

INTERIM EMERGENCY RESPONSE REPORT

FOR

RED RIVER FISH KILL
UNION VALLEY ROAD
OSCAR, JEFFERSON COUNTY, OKLAHOMA

U.S. Environmental Protection Agency Region 6
1445 Ross Avenue
Dallas, Texas 75202

25 June 2012

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INTERIM EMERGENCY RESPONSE REPORT

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1. PROJECT IDENTIFICATION

Date: 22 June 2012

Subject: Emergency Response: Red River Fish Kill
Union Valley Road
Oscar, Jefferson County, Oklahoma
NRC Report No. 986848

West Site Boundary: Latitude: 34.134604° North, Longitude: 97.7520561° West
East Site Boundary: Latitude: 33.857480 ° North, Longitude: 96.843160 ° West

Geographic coordinates along the identified portion of the Red River Fish Kill were determined by the Oklahoma Department of Environmental Quality (ODEQ) utilizing a Trimble GEOXT and provided to the Environmental Protection Agency (EPA) Region 6. EPA used a Garmin Oregon 550T geographic positioning system (GPS) to determine sample locations where sample coordinates had not been established by other agencies.

2. INTRODUCTION

On 19 August 2011, the ODEQ requested assistance from the Environmental Protection Agency (EPA) Region 6 Prevention and Response Branch (PRB) to support ongoing investigations of fish kills along the Red River. The incident was reported by the EPA-PRB to the National Response Center (NRC Report No. 986848, provided as Attachment E) on 23 August 2011. On 19 August 2011, the EPA activated the Superfund Technical Assessment and Response Team (START-3) contractor to mobilize to the incident site to conduct environmental sampling along the Red River. A Site Location Map and a Site Area Map are included in Attachment A.

3. BACKGROUND

The Oklahoma Department of Water Conservation (ODWC) was contacted on 04 July 2011 about a fish kill that occurred in the Red River near Oscar, Jefferson County, Oklahoma and began conducting a field investigation. ODWC contacted the Oklahoma Department of Environmental Quality (ODEQ) and requested assistance for conducting field investigations and providing analytical laboratory support. On 19 August 2011, ODEQ contacted the EPA to report fish kills along various segments of the Red River from near Terral, Oklahoma to Lake Texoma

and requested EPA assistance in assessing the river to determine the cause of the fish kill. Other agencies involved in the fish kill investigation include ODEQ, Texas Commission on Environmental Quality (TCEQ), Oklahoma Department of Wildlife Conservation (ODWC), Texas Parks and Wildlife Department (TPWD), Oklahoma Corporation Commission (OCC), and Railroad Commission (RRC) of Texas. EPA is also in communication with the United States Fish and Wildlife Service (USFWS) and with the Chickasaw Nation. Divisions within the EPA involved in the investigation included the Region 6 Superfund Division, Environmental Response Team (ERT), Office of Research and Development (ORD), Region 6 Houston Laboratory, the Region 6 Water Quality Division, and the National Enforcement Investigation Center (NEIC).

4. ACTIONS TAKEN

Mobilization and Sampling Activities

On 22 August 2011, EPA mobilized personnel and equipment resources to the Oscar, Oklahoma area to conduct field activities consisting of visual reconnaissance, environmental monitoring, water sampling, and sediment sampling. The objective of the response and sampling was to collect a limited number of water and sediment samples along the river to develop a snapshot of potential contamination along the investigated river segment. EPA outlined a plan to collect up to 10 water and 10 sediment samples at locations along the river. Collection of a background upstream sample was planned at Sample Location RR01 for comparison purposes, which is shown in Attachment A.

During the morning of 22 August 2011, EPA began conducting assessment activities along the Red River near Terral, Oklahoma. EPA collected 10 water samples from Sample Locations RR01 - RR09 along the Red River. Two water samples (RR02 and RR03) were collected at the same location, one at the surface and one approximately 4.5 feet below the water surface. In addition, a duplicate water sample was collected at Sample Location RR06. EPA collected four sediment samples at Locations RR01, RR02, and RR07 including one duplicate at Location RR07. Six of the sample locations coincided with sample locations established by ODWC and/or ODEQ. EPA collected water and sediment samples at two unique locations that did not coincide with other agency sample locations. One sample location, RR01, was selected for

collecting background data upstream of Terral, Oklahoma where the Little Wichita River flows into the Red River. The second unique sample location, RR07, was located approximately 100 feet upstream of an observed fish kill. EPA, ODEQ, and ODWC sample locations are illustrated in the Site Maps provided in Attachment A.

Prior to collecting a water sample, water quality readings were recorded by EPA representatives utilizing a Hanna Water Quality meter. Water quality readings including temperature, dissolved oxygen, pH, specific conductance, salinity, total dissolved solids, and oxygen reduction potential were recorded and are presented in Attachment B.

At each water sample location, the water depth was recorded prior to sampling, and if only one water sample was collected at the selected location, the sample was collected near the mid-water column level. Water samples collected in 4 feet of water or less were sampled using a mid-column grab method. Water samples that were collected in an area of the river greater than 4 feet in depth were collected via low-flow techniques utilizing a peristaltic pump with dedicated tubing. Sediment samples were collected from the river bottom using disposable field sampling equipment that was not reused between sampling points to prevent cross contamination of the sediment samples.

On the evening of 23 August 2011, EPA completed field sampling activities and all samples were shipped to a contract laboratory for analytical testing. Digital photographs are included as Attachment F.

Analytical Data

The water samples were analyzed for volatile organic compounds (VOCs); semi-volatile organic compounds (SVOCs) (with tentatively identified compounds [TICs] to specifically include siloxane); pesticides; polychlorinated biphenyls (PCBs); herbicides; total analyte list (TAL) metals (including strontium, uranium, and cyanide); reactivity, corrosivity, and ignitibility (RCI); biological oxygen demand (BOD); chemical oxygen demand (COD); and dissolved gases. It should be noted that dissolved gas analyses were requested after samples were submitted for analyses. The additional gas analyses were requested for the samples collected from locations RR01 through RR05 based on ODEQ concerns communicated to EPA regarding off-gassing and

bubbling on the surface of the river. The sediment samples were analyzed for VOCs; SVOCs (with TICs to specifically include siloxane); pesticides; PCBs; herbicides; total TAL metals (including strontium, uranium, and cyanide); and reactivity, corrosivity, and ignitibility (RCI). The water analytical results are presented in Attachment C, and the sediment analytical results are presented in Attachment D. The analytical data was compared to the background concentrations reported for Sample RR01. Methane, butyl benzyl phthalate, heptadecane (TIC), dicamba, dichloroprop, carbon disulfide, COD, and various metals (14 of the 25 reported) were identified above the background concentrations in water samples. Conversely, only antimony was identified above the background concentration in sediment. The above-mentioned chemicals were identified above the background samples in the water and the sediment, but no definite cause of the fish kill was identified from this analysis.

EPA and ODEQ Coordination

On 31 August 2011, EPA participated in a conference call with ODEQ field and laboratory personnel to discuss future activities related to the recent fish kill. During the conference call, ODEQ expressed concerns of a cloudy, gel-like material that formed during the laboratory extraction step during SVOC analysis of water samples collected from the Ketchum Bluff River segment by ODEQ and ODWC personnel. ODEQ also expressed concerns regarding observed off-gassing on the water surface near Ketchum Bluff. The off-gassing produced large areas of bubbling on the surface of the water. Due to ODEQ concerns, EPA requested additional analyses of water samples previously collected and submitted from Sample Locations RR01, RR02, RR03, RR04, and RR05 for dissolved gas analysis. These samples had been collected on 22 August 2011 and previously submitted for analyses. After communicating with the laboratory, it was determined that the contract laboratory had sufficient sample volume remaining for analysis of methane, ethane, ethene, and propane. Results from the dissolved gas analyses are discussed in the Analytical Data section of this report.

Follow-up Reconnaissance

On 12 October 2011, EPA personnel returned to the Ketchum Bluff area to gain site access from both the Oklahoma and Texas sides of the Red River and to conduct reconnaissance activities of the reported off-gassing and river conditions. During the site reconnaissance visit, EPA gained

access on the Texas side of the Red River for the current site visit and for any future site follow-up visits with the accompaniment of a Texas Parks and Wildlife Department (TPWD) game warden. While on-site, EPA observed the river was significantly deeper and minimal off-gassing was observed possibly due to the large-volume flow increase of the river. EPA also met with representatives of the OCC at Ketchum Bluff.

On 02 November 2011, EPA mobilized to the Ketchum Bluff area to attempt to air monitor the surface water off-gassing along the Red River near Ketchum Bluff and to collect air samples for VOC and siloxane analyses. EPA gained access to Ketchum Bluff from the Texas side of the Red River under the supervision of a Texas Parks and Wildlife Department (TPWD) game warden. While on-site, EPA did not visually observe off-gassing along the river water surface and, therefore, determined it was not feasible to air monitor the off-gassing or collect air samples for laboratory analyses.

During the follow-up site reconnaissance in the Ketchum Bluff area, EPA observed personnel from ODEQ and the TPWD collecting samples while OCC personnel and a local landowner observed field activities. After completing site field activities on 02 November 2011, EPA demobilized from the site.

Additional Site Data

The EPA Region 6 Houston Laboratory received six samples of the cloudy, gel-like material that formed during the extraction step during SVOC analysis of water samples conducted by ODEQ at their laboratory and originally collected by ODEQ field personnel. The EPA Houston Laboratory analyzed the gel-like material for metals and identified elevated levels of manganese in all six samples of the gel-like material (Attachment G). After completing the analysis, the Region 6 Houston Laboratory shipped two of those samples to the EPA NEIC laboratory for analysis. The EPA NEIC laboratory determined that the gel-like material contained elevated levels of magnesium hydroxide and sodium chloride (Attachment H).

The EPA has been conducting studies on fish and water samples from the Red River that were collected by ODEQ personal and shipped to their laboratory for analysis. Through these studies, the EPA has determined that a type of mycotoxin was present in the river. While the EPA

recognizes that the mycotoxin is a potential cause for the fish kills, it is not confirmed as the source of the fish kills that have occurred on the Red River starting in July 2011 to present. As stated in the EPA summary, EPA and the State of Oklahoma officials are uncertain as to how the mycotoxins may have entered the river (Attachment I).

Path Forward

This report represents site reconnaissance, sampling, and analytical activities conducted through late 2011. Reports of recent fish kills in June 2012 have resulted in EPA conducting additional sampling and investigation activities that will be included in this report upon their completion.

