16:11

Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	100	103	103	100	102	102	0.677	20	68	124
1,1,1-Trichloroethane	ND	100	110	110	100	114	114	3.65	20	69	123
1,1,2,2-Tetrachloroethane	ND	100	117	117	100	113	113	3.27	20	69	130
1,1,2-Trichloroethane	ND	100	115	115	100	120	120	4.53	20	75	126
1,1-Dichloroethane	ND	100	113	113	100	118	118	4.51	20	65	129
1,1-Dichloroethene	ND	100	110	110	100	114	114	3.56	22	61	139
1,1-Dichloropropene	ND	100	108	108	100	111	111	3.32	20	69	121
1,2,3-Trichlorobenzene	ND	100	93.2	93.2	100	92.1	92.1	1.23	20	53	127
1,2,3-Trichloropropane	ND	100	108	108	100	112	112	3.43	20	79	124
1,2,4-Trichlorobenzene	ND	100	87.6	87.6	100	87.9	87.9	0.324	20	58	118
1,2,4-Trimethylbenzene	66.8	100	168	101	100	167	101	0.533	20	43	132
1,2-Dibromo-3-chloropropane	ND	100	110	110	100	114	114	3.52	20	46	131
1,2-Dibromoethane	ND	100	109	109	100	108	108	1.44	20	76	122
1,2-Dichlorobenzene	ND	100	103	103	100	105	105	1.93	20	74	110
1,2-Dichloroethane	27.8	100	131	103	100	141	113	7.38	20	60	129
1,2-Dichloropropane	ND	100	105	105	100	108	108	2.87	20	76	116
1,3,5-Trimethylbenzene	ND	100	98.1	92.3	100	98.2	92.3	0.0367	20	51	121
1,3-Dichlorobenzene	ND	100	97.5	97.5	100	95.9	95.9	1.70	20	71	110
1,3-Dichloropropane	ND	100	106	106	100	108	108	1.23	20	80	119
1,4-Dichlorobenzene	ND	100	101	101	100	103	103	2.50	20	69	110
2,2-Dichloropropane	ND	100	110	110	100	114	114	3.39	20	52	122
2-Butanone	ND	100	97.0	97.0	100	118	118	19.1	20	10	133
2-Chloroethyl vinyl ether	ND	100	8.06	8.06 *	100	0	0 *	200 *	20	10	182
2-Chlorotoluene	ND	100	103	103	100	99.9	99.9	3.00	20	69	112
2-Hexanone	ND	100	105	105	100	115	115	8.70	20	10	163
4-Chlorotoluene	ND	100	94.1	94.1	100	99.4	99.4	5.53	20	37	110
4-Isopropyltoluene	ND	100	88.5	88.5	100	90.9	90.9	2.66	20	65	116
4-Methyl-2-pentanone	ND	100	109	109 *	100	114	114 *	4.77	20	10	103
Acetone	ND	100	94.5	94.5	100	118	118	22.1 *	20	10	160
Acrylonitrile	ND	100	128	128	100	130	130	1.43	20	45	155

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 60

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272496

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050393-10

RunID:

Q_090512A-5018933

Units:

ug/L

Analysis Date:

05/12/2009 16:11

Analyst:

JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	1230	100	1300	N/C	100	1310	N/C	N/C	22	70	124
Bromobenzene	ND	100	96.1	96.1	100	99.4	99.4	3.35	20	72	111
Bromochloromethane	ND	100	111	111	100	111	111	0.148	20	73	126
Bromodichloromethane	ND	100	102	102	100	104	104	2.36	20	68	125
Bromoform	ND	100	93.2	93.2	100	96.1	96.1	3.05	20	44	132
Bromomethane	ND	100	101	101	100	109	109	7.80	20	50	140
Carbon disulfide	ND	100	140	140	100	125	125	11.2	20	46	143
Carbon tetrachloride	ND	100	95.2	95.2	100	99.9	99.9	4.82	20	66	126
Chlorobenzene	ND	100	101	101	100	102	102	0.807	21	68	123
Chloroethane	ND	100	103	103	100	112	112	8.53	20	59	134
Chloroform	ND	100	108	108	100	110	110	1.46	20	68	127
Chloromethane	ND	100	112	112	100	118	118	5.58	20	51	137
Dibromochloromethane	ND	100	96.6	96.6	100	100	100	3.50	20	58	131
Dibromomethane	ND	100	106	106	100	107	107	0.570	20	82	123
Dichlorodifluoromethane	ND	100	108	108	100	118	118	9.06	20	35	143
Ethylbenzene	107	100	205	98.1	100	213	106	3.92	20	76	122
Hexachlorobutadiene	ND	100	85.8	85.8	100	86.5	86.5	0.788	20	43	137
Isopropylbenzene	ND	100	85.2	80.1	100	85.6	80.4	0.458	20	57	124
Methyl tert-butyl ether	ND	200	210	105	200	222	111	5.31	20	10	200
Methylene chloride	ND	100	116	116	100	117	117	0.963	20	70	134
Naphthalene	ND	100	118	97.4	100	122	102	3.66	20	42	140
n-Butylbenzene	ND	100	93.9	93.9	100	93.9	93.9	0.0128	20	82	112
n-Propylbenzene	ND	100	104	90.6	100	106	92.6	1.91	20	73	108
sec-Butylbenzene	ND	100	94.7	94.7	100	95.8	95.8	1.14	20	76	110
Styrene	ND	100	100	100	100	99.2	99.2	0.803	20	58	152
tert-Butylbenzene	ND	100	91.5	91.5	100	92.8	92.8	1.40	20	66	120
Tetrachloroethene	ND	100	95.6	95.6	100	93.6	93.6	2.17	20	71	130
Toluene	159	100	263	104	100	261	102	0.706	24	80	117
Trichloroethene	ND	100	101	101	100	102	102	1.01	21	82	121
Trichlorofluoromethane	ND	100	96.8	96.8	100	104	104	7.09	20	74	138
Vinyl acetate	ND	100	68.8	68.8	100	68.5	68.5	0.501	20	66	135
Vinyl chloride	ND	100	122	122	100	124	124	2.21	20	45	143

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

09050091 Page 61

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050091

Lab Batch ID:

R272496

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050393-10

Q_090512A-5018933

Units:

ug/L

Analysis Date:

RunID: 05/12/2009 16:11 Analyst: JC

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	100	118	118	100	118	118	0.407	20	67	132
cis-1,3-Dichloropropene	ND	100	102	102	100	106	106	3.25	20	67	116
m,p-Xylene	167	200	372	102	200	364	98.4	2.08	20	69	127
o-Xylene	43.2	100	146	102	100	147	104	0.848	20	84	114
trans-1,2-Dichloroethene	ND	100	111	111	100	116	116	4.00	20	68	131
trans-1,3-Dichloropropene	ND	100	89.7	89.7	100	94.3	94.3	4.93	20	56	131
1,2-Dichloroethene (total)	ND	200	229	114	200	234	117	2.17	20	67	132
Xylenes,Total	210	300	518	102	300	511	100	1.25	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	250	260	104	250	254	102	1.98	30	78	116
Surr: 4-Bromofluorobenzene	ND	250	242	96.8	250	236	94.2	2.70	30	74	125
Surr: Toluene-d8	ND	250	238	95.1	250	233	93.3	1.85	30	82	118

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 62

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Ion Chromatography

05/05/2009 17:36

Method:

RunID:

E300.0

BJ-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R271927

Method Blank

Units:

Lab Sample ID

Client Sample ID

Analysis Date:

IC2_090504B-5008113

Analyst:

mg/L

BDG

09050091-02E

Samples in Analytical Batch:

MW-4

Analyte	Result	Rep Limit
Nitrogen Nitrate (As NI)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2 090504B-5008114

Units: m

mg/L

Analysis Date:

05/05/2009 17:54

Analyst: B

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen, Nitrate (As N)	10.00	9.496	94.96	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050142-01

IC2_090504B-5008125 Units:

mg/L

Analysis Date:

RunID:

05/05/2009 14:02

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen,Nitrate (As N)	ND	10	9.318	93.18	10	9.599	95.99	2.971	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 63

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Ion Chromatography

Method:

RunID:

E300.0

J-Fracmaster 120125

WorkOrder:

09050091

Lab Batch ID:

R272827

Method Blank

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

: 05/15/2009 10:16

IC1_090515A-5022185

Analyst:

BDG

09050091-02E

MW-4

Ana	alyte	Result	Rep Limit
Chloride		ND	0.50
Sulfate		ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC1_090515A-5022186

Units:

mg/L

Analysis Date:

05/15/2009 10:35

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	9.517	95.17	85	115
Sulfate	10.00	10.01	100.1	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

09050091-02

IC1 090515A-5022192

Units:

mg/L

Analysis Date:

05/15/2009 14:35

Analyst: BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	217.7	500	736.0	103.7	500	741.5	104.8	0.7419	20	80	120
Sulfate	46.39	500	576.5	106.0	500	582.7	107.3	1.067	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 64

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Alkalinity (as CaCO3), Total

Method:

E310.1

BJ-Fracmaster 128125

WorkOrder:

09050091

Lab Batch ID:

R275095

Method Blank

WET_090610U-5061236

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

06/10/2009 12:30

Analyst: PAC

09050091-02E

MW-4

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RuniD:

WET_090610U-5061238

Units:

mg/L

Analysis Date:

06/10/2009 12:30

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Total (As CaCO3)	38.70	38.00	98.19	90	110

Sample Duplicate

Original Sample:

09050091-02

WET_090610U-5061242

Units:

mg/L

Analysis Date:

RunID:

06/10/2009 16:00

Analyst:

PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Total (As CaCO3)	477	477	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050091 Page 65

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Sample Receipt Checklist And Chain of Custody

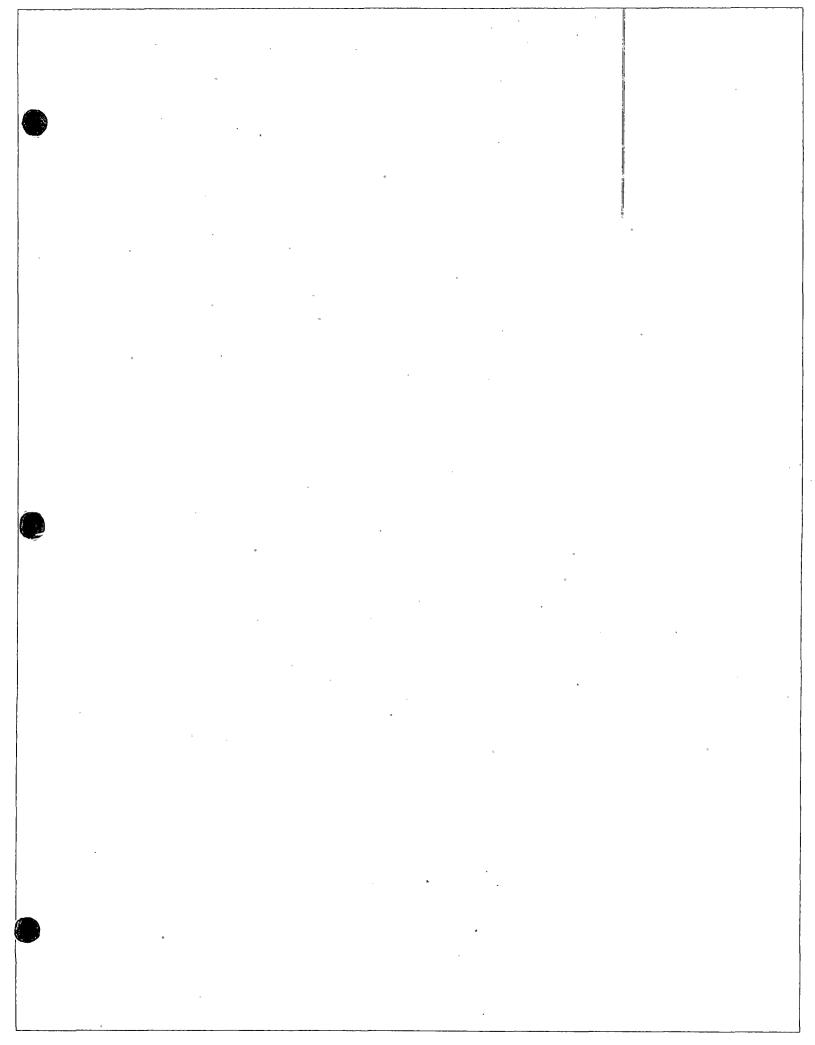


8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Date	korder: and Time Received:	09050091 5/4/2009 9:30:00 AM			Received By		RE SPL	
Tem	perature:	2.0°C			Chilled by:		Water Ice	
1.	Shipping container/co	oler in good condition?	Yes	✓	No 🗌		Not Present	
2.	Custody seals intact o	on shippping container/cooler?	Yes	✓	No 🗌		Not Present	
3.	Custody seals intact o	on sample bottles?	Yes		No 🗌		Not Present	\checkmark
4.	Chain of custody pres	sent?	Yes	•	No 🗌			
5.	Chain of custody sign	ed when relinquished and received?	Yes	✓	No 🗌			
6.		ees with sample labels? written on chain of custody for all received	Yes		No 🗹			
7.	Samples in proper co	ntainer/bottle?	Yes	✓	No 🗌			
8.	Sample containers int	act?	Yes	✓	No 🗌			
9.	Sufficient sample volu	ume for indicated test?	Yes	✓	No 🗌			
10.	All samples received	within holding time?	Yes	✓	No 🗌			
11.	Container/Temp Blanl	k temperature in compliance?	Yes	V	No 🗌			
12.	Water - VOA vials hav	e zero headspace?	Yes		No 🗌	VOA Vi	als Not Present	\checkmark
13.	Water - Preservation	checked upon receipt (except VOA*)?	Yes	~	No 🗆		Not Applicable	
	*VOA Preservation Ch	necked After Sample Analysis						
	SPL Representati	ve:	Con	tact Date & 1	fime:			
	Client Name Contact	ed:						
	Non Conformance Issues:	Recorded all collected times from container la	abels					
	Client Instructions:							

							SPL W	SPL Workorder No.	r No.			200	322326	26	
SPL, Inc. Analysis Remest & Chain of Custody	SPL, Inc. st & Chain of Custody Record						00	nan to And	AAC	_	-		,	-	
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Client Name: Brown and (4/dwell				matrix	bottle	size pr	pres.			Red	Requested Analysis	d An	alysi	S	
Address: 1715 Louisiann Ste. 2500	0	i			1							إمالة	L		
	State TX	Zip 7700.				GI.						ا رما			
c/Fa	713-303-388	So Fex				ц10=		C I		-		12/			
nct: RICK R	Email: Vrexrox	2	et.com	ucoi I O	y Z Qwr	ON X	ther aine			73/	07	الا:			
Project Name No .: BJ - Of Frac Master	128	7				z09	0= <u>}</u>	J.	50		778	¥/) v l		
Site Name: BJ Frac Master						1=9	7					ان. ان.ا	-41		
Site Location: Hobbs NM					SSE	1 2	OS				<u>_</u>	5/ 5/	16		
Invoice To: Same	<i>p</i>	Ph:		_	elq= :[3=	OH:	7H:	<u>d</u> _			71	£ 01	J	·	
SAMPLE ID	DATE	TIME comp	ηρ grab		Ω	=8	<u>=</u> £					7			
MW-4-52-55	5/2/04		×	S	7 5	X 8.	(3	X	X	X	×				
	12/		X	3	VAP 1,40	<u> </u>	75	\times	X	X	X	X	_		
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Client/Consultant Remarks:		Laboratory remarks:	emarks:				-				In 35	Intact? Ice? Temn	þó	<u> </u>	ZZ
Dogwood TAT Special Repo	Special Reporting Requirements Results:	Results: Fax	Email 🗖	PDF	Specia	il Detec	tion Li	Special Detection Limits (specify):	ecify):			E E	M revie	PM review (initial):	
tract	Standard QC Level 3 QC Level 4 QC		TX TRRP LA RECAP	ECAP [- 1
X Standard	1. Relinquished by Sampler:	2	date	50/2	time		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	2. Received by	by:	Q.					
ness Days	hed by:		date	14/09	Cim Co	51		P.	+	13	/ è				
Rush TAT requires prior notice			100	691		Q	EZ		1 c	atory					
(X) 8880 Interchange Drive Houston, TX 77054 (713) 660-0901		500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775	ador Cal 583 (337	fery Pa 237-47	rkway 75			Tra	verse	City]	Traverse City MI 49686 (231)	hes D ₁	rive (31) 9	Drive (231) 947-5777	7.7





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09060382

Report To: **Brown & Caldwell** Rick Rexroad 1415 Louisiana **Suite 2500**

Houston ΤX

77002-

ph: (713) 759-0999

fax: (713) 308-3886

Project Name:

BJ-Fracmaster 128125

Site Address:

PO Number:

State:

Site:

New Mexico

Hobbs, NM

State Cert. No.:

Date Reported:

This Report Contains A Total Of 7 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09060382

BJ-Fracmaster 128125 Report To: **Project Name:** Hobbs, NM Site: **Brown & Caldwell** Rick Reyroad Site Address: 1415 Louisiana Suite 2500 PO Number: Houston **New Mexico** State: ΤX 77002-State Cert. No.: ph: (713) 759-0999 fax: (713) 308-3886 **Date Reported:**

Per your request, Mineral Spirits has been added to your sample ID: "MW-4" (SPL ID: 09050091-02) and reported on this separate Workorder.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Agnes V. Vicheaire

09060382 Page 1

6/8/2009



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09060382

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad 1415 Louisiana

Suite 2500 Houston

TX 77002-

ph: (713) 759-0999

fax: (713) 308-3886

Brown & Caldwell

Rick Rexroad fax: (713) 308-3886

Ignes V. Vickeaire

Project Name:

BJ-Fracmaster 128125

Site:

Hobbs, NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-4	09060382-01	Water	5/2/2009 12:00:00 PM	5/4/2009 9:30:00 AM		

Agnes V. Vicknair Project Manager 6/8/2009

Date

Kesavalu M. Bagawandoss Ph.D., J.D. Laboratory Director

Ted Yen
Quality Assurance Officer



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID:MW-4

Collected: 05/02/2009 12:00

SPL Sample ID:

09060382-01

Site: Hobbs, NM

Analyses/Method	Result	QUAL	Re	p,Limit	Di	I. Fact	or Date Ana	lyzed	Analyst	Seq. #
SEMIVOLATILE HYDROCARBON	IS				MCL		SW8015B	Un	its: mg/L	
Mineral Spirits Range Organics	2.1			0.1		1	05/06/09	22:45	NW	5056907
Surr: n-Pentacosane	50.4		%	20-150		1	05/06/09	22:45	NW	5056907

Prep Method	Prep Date	Prep Initials	Prep Factor	
SW3510C	05/04/2009 14:15	N_M	1.00	i

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

- * Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

RunID:

Semivolatile Hydrocarbons

Method:

SW8015B

WorkOrder:

09060382

Lab Batch ID:

89962

Method Blank

HP V 090506E-5056903

Units:

mg/L

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

05/06/2009 16:19

Analyst: NW 09060382-01A

MW-4

Preparation Date:

05/04/2009 12:29

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	40.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090506E-5056904

Units:

mg/L

Analysis Date:

05/06/2009 16:39

Analyst: NW

Preparation Date: 05/04/2009 12:29

Prep By: N M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Mineral Spirits Range Organics	1.00	0.792	79.2	1.00	0.802	80.2	1.3	40	21	150
Surr: n-Pentacosane	0.0500	0.0334	66.8	0.0500	0.0321	64.2	4.0	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09060382 Page 5

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/8/2009 5:23:48 PM

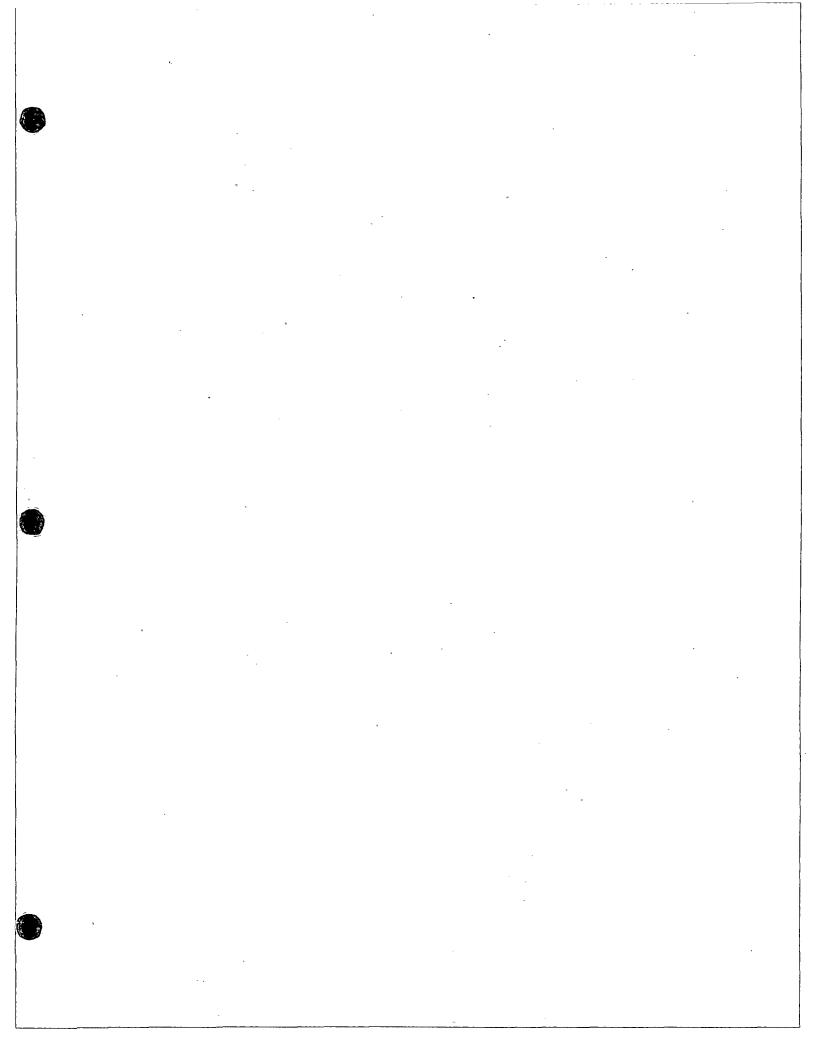
Sample Receipt Checklist And Chain of Custody



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

	korder:	09060382		Received By:	CAW
	e and Time Received:	5/4/2009 9:30:00 AM		Carrier name:	SPL
Ten	nperature:	2.0°C		Chilled by:	Water Ice
1.	Shipping container/co	oler in good condition?	Yes 🔽	No 🗔	Not Present
2.	Custody seals intact o	n shippping container/cooler?	Yes	No 🗌	Not Present ✓
3.	Custody seals intact o	n sample bottles?	Yes 🗌	. No 🗌	Not Present 🗹
4.	Chain of custody pres	ent?	Yes 🗹	No 🗌	
5.	Chain of custody sign	ed when relinquished and received?	Yes 🗸	No 🗌	
6.		es with sample labels? vritten on chain of custody for all received	Yes 🗌	No 🗹	
7.	Samples in proper cor	ntainer/bottle?	Yes 🗸	No 🗆	
8.	Sample containers int	act?	Yes 🗸	No 🗌	
9.	Sufficient sample volu	me for indicated test?	Yes 🗹	No 🗌	
10.	All samples received v	within holding time?	Yes 🗹	No 🗌	
11.	Container/Temp Blank	temperature in compliance?	Yes 🗹	No 🗌	
12.	Water - VOA vials hav	e zero headspace?	Yes 🗌	No 🗌 VO	A Vials Not Present
13.	Water - Preservation of	checked upon receipt (except VOA*)?	Yes 🗌	No 🗌	Not Applicable
	*VOA Preservation Ch	ecked After Sample Analysis			
	SPL Representative: Contact Date & Time: Client Name Contacted:				
	Non Conformance Issues:				
	Client Instructions:				





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number: 09050065

Report To: **Brown & Caldwell** Rick Rexroad 1415 Louisiana **Suite 2500**

Houston ΤX

77002-

ph (713) 759-0999

fax:

Project Name:

BJ-Fracmaster 128125

Site:

Hobbs, NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.: **Date Reported:**

This Report Contains A Total Of 76 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09050065

Report To: BJ-Fracmaster 128125 **Project Name:** Site: Hobbs, NM Brown & Caldwell Rick Rexroad Site Address: 1415 Louisiana **Suite 2500** PO Number: Houston **New Mexico** State: ΤX 77002-State Cert. No .: ph (713) 759-0999 fax: Date Reported:

REVISED REPORT. Mineral Spirits analysis for your sample ID: "MW-6" (SPL ID: 09050065-04) has been added per your request.

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg\kg-dry " or " ug\kg-dry ").

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

For Volatile Organics analysis (8260B), the results for 2-chloroethyl vinyl ether are estimated due to sample preservation. The result for this compound is reported as "ND J" for all samples in the report.

Due to limited sample volume, a Matrix Spike (MS) or Matrix Spike Duplicate (MSD) was not extracted with Batch ID: 89962 for the Semivolatile hydrocarbons analysis by Method 8015B. A Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) were extracted with the analytical batch and serve as the batch quality control (QC). The LCS and LCSD recovered acceptably and precision criteria were met.

Your sample ID "MW-6" (SPL ID:090050065-04) was randomly selected for use in SPL's quality control program for the Volatile Organics analysis by SW846 Method 8260B (Batch ID:R272244). The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) recoveries were outside of the advisable quality control limits due to possible matrix interference for the following analytes:

1,2,4-Trichlorobenzene 2-Chloroethyl vinyl ether 4-Methyl-2-pentanone Acetone o-Xylene

A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits.

Your sample ID "MW-6" (SPL ID:090050065-04) was randomly selected for use in SPL's quality control program for the Ion Chromatography analysis by EPA Method300.0 (Batch ID:R272251). The Matrix Spike Duplicate (MSD) recovery was outside of the advisable quality control limits due to possible matrix interference for the following analytes:

Nitrogen, Nitrate (As N)

A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits.

Ignes V. Vickaire

09050065 Page 1

6/16/2009

Agnes V. Vicknair

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Case Narrative for: Brown & Caldwell

Certificate of Analysis Number: 09050065

Some of the percent recoveries and RPD's on the QC report for the MS/MSD may be different than the calculated recoveries and RPD's using the sample result and the MS/MSD results that appear on the report because, the actual raw result is used to perform the calculations for percent recovery and RPD.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Agnes V. Vichaire

09050065 Page 2 6/16/2009

Agnes V. Vicknair Project Manager



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Certificate of Analysis Number:

09050065

Report To:

Fax To:

Brown & Caldwell

Rick Rexroad

1415 Louisiana

Suite 2500 Houston

TX

77002-

ph (713) 759-0999

fax: (713) 308-3886

Isnes V. Vicheave

Project Name:

BJ-Fracmaster 128125

Site:

Hobbs, NM

Site Address:

PO Number:

State:

New Mexico

State Cert. No.:

Date Reported:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-6-54-55'	09050065-01	Soil	4/30/2009 3:00:00 PM	5/2/2009 10:00:00 AM	322327	
FB-043009-1	09050065-02	Water	4/30/2009 3:40:00 PM	5/2/2009 10:00:00 AM	322327	
MW-6	09050065-03	Water	5/1/2009 7:05:00 AM	5/2/2009 10:00:00 AM	322327	~
MW-6	09050065-03	Water	5/1/2009 7:05:00 AM	5/2/2009 10:00:00 AM	322327	
RB-043009-1	09050065-03	Water	5/1/2009 7:05:00 AM	5/2/2009 10:00:00 AM	322327	
MW-6	09050065-04	Water	5/1/2009 12:00:00 PM	5/2/2009 10:00:00 AM	322327	
RB-050109-1	09050065-05	Water	5/1/2009 1:30:00 PM	5/2/2009 10:00:00 AM	322327	
FB-050109-1	09050065-06	Water	5/1/2009 1:40:00 PM	5/2/2009 10:00:00 AM	322327	
3-043009-1	09050065-07	Water	4/30/2009	5/2/2009 10:00:00 AM	322327	

Agnes V. Vicknair Project Manager 6/16/2009

Date

Kesavalu M. Bagawandoss Ph.D., J.D. Laboratory Director

Ted Yen
Quality Assurance Officer



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00 **SPL Sample ID:**

09050065-01

Site:	Hobbs,	NM
-------	--------	----

Analyses/Method		Result	QUAL	Rep.L	_imit	Dil.	Facto	or Date Ana	lyzed	Analyst	Seq.#
ALKALINITY, BICARE	BONATE					MCL	===	SM2320B	Unit	s: mg/Kg	
Alkalinity, Bicarbonate		190			20		1	05/18/09	16:45 P	'AC	5025315
ALKALINITY, CARBO	NATE					MCL		M2320 B	Unit	s: mg/kg	
Alkalinity, Carbonate		ND			20		1	05/18/09	16:45 P	AC	5025321
DIESEL RANGE ORG	ANICS					MCL		SW8015B	Unit	s: mg/Kg	
Diesel Range Organics (C10-C28)	12			5		1	05/09/09	23:01 N	1W	5017626
Surr: n-Pentacosane		56.7		% 20)-154		1	05/09/09	23:01 N	1W	5017626
Prep Method	Prep Date		Prep Initials	Prep Fa	ictor						
SW3550B	05/04/2009 16:4	1	FAK	1.00							
GASOLINE RANGE O	RGANICS					MCL		SW8015B	Unit	s: mg/Kg	

ND	0.1	1	05/08/09 22:56 EMB	5012653
102	% 63-142	1	05/08/09 22:56 EMB	5012653
104	% 50-159	1	05/08/09 22:56 EMB	5012653
	102	102 % 63-142	102 % 63-142 1	102 % 63-142 1 05/08/09 22:56 EMB

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5030B	05/07/2009 10:57	XML	1.00

ION CHROMATOGRAPHY			MCL	E30	00.0 MOD	Units	: mg/kg
Chloride	61.1	5		1	05/15/09 1	19:52 BD	G 5023017
Fluoride	ND	5		1	05/15/09 1	19:52 BD	G 5023017
Sulfate	20.2	5		1	05/15/09	19:52 BD	G 5023017
Nitrogen, Nitrate (As N)	ND	5		1	05/15/09	19:52 BD	G 5022979
Nitrogen, Nitrite (As N)	ND	5		11	05/15/09 1	19:52 BD	G 5022979
MERCURY, TOTAL			MCL		SW7471A	Units	: mg/Kg
Mercury	ND	0.03		1	05/05/09 1	14:46 F_	S 5007427

Prep Method	Prep Date	Prep Initials	Prep Factor
SW7471A	05/05/2009 12:00	F_S	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050065 Page 4 6/16/2009 4:36:13 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00

SPL Sample ID:

09050065-01

Site. Houss, MM	Site:	Hobbs,	NM
-----------------	-------	--------	----

Analyses/Method	Result QUAI	L Rep.Limit	Dil. Facto	or Date Analyzed	Analyst	Seq.#
METALS BY METHOD 60	10B, TOTAL		MCL S	SW6010B U	nits: mg/K	 g
Arsenic	1.2	0.5	1	05/17/09 0:29	EG .	5023417
Barium	85.7	0.5	1	05/17/09 0:29	EG	5023417
Cadmium	ND	0.5	1	05/17/09 0:29	EG .	5023417
Calcium	39600	1000	100	05/17/09 0:37	' EG	5023419
Chromium	4.03	0.5	1	05/17/09 0:29	EG .	5023417
Lead	1.51	0.5	1	05/17/09 0:29	EG	5023417
Magnesium	1520	100	10	05/17/09 0:34	EG	5023418
Potassium	454	50	1	05/17/09 0:29	EG	5023417
Selenium	ND	0.5	1	05/17/09 0:29) EG	5023417
Silver	ND	0.5	1	05/17/09 0:29) EG	5023417
Sodium	125	10	1	05/17/09 0:29) EG	5023417

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3050B	05/08/2009 10:00	AB1	1.00

SEMIVOLATILE HYDROCA	ARBONS		MCL	S	W8015B L	nits: m	ıg/kg
Mineral Spirits	ND	10		1	05/09/09 23:0	1 AM	5063306
Surr: n-Pentacosane	56.7	% 20-154		1	05/09/09 23:0	1 AM	5063306

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550B	05/04/2009 16:41	FAK	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050065 Page 5 6/16/2009 4:36:13 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00

SPL Sample ID:

09050065-01

Site: Hobbs, NM

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
SEMIVOLATILE ORGANICS E	Y METHOD 8270C		MCL SI	W8270C Un	its: ug/kg	
1,2,4-Trichlorobenzene	ND	330	1	05/08/09 19:15	GY	5017903
1,2-Dichlorobenzene	ND	330	1	05/08/09 19:15	GY	5017903
1,2-Diphenylhydrazine	ND	330	1	05/08/09 19:15	GY	5017903
1,3-Dichlorobenzene	ND	330	1	05/08/09 19:15	GY	5017903
1,4-Dichlorobenzene	ND	330	1	05/08/09 19:15	GY	5017903
2,4,5-Trichlorophenol	ND	800	1	05/08/09 19:15	GY	5017903
2,4,6-Trichlorophenol	ND	330	1	05/08/09 19:15	GY	5017903
2,4-Dichlorophenol	ND	330	1	05/08/09 19:15	GY	5017903
2,4-Dimethylphenol	ND	330	1	05/08/09 19:15	GY	5017903
2,4-Dinitrophenol	ND	800	1	05/08/09 19:15	GY	5017903
2,4-Dinitrotoluene	ND	800	1	05/08/09 19:15	GY	5017903
2,6-Dinitrotoluene	ND	330	1	05/08/09 19:15	GY	5017903
2-Chloronaphthalene	ND	330	1	05/08/09 19:15	GY	5017903
2-Chlorophenol	ND	330	1	05/08/09 19:15	GY	5017903
2-Methylnaphthalene	ND	330	1	05/08/09 19:15	GY	5017903
2-Nitroaniline	ND	800	1	05/08/09 19:15	GY	5017903
2-Nitrophenol	ND	330	1	05/08/09 19:15	GY	5017903
3,3'-Dichlorobenzidine	ND	330	1	05/08/09 19:15	GY	5017903
3-Nitroaniline	ND	800	1	05/08/09 19:15	GY	5017903
4,6-Dinitro-2-methylphenol	ND	800	1	05/08/09 19:15	GY	5017903
4-Bromophenyl phenyl ether	ND	330	1	05/08/09 19:15	GY	5017903
4-Chloro-3-methylphenol	ND	330	1	05/08/09 19:15	GY	5017903
4-Chloroaniline	ND	330	1	05/08/09 19:15	GY	5017903
4-Chlorophenyl phenyl ether	ND	330	1	05/08/09 19:15	GY	5017903
4-Nitroaniline	ND	800	1	05/08/09 19:15	GY	5017903
4-Nitrophenol	ND	800	1	05/08/09 19:15	GY	5017903
Acenaphthene	ND	330	1 ·	05/08/09 19:15	GY	5017903
Acenaphthylene	ND	330	1	05/08/09 19:15	GY	5017903
Aniline	ND	330	1	05/08/09 19:15	GY	5017903
Anthracene	ND	330	1	05/08/09 19:15	GY	5017903
Benz(a)anthracene	ND	330	1	05/08/09 19:15	GY	5017903
Benzo(a)pyrene	ND	330	1	05/08/09 19:15	GY	5017903
Benzo(b)fluoranthene	ND	330	1	05/08/09 19:15	GY	5017903
Benzo(g,h,i)perylene	ND	330	1	05/08/09 19:15	GY	5017903
Benzo(k)fluoranthene	ND	330	1	05/08/09 19:15	GY	5017903
Benzoic acid	ND	1600	1	05/08/09 19:15	GY	5017903
Benzyl alcohol	ND	330	1	05/08/09 19:15	GY	5017903
Bis(2-chloroethoxy)methane	ND	330	1	05/08/09 19:15	GY	5017903
Bis(2-chloroethyl)ether	ND	330	1	05/08/09 19:15	GY	5017903

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00

SPL Sample ID:

09050065-01

Site:	Hobbs.	NM
UILE.	HUUUUS.	14141

Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND			330	1	05/08/09 19:15	GY	5017903
Bis(2-ethylhexyl)phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Butyl benzyl phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Carbazole	ND			330	1	05/08/09 19:15	GY	5017903
Chrysene	ND			330	1	05/08/09 19:15	GY	5017903
Dibenz(a,h)anthracene	ND			330	1	05/08/09 19:15	GY	5017903
Dibenzofuran	ND			330	1	05/08/09 19:15	GY	5017903
Diethyl phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Dimethyl phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Di-n-butyl phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Di-n-octyl phthalate	ND			330	1	05/08/09 19:15	GY	5017903
Fluoranthene	ND			330	1	05/08/09 19:15	GY	5017903
Fluorene	ND			330	1	05/08/09 19:15	GY	5017903
Hexachlorobenzene	ND			330	1	05/08/09 19:15	GY	5017903
Hexachlorobutadiene	ND			330	1	05/08/09 19:15	GY	5017903
Hexachlorocyclopentadiene	ND			330	1	05/08/09 19:15	GY	5017903
Hexachloroethane	ND			330	1	05/08/09 19:15	GY	5017903
Indeno(1,2,3-cd)pyrene	ND			330	1	05/08/09 19:15	GY	5017903
Isophorone	ND			330	1	05/08/09 19:15	GY	5017903
Naphthalene	ND			330	1	05/08/09 19:15	GY	5017903
Nitrobenzene	ND			330	1	05/08/09 19:15	GY	5017903
N-Nitrosodi-n-propylamine	ND			330	1	05/08/09 19:15	GY	5017903
N-Nitrosodiphenylamine	ND			330	1	05/08/09 19:15	GY	5017903
Pentachlorophenol	ND			800	1	05/08/09 19:15	GY	5017903
Phenanthrene	ND			330	1	05/08/09 19:15	GY	5017903
Phenol	ND			330	1	05/08/09 19:15	GY	5017903
Pyrene	ND			330	1	05/08/09 19:15	GY	5017903
Pyridine	ND			330	1	05/08/09 19:15	GY	5017903
2-Methylphenol	ND			330	1	05/08/09 19:15	GY	5017903
3 & 4-Methylphenol	ND			330	1	05/08/09 19:15	GY	5017903
Surr: 2,4,6-Tribromophenol	59.6		%	19-135	1	05/08/09 19:15	GY	5017903
Surr: 2-Fluorobiphenyl	40.9		%	15-140	1	05/08/09 19:15	GY	5017903
Surr: 2-Fluorophenol	54.8		%	15-122	1	05/08/09 19:15	GY	5017903
Surr: Nitrobenzene-d5	42.5		%	10-134	1	05/08/09 19:15	GY	5017903
Surr: Phenol-d5	57.2			10-123	1	05/08/09 19:15	GY	5017903
Surr: Terphenyl-d14	44.4		%	18-166	1	05/08/09 19:15	GY	5017903

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3550C	05/06/2009 15:27	QMT	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00 SPL

SPL Sample ID:

09050065-01

Site:	Hobbs.	NM
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Analyses/Method	Result QU	AL Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
VOLATILE ORGANICS BY MET	THOD 8260B		MCL SV	V8260B Ur	its: ug/kg	
1,1,1,2-Tetrachloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,1,1-Trichloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,1,2,2-Tetrachloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,1,2-Trichloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,1-Dichloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,1-Dichloroethene	ND	5	1	05/07/09 21:04	TLE	5012048
1,1-Dichloropropene	ND	5	1	05/07/09 21:04	TLE	5012048
1,2,3-Trichlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,2,3-Trichloropropane	ND	5	1	05/07/09 21:04	TLE	5012048
1,2,4-Trichlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,2,4-Trimethylbenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,2-Dibromo-3-chloropropane	ND	5	1	05/07/09 21:04	TLE	5012048
1,2-Dibromoethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,2-Dichlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,2-Dichloroethane	ND	5	1	05/07/09 21:04	TLE	5012048
1,2-Dichloropropane	ND	5	1	05/07/09 21:04	TLE	5012048
1,3,5-Trimethylbenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,3-Dichlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
1,3-Dichloropropane	ND	5	1	05/07/09 21:04	TLE	5012048
1,4-Dichlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
2,2-Dichloropropane	ND	5	1	05/07/09 21:04	TLE	5012048
2-Butanone	ND	20	1	05/07/09 21:04	TLE	5012048
2-Chloroethyl vinyl ether	ND	10	1	05/07/09 21:04	TLE	5012048
2-Chlorotoluene	ND	5	1	05/07/09 21:04	TLE	5012048
2-Hexanone	ND	10	1	05/07/09 21:04	TLE	5012048
4-Chlorotoluene	ND	5	1	05/07/09 21:04	TLE	5012048
4-Isopropyltoluene	ND	5	1	05/07/09 21:04	TLE	5012048
4-Methyl-2-pentanone	ND	10	1	05/07/09 21:04	TLE	5012048
Acetone	ND	100	1	05/07/09 21:04	TLE	5012048
Acrylonitrile	ND	50	1	05/07/09 21:04	TLE	5012048
Benzene	ND	5	1	05/07/09 21:04	TLE	5012048
Bromobenzene	ND	5	1	05/07/09 21:04	TLE	5012048
Bromochloromethane	ND	5	1	05/07/09 21:04	TLE	5012048
Bromodichloromethane	ND _	5	1	05/07/09 21:04	TLE	5012048
Bromoform	ND	5	1	05/07/09 21:04	TLE	5012048
Bromomethane	ND	10	1	05/07/09 21:04	TLE	5012048
Carbon disulfide	ND	5	11_	05/07/09 21:04	TLE	5012048
Carbon tetrachloride	ND	5	1	05/07/09 21:04	TLE	5012048
Chlorobenzene	ND	5	1	05/07/09 21:04	TLE	5012048

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

09050065-01

Client Sample ID MW-6-54-55'

Collected: 04/30/2009 15:00 **SPL Sample ID:**

Site: Hobbs, NM

			- 510	e. Honns,	, (VIVI			
Analyses/Method	Result	QUAL	Re	ep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10	1	05/07/09 21:04	TLE	5012048
Chloroform	ND			5	1	05/07/09 21:04	TLE	5012048
Chloromethane	ND			10	1	05/07/09 21:04	TLE	5012048
Dibromochloromethane	ND			5	1	05/07/09 21:04	TLE	5012048
Dibromomethane	ND			5	1	05/07/09 21:04	TLE	5012048
Dichlorodifluoromethane	ND			10	1	05/07/09 21:04	TLE	5012048
Ethylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
Hexachlorobutadiene	ND			5	1	05/07/09 21:04	TLE	5012048
Isopropylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
Methyl tert-butyl ether	ND			5	1	05/07/09 21:04	TLE	5012048
Methylene chloride	ND			5	1	05/07/09 21:04	TLE	5012048
Naphthalene	ND			5	1	05/07/09 21:04	TLE	5012048
n-Butylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
n-Propylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
sec-Butylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
Styrene	ND			5	1	05/07/09 21:04	TLE	5012048
tert-Butylbenzene	ND			5	1	05/07/09 21:04	TLE	5012048
Tetrachloroethene	ND			5	1	05/07/09 21:04	TLE	5012048
Toluene	ND			5	1	05/07/09 21:04	TLE	5012048
Trichloroethene	ND			5	1	05/07/09 21:04	TLE	5012048
Trichlorofluoromethane	ND			5	1	05/07/09 21:04	TLE	5012048
Vinyl acetate	ND			10	1	05/07/09 21:04	TLE	5012048
Vinyl chloride	ND			10	1	05/07/09 21:04	TLE	5012048
cis-1,2-Dichloroethene	ND			5	1	05/07/09 21:04	TLE	5012048
cis-1,3-Dichloropropene	ND			5	1	05/07/09 21:04	TLE	5012048
m,p-Xylene	ND			5	1	05/07/09 21:04	TLE	5012048
o-Xylene	ND		•	5	1	05/07/09 21:04	TLE	5012048
trans-1,2-Dichloroethene	ND			5	1	05/07/09 21:04	TLE	5012048
trans-1,3-Dichloropropene	ND			5	1	05/07/09 21:04	TLE	5012048
Xylenes,Total	ND			5	1	05/07/09 21:04	TLE	5012048
1,2-Dichloroethene (total)	ND			5	1	05/07/09 21:04	TLÉ	5012048
Surr: 1,2-Dichloroethane-d4	94.0		%	64-115	1	05/07/09 21:04	TLE	5012048
Surr: 4-Bromofluorobenzene	112		%	65-131	1	05/07/09 21:04	TLE	5012048
Surr: Toluene-d8	91.7		%	75-136	1	05/07/09 21:04	TLE	5012048

Prep Method	Prep Date	Prep Initials	Prep Factor
SW5030B	05/05/2009 18:03	XML	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID FB-043009-1

Collected: 04/30/2009 15:40 SPL Sa

SPL Sample ID:

09050065-02

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	/8260B Ur	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/08/09 12:56	E_G	5012601
1,1,1-Trichloroethane	ND		5	1	05/08/09 12:56	E_G	5012601
1,1,2,2-Tetrachloroethane	ND		5	1	05/08/09 12:56	E_G	5012601
1,1,2-Trichloroethane	ND		5	1	05/08/09 12:56	E_G	5012601
1,1-Dichloroethane	ND		5	1	05/08/09 12:56	E_G	5012601
1,1-Dichloroethene	ND		5	1	05/08/09 12:56	E_G	501260
1,1-Dichloropropene	ND		5	1	05/08/09 12:56	E_G	5012601
1,2,3-Trichlorobenzene	ND		5	1	05/08/09 12:56	E_G	501260
1,2,3-Trichloropropane	ND		5	1	05/08/09 12:56	E_G	501260
1,2,4-Trichlorobenzene	ND		5	1	05/08/09 12:56	E_G	501260
1,2,4-Trimethylbenzene	ND		5	1	05/08/09 12:56	E_G	501260
1,2-Dibromo-3-chloropropane	ND		5	1	05/08/09 12:56	E_G	501260
1,2-Dibromoethane	ND		5	1	05/08/09 12:56	E_G	501260
1,2-Dichlorobenzene	ND		- 5	1	05/08/09 12:56	E_G	501260
1,2-Dichloroethane	ND		5	1	05/08/09 12:56	E_G	501260
1,2-Dichloropropane	ND		5	1	05/08/09 12:56	E_G	501260
1,3,5-Trimethylbenzene	ND		5	1	05/08/09 12:56	E_G	501260
1,3-Dichlorobenzene	ND		5	1	05/08/09 12:56	E_G	501260
1,3-Dichloropropane	ND		5	1	05/08/09 12:56	E_G	501260
1,4-Dichlorobenzene	ND		5	1	05/08/09 12:56	E_G	501260
2,2-Dichloropropane	ND		5	1	05/08/09 12:56	E_G	501260
2-Butanone	ND		20	1	05/08/09 12:56	E_G	501260
2-Chloroethyl vinyl ether	ND J		10	1	05/08/09 12:56	E_G	501260
2-Chlorotoluene	ND		5	1	05/08/09 12:56	E_G	501260
2-Hexanone	ND		10	1	05/08/09 12:56	E_G	501260
4-Chlorotoluene	ND		5	1	05/08/09 12:56	E_G	501260
4-Isopropyltoluene	ND		5	1	05/08/09 12:56	E_G	501260
4-Methyl-2-pentanone	ND		10	1	05/08/09 12:56	E_G	501260
Acetone	ND		20	1	05/08/09 12:56	E_G	501260
Acrylonitrile	ND		10	1	05/08/09 12:56	E_G	501260
Benzene	ND		5	1	05/08/09 12:56	E_G	501260
Bromobenzene	ND		5	1	05/08/09 12:56	E_G	501260
Bromochloromethane	ND		5	1	05/08/09 12:56	E_G	501260
Bromodichloromethane	ND		5	1	05/08/09 12:56	E_G	501260
Bromoform	ND		5	1	05/08/09 12:56	E_G	501260
Bromomethane	ND		10	1	05/08/09 12:56	E_G	501260
Carbon disulfide	ND		5	1	05/08/09 12:56	=	501260
Carbon tetrachloride	ND		5	1	05/08/09 12:56	E_G	501260
Chlorobenzene	ND		5	1	05/08/09 12:56	E_G	501260

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID FB-043009-1

Collected: 04/30/2009 15:40

SPL Sample ID:

09050065-02

Site:	Hobbs	. NM
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Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#	
Chloroethane	ND			10	1	05/08/09 12:56	E_G	5012601	
Chloroform	ND			5	1	05/08/09 12:56	E_G	5012601	
Chloromethane	ND			10	1	05/08/09 12:56	E_G	5012601	
Dibromochloromethane	ND			5	1	05/08/09 12:56	E_G	5012601	
Dibromomethane	ND			5	1	05/08/09 12:56	E_G	5012601	
Dichlorodifluoromethane	ND			10	1	05/08/09 12:56	E_G	5012601	
Ethylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
Hexachlorobutadiene	ND			5	1	05/08/09 12:56	E_G	5012601	
Isopropylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
Methyl tert-butyl ether	ND			5	1	05/08/09 12:56	E_G	5012601	
Methylene chloride	ND			5	1	05/08/09 12:56	E_G	5012601	
Naphthalene	ND			5	1	05/08/09 12:56	E_G	5012601	
n-Butylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
n-Propylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
sec-Butylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
Styrene	ND			5	1	05/08/09 12:56	E_G	5012601	
tert-Butylbenzene	ND			5	1	05/08/09 12:56	E_G	5012601	
Tetrachloroethene	ND			5	1	05/08/09 12:56	E_G	501260	
Toluene	ND			5	1	05/08/09 12:56	E_G	501260	
Trichloroethene	ND			5	1	05/08/09 12:56	E_G	501260	
Trichlorofluoromethane	ND			5	1	05/08/09 12:56	E_G	501260	
Vinyl acetate	ND			10	1	05/08/09 12:56	E_G	501260	
Vinyl chloride	ND			2	1	05/08/09 12:56	E_G	5012601	
cis-1,2-Dichloroethene	ND			5	1	05/08/09 12:56	E_G	5012601	
cis-1,3-Dichloropropene	ND			5	1	05/08/09 12:56	E_G	5012601	
m,p-Xylene	ND			5	1	05/08/09 12:56	E_G	5012601	
o-Xylene	ND			5	1	05/08/09 12:56	E_G	5012601	
trans-1,2-Dichloroethene	ND			5	1	05/08/09 12:56	E_G	5012601	
trans-1,3-Dichloropropene	ND			5	1	05/08/09 12:56	E_G	501260	
1,2-Dichloroethene (total)	ND			5	1	05/08/09 12:56	E_G	501260	
Xylenes,Total	ND			5	1	05/08/09 12:56	E_G	501260	
Surr: 1,2-Dichloroethane-d4	107		%	78-116	1	05/08/09 12:56	E_G	501260	
Surr: 4-Bromofluorobenzene	104		%	74-125	1	05/08/09 12:56	E_G	501260	
Surr: Toluene-d8	107		%	82-118	1	05/08/09 12:56	E G	501260	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

SPL Sample ID:

09050065-03

Client Sample ID RB-043009-1

Collected: 05/01/2009 7:05

Site: Hobbs, NM

Analyses/Method	Result QUAL	ult QUAL Rep.Limit		Dil. Factor Date Analyzed Analys			Seq.#
DIESEL RANGE ORGANICS			MCL	SV	V8015B	Units: mg/L	
Diesel Range Organics (C10-C28)	ND	0.1		1	05/06/09	21:44 NW	5014278
Surr: n-Pentacosane	27.4	% 20-150		1	05/06/09	21:44 NW	5014278

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 12:29	N_M	1.00

GASOLINE RANGE ORGANICS				MCL	S	W8015B	Un	its: mg/L	
Gasoline Range Organics	ND		0.1		1	05/08/09	12:44	CLJ	5014445
Surr: 1,4-Difluorobenzene	89.5	%	60-155		1	05/08/09	12:44	CLJ	5014445
Surr: 4-Bromofluorobenzene	105	%	50-158		1	05/08/09	12:44	CLJ	5014445

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050065 Page 12 6/16/2009 4:36:15 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-043009-1

Collected: 05/01/2009 7:05

SPL Sample ID:

09050065-03

Site:	Hobbs,	NM
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Analyses/Method	Result QU	AL Rep.Limit	Dil. Factor	Date Analyzed Analy	st Seq.#
SEMIVOLATILE ORGANICS B	Y METHOD 82700	.	MCL SV	V8270C Units: ug	/L
1,2,4-Trichlorobenzene	ND	5	1	05/11/09 18:57 E_R	5015643
1,2-Dichlorobenzene	ND	5	1	05/11/09 18:57 E_R	5015643
1,2-Diphenylhydrazine	ND	10	1	05/11/09 18:57 E_R	5015643
1,3-Dichlorobenzene	ND	5	1	05/11/09 18:57 E_R	5015643
1,4-Dichlorobenzene	ND	5	1	05/11/09 18:57 E_R	5015643
2,4,5-Trichlorophenol	ND	10	1	05/11/09 18:57 E_R	5015643
2,4,6-Trichlorophenol	ND	5	1	05/11/09 18:57 E_R	5015643
2,4-Dichlorophenol	ND	5	1	05/11/09 18:57 E_R	5015643
2,4-Dimethylphenol	ND	5	1	05/11/09 18:57 E_R	5015643
2,4-Dinitrophenol	ND	25	1	05/11/09 18:57 E_R	5015643
2,4-Dinitrotoluene	ND	5	1	05/11/09 18:57 E_R	5015643
2,6-Dinitrotoluene	ND	5	1	05/11/09 18:57 E_R	5015643
2-Chloronaphthalene	ND	5	1	05/11/09 18:57 E_R	5015643
2-Chlorophenol	ND	5	1	05/11/09 18:57 E_R	5015643
2-Methylnaphthalene	ND	5	1	05/11/09 18:57 E_R	5015643
2-Nitroaniline	ND	25	1	05/11/09 18:57 E_R	5015643
2-Nitrophenol	ND	5	1	05/11/09 18:57 E_R	5015643
3,3'-Dichlorobenzidine	ND	10	1	05/11/09 18:57 E_R	5015643
3-Nitroaniline	ND	25	1	05/11/09 18:57 E_R	5015643
4,6-Dinitro-2-methylphenol	ND	25	1	05/11/09 18:57 E_R	5015643
4-Bromophenyl phenyl ether	ND	5	1	05/11/09 18:57 E_R	5015643
4-Chloro-3-methylphenol	ND	5	1	05/11/09 18:57 E_R	5015643
4-Chloroaniline	ND	5	1	05/11/09 18:57 E_R	5015643
4-Chlorophenyl phenyl ether	ND	5	1	05/11/09 18:57 E_R	5015643
4-Nitroaniline	ND	25	1	05/11/09 18:57 E_R	5015643
4-Nitrophenol	ND	25	1	05/11/09 18:57 E_R	5015643
Acenaphthene	ND	5	1	05/11/09 18:57 E_R	5015643
Acenaphthylene	ND	5	1	05/11/09 18:57 E_R	5015643
Aniline	ND	5	1	05/11/09 18:57 E_R	5015643
Anthracene	ND	5	1	05/11/09 18:57 E_R	5015643
Benz(a)anthracene	ND	5	1	05/11/09 18:57 E_R	5015643
Benzo(a)pyrene	ND	5	1	05/11/09 18:57 E_R	5015643
Benzo(b)fluoranthene	ND	5	1	05/11/09 18:57 E_R	5015643
Benzo(g,h,i)perylene	ND	5	1	05/11/09 18:57 E_R	5015643
Benzo(k)fluoranthene	ND	5	1	05/11/09 18:57 E_R	5015643
Benzoic acid	ND	25	1	05/11/09 18:57 E_R	5015643
Benzyl alcohol	ND	5	1	05/11/09 18:57 E_R	5015643
Bis(2-chloroethoxy)methane	ND	5	1	05/11/09 18:57 E_R	5015643
Bis(2-chloroethyl)ether	ND	5	1	05/11/09 18:57 E_R	5015643

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-043009-1

Collected: 05/01/2009 7:05

SPL Sample ID:

09050065-03

Site:	Ho	hhs	. NM

Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND		-	5	1	05/11/09 18:57	E_R	5015643
Bis(2-ethylhexyl)phthalate	ND			5	1	05/11/09 18:57	E_R	5015643
Butyl benzyl phthalate	ND			5	1	05/11/09 18:57	E_R	5015643
Carbazole	ND			5	1	05/11/09 18:57	E_R	5015643
Chrysene	ND			5	1	05/11/09 18:57	E_R	5015643
Dibenz(a,h)anthracene	ND			5	1	05/11/09 18:57	E_R	5015643
Dibenzofuran	ND			5	1	05/11/09 18:57	E_R	5015643
Diethyl phthalate	. ND			5	1	05/11/09 18:57	E_R	5015643
Dimethyl phthalate	ND			5	1	05/11/09 18:57	E_R	5015643
Di-n-butyl phthalate	ND			5	1	05/11/09 18:57	E_R	5015643
Di-n-octyl phthalate	ND			5	1	05/11/09 18:57	E_R	5015643
Fluoranthene	ND			5	1	05/11/09 18:57	E_R	5015643
Fluorene	ND			5	1	05/11/09 18:57	E_R	5015643
Hexachlorobenzene	ND			5	1	05/11/09 18:57	E_R	5015643
Hexachlorobutadiene	ND			5	1	05/11/09 18:57	E_R	5015643
Hexachlorocyclopentadiene	ND			5	1	05/11/09 18:57	E_R	5015643
Hexachloroethane	ND			5	1	05/11/09 18:57	E_R	5015643
Indeno(1,2,3-cd)pyrene	ND			5	1	05/11/09 18:57	E_R	5015643
Isophorone	ND			5	1	05/11/09 18:57	E_R	5015643
Naphthalene	ND			5	1	05/11/09 18:57	E_R	5015643
Nitrobenzene	ND			5	1	05/11/09 18:57	E_R	5015643
N-Nitrosodi-n-propylamine	ND			5	1	05/11/09 18:57	E_R	5015643
N-Nitrosodiphenylamine	ND			5	1	05/11/09 18:57	E_R	5015643
Pentachlorophenol	ND			25	1	05/11/09 18:57	E_R	5015643
Phenanthrene	ND			5	1	05/11/09 18:57	E_R	5015643
Phenol	ND			5	1	05/11/09 18:57	E_R	5015643
Pyrene	ND			5	1	05/11/09 18:57	E_R	5015643
Pyridine	ND	_		5	1	05/11/09 18:57	E_R	5015643
2-Methylphenol	ND			5	1	05/11/09 18:57	E_R	5015643
3 & 4-Methylphenol	ND			5	1	05/11/09 18:57	E_R	5015643
Surr: 2,4,6-Tribromophenol	82.3		%	10-123	1	05/11/09 18:57	E_R	5015643
Surr: 2-Fluorobiphenyl	62.4		%	23-116	1	05/11/09 18:57	E_R	5015643
Surr: 2-Fluorophenol	69.3		%	16-110	1	05/11/09 18:57	E_R	5015643
Surr: Nitrobenzene-d5	56.4		%	21-114	1	05/11/09 18:57	E_R	5015643
Surr: Phenol-d5	57.5		%	10-110	1	05/11/09 18:57	E_R	5015643
Surr: Terphenyl-d14	63.2		%	22-141	1	05/11/09 18:57	E_R	5015643

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 15:05	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-043009-1

Collected: 05/01/2009 7:05

SPL Sample ID:

09050065-03

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyze	ed Analyst	Seq. #
OLATILE ORGANICS BY MET	HOD 8260B			MCL SV	V8260B	Units: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,1,1-Trichloroethane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,1,2,2-Tetrachloroethane	ND		5	1	05/08/09 13::	22 E_G	5012602
1,1,2-Trichloroethane	ND		5	1	05/08/09 13::	22 E_G	5012602
1,1-Dichloroethane	ND		5	1	05/08/09 13::	22 E_G	5012602
1,1-Dichloroethene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,1-Dichloropropene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2,3-Trichlorobenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2,3-Trichloropropane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2,4-Trichlorobenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2,4-Trimethylbenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2-Dibromo-3-chloropropane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2-Dibromoethane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2-Dichlorobenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2-Dichloroethane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,2-Dichloropropane	ND		5	1	05/08/09 13:	22 E_G	501260
1,3,5-Trimethylbenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,3-Dichlorobenzene	ND		5	1	05/08/09 13:	22 E_G	5012602
1,3-Dichloropropane	ND		5	1	05/08/09 13:	22 E_G	5012602
1,4-Dichlorobenzene	ND		5	1	05/08/09 13:	22 E_G	501260
2,2-Dichloropropane	ND		5	1	05/08/09 13:	22 E_G	5012602
2-Butanone	ND		20	1	05/08/09 13:	22 E_G	5012602
2-Chloroethyl vinyl ether	ND J	·	10	1	05/08/09 13:	22 E_G	5012602
2-Chlorotoluene	ND		5	1	05/08/09 13:	22 E_G	5012602
2-Hexanone	ND		10	1	05/08/09 13:	22 E_G	5012602
4-Chlorotoluene	ND		5	1	05/08/09 13:	22 E_G	5012602
4-Isopropyltoluene	ND		5	1	05/08/09 13:	22 E_G	5012602
4-Methyl-2-pentanone	ND		10	1	05/08/09 13:	22 E_G	5012602
Acetone	ND		20	1	05/08/09 13:	22 E_G	501260
Acrylonitrile	ND		10	1	05/08/09 13:	22 E_G	501260
Benzene	ND		5	1	05/08/09 13:	22 E_G	5012602
Bromobenzene	ND		5	1	05/08/09 13:	22 E_G	501260
Bromochloromethane	ND		5	1	05/08/09 13:	22 E_G	5012602
Bromodichloromethane	ND		5	1	05/08/09 13:	22 E_G	501260
Bromoform	ND		5	1	05/08/09 13:	22 E_G	501260
Bromomethane	ND		10	1	05/08/09 13:	22 E_G	501260
Carbon disulfide	ND		5	1	05/08/09 13:	22 E_G	501260
Carbon tetrachloride	ND		5	1	05/08/09 13:	22 E_G	501260
Chlorobenzene	ND		5	1	05/08/09 13:	22 F G	501260

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-043009-1

Collected: 05/01/2009 7:05

SPL Sample ID:

09050065-03

	Site. Flobbs, NW									
Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#		
Chloroethane	ND			10	1	05/08/09 13:22	E_G	5012602		
Chloroform	ND			5	1	05/08/09 13:22	E_G	5012602		
Chloromethane	ND			10	1	05/08/09 13:22	E_G	5012602		
Dibromochloromethane	ND			5	1	05/08/09 13:22	E_G	5012602		
Dibromomethane	ND			5	1	05/08/09 13:22	E_G	5012602		
Dichlorodifluoromethane	ND			10	1	05/08/09 13:22	E_G	5012602		
Ethylbenzene	ND	_	_	5	1	05/08/09 13:22	E_G	5012602		
Hexachlorobutadiene	ND			5	1	05/08/09 13:22	E_G	5012602		
Isopropylbenzene	ND			5	1	05/08/09 13:22	E_G	5012602		
Methyl tert-butyl ether	ND			5	1	05/08/09 13:22	E_G	5012602		
Methylene chloride	ND			5	1	05/08/09 13:22	E_G	5012602		
Naphthalene	ND			5	1	05/08/09 13:22	E_G	5012602		
n-Butylbenzene	ND			5	1	05/08/09 13:22	E_G	5012602		
n-Propylbenzene	ND			5	1	05/08/09 13:22	E_G	5012602		
sec-Butylbenzene	ND			5	1	05/08/09 13:22	E_G	5012602		
Styrene	ND			5	1	05/08/09 13:22	E_G	5012602		
tert-Butylbenzene	ND			5	1	05/08/09 13:22	E_G	5012602		
Tetrachloroethene	ND	-		5	1	05/08/09 13:22	E_G	5012602		
Toluene	ND			5	1	05/08/09 13:22	E_G	5012602		
Trichloroethene	ND			5	1	05/08/09 13:22	E_G	5012602		
Trichlorofluoromethane	ND			5	1	05/08/09 13:22	E_G	5012602		
Vinyl acetate	ND			10	1	05/08/09 13:22	E_G	5012602		
Vinyl chloride	ND			2	1	05/08/09 13:22	E_G	5012602		
cis-1,2-Dichloroethene	ND			5	1	05/08/09 13:22	E_G	5012602		
cis-1,3-Dichloropropene	ND			5	1	05/08/09 13:22	E_G	5012602		
m,p-Xylene	ND			5	1	05/08/09 13:22	E_G	5012602		
o-Xylene	ND			5	1	05/08/09 13:22	E_G	5012602		
trans-1,2-Dichloroethene	ND			5	1	05/08/09 13:22	E_G	5012602		
trans-1,3-Dichloropropene	ND			5	1	05/08/09 13:22	E_G	5012602		
1,2-Dichloroethene (total)	ND			5	1	05/08/09 13:22	E_G	5012602		
Xylenes,Total	ND			5	1	05/08/09 13:22	E_G	5012602		
Surr: 1,2-Dichloroethane-d4	107		%	78-116	1	05/08/09 13:22	E_G	5012602		
Surr: 4-Bromofluorobenzene	104		%	74-125	1	05/08/09 13:22	E_G	5012602		
Surr: Toluene-d8	108		% 1	82-118	1	05/08/09 13:22	E_G	5012602		

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6

Collected: 05/01/2009 12:00

SPL Sample ID:

09050065-04

Analyses/Method	Result	QUAL	Re	ep.Limit	Di	I. Facto	r Date Ana	lyzed	Analyst	Seq.#
ALKALINITY (AS CACO3), TOTAL					MCL		E310.1	Un	its: mg/L	
Alkalinity, Total (As CaCO3)	192			2		1	06/10/09	16:00	PAC	5061241
DIESEL RANGE ORGANICS			<u> </u>		MCL	S	W8015B	Un	its: mg/L	
Diesel Range Organics (C10-C28)	0.21			0.1		1	05/06/09	22:04	NW	5014279
Surr: n-Pentacosane	38.6		%	20-150		1	05/06/09	22:04	NW	5014279

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 12:29	N_M	1.00

GASOLINE RANGE ORGANICS				MCL		SW8015B	Units: mg/L	
Gasoline Range Organics	ND		0.1		1	05/08/09	13:13 CLJ	5014446
Surr: 1,4-Difluorobenzene	89.1	%	60-155		1	05/08/09	13:13 CLJ	5014446
Surr: 4-Bromofluorobenzene	103	%	50-158		1	05/08/09	13:13 CLJ	5014446
HEADSPACE GAS ANALYSIS				MCL		RSK147	Units: mg/L	
Methane	ND		0.0012		1	05/07/09	10:08 V_L	5009409
ION CHROMATOGRAPHY				MCL		E300.0	Units: mg/L	
Chloride	624		50		100	05/12/09	21:37 BDG	5019642
Sulfate	91.9		5		10	05/12/09	21:55 BDG	5019643

Nitrogen,Nitrate (As N)	ND	0.5		1	05/02/09	19:52 BDG	5012732
SEMIVOLATILE HYDROCARBOI	NS		MCL	S	W8015B	Units: mg/L	
Mineral Spirits Range Organics	ND	0.1		1	05/06/09	22:04 NW	5056832
Surr: n-Pentacosane	38.6	% 20-150		1	05/06/09	22:04 NW	5056832

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 12:29	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



Client Sample ID MW-6

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Collected: 05/01/2009 12:00

SPL Sample ID:

09050065-04

Site: Hobbs, NM

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Un	its: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	05/11/09 19:32	E_R	5015644
1,2-Dichlorobenzene	ND	5	1	05/11/09 19:32	E_R	5015644
1,2-Diphenylhydrazine	ND	10	1	05/11/09 19:32	E_R	5015644
1,3-Dichlorobenzene	ND	5	1	05/11/09 19:32	E_R	5015644
1,4-Dichlorobenzene	ND	5	1	05/11/09 19:32	E_R	5015644
2,4,5-Trichlorophenol	ND	10	1	05/11/09 19:32	E_R	5015644
2,4,6-Trichlorophenol	ND	5	1	05/11/09 19:32	E_R	5015644
2,4-Dichlorophenol	ND	5	1	05/11/09 19:32	E_R	5015644
2,4-Dimethylphenol	ND	5	1	05/11/09 19:32	E_R	5015644
2,4-Dinitrophenol	ND	25	1	05/11/09 19:32	E_R	5015644
2,4-Dinitrotoluene	ND	5	1	05/11/09 19:32	E_R	5015644
2,6-Dinitrotoluene	ND	5	1	05/11/09 19:32	E_R	5015644
2-Chloronaphthalene	ND	5	1	05/11/09 19:32	E_R	5015644
2-Chlorophenol	ND	5	1	05/11/09 19:32	E_R	5015644
2-Methylnaphthalene	ND	5	1	05/11/09 19:32	E_R	5015644
2-Nitroaniline	ND	25	1	05/11/09 19:32	E_R	501564
2-Nitrophenol	ND	5	1	05/11/09 19:32	E_R	501564
3,3'-Dichlorobenzidine	ND	10	1	05/11/09 19:32	E_R	5015644
3-Nitroaniline	ND	25	1	05/11/09 19:32	E_R	5015644
4,6-Dinitro-2-methylphenol	ND	25	1	05/11/09 19:32	E_R	501564
4-Bromophenyl phenyl ether	ND	5	1	05/11/09 19:32	E_R	501564
4-Chioro-3-methylphenol	ND	5	1	05/11/09 19:32	E_R	501564
4-Chloroaniline	ND	5	1	05/11/09 19:32	E_R	501564
4-Chlorophenyl phenyl ether	ND	5	1	05/11/09 19:32	E_R	501564
4-Nitroanitine	ND	25	1	05/11/09 19:32	E_R	501564
4-Nitrophenol	ND	25	1	05/11/09 19:32	E_R	5015644
Acenaphthene	ND	5	1	05/11/09 19:32	E_R	501564
Acenaphthylene	ND	5	1	05/11/09 19:32	E_R	501564
Aniline	ND	5	1	05/11/09 19:32	E_R	501564
Anthracene	ND	5	1	05/11/09 19:32	E_R	501564
Benz(a)anthracene	ND	5	1	05/11/09 19:32	E_R	501564
Benzo(a)pyrene	ND	5	1	05/11/09 19:32	E_R	501564
Benzo(b)fluoranthene	ND	5	1	05/11/09 19:32	E_R	501564
Benzo(g,h,i)perylene	ND ND	5	1	05/11/09 19:32	E_R	501564
Benzo(k)fluoranthene	ND	5	1	05/11/09 19:32		501564
Benzoic acid	ND	25	1	05/11/09 19:32	E_R	501564
Benzyl alcohol	ND	5	1	05/11/09 19:32	E_R	501564
Bis(2-chloroethoxy)methane	ND	5	1	05/11/09 19:32	E_R	501564
Bis(2-chloroethyl)ether	ND	5	1	05/11/09 19:32	E_R	501564

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Client Sample ID MW-6

Collected: 05/01/2009 12:00

SPL Sample ID:

09050065-04

Site:	Hobbs.	NM
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Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND		5	1	05/11/09 19:32	E_R	5015644
Bis(2-ethylhexyl)phthalate	ND		5	1	05/11/09 19:32	E_R	5015644
Butyl benzyl phthalate	ND		5	1	05/11/09 19:32	E_R	5015644
Carbazole	ND		5	1	05/11/09 19:32	E_R	5015644
Chrysene	ND		5	1	05/11/09 19:32	E_R	5015644
Dibenz(a,h)anthracene	ND		5	1	05/11/09 19:32	E_R	5015644
Dibenzofuran	ND		5	1	05/11/09 19:32	E_R	5015644
Diethyl phthalate	ND		5	1	05/11/09 19:32	E_R	5015644
Dimethyl phthalate	ND		5	1	05/11/09 19:32	E_R	5015644
Di-n-butyl phthalate	11		5	1	05/11/09 19:32	E_R	5015644
Di-n-octyl phthalate	ND		5	1	05/11/09 19:32	E_R	5015644
Fluoranthene	ND		5	1	05/11/09 19:32	E_R	5015644
Fluorene	ND		5	1	05/11/09 19:32	E_R	5015644
Hexachlorobenzene	ND		5	1	05/11/09 19:32	E_R	5015644
Hexachlorobutadiene	ND		5	1	05/11/09 19:32	E_R	5015644
Hexachlorocyclopentadiene	ND		5	1	05/11/09 19:32	E_R	5015644
Hexachloroethane	ND		5	1	05/11/09 19:32	E_R	5015644
Indeno(1,2,3-cd)pyrene	ND		5	1	05/11/09 19:32	E_R	5015644
Isophorone	ND		5	1	05/11/09 19:32	E_R	5015644
Naphthalene	ND		5	1	05/11/09 19:32	E_R	5015644
Nitrobenzene	ND		5	1	05/11/09 19:32	E_R	5015644
N-Nitrosodi-n-propylamine	ND		5	1	05/11/09 19:32	E_R	5015644
N-Nitrosodiphenylamine	ND		5	1	05/11/09 19:32	E_R	5015644
Pentachlorophenol	ND		25	1	05/11/09 19:32	E_R	5015644
Phenanthrene	ND		5	1	05/11/09 19:32	E_R	5015644
Phenol	ND		5	1	05/11/09 19:32	E_R	5015644
Pyrene	ND	_	5	1	05/11/09 19:32	E_R	5015644
Pyridine	ND		5	1	05/11/09 19:32	E_R	5015644
2-Methylphenol	ND		5	1	05/11/09 19:32	E_R	5015644
3 & 4-Methylphenol	ND		5	1	05/11/09 19:32	E_R	5015644
Surr: 2,4,6-Tribromophenol	76.1		% 10-123	1	05/11/09 19:32	E_R	5015644
Surr: 2-Fluorobiphenyl	55.8		% 23-116	1	05/11/09 19:32	E_R	5015644
Surr: 2-Fluorophenol	62.0		% 16-110	1	05/11/09 19:32	E_R	5015644
Surr: Nitrobenzene-d5	49.6		% 21-114	1	05/11/09 19:32	E_R	5015644
Surr: Phenol-d5	50.7		% 10-110	1	05/11/09 19:32	E_R	5015644
Surr: Terphenyl-d14	54.0		% 22-141	1	05/11/09 19:32	E_R	5015644

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 15:05	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

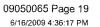
J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6

Collected: 05/01/2009 12:00 **SPL Sample ID:**

09050065-04

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	W8260B Un	its: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,1,1-Trichloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,1,2,2-Tetrachloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,1,2-Trichloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,1-Dichloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,1-Dichloroethene	ND		5	1	05/08/09 15:03	E_G	5012606
1,1-Dichloropropene	ND		5	1	05/08/09 15:03	E_G	5012606
1,2,3-Trichlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,2,3-Trichloropropane	ND		5	1	05/08/09 15:03	E_G	5012606
1,2,4-Trichlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,2,4-Trimethylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,2-Dibromo-3-chloropropane	ND		5	1	05/08/09 15:03	É_G	5012606
1,2-Dibromoethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,2-Dichlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,2-Dichloroethane	ND		5	1	05/08/09 15:03	E_G	5012606
1,2-Dichloropropane	ND		5	1	05/08/09 15:03	E_G	5012606
1,3,5-Trimethylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,3-Dichlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
1,3-Dichloropropane	ND		5	1	05/08/09 15:03	E_G	5012606
1,4-Dichlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
2,2-Dichloropropane	ND		5	1	05/08/09 15:03	E_G	5012606
2-Butanone	ND		20	1	05/08/09 15:03	E_G	5012606
2-Chloroethyl vinyl ether	ND J		10	1	05/08/09 15:03	É_G	5012606
2-Chlorotoluene	ND		5	1	05/08/09 15:03	E_G	5012606
2-Hexanone	ND		10	1	05/08/09 15:03	E_G	5012606
4-Chlorotoluene	ND		5	1	05/08/09 15:03	E_G	5012606
4-Isopropyltoluene	ND		5	1	05/08/09 15:03	E_G	5012606
4-Methyl-2-pentanone	ND		10	1	05/08/09 15:03	E_G	5012606
Acetone	ND		20	1	05/08/09 15:03	E_G	5012606
Acrylonitrile	ND		10	1	05/08/09 15:03	E_G	5012606
Benzene	ND		5	1	05/08/09 15:03	E_G	5012606
Bromobenzene	ND		5	1	05/08/09 15:03	E_G	5012606
Bromochloromethane	ND		5	1	05/08/09 15:03	E_G	5012606
Bromodichloromethane	ND		5	1	05/08/09 15:03	E_G	5012606
Bromoform	ND		5	1	05/08/09 15:03	E_G	5012606
Bromomethane	ND		10	111	05/08/09 15:03	E_G	5012606
Carbon disulfide	ND		5	1	05/08/09 15:03	E_G	501260
Carbon tetrachloride	ND		5	1	05/08/09 15:03	E_G	5012606
Chlorobenzene	ND		5	1	05/08/09 15:03	E_G	5012606

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID MW-6

Collected: 05/01/2009 12:00

SPL Sample ID:

09050065-04

Site:	Hobbs,	N	M
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Site: Hobbs, NW								
Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#	
Chloroethane	ND		10	1	05/08/09 15:03	E_G	5012606	
Chloroform	ND		5	1	05/08/09 15:03	E_G	5012606	
Chloromethane	ND		10	1	05/08/09 15:03	E_G	5012606	
Dibromochloromethane	ND		5	1	05/08/09 15:03	E_G	5012606	
Dibromomethane	ND		5	1	05/08/09 15:03	E_G	5012606	
Dichlorodifluoromethane	ND		10	1	05/08/09 15:03	E_G	5012606	
Ethylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
Hexachlorobutadiene	ND		5	1	05/08/09 15:03	E_G	5012606	
Isopropylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
Methyl tert-butyl ether	ND		5	1	05/08/09 15:03	E_G	5012606	
Methylene chloride	ND		5	1	05/08/09 15:03	E_G	5012606	
Naphthalene	ND		5	1	05/08/09 15:03	E_G	5012606	
n-Butylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
n-Propylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
sec-Butylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
Styrene	ND		5	1	05/08/09 15:03	E_G	5012606	
tert-Butylbenzene	ND		5	1	05/08/09 15:03	E_G	5012606	
Tetrachloroethene	ND		5	1	05/08/09 15:03	E_G	5012606	
Toluene	ND		5	1	05/08/09 15:03	E_G	5012606	
Trichloroethene	ND		5	1	05/08/09 15:03	E_G	5012606	
Trichlorofluoromethane	ND		5	1	05/08/09 15:03	E_G	5012606	
Vinyl acetate	ND		10	1	05/08/09 15:03	E_G	5012606	
Vinyl chloride	ND		2	1	05/08/09 15:03	E_G	5012606	
cis-1,2-Dichloroethene	ND		5	1	05/08/09 15:03	E_G	5012606	
cis-1,3-Dichloropropene	ND		5	1	05/08/09 15:03	E_G	5012606	
m,p-Xylene	ND		5	1	05/08/09 15:03	E_G	5012606	
o-Xylene	ND		5	1	05/08/09 15:03	E_G	5012606	
trans-1,2-Dichloroethene	ND		5	1	05/08/09 15:03	E_G	5012606	
trans-1,3-Dichloropropene	ND		5	1	05/08/09 15:03	E_G	5012606	
1,2-Dichloroethene (total)	ND		5	1	05/08/09 15:03	E_G	5012606	
Xylenes,Total	ND		5	1	05/08/09 15:03	E_G	5012606	
Surr: 1,2-Dichloroethane-d4	107		% 78-116	1	05/08/09 15:03	E_G	5012606	
Surr: 4-Bromofluorobenzene	104		% 74-125	1	05/08/09 15:03	E_G	5012606	
Surr: Toluene-d8	108		% 82-118	1	05/08/09 15:03	E_G	5012606	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-050109-1

Collected: 05/01/2009 13:30 SPL Sample ID:

09050065-05

Site:	Hobbs.	NM
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Analyses/Method	Result	QUAL	Re	ep.Limit	Dil.	Fac	tor Date Analy	yzed Analys	t Seq.#
DIESEL RANGE ORGANICS					MCL		SW8015B	Units: mg/	L
Diesel Range Organics (C10-C28)	ND			0.1		1	05/06/09 2	22:25 NW	5014280
Surr: n-Pentacosane	59.4		%	20-150		1	05/06/09 2	22:25 NW	5014280

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 12:29	N_M	1.00

GASOLINE RANGE ORGANICS				MCL		SW8015B	Un	its: mg/L	
Gasoline Range Organics	ND		0.1		1	05/08/09	13:41	CLJ	5014447
Surr: 1,4-Difluorobenzene	89.8	%	60-155		1	05/08/09	13:41	CLJ	5014447
Surr: 4-Bromofluorobenzene	103	%	50-158		1	05/08/09	13:41	CLJ	5014447

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050065 Page 22 6/16/2009 4:36:17 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-050109-1

Collected: 05/01/2009 13:30

SPL Sample ID:

09050065-05

Site:	Hobbs.	NM
OILC.	HODOS.	1 4141

Analyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C		MCL SV	V8270C Ur	nits: ug/L	
1,2,4-Trichlorobenzene	ND	5	1	05/11/09 20:07	E_R	5015645
1,2-Dichlorobenzene	ND	5	1	05/11/09 20:07	E_R	501564
1,2-Diphenylhydrazine	ND	10	1	05/11/09 20:07	E_R	5015645
1,3-Dichlorobenzene	ND	5	1	05/11/09 20:07	E_R	501564
1,4-Dichlorobenzene	ND	5	1	05/11/09 20:07	E_R	501564
2,4,5-Trichlorophenol	ND	10	1	05/11/09 20:07	E_R	501564
2,4,6-Trichlorophenol	ND	5	1	05/11/09 20:07	E_R	501564
2,4-Dichlorophenol	ND	5	1	05/11/09 20:07	E_R	501564
2,4-Dimethylphenol	ND	5	1	05/11/09 20:07	E_R	501564
2,4-Dinitrophenol	ND	25	1	05/11/09 20:07	E_R	501564
2,4-Dinitrotoluene	ND	5	1	05/11/09 20:07	E_R	501564
2,6-Dinitrotoluene	ND	5	1	05/11/09 20:07	E_R	501564
2-Chloronaphthalene	ND	5	1	05/11/09 20:07	E_R	501564
2-Chlorophenol	ND	5	1	05/11/09 20:07	E_R	501564
2-Methylnaphthalene	ND	5	1	05/11/09 20:07	E_R	501564
2-Nitroaniline	ND	25	1	05/11/09 20:07	E_R	501564
2-Nitrophenol	ND	5	1	05/11/09 20:07	E_R	501564
3,3'-Dichlorobenzidine	ND	10	1	05/11/09 20:07	E_R	501564
3-Nitroaniline	ND	25	1	05/11/09 20:07	E_R	501564
4,6-Dinitro-2-methylphenol	ND	25	1	05/11/09 20:07	E_R	501564
4-Bromophenyl phenyl ether	ND	5	1	05/11/09 20:07	E_R	501564
4-Chloro-3-methylphenol	ND	5	1	05/11/09 20:07	E_R	501564
4-Chloroaniline	ND	5	1	05/11/09 20:07	E_R	501564
4-Chlorophenyl phenyl ether	ND	5	1	05/11/09 20:07	E_R	501564
4-Nitroaniline	ND	25	1	05/11/09 20:07	E_R	501564
4-Nitrophenol	ND	25	1	05/11/09 20:07	E_R	501564
Acenaphthene	ND	5	1	05/11/09 20:07	E_R	501564
Acenaphthylene	ND	5	1	05/11/09 20:07	E_R	501564
Aniline	ND	5	1	05/11/09 20:07	E_R	501564
Anthracene	ND	5	1	05/11/09 20:07	E_R	501564
Benz(a)anthracene	ND	5	11	05/11/09 20:07	E_R	501564
Benzo(a)pyrene	ND	5	1	05/11/09 20:07	E_R	501564
Benzo(b)fluoranthene	ND	5	1	05/11/09 20:07	E_R	501564
Benzo(g,h,i)perylene	ND	5	1	05/11/09 20:07	E_R	501564
Benzo(k)fluoranthene	ND	5	1	05/11/09 20:07	E_R	501564
Benzoic acid	ND	25	1	05/11/09 20:07	E_R	501564
Benzyl alcohol	ND	5	1	05/11/09 20:07	E_R	501564
Bis(2-chloroethoxy)methane	ND	5	1	05/11/09 20:07		501564
Bis(2-chloroethyl)ether	ND	5	1	05/11/09 20:07	E_R	501564

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-050109-1

Collected: 05/01/2009 13:30

SPL Sample ID:

09050065-05

Site:	Hobbs	NIR/
JILE.	ทบบบร	. INIV

			oite. Hobbs,				
Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Bis(2-chloroisopropyl)ether	ND		5	1	05/11/09 20:07	E_R	5015645
Bis(2-ethylhexyl)phthalate	ND		5	1	05/11/09 20:07	E_R	5015645
Butyl benzyl phthalate	ND		5	1	05/11/09 20:07	E_R	5015645
Carbazole	ND		5	1	05/11/09 20:07	E_R	501564
Chrysene	ND		5	1	05/11/09 20:07	E_R	501564
Dibenz(a,h)anthracene	ND		5	1	05/11/09 20:07	E_R	501564
Dibenzofuran	ND		5	1	05/11/09 20:07	E_R	501564
Diethyl phthalate	ND		5	1	05/11/09 20:07	E_R	501564
Dimethyl phthalate	ND		5	1	05/11/09 20:07	E_R	501564
Di-n-butyl phthalate	ND		5	1	05/11/09 20:07	E_R	501564
Di-n-octyl phthalate	ND		5	1	05/11/09 20:07	E_R	501564
Fluoranthene	ND		5	1	05/11/09 20:07	E_R	501564
Fluorene	ND		5	1	05/11/09 20:07	E_R	501564
Hexachlorobenzene	ND		5	1	05/11/09 20:07	E_R	501564
Hexachlorobutadiene	ND		5	1	05/11/09 20:07	E_R	501564
Hexachlorocyclopentadiene	ND		5	1	05/11/09 20:07	E_R	501564
Hexachloroethane	ND		5	1	05/11/09 20:07	E_R	501564
Indeno(1,2,3-cd)pyrene	ND		5	1	05/11/09 20:07	E_R	501564
Isophorone	ND		5	1	05/11/09 20:07	E_R	501564
Naphthalene	ND		5	1	05/11/09 20:07	E_R	501564
Nitrobenzene	ND		5	1	05/11/09 20:07	E_R	501564
N-Nitrosodi-n-propylamine	ND		5	1	05/11/09 20:07	E_R	501564
N-Nitrosodiphenylamine	ND		5	1	05/11/09 20:07	E_R	501564
Pentachlorophenol	ND		25	1	05/11/09 20:07	E_R	501564
Phenanthrene	ND		5	1	05/11/09 20:07	E_R	501564
Phenol	ND		5	1	05/11/09 20:07	E_R	501564
Pyrene	ND		5	1	05/11/09 20:07	E_R	501564
Pyridine	ND		5	1	05/11/09 20:07	E_R	501564
2-Methylphenol	ND		5	1	05/11/09 20:07	E_R	501564
3 & 4-Methylphenol	ND		5	1	05/11/09 20:07	E_R	501564
Surr: 2,4,6-Tribromophenol	97.5		% 10-123	1	05/11/09 20:07	E_R	501564
Surr: 2-Fluorobiphenyl	73.6		% 23-116	1	05/11/09 20:07	E_R	501564
Surr: 2-Fluorophenol	81.6		% 16-110	1	05/11/09 20:07	E_R	501564
Surr: Nitrobenzene-d5	65.6		% 21-114	1	05/11/09 20:07	E_R	501564
Surr: Phenol-d5	70.0		% 10-110	1	05/11/09 20:07	E_R	501564
Surr: Terphenyl-d14	75.6		% 22-141	1	05/11/09 20:07	E_R	501564

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3510C	05/04/2009 15:05	N_M	1.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-050109-1

Collected: 05/01/2009 13:30

SPL Sample ID:

09050065-05

Site: Hobbs, NM

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
OLATILE ORGANICS BY MET	HOD 8260B			MCL SV	V8260B Ur	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,1,1-Trichloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,1,2,2-Tetrachloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,1,2-Trichloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,1-Dichloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,1-Dichloroethene	ND		5	1	05/08/09 13:47	E_G	5012603
1,1-Dichloropropene	ND		5	1	05/08/09 13:47	E_G	5012603
1,2,3-Trichlorobenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,2,3-Trichloropropane	ND		5	1	05/08/09 13:47	E_G	5012603
1,2,4-Trichlorobenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,2,4-Trimethylbenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,2-Dibromo-3-chloropropane	ND		5	1	05/08/09 13:47	E_G	5012603
1,2-Dibromoethane	ND		5	1	05/08/09 13:47	E_G	5012600
1,2-Dichlorobenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,2-Dichloroethane	ND		5	1	05/08/09 13:47	E_G	5012603
1,2-Dichloropropane	ND		5	1	05/08/09 13:47	E_G	501260
1,3,5-Trimethylbenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,3-Dichlorobenzene	ND		5	1	05/08/09 13:47	E_G	5012603
1,3-Dichloropropane	ND		5	1	05/08/09 13:47	E_G	5012600
1,4-Dichlorobenzene	ND		5	1	05/08/09 13:47	E_G	501260
2,2-Dichloropropane	ND		5	1	05/08/09 13:47	E_G	501260
2-Butanone	ND		20	1	05/08/09 13:47	E_G	501260
2-Chloroethyl vinyl ether	ND J		10	1	05/08/09 13:47	E_G	501260
2-Chlorotoluene	ND		5	1	05/08/09 13:47	E_G	5012603
2-Hexanone	ND		10	1	05/08/09 13:47	E_G	501260
4-Chlorotoluene	ND		5	1	05/08/09 13:47	E_G	5012603
4-Isopropyltoluene	ND		5	1	05/08/09 13:47	E_G	5012603
4-Methyl-2-pentanone	ND		10	1	05/08/09 13:47	E_G	501260
Acetone	ND		20	1	05/08/09 13:47	E_G	501260
Acrylonitrile	ND		10	1	05/08/09 13:47	E_G	501260
Benzene	ND		5	1	05/08/09 13:47	E_G	501260
Bromobenzene	ND		5	1	05/08/09 13:47	E_G	501260
Bromochloromethane	ND		5	1	05/08/09 13:47	E_G	501260
Bromodichloromethane	ND		5	1	05/08/09 13:47	E_G	501260
Bromoform	ND		5	_ 1	05/08/09 13:47	E_G	501260
Bromomethane	ND		10	1	05/08/09 13:47	E_G	501260
Carbon disulfide	ИD		5	1	05/08/09 13:47	E_G	501260
Carbon tetrachloride	ND		5	1	05/08/09 13:47	E_G	501260

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

09050065 Page 25 6/16/2009 4:36:18 PM



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID RB-050109-1

Collected: 05/01/2009 13:30

SPL Sample ID:

09050065-05

Site: I	Hobbs.	NM
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				<u> </u>				
Analyses/Method	Result	QUAL	Re	p.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10	1	05/08/09 13:47	E_G	5012603
Chloroform	ND			5	1	05/08/09 13:47	E_G	5012603
Chloromethane	ND			10	1	05/08/09 13:47	E_G	5012603
Dibromochloromethane	ND			5	1	05/08/09 13:47	E_G	5012603
Dibromomethane	ND			5	1	05/08/09 13:47	E_G	5012603
Dichlorodifluoromethane	ND			10	1	05/08/09 13:47	E_G	5012603
Ethylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
Hexachlorobutadiene	ND			5	1	05/08/09 13:47	E_G	5012603
Isopropylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
Methyl tert-butyl ether	ND			5	1	05/08/09 13:47	E_G	5012603
Methylene chloride	ND			5	1	05/08/09 13:47	E_G	5012603
Naphthalene	ND			5	1	05/08/09 13:47	E_G	5012603
n-Butylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
n-Propylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
sec-Butylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
Styrene	ND			5	1	05/08/09 13:47	E_G	5012603
tert-Butylbenzene	ND			5	1	05/08/09 13:47	E_G	5012603
Tetrachloroethene	ND			5	1	05/08/09 13:47	E_G	5012603
Toluene	ND			5	1	05/08/09 13:47	E_G	5012603
Trichloroethene	ND			5	1	05/08/09 13:47	E_G	5012603
Trichlorofluoromethane	ND			5	1	05/08/09 13:47	E_G	5012603
Vinyl acetate	ND			10	1	05/08/09 13:47	E_G	5012603
Vinyl chloride	ND			2	1	05/08/09 13:47	E_G	5012603
cis-1,2-Dichloroethene	ND			5	1	05/08/09 13:47	E_G	5012603
cis-1,3-Dichloropropene	ND			5	1	05/08/09 13:47	E_G	5012603
m,p-Xylene	ND			5	1	05/08/09 13:47	E_G	5012603
o-Xylene	ND			5	1	05/08/09 13:47	E_G	5012603
trans-1,2-Dichloroethene	ND			5	1	05/08/09 13:47	E_G	5012603
trans-1,3-Dichloropropene	ND			5	1	05/08/09 13:47	E_G	5012603
1,2-Dichloroethene (total)	ND			5	1	05/08/09 13:47	E_G	5012603
Xylenes,Total	ND			5	1	05/08/09 13:47	E_G	5012603
Surr: 1,2-Dichloroethane-d4	106		%	78-116	1	05/08/09 13:47	E_G	5012603
Surr: 4-Bromofluorobenzene	104		%	74-125	1	05/08/09 13:47	E_G	5012603
Surr: Toluene-d8	108		%	82-118	11	05/08/09 13:47	E_G	5012603

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

SPL Sample ID:

09050065-06

Client Sample ID FB-050109-1

Site: Hobbs, NM

Collected: 05/01/2009 13:40

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS BY ME	THOD 8260B			MCL SV	V8260B Ur	nits: ug/L	
1,1,1,2-Tetrachloroethane	ND		5	1	05/08/09 14:12		5012604
1,1,1-Trichloroethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,1,2,2-Tetrachloroethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,1,2-Trichloroethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,1-Dichloroethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,1-Dichloroethene	ND		5	1	05/08/09 14:12	E_G	5012604
1,1-Dichloropropene	ND		5	1	05/08/09 14:12	E_G	5012604
1,2,3-Trichlorobenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,2,3-Trichloropropane	ND		5	1	05/08/09 14:12	E_G	5012604
1,2,4-Trichlorobenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,2,4-Trimethylbenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,2-Dibromo-3-chloropropane	ND		5	1	05/08/09 14:12	E_G	5012604
1,2-Dibromoethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,2-Dichlorobenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,2-Dichloroethane	ND		5	1	05/08/09 14:12	E_G	5012604
1,2-Dichloropropane	ND		5	1	05/08/09 14:12	E_G	5012604
1,3,5-Trimethylbenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,3-Dichlorobenzene	ND		5	1	05/08/09 14:12	E_G	5012604
1,3-Dichloropropane	ND		5	1	05/08/09 14:12	E_G	5012604
1,4-Dichlorobenzene	ND		5	1	05/08/09 14:12	E_G	5012604
2,2-Dichloropropane	ND		5	1	05/08/09 14:12	E_G	5012604
2-Butanone	ND		20	1	05/08/09 14:12	E_G	5012604
2-Chloroethyl vinyl ether	ND J		10	1	05/08/09 14:12	E G	5012604
2-Chlorotoluene	ND		5	1	05/08/09 14:12		5012604
2-Hexanone	ND		10	1	05/08/09 14:12		5012604
4-Chlorotoluene	ND		5	1	05/08/09 14:12	E_G	5012604
4-Isopropyltoluene	ND		5	1	05/08/09 14:12	E_G	5012604
4-Methyl-2-pentanone	ND		10	1	05/08/09 14:12	E_G	5012604
Acetone	ND		20	1	05/08/09 14:12	E_G	5012604
Acrylonitrile	ND		10	1	05/08/09 14:12	E_G	5012604
Benzene	ND		5	1	05/08/09 14:12	E_G	5012604
Bromobenzene	ND		5	. 1	05/08/09 14:12	E_G	5012604
Bromochloromethane	ND		5	1	05/08/09 14:12	E_G	5012604
Bromodichloromethane	ND		5	1	05/08/09 14:12	E_G	5012604
Bromoform	ND		5	1	05/08/09 14:12		5012604
Bromomethane	ND		10	1	05/08/09 14:12		5012604
Carbon disulfide	ND		5	1	05/08/09 14:12	E_G	5012604
Carbon tetrachloride	ND		5	1	05/08/09 14:12		5012604
Chlorobenzene	ND		5	1	05/08/09 14:12		5012604



ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count



D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID FB-050109-1

Collected: 05/01/2009 13:40

SPL Sample ID:

09050065-06

Site: Hobbs, NM

			Oite. Hobbs,			
Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed Analyst	Seq.#
Chloroethane	ND		10	1	05/08/09 14:12 E_G	5012604
Chloroform	ND		5	1	05/08/09 14:12 E_G	5012604
Chloromethane	ND		10	1	05/08/09 14:12 E_G	5012604
Dibromochloromethane	ND		5	1	05/08/09 14:12 E_G	5012604
Dibromomethane	ND		5	1	05/08/09 14:12 E_G	5012604
Dichlorodifluoromethane	ND		10	1	05/08/09 14:12 E_G	5012604
Ethylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
Hexachlorobutadiene	ND		5	1	05/08/09 14:12 E_G	5012604
Isopropylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
Methyl tert-butyl ether	ND		5	1	05/08/09 14:12 E_G	5012604
Methylene chloride	ND		5	1	05/08/09 14:12 E_G	5012604
Naphthalene	ND		5	1	05/08/09 14:12 E_G	5012604
n-Butylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
n-Propylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
sec-Butylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
Styrene	ND		5	1	05/08/09 14:12 E_G	5012604
tert-Butylbenzene	ND		5	1	05/08/09 14:12 E_G	5012604
Tetrachloroethene	ND		5	1	05/08/09 14:12 E_G	5012604
Toluene	ND		5	1	05/08/09 14:12 E_G	5012604
Trichloroethene	ND		5	1	05/08/09 14:12 E_G	5012604
Trichlorofluoromethane	ND		5	1	05/08/09 14:12 E_G	5012604
Vinyl acetate	ND		10	1	05/08/09 14:12 E_G	5012604
Vinyl chloride	ND		2	1	05/08/09 14:12 E_G	5012604
cis-1,2-Dichloroethene	ND		5	1	05/08/09 14:12 E_G	5012604
cis-1,3-Dichloropropene	ND		5	1	05/08/09 14:12 E_G	5012604
m,p-Xylene	ND		5	1	05/08/09 14:12 E_G	5012604
o-Xylene	ND		5	1	05/08/09 14:12 E_G	5012604
trans-1,2-Dichloroethene	ND		5	1	05/08/09 14:12 E_G	5012604
trans-1,3-Dichloropropene	ND		5	1	05/08/09 14:12 E_G	5012604
1,2-Dichloroethene (total)	ND		5	1	05/08/09 14:12 E_G	5012604
Xylenes,Total	ND		5	1	05/08/09 14:12 E_G	5012604
Surr: 1,2-Dichloroethane-d4	105		% 78-116	1	05/08/09 14:12 E_G	5012604
Surr: 4-Bromofluorobenzene	104		% 74-125	1	05/08/09 14:12 E_G	5012604
Surr: Toluene-d8	107		% 82-118	1	05/08/09 14:12 E_G	5012604



ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

(713) 660-0901 SPL Sample ID:

09050065-07

Client Sample ID TB-043009-1

Site: Hobbs, NM

Collected: 04/30/2009 0:00

nalyses/Method	Result QUAL	Rep.Limit	Dil. Factor	Date Analyze	d Analyst	Seq.#
OLATILE ORGANICS BY MET		MCL SV	V8260B L	Inits: ug/L		
1,1,1,2-Tetrachloroethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1,1-Trichloroethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1,2,2-Tetrachloroethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1,2-Trichloroethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1-Dichloroethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1-Dichloroethene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,1-Dichloropropene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2,3-Trichlorobenzene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2,3-Trichloropropane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2,4-Trichlorobenzene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2,4-Trimethylbenzene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2-Dibromo-3-chloropropane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2-Dibromoethane	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2-Dichlorobenzene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,2-Dichloroethane	ND	5	1	05/08/09 14:3	7 E_G	501260
1,2-Dichloropropane	ND	5	1	05/08/09 14:3	7 E_G	501260
1,3,5-Trimethylbenzene	ND	5	1	05/08/09 14:3	7 E_G	5012605
1,3-Dichlorobenzene	ND	5	1	05/08/09 14:3	7 E_G	501260
1,3-Dichloropropane	ND	5	1	05/08/09 14:3	7 E_G	501260
1,4-Dichlorobenzene	ND	5	1	05/08/09 14:3	7 E_G	501260
2,2-Dichloropropane	ND	5	1	05/08/09 14:3	7 E_G	501260
2-Butanone	ND	20	1	05/08/09 14:3	7 E_G	5012605
2-Chloroethyl vinyl ether	ND J	10	1	05/08/09 14:3	7 E_G	501260
2-Chlorotoluene	ND	5	1	05/08/09 14:3	7 E_G	501260
2-Hexanone	ND	10	1	05/08/09 14:3	7 E_G	501260
4-Chlorotoluene	ND	5	1	05/08/09 14:3	7 E_G	501260
4-Isopropyltoluene	ND	5	1	05/08/09 14:3	7 E_G	501260
4-Methyl-2-pentanone	ND	10	1	05/08/09 14:3	7 E_G	501260
Acetone	ND	20	1	05/08/09 14:3	7 E_G	501260
Acrylonitrile	ND	10	1	05/08/09 14:3	7 E_G	501260
Benzene	ND	5	1	05/08/09 14:3	7 E_G	501260
Bromobenzene	ND	5	1	05/08/09 14:3	7 E_G	501260
Bromochloromethane	ND	5	1	05/08/09 14:3	7 E_G	501260
Bromodichloromethane	ND	5	1	05/08/09 14:3	7 E_G	501260
Bromoform	ND	5	1	05/08/09 14:3	7 E_G	501260
Bromomethane	ND	10	1	05/08/09 14:3	7 E_G	501260
Carbon disulfide	ND	5	1	05/08/09 14:3	7 E_G	501260
Carbon tetrachloride	ND	5	1	05/08/09 14:3	7 E_G	501260
Chlorobenzene	ND	5	1	05/08/09 14:3	7 F G	501260

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Client Sample ID TB-043009-1

Collected: 04/30/2009 0:00

SPL Sample ID:

09050065-07

			Site	nobbs,	I STAL			
Analyses/Method	Result	QUAL	Rep	.Limit	Dil. Factor	Date Analyzed	Analyst	Seq.#
Chloroethane	ND			10	1	05/08/09 14:37	E_G	5012605
Chloroform	ND			5	1	05/08/09 14:37	E_G	5012605
Chloromethane	ND			10	1	05/08/09 14:37	E_G	5012605
Dibromochloromethane	ND			5	1	05/08/09 14:37	E_G	5012605
Dibromomethane	ND			5	1	05/08/09 14:37	E_G	5012605
Dichlorodifluoromethane	ND			10	1	05/08/09 14:37	E_G	5012605
Ethylbenzene	ND			5	1	05/08/09 14:37	E_G	5012605
Hexachlorobutadiene	ND			5	1	05/08/09 14:37	E_G	5012605
Isopropylbenzene	ND			5	1	05/08/09 14:37	E_G	5012605
Methyl tert-butyl ether	ND			5	1	05/08/09 14:37	E_G	5012605
Methylene chloride	ND			5	1	05/08/09 14:37	E_G	5012605
Naphthalene	ND			5	1	05/08/09 14:37	E_G	5012605
n-Butylbenzene	ND			5	1	05/08/09 14:37	E_G	5012605
n-Propylbenzene	.ND			5	1	05/08/09 14:37	E_G	5012605
sec-Butylbenzene	ND			5	1	05/08/09 14:37	E_G	5012605
Styrene	ND			5	1	05/08/09 14:37	E_G	5012605
tert-Butylbenzene	ND			5	1	05/08/09 14:37	E_G	5012605
Tetrachloroethene	ND			5	1	05/08/09 14:37	E_G	5012605
Toluene	ND			5	1	05/08/09 14:37	E_G	5012605
Trichloroethene	ND			5	1	05/08/09 14:37	E_G	5012605
Trichlorofluoromethane	ND			5	1	05/08/09 14:37	E_G	5012605
Vinyl acetate	ND			10	1	05/08/09 14:37	E_G	5012605
Vinyl chloride	ND			2	1	05/08/09 14:37	E_G	5012605
cis-1,2-Dichloroethene	ND			5	1	05/08/09 14:37	E_G	5012605
cis-1,3-Dichloropropene	ND			5	1	05/08/09 14:37	E_G	5012605
m,p-Xylene	ND			5	1	05/08/09 14:37	E_G	5012605
o-Xylene	ND			5	1	05/08/09 14:37	E_G	5012605
trans-1,2-Dichloroethene	ND			5	1	05/08/09 14:37	E_G	5012605
trans-1,3-Dichloropropene	ND			5	1	05/08/09 14:37	E_G	5012605
1,2-Dichloroethene (total)	ND			5	1	05/08/09 14:37	E_G	5012605
Xylenes,Total	ND			5	1	05/08/09 14:37	E_G	5012605
Surr: 1,2-Dichloroethane-d4	106		%	78-116	1	05/08/09 14:37	E_G	5012605
Surr: 4-Bromofluorobenzene	104		%	74-125	1	05/08/09 14:37	E_G	5012605
Surr: Toluene-d8	107		%	82-118	1	05/08/09 14:37	E_G	5012605

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution



Quality Control Documentation



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

RuniD:

Semivolatile Hydrocarbons

Method:

SW8015B

WorkOrder:

09050065

Lab Batch ID:

89962

Method Blank

HP_V_090506D-5056828

Units:

mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

05/06/2009 16:19

Analyst:

NW

09050065-04G

Samples in Analytical Batch:

MW-6

Preparation Date:

05/04/2009 12:29

Prep By:

N M Method SW3510C

Analyte	Result	Rep Limit
Mineral Spirits Range Organics	ND	0.10
Surr: n-Pentacosane	40.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP_V_090506D-5056829

Units:

Analysis Date:

05/06/2009 16:39

Analyst: NW

mg/L

Preparation Date:

05/04/2009 12:29

Prep By:

N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Mineral Spirits Range Organics	1.00	0.792	79.2	1.00	0.802	80.2	1.3	40	21	150
Surr: n-Pentacosane	0.0500	0.0334	66.8	0.0500	0.0321	64.2	4.0	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 32