5. LIST OF ATTACHMENTS

A. Site Maps

Map 1: Site Location Map

Map 2: Site Area Map

Map 3: Multi-Agency Sample Location Map

Map 4: EPA Sample Location Map

Map 5: Up River Sample Location Map

Map 6: Mid River Sample Location Map

Map 7: Down River Sample Location Map

B. Water Quality Data Readings

C. Water Analytical Results

D. Sediment Analytical Results

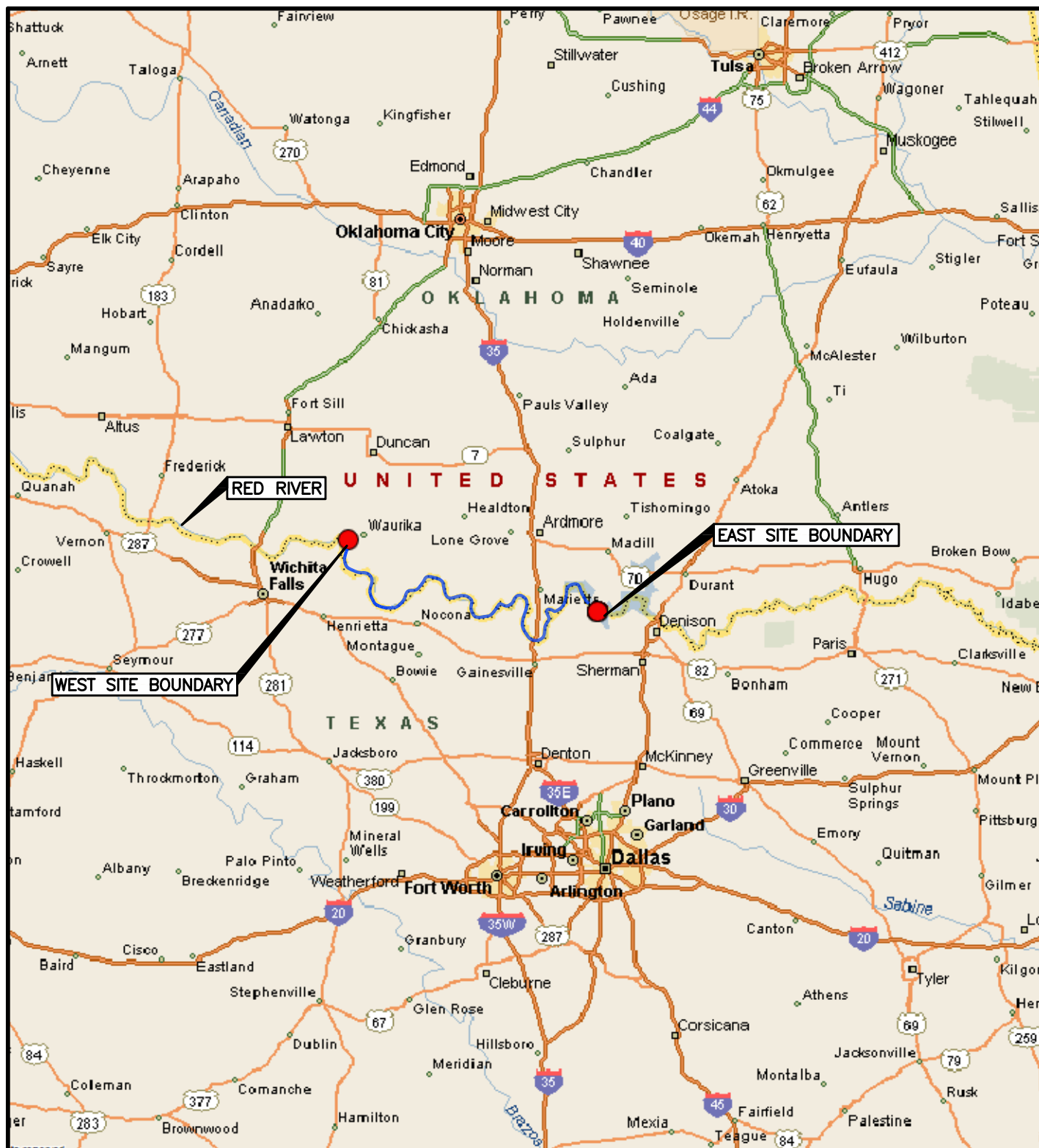
E. NRC Report No. 986848

F. Digital Photographs

G. EPA Laboratory Data for ODEQ

H. EPA NEIC Data

I. EPA Summary of Findings

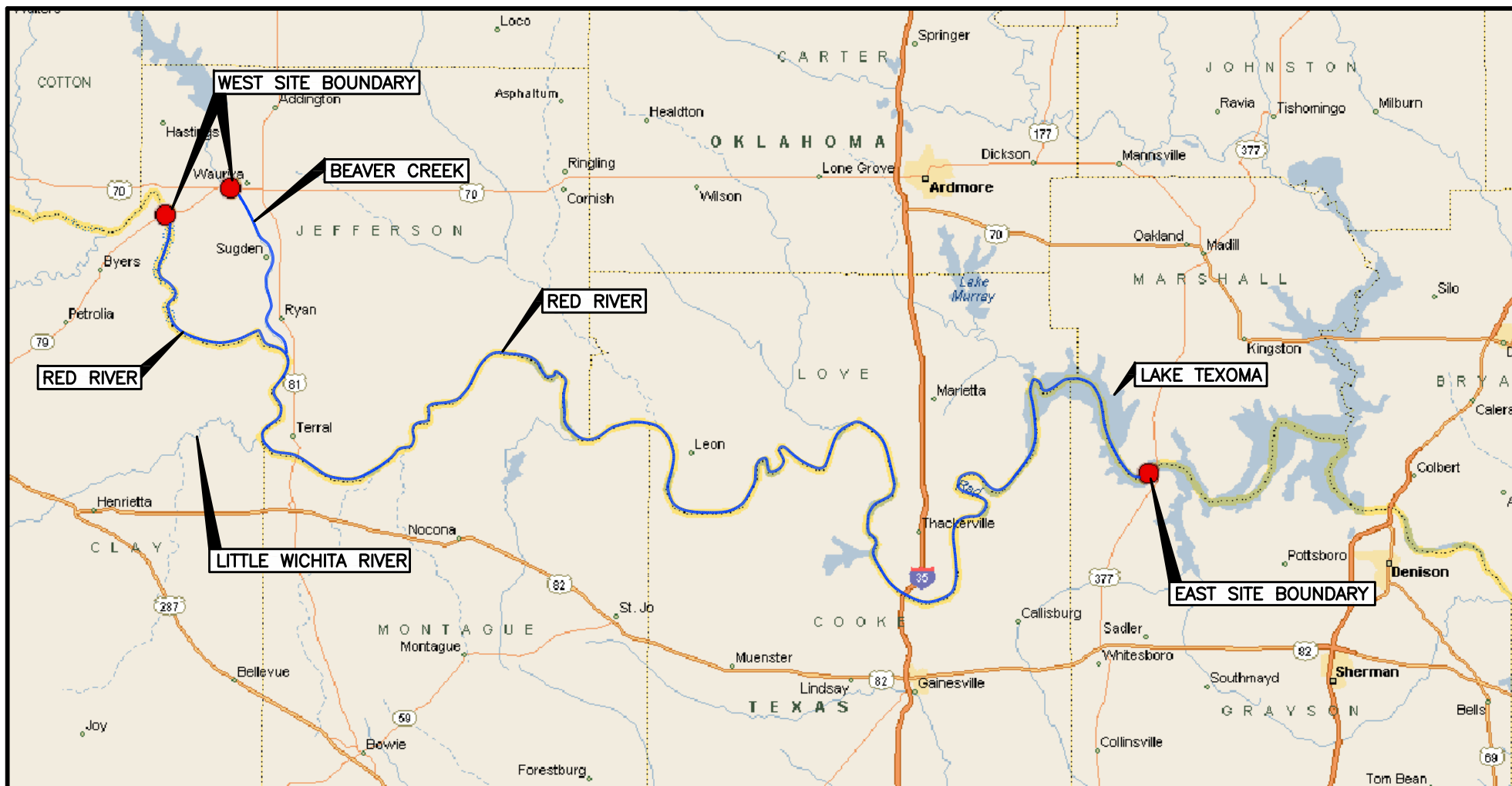


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MAP 1
SITE LOCATION MAP
RED RIVER FISH KILL
UNION VALLEY ROAD
OSCAR, JEFFERSON COUNTY, OKLAHOMA

SOURCE: MICROSOFT STREETS 2009.
 NRC No.: 986848
 TDD No.: TO-0001-11-08-10

DATE: JUN 2012	W.O. # 20406.012.001.0661.01	SCALE: NOT TO SCALE
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US EPA REGION 6

MAP 2

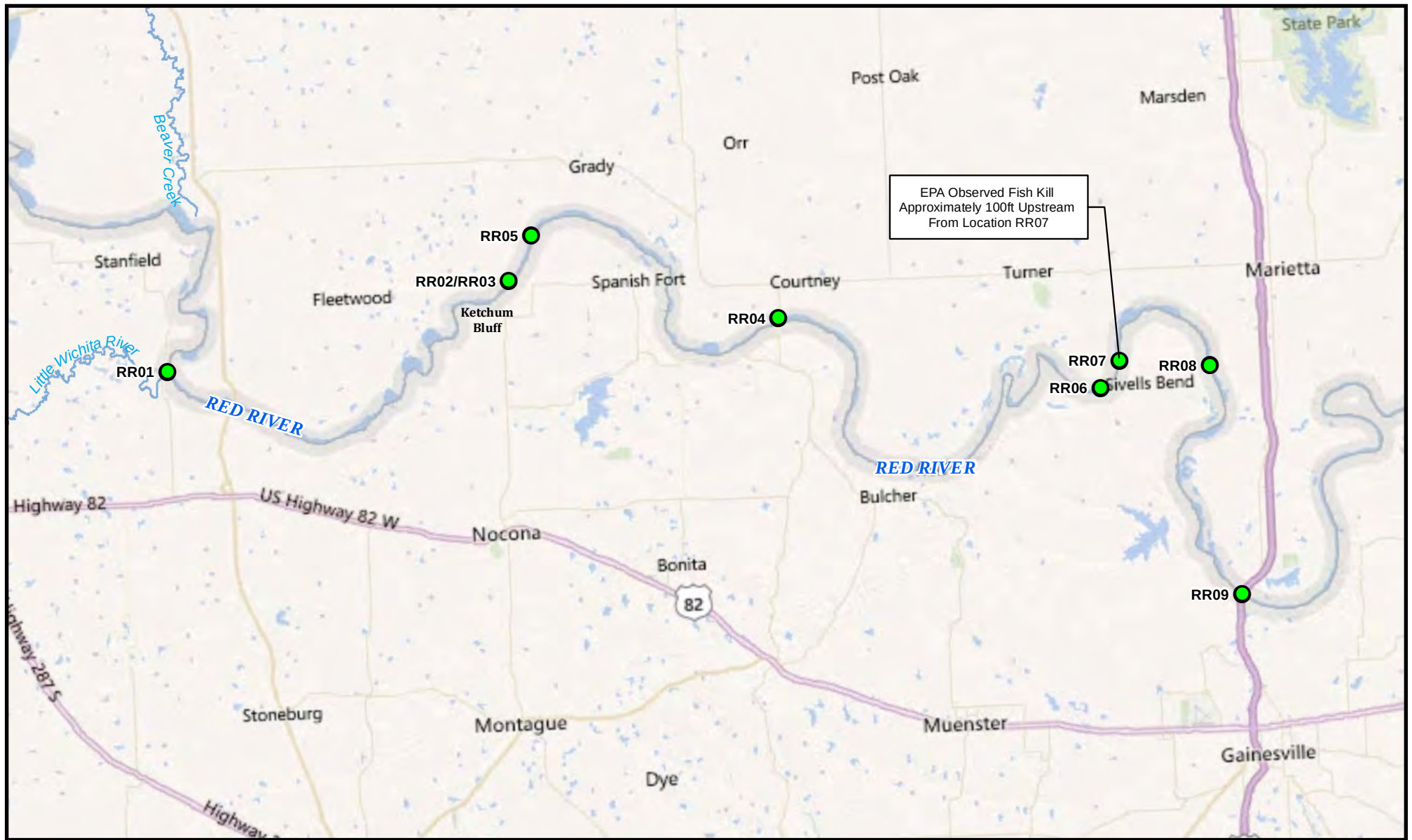
SITE AREA MAP

RED RIVER FISH KILL
UNION VALLEY ROAD

OSCAR, JEFFERSON COUNTY, OKLAHOMA

DATE: JUN 2012	W.O. # 20406.012.001.0661.01	SCALE: NOT TO SCALE
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SOURCE: MICROSOFT STREETS 2009.
NRC No.: 986848
TDD No.: TO-0001-11-08-10



Legend

 RR00 - EPA Sampling Location

0 6 12
SCALE IN MILES



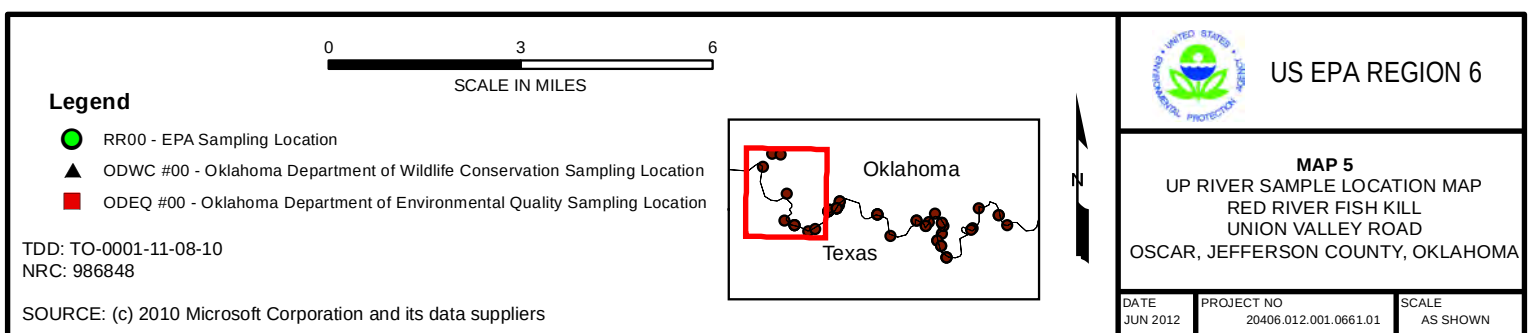
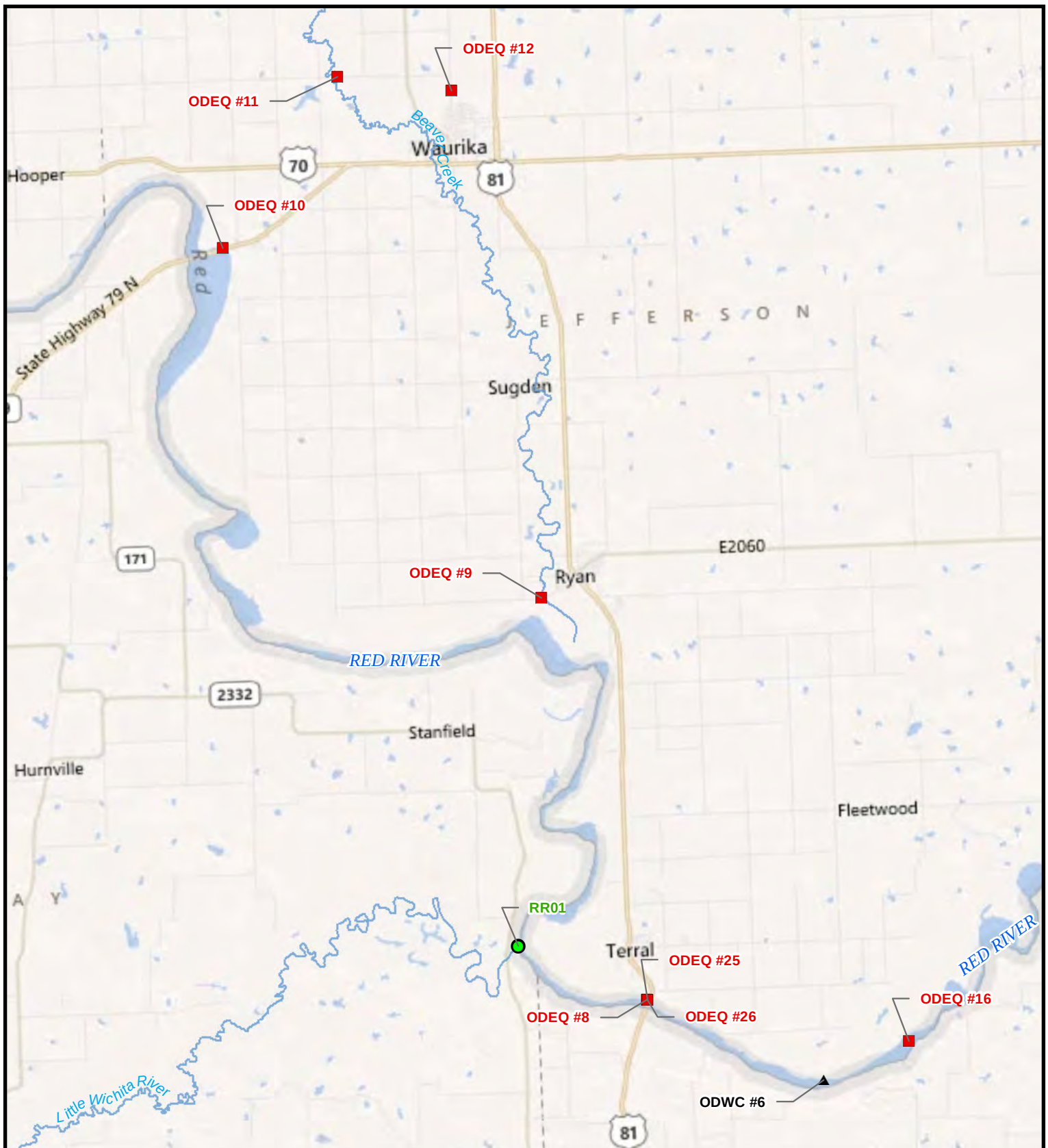
US EPA REGION 6

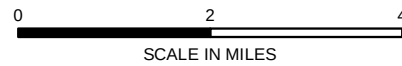
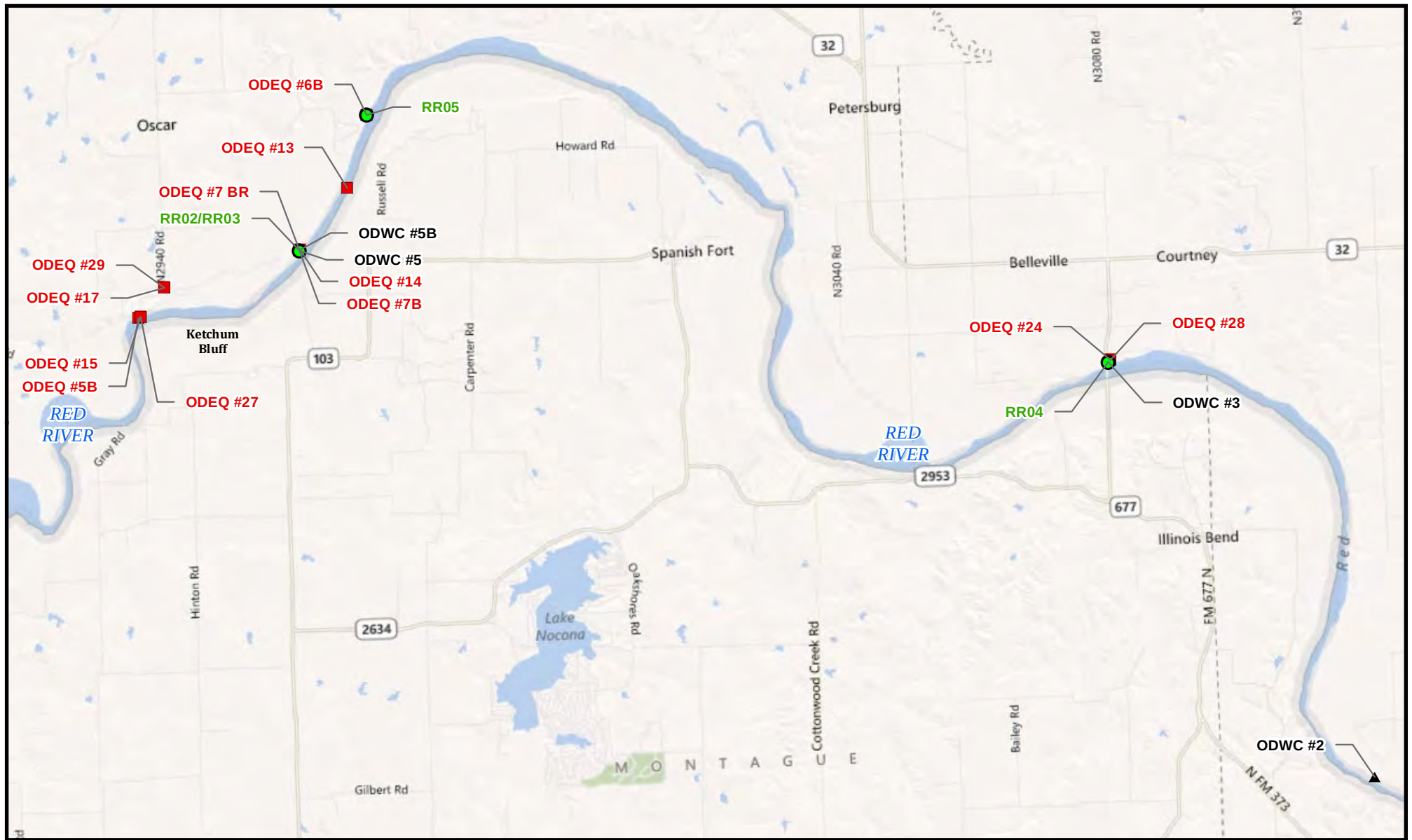
MAP 4
EPA SAMPLE LOCATION MAP
RED RIVER FISH KILL
UNION VALLEY ROAD
OSCAR, JEFFERSON COUNTY, OKLAHOMA

TDD: TO-0001-11-08-10
NRC: 986848

SOURCE: (c) 2010 Microsoft Corporation and its data suppliers

DATE	PROJECT NO	SCALE
JUN 2012	20406.012.001.0661.01	AS SHOWN



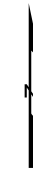
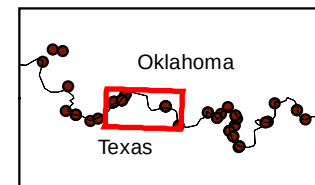


Legend

- RR00 - EPA Sampling Location
- ▲ ODWC #00 - Oklahoma Department of Wildlife Conservation Sampling Location
- ODEQ #00 - Oklahoma Department of Environmental Quality Sampling Location

TDD: TO-0001-11-08-10
NRC: 986848

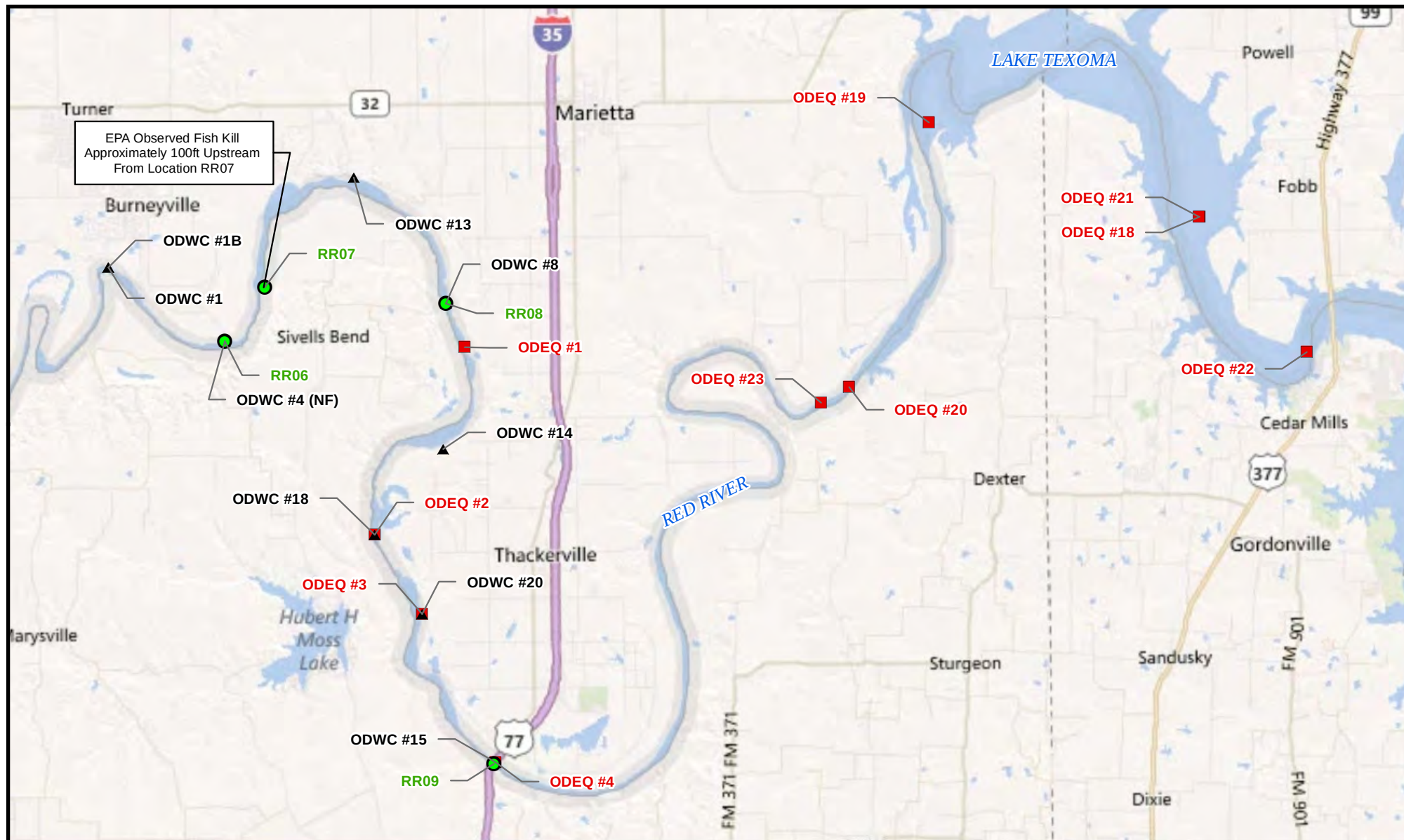
SOURCE: (c) 2010 Microsoft Corporation and its data suppliers



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MAP 6
MID RIVER SAMPLE LOCATION MAP
RED RIVER FISH KILL
UNION VALLEY ROAD
OSCAR, JEFFERSON COUNTY, OKLAHOMA

DATE JUN 2012	PROJECT NO 20406.012.001.0661.01	SCALE AS SHOWN
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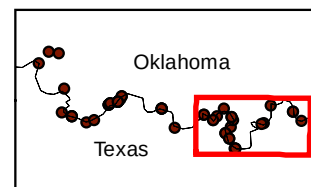
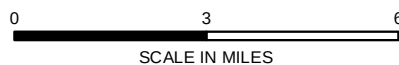


Legend

- RR00 - EPA Sampling Location
- ▲ ODWC #00 - Oklahoma Department of Wildlife Conservation Sampling Location
- ODEQ #00 - Oklahoma Department of Environmental Quality Sampling Location

TDD: TO-0001-11-08-10
NRC: 986848

SOURCE: (c) 2010 Microsoft Corporation and its data suppliers



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MAP 7
DOWN RIVER SAMPLE LOCATION MAP
RED RIVER FISH KILL
UNION VALLEY ROAD
OSCAR, JEFFERSON COUNTY, OKLAHOMA

DATE JUN 2012	PROJECT NO 20406.012.001.0661.01	SCALE AS SHOWN
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ATTACHMENT B
WATER QUALITY DATA READINGS

Attachment B
Water Quality Data Readings
Red River Fish Kill
Union Valley Road
Oscar, Jefferson County, Oklahoma

Sample	Location	Sample Depth (ft)	River Depth (ft)	DO (mg/L)	pH	Temp (Celcius)	Specific Conductance (µS/cm)	TDS (ppm)	Salinity
RR01	Background location	2.5	3.5	8.58	8.63	31.46	7503	3250	4.1
RR02	ODEQ #5B	4.5	5.5	5.83	8.26	30.06	6291	3140	3.39
RR03	ODEQ #5B	1	5.5	NA	NA	NA	NA	NA	NA
RR04	ODWC #3	2.5	3.5	7.7	8.65	35.11	7000	4102	3.68
RR05	ODEQ Site #6B	2	3	10.36	8.98	35.02	7267	3636	3.94
RR06	ODWC #4	1	2	8.6	8.15	32.69	7533	3767	4.1
RR07	upstream of fish kill area	1	2	9.24	8.14	31.27	7443	3721	4.06
RR08	ODWC #8	1	2	9.87	8.45	34.46	7267	3634	3.94
RR09	ODWC I-35	2	3	4.58	8.6	35	7105	3865	3.5

NA = Not Applicable (Duplicate Sample)



ATTACHMENT C
WATER ANALYTICAL RESULTS

Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
BOD							
Biochemical Oxygen Demand	mg/L	--	10 U	10 U	10 U	10 U	10 U
COD							
Chemical Oxygen Demand	mg/L	--	110	110	110	130	110
Dissolved Gases							
Ethane	mg/L	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Ethene	mg/L	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Methane	mg/L	--	0.0075	0.0183	0.0154	0.0168	0.0095
Propane	mg/L	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Herbicides							
2,4,5-T	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
2,4-D	mg/L	--	0.000039 U	0.00004 U	0.000039 U	0.000039 U	0.00004 U
2,4-DB	mg/L	--	0.000049 U	0.00005 U	0.000049 U	0.000049 U	0.00005 U
Dalapon	mg/L	--	0.00099 U	0.00099 U	0.00098 U	0.00099 U	0.00099 U
Dicamba	mg/L	--	0.0000099 U	0.0000099 U	0.0000098 U	0.0000099 U	0.0000099 U
Dichlorprop	mg/L	--	0.00003 U	0.00003 U	0.000029 U	0.00003 U	0.00003 U
Dinoseb	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
MCPA	mg/L	--	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U
Mecoprop	mg/L	--	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
Silvex (2,4,5-TP)	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
Metals							
Aluminum	mg/L	--	1.1	0.8	0.64	0.73	0.97
Antimony	mg/L	--	0.0063 U	0.0063 U	0.0063 UB	0.0063 U	0.0063 U
Arsenic	mg/L	--	0.0049 JQ	0.0084 JQ	0.009 JQ	0.0098 JQ	0.0081 JQ
Barium	mg/L	--	0.15	0.16	0.16	0.19	0.18
Beryllium	mg/L	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Cadmium	mg/L	--	0.0004 JQ	0.0005 JQ	0.001 JQ	0.0004 JQ	0.0005 JQ