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Samples in Analytical Batch:

Analysis:

RunID:

Semivolatile Hydrocarbons

Method: SW8015B BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

89962

Method Blank

Units: mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

HP V 090506B-5014268

NW

09050065-03C

RB-043009-1

05/06/2009 16:19

Analyst:

09050065-04C

MW-6

05/04/2009 12:29 Preparation Date:

Prep By:

N_M Method SW3510C

09050065-05C

RB-050109-1

Analyte	Result	Rep Limit
Diesel Range Organics (C10-C28)	ND	0.10
Surr: n-Pentacosane	40.2	20-150

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID:

HP V 090506B-5014269

Units:

Analysis Date:

05/06/2009 16:39

mg/L Analyst: NW

Preparation Date:

05/04/2009 12:29

Prep By:

N_M Method SW3510C

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics (C10-C28)	1.00	0.792	79.2	1.00	0.802	80.2	1.3	20	21	130
Surr: n-Pentacosane	0.0500	0.0334	66.8	0.0500	0.0321	64.2	4.0	30	20	150

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 33

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis:

Semivolatile Hydrocarbons

SW8015B Method:

BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

89972

Method Blank

Samples in Analytical Batch:

RuniD:

HP_V 090509A-5017621

Units:

mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

05/09/2009 20:39

Analyst:

NW

09050065-01E

MW-6-54-55'

Preparation Date:

05/04/2009 16:41

Prep By:

FAK Method SW3550B

Analyte	Result	Rep Limit
Diesel Range Organics (C10-C28)	ND	5.0
Surr: n-Pentacosane	79.7	20-154

Laboratory Control Sample (LCS)

RunID:

HP V 090509A-5017622

Units:

mg/Kg

Analysis Date:

05/09/2009 20:59

NW Analyst:

Preparation Date: 05/04/2009 16:41

FAK Method SW3550B Prep By:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Diesel Range Organics (C10-C28)	33.3	24.7	74.3	57	150
Surr: n-Pentacosane	1.66	1.25	75.3	20	154

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050059-01

RunID:

HP_V_090509A-5017624

Units:

mg/Kg

Analysis Date:

05/09/2009 22:20

NW Analyst:

Preparation Date:

05/04/2009 16:41

Prep By:

FAK Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Diesel Range Organics (C10-C28)	1750	33.3	2210	N/C	33.3	1340	N/C	N/C	50	21	175
Surr: n-Pentacosane	ND	1.66	D	D	1.66	D	D	D	30	20	154

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 34

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

RunID:

Semivolatile Hydrocarbons

SW8015B

WorkOrder:

09050065

Lab Batch ID:

89972

Method Blank

HP_V_090611A-5063301

Units:

mg/kg

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

05/09/2009 20:39

Analyst:

AM

09050065-01F

MW-6-54-55'

Preparation Date:

05/04/2009 16:41

Prep By: FAK Method SW3550B

Analyte	Result	Rep Limit
Mineral Spirits	ND	10
Surr: n-Pentacosane	79.7	20-154

Laboratory Control Sample (LCS)

RuniD:

HP_V_090611A-5063302

Units:

mg/kg

Analysis Date:

Preparation Date:

05/09/2009 20:59 05/04/2009 16:41

AM Analyst: Prep By:

FAK Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit	
Mineral Spirits	33.3	24.7	74.3	50	150	
Surr: n-Pentacosane	1.66	1.25	75.3	20	154	

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050059-01

RunID:

HP_V_090611A-5063304

Units:

mg/kg

Analysis Date:

05/09/2009 22:20

Analyst: AM

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Mineral Spirits	2360	66.6	2840	N/C	66.6	1750	N/C	N/C	50	50	150
Surr: n-Pentacosane	ND ND	1.66	D	D	1.66	D	D	D	30	20	154

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 35



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

BJ-Fracmaster 128125

Analysis: Method:

RunID:

Headspace Gas Analysis

RSK147

WorkOrder:

09050065

Lab Batch ID:

Method Blank

Samples in Analytical Batch:

R272023

Units: mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

05/07/2009 9:46

VARC 090507A-5009408

Analyst:

09050065-04F

MW-6

	Analyte	Result	Rep Limit
Methane		 ND	0.0012

Sample Duplicate

Original Sample:

09050065-04

RunID:

VARC 090507A-5009409

Units:

mg/L

Analysis Date:

05/07/2009 10:08

Analyst: V L

Analyte	Sample	DUP	RPD	RPD
	Result	Result		Limit
Methane	ND	ND	0	50



ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits





N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 36

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

RunID:

Gasoline Range Organics

Method: SW8015B WorkOrder:

09050065

Lab Batch ID:

R272171

Method Blank

HP S 090508A-5011642

Units:

mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

05/08/2009 8:55

Analyst:

EMB

09050065-01B

MW-6-54-55'

Preparation Date:

05/08/2009 8:55

Prep By:

Method SW5030B

Samples in Analytical Batch:

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	100.3	63-142
Surr: 4-Bromofluorobenzene	101.6	50-159

Laboratory Control Sample (LCS)

RuniD:

HP_S_090508A-5011643

Units:

mg/Kg **EMB**

Analysis Date: Preparation Date: 05/08/2009 9:52 05/08/2009 9:52 Analyst: Prep By:

Method SW5030B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	0.962	96.2	70	130
Surr: 1,4-Difluorobenzene	0.100	0.102	102	63	142
Surr: 4-Bromofluorobenzene	0.100	0.108	108	50	159

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050292-01

HP_S_090508A-5012651

Units:

mg/kg-dry

Analysis Date:

RunID:

05/08/2009 21:58

EMB Analyst:

Preparation Date:

05/08/2009 9:19

XML Method SW5030B Prep By:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	1.98	0.762	38.4	1.98	0.668	33.7	13.3	50	26	147
Surr: 1,4-Difluorobenzene	ND	0.198	0.214	108	0.198	0.211	106	1.59	30	63	142
Surr: 4-Bromofluorobenzene	ND	0.198	0.205	103	0.198	0.206	104	0.483	30	50	159

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 37



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Analysis Date:

RunID:

Gasoline Range Organics

Method: SW8015B

WorkOrder:

Samples in Analytical Batch:

09050065

Lab Batch ID:

R272349

Method Blank

HP_P_090508A-5014432

05/08/2009 5:40

Units: Analyst: mg/L CLJ

Lab Sample ID

Client Sample ID

09050065-03B

RB-043009-1

09050065-04B

MW-6

09050065-05B

RB-050109-1

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	90.2	60-155
Surr: 4-Bromofluorobenzene	103.9	50-158

Laboratory Control Sample (LCS)

RunID:

HP P 090508A-5014430

Units:

mg/L

Analysis Date:

05/08/2009 4:43

Analyst:

: CLJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1.00	1.03	103	42	136
Surr: 1,4-Difluorobenzene	0.100	0.101	101	60	155
Surr: 4-Bromofluorobenzene	0.100	0.107	107	50	158

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050042-26

RunID:

HP_P_090508A-5014436

Units:

mg/L

Analysis Date:

05/08/2009 8:30

Analyst:

CLJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	4.30	10	11.9	75.9	10	12.2	79.4	2.90	36	22	174
Surr: 1,4-Difluorobenzene	ND	1	0.983	98.3	1	0.986	98.6	0.274	30	60	155
Surr: 4-Bromofluorobenzene	ND	1	1.07	107	1	1.06	106	1.08	30	50	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 38



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

Analysis: Method:

RunID:

Mercury, Total SW7471A

BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

90001

Method Blank

Units:

mg/Kg

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

HGLD_090505A-5007425

05/05/2009 14:38

Analyst: F_S 09050065-01C

MW-6-54-55'

Preparation Date:

05/05/2009 12:00

Prep By: F_S Method SW7471A

Analyte	Result	Rep Limit
Mercury	ND	0.03

Laboratory Control Sample (LCS)

RunID:

HGLD 090505A-5007426

Units:

mg/Kg

Analysis Date:

05/05/2009 14:40

F S Analyst:

Preparation Date: 05/05/2009 12:00 Prep By: F_S Method SW7471A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Mercury	3.600	3.815	106.0	68	132

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-01

RunID:

HGLD_090505A-5007428

Units:

mg/Kg

Analysis Date:

05/05/2009 14:49

Analyst: F_S

Preparation Date:

05/05/2009 12:00

Prep By: F_S Method SW7471A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Mercury	ND	0.3	0.3355	111.8	0.3	0.3237	107.9	3.597	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 39

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

RunID:

Metals by Method 6010B, Total

SW6010B

WorkOrder:

09050065

Lab Batch ID:

90112a

Method Blank

Units:

Lab Sample ID

Client Sample ID

Analysis Date:

ICP2_090516A-5023407

05/16/2009 23:49

Analyst:

EG

09050065-01C

Samples in Analytical Batch:

MW-6-54-55'

Preparation Date:

05/08/2009 10:00

AB1 Method SW3050B Ргер Ву:

mg/Kg

Analyte	Result	Rep Limit
Arsenic	ND	0.5
Barium	ND	0.5
Cadmium	ND	0.5
Calcium	ND	10
Chromium	ND	0.5
Lead	ND	0.5
Magnesium	ND	10
Potassium	ND	50
Selenium	ND	0.5
Silver	_ ND	0.5
Sodium	ND	10

Laboratory Control Sample (LCS)

RunID:

ICP2_090516A-5023408

Units:

mg/Kg

Analysis Date:

05/16/2009 23:53

EG Analyst:

Preparation Date:

05/08/2009 10:00

Prep By: AB1 Method SW3050B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Arsenic	80.90	78.58	97.13	79	121
Barium	156.0	157.4	100.9	82	119
Cadmium	233.0	211.6	90.82	81	119
Calcium	4320	4141	95.86	79	121
Chromium	60.80	61.67	101.4	78	121
Lead	76.80	71.12	92.60	81	120
Magnesium	2220	2122	95.59	77	123
Potassium	2380	2293	96.34	71	129
Selenium	82.90	76.84	92.69	76	124
Silver	80.00	79.17	98.96	61	139
Sodium	456.0	470.5	103.2	56	144

Post Digestion Spike (PDS) / Post Digestion Spike Duplicate (PDSD)

Sample Spiked:

09050317-01

RunID:

ICP2_090516A-5023413

Units:

mg/kg-dry

EG

Analysis Date: Qualifiers:

05/17/2009 0:13

Analyst:

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

ND/U - Not Detected at the Reporting Limit

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 40

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Metals by Method 6010B, Total

Method:

SW6010B

WorkOrder:

09050065

Lab Batch ID:

90112a

Analyte	Sample Result	PDS Spike Added	PDS Result	PDS % Recovery	PDSD Spike Added	PDSD Result	PDSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Barium	57.7	2123.4	2423	111.4	2123.4	2438	112.1	0.6116	20	75	125
Potassium	ND	21234	23540	107.3	21234	23470	107.0	0.2710	20	75	125

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050317-01

ICP2 090516A-5023410

Units:

mg/kg-dry

Analysis Date:

RunID:

05/17/2009 0:01

Analyst: EG

Preparation Date: 05/08/2009 10:00

Prep By: AB1 Method SW3050B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Arsenic	ND	106.2	126.7	110.8	106.2	124.4	108.7	1.776	20	75	125
Barium	57.70	106.2	201.7	135.6 *	106.2	197.3	131.4 *	2.235	20	75	125
Cadmium	ND	106.2	122.1	115.0	106.2	119.2	112.3	2.376	20	75	125
lcium	962.5	106.2	1101	N/C	106.2	1072	N/C	N/C	20	75	125
salcium romium	38.77	106.2	158.4	112.7	106.2	155.1	109.6	2.100	20	75	125
Lead	63.50	106.2	191.1	120.2	106.2	185.6	115.0	2.931	20	75	125
Magnesium	2348	106.2	3214	N/C	106.2	3114	N/C	N/C	20	75	125
Potassium	ND	1062	2336	149.8 *	1062	2297	146.2 *	1.650	20	75	125
Selenium	ND	106.2	120.3	113.3	106.2	117.3	110.5	2.502	20	75	125
Silver	ND	106.2	125.0	117.7	106.2	122.3	115.2	2.147	20	75	125
Sodium	490.0	106.2	606.6	N/C	106.2	575.8	N/C	N/C	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 41

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



05/08/2009 10:32

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

BJ-Fracmaster 128125

Analysis:

RuniD:

Analysis Date:

Semivolatile Organics by Method 8270C

Method: SW8270C WorkOrder:

09050065

Lab Batch ID:

89968

Method Blank

R_090508B-5011969

Units: Analyst:

Prep By:

ug/L E_R

N M Method SW3510C

Lab Sample ID 09050065-03D

Samples in Analytical Batch:

Client Sample ID RB-043009-1

09050065-04D

09050065-05D

MW-6 RB-050109-1

Preparation Date:	05/04/2009 15:05
	Analyte

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Diphenylhydrazine	ND	10
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
2,4,5-Trichlorophenol	ND	10
2,4,6-Trichlorophenol	ND	5.0
2,4-Dichlorophenol	ND	5.0
2,4-Dimethylphenol	ND	5.0
2,4-Dinitrophenol	ND	25
2,4-Dinitrotoluene	ND	5.0
2,6-Dinitrotoluene	ND	5.0
2-Chloronaphthalene	ND	5.0
2-Chlorophenol	ND	5.0
2-Methylnaphthalene	ND	5.0
2-Nitroaniline	ND	25
2-Nitrophenol	ND	5.0
3,3'-Dichlorobenzidine	ND	10
3-Nitroaniline	ND	25
4,6-Dinitro-2-methylphenol	ND	25
4-Bromophenyl phenyl ether	ND	5.0
4-Chloro-3-methylphenol	ND	5.0
4-Chloroaniline	ND	5.0
4-Chlorophenyl phenyl ether	ND	5.0
4-Nitroaniline	ND	25
4-Nitrophenol	ND	25
Acenaphthene	ND	5.0
Acenaphthylene	ND	5.0
Aniline	ND	5.0
Anthracene	ND	5.0
Benz(a)anthracene	ND	5.0
Benzo(a)pyrene	ND	5.0
Benzo(b)fluoranthene	ND	5.0
Benzo(g,h,i)perylene	ND	5.0
Benzo(k)fluoranthene	ND	5.0
Benzoic acid	ND	25
Benzyl alcohol	ND	5.0
Bis(2-chloroethoxy)methane	<u>N</u> D	5.0
Bis(2-chloroethyl)ether	ND	
Bis(2-chloroisopropyl)ether	ND	
Bis(2-ethylhexyl)phthalate	ND	5.0
Butyl benzyl phthalate	ND	5.0
Carbazole	ND	5.0
Chrysene	ND ND	5.0
Dibenz(a,h)anthracene	ND	5.0
Dibenzofuran	ND	5.0

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

MI - Matrix Interference

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 42

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

09050065

Lab Batch ID:

89968

Method Blank

RuniD:

R_090508B-5011969

Units:

ug/L

Analysis Date:

05/08/2009 10:32

Analyst:

 E_R

Preparation Date:

05/04/2009 15:05

Prep By: N_M Method SW3510C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	5.0
Dimethyl phthalate	ND	5.0
Di-n-butyl phthalate	ND	5.0
Di-n-octyl phthalate	ND	5.0
Fluoranthene	ND.	5.0
Fluorene	ND	5.0
Hexachlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Hexachlorocyclopentadiene	ND	5.0
Hexachloroethane	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Isophorone	ND	5.0
Naphthalene	ND	5.0
Nitrobenzene	ND.	5.0
N-Nitrosodi-n-propylamine	ND	5.0
N-Nitrosodiphenylamine	ND	5.0
Pentachlorophenol	ND	25
Phenanthrene	ND	5.0
Phenol	ND	5.0
Pyrene	ND	5.0
Pyridine	ND.	5.0
2-Methylphenol	ND.	5.0
3 & 4-Methylphenol	ND	5.0
Surr: 2,4,6-Tribromophenol	111.6	10-123
Surr: 2-Fluorobiphenyl	78.2	23-116
Surr: 2-Fluorophenol	98.7	16-110
Surr: Nitrobenzene-d5	68.6	21-114
Surr: Phenol-d5	104.4	10-110
Surr: Terphenyl-d14	88.4	22-141

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

R_090508B-5011971

Units:

Analysis Date:

RunID:

05/08/2009 14:03

Analyst:

E R

Preparation Date:

05/04/2009 15:05

Prep By: N_M Method SW3510C

ug/L

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 43

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.







8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Semivolatile Organics by Method 8270C

WorkOrder:

09050065

Lab Batch ID:

89968

Method: SW8270C							Lab Batch II	D: 899	89		
Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	ND	25	19.3	77.2	25	19.3	77.2	0	39	10	142
1,2-Dichlorobenzene	ND	25	19.3	77.2	25	19.2	76.8	0.519	50	20	150
1,2-Diphenylhydrazine	ND	25	18.7	74.8	25	18.9	75.6	1.06	50	10	251
1,3-Dichlorobenzene	ND	25	18.3	73.2	25	18.6	74.4	1.63	50	20	150
1,4-Dichlorobenzene	ND	25	18.4	73.6	25	18.6	74.4	1.08	45	20	150
2,4,5-Trichlorophenol	ND	25.	19.8	79.2	25	19.4	77.6	2.04	50	30	150
2,4,6-Trichlorophenol	ND	25	21.5	86.0	25	21.0	84.0	2.35	50	30	150
2,4-Dichlorophenol	ND	25	19.8	79.2	25	19.0	76.0	4.12	50	30	150
2,4-Dimethylphenol	ND	25	19.0	76.0	25	18.3	73.2	3.75	50	32	140
2,4-Dinitrophenol	ND	25	19.9	79.6	25	17.5	70.0	12.8	50	10	160
2,4-Dinitrotoluene	ND	25	21.4	85.6	25	20.8	83.2	2.84	50	30	150
2,6-Dinitrotoluene	ND	25	20.6	82.4	25	20.4	81.6	0.976	50	30	150
2-Chloronaphthalene	ND	25	20.5	82.0	25	20.4	81.6	0.489	50	30	150
2-Chlorophenol	ND	25	19.8	79.2	25	20.2	80.8	2.00	40	23	134
2-Methylnaphthalene	ND	25	19.9	79.6	25	19.9	79.6	0	50	20	170
2-Nitroaniline	ND	25	19.3	77.2	25	18.8	75.2	2.62	50	20	160
2-Nitrophenol	ND	25	20.3	81.2	25	19.9	79.6	1.99	50	29	182
3'-Dichlorobenzidine	ND	25	18.8	75.2	25	18.8	75.2	0	50	30	200
Nitroaniline	ND	25	16.9	67.6	25	17.0	68.0	0.590	50	20	160
4,6-Dinitro-2-methylphenol	ND	25	18.4	73.6	25	18.2	72.8	1.09	50	10	160
4-Bromophenyl phenyl ether	ND	25	19.3	77.2	25	19.2	76.8	0.519	50	30	150
4-Chloro-3-methylphenol	ND	25	20.9	83.6	25	20.5	82.0	1.93	42	25	160
4-Chloroaniline	ND	25	14.0	56.0	25	13.1	52.4	6.64	50	20	160
4-Chlorophenyl phenyl ether	ND	25	20.4	81.6	25	20.3	81.2	0.491	50	25	158
4-Nitroaniline	ND	25	18.9	75.6	25	18.7	74.8	1.06	50	20	160
4-Nitrophenol	ND	25	10.2	40.8	25	10.3	41.2	0.976	50	10	132
Acenaphthene	ND	25	19.6	78.4	25	19.8	79.2	1.02	31	30	150
Acenaphthylene	ND	25	20.5	82.0	25	20.4	81.6	0.489	50	33	250
Aniline	ND	50	0	0 *	50	0	0 *	0	50	10	135
Anthracene	ND	25	20.0	80.0	25	20.3	81.2	1.49	50	27	133
Benz(a)anthracene	ND	25	19.1	76.4	25	18.9	75.6	1.05	50	33	143
Benzo(a)pyrene	ND	25	16.5	66.0	25	16.3	65.2	1.22	50	17	163
Benzo(b)fluoranthene	ND	25	18.2	72.8	25	17.0	68.0	6.82	50	24	159
Benzo(g,h,i)perylene	ND	25	18.1	72.4	25	18.2	72.8	0.551	50	30	160
Benzo(k)fluoranthene	ND	25	16.7	66.8		17.8	71.2	6.38	50	11	162
Benzoic acid	ND	25	22.8	91.2	25	21.7	86.8	4.94	50	10	400
Benzyl alcohol	ND	25	17.0	68.0	25	15.5	62.0	9.23	50	30	160
Bis(2-chloroethoxy)methane	ND	25	19.0	76.0	25	18.4	73.6	3.21	50	33	184
Bis(2-chloroethyl)ether	ND	25	19.3	77.2	25	19.3	77.2	0	50	12	158

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 44

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Semivolatile Organics by Method 8270C

RunID:

SW8270C Method:

WorkOrder:

09050065

Lab Batch ID:

89968

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

R_090508B-5011971

Units:

ug/L

Analysis Date:

05/08/2009 14:03

Analyst: E_R

Preparation Date:

05/04/2009 15:05

Prep By: N M Method SW3510C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limi
Bis(2-chloroisopropyl)ether	ND	25	20.2	80.8	25	20.3	81.2	0.494	50	20	16
Bis (2-ethylhexyl)phthalate	ND	25	16.7	66.8	25	16.3	65.2	2.42	50	10	15
Butyl benzyl phthalate	ND	25	17.6	70.4	25	17.5	70.0	0.570	50	30	16
Carbazole	ND	25	19.9	79.6	25	19.9	79.6	0	50	30	15
Chrysene	ND	25	19.0	76.0	25	19.0	76.0	0	50	17	16
Dibenz(a,h)anthracene	ND	25	17.6	70.4	25	18.6	74.4	5.52	50	30	16
Dibenzofuran	ND	25	20.7	82.8	25	20.6	82.4	0.484	50	30	15
Diethyl phthalate	ND	25	19.4	77.6	25	19.4	77.6	0	50	30	16
Dimethyl phthalate	ND	25	20.0	80.0	25	20.0	80.0	0	50	30	10
Di-n-butyl phthalate	ND	25	19.1	76.4	25	18.7	74.8	2.12	50	30	16
-n-octyl phthalate	ND	25	16.8	67.2	25	17.1	68.4	1.77	50	. 20	1
Joranthene	ND	25	20.5	82.0	25	21.0	84.0	2.41	50	26	1
Fluorene	ND	25	20.0	80.0	25	20.2	80.8	0.995	50	30	1
Hexachlorobenzene	ND	25	19.8	79.2	25	19.7	78.8	0.506	50	20	1
Hexachlorobutadiene	ND	25	18.0	72.0	25	17.7	70.8	1.68	50	20	1
Hexachlorocyclopentadiene	ND	25	24.8	99.2	25	24.4	97.6	1.63	50	10	1
Hexachloroethane	ND	25	16.7	66.8	25	17.0	68.0	1.78	50	10	1
Indeno(1,2,3-cd)pyrene	ND	25	20.6	82.4	25	20.3	81.2	1.47	50	30	1
Isophorone	ND	25	19.8	79.2	25	19.6	78.4	1.02	50	21	1
Naphthalene	ND	25	20.3	81.2	25	20.2	80.8	0.494	50	21	1
Nitrobenzene	ND	25	18.2	72.8	25	17.9	71.6	1.66	50	20	_ 1
N-Nitrosodi-n-propylamine	ND	25	18.3	73.2	25	18.4	73.6	0.545	38	30	1
N-Nitrosodiphenylamine	ND	50	47.8	95.6	50	48.2	96.4	0.833	50	30	1
Pentachlorophenol	ND	25	19.9	79.6	25	19.3	77.2	3.06	50	14	1
Phenanthrene	ND	25	19.8	79.2	25	19.9	79.6	0.504	50	10	1
Phenol	ND	25	11.2	44.8	25	11.2	44.8	0	<u> </u>		1
Pyrene	ND	25	19.0	ļ	25	18.6	74.4	2.13	<u> </u>		1
Pyridine	ND	50	6.26	. 12.5	50	5.96	11.9	4.91	50	10	1
2-Methylphenol	ND	25	19.2	76.8	25	19.1	76.4	0.522	50	30	1
3 & 4-Methylphenol	ND	25	16.5	66.0	25	16.0	64.0	3.08	50	10	1
Surr: 2,4,6-Tribromophenol	ND	75	77	103	75	7 5.0	100	2.63	30	10	1
Surr: 2-Fluorobiphenyl	ND	50	35	70.0	50	34.9	69.8	0.286	30	23	1

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 45

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050065

Lab Batch ID:

89968

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09041007-02

RunID:

R 090508B-5011971

Units:

ug/L

Analysis Date:

05/08/2009 14:03

Analyst:

E_R

Preparation Date:

05/04/2009 15:05

Prep By: N M Method SW3510C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Surr: 2-Fluorophenol	ND	75	49.5	66.0	75	48.6	64.8	1.83	30	16	110
Surr: Nitrobenzene-d5	ND	50	32	64.0	50	32.2	64.4	0.623	30	21	114
Surr: Phenol-d5	ND	75	39.4	52.5	75	39.4	52.5	0	30	10	110
Surr: Terphenyl-d14	ND	50	29.9	59.8	50	29.6	59.2	1.01	30	22	141



Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution * - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 46

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901



Brown & Caldwell

Analysis:

RunID:

Semivolatile Organics by Method 8270C

Method:

SW8270C

05/06/2009 15:27

BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

90048

Method Blank

ug/kg

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date: Preparation Date:

H_090513B-5017953

05/13/2009 10:00

GY Analyst: Prep By:

Units:

09050065-01E QMT Method SW3550C

MW-6-54-55'

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
1,2-Diphenylhydrazine	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
2,4,5-Trichlorophenol	ND	800
2,4,6-Trichlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	800
2,4-Dinitrotoluene	ND	800
2,6-Dinitrotoluene	ND	330
2-Chloronaphthalene	ND	330
2-Chlorophenol	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	800
2-Nitrophenol	ND	330
3,3'-Dichlorobenzidine	ND	330
3-Nitroaniline	ND	800
4,6-Dinitro-2-methylphenol	ND	800
4-Bromophenyl phenyl ether	ND	330
4-Chloro-3-methylphenol	ND	330
4-Chloroaniline	ND	330
4-Chlorophenyl phenyl ether	ND	330
4-Nitroaniline	ND	800
4-Nitrophenol	ND	800
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benz(a)anthracene	ND	330
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(g,h,i)perylene	ND	330
Benzo(k)fluoranthene	ND.	330
Benzoic acid	ND	1600
Benzyl alcohol	ND ND	330
Bis(2-chloroethoxy)methane	ND	330
Bis(2-chloroethyl)ether	ND	330