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
Metals (continued)							
Calcium	mg/L	--	320	310	330	360	330
Chromium	mg/L	--	0.0021 JQ	0.0021 JQ	0.0016 U	0.0017 JQ	0.0023 JQ
Cobalt	mg/L	--	0.00063 U	0.00063 U	0.0018 JQ	0.0007 JQ	0.0009 JQ
Copper	mg/L	--	0.0015 UB	0.0015 UB	0.0015 UB	0.0015 UB	0.0015 UB
Iron	mg/L	--	0.92	0.66	0.54	0.59	0.7
Lead	mg/L	--	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U
Magnesium	mg/L	--	120	130	130	140	130
Manganese	mg/L	--	0.17	0.22	0.21	0.4	0.1
Mercury	mg/L	--	0.000026 U	0.000026 U	0.000026 U	0.000026 U	0.000026 U
Nickel	mg/L	--	0.0021 JQ	0.0022 JQ	0.0031 JQ	0.0018 U	0.0018 JQ
Potassium	mg/L	--	18	19	19	21	20
Selenium	mg/L	--	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.0042 U
Silver	mg/L	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Sodium	mg/L	--	1100	1100	1100	1200	1200
Strontium	mg/L	--	5.3	5.3	5.3	5.8	5.2
Thallium	mg/L	--	0.0078 U	0.0078 U	0.0078 U	0.0078 U	0.0078 U
Uranium	mg/L	--	0.0071	0.007	0.007	0.0049 JQ	0.0052
Vanadium	mg/L	--	0.0072 JQ	0.0068 JQ	0.0065 JQ	0.0081 JQ	0.0092 JQ
Zinc	mg/L	--	0.016 JQ	0.0088 JQ	0.014 JQ	0.029 JQ	0.016 JQ
PCBs							
PCB-1016	mg/L	--	0.00027 U	0.00026 U	0.00026 U	0.00027 U	0.00026 U
PCB-1221	mg/L	--	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U
PCB-1232	mg/L	--	0.00006 U	0.000059 U	0.000059 U	0.000059 U	0.000059 U
PCB-1242	mg/L	--	0.00008 U	0.000078 U	0.000078 U	0.000079 U	0.000078 U
PCB-1248	mg/L	--	0.0001 U	0.000098 U	0.000098 U	0.000099 U	0.000098 U
PCB-1254	mg/L	--	0.00007 U	0.000069 U	0.000069 U	0.000069 U	0.000069 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
PCBs (continued)							
PCB-1260	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
PCB-1262	mg/L	--	0.0005 U	0.00049 U	0.00049 U	0.0005 U	0.00049 U
Polychlorinated biphenyls, Total	mg/L	--	0.00006 U	0.000059 U	0.000059 U	0.000059 U	0.000059 U
Pesticides							
4,4'-DDD	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
4,4'-DDE	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
4,4'-DDT	mg/L	--	0.000008 U	0.0000078 U	0.0000078 U	0.0000079 U	0.0000078 U
Aldrin	mg/L	--	0.000006 U	0.0000059 U	0.0000059 U	0.0000059 U	0.0000059 U
alpha-BHC	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
alpha-Chlordane	mg/L	--	0.00005 U	0.000049 U	0.000049 U	0.00005 U	0.000049 U
beta-BHC	mg/L	--	0.000008 U	0.0000078 U	0.0000078 U	0.0000079 U	0.0000078 U
Chlordane (technical)	mg/L	--	0.00006 U	0.000059 U	0.000059 U	0.000059 U	0.000059 U
delta-BHC	mg/L	--	0.000005 U	0.0000049 U	0.0000049 U	0.000005 U	0.0000049 U
Dieldrin	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Endosulfan I	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Endosulfan II	mg/L	--	0.0001 U	0.000098 U	0.000098 U	0.000099 U	0.000098 U
Endosulfan sulfate	mg/L	--	0.000025 U	0.000025 U	0.000025 U	0.000025 U	0.000025 U
Endrin	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Endrin aldehyde	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Endrin ketone	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
gamma-BHC (Lindane)	mg/L	--	0.000006 U	0.0000059 U	0.0000059 U	0.0000059 U	0.0000059 U
gamma-Chlordane	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Heptachlor	mg/L	--	0.000006 U	0.0000059 U	0.0000059 U	0.0000059 U	0.0000059 U
Heptachlor epoxide	mg/L	--	0.000007 U	0.0000069 U	0.0000069 U	0.0000069 U	0.0000069 U
Methoxychlor	mg/L	--	0.000009 U	0.0000088 U	0.0000088 U	0.0000089 U	0.0000088 U
Toxaphene	mg/L	--	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
RCI							
Cyanide, Reactive	mg/L	--	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Flashpoint	Degrees F	--	186 >	186 >	186 >	186 >	186 >
pH	SU	--	7.61 JK	7.09 JK	7.39 JK	7.46 JK	7.66 JK
Sulfide, Reactive	mg/L	--	20 JQ	20 JQ	20 JQ	10 JQ	10 JQ
SVOCs							
1,2,4-Trichlorobenzene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00022 U	0.00012 U
1,2-Dichlorobenzene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00031 U	0.00017 U
1,3-Dichlorobenzene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00031 U	0.00017 U
1,4-Dichlorobenzene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00024 U	0.00013 U
2,4,5-Trichlorophenol	mg/L	--	0.00025 U	0.00025 U	0.00025 U	0.00046 U	0.00025 U
2,4,6-Trichlorophenol	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00033 U	0.00018 U
2,4-Dichlorophenol	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00028 U	0.00015 U
2,4-Dimethylphenol	mg/L	--	0.00031 U	0.0003 U	0.00031 U	0.00057 U	0.0003 U
2,4-Dinitrophenol	mg/L	--	0.00039 U	0.00038 U	0.00038 U	0.00072 U	0.00038 U
2,4-Dinitrotoluene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00024 U	0.00013 U
2,6-Dinitrotoluene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
2-Chloronaphthalene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
2-Chlorophenol	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00024 U	0.00013 U
2-Methylnaphthalene	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
2-Methylphenol	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00022 U	0.00012 U
2-Nitroaniline	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00035 U	0.00019 U
2-Nitrophenol	mg/L	--	0.00022 U	0.00022 U	0.00022 U	0.00041 U	0.00022 U
3 & 4 Methylphenol	mg/L	--	0.0002 U	0.0002 U	0.0002 U	0.00037 U	0.0002 U
3,3'-Dichlorobenzidine	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00033 U	0.00018 U
3-Nitroaniline	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.0003 U	0.00016 U
4,6-Dinitro-2-methylphenol	mg/L	--	0.00082 U	0.00081 U	0.00082 U	0.0015 U	0.00081 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
SVOCs (continued)							
4-Bromophenyl phenyl ether	mg/L	--	0.000099 U	0.000098 U	0.000099 U	0.00019 U	0.000098 U
4-Chloro-3-methylphenol	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00031 U	0.00017 U
4-Chloroaniline	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00039 U	0.00021 U
4-Chlorophenyl phenyl ether	mg/L	--	0.000099 U	0.000098 U	0.000099 U	0.00019 U	0.000098 U
4-Nitroaniline	mg/L	--	0.00025 U	0.00025 U	0.00025 U	0.00046 U	0.00025 U
4-Nitrophenol	mg/L	--	0.00055 U	0.00055 U	0.00055 U	0.001 U	0.00055 U
Acenaphthene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Acenaphthylene	mg/L	--	0.000059 U	0.000059 U	0.000059 U	0.00011 U	0.000059 U
Anthracene	mg/L	--	0.00005 U	0.000049 U	0.000049 U	0.000093 U	0.000049 U
Benzidine	mg/L	--	0.0006 U	0.0006 U	0.0006 U	0.0011 U	0.0006 U
Benzo[a]anthracene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Benzo[a]pyrene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Benzo[b]fluoranthene	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
Benzo[g,h,i]perylene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Benzo[k]fluoranthene	mg/L	--	0.000089 U	0.000088 U	0.000089 U	0.00017 U	0.000088 U
Benzyl alcohol	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00031 U	0.00017 U
Bis(2-chloroethoxy)methane	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00024 U	0.00013 U
Bis(2-chloroethyl)ether	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00028 U	0.00015 U
Bis(2-chloroisopropyl) ether	mg/L	--	0.0004 U	0.00039 U	0.00039 U	0.00074 U	0.00039 U
Bis(2-ethylhexyl) phthalate	mg/L	--	0.00037 U	0.00036 U	0.00036 U	0.00069 U	0.00036 U
Butyl benzyl phthalate	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00045 JQ	0.00012 U
Carbazole	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00031 U	0.00017 U
Chrysene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Dibenz(a,h)anthracene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Dibenzofuran	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Diethyl phthalate	mg/L	--	0.0015 U	0.0015 U	0.0015 U	0.0028 U	0.0015 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
SVOCs (continued)							
Dimethyl phthalate	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
Di-n-butyl phthalate	mg/L	--	0.00011 UB	0.00011 U	0.00011 UB	0.0002 UB	0.00011 UB
Di-n-octyl phthalate	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.0003 U	0.00016 U
Fluoranthene	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
Fluorene	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
Heptadecane	mg/L	--				0.0098 T J N	
Hexachlorobenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.0002 U	0.00011 U
Hexachlorobutadiene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00033 U	0.00018 U
Hexachlorocyclopentadiene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00024 U	0.00013 U
Hexachloroethane	mg/L	--	0.000099 U	0.000098 U	0.000099 U	0.00019 U	0.000098 U
Indeno[1,2,3-cd]pyrene	mg/L	--	0.000069 U	0.000069 U	0.000069 U	0.00013 U	0.000069 U
Isophorone	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.0002 U	0.00011 U
Naphthalene	mg/L	--	0.000079 U	0.000078 U	0.000079 U	0.00015 U	0.000078 U
Nitrobenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.0002 U	0.00011 U
N-Nitrosodimethylamine	mg/L	--	0.00026 U	0.00025 U	0.00026 U	0.00048 U	0.00025 U
N-Nitrosodi-n-propylamine	mg/L	--	0.000099 U	0.000098 U	0.000099 U	0.00019 U	0.000098 U
N-Nitrosodiphenylamine	mg/L	--	0.000099 U	0.000098 U	0.000099 U	0.00019 U	0.000098 U
Pentachlorophenol	mg/L	--	0.0006 U	0.0006 U	0.0006 U	0.0011 U	0.0006 U
Phenanthrene	mg/L	--	0.000059 U	0.000059 U	0.000059 U	0.00011 U	0.000059 U
Phenol	mg/L	--	0.00004 U	0.000039 U	0.000039 U	0.000074 U	0.000039 U
Polydimethyl Siloxane TIC	mg/L	--	0.00099 U	0.00098 U	0.00099 U	0.0019 U	0.00098 U
Pyrene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.0002 U	0.00011 U
Tentatively Identified Compound	mg/L	--	0 None	0 None	0 None		0 None
Total Cyanide							
Cyanide, Total	mg/L	--	0.0053 U	0.0053 U	0.0053 U	0.0053 U	0.0053 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR01 RR01-110822-11 08/22/2011 Background	RR02 RR02-110822-11 08/22/2011 Field Sample	RR03 RR03-110822-11 08/22/2011 Field Sample	RR04 RR04-110822-11 08/22/2011 Field Sample	RR05 RR05-110822-11 08/22/2011 Field Sample
VOCs							
1,1,1-Trichloroethane	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
1,1,2,2-Tetrachloroethane	mg/L	--	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U
1,1,2-Trichloroethane	mg/L	--	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U
1,1-Dichloroethane	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
1,1-Dichloroethene	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
1,2-Dichloroethane	mg/L	--	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U
1,2-Dichloroethene, Total	mg/L	--	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U
1,2-Dichloropropane	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2-Butanone (MEK)	mg/L	--	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U
2-Hexanone	mg/L	--	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U
4-Methyl-2-pentanone (MIBK)	mg/L	--	0.00045 U	0.00045 U	0.00045 U	0.00045 U	0.00045 U
Acetone	mg/L	--	0.00099 UR	0.00099 UR	0.00099 UR	0.00099 UR	0.00099 UR
Benzene	mg/L	--	0.00008 U	0.00008 U	0.00008 U	0.00008 U	0.00008 U
Bromodichloromethane	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Bromoform	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
Bromomethane	mg/L	--	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U
Carbon disulfide	mg/L	--	0.00024 U	0.00024 U	0.00024 U	0.00024 U	0.00024 U
Carbon tetrachloride	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Chlorobenzene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
Chlorobromomethane	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Chloroethane	mg/L	--	0.00008 U	0.00008 U	0.00008 U	0.00008 U	0.00008 U
Chloroform	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Chloromethane	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
cis-1,2-Dichloroethene	mg/L	--	0.00006 U	0.00006 U	0.00006 U	0.00006 U	0.00006 U
cis-1,3-Dichloropropene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Dibromochloromethane	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Ethylbenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID	RR01	RR02	RR03	RR04	RR05
		Date Sample Type	RR01-110822-11 08/22/2011 Background	RR02-110822-11 08/22/2011 Field Sample	RR03-110822-11 08/22/2011 Field Sample	RR04-110822-11 08/22/2011 Field Sample	RR05-110822-11 08/22/2011 Field Sample
VOCs (continued)							
Methylene Chloride	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
m-Xylene & p-Xylene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
o-Xylene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
Styrene	mg/L	--	0.00007 U	0.00007 U	0.00007 U	0.00007 U	0.00007 U
Tetrachloroethene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Toluene	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
trans-1,2-Dichloroethene	mg/L	--	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U
trans-1,3-Dichloropropene	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Trichloroethene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Vinyl acetate	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Vinyl chloride	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Xylenes, Total	mg/L	--	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U

Notes:

Shaded cells indicate a concentration that exceeds the background sample (RR01) concentration.

Bold values indicate a detected concentration.

NA indicates not analyzed.

Definition of Qualifiers:

'B' indicates a detection in an associated laboratory or field blank.

'H' indicates a high bias

'J' indicates an estimated value

'K' indicates an unknown bias

'L' indicates a low bias

'N' indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.

'R' indicates a rejected result

'T' indicates the result is a Tentatively Identified Compound and is an estimated value.

'U' indicates not detected at the associated concentration.



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
BOD							
Biochemical Oxygen Demand	mg/L	--	10 U	10 U	10 U	10 U	10 U
COD							
Chemical Oxygen Demand	mg/L	--	87	90	87	90	92
Dissolved Gases							
Ethane	mg/L	--	NA	NA	NA	NA	NA
Ethene	mg/L	--	NA	NA	NA	NA	NA
Methane	mg/L	--	NA	NA	NA	NA	NA
Propane	mg/L	--	NA	NA	NA	NA	NA
Herbicides							
2,4,5-T	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
2,4-D	mg/L	--	0.00004 U	0.00004 U	0.00004 U	0.00004 U	0.00004 U
2,4-DB	mg/L	--	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U
Dalapon	mg/L	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dicamba	mg/L	--	0.00001 UJK	0.0009 JK	0.00001 U	0.00001 U	0.00001 U
Dichlorprop	mg/L	--	0.00003 UJK	0.00025 JK	0.00003 U	0.00036	0.00003 U
Dinoseb	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
MCPA	mg/L	--	0.0058 U	0.0058 U	0.0058 U	0.0058 U	0.0058 U
Mecoprop	mg/L	--	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
Silvex (2,4,5-TP)	mg/L	--	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U
Metals							
Aluminum	mg/L	--	0.022 UB	0.022 UB	0.022 UB	0.022 UB	0.022 UB
Antimony	mg/L	--	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
Arsenic	mg/L	--	0.011	0.012	0.01	0.015	0.0089 JQ
Barium	mg/L	--	0.19	0.19	0.19	0.19	0.2
Beryllium	mg/L	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Cadmium	mg/L	--	0.0004 JQ	0.0005 JQ	0.0005 JQ	0.0005 JQ	0.0005 JQ



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
Metals (continued)							
Calcium	mg/L	--	310	320	310	320	290
Chromium	mg/L	--	0.0016 U	0.0017 JQ	0.0016 U	0.0016 U	0.002 JQ
Cobalt	mg/L	--	0.0008 JQ	0.00063 U	0.0008 JQ	0.00063 U	0.00063 U
Copper	mg/L	--	0.0015 U	0.0021 JQ	0.0015 JQ	0.0015 U	0.0016 JQ
Iron	mg/L	--	0.34 JQ	0.31 JQ	0.42	0.47	0.67
Lead	mg/L	--	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U
Magnesium	mg/L	--	130	130	130	130	130
Manganese	mg/L	--	0.49	0.5	0.51	0.47	0.27
Mercury	mg/L	--	0.000026 U	0.000026 U	0.000026 U	0.000026 U	0.000026 U
Nickel	mg/L	--	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 JQ
Potassium	mg/L	--	19	19	19	19	19
Selenium	mg/L	--	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.0042 U
Silver	mg/L	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Sodium	mg/L	--	1000	1200	1100	1100	1100
Strontium	mg/L	--	5.3	5.3	5.1	5.2	5
Thallium	mg/L	--	0.0078 U	0.0078 U	0.0078 U	0.0078 U	0.0078 U
Uranium	mg/L	--	0.0038 JQ	0.0038 JQ	0.004 JQ	0.0033 JQ	0.003 JQ
Vanadium	mg/L	--	0.004 JQ	0.0039 JQ	0.0036 JQ	0.004 JQ	0.0036 JQ
Zinc	mg/L	--	0.012 JQ	0.019 JQ	0.014 JQ	0.016 JQ	0.02 JQ
PCBs							
PCB-1016	mg/L	--	0.00027 U	0.00027 U	0.00027 U	0.00027 U	0.00027 U
PCB-1221	mg/L	--	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U
PCB-1232	mg/L	--	0.00006 U	0.00006 U	0.00006 U	0.00006 U	0.00006 U
PCB-1242	mg/L	--	0.00008 U	0.00008 U	0.00008 U	0.00008 U	0.00008 U
PCB-1248	mg/L	--	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
PCB-1254	mg/L	--	0.00007 U	0.00007 U	0.00007 U	0.00007 U	0.00007 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
PCBs (continued)							
PCB-1260	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
PCB-1262	mg/L	--	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Polychlorinated biphenyls, Total	mg/L	--	0.00006 U	0.00006 U	0.00006 U	0.00006 U	0.00006 U
Pesticides							
4,4'-DDD	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
4,4'-DDE	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
4,4'-DDT	mg/L	--	0.000008 U	0.000008 U	0.000008 U	0.000008 U	0.000008 U
Aldrin	mg/L	--	0.000006 U	0.000006 U	0.000006 U	0.000006 U	0.000006 U
alpha-BHC	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
alpha-Chlordane	mg/L	--	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U
beta-BHC	mg/L	--	0.000008 U	0.000008 U	0.000008 U	0.000008 U	0.000008 U
Chlordane (technical)	mg/L	--	0.00006 U	0.00006 U	0.00006 U	0.00006 U	0.00006 U
delta-BHC	mg/L	--	0.000005 U	0.000005 U	0.000005 U	0.000005 U	0.000005 U
Dieldrin	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Endosulfan I	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Endosulfan II	mg/L	--	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
Endosulfan sulfate	mg/L	--	0.000025 U	0.000025 U	0.000025 U	0.000025 U	0.000025 U
Endrin	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Endrin aldehyde	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Endrin ketone	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
gamma-BHC (Lindane)	mg/L	--	0.000006 U	0.000006 U	0.000006 U	0.000006 U	0.000006 U
gamma-Chlordane	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Heptachlor	mg/L	--	0.000006 U	0.000006 U	0.000006 U	0.000006 U	0.000006 U
Heptachlor epoxide	mg/L	--	0.000007 U	0.000007 U	0.000007 U	0.000007 U	0.000007 U
Methoxychlor	mg/L	--	0.000009 U	0.000009 U	0.000009 U	0.000009 U	0.000009 U
Toxaphene	mg/L	--	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
RCI							
Cyanide, Reactive	mg/L	--	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Flashpoint	Degrees F	--	186 >	186 >	186 >	186 >	186 >
pH	SU	--	7.45 JK	7.45 JK	7.25 JK	8.77 JK	7.69 JK
Sulfide, Reactive	mg/L	--	1.4 U	10 JQ	1.4 U	1.4 U	10 JQ
SVOCs							
1,2,4-Trichlorobenzene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
1,2-Dichlorobenzene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
1,3-Dichlorobenzene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
1,4-Dichlorobenzene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
2,4,5-Trichlorophenol	mg/L	--	0.00025 UR	0.00025 UR	0.00025 U	0.00025 U	0.00025 UR
2,4,6-Trichlorophenol	mg/L	--	0.00018 UR	0.00018 UR	0.00018 U	0.00018 U	0.00018 UR
2,4-Dichlorophenol	mg/L	--	0.00015 UR	0.00015 UR	0.00015 U	0.00015 U	0.00015 UR
2,4-Dimethylphenol	mg/L	--	0.00031 UR	0.00031 UR	0.00031 U	0.00031 U	0.00031 UR
2,4-Dinitrophenol	mg/L	--	0.00039 UR	0.00039 UR	0.00039 U	0.00039 U	0.00039 UR
2,4-Dinitrotoluene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
2,6-Dinitrotoluene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
2-Chloronaphthalene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
2-Chlorophenol	mg/L	--	0.00013 UR	0.00013 UR	0.00013 U	0.00013 U	0.00013 UR
2-Methylnaphthalene	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
2-Methylphenol	mg/L	--	0.00012 UR	0.00012 UR	0.00012 U	0.00012 U	0.00012 UR
2-Nitroaniline	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
2-Nitrophenol	mg/L	--	0.00022 UR	0.00022 UR	0.00022 U	0.00022 U	0.00022 UR
3 & 4 Methylphenol	mg/L	--	0.0002 UR	0.0002 UR	0.0002 U	0.0002 U	0.0002 UR
3,3'-Dichlorobenzidine	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
3-Nitroaniline	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
4,6-Dinitro-2-methylphenol	mg/L	--	0.00083 UR	0.00082 UR	0.00083 U	0.00082 U	0.00083 UR



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
SVOCs (continued)							
4-Bromophenyl phenyl ether	mg/L	--	0.0001 U	0.000099 U	0.0001 U	0.000099 U	0.0001 U
4-Chloro-3-methylphenol	mg/L	--	0.00017 UR	0.00017 UR	0.00017 U	0.00017 U	0.00017 UR
4-Chloroaniline	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
4-Chlorophenyl phenyl ether	mg/L	--	0.0001 U	0.000099 U	0.0001 U	0.000099 U	0.0001 U
4-Nitroaniline	mg/L	--	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U
4-Nitrophenol	mg/L	--	0.00056 UR	0.00055 UR	0.00056 U	0.00055 U	0.00056 UR
Acenaphthene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Acenaphthylene	mg/L	--	0.00006 U	0.000059 U	0.00006 U	0.000059 U	0.00006 U
Anthracene	mg/L	--	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U
Benzidine	mg/L	--	0.00061 U	0.0006 U	0.00061 U	0.0006 U	0.00061 U
Benzo[a]anthracene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Benzo[a]pyrene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Benzo[b]fluoranthene	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
Benzo[g,h,i]perylene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Benzo[k]fluoranthene	mg/L	--	0.00009 U	0.000089 U	0.00009 U	0.000089 U	0.00009 U
Benzyl alcohol	mg/L	--	0.00017 UR	0.00017 UR	0.00017 U	0.00017 U	0.00017 UR
Bis(2-chloroethoxy)methane	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Bis(2-chloroethyl)ether	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Bis(2-chloroisopropyl) ether	mg/L	--	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U
Bis(2-ethylhexyl) phthalate	mg/L	--	0.00037 U	0.00037 U	0.00037 U	0.00037 U	0.00037 U
Butyl benzyl phthalate	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
Carbazole	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
Chrysene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Dibenz(a,h)anthracene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Dibenzofuran	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Diethyl phthalate	mg/L	--	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
SVOCs (continued)							
Dimethyl phthalate	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
Di-n-butyl phthalate	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Di-n-octyl phthalate	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Fluoranthene	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
Fluorene	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
Heptadecane	mg/L	--					
Hexachlorobenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Hexachlorobutadiene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Hexachlorocyclopentadiene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Hexachloroethane	mg/L	--	0.0001 U	0.000099 U	0.0001 U	0.000099 U	0.0001 U
Indeno[1,2,3-cd]pyrene	mg/L	--	0.00007 U	0.000069 U	0.00007 U	0.000069 U	0.00007 U
Isophorone	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Naphthalene	mg/L	--	0.00008 U	0.000079 U	0.00008 U	0.000079 U	0.00008 U
Nitrobenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
N-Nitrosodimethylamine	mg/L	--	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U
N-Nitrosodi-n-propylamine	mg/L	--	0.0001 U	0.000099 U	0.0001 U	0.000099 U	0.0001 U
N-Nitrosodiphenylamine	mg/L	--	0.0001 U	0.000099 U	0.0001 U	0.000099 U	0.0001 U
Pentachlorophenol	mg/L	--	0.00061 UR	0.0006 UR	0.00061 U	0.0006 U	0.00061 UR
Phenanthrene	mg/L	--	0.00006 U	0.000059 U	0.00006 U	0.000059 U	0.00006 U
Phenol	mg/L	--	0.00004 UR	0.00004 UR	0.00004 U	0.00004 U	0.00004 UR
Polydimethyl Siloxane TIC	mg/L	--	0.001 U	0.00099 U	0.001 U	0.00099 U	0.001 U
Pyrene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Tentatively Identified Compound	mg/L	--	0 None	0 None	0 None	0 None	0 None
Total Cyanide							
Cyanide, Total	mg/L	--	0.0053 U	0.0053 U	0.0053 U	0.0053 U	0.0053 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID Date Sample Type	RR06 RR06-110823-11 08/23/2011 Field Sample	RR06 RR06-110823-21 08/23/2011 Field Duplicate	RR07 RR07-110823-11 08/23/2011 Field Sample	RR08 RR08-110823-11 08/23/2011 Field Sample	RR09 RR09-110823-11 08/23/2011 Field Sample
VOCs							
1,1,1-Trichloroethane	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
1,1,2,2-Tetrachloroethane	mg/L	--	0.00022 U	0.00022 U	0.00022 U	0.00022 U	0.00022 U
1,1,2-Trichloroethane	mg/L	--	0.00028 U	0.00028 U	0.00028 U	0.00028 U	0.00028 U
1,1-Dichloroethane	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
1,1-Dichloroethene	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
1,2-Dichloroethane	mg/L	--	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U
1,2-Dichloroethene, Total	mg/L	--	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U
1,2-Dichloropropane	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
2-Butanone (MEK)	mg/L	--	0.00076 U	0.00076 U	0.00076 U	0.00076 U	0.00076 U
2-Hexanone	mg/L	--	0.00035 U	0.00035 U	0.00035 U	0.00035 U	0.00035 U
4-Methyl-2-pentanone (MIBK)	mg/L	--	0.00045 U	0.00045 U	0.00045 U	0.00045 U	0.00045 U
Acetone	mg/L	--	0.00099 UR	0.00099 UR	0.00099 UR	0.00099 UR	0.00099 UR
Benzene	mg/L	--	0.00008 U	0.00008 U	0.00008 U	0.00008 U	0.00008 U
Bromodichloromethane	mg/L	--	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Bromoform	mg/L	--	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
Bromomethane	mg/L	--	0.00025 U	0.00025 U	0.00025 U	0.00025 U	0.00025 U
Carbon disulfide	mg/L	--	0.00024 U	0.00024 U	0.00024 U	0.00028 JQ	0.00024 JQ
Carbon tetrachloride	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Chlorobenzene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
Chlorobromomethane	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Chloroethane	mg/L	--	0.00008 U	0.00008 U	0.00008 U	0.00008 U	0.00008 U
Chloroform	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Chloromethane	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
cis-1,2-Dichloroethene	mg/L	--	0.00006 U	0.00006 U	0.00006 U	0.00006 U	0.00006 U
cis-1,3-Dichloropropene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Dibromochloromethane	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Ethylbenzene	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U



Attachment C
Water Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Sample ID	RR06	RR06	RR07	RR08	RR09
		Date Sample Type	RR06-110823-11 08/23/2011 Field Sample	RR06-110823-21 08/23/2011 Field Duplicate	RR07-110823-11 08/23/2011 Field Sample	RR08-110823-11 08/23/2011 Field Sample	RR09-110823-11 08/23/2011 Field Sample
VOCs (continued)							
Methylene Chloride	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
m-Xylene & p-Xylene	mg/L	--	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
o-Xylene	mg/L	--	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
Styrene	mg/L	--	0.00007 U	0.00007 U	0.00007 U	0.00007 U	0.00007 U
Tetrachloroethene	mg/L	--	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U
Toluene	mg/L	--	0.00015 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
trans-1,2-Dichloroethene	mg/L	--	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U
trans-1,3-Dichloropropene	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Trichloroethene	mg/L	--	0.00018 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
Vinyl acetate	mg/L	--	0.00021 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Vinyl chloride	mg/L	--	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
Xylenes, Total	mg/L	--	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U

Notes:

Shaded cells indicate a concentration that exceeds the background sample (RR01) concentration.

Bold values indicate a detected concentration.

NA indicates not analyzed.

Definition of Qualifiers:

'B' indicates a detection in an associated laboratory or field blank.

'H' indicates a high bias

'J' indicates an estimated value

'K' indicates an unknown bias

'L' indicates a low bias

'N' indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.

'R' indicates a rejected result

'T' indicates the result is a Tentatively Identified Compound and is an estimated value.

'U' indicates not detected at the associated concentration.



ATTACHMENT D
SEDIMENT ANALYTICAL RESULTS

Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
Herbicides						
2,4,5-T	mg/Kg	--	0.00062 U	0.00053 U	0.00053 U	0.00055 U
2,4-D	mg/Kg	--	0.00048 U	0.00041 U	0.00041 U	0.00043 U
2,4-DB	mg/Kg	--	0.00093 U	0.00079 U	0.0008 U	0.00083 U
Dalapon	mg/Kg	--	0.022 U	0.019 U	0.019 U	0.02 U
Dicamba	mg/Kg	--	0.00065 U	0.00055 U	0.00056 U	0.00058 U
Dichlorprop	mg/Kg	--	0.00063 U	0.00054 U	0.00054 U	0.00057 U
Dinoseb	mg/Kg	--	0.00045 U	0.00038 U	0.00039 U	0.0004 U
MCPA	mg/Kg	--	0.091 U	0.078 U	0.079 U	0.082 U
Mecoprop	mg/Kg	--	0.064 U	0.055 U	0.055 U	0.058 U
Silvex (2,4,5-TP)	mg/Kg	--	0.0006 U	0.00051 U	0.00052 U	0.00054 U
Metals						
Aluminum	mg/Kg	--	17000 JK	850 JK	290 JK	490 JK
Antimony	mg/Kg	--	0.32 UR	0.32 JQL	0.27 JQ	0.37 JQ
Arsenic	mg/Kg	--	4.3	0.69 JQ	0.63 JQ	0.79 JQ
Barium	mg/Kg	--	460 JK	62 JK	22	23
Beryllium	mg/Kg	--	1.2	0.017 UJL	0.04 JQL	0.043 JQL
Cadmium	mg/Kg	--	0.39	0.03 U	0.034 JQH	0.035 JQH
Calcium	mg/Kg	--	14000 JK	12000 JK	5700	8700
Chromium	mg/Kg	--	23 JK	1.9 JK	0.95	1.2
Cobalt	mg/Kg	--	9.5 JK	0.68 JK	0.35 JQ	0.41 JQ
Copper	mg/Kg	--	18	1.1 JK	0.39 JQH	0.6 JQH
Iron	mg/Kg	--	28000 JK	1700 JK	930	1100
Lead	mg/Kg	--	14 JK	1.3 JK	0.51 JQ	0.74



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
Metals (continued)						
Magnesium	mg/Kg	--	11000 JK	1700 JK	450	660
Manganese	mg/Kg	--	280 JK	80 JK	41 JH	59 JH
Mercury	mg/Kg	--	0.0078 JQ	0.0019 U	0.0018 U	0.0019 U
Nickel	mg/Kg	--	26 JK	1.8 JK	0.14 UB	0.14 UB
Potassium	mg/Kg	--	3500 JH	240 JH	81 JQK	140 JK
Selenium	mg/Kg	--	0.35 UJL	0.31 UJL	0.3 U	0.32 U
Silver	mg/Kg	--	0.16 U	0.14 U	0.14 U	0.15 U
Sodium	mg/Kg	--	1700 JH	310 JH	340	320 JH
Strontium	mg/Kg	--	82	17	12 JK	11 JK
Thallium	mg/Kg	--	0.91 JQ	0.33 U	0.32 U	0.34 U
Uranium	mg/Kg	--	0.75	0.12 JQ	0.093 JQ	0.12 JQ
Vanadium	mg/Kg	--	33	3.4 JK	2.5	2.8
Zinc	mg/Kg	--	51 JK	4.2 JK	0.13 UB	2
PCBs						
PCB-1016	mg/Kg	--	0.0022 U	0.0019 U	0.0019 U	0.00002 U
PCB-1221	mg/Kg	--	0.012 U	0.01 U	0.01 U	0.00011 U
PCB-1232	mg/Kg	--	0.0094 U	0.008 U	0.0081 U	0.000084 U
PCB-1242	mg/Kg	--	0.0017 U	0.0015 U	0.0015 U	0.000015 U
PCB-1248	mg/Kg	--	0.0035 U	0.003 U	0.003 U	0.000031 U
PCB-1254	mg/Kg	--	0.0031 U	0.0026 U	0.0027 U	0.000028 U
PCB-1260	mg/Kg	--	0.019 U	0.016 U	0.016 U	0.00017 U
PCB-1262	mg/Kg	--	0.023 U	0.02 U	0.02 U	0.00021 U
Polychlorinated biphenyls, Total	mg/Kg	--	0.0017 U	0.0015 U	0.0015 U	0.000015 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
Pesticides						
4,4'-DDD	mg/Kg	--	0.0023 U	0.0019 U	0.002 U	0.00002 U
4,4'-DDE	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.000018 U
4,4'-DDT	mg/Kg	--	0.0026 U	0.0022 U	0.0022 U	0.000023 U
Aldrin	mg/Kg	--	0.0018 U	0.0016 U	0.0016 U	0.000016 U
alpha-BHC	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.000012 U
alpha-Chlordane	mg/Kg	--	0.0022 U	0.0019 U	0.0019 U	0.00002 U
beta-BHC	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.000013 U
Chlordane (technical)	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.000019 U
delta-BHC	mg/Kg	--	0.0012 U	0.001 U	0.001 U	0.000011 U
Dieldrin	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.000017 U
Endosulfan I	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.000012 U
Endosulfan II	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.000019 U
Endosulfan sulfate	mg/Kg	--	0.0024 U	0.002 U	0.002 U	0.000021 U
Endrin	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.000019 U
Endrin aldehyde	mg/Kg	--	0.0022 U	0.0019 U	0.0019 U	0.000019 U
Endrin ketone	mg/Kg	--	0.0022 U	0.0018 U	0.0019 U	0.000019 U
gamma-BHC (Lindane)	mg/Kg	--	0.0013 U	0.0011 U	0.0011 U	0.000012 U
gamma-Chlordane	mg/Kg	--	0.0018 U	0.0015 U	0.0015 U	0.000016 U
Heptachlor	mg/Kg	--	0.0013 U	0.0011 U	0.0011 U	0.000012 U
Heptachlor epoxide	mg/Kg	--	0.0016 U	0.0014 U	0.0014 U	0.000015 U
Methoxychlor	mg/Kg	--	0.011 U	0.0096 U	0.0097 U	0.0001 U
Toxaphene	mg/Kg	--	0.1 U	0.087 U	0.088 U	0.00091 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
RCI						
Cyanide, Reactive	mg/Kg	--	0.086 U	0.086 U	0.086 U	0.086 U
Flashpoint	Degrees F	--	212 >	212 >	212 >	212 >
pH	SU	--	8.42 JK	8.09 JK	8.6 JK	8.47 JK
Sulfide, Reactive	mg/Kg	--	41 JQ	20 JQ	14 UJK	20 JQK
SVOCs						
1,2,4-Trichlorobenzene	mg/Kg	--	0.003 U	0.0025 U	0.0025 U	0.0026 U
1,2-Dichlorobenzene	mg/Kg	--	0.0042 U	0.0036 U	0.0037 U	0.0038 U
1,3-Dichlorobenzene	mg/Kg	--	0.0022 U	0.0018 U	0.0019 U	0.0019 U
1,4-Dichlorobenzene	mg/Kg	--	0.0032 U	0.0027 U	0.0027 U	0.0028 U
2,4,5-Trichlorophenol	mg/Kg	--	0.014 U	0.012 U	0.012 U	0.013 U
2,4,6-Trichlorophenol	mg/Kg	--	0.0038 U	0.0032 U	0.0032 U	0.0034 U
2,4-Dichlorophenol	mg/Kg	--	0.0054 U	0.0046 U	0.0047 U	0.0048 U
2,4-Dimethylphenol	mg/Kg	--	0.012 U	0.01 U	0.01 U	0.011 U
2,4-Dinitrophenol	mg/Kg	--	0.0066 U	0.0057 U	0.0057 UJK	0.0059 UJK
2,4-Dinitrotoluene	mg/Kg	--	0.0051 U	0.0043 U	0.0044 U	0.0045 U
2,6-Dinitrotoluene	mg/Kg	--	0.0041 U	0.0035 U	0.0036 U	0.0037 U
2-Chloronaphthalene	mg/Kg	--	0.0017 U	0.0015 U	0.0015 U	0.0015 U
2-Chlorophenol	mg/Kg	--	0.0028 U	0.0024 U	0.0024 U	0.0025 U
2-Methylnaphthalene	mg/Kg	--	0.0039 U	0.0033 U	0.0033 U	0.0034 U
2-Methylphenol	mg/Kg	--	0.0045 U	0.0039 U	0.0039 U	0.004 U
2-Nitroaniline	mg/Kg	--	0.0069 U	0.0059 U	0.0059 U	0.0061 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
SVOCs (continued)						
2-Nitrophenol	mg/Kg	--	0.0055 U	0.0047 U	0.0047 U	0.0049 U
3 & 4 Methylphenol	mg/Kg	--	0.0039 U	0.0033 U	0.0034 U	0.0035 U
3,3'-Dichlorobenzidine	mg/Kg	--	0.014 U	0.012 U	0.012 U	0.013 U
3-Nitroaniline	mg/Kg	--	0.01 U	0.0086 U	0.0087 U	0.009 U
4,6-Dinitro-2-methylphenol	mg/Kg	--	0.007 U	0.006 U	0.006 U	0.0062 U
4-Bromophenyl phenyl ether	mg/Kg	--	0.004 U	0.0034 U	0.0034 U	0.0036 U
4-Chloro-3-methylphenol	mg/Kg	--	0.022 U	0.019 U	0.019 U	0.02 U
4-Chloroaniline	mg/Kg	--	0.0082 U	0.007 U	0.0071 U	0.0073 U
4-Chlorophenyl phenyl ether	mg/Kg	--	0.0025 U	0.0022 U	0.0022 U	0.0023 U
4-Nitroaniline	mg/Kg	--	0.016 U	0.013 U	0.014 U	0.014 U
4-Nitrophenol	mg/Kg	--	0.0071 U	0.0061 U	0.0062 U	0.0064 U
Acenaphthene	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.0018 U
Acenaphthylene	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0013 U
Anthracene	mg/Kg	--	0.0018 U	0.0015 U	0.0016 U	0.0016 U
Benzidine	mg/Kg	--	0.013 U	0.011 U	0.011 U	0.011 U
Benzo[a]anthracene	mg/Kg	--	0.0019 U	0.0017 U	0.0017 U	0.0017 U
Benzo[a]pyrene	mg/Kg	--	0.0023 U	0.0019 U	0.002 U	0.002 U
Benzo[b]fluoranthene	mg/Kg	--	0.0024 U	0.0021 U	0.0021 U	0.0022 U
Benzo[g,h,i]perylene	mg/Kg	--	0.0071 U	0.0061 U	0.0061 U	0.0064 U
Benzo[k]fluoranthene	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.0019 U
Benzyl alcohol	mg/Kg	--	0.0082 U	0.007 U	0.0071 U	0.0073 U