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

ND

ND

ND

ND

ND

ND

ND

330

330

330

330

330

330

330

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

Bis(2-chloroisopropyl)ether

Bis(2-ethylhexyl)phthalate

Butyl benzyl phthalate

Dibenz(a,h)anthracene

Carbazole

Chrysene

Dibenzofuran

09050065 Page 47

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050065

Lab Batch ID:

90048

Method Blank

H_090513B-5017953 RunID:

Units:

ug/kg

Analysis Date:

05/13/2009 10:00

Analyst:

GY

Preparation Date:

05/06/2009 15:27

Prep By:

QMT Method SW3550C

Analyte	Result	Rep Limit
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Di-n-butyl phthalate	ND ND	330
Di-n-octyl phthalate	ND	330
Fluoranthene	ND	330
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachlorobutadiene	ND.	330
Hexachlorocyclopentadiene	ND	330
Hexachloroethane	ND.	330
Indeno(1,2,3-cd)pyrene	ND	330
Isophorone	ND	330
Naphthalene	ND.	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodiphenylamine	ND	330
Pentachlorophenol	ND	800
Phenanthrene	ND	330
Phenol	ND	330
Pyrene	ND	330
Pyridine	ND ND	330
2-Methylphenol	ND	330
3 & 4-Methylphenol	ND	330
Surr: 2,4,6-Tribromophenol	90.4	19-135
Surr: 2-Fluorobiphenyl	67.1	15-140
Surr: 2-Fluorophenol	88.8	15-122
Surr: Nitrobenzene-d5	69.4	10-134
Surr: Phenol-d5	94.4	10-123
Surr: Terphenyl-d14	70.6	18-166

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

ug/kg

Analysis Date:

05/13/2009 10:29

GY Analyst:

Preparation Date: 05/06/2009 15:27 Prep By: QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	850	384	45.2	34	116
1,2-Dichlorobenzene	850	402	47.3	32	129
1,2-Diphenylhydrazine	850	464	54.6	10	256

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 48

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050065

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

ug/kg

Analysis Date:

05/13/2009 10:29

Analyst: GΥ

Preparation Date:

05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,3-Dichlorobenzene	850	393	46.2	10	172
1,4-Dichlorobenzene	850	398	46.8	20	124
2,4,5-Trichlorophenol	850	391	46.0	40	150
2,4,6-Trichlorophenol	850	382	44.9	37	144
2,4-Dichlorophenol	850	373	43.9	39	13
2,4-Dimethylphenol	850	413	48.6	32	119
2,4-Dinitrophenol	850	266	31.3	10	19
2,4-Dinitrotoluene	850	404	47.5	30	150
2,6-Dinitrotoluene	850	413	48.6	30	150
2-Chloronaphthalene	850	506	59.5	20	17:
2-Chlorophenol	850	416	48.9	23	134
2-Methylnaphthalene	850	410	48.2	30	13:
2-Nitroaniline	850	417	49.1	20	17
2-Nitrophenol	850	395	46.5	29	18
3,3'-Dichlorobenzidine	850	338	39.8	10	26
3-Nitroaniline	850	406	47.8	20	17
4,6-Dinitro-2-methylphenol	850	310	36.5	10	18
4-Bromophenyl phenyl ether	850	423	49.8	20	17
4-Chloro-3-methylphenol	850	413	48.6	22	14
4-Chloroaniline	850	533	62.7	20	17
4-Chlorophenyl phenyl ether	850	399	46.9	25	15
4-Nitroaniline	850	376	44.2	20	17
4-Nitrophenol	850	312	36.7	10	13
Acenaphthene	850	401	47.2	30	16
Acenaphthylene	850	413	48.6	10	15
Aniline	1700	860	50.6	10	16
Anthracene	850	435	51.2	27	13
Benz(a)anthracene	850	414	48.7	33	14
Benzo(a)pyrene	850	362	42.6	17	16
Benzo(b)fluoranthene	850	409	48.1	24	15
Benzo(g,h,i)perylene	850	421	49.5	10	21
Benzo(k)fluoranthene	850	413	48.6	11	16
Benzoic acid	850	471	55.4	10	45
Benzyl alcohol	850	458	53.9	30	16
Detected at the Reporting Limit	N.A.I	- Matrix Int	orforonno		

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 49

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050065

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

ug/kg Analyst: GΥ

Analysis Date: Preparation Date:

05/13/2009 10:29 05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Bis(2-chloroethoxy)methane	850	408	48.0	33	184
Bis(2-chloroethyl)ether	850	434	51.1	28	158
Bis(2-chloroisopropyl)ether	850	447	52.6	36	166
Bis(2-ethylhexyl)phthalate	850	374	44.0	10	158
Butyl benzyl phthalate	850	408	48.0	10	152
Carbazole	850	413	48.6	45	135
Chrysene	850	411	48.4	17	168
Dibenz(a,h)anthracene	850	397	46.7	10	227
Dibenzofuran	850	415	48.8	30	160
Diethyl phthalate	850	397	46.7	10	160
Dimethyl phthalate	850	402	47.3	10	112
Di-n-butyl phthalate	850	401	47.2	40	132
Di-n-octyl phthalate	850	360	42.4	10	146
Fluoranthene	850	431	50.7	26	137
Fluorene	850	399	46.9	35	135
Hexachlorobenzene	850	425	50.0	10	152
Hexachlorobutadiene	850	365	42.9	20	140
Hexachlorocyclopentadiene	850	578	68.0	10	152
Hexachloroethane	850	389	45.8	25	118
Indeno(1,2,3-cd)pyrene	850	412	48.5	10	171
Isophorone	850	440	51.8	21	196
Naphthalene	850	416	48.9	21	133
Nitrobenzene	850	404	47.5	35	180
N-Nitrosodi-n-propylamine	850	396	46.6	10	230
N-Nitrosodiphenylamine	1700	1040	61.2	30	160
Pentachlorophenol	850	147	17.3	14	176
Phenanthrene	850	420	49.4	35	135
Phenol	850	455	53.5	44	120
Pyrene	850	438	51.5	34	138
Pyridine	1700	741	43.6	10	150
2-Methylphenol	850	436	51.3	40	160
3 & 4-Methylphenol	850	396	46.6	40	160
Surr: 2,4,6-Tribromophenol	2500	1580	63.2	19	135
Surr: 2-Fluorobiphenyl	1700	807	47.5	15	140

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 50

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C WorkOrder:

09050065

Lab Batch ID:

90048

Laboratory Control Sample (LCS)

RunID:

H_090513B-5017954

Units:

Analysis Date:

05/13/2009 10:29

GΥ Analyst:

ug/kg

Preparation Date: 05/06/2009 15:27 Prep By:

QMT Method SW3550C

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Surr: 2-Fluorophenol	2500	1660	66.4	15	122
Surr: Nitrobenzene-d5	1700	837	49.2	32	153
Surr: Phenol-d5	2500	1720	68.8	10	123
Surr: Terphenyl-d14	1700	816	48.0	18	166

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

RunID:

H 090508E-5017905

Units:

ug/kg

Analysis Date:

05/08/2009 20:15

Analyst: GΥ

Preparation Date: 05/06/2009 15:27

QMT Method SW3550C Prep By:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	ND	850	437	51.4	850	292	34.4	39.8 *	28	34	116
1,2-Dichlorobenzene	ND	850	443	52.1	850	329	38.7	29.5	60	32	129
1,2-Diphenylhydrazine	ND	850	500	58.8	850	326	38.4	42.1	60	10	256
1,3-Dichlorobenzene	ND	850	417	49.1	850	318	37.4	26.9	60	10	17:
1,4-Dichlorobenzene	ND	850	425	50.0	850	314	36.9	30.0 *	28	20	124
2,4,5-Trichlorophenol	ND	850	477	56.1	850	297	34.9 *	46.5	60	40	150
2,4,6-Trichlorophenol	ND	850	448	52.7	850	303	35.6 *	38.6	60	37	144
2,4-Dichlorophenol	ND	850	429	50.5	850	283	33.3 *	41.0	60	39	13
2,4-Dimethylphenol	ND	850	458	53.9	850	303	35.6	40.7	60	32	119
2,4-Dinitrophenol	ND	850	0	0 *	850	0	0 *	0	60	10	19
2,4-Dinitrotoluene	ND	850	485	57.1	850	301	35.4	46.8	50	30	150
2,6-Dinitrotoluene	ND	850	470	55.3	850	292	34.4	46.7	60	30	15
2-Chloronaphthalene	ND	850	486	57.2	850	335	39.4	36.8	60	20	17:
2-Chlorophenol	ND	850	465	54.7	850	327	38.5	34.8	40	23	13
2-Methylnaphthalene	ND	850	476	56.0	850	318	37.4	39.8	60	30	13
2-Nitroaniline	ND	850	478	56.2	850	307	36.1	43.6	60	20	17
2-Nitrophenol	ND	850	434	51.1	850	296	34.8	37.8	60	29	18
3,3'-Dichlorobenzidine	ND	850	451	53.1	850	271	31.9	49.9	60	10	26

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 51

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Semivolatile Organics by Method 8270C

RunID:

SW8270C

WorkOrder:

09050065

Lab Batch ID:

90048

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

H_090508E-5017905 Units:

ug/kg

Analysis Date: Preparation Date:

05/08/2009 20:15 05/06/2009 15:27

GΥ Analyst:

Prep By: QMT Method SW3550C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
3-Nitroaniline	ND	850	441	51.9	850	267	31.4	49.2	60	20	17
4,6-Dinitro-2-methylphenol	ND	850	43.9	5.16 *	850	27.8	3.27 *	44.9	60	10	18
4-Bromophenyl phenyl ether	ND	850	459	54.0	850	298	35.1	42.5	60	20	17
4-Chloro-3-methylphenol	ND	850	501	58.9	850	311	36.6	46.8 *	42	22	14
4-Chloroaniline	ND	850	561	66.0	850	353	41.5	45.5	60	20	17
4-Chlorophenyl phenyl ether	ND	850	447	52.6	850	305	35.9	37.8	60	25	15
4-Nitroaniline	ND	850	448	52.7	850	274	32.2	48.2	60	20	17
4-Nitrophenol	ND	850	480	56.5	850	243	28.6	65.6 *	50	10	13
Acenaphthene	ND	850	459	54.0	850	303	35.6	40.9 *	31	30	16
Acenaphthylene	ND	850	464	54.6	850	312	36.7	39.2	50	10	15
Spiline	ND	1700	911	53.6	1700	631	37.1	36.3	60	10	16
thracene	ND	850	493	58.0	850	303	35.6	47.7	50	27	1:
Benz(a)anthracene	ND	850	522	61.4	850	321	37.8	47.7	50	33	1.
Benzo(a)pyrene	ND	850	452	53.2	850	282	33.2	46.3	60	17	1
Benzo(b)fluoranthene	ND	850	479	56.4	850	304	35.8	44.7	60	24	1
Benzo(g,h,i)perylene	ND	850	468	55.1	850	286	33.6	48.3	60	10	2
Benzo(k)fluoranthene	ND	850	514	60.5	850	310	36.5	49.5	60	11	10
Benzoic acid	ND	850	0	0 *	850	0	0 *	0	60	10	4:
Benzyl alcohol	ND	850	453	53.3	850	290	34.1	43.9	60	30	1
Bis(2-chloroethoxy)methane	ND	850	461	54.2	850	302	35.5	41.7	60	33	1
Bis(2-chloroethyl)ether	ND	850	474	55.8	850	323	38.0	37.9	60	28	1:
Bis(2-chloroisopropyl)ether	ND	850	484	56.9	850	346	40.7	33.3	60	36	1
Bis(2-ethylhexyl)phthalate	ND	850	534	62.8	850	317	37.3	51.0	60	10	1
Butyl benzyl phthalate	ND	850	529	62.2	850	326	38.4	47.5	60	10	1
Carbazole	ND	850	491	57.8	850	301	35.4 *	48.0	60	45	1
Chrysene	ND	850	508	59.8	850	318	37.4	46.0	60	17	1
Dibenz(a,h)anthracene	ND	850	479	56.4	850	278	32.7	53.1	60	10	2
Dibenzofuran	ND	850	462	54.4	850	309	36.4 *	39.7	60	45	1
Diethyl phthalate	ND	850	466	54.8	850	299	35.2	43.7	60	10	1
Dimethyl phthalate	ND	850	471	55.4	850	306	36.0	42.5	60	10	1
Di-n-butyl phthalate	ND	850	516	60.7	850	304	35.8 *	51.7	60	40	1
Di-n-octyl phthalate	ND	850	518	60.9	850	313	36.8	49.3	60	10	1

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 52

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

09050065

Lab Batch ID:

90048

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050091-01

RunID:

H_090508E-5017905

Units:

ug/kg

Analysis Date:

05/08/2009 20:15

Analyst:

GY

Preparation Date: 05/06/2009 15:27

Prep By: QMT Method SW3550C

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Fluoranthene	ND	850	521	61.3	850	328	38.6	45.5	60	26	137
Fluorene	ND	850	455	53.5	850	304	35.8 *	39.8	60	45	135
Hexachlorobenzene	ND	850	468	55.1	850	292	34.4	46.3	60	10	152
Hexachlorobutadiene	ND	850	424	49.9	850	278	32.7	41.6	60	20	140
Hexachlorocyclopentadiene	ND	850	460	54.1	850	321	37.8	35.6	60	10	152
Hexachloroethane	ND	850	433	50.9	850	308	36.2	33.7	60	25	118
Indeno(1,2,3-cd)pyrene	ND	850	466	54.8	850	287	33.8	47.5	60	10	171
Isophorone	ND	850	505	59.4	850	316	37.2	46.0	60	21	196
Naphthalene	ND	850	461	54.2	850	316	37.2	37.3	60	21	133
Nitrobenzene	ND	850	436	51.3	850	305	35.9	35.4	60	35	180
Nitrosodi-n-propylamine	ND	850	483	56.8	850	338	39.8	35.3	38	10	230
Vitrosodiphenylamine	ND	1700	1160	68.2	1700	739	43.5	44.3	60	30	160
Pentachlorophenol	ND	850	219	25.8	850	103	12.1 *	72.0 *	50	14	176
Phenanthrene	ND	850	476	56.0	850	303	35.6 *	44.4	60	45	135
Phenol	ND	850	492	57.9	850	350	41.2 *	33.7	42	44	120
Pyrene	ND	850	530	62.4	850	325	38.2	48.0 *	31	26	127
Pyridine	ND	1700	685	40.3	1700	492	28.9	32.8	60	10	150
2-Methylphenol	ND	850	490	57.6	850	349	41.1	33.6	60	40	160
3 & 4-Methylphenol	ND	850	445	52.4	850	ND	35.3 *	38.9	60	40	160
Surr: 2,4,6-Tribromophenol	ND	2500	1860	74.4	2500	1140	45.6	48.0 *	30	19	135
Surr: 2-Fluorobiphenyl	ND	1700	884	52.0	1700	599	35.2	38.4 *	30	15	140
Surr: 2-Fluorophenol	ND	2500	1700	68.0	2500	1200	48.0	34.5 *	30	15	122
Surr: Nitrobenzene-d5	ND	1700	901	53.0	1700	597	35.1	40.6 *	30	10	134
Surr: Phenol-d5	ND	2500	1860	74.4	2500	1260	50.4	38.5 *	30	10	123
Surr: Terphenyl-d14	ND	1700	959	56.4	1700	577	33.9	49.7 *	30	18	166

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 53

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272205

Method Blank

Units:

Analyst:

Samples in Analytical Batch:

RunID:

Analysis Date:

M_090507E-5012044

05/07/2009 14:32

ug/kg :: TLE

Lab Sample ID

Client Sample ID

09050065-01A

MW-6-54-55'

Analyte	Result	Rep Limi
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.6
1,1,2-Trichloroethane	ND	
1,1-Dichloroethane	ND	5.0
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.6
1,2,3-Trichlorobenzene	ND	5.0
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	5.0
1,2-Dibromoethane	ND	5.4
1,2-Dichlorobenzene	ND	5.0
1,2-Dichloroethane	ND	
1,2-Dichloropropane	ND	
1,3,5-Trimethylbenzene	ND	
1,3-Dichlorobenzene	ND	
1,3-Dichloropropane	ND	
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	19
2-Chlorotoluene	ND	5.0
2-Hexanone	ND	1
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND	5.
4-Methyl-2-pentanone	ND	
Acetone	ND	10
Acrylonitrile	ND	
Benzene	ND	5.
Bromobenzene	ND	
Bromochloromethane	ND	
Bromodichloromethane	ND	5.
Bromoform	ND	5.
Bromomethane	ND	1
Carbon disulfide	ND	5.
Carbon tetrachloride	ND.	5.
Chlorobenzene	ND	5.
Chloroethane	ND ND	1
Chloroform	ND	5.
Chloromethane	ND	1
<u>Dibromochloromethane</u>	ND.	
Dibromomethane	ND	5.
Dichlorodifluoromethane	ND	
Ethylbenzene	ND	5.

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 54

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050065

Lab Batch ID:

R272205

Method Blank

RuniD: M_090507E-5012044

Units:

ug/kg

Analysis Date:

05/07/2009 14:32

Analyst:

TLE

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND.	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	10
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	87.4	64-115
Surr: 4-Bromofluorobenzene	106.5	65-13
Surr: Toluene-d8	95.5	75-136

Laboratory Control Sample (LCS)

RunID:

Analysis Date:

M_090507E-5012043 05/07/2009 12:31

Units: Analyst:

ug/kg TLE

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	20.3	102	56	140
1,1,1-Trichloroethane	20.0	21.2	106	58	135
1,1,2,2-Tetrachloroethane	20.0	19.9	99.3	52	139
1,1,2-Trichloroethane	20.0	20.2	101	81	138
1,1-Dichloroethane	20.0	20.1	101	56	137

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 55

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

Laboratory Control Sample (LCS)

RunID:

M_090507E-5012043

Units:

R272205

Analysis Date:

05/07/2009 12:31

Analysi

ug/kg

t: TLE	_	_	
	E	TL	t:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	16.2	81.0	56	13
1,1-Dichloropropene	20.0	21.2	106	62	13
1,2,3-Trichlorobenzene	20.0	22.9	115	53	14
1,2,3-Trichloropropane	20.0	19.9	99.3	44	14
1,2,4-Trichlorobenzene	20.0	21.9	109	51	14
1,2,4-Trimethylbenzene	20.0	18.8	94.0	59	14
1,2-Dibromo-3-chloropropane	20.0	19.2	96.2	53	14
1,2-Dibromoethane	20.0	20.8	104	55)	13
1,2-Dichlorobenzene	20.0	20.1	101	63	13
1,2-Dichloroethane	20.0	20.5	103	56	13
1,2-Dichloropropane	20.0	21.1	106	62	13
1,3,5-Trimethylbenzene	20.0	18.4	91.8	54	14
1,3-Dichlorobenzene	20.0	20.1	101	66	13
1,3-Dichloropropane	20.0	19.6	98.0	59	13
1,4-Dichlorobenzene	20.0	19.9	99.5	61	14
2,2-Dichloropropane	20.0	19.4	97.2	55	13
2-Butanone	20.0	25.0	125	10	19
2-Chloroethyl vinyl ether	20.0	25.9	129	10	18
2-Chlorotoluene	20.0	19.5	97.6	64	13
2-Hexanone	20.0	19.8	98.8	18	18
4-Chlorotoluene	20.0	19.0	95.0	63	13
4-Isopropyltoluene	20.0	19.4	97.0	59	15
4-Methyl-2-pentanone	20.0	20.3	102	10	16
Acetone	20.0	25.5	128	10	20
Acrylonitrile	20.0	19.8	98.9	38	16
Benzene	20.0	20.8	104	64	13
Bromobenzene	20.0	19.0	95.0	58	13
Bromochloromethane	20.0	24.4	122	66	12
Bromodichloromethane	20.0	21.5	108	59	1:
Bromoform	20.0	19.5	97.3	65	13
Bromomethane	20.0	20.3	101	40	13
Carbon disulfide	20.0	18.1	90.4	53	13
Carbon tetrachloride	20.0	19.2	96.1	61	13
Chlorobenzene	20.0	21.2	106	60	14

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 56

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272205

Laboratory Control Sample (LCS)

RunID:

M_090507E-5012043

Units:

Analysis Date:

05/07/2009 12:31

Analyst:

ug/kg TLE

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	16.9	84.7	45	140
Chloroform	20.0	21.2	106	64	131
Chloromethane	20.0	18.3	91.5	39	140
Dibromochloromethane	20.0	19.4	97.1	54	138
Dibromomethane	20.0	23.1	115	64	131
Dichlorodifluoromethane	20.0	15.1	75.3	35	133
Ethylbenzene	20.0	20.9	104	58	143
Hexachlorobutadiene	20.0	25.0	125	56	166
Isopropylbenzene	20.0	18.5	92.3	58	133
Methyl tert-butyl ether	40.0	41.8	104	50	132
Methylene chloride	20.0	18.9	94.6	52	144
Naphthalene	20.0	20.5	103	51	139
n-Butylbenzene	20.0	19.3	96.5	59	164
n-Propylbenzene	20.0	18.7	93.6	57	140
sec-Butylbenzene	20.0	19.2	95.9	63	146
Styrene	20.0	21.1	105	57	134
tert-Butylbenzene	20.0	18.6	93.2	57	144
Tetrachloroethene	20.0	22.5	113	41	156
Toluene	20.0	20.2	101	63	139
Trichloroethene	20.0	23.6	118	62	135
Trichlorofluoromethane	20.0	17.2	85.9	53	140
Vinyl acetate	20.0	19.2	96.2	17	163
Vinyl chloride	20.0	19.3	96.6	45	148
cis-1,2-Dichloroethene	20.0	23.4	117	70	129
cis-1,3-Dichloropropene	20.0	22.0	110	58	132
m,p-Xylene	40.0	42.5	106	64	137
o-Xylene	20.0	21.6	108	64	143
trans-1,2-Dichloroethene	20.0	22.8	114	63	130
trans-1,3-Dichloropropene	20.0	21.1	105	58	128
1,2-Dichloroethene (total)	40.0	46.2	116	63	130
Xylenes,Total	60.0	64.1	107	64	143
Surr: 1,2-Dichloroethane-d4	50.0	46.1	92.3	64	115
Surr: 4-Bromofluorobenzene	50.0	52.8	106	65	131
Surr: Toluene-d8	50.0	47	94.0	75	136
Detected at the Reporting Limit	MI	- Matrix Int	erference		

Qualifiers:

ND/U - No

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 57

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050065

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050250-03

RunID:

M_090507E-5012046

Units: ug/kg-dry

05/07/2009 16:03

TLE

Analysis Date: Preparation Date:

05/07/2009 11:01

Analyst:

E G Method SW5030B Prep By:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	25.3	20.6	81.5	25.3	20.8	82.1	0.679	30	38	129
1,1,1-Trichloroethane	ND	25.3	27.7	109	25.3	28.5	112	2.79	30	44	154
1,1,2,2-Tetrachloroethane	ND	25.3	14.6	57.8	25.3	15.1	59.8	3.39	30	14	143
1,1,2-Trichloroethane	ND	25.3	17.0	67.1	25.3	17.2	68.0	1.21	30	34	135
1,1-Dichloroethane	ND	25.3	24.8	98.1	25.3	24.7	97.4	0.696	30	42	146
1,1-Dichloroethene	. ND	25.3	20.5	80.8	25.3	18.7	73.7	9.15	22	39	168
1,1-Dichloropropene	ND	25.3	28.7	113	25.3	29.0	115	1.12	30	42	156
1,2,3-Trichlorobenzene	ND	25.3	16.9	66.9	25.3	17.6	69.4	3.68	30	10	125
3,3-Trichloropropane	ND	25.3	14.9	58.8	25.3	15.5	61.4	4.39	30	10	154
4-Trichlorobenzene	ND	25.3	17.4	68.7	25.3	18.0	71.1	3.55	30	10	128
1,2,4-Trimethylbenzene	ND	25.3	19.4	76.6	25.3	19.6	77.6	1.25	30	22	139
1,2-Dibromo-3-chloropropane	ND	25.3	14.1	55.8	25.3	15.8	62.6	11.5	30	23	139
1,2-Dibromoethane	ND	25.3	16.3	64.4	25.3	16.5	65.0	0.897	30	32	129
1,2-Dichlorobenzene	ND	25.3	17.4	68.6	25.3	17.9	70.7	3.10	30	17	130
1,2-Dichloroethane	ND	25.3	19.3	76.1	25.3	19.7	77.9	2.39	30	15	158
1,2-Dichloropropane	ND	25.3	23.1	91.1	25.3	22.6	89.2	2.10	30	42	133
1,3,5-Trimethylbenzene	ND	25.3	20.2	79.7	25.3	20.5	80.9	1.41	30	22	135
1,3-Dichlorobenzene	ND	25.3	19.2	75.8	25.3	19.3	76.1	0.362	30	22	130
1,3-Dichloropropane	ND	25.3	16.4	64.7	25.3	16.4	64.8	0.193	30	37	131
1,4-Dichlorobenzene	ND	25.3	18.2	71.8	25.3	18.4	72.8	1.35	30	20	129
2,2-Dichloropropane	ND	25.3	25.0	98.8	25.3	25.6	101	2.35	30	39	155
2-Butanone	ND	25.3	25.5	101	25.3	26.2	103	2.64	30	10	200
2-Chloroethyl vinyl ether	ND	25.3	15.3	60.5	25.3	16.7	66.0	8.69	30	10	168
2-Chlorotoluene	ND	25.3	20.2	79.8	25.3	20.5	80.9	1.47	30	30	133
2-Hexanone	ND	25.3	14.6	57.6	25.3	16.1	63.8	10.1	30	14	151
4-Chlorotoluene	ND	25.3	18.8	74.4	25.3	19.0	75.0	0.870	30	24	133
4-Isopropyltoluene	ND	25.3	21.8	86.1	25.3	22.1	87.4	1.50	30	17	143
4-Methyl-2-pentanone	ND	25.3	15.6	61.6	25.3	16.9	66.9	8.20	30	10	176
Acetone	ND	25.3	26.9	106	25.3	30.1	119	11.2	30	10	200
Acrylonitrile	ND	25.3	17.8	70.4	25.3	19.8	78.3	10.6	30	10	200

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 58

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050250-03

RunID:

M_090507E-5012046

Units:

ug/kg-dry

Analysis Date:

05/07/2009 16:03

Analyst:

TLE

Preparation Date: 05/07/2009 11:01

Prep By: E_G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	25.3	25.3	99.8	25.3	25.3	99.9	0.110	21	49	13
Bromobenzene	ND	25.3	17.3	68.5	25.3	17.5	69.0	0.829	30	29	12
Bromochloromethane	ND	25.3	20.8	82.3	25.3	21.3	83.9	2.02	30	27	14
Bromodichloromethane	ND	25.3	21.4	84.4	25.3	21.0	83.1	1.61	30	32	13
Bromoform	ND	25.3	15.3	60.3	25.3	15.7	62.0	2.85	30	27	12
Bromomethane	ND	25.3	24.2	95.6	25.3	23.6	93.2	2.64	30	32	14
Carbon disulfide	ND	25.3	24.6	97.3	25.3	24.2	95.4	1.96	30	25	16
Carbon tetrachloride	ND	25.3	26.4	104	25.3	26.4	104	0.216	30	48	15
Chlorobenzene	ND	25.3	23.0	90.7	25.3	22.6	89.3	1.54	21	38	13
Chloroethane	ND	25.3	19.4	76.7	25.3	21.2	83.8	8.88	30	29	16
Noroform	ND	25.3	23.9	94.3	25.3	24.4	96.5	2.27	30	34	15
loromethane	ND	25.3	22.4	88.7	25.3	23.4	92.6	4.34	30	31	15
Dibromochloromethane	ND	25.3	17.1	67.6	25.3	17.1	67.5	0.155	30	31	12
Dibromomethane	ND	25.3	19.6	77.3	25.3	20.3	80.2	3.69	30	30	14
Dichlorodifluoromethane	ND	25.3	20.9	82.4	25.3	21.4	84.4	2.36	30	15	16
Ethylbenzene	ND	25.3	25.2	99.3	25.3	24.7	97.7	1.71	30	39	13
Hexachlorobutadiene	ND	25.3	27.1	107	25.3	27.9	110	2.92	30	10	14
Isopropylbenzene	ND	25.3	23.0	90.7	25.3	22.7	89.6	1.25	30	25	14
Methyl tert-butyl ether	ND	50.6	35.3	69.7	50.6	36.6	72.3	3.71	30	19	14
Methylene chloride	ND	25.3	15.7	61.9	25.3	17.9	70.6	13.0	30	13	17
Naphthalene	ND	25.3	13.1	51.8	25.3	14.4	57.0	9.56	30	10	12
n-Butylbenzene	ND	25.3	21.8	86.1	25.3	22.1	87.1	1.14	30	10	15
n-Propylbenzene	ND	25.3	21.7	85.6	25.3	21.4	84.7	1.07	30	20	14
sec-Butylbenzene	ND	25.3	22.2	87.8	25.3	22.6	89.4	1.83	30	29	14
Styrene	ND	25.3	21.8	86.2	25.3	21.5	85.0	1.37	30	28	13
tert-Butylbenzene	ND	25.3	21.7	85.9	25.3	22.0	87.0	1.29	30	26	14
Tetrachloroethene	ND	25.3	27.5	109	25.3	27.6	109	0.487	30	33	14
Toluene	ND	25.3	24.1	95.1	25.3	24.2	95.5	0.435	21	49	1:
Trichloroethene	ND	25.3	30.3	120	25.3	30.2	119	0.494	24	51	14
Trichlorofluoromethane	ND	25.3	23.4	92.4	25.3	22.1	87.2	5.77	30	24	18
Vinyl acetate	ND	25.3	14.3	56.4	25.3	14.7	57.9	2.61	30	10	17
Vinyl chloride	ND	25.3	27.6	109	25.3	27.8	110	0.978	30	29	1

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 59

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Volatile Organics by Method 8260B

Method: SW8260B WorkOrder:

09050065

Lab Batch ID:

R272205

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050250-03

RunID:

M_090507E-5012046

Units:

ug/kg-dry

Analysis Date:

05/07/2009 16:03

Analyst: TLE

Preparation Date: 05/07/2009 11:01

Prep By: E G Method SW5030B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
cis-1,2-Dichloroethene	ND	25.3	25.2	99.5	25.3	23.5	92.7	7.12	30	38	151
cis-1,3-Dichloropropene	ND	25.3	21.5	85.0	25.3	21.7	85.6	0.663	30	31	13
m,p-Xylene	ND	50.6	50.1	99.0	50.6	49.6	98.0	1.02	30	32	140
o-Xylene	ND	25.3	24.8	97.8	25.3	24.0	94.7	3.19	30	36	142
trans-1,2-Dichloroethene	ND	25.3	29.1	115	25.3	29.2	115	0.152	30	41	153
trans-1,3-Dichloropropene	ND	25.3	19.1	75.5	25.3	19.2	75.7	0.271	30	27	128
1,2-Dichloroethene (total)	ND	50.6	54.3	107	50.6	52.7	104	3.16	30	38	153
Xylenes,Total	ND	75.9	74.9	98.6	75.9	73.6	96.9	1.73	30	32	142
Surr: 1,2-Dichloroethane-d4	ND	63.3	57.8	91.3	63.3	55.4	87.6	4.16	30	64	11:
Surr: 4-Bromofluorobenzene	ND	63.3	70.7	112	63.3	69.1	109	2.28	30	65	13
Surr: Toluene-d8	ND	63.3	59.1	93.4	63.3	58.3	92.2	1.29	30	75	130

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 60

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Volatile Organics by Method 8260B

05/08/2009 11:16

Method: SW8260B WorkOrder:

09050065

Lab Batch ID:

R272244

Method Blank

L_090508A-5012600

Units: ug/L

Samples in Analytical Batch:

RunID: Analysis Date:

Preparation Date:

05/08/2009 11:16

Analyst: E G Prep By:

Method

09050065-03A 09050065-04A

Lab Sample ID

09050065-02A

FB-043009-1 RB-043009-1 MW-6

09050065-05A

RB-050109-1

Client Sample ID

09050065-06A 09050065-07A FB-050109-1 TB-043009-1

Analyte	Result	Rep Limit
1,1,1,2-Tetrachloroethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0
1.1-Dichloroethane	ND	
1,1-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	
1,2,3-Trichlorobenzene	ND	
1,2,3-Trichloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
1,2-Dibromo-3-chloropropane	ND	
1,2-Dibromoethane	ND	· · · · · · · · · · · · · · · · · · ·
1,2-Dichlorobenzene	ND	
1.2-Dichloroethane	ND	
1,2-Dichloropropane	ND	
1,3,5-Trimethylbenzene	ND	
1,3-Dichlorobenzene	ND	
1,3-Dichloropropane	ND	
1,4-Dichlorobenzene	ND	
2,2-Dichloropropane	ND	
2-Butanone	ND	
2-Chloroethyl vinyl ether	ND	
2-Chlorotoluene	ND	
2-Hexanone	ND	
4-Chlorotoluene	ND	
4-Isopropyltoluene	ND	
4-Methyl-2-pentanone	ND ND	
Acetone	ND	
Acrylonitrile	ND	
Benzene	ND	
Bromobenzene	ND ND	
Bromochloromethane	ND	
Bromodichloromethane	ND	
Bromoform	ND	
Bromomethane	ND	
Carbon disulfide	ND	
Carbon tetrachloride	ND	
Chlorobenzene	ND	
Chloroethane	ND	
Chloroform	ND	
Chloromethane	ND	
Dibromochloromethane	ND	
Dibromomethane	ND	·
Dichlorodifluoromethane	ND	
Ethylbenzene	ND	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 61

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method:

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272244

Method Blank

RunID: L_0905

L_090508A-5012600

Units:

ug/L

Analysis Date:

e: 05/08/2009 11:16

Analyst:

 E_G

Preparation Date:

05/08/2009 11:16

Prep By:

Method

Analyte	Result	Rep Limit
Hexachlorobutadiene	ND	5.0
Isopropylbenzene	ND	5.0
Methyl tert-butyl ether	ND	5.0
Methylene chloride	ND	5.0
Naphthalene	ND	5.0
n-Butylbenzene	ND	5.0
n-Propylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
Styrene	ND	5.0
tert-Butylbenzene	ND	5.0
Tetrachloroethene	ND	5.0
Toluene	ND	5.0
Trichloroethene	ND	5.0
Trichlorofluoromethane	ND	5.0
Vinyl acetate	ND	10
Vinyl chloride	ND	2.0
cis-1,2-Dichloroethene	ND	5.0
cis-1,3-Dichloropropene	ND ND	5.0
m,p-Xylene	ND	5.0
o-Xylene	ND	5.0
trans-1,2-Dichloroethene	ND	5,0
trans-1,3-Dichloropropene	ND.	5.0
1,2-Dichloroethene (total)	ND	5.0
Xylenes,Total	ND	5.0
Surr: 1,2-Dichloroethane-d4	107.8	78-116
Surr: 4-Bromofluorobenzene	104.7	74-125
Surr: Toluene-d8	108.1	82-118

Laboratory Control Sample (LCS)

RunID:

L_090508A-5012599

Units:

ug/L E G

Analysis Date:

Preparation Date:

05/08/2009 10:36 05/08/2009 10:36 Analyst:

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1,1,2-Tetrachloroethane	20.0	15.2	75.8	71	128
1,1,1-Trichloroethane	20.0	18.1	90.4	61	135
1,1,2,2-Tetrachloroethane	20.0	19.4	96.9	60	133
1,1,2-Trichloroethane	20.0	19.5	97.5	77	127
1,1-Dichloroethane	20.0	20.3	101	68	132

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 62

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.





8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

Volatile Organics by Method 8260B

SW8260B

WorkOrder: Lab Batch ID: 09050065

R272244

Laboratory Control Sample (LCS)

RunID:

L 090508A-5012599

Units:

ug/L

Analysis Date:

05/08/2009 10:36

Analyst:

E G

Preparation Date:

05/08/2009 10:36

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,1-Dichloroethene	20.0	20.0	100	65	134
1,1-Dichloropropene	20.0	20.0	100	68	126
1,2,3-Trichlorobenzene	20.0	16.3	81.4	36	154
1,2,3-Trichloropropane	20.0	18.3	91.4	38	153
1,2,4-Trichlorobenzene	20.0	15.4	77.0	69	144
1,2,4-Trimethylbenzene	20.0	17.7	88.7	64	128
1,2-Dibromo-3-chloropropane	20.0	17.4	87.2	44	141
1,2-Dibromoethane	20.0	17.2	86.1	75	124
1,2-Dichlorobenzene .	20.0	16.7	83.4	68	124
1,2-Dichloroethane	20.0	18.1	90.6	61	138
1,2-Dichloropropane	20.0	20.3	102	76	123
1,3,5-Trimethylbenzene	20.0	17.1	85.5	61	127
1,3-Dichlorobenzene	20.0	17.1	85.3	68	127
1,3-Dichloropropane	20.0	18.7	93.7	76	125
1,4-Dichlorobenzene	20.0	16.8	83.8	68	124
2,2-Dichloropropane	20.0	18.3	91.3	42	142
2-Butanone	20.0	20.3	101	22	183
2-Chloroethyl vinyl ether	20.0	23.6	118	10	179
2-Chlorotoluene	20.0	18.3	91.4	64	132
2-Hexanone	20.0	21.2	106	31	178
4-Chlorotoluene	20.0	17.8	88.8	61	132
4-Isopropyltoluene	20.0	17.4	87.2	63	136
4-Methyl-2-pentanone	20.0	21.2	106	10	159
Acetone	20.0	24.2	121	10	200
Acrylonitrile	20.0	24.8	124	54	155
Benzene	20.0	18.6	93.2	74	123
Bromobenzene	20.0	16.3	81.3	68	125
Bromochloromethane	20.0	19.4	97.0	71	124
Bromodichloromethane	20.0	16.8	84.1	72	128
Bromoform	20.0	24.1	121	81	135
Bromomethane	20.0	18.7	93.5	53	130
Carbon disulfide	20.0	20.4	102	41	143
Carbon tetrachloride	20.0	14.4	71.9	59	142
Chlorobenzene	20.0	16.9	84.4	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 63

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272244

Laboratory Control Sample (LCS)

RunID:

L_090508A-5012599

Units:

ug/L

Analysis Date:

05/08/2009 10:36

Analyst:

E_G

Preparation Date:

05/08/2009 10:36

Prep By:

Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloroethane	20.0	20.4	102	60	134
Chloroform	20.0	19.2	95.8	71	127
Chloromethane	20.0	14.5	72.4	50	139
Dibromochloromethane	20.0	14.7	73.5	65	130
Dibromomethane	20.0	18.6	92.8	79	124
Dichlorodifluoromethane	20.0	14.0	69.8	22	162
Ethylbenzene	20.0	16.7	83.6	72	127
Hexachlorobutadiene	20.0	14.9	74.5	45	152
Isopropylbenzene	20.0	14.6	73.0	58	130
Methyl tert-butyl ether	40.0	38.9	97.3	63	123
Methylene chloride	20.0	20.4	102	61	135
Naphthalene	20.0	17.8	88.9	33	148
n-Butylbenzene	20.0	19.9	99.3	62	136
n-Propylbenzene	20.0	17.1	85.5	57	131
sec-Butylbenzene	20.0	18.8	94.0	63	131
Styrene	20.0	17.0	85.0	69	120
tert-Butylbenzene	20.0	17.6	88.1	59	131
Tetrachloroethene	20.0	17.3	86.3	45	173
Toluene	20.0	18.1	90.7	74	126
Trichloroethene	20.0	17.4	87.2	79	131
Trichlorofluoromethane	20.0	17.1	85.3	49	153
Vinyl acetate	20.0	22.7	114	10	167
Vinyl chloride	20.0	16.9	84.7	51	148
cis-1,2-Dichloroethene	20.0	20.8	104	71	128
cis-1,3-Dichloropropene	20.0	17.4	86.9	67	128
m,p-Xylene	40.0	33.9	84.7	71	129
o-Xylene	20.0	17.2	86.0	74	130
trans-1,2-Dichloroethene	20.0	19.9	99.7	66	128
trans-1,3-Dichloropropene	20.0	15.5	77.7	60	128
1,2-Dichloroethene (total)	40.0	40.7	102	66	128
Xylenes,Total	60.0	51.1	85.2	71	130
Surr: 1,2-Dichloroethane-d4	50.0	53.2	106	78	116
Surr: 4-Bromofluorobenzene	50.0	52.4	105	74	125
Surr: Toluene-d8	50.0	53.5	107	82	118
Detected at the Reporting Limit	NAL	- Matrix Int	erference		

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 64

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272244

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-04

RunID:

L 090508A-5012607

Units:

ug/L

Analysis Date:

05/08/2009 15:28

Analyst:

 E_G

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,1,1,2-Tetrachloroethane	ND	20	14.5	72.5	20	14.8	74.0	2.08	20	68	12
1,1,1-Trichloroethane	ND	20	17.6	87.9	20	17.5	87.7	0.290	20	69	12
1,1,2,2-Tetrachloroethane	ND	20	18.8	94.0	20	19.6	98.2	4.33	20	69	13
1,1,2-Trichloroethane	ND	20	19.4	96.8	20	19.4	97.0	0.232	20	75	12
1,1-Dichloroethane	ND	20	21.0	105	20	20.8	104	1.29	20	65	12
1,1-Dichloroethene	ND	20	20.1	101	20	19.7	98.7	1.92	22	61	13
1,1-Dichloropropene	ND	20	19.7	98.6	20	19.5	97.4	1.24	20	69	12
1,2,3-Trichlorobenzene	ND	20	11.7	58.5	20	14.0	69.9	17.8	20	53	12
2,3-Trichloropropane	ND	20	17.7	88.7	20	18.2	91.0	2.54	20	79	12
,4-Trichlorobenzene	ND	20	11.6	57.8 *	20	13.3	66.3	13.6	20	58	1
1,2,4-Trimethylbenzene	ND	20	16.3	81.7	20	16.1	80.7	1.26	20	43	13
1,2-Dibromo-3-chloropropane	ND	20	15.5	77.3	20	17.3	86.7	11.4	20	46	1:
1,2-Dibromoethane	ND	20	17.0	85.0	20	16.8	83.9	1.32	20	76	12
1,2-Dichlorobenzene	ND	20	15.7	78.4	20	15.6	78.0	0.537	20	74	1
1,2-Dichloroethane	ND	20	18.6	93.2	20	18.6	93.0	0.225	20	60	12
1,2-Dichloropropane	ND	20	20.3	101	20	20.2	101	0.435	20	76	1
1,3,5-Trimethylbenzene	ND	20	16.3	81.5	20	15.9	79.3	2.76	20	51	12
1,3-Dichlorobenzene	ND	20	16.1	80.7	20	16.2	81.1	0.544	20	71	1
1,3-Dichloropropane	ND	20	18.6	93.0	20	18.5	92.5	0.598	20	80	1
1,4-Dichlorobenzene	ND	20	15.9	79.7	20	15.6	77.8	2.38	20	69	1
2,2-Dichloropropane	ND	20	16.5	82.7	20	16.8	83.9	1.46	20	52	12
2-Butanone	ND	20	21.8	109	20	25.7	129	16.5	20	10	1:
2-Chloroethyl vinyl ether	ND	20	0	0 *	20	0	0 *	0	20	10	18
2-Chlorotoluene	ND	20	17.8	88.8	20	17.1	85.5	3.77	20	69	1
2-Hexanone	ND	20	24.0	120	20	25.0	125	3.89	20	10	1
4-Chlorotoluene	ND	20	17.2	85.9	20	16.6	83.1	3.25	20	37	1
4-Isopropyltoluene	ND	20	15.3	76.7	20	15.4	77.2	0.650	20	65	1
4-Methyl-2-pentanone	ND	20	21.7	108 *	20	22.6	113 *	4.08	20	10	1
Acetone	ND	20	28.2	141	20	39.0	195 *	32.0 *	20	10	11
Acrylonitrile	ND	20	22.4	112	20	26.2	131	15.9	20	45	1

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 65

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis:

Volatile Organics by Method 8260B

Method: SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272244

0.0297

1.39

15.1

2.77

2.63

1.16

0.472

2.78

1.87

1.27

1.90

1.76

1.60

16.2

0.945

67.3

99.9

104

81.8

86.7

77.6

83.2

78.3

79.9

74.0

86.2

82.0

83.7

116

88.4

20

20

20

20

20

20

20

20

20

20

24

21

20

20

20

57

10

70

42

82

73

76

58

66

71

80

82

74

66

45

124

200

134

140

112

108

110

152

120

130

117

121

138

135

143

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-04

RunID:

L_090508A-5012607

Units:

ug/L

Analysis Date:

05/08/2009 15:28

Analyst: E G

Analyte Sample MS MS MS % MSD MSD MSD % **RPD** Low High RPD Result Spike Result Recovery Spike Result Recovery Limit Limit Added Added ND 20 18.3 0.510 70 91.5 20 18.2 91.0 22 124 Benzene ND 20 15.9 20 20 72 Bromobenzene 79.6 15.6 78.1 1.86 111 ND 20 17.2 20 Bromochloromethane 85.9 20 17.6 87.8 2.16 73 126 Bromodichloromethane ND 20 16.6 82.9 20 16.8 83.8 0.996 20 68 125 ND 20 21.4 20 44 Bromoform 107 20 22.1 111 3.37 132 Bromomethane ND 20 18.1 90.4 20 19.2 95.8 5.77 20 50 140 20 19.4 20 Carbon disulfide ND 96.8 20 19.4 97.2 0.443 46 143 ND 20 14.0 69.9 20 13.7 1.79 20 66 Carbon tetrachloride 68.7 126 20 Chlorobenzene ND 16.2 81.1 20 16.2 80.8 0.389 21 68 123 Chloroethane ND 20 20.2 101 20 21.1 106 4.24 20 59 134 ND 20 18.5 20 20 loroform 92.3 18.4 92.2 0.135 68 127 20 ND 16.9 20 20 51 oromethane 84.7 15.3 76.3 10.5 137 Dibromochloromethane ND 20 13.7 68.7 20 13.8 69.1 0.501 20 58 131 20 Dibromomethane ND 18.2 91.2 20 18.6 93.0 2.00 20 82 123 Dichlorodifluoromethane ND 20 13.7 68.3 20 20 35 13.5 67.3 1.45 143 Ethylbenzene ND 20 15.8 78.8 20 0.311 20 122 15.8 79.0 76 20 Hexachlorobutadiene ND 9.81 49.1 20 11.3 20 11.0 54.9 43 137

13.5

39.4

20.5

14.0

16.9

15.9

16.8

15.7

16.4

15.1

17.5

16.7

17.0

22.9

20.8

Vinyl chloride
Qualifiers:

Vinyl acetate

lsopropylbenzene

Methylene chloride

Naphthalene

Styrene

Toluene

n-Butylbenzene

n-Propylbenzene

sec-Butylbenzene

tert-Butylbenzene

Tetrachloroethene

Trichloroethene

Trichlorofluoromethane

Methyl tert-butyl ether

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

20

40

20

20

20

20

20

20

20

20

20

20

20

20

20

13.5

40.0

20.7

16.4

17.3

15.5

16.6

15.7

16.0

14.8

17.2

16,4

16.7

23.3

17.7

67.3

98.6

103

70.2

84.3

79.7

84.2

78.6

82.2

75.4

87.3

83.6

85.2

114

104

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 66

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

ND

ND

ND

ND

NΩ

ND

ND

ND

ND

NΩ

ND

ND

NΓ

ND

ND

20

40

20

20

20

20

20

20

20

20

20

20

20

20

20



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method: Volatile Organics by Method 8260B

SW8260B

WorkOrder:

09050065

Lab Batch ID:

R272244

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-04

RunID:

L_090508A-5012607

12607 Units:

ug/L

Analysis Date:

05/08/2009 15:28

Analyst:

E_G

Analyte	Sample Result	MS Spike	MS Result	MS % Recovery	MSD Spike	MSD Result	MSD % Recovery	RPD	RPD	Low	High Limit
	Nesuit	Added	rvesuit	Recovery	Added	Result	Recovery		Limit		LITTIK
cis-1,2-Dichloroethene	ND	20	19.8	99.2	20	19.9	99.4	0.156	20	67	132
cis-1,3-Dichloropropene	ND	20	16.0	79.8	20	16.5	82.7	3.61	20	67	116
m,p-Xylene	ND	40	32.1	80.3	40	31.8	79.6	0.813	20	69	127
o-Xylene	ND	20	16.5	82.3 *	20	16.4	82.2 *	0.0912	20	84	114
trans-1,2-Dichloroethene	ND	20	20.2	101	20	19.9	99.4	1.45	20	68	131
trans-1,3-Dichloropropene	ND	20	14.2	70.8	20	14.7	73.4	3.62	20	56	131
1,2-Dichloroethene (total)	ND	40	40	100	40	40	99	0.65	20	67	132
Xylenes, Total	ND	60	48.6	80.9	60	48.2	80.5	0.568	20	69	127
Surr: 1,2-Dichloroethane-d4	ND	50	52.2	104	50	53.4	107	2.15	30	78	116
Surr: 4-Bromofluorobenzene	ND	50	51.6	103	50	52.6	105	1.80	30	74	125
Surr: Toluene-d8	ND	50	53.3	107	50	52.7	105	1.07	30	82	118

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

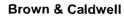
TNTC - Too numerous to count

09050065 Page 67

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

ion Chromatography

Method:

E300.0

BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

R272251

Method Blank

Samples in Analytical Batch:

RunID:

IC2_090502A-5012729

Units: mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

05/02/2009 18:24

BDG Analyst:

09050065-04E

MW-6

Analyte	Result	Rep Limit
Nitrogen, Nitrate (As N)	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2_090502A-5012735

Units:

mg/L

Analysis Date:

05/02/2009 20:44

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen, Nitrate (As N)	10.00	10.92	109.2	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-04

RuniD:

IC2 090502A-5012733

Units:

mg/L

Analysis Date:

05/02/2009 20:09

Analyst:

BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	ND	10	11.42	113.4	10	12.60	125.2 *	9.852	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

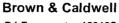
TNTC - Too numerous to count

09050065 Page 68

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

Ion Chromatography

05/12/2009 19:11

Method:

RunID:

E300.0

BJ-Fracmaster 128125

WorkOrder:

09050065

Lab Batch ID:

R272670

Method Blank

Lab Sample ID

Client Sample ID

Analysis Date:

IC2_090512A-5019634

Units: Analyst: mg/L BDG

09050065-04E

Samples in Analytical Batch:

MW-6

Analyte	Result	Rep Limit
Chloride	ND	0.50
Sulfate	ND	0.50

Laboratory Control Sample (LCS)

RunID:

IC2 090512A-5019635

Units:

mg/L

Analysis Date:

05/12/2009 19:29

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10.00	9.006	90.06	85	115
Sulfate	10.00	9.169	91.69	85	115

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050283-09

RunID:

IC2_090512A-5019657

Units:

mg/L

Analysis Date:

05/13/2009 2:29

Analyst:

BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	557.3	1000	1579	102.2	1000	1637	108.0	3.609	20	80	120
Sulfate	ND	1000	954.9	92.57	1000	949.9	92.06	0.5299	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 69

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

RunID:

Ion Chromatography

E300.0 MOD

05/15/2009 21:27

WorkOrder:

09050065

Lab Batch ID:

R272873

Method Blank

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

Analysis Date:

IC1 090515C-5022984

Units: Analyst: mg/kg BDG

09050065-01D

MW-6-54-55'

Analyte	Result	Rep Limit
Nitrogen, Nitrate (As N)	ND	5.0
Nitrogen, Nitrite (As N)	ND	5.0

Laboratory Control Sample (LCS)

RunID:

IC1 090515C-5022985

Units:

mg/kg

Analysis Date:

05/15/2009 21:47

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen, Nitrate (As N)	100.0	97.37	97.37	90	110
Nitrogen, Nitrite (As N)	100.0	104.0	104.0	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

Analysis Date:

09050065-01

RunID:

IC1_090515C-5022982

Units:

mg/kg

05/15/2009 20:49 BDG Analyst:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen, Nitrate (As N)	ND	100	97.25	97.25	100	96.47	96.47	0.8053	20	80	120
Nitrogen, Nitrite (As N)	ND	100	103.7	103.7	100	103.1	103.1	0.5319	20	80	120

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 70

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Brown & Caldwell BJ-Fracmaster 128125

Analysis: Method:

RuniD:

Ion Chromatography

E300.0 MOD

WorkOrder:

Samples in Analytical Batch:

09050065

Lab Batch ID:

R272875

Method Blank

Units:

mg/kg

Lab Sample ID

Client Sample ID

Analysis Date:

IC1_090515E-5023022 05/15/2009 21:27

BDG Analyst:

09050065-01D

MW-6-54-55'

Analy	te	Result	Rep Limit
Chloride		ND	5.0
Fluoride		ND	5.0
Sulfate		ND	5.0

Laboratory Control Sample (LCS)

RunID:

IC1_090515E-5023023

Units:

mg/kg

Analysis Date:

05/15/2009 21:47

Analyst:

BDG

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	100.0	98.88	98.88	80	120
Fluoride	100.0	103.3	103.3	80	120
Sulfate	100.0	106.4	106.4	80	120

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

09050065-01

RunID:

IC1 090515E-5023020

Units:

mg/kg

Analysis Date:

05/15/2009 20:49

Analyst:

BDG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	61.13	100	168.6	107.4	100	168.6	107.5	0.04745	20	75	125
Fluoride	ND	100	105.5	104.3	100	104.0	102.8	1.461	20	75	125
Sulfate	20.25	100	129.3	109.0	100	128.0	107.7	1.003	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 71