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Sediment Analytical Results
Red River Fish Kill
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SVOCs (continued)						
Bis(2-chloroethoxy)methane	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.0018 U
Bis(2-chloroethyl)ether	mg/Kg	--	0.0023 U	0.002 U	0.002 U	0.0021 U
Bis(2-chloroisopropyl) ether	mg/Kg	--	0.012 U	0.011 U	0.011 U	0.011 U
Bis(2-ethylhexyl) phthalate	mg/Kg	--	0.0075 U	0.0064 U	0.0065 U	0.0067 U
Butyl benzyl phthalate	mg/Kg	--	0.0087 U	0.0074 U	0.0075 U	0.0078 U
Carbazole	mg/Kg	--	0.0044 U	0.0037 U	0.0038 U	0.0039 U
Chrysene	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0013 U
Dibenz(a,h)anthracene	mg/Kg	--	0.0051 U	0.0044 U	0.0044 U	0.0045 U
Dibenzofuran	mg/Kg	--	0.0025 U	0.0021 U	0.0022 U	0.0022 U
Diethyl phthalate	mg/Kg	--	0.012 U	0.01 U	0.01 U	0.011 U
Dimethyl phthalate	mg/Kg	--	0.0069 U	0.0059 U	0.0059 U	0.0061 U
Di-n-butyl phthalate	mg/Kg	--	0.0036 U	0.0031 U	0.0031 U	0.0032 U
Di-n-octyl phthalate	mg/Kg	--	0.0027 U	0.0023 U	0.0023 U	0.0024 U
Ethane, 1,1,2,2-tetrachloro-	mg/Kg	--			0.24 T J N	0.22 T J N
Fluoranthene	mg/Kg	--	0.0044 U	0.0037 U	0.0038 U	0.0039 U
Fluorene	mg/Kg	--	0.0033 U	0.0028 U	0.0029 U	0.003 U
Hexachlorobenzene	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.0019 U
Hexachlorobutadiene	mg/Kg	--	0.0027 U	0.0023 U	0.0023 U	0.0024 U
Hexachlorocyclopentadiene	mg/Kg	--	0.0065 U	0.0055 U	0.0056 UJK	0.0058 UJK
Hexachloroethane	mg/Kg	--	0.0032 U	0.0028 U	0.0028 U	0.0029 U
Indeno[1,2,3-cd]pyrene	mg/Kg	--	0.0049 U	0.0042 U	0.0042 U	0.0044 U
Isophorone	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0013 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
SVOCs (continued)						
Naphthalene	mg/Kg	--	0.0019 U	0.0016 U	0.0016 U	0.0017 U
Nitrobenzene	mg/Kg	--	0.0042 U	0.0036 U	0.0036 U	0.0037 U
N-Nitrosodimethylamine	mg/Kg	--	0.0059 U	0.005 U	0.0051 U	0.0052 U
N-Nitrosodi-n-propylamine	mg/Kg	--	0.0031 U	0.0027 U	0.0027 U	0.0028 U
N-Nitrosodiphenylamine	mg/Kg	--	0.0027 U	0.0023 U	0.0023 U	0.0024 U
Pentachlorophenol	mg/Kg	--	0.0056 U	0.0048 U	0.0048 U	0.005 U
Phenanthrene	mg/Kg	--	0.007 U	0.0059 U	0.006 U	0.0062 U
Phenol	mg/Kg	--	0.006 U	0.0051 U	0.0051 U	0.0053 U
Polydimethyl Siloxane TIC	mg/Kg	--	0.047 U	0.04 U	0.04 U	0.042 U
Pyrene	mg/Kg	--	0.0026 U	0.0022 U	0.0022 U	0.0023 U
Tentatively Identified Compound	mg/Kg	--	0 None	0 None		
Total Cyanide						
Cyanide, Total	mg/Kg	--	0.095 UB	0.09 UB	0.1 UB	0.098 UB
VOCs						
1,1,1-Trichloroethane	mg/Kg	--	0.001 U	0.00089 U	0.0009 U	0.00093 U
1,1,2,2-Tetrachloroethane	mg/Kg	--	0.0012 U	0.001 U	0.0011 U	0.0011 U
1,1,2-Trichloroethane	mg/Kg	--	0.001 U	0.00088 U	0.00089 U	0.00092 U
1,1-Dichloroethane	mg/Kg	--	0.0012 U	0.001 U	0.0011 U	0.0011 U
1,1-Dichloroethene	mg/Kg	--	0.0017 U	0.0015 U	0.0015 U	0.0015 U
1,2-Dichloroethane	mg/Kg	--	0.0013 U	0.0011 U	0.0011 U	0.0011 U
1,2-Dichloroethene, Total	mg/Kg	--	0.0027 U	0.0023 U	0.0023 U	0.0024 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

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VOCs (continued)						
1,2-Dichloropropane	mg/Kg	--	0.001 U	0.00086 U	0.00086 U	0.0009 U
2-Butanone (MEK)	mg/Kg	--	0.0027 UJK	0.0023 UJK	0.0023 U	0.0024 U
2-Hexanone	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0013 U
4-Methyl-2-pentanone (MIBK)	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.0019 U
Acetone	mg/Kg	--	0.0023 UJK	0.002 UJK	0.002 UJK	0.0021 UJK
Benzene	mg/Kg	--	0.00089 U	0.00076 U	0.00077 U	0.00079 U
Bromodichloromethane	mg/Kg	--	0.00093 U	0.00079 U	0.0008 U	0.00083 U
Bromoform	mg/Kg	--	0.0019 U	0.0016 U	0.0017 U	0.0017 U
Bromomethane	mg/Kg	--	0.0012 U	0.001 U	0.001 U	0.001 U
Carbon disulfide	mg/Kg	--	0.00077 U	0.00066 U	0.00067 U	0.00069 U
Carbon tetrachloride	mg/Kg	--	0.0016 U	0.0014 U	0.0014 U	0.0014 U
Chlorobenzene	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0012 U
Chlorobromomethane	mg/Kg	--	0.0025 U	0.0021 U	0.0022 U	0.0022 U
Chloroethane	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.0018 U
Chloroform	mg/Kg	--	0.00093 U	0.00079 U	0.0008 U	0.00083 U
Chloromethane	mg/Kg	--	0.0023 U	0.002 UJL	0.002 U	0.0021 U
cis-1,2-Dichloroethene	mg/Kg	--	0.0012 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/Kg	--	0.00076 U	0.00065 U	0.00066 U	0.00068 U
Dibromochloromethane	mg/Kg	--	0.0013 U	0.0011 U	0.0011 U	0.0012 U
Ethylbenzene	mg/Kg	--	0.0014 U	0.0012 U	0.0012 U	0.0013 U
Methylene Chloride	mg/Kg	--	0.0031 U	0.0026 U	0.0027 U	0.0028 U



Attachment D
Sediment Analytical Results
Red River Fish Kill
Oscar, Jefferson County, Oklahoma

Analyte	Units	Location Sample ID Date Sample Type	RR01 RR01-110822-51 08/22/2011 Background	RR02 RR02-110822-51 08/22/2011 Field Sample	RR07 RR07-110823-51 08/23/2011 Field Sample	RR07 RR07-110823-52 08/23/2011 Field Duplicate
VOCs (continued)						
m-Xylene & p-Xylene	mg/Kg	--	0.0021 U	0.0018 U	0.0018 U	0.0019 U
o-Xylene	mg/Kg	--	0.0016 U	0.0014 U	0.0014 U	0.0014 U
Styrene	mg/Kg	--	0.001 U	0.00086 U	0.00086 U	0.0009 U
Tetrachloroethene	mg/Kg	--	0.001 U	0.00086 U	0.00086 U	0.0009 U
Toluene	mg/Kg	--	0.0019 U	0.0017 U	0.0017 U	0.0017 U
trans-1,2-Dichloroethene	mg/Kg	--	0.0016 U	0.0014 U	0.0014 U	0.0014 U
trans-1,3-Dichloropropene	mg/Kg	--	0.00082 U	0.0007 U	0.0007 U	0.00073 U
Trichloroethene	mg/Kg	--	0.002 U	0.0017 U	0.0017 U	0.0018 U
Vinyl acetate	mg/Kg	--	0.0013 U	0.0011 UJL	0.0011 U	0.0012 U
Vinyl chloride	mg/Kg	--	0.0013 U	0.0011 U	0.0011 U	0.0011 U
Xylenes, Total	mg/Kg	--	0.0016 U	0.0014 U	0.0014 U	0.0014 U

Notes:

Shaded cells indicate a concentration that exceeds the background sample (RR01) concentration.

Bold values indicate a detected concentration.

Definition of Qualifiers:

'B' indicates a detection in an associated laboratory or field blank.

'H' indicates a high bias

'J' indicates an estimated value

'K' indicates and unknown bias

'L' indicates a low bias

'N' indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.

'R' indicates a rejected result

'T' indicates the result is a Tentatively Identified Compound and is an estimated value.

'U' indicates not detected at the associated concentration.



ATTACHMENT E

NRC REPORT NO. 986848

NATIONAL RESPONSE CENTER 1-800-424-8802

*** For Public Use ***

Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 986848

INCIDENT DESCRIPTION

*Report taken at 09:03 on 23-AUG-11

Incident Type: FIXED

Incident Cause: UNKNOWN

Affected Area: RED RIVER

The incident was discovered on 09-AUG-11 at 10:00 local time.

Affected Medium: WATER RED RIVER

SUSPECTED RESPONSIBLE PARTY

XX

Type of Organization: UNKNOWN

INCIDENT LOCATION

County: JEFFERSON

City: OSCAR State: OK

RED RIVER

RELEASED MATERIAL(S)

CHRIS Code: UNK Official Material Name: UNKNOWN MATERIAL

Also Known As:

Qty Released: 0 UNKNOWN AMOUNT

Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER IS REPORTING A LARGE NUMBER OF DEAD FISH IN THE RED RIVER.

INCIDENT DETAILS

Package: NO

Building ID:

Type of Fixed Object: OTHER

Power Generating Facility: NO

Generating Capacity:

Type of Fuel:

NPDES:

NPDES Compliance: UNKNOWN

---WATER INFORMATION---

Body of Water: RED RIVER

Tributary of: LAKE TEXOMA

Nearest River Mile Marker:

Water Supply Contaminated: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: NO Hospitalized: Empl/Crew: Passenger:

FATALITIES: NO Empl/Crew: Passenger: Occupant:

EVACUATIONS: NO Who Evacuated: Radius/Area:

Damages: NO

<u>Closure Type</u>	<u>Description of Closure</u>	<u>Length of Closure</u>	<u>Direction of Closure</u>
---------------------	-------------------------------	--------------------------	-----------------------------

Air: N

Road: N

Waterway: N

Major
Artery: N

Track: N

Passengers Transferred: NO

Environmental Impact: YES/MARINE SPECIES

Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

OK DEC IS TAKING WATER SAMPLES AND FISH TISSUE SAMPLES.

Release Secured: UNKNOWN

Release Rate:

Estimated Release Duration:

WEATHER

Weather: CLEAR, °F

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA

State/Local: DEC, TEQC

State/Local On Scene: DEC, EPA

State Agency Number: NONE

NOTIFICATIONS BY NRC

DHS NOC (NOC)

23-AUG-11 09:11

CGIS RAO ST. LOUIS (COMMAND CENTER)

23-AUG-11 09:11

COLORADO INFO ANALYSIS CENTER (FUSION CENTER)

23-AUG-11 09:11

CHEM SAFETY AND HAZARD INVEST BOARD (CSB AUTOMATIC NOTIFICATIONS)

23-AUG-11 09:11

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)

23-AUG-11 09:11

U.S. EPA VI (MAIN OFFICE)

23-AUG-11 09:11

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)

23-AUG-11 09:11

NOAA RPTS FOR OK (MAIN OFFICE)

23-AUG-11 09:11

OFC OF ENV SVC CHEROKEE NATIONS OK (MAIN OFFICE)

23-AUG-11 09:11

DEQ OKLAHOMA (MAIN OFFICE)

23-AUG-11 09:11

TCEQ (MAIN OFFICE)

23-AUG-11 09:11

ADDITIONAL INFORMATION

NO ADDITIONAL INFORMATION.

*** END INCIDENT REPORT # 986848 ***

The National Response Center is strictly an initial report taking agency and does not participate in the investigation or incident response. The NRC receives initial reporting information only and notifies Federal and State On-Scene Coordinators for response. The NRC does not verify nor does it take follow-on incident information. Verification of data and incident response is the sole responsibility of Federal/State On-Scene Coordinators. Data contained within the FOIA Web Database is initial information only. All reports provided via this server are for informational purposes only. Data to be used in legal proceedings must be obtained via written correspondence from the NRC.

ATTACHMENT G

EPA LABORATORY DATA FOR ODEQ



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6 Laboratory

Environmental Services Branch
10625 Fallstone Road, Houston, TX 77099
Phone: (281)983-2100 Fax: (281)983-2248

Final Analytical Report

Site Name -----Red River Fish Kill

Sample Collection Date(s)-- 07/09/11 - 09/14/11

Contact----- OKDEQ

Report Date----- 11/16/11

Project #----- 11REG260

Work Order(s)----- 1109024
1109034

Analyses included in this report:

ABN 8270 Routine List

Metals ICP-MS 6020

Report Narrative

Semi-volatiles:

Liquids: Samples were extracted past recommended holding time and should be considered minimum values.

Gels: The gel material formed during the extraction of liquid samples in the ODEQ Laboratory and was sent here for additional analyses to try to determine the makeup. Because the gel had already been extracted, it was deemed inappropriate to further extract the gel material using solid preparation techniques. Various solvents were used to dissolve the gel and isopropanol was found to dissolve the majority of the material. The gel samples were subsequently diluted in isopropanol and analyzed directly by GC/MS. There were no routine 8270 targets or unknown peaks found in the analysis of these samples. Because the analysis was not routine or validated using isopropanol, the sample results are only reported here in the narrative.

Metals ICP-MS:

Batch B1I2105: MS1/MSD1: The aluminum sample concentration exceeds the spike added concentration by a factor of four or more and cannot be reliably calculated.

Report Narrative (cont'd)

Batch B1I2104: MSD1: The manganese spike recovery is high; the result is qualified and may be biased high. The RPD is elevated.

Batch: B1I2704: MS2: The spike recovery for aluminum is elevated; the result is qualified and may be biased high.

Batch: B1I2703: Solid SRM: Manganese recovery is high; the results are qualified and may be biased high.

Standard procedures for quality assurance and quality control were followed in the analysis and reporting of the sample results. The results apply only to the samples tested. This final report should only be reproduced in full.

Reporting limits are adjusted for sample size and matrix interference.

Report Approvals:

Richard McMillin
Region 6 Laboratory Manager

David Neleigh
Region 6 Laboratory Branch Chief



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6 Environmental Services Branch Laboratory

10625 Fallstone Road
Houston, Texas 77099

Sample Receipt and Disposal

Site Name: Red River Fish Kill

Project Number: 11REG260

Data Management Coordinator: Christy Warren

Data Management Coordinator Signature

Date

Date Transmitted: ____/____/____

Please have the U.S. EPA Project Manager/Officer call the Data Management Coordinator at 3-2137 for any comments or questions.

Please sign and date this form below and return it with any comments to:

Christy Warren
Data Management Coordinator
Region 6 Laboratory
6MD-HS

Received by and Date

Comments:

The laboratory routinely disposes of samples 90 days after all analyses have been completed. If you have a need to hold these samples in custody longer than 90 days, please sign below.

Signature

Date

Please provide a reason for holding:



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Sample Type	Date Collected	Date Received
506638	1109024-01	Liquid	7/13/11 14:30	09/16/11 08:40
506639	1109024-02	Liquid	7/13/11 15:06	09/16/11 08:40
506640	1109024-03	Liquid	7/13/11 15:45	09/16/11 08:40
508670	1109024-04	Liquid	8/26/11 13:20	09/16/11 08:40
508671	1109024-05	Liquid	8/26/11 13:49	09/16/11 08:40
508672	1109024-06	Liquid	8/26/11 14:32	09/16/11 08:40
508673	1109024-07	Liquid	8/26/11 16:10	09/16/11 08:40
508674	1109024-08	Liquid	8/26/11 18:31	09/16/11 08:40
gel from 506638 extraction	1109024-09	Non-Aqueous Liquid	7/13/11 0:00	09/16/11 08:40
gel from 508674 extraction	1109024-10	Non-Aqueous Liquid	8/30/11 0:00	09/16/11 08:40
Site #13 (508670)	1109034-01	Liquid	8/26/11 13:20	09/22/11 07:30
Site #4 (506345/506350)	1109034-02	Liquid	7/9/11 13:37	09/22/11 07:30
Site #2 (506343/506348)	1109034-03	Liquid	7/9/11 11:45	09/22/11 07:30
Site #1 (506347)	1109034-04	Liquid	7/9/11 11:12	09/22/11 07:30
Site #14 (508671)	1109034-05	Liquid	8/26/11 13:49	09/22/11 07:30
Site #13 (gel extract) (508670)	1109034-06	Non-Aqueous Liquid	8/30/11 0:00	09/22/11 07:30
Site #14 (gel extract) (508671)	1109034-07	Non-Aqueous Liquid	8/30/11 0:00	09/22/11 07:30
Site #15 (gel extract) (508672)	1109034-08	Non-Aqueous Liquid	8/30/11 0:00	09/22/11 07:30
Site #16 (gel extract - 508673)	1109034-09	Non-Aqueous Liquid	8/30/11 0:00	09/22/11 07:30
Site #12 (508318)	1109034-10	Liquid	8/18/11 20:15	09/22/11 07:30
Site #11 (508317)	1109034-11	Liquid	8/18/11 19:11	09/22/11 07:30
Site #15 (508672)	1109034-12	Liquid	8/26/11 14:32	09/22/11 07:30
Site #16 (508673)	1109034-13	Liquid	8/26/11 16:10	09/22/11 07:30
Site #18 (509500)	1109034-14	Liquid	9/14/11 14:28	09/22/11 07:30
Site #19 (509501)	1109034-15	Liquid	9/14/11 16:00	09/22/11 07:30
Site #20 (509502)	1109034-16	Liquid	9/14/11 17:01	09/22/11 07:30
Site #3 (506344A/506349B)	1109034-17	Liquid	8/26/11 16:10	09/22/11 07:30



Environmental Protection Agency
Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-01

Station ID: 506638

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
Surr: 2-Fluorophenol	98.5		65.7	39-109	09/27/11	10/04/11
Surr: Phenol-d5	106		70.6	41-107	"	"
Surr: 2-Chlorophenol-d4	101		67.5	45-104	"	"
Surr: 1,2-Dichlorobenzene-d4	59.9		59.9	34-100	"	"
Surr: Nitrobenzene-d5	80.8		80.8	41-128	"	"
Surr: 2-Fluorobiphenyl	73.7		73.7	46-108	"	"
Surr: 2,4,6-Tribromophenol	116		77.1	51-143	"	"
Surr: Terphenyl-d14	93.1		93.1	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-01

Station ID: 506638

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-01

Station ID: 506638

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-01

Station ID: 506638

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	10		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-01

Station ID: 506638

Batch: B1I2105

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	1,320		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	7.7		5.0	"	"	"
Barium (7440-39-3)	196		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	5.6		5.0	"	"	"
Manganese (7439-96-5)	482		5.0	"	"	"
Molybdenum (7439-98-7)	5.8		5.0	"	"	"
Nickel (7440-02-2)	11.2		5.0	"	"	"
Selenium (7782-49-2)	8.0		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	5.9		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



Environmental Protection Agency
Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-02

Station ID: 506639

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	107		71.0	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	115		76.6	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	109		72.4	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	62.3		62.3	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	84.7		84.7	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	75.1		75.1	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	123		81.9	51-143	"	"
<i>Surr: Terphenyl-d14</i>	98.4		98.4	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-02

Station ID: 506639

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-02

Station ID: 506639

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-02

Station ID: 506639

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	7		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-02

Station ID: 506639

Batch: B1I2105

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	555		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	7.0		5.0	"	"	"
Barium (7440-39-3)	188		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	292		5.0	"	"	"
Molybdenum (7439-98-7)	5.6		5.0	"	"	"
Nickel (7440-02-2)	10.7		5.0	"	"	"
Selenium (7782-49-2)	8.0		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	5.7		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-03

Station ID: 506640

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	98.8		65.8	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	104		69.5	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	101		67.3	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	58.3		58.3	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	77.5		77.5	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	70.9		70.9	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	116		77.0	51-143	"	"
<i>Surr: Terphenyl-d14</i>	93.5		93.5	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-03

Station ID: 506640

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-03

Station ID: 506640

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-03

Station ID: 506640

Batch: B1I2701

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	5		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-03

Station ID: 506640

Batch: B1I2105

Date Collected: 07/13/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	860		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	7.5		5.0	"	"	"
Barium (7440-39-3)	183		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	5.0		5.0	"	"	"
Manganese (7439-96-5)	346		5.0	"	"	"
Molybdenum (7439-98-7)	5.6		5.0	"	"	"
Nickel (7440-02-2)	10.8		5.0	"	"	"
Selenium (7782-49-2)	9.1		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	5.7		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-04

Station ID: 508670

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		68.0	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	114		75.8	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	106		70.9	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	57.0		57.0	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	83.7		83.7	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	79.0		79.0	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	131		87.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	94.1		94.1	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-04

Station ID: 508670

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-04

Station ID: 508670

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-04

Station ID: 508670

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
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No TICs present in this sample.

BJS

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-04

Station ID: 508670

Batch: B1I2105

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	536		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	6.8		5.0	"	"	"
Barium (7440-39-3)	144		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	152		5.0	"	"	"
Molybdenum (7439-98-7)	5.8		5.0	"	"	"
Nickel (7440-02-2)	10.8		5.0	"	"	"
Selenium (7782-49-2)	7.9		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	6.2		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-05

Station ID: 508671

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		68.2	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	111		73.7	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	105		70.3	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	58.5		58.5	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	82.2		82.2	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	75.5		75.5	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	139		92.5	51-143	"	"
<i>Surr: Terphenyl-d14</i>	95.2		95.2	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-05

Station ID: 508671

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-05

Station ID: 508671

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-05

Station ID: 508671

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
C5H8O isomer (NA)	42		2.66	1	09/27/11	10/04/11
Unknown (NA)	36		2.85	"	"	"
Hexadecanoic acid (57-10-3)	5		9.30	"	"	"

Total # of TICs: 3

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-05

Station ID: 508671

Batch: B1I2105

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	662		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	10.3		5.0	"	"	"
Barium (7440-39-3)	349		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	722		5.0	"	"	"
Molybdenum (7439-98-7)	5.2		5.0	"	"	"
Nickel (7440-02-2)	11.8		5.0	"	"	"
Selenium (7782-49-2)	8.4		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-06

Station ID: 508672

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	111		74.3	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	121		80.9	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	114		75.7	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	64.1		64.1	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	87.5		87.5	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	79.9		79.9	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	148		98.9	51-143	"	"
<i>Surr: Terphenyl-d14</i>	92.9		92.9	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-06

Station ID: 508672

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-06

Station ID: 508672

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



Environmental Protection Agency
Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-06

Station ID: 508672

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (01) (NA)	15		2.85	1	09/27/11	10/04/11
Unknown (02) (NA)	6		3.92	"	"	"
Hexadecenoic acid, Z-11- (2416-20-8)	4		9.25	"	"	"
Hexadecanoic acid (57-10-3)	8		9.30	"	"	"

Total # of TICs: 4

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-06

Station ID: 508672

Batch: B1I2105

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	256		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	5.1		5.0	"	"	"
Barium (7440-39-3)	126		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	31.2		5.0	"	"	"
Molybdenum (7439-98-7)	6.2		5.0	"	"	"
Nickel (7440-02-2)	10.3		5.0	"	"	"
Selenium (7782-49-2)	7.9		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	6.8		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-07

Station ID: 508673

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	107		71.2	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	114		75.7	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	111		74.3	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	70.8		70.8	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	93.1		93.1	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	83.6		83.6	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	123		81.9	51-143	"	"
<i>Surr: Terphenyl-d14</i>	95.5		95.5	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-07

Station ID: 508673

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-07

Station ID: 508673

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-07

Station ID: 508673

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (01) (NA)	5		3.46	1	09/27/11	10/04/11
Unknown (02) (NA)	5		3.93	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-07

Station ID: 508673

Batch: B1I2105

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	631		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	U		5.0	"	"	"
Barium (7440-39-3)	284		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	378		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	U		5.0	"	"	"
Selenium (7782-49-2)	U		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-08

Station ID: 508674

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	97.5		65.0	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	105		70.1	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	102		68.1	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	64.5		64.5	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	84.8		84.8	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	77.7		77.7	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	123		82.1	51-143	"	"
<i>Surr: Terphenyl-d14</i>	94.0		94.0	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-08

Station ID: 508674

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-08

Station ID: 508674

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109024-08

Station ID: 508674

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (01) (NA)	5		3.46	1	09/27/11	10/04/11
Unknown (02) (NA)	9		3.93	"	"	"
Unknown cyclic compound (NA)	5		7.63	"	"	"

Total # of TICs: 3

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-08

Station ID: 508674

Batch: B1I2105

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	2,090		50.0	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	15.7		5.0	"	"	"
Barium (7440-39-3)	555		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	5.7		5.0	"	"	"
Manganese (7439-96-5)	777		5.0	"	"	"
Molybdenum (7439-98-7)	12.0		5.0	"	"	"
Nickel (7440-02-2)	22.6		5.0	"	"	"
Selenium (7782-49-2)	U		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	7.2		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-09

Station ID: gel from 506638 extraction

Batch: B1I2104

Date Collected: 07/13/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.502 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,980	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		498	"	"	"
Arsenic (7440-38-2)	U		498	"	"	"
Barium (7440-39-3)	U		498	"	"	"
Beryllium (7440-41-7)	U		498	"	"	"
Cadmium (7440-43-9)	U		498	"	"	"
Chromium (7440-47-3)	U		498	"	"	"
Cobalt (7440-48-4)	U		498	"	"	"
Copper (7440-50-8)	U		498	"	"	"
Lead (7439-92-1)	U		498	"	"	"
Manganese (7439-96-5)	2,560	K	498	"	"	"
Molybdenum (7439-98-7)	U		498	"	"	"
Nickel (7440-02-2)	U		498	"	"	"
Selenium (7782-49-2)	U		498	"	"	"
Silver (7440-22-4)	U		498	"	"	"
Thallium (7440-28-0)	U		498	"	"	"
Vanadium (7440-62-2)	U		498	"	"	"
Zinc (7440-66-6)	U		996	"	"	"
Uranium (7440-61-1)	U		498	"	"	"
Thorium (7440-29-1)	U		498	"	"	"

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Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109024-10

Station ID: gel from 508674 extraction

Batch: B1I2104

Date Collected: 08/30/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.509 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,910	10	09/20/11	09/29/11
Antimony (7440-36-0)	U		491	"	"	"
Arsenic (7440-38-2)	U		491	"	"	"
Barium (7440-39-3)	2,010		491	"	"	"
Beryllium (7440-41-7)	U		491	"	"	"
Cadmium (7440-43-9)	U		491	"	"	"
Chromium (7440-47-3)	U		491	"	"	"
Cobalt (7440-48-4)	U		491	"	"	"
Copper (7440-50-8)	U		491	"	"	"
Lead (7439-92-1)	U		491	"	"	"
Manganese (7439-96-5)	22,400		491	"	"	"
Molybdenum (7439-98-7)	U		491	"	"	"
Nickel (7440-02-2)	U		491	"	"	"
Selenium (7782-49-2)	U		491	"	"	"
Silver (7440-22-4)	U		491	"	"	"
Thallium (7440-28-0)	U		491	"	"	"
Vanadium (7440-62-2)	U		491	"	"	"
Zinc (7440-66-6)	U		982	"	"	"
Uranium (7440-61-1)	U		491	"	"	"
Thorium (7440-29-1)	U		491	"	"	"

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Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-01

Station ID: Site #13 (508670)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	108		72.3	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	115		76.3	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	109		72.9	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	63.6		63.6	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	85.6		85.6	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	77.1		77.1	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	134		89.4	51-143	"	"
<i>Surr: Terphenyl-d14</i>	93.5		93.5	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-01

Station ID: Site #13 (508670)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-01

Station ID: Site #13 (508670)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-01

Station ID: Site #13 (508670)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	5		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-01

Station ID: Site #13 (508670)

Batch: B1I2704

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	605		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	8.0		5.0	"	"	"
Barium (7440-39-3)	181		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	248		5.0	"	"	"
Molybdenum (7439-98-7)	5.5		5.0	"	"	"
Nickel (7440-02-2)	11.7		5.0	"	"	"
Selenium (7782-49-2)	8.3		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	5.9		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-02