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

BJ-Fracmaster 128125

Analysis: Method:

Alkalinity, Bicarbonate

SM2320B

WorkOrder:

09050065

Lab Batch ID:

R273005

Method Blank

Units:

Samples in Analytical Batch:

RunID: WET 090518X-5025312

mg/Kg

Lab Sample ID

Client Sample ID

Analysis Date:

05/18/2009 16:45

Analyst:

PAC

09050065-01D

MW-6-54-55'

Analyte	Result	Rep Limit
Alkalinity, Bicarbonate	ND	20

Laboratory Control Sample (LCS)

RunID:

WET 090518X-5025314

Units:

mg/Kg

Analysis Date:

05/18/2009 16:45

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Bicarbonate	387	390	101	90	110

Sample Duplicate

Original Sample:

09050065-01

WET_090518X-5025315

Units:

mg/Kg

Analysis Date:

RunID:

05/18/2009 16:45

Analyst: PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Bicarbonate	190	190	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 72

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Brown & Caldwell

BJ-Fracmaster 128125

Analysis:

RunID:

Alkalinity, Carbonate

Method: M2320 B WorkOrder:

09050065

Lab Batch ID:

R273007

Method Blank

Lab Sample ID

Client Sample ID

Analysis Date:

WET 090518Y-5025318

Units:

mg/kg PAC

09050065-01D

Samples in Analytical Batch:

05/18/2009 16:45

Analyst:

MW-6-54-55'

Analyte	Result	Rep Limit
Alkalinity, Carbonate	ND	20

Laboratory Control Sample (LCS)

RunID:

WET_090518Y-5025320

Units:

mg/kg

Analysis Date:

05/18/2009 16:45

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Carbonate	387.0	390.0	100.8	90	110

Sample Duplicate

Original Sample:

09050065-01

WET_090518Y-5025321

Units:

mg/kg

Analysis Date:

RuntD:

05/18/2009 16:45

Analyst: PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Carbonate	ND	ND	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 73

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/16/2009 4:36:27 PM



HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901



Analysis:

RunID:

Alkalinity (as CaCO3), Total

Method:

E310.1

WET_090610U-5061236

WorkOrder:

09050065

Lab Batch ID:

R275095

Method Blank

Units:

mg/L

PAC

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

06/10/2009 12:30

Analyst:

09050065-04D

MW-6

Analyte	Result	Rep Limit
Alkalinity, Total (As CaCO3)	ND	2.0

Laboratory Control Sample (LCS)

RunID:

WET_090610U-5061238

Units:

mg/L

Analysis Date:

06/10/2009 12:30

Analyst:

PAC

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Alkalinity, Total (As CaCO3)	38.70	38.00	98.19	90	110

Sample Duplicate

Original Sample:

09050091-02

WET_090610U-5061242

Units:

mg/L

Analysis Date:

RunID:

06/10/2009 16:00

PAC Analyst:

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Alkalinity, Total (As CaCO3)	477	477	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

09050065 Page 74

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

6/16/2009 4:36:27 PM

Sample Receipt Checklist And Chain of Custody



HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

Sample Receipt Checklist

Workorder: Date and Time Received: Temperature:	09050065 5/2/2009 10:00:00 AM 3.0°C		Received By: Carrier name: Chilled by:	RE Fedex-Priority Water Ice
1. Shipping container/co	poler in good condition?	Yes 🔽	No 🗌	Not Present
2. Custody seals intact	on shippping container/cooler?	Yes 🔽	No 🗌	Not Present
3. Custody seals intact	on sample bottles?	Yes	No 🗆	Not Present ⊻
4. Chain of custody pres	sent?	Yes 🔽	No 🗆	
5. Chain of custody sign	ned when relinquished and received?	Yes 🗹	No 🗌	
6. Chain of custody agr	ees with sample labels?	Yes 🗹	No 🗀	
7. Samples in proper co	entainer/bottle?	Yes 🗹	No 🗌	
8. Sample containers in	tact?	Yes 🗹	No 🗌	
9. Sufficient sample vol	ume for indicated test?	Yes 🗸	No 🗌	
10. All samples received	within holding time?	Yes 🗹	No 🗌	
11. Container/Temp Blan	k temperature in compliance?	Yes 🗹	No 🗌	
12. Water - VOA vials have	ve zero headspace?	Yes	No 🗌 VO	A Vials Not Present 🗹
13. Water - Preservation	checked upon receipt (except VOA*)?	Yes 🗌	No 🗌	Not Applicable 🗹
*VOA Preservation C	hecked After Sample Analysis			
SPL Representat		Contact Date &	Time:	
Non Conformance	<u> </u>			
Issues: Client Instructions:				



Methane Temp: S.O.C. Initial): zzAIL CLIONA 322327 Requested Analysis ğ Intact? Ice? 50 KB page 0978 201 2015 70/0L28 TPH-DRO Special Detection Limits (specify): SFL Workorder No. 2. Received by: 4. Received by: 1-049-HOI 2 ٥ Number of Containers 3 3=H2SO4 pres. time 23 z091=91 z08=8 کر 3 0 size O 163 ZO+=+ liter time time VAP A=amber glass V=vial X=other P=plastic G=glass matrix bottle \$ **₹** > J "> >Email 🔲 PDF 📋 Standard QC Level 3 QC Level 4 QC TX TRRP LA RECAP 60/2 W=water S=soil O=oil A=air SL=sludge E=encore X=other 3 3 50)1 3 3 Sate grab date 5 date S پلا Laboratory remarks: comp X Zip 7/7002 Email: rrexroad@ brunca Fax TIME 1540 Special Reporting Requirements Results: 500 200 50 330 1340 Analysis Request & Chain of Custody Record 713-308-3886 1. Relinquished by Sampler: 52/82/ 50/08/5 133/09 4/30/24 5/11/5 5/1/09 5/1/34 DATE 3. Relinquished by: 5. Relinquished by: ٥ SPL, Inc. - Frac Mas to **☑** 8880 Interchange Drive Houston, TX 77054 (713) 660-0901 下いったろれて - 759.0999 2 Rexroad Contract Standard į Rush TAT requires prior notice į RB-050109-1 FB-050109-RB-0430 09-18-043009 SAMPLE ID 40665 MW-6-54-55 FB-043209 Requested TAT Client/Consultant Remarks: Srows ME.G Same 2 coolers 2 Business Days 1 Business Day 3 Business Days Project Name/No.: Client Contact: Site Location: Client Name: Phone/Fax: Invoice To: Site Name: Other Address:

Traverse City MI 49686 (231) 947-5777 459 Hughes Drive

500 Ambassador Caffery Parkway Scott, LA 70583 (337) 237-4775

APPENDIX C

Groundwater Sampling Forms

GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: MW-1

	Project Lo 2. WELL Casing D Screen D	iameter:) inch	(Fr	Type: PPV	C Stainle	Weather:ss □ Galv. St	eel 🗆 Tefloni	® D Other:	prese from Soul
	Depth to Length of Pump int	Static Water: Product: f Water Colum ake depth GE DATA	feet n:_/ 2.99			op of Well Cas	ing (TOC)	Top of Prote Screened In	ective Casing Control Casing Control Casing Control Casing Control Casing Control Casing Control Casing Cas	Other:
12.99 194 199 10784	Materials Materials Was well	ethod: Bailer Bailer Rope Tubing purged dry? Cum. Liters	☐ Stainle ☐ Dedica ☐ Polyett ☐ Dedica	ess PVC ated Prep hylene Prep ated Prep No	Teflon® pared Off-Site Polypropylene epared Off-Site	Other:	ned Dispo	osable ers/min	1. Mous 2. 1/5	Equipment Model(s) Toon pump Light furbidity
	7410 1412 1414 1414 1416	Removed D J L Graph Control of the control of t	6.23 7.66 7.46 7.30	19-48 19-40 19-40 19-41 19-41	1.761 1.961 2.012 2.056	-15.0 -8.6 -6.4 -5.5	Dissolved Oxygen 6.18 5.09 4.92 4.41	*Turbidity	(TOC) 55.31 44.61 55.64 55.64	comments Jight bru. Churbidi Jess hurbid
	1410	5	7-15	13.53	2.099	-4.7	4.73	***	55.64 Anstru	must mattinch
	4. SAMPLING DATA									
	I	ID: MW~/ te Sample Coll	ected?	Sample Tes	*	504	# of Contain	ners: / 4	Alkal	inity: mg/L

17

FORM GW-1 (Rev 2/26/02 - dg)

GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: MW-2

2. V	Casing Di Screen Di	BS Serv cation: DATA		rroc	MASKE)	_			-	
2. \	WELL Casing Di Screen Di		i-40		(##					in mak harre
	Casing Di Screen Di	DATA		164,1	<u> </u>	V	Veather:	lear,	_	10 Mple brees
	Screen Di		2		Type: of my					goven
			inche		Type: ptpv					
			inche		Type: Apv					
-		th of Well: 67	al ul						ctive Casing 🚨 C	
	Depth to	Static Water:	7776	eet					tive Casing U C	
	Depth to		feet	,				Top of Prote	ctive Casing 🚨 (Other:
1		Water Column			Well Volume	: ac . U.C	gal		terval (from GS) -inch well = 0.16 g.	
_	بمينفسن	ake depth	(fror	m GS)				riole. 2	-nen wen - 0.70 g	THE THE TEN
1		SE DATA	r Size	□ Bladd	er Pump 🔏 2"	' Suhmersible F	2ump (1 4* 4	Submersible Pr	umr	
l	Purge Me	ethod: Centr	rifugal Pump	Q Perista	altic Pump 🚨 Ir	nertial Lift Pump	Other:			Equipment Mode
		: ump/Bailer	Stainle:	ss OPV	C	Q Other:			1	•
	Materials	: Rope/Tubing	≰ Polyeth	nylene 🖸	Polypropylene	☐ Teflon® ☐	Other:		,	
			Q Dedica	ted DPn	epared Off-Site	☐ Field Clea	ined D Disp	oosable	2	
L	Was wel	l purged dry?	Cl Yes	Q No	Pumpir	ng Rate:		ers/min	3	:
	Time	Cum. Liters Removed	рН	Temp	Spec. Cond,	Eh	Dissolved	Turbidity	Depth to Water	Comments
 	, 09	O	1.02	18.LA	Cond.	-191	Oxygen '		54.44	//6//
<u> </u>	119	1	6.80	449	2.096	-19 6	2 21	1	24:60	1.46+ brow
L	717	• 2	6.73	19.01	3.080	-70.8	3.29	1	54.11	1295 fuit
<u> </u>	012	3	1	9 14		-71.6		-	54.75	1247 9011
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μ	217	7	10.0	19.03	K .02 /	-72.1	3.18	544	74.19	<u> </u>
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GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: MW 3

		mber: 128	RMATION 125 Task Nur	nber:	11	ate:	18/09	T	ime: 0715
	Client:		Services	 ,		_	KICK!	Rexroad	(. (.) []
	Project Lo		obbs - Fi	ac magte	V	/eather:	40		s, light to no
1	2. WELL)_ inches	T V					Car
, I	Casing Dia	ameter	1	1			el 🛘 Teflon®		
9	Screen Di		inches	Type: Pvo					
-			(g.50 feet	From: ExTor				tive Casing Od	
61		Static Water:						tive Casing DOt	
16	Depth to I	Product: Water Column	feet	Well Volume				ctive Casing O	
		water Column ake depth	(from GS)	vven volume	1. 60	_gal (erval (from GS): inch well = 0.16 ga	
66	3. PURG		(IIOII G3)						
او		D Bailer	, Size: D Blac	ider Pump \$\frac{1}{2}"	Submersible F	ump Di4"S	iubmersible Pu	ımp	
516	Purge Me	etnod: 🖸 Centr	ifugal Pump D Peris	taltic Pump 🖸 In	ertial Lift Pump	Other:			Equipment Model(s)
516	Materials	: (Fumo/Bailer	☐ Stainless ☐ P ¹ ☐ Dedicated ☐ Pr	/C 30 Teflon® epared Off-Site √	Other. Field Clean	ed D Dispo	sable	1. YS.	E
	Materials	: Rope Tubing	Polyethylene C	2 Polypropylene	☐ Teffon® ☐	Other		Monse	on bamb
	Was well	I purged dry?	☐ Yes X No	•				flach to	1.89 RA4/8/0
	Time	Cum. Liters		Spec.	ng Rate:	Dissolved	ers/min	3	
	rime	Removed	pH Temp	Cond.	Eh	Oxygen	an urbidity	(foc)	Comments
	137	0	8.77 11.6	1 0.584	10.5	3.61	NN	106136	Light Broken
ما . مقد	777	(8.30 18.3	00.582	8.3	2.39	4 2	54.99	<u> </u>
4.4	4 013	レ	8.19 17.7	4 0.566	1.7	2.14	2 2	57.97	
	0139	2.5	8.03 11.69	- 0.467	11.8	2.02	\$ 5	54.98	less turbid
	0742	3	1.68 17.77	0.551	13.6	1.93	53	54.98	
	0744	3.5	7.84 11-	0.549	13.9	1.94	10 2	54.98	
	0746	4	1.80 17.	80.547	14.0	1.92	13.5	54.98	
		ļ						<u> </u>	
	4. SAM		TA * UM		mgil	* * *	s owed	Geoc	hemical Analyses
	Method	(s): D Bailer, S D Peristalt	ize: D Bladde	erPumip 27•2 °Su ftPumip □ Other	ubmersible Pur :	np □ 4"Sub	mersible Pump	Ferro	ous Iron: mg/L
	Materia	ıls: Pumo/Bailei	□ Stainless □		® D Other			DO:	0,6 mg/L
	Materia	alay Tubin Than	Polyathylana	Prepared Off-Site O Polypropylene			osable		. 1 04
	1	als: Tubing/Rop	D Dedicated D	Prepared Off-Sit	e 🔾 Field Cle	eaned 🔏 Dis	•	- Nitra	te: My mg/L
	0		e of Sampling:	24.78	•	ed? 🖸 Yes	1,1	Sulfa	ite:mg/L
	1	9 ID: MW-		le Time: <u>06</u>		# of Contai	iners:	- Alkai	linity:
	Duplica	ate Sample Col	lected? DV Yes	D No ID:	1W-99			A series and the series are the series and the series are the series and the series and the series are the seri	
	5. CON	MENTS						Anna Calantina Caratan, a Calan	
									
		*				-	·		
	Note: Includ	de comments suci	as well condition, oc	lor, presence of N	IAPL, or other i	tems not on th	e field data sh	eel 7	Δ
	Gen\	non-proj\fo	rms\Field Data	Sheet.xis\	BC-liters		/	106m	ud)

GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: MW-4

. PROJE	CT INFO	RMATI	ON							
	mber: 128			er:	[Date:	/2/09		ime: //00	
Client:	2		rac boast		 . F	Personnel:	RIBA	inda		
Project Lo	cation:	6665	NM			Weather:	Cloudy	70° F 5-1	ough winds from N	
. WELL	DATA									
Casing Di		inche	es	Туре: фру	□ Stainles	s Q Galv. Ste	eel 🗆 Teflon@	Other:		
Screen D		HICH!		Type: dipvo	C Stainles	s 🔾 Galv. Ste	el 🗆 Teflon(Other:		
	ith of Well: <u>6</u> 3			From: D To	p of Well Casi	ng (TOC)	Top of Protec	ctive Casing 🚨 Ot	ther:	
Depth to	Static Water: 5	4.26	feet	From: C To	p of Well Casi	ng (TOC)	Top of Protec	ctive Casing DOI	ther	
Depth to		feet						ctive Casing Q O		
Length of Water Column: 4.47 feet Well Volume: 1.52 gal Screened Interval (from GS): 45-60 Pump intake depth 56 (from GS) 8764 Note: 2-inch well = 0.16 gal/ft 4-inch well = 0.65 gal/ft										
	the second secon	<u> (fro</u>	m GS) B	166			Note: 2	inch well = 0.16 ga	nl/ft 4-inch well = 0.65 gal/ft	
3. PURG	SE DATA	· Cima-	D 101-3-3	as Duma Mar	Cubancasis	Pump 🗓 4" S				
Purge Me	ethod: Centr	ifugal Pump	🔾 Perista	ltic Pump 👊 Ir	ertial Lift Pum	Pump U 4" S ip U Other:	ouomersible Pi	ump	Equipment Model(s)	
Materials	s: Pump/Bailer			Content Teffon®		ned D Dison	sable	1 Mex	a Manson	
Materials: Purph/Bailer										
	purged dry?					-		Į.		
was wei		U Yes	Ø №		ng Rate: <u>ℚ</u>		ers/min		LH Turbidity motor	
Time	Cum, Liters Removed	pH	Temp	Spec. Cond.	Eh	Dissolved Oxygen	Turbidity	Depth to Water (TOC)	Comments	
1104	L,		0(MS/cm	mV.	mg/L	NT4	f+		
1108	0.5	6.75	23.40	1.914	-152	0.67	3.64	54.72		
1112	[.8	6.74	23.53	1.927	147	8.54	2.23	54.75		
1116	1.5	672	23.35	1.941	-136	0.51	1.52	54.68		
1120	210	6.72	23.71	1.939	-129	0.53	1.50	54.60		
1124	2.5	6.72	23.75	1.938	-128	D-54		54.58		
			-							
					<u> </u>					
4. SAM	PLING DA			a					hemical Analyses	
Method	l(s):			Pump 1 40 /2"Si Pump CIOthei		mp 🛚 4" Sub	mersible Pum	P Ferro	ous Iron: <u>0.0</u> mg/L	
Materia	ils: Rump/Bailer		less PV		® D Other			DO:	0.4 mg/L	
}	als: Tubing/Rop	_ Dediv L Polye	ethylene 🗆	epared Off-Site Polypropylene	@Teffon®	Other:	osable		R	
	<u> </u>	D Dedi	cated DP	repared Off-Sit	e D Field Cl	eaned Dis	sposable	- Nitra	te:mg/L	
	to Water at Tim	•			Field Filter しりる	ed? 🔾 Yes	, ~	Sulfa	ate: mg/L	
X .	e ID: <u>MW-^C</u>		Sample			# of Contai	iners:(Alka	linity: mg/L	
Duplic	ate Sample Coli	ected?	☐ Yes [0/No ID:						
5. CON	MENTS									
Material Control	 		(v.		45					
	de comments such					items not on th	e field data sh	eet.		
Gen\	non-proj\fo	rms\Fie	d Data S	sneet.xis\	BC-liters			F (12 E		

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Signature V

GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: MW-5

•													
	1. F	PROJE	ECT INFO	RMATI	ON				_		7725		
			umber: /28 /			ber: 00 4		ate: 4-	9-09		ime: 0 +0		
	(Client:	BJ 54	SLAIC	<i>e</i> 5		P	Personnel:	Rexra	ad			
	F	² roject Lo	ocation: Fro	CMAST	er: H	obbs, 1	VM V	Veather:	ear, ±5	o, wind-	me:_0725 Man NN@240 m/		
				(Strck			7						
	,	Casing Di		2_inche	•	Type: X PV	C Stainless	s 🖸 Galv. Ste	el 🗆 Teflon®	Other			
		Screen D	iameter:	2inchi	98	Type: pro	C 🚨 Stainles:	s 🔾 Galv. Ste	el 🛛 Teflon®	Other			
63.80		Total Der	oth of Well: 6.	5.86 fee	et	From: 🙇 To	p of Well Casir	ng (TOC) 🗓	Top of Protect	ive Casing 🔲 Ot	her:		
54.98			Static Water:_			From: KTop of Well Casing (TOC)							
8.82			Product:	feet		From: K Top of Well Casing (TOC) D Top of Protective Casing D Other.							
.16			f Water Column	8.82	feet	Well Volume: 1. 41 gal Screened Interval (from GS): 60 - 45							
5292		Pump int	ake depth	(fro	m GS)		Note: 2-inch well = 0.16 gal/ft 4-inch well = 0.6						
882	3.	PURC	SE DATA		THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED I	<u></u>							
14/12	-	Purge M	ethod: D Saile	r, Síze:	☐ Bladd	ler Pump 🔘 2"	Submersible F	omp Q14"S	ubmersible Pu	mp			
177			ethod: Cent	nrugai Pump Stainle □	ss OPV	aluc Pump u li C	entar Lint Pum □ Other:	p G Other:			Equipment Model(s)		
		Materials	s: Pump/Bailer	Dedica Dedica	ited 🗅 Pre	pared Off-Site	Wield Clean	ed Dispo	sable	1. MOOR	soon pump		
		Materials	s: Rope/Tubing			Polypropylene epared Off-Site			osable	2. YSI	-		
		Was wel	Il purged dry?		X No	•	ng Rate:	•	rs/min				
	-		Cum. Liters	T	· -	Spec				3 Depth to Water			
		Time	Removed	pН	Temp	Cond.	Eh	Oxygen Oxygen	Turbidity	· (TOC)	Comments		
	1	843	∂	9,24	18.36	0-597	-5.9	4.91	NM	54.78	sighty douth		
		1845		8.55	16.94	05%	-26.5	4.42		***	clear		
		647	2	8.38	19.02	0.594	-38.8	3.94		***			
	Ĭ	0848	"3	8.16	19.05	0.691	47.1	3.81		米米米			
	A	150	4	8.1L	19.00	0.481	-52.0	3.76	}	59.13			
	7	852	5	8.08	19-09	0.684	-56.4	3 61		***			
	-	7654	6	8.04		0.583	-5/0 9	3.46		***			
	r		-		12.14	1000		- 10		A			
					†								
	4	SAM	PLING DA	X AT	um/c	×*-	MATL	7998 - N	- Readia	4.4 Geoc	hemical Analyses		
	•	Method	t/e). □ Bailer, S	Size:	☐ Bladder	Pump 2 S	ubmersible Pur	-	C. B. D. L	nit			
	1	Medico	Peristal	tic Pump 🚨	Inertial Lift	Pump DOthe	r.			-епо	us Iran: mg/L		
		Materia	als: (Pump)Baile		less QP cated QP	repared Off-Site	® Other	ned 🖸 Disp	osable	DO:	Omg/L		
		Materia	als: (Tubing/Rop			Delypropytene Prepared, Off-Sij			posable	Nitrat	e:mg/L		
	1	Denth	to Water at Tim			N54.98	7	ed? D Yes	No.	0.15			
			e ID: MW-		Sample	Time: O	245	# of Contai	ners: 14	Sulfa	te:mg/L		
			ate Sample Co		•	No ID:	91-	# Of Contain	ileis	_ Alkal	inity:mg/L		
	Ļ												
	1	5. CON	MENTS	All para	meter	s stable	at 6 144	en purc	ie, bot	-Doy Z.	5; will collee		
,	4	diquo	t to the	ch_fee	4 Kit	Aca su	remen	ut:	<i>,</i>				
				· · · · · · · · · · · · · · · · · · ·									
		vote: Includ	de comments suc	h as well cor	ndition, odo	r, presence of N	IAPL, or other i	tems not on the	e field data she	el.,			

Gen\non-proj\forms\Field Data Sheet.xls\BC-liters FORM GW-1 (Rev 2/26/02 - dg)

B R O W N A N D C A L D W E L L

GROUNDWATER SAMPLING FIELD DATA SHEET

WELL ID: Jalu-6

. PROJECT INFORMAT	TON						
Project Number: 128125	Task Number:		Date:5	11/09	1	Firme: 100	
Client: B) Service	Frachaster sit	<u> </u>	Personnel:	R.Ban	l a		
Project Location: Hobbs			Weather:	Sunny	90°F		
. WELL DATA							
Casing Diameter: 2 inches Type: 1 PVC Stainless Galv. Steel Teflon® Other:							
Screen Diameter: 2 inches Type: 2 PVC Stainless Galv Steel Teffon® D Other.							
Total Depth of Well: 62.92 feet From: D Top of Well Casing (TOC) D Top of Protective Casing D Other.						ther:	
Depth to Static Water: 53.69	feet From:	From: Top of Well Casing (TOC) Top of Protective Casing Other					
Depth to Product: feet From: Top of Well Casing (TOC) D Top of Protective Casing D Other.							
Length of Water Column: 9.23 feet Well Volume: 1.48 gal Screened Interval (from GS): 45-60							
Pump intake depth 53.5 (from GS) Note: 2-inch well = 0.16 gal/ft 4-inch well = 0.65 gal/ft							
3. PURGE DATA		4					
Purge Method: D Bailer, Size: Centrifugal Puri	□ Bladder Pump np □ Peristaltic Pump	2" Submersible Inertial Lift Pur	Pump 🚨 4° 5	Submersible Pu	dur	Equipment Model(s)	
Commission of Chicago Co. Co. Co. Co. Co. Co. Co. Co. Co. Co							
A Polymorphytaga D Polymorphytaga D Tafford D Other							
Materials: Rope/Tubing Polyethylene D Polypropylene D Teflon® D Other. D Dedicated D Prepared Off-Site D Field Cleaned D Disposable 2							
Was well purged dry? Ye	s 🎾 No Pu	mping Rate:_ర	.125 lite	ers/min	3. HAC	H Turbidity meter	
Time Cum. Liters pH	Temp Spec	. En	Dissolved Oxygen	Turbidity	Depth to Water (TOC)		
1105 L	°(m5/c.	n in V	mg/L	NTUS	f.t.	start purge	
1109 0.5 6.76	22.16 2.29	2 64	9.27	20.6	54.15°		
1113 1.0 6.76	22.51 2.29	4 67	9.06	15.8	54.13		
1117 15 6.76	22.43 2.3	21 71	2,94	19.2	54-09		
1121 20 6.77	(1 -	8.90	10.8	54.05		
1125 2-5 6.7	1 23.08 2-33	0 72	8.79	9.57	54.02		
4. SAMPLING DATA					Geo	chemical Analyses	
Method(s): 🗅 Bailer, Size: 🔲 🖸 Bladder Pump 🎁 2" Submersible Pump 🚨 4" Submersible Pump							
Stainless ADVC Difeform Di Other							
D Dedicated D Prepared Off-Site D Field Cleaned D Disposable							
Materials: Tubing/Rope							
Depth to Water at Time of Sampling: 54.52 Field Filtered? a Yes No Sulfate: mg/L							
Sample ID: MW-6 Sample Time: 1200 # of Containers: 15							
Duplicate Sample Collected? Yes M No ID: Alkalinity: mg/L							
5. COMMENTS			() ()	م ۱۸۱۱ م			
5. COMMENTS used bailer to collect VOCE, TPHG and Mothage. Used pump for all other bottles							
Used pump	for all other b	ottlos,					
Note: Include comments such as well c	ondition, odor, presence	of NAPL, or other	items not on th	e field data sh	eet. ,		
Gen\non-proj\forms\Fig				/	1056		
FORM GW-1 (Rev 2/26/02 - dg) Signature							