Station ID: Site #4 (506345/506350)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	101		67.6	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	111		73.8	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	102		68.2	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	59.3		59.3	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	80.2		80.2	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	71.3		71.3	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	126		84.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	95.2		95.2	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-02

Station ID: Site #4 (506345/506350)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-02

Station ID: Site #4 (506345/506350)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-02

Station ID: Site #4 (506345/506350)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	7		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-02

Station ID: Site #4 (506345/506350)

Batch: B1I2704

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	237		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	6.0		5.0	"	"	"
Barium (7440-39-3)	172		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	260		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	9.5		5.0	"	"	"
Selenium (7782-49-2)	6.5		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-03

Station ID: Site #2 (506343/506348)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	105		69.7	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	108		72.0	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	105		70.2	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	59.9		59.9	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	83.0		83.0	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	74.2		74.2	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	117		78.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	94.5		94.5	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-03

Station ID: Site #2 (506343/506348)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-03

Station ID: Site #2 (506343/506348)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-03

Station ID: Site #2 (506343/506348)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	6		3.93	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-03

Station ID: Site #2 (506343/506348)

Batch: B1I2704

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	139		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	6.4		5.0	"	"	"
Barium (7440-39-3)	167		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	318		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	10.8		5.0	"	"	"
Selenium (7782-49-2)	7.9		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-04

Station ID: Site #1 (506347)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		68.0	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	109		72.6	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	103		69.0	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	57.3		57.3	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	83.4		83.4	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	71.1		71.1	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	118		78.9	51-143	"	"
<i>Surr: Terphenyl-d14</i>	88.6		88.6	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-04

Station ID: Site #1 (506347)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-04

Station ID: Site #1 (506347)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-04

Station ID: Site #1 (506347)

Batch: B1I2701

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (01) (NA)	14		2.85	1	09/27/11	10/04/11
Unknown (02) (NA)	12		3.93	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-04

Station ID: Site #1 (506347)

Batch: B1I2704

Date Collected: 07/09/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	3,880		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	8.3		5.0	"	"	"
Barium (7440-39-3)	240		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	6.1		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	6.8		5.0	"	"	"
Lead (7439-92-1)	5.4		5.0	"	"	"
Manganese (7439-96-5)	656		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	13.2		5.0	"	"	"
Selenium (7782-49-2)	8.0		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	12.6		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-05

Station ID: Site #14 (508671)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		68.1	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	110		73.3	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.3	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	58.7		58.7	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	82.7		82.7	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	70.3		70.3	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	132		88.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	96.7		96.7	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-05

Station ID: Site #14 (508671)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-05

Station ID: Site #14 (508671)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-05

Station ID: Site #14 (508671)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	4		3.93	1	09/27/11	10/04/11
Hexadecanoic acid (57-10-3)	8		9.30	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-05

Station ID: Site #14 (508671)

Batch: B1I2704

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	169		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	8.2		5.0	"	"	"
Barium (7440-39-3)	156		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	166		5.0	"	"	"
Molybdenum (7439-98-7)	5.4		5.0	"	"	"
Nickel (7440-02-2)	10.5		5.0	"	"	"
Selenium (7782-49-2)	7.0		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	5.3		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-06

Station ID: Site #13 (gel extract) (508670)

Batch: B1I2703

Date Collected: 08/30/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.506 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,940	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		494	"	"	"
Arsenic (7440-38-2)	U		494	"	"	"
Barium (7440-39-3)	U		494	"	"	"
Beryllium (7440-41-7)	U		494	"	"	"
Cadmium (7440-43-9)	U		494	"	"	"
Chromium (7440-47-3)	U		494	"	"	"
Cobalt (7440-48-4)	U		494	"	"	"
Copper (7440-50-8)	U		494	"	"	"
Lead (7439-92-1)	U		494	"	"	"
Manganese (7439-96-5)	4,240		494	"	"	"
Molybdenum (7439-98-7)	U		494	"	"	"
Nickel (7440-02-2)	U		494	"	"	"
Selenium (7782-49-2)	U		494	"	"	"
Silver (7440-22-4)	U		494	"	"	"
Thallium (7440-28-0)	U		494	"	"	"
Vanadium (7440-62-2)	U		494	"	"	"
Zinc (7440-66-6)	U		988	"	"	"
Uranium (7440-61-1)	U		494	"	"	"
Thorium (7440-29-1)	U		494	"	"	"

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-07

Station ID: Site #14 (gel extract) (508671)

Batch: B1I2703

Date Collected: 08/30/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.521 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,800	10	09/26/11	09/30/11
Antimony (7440-36-0)	U		480	"	"	"
Arsenic (7440-38-2)	U		480	"	"	"
Barium (7440-39-3)	U		480	"	"	"
Beryllium (7440-41-7)	U		480	"	"	"
Cadmium (7440-43-9)	U		480	"	"	"
Chromium (7440-47-3)	U		480	"	"	"
Cobalt (7440-48-4)	U		480	"	"	"
Copper (7440-50-8)	U		480	"	"	"
Lead (7439-92-1)	U		480	"	"	"
Manganese (7439-96-5)	3,820		480	"	"	"
Molybdenum (7439-98-7)	U		480	"	"	"
Nickel (7440-02-2)	U		480	"	"	"
Selenium (7782-49-2)	U		480	"	"	"
Silver (7440-22-4)	U		480	"	"	"
Thallium (7440-28-0)	U		480	"	"	"
Vanadium (7440-62-2)	U		480	"	"	"
Zinc (7440-66-6)	U		960	"	"	"
Uranium (7440-61-1)	U		480	"	"	"
Thorium (7440-29-1)	U		480	"	"	"

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-08

Station ID: Site #15 (gel extract) (508672)

Batch: B1I2703

Date Collected: 08/30/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.529 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,730	10	09/26/11	09/30/11
Antimony (7440-36-0)	U		473	"	"	"
Arsenic (7440-38-2)	U		473	"	"	"
Barium (7440-39-3)	U		473	"	"	"
Beryllium (7440-41-7)	U		473	"	"	"
Cadmium (7440-43-9)	U		473	"	"	"
Chromium (7440-47-3)	U		473	"	"	"
Cobalt (7440-48-4)	U		473	"	"	"
Copper (7440-50-8)	U		473	"	"	"
Lead (7439-92-1)	U		473	"	"	"
Manganese (7439-96-5)	3,020		473	"	"	"
Molybdenum (7439-98-7)	U		473	"	"	"
Nickel (7440-02-2)	U		473	"	"	"
Selenium (7782-49-2)	U		473	"	"	"
Silver (7440-22-4)	U		473	"	"	"
Thallium (7440-28-0)	U		473	"	"	"
Vanadium (7440-62-2)	U		473	"	"	"
Zinc (7440-66-6)	U		945	"	"	"
Uranium (7440-61-1)	U		473	"	"	"
Thorium (7440-29-1)	U		473	"	"	"

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-09

Station ID: Site #16 (gel extract - 508673)

Batch: B1I2703

Date Collected: 08/30/11

Sample Type: Non-Aqueous Liquid

Sample Weight: 0.516 g

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	U		4,840	10	09/26/11	09/30/11
Antimony (7440-36-0)	U		484	"	"	"
Arsenic (7440-38-2)	U		484	"	"	"
Barium (7440-39-3)	U		484	"	"	"
Beryllium (7440-41-7)	U		484	"	"	"
Cadmium (7440-43-9)	U		484	"	"	"
Chromium (7440-47-3)	U		484	"	"	"
Cobalt (7440-48-4)	U		484	"	"	"
Copper (7440-50-8)	U		484	"	"	"
Lead (7439-92-1)	U		484	"	"	"
Manganese (7439-96-5)	1,750	K	484	"	"	"
Molybdenum (7439-98-7)	U		484	"	"	"
Nickel (7440-02-2)	U		484	"	"	"
Selenium (7782-49-2)	U		484	"	"	"
Silver (7440-22-4)	U		484	"	"	"
Thallium (7440-28-0)	U		484	"	"	"
Vanadium (7440-62-2)	U		484	"	"	"
Zinc (7440-66-6)	U		969	"	"	"
Uranium (7440-61-1)	U		484	"	"	"
Thorium (7440-29-1)	U		484	"	"	"

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-10

Station ID: Site #12 (508318)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		67.7	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	110		73.0	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.5	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	58.9		58.9	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	85.6		85.6	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	71.8		71.8	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	127		84.8	51-143	"	"
<i>Surr: Terphenyl-d14</i>	96.9		96.9	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-10

Station ID: Site #12 (508318)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-10

Station ID: Site #12 (508318)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-10

Station ID: Site #12 (508318)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	8		3.92	1	09/27/11	10/04/11
Unknown cyclic compound (NA)	6		7.64	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-10

Station ID: Site #12 (508318)

Batch: B1I2704

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	1,490		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	14.7		5.0	"	"	"
Barium (7440-39-3)	532		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	631		5.0	"	"	"
Molybdenum (7439-98-7)	12.3		5.0	"	"	"
Nickel (7440-02-2)	21.9		5.0	"	"	"
Selenium (7782-49-2)	U		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	5.4		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-11

Station ID: Site #11 (508317)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	101		67.4	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	107		71.6	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.5	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	57.5		57.5	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	84.9		84.9	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	72.9		72.9	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	124		82.8	51-143	"	"
<i>Surr: Terphenyl-d14</i>	98.4		98.4	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-11

Station ID: Site #11 (508317)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-11

Station ID: Site #11 (508317)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-11

Station ID: Site #11 (508317)

Batch: B1I2701

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (01) (NA)	5		3.46	1	09/27/11	10/04/11
Unknown (02) (NA)	6		3.93	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-11

Station ID: Site #11 (508317)

Batch: B1I2704

Date Collected: 08/18/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	785		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	U		5.0	"	"	"
Barium (7440-39-3)	319		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	414		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	U		5.0	"	"	"
Selenium (7782-49-2)	U		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-12

Station ID: Site #15 (508672)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	109		72.9	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	115		76.6	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	112		74.4	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	62.8		62.8	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	87.7		87.7	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	79.1		79.1	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	132		88.1	51-143	"	"
<i>Surr: Terphenyl-d14</i>	93.0		93.0	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-12

Station ID: Site #15 (508672)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-12

Station ID: Site #15 (508672)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-12

Station ID: Site #15 (508672)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Hexadecanoic acid (57-10-3)	9		9.30	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-12

Station ID: Site #15 (508672)

Batch: B1I2704

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	59.1	K	50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	7.1		5.0	"	"	"
Barium (7440-39-3)	146		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	146		5.0	"	"	"
Molybdenum (7439-98-7)	5.3		5.0	"	"	"
Nickel (7440-02-2)	10.7		5.0	"	"	"
Selenium (7782-49-2)	7.2		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	6.1		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

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Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-13

Station ID: Site #16 (508673)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	111		74.1	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	120		80.3	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	113		75.4	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	70.9		70.9	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	88.3		88.3	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	77.3		77.3	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	141		94.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	101		101	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-13

Station ID: Site #16 (508673)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-13

Station ID: Site #16 (508673)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-13

Station ID: Site #16 (508673)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Heptadecane (629-78-7)	5		8.11	1	09/27/11	10/04/11
Hexadecanoic acid (57-10-3)	12		9.30	"	"	"

Total # of TICs: 2

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-13

Station ID: Site #16 (508673)

Batch: B1I2704

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	466		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	7.3		5.0	"	"	"
Barium (7440-39-3)	148		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	5.0		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	146		5.0	"	"	"
Molybdenum (7439-98-7)	5.4		5.0	"	"	"
Nickel (7440-02-2)	11.6		5.0	"	"	"
Selenium (7782-49-2)	6.6		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	12.0		10.0	"	"	"
Uranium (7440-61-1)	6.3		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-14

Station ID: Site #18 (509500)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	94.1		62.8	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	95.9		63.9	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	101		67.5	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	55.0		55.0	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	82.5		82.5	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	68.1		68.1	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	135		89.7	51-143	"	"
<i>Surr: Terphenyl-d14</i>	95.9		95.9	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-14

Station ID: Site #18 (509500)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-14

Station ID: Site #18 (509500)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-14

Station ID: Site #18 (509500)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
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No TICs present in this sample.

BJS

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-14

Station ID: Site #18 (509500)

Batch: B1I2704

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	1,200		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	U		5.0	"	"	"
Barium (7440-39-3)	140		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	58.9		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	5.0		5.0	"	"	"
Selenium (7782-49-2)	U		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	12.4		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-15

Station ID: Site #19 (509501)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	101		67.3	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	113		75.5	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.2	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	59.9		59.9	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	83.1		83.1	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	77.9		77.9	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	131		87.1	51-143	"	"
<i>Surr: Terphenyl-d14</i>	95.6		95.6	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-15

Station ID: Site #19 (509501)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-15

Station ID: Site #19 (509501)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-15

Station ID: Site #19 (509501)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
C5H8O isomer (NA)	45		2.67	1	09/27/11	10/04/11
Unknown (01) (NA)	36		2.85	"	"	"
Unknown (02) (NA)	7		3.93	"	"	"
Unknown halogenated compound (01) (NA)	4		6.15	"	"	"
Unknown halogenated compound (02) (NA)	4		6.65	"	"	"
Unknown halogenated compound (03) (NA)	14		6.84	"	"	"
Tetradecanoic acid (544-63-8)	83		8.41	"	"	"
Hexadecenoic acid, Z-11- (2416-20-8)	8		9.23	"	"	"
Hexadecanoic acid (57-10-3)	51		9.31	"	"	"
Unknown halogenated compound (04) (NA)	37		10.04	"	"	"
9-Octadecenoic acid isomer (NA)	66		10.07	"	"	"

Total # of TICs: 11

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-15

Station ID: Site #19 (509501)

Batch: B1I2704

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	958		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	13.5		5.0	"	"	"
Barium (7440-39-3)	207		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	331		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	11.2		5.0	"	"	"
Selenium (7782-49-2)	9.4		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-16

Station ID: Site #20 (509502)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	102		68.0	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	109		72.7	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.1	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	58.7		58.7	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	82.9		82.9	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	76.8		76.8	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	129		86.2	51-143	"	"
<i>Surr: Terphenyl-d14</i>	97.3		97.3	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-16

Station ID: Site #20 (509502)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-16

Station ID: Site #20 (509502)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-16

Station ID: Site #20 (509502)

Batch: B1I2701

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
C5H8O isomer (NA)	32		2.67	1	09/27/11	10/04/11
Unknown (01) (NA)	26		2.85	"	"	"
Unknown (02) (NA)	9		3.93	"	"	"
Unknown halogenated compound (NA)	7		6.84	"	"	"
Tetradecanoic acid (544-63-8)	4		8.39	"	"	"
Hexadecanoic acid (57-10-3)	13		9.30	"	"	"

Total # of TICs: 6

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Region 6 Laboratory

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Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-16

Station ID: Site #20 (509502)

Batch: B1I2704

Date Collected: 09/14/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	1,260		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	12.2		5.0	"	"	"
Barium (7440-39-3)	180		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	392		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	11.1		5.0	"	"	"
Selenium (7782-49-2)	8.5		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-17

Station ID: Site #3 (506344A/506349B)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Surrogates

Analyte	Result µg/l	Analyte Qualifiers	%Recovery	%Recovery Limits	Prepared	Analyzed
<i>Surr: 2-Fluorophenol</i>	101		67.5	39-109	09/27/11	10/04/11
<i>Surr: Phenol-d5</i>	109		72.9	41-107	"	"
<i>Surr: 2-Chlorophenol-d4</i>	104		69.1	45-104	"	"
<i>Surr: 1,2-Dichlorobenzene-d4</i>	68.5		68.5	34-100	"	"
<i>Surr: Nitrobenzene-d5</i>	82.3		82.3	41-128	"	"
<i>Surr: 2-Fluorobiphenyl</i>	77.6		77.6	46-108	"	"
<i>Surr: 2,4,6-Tribromophenol</i>	123		81.7	51-143	"	"
<i>Surr: Terphenyl-d14</i>	93.1		93.1	60-133	"	"

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Acenaphthene (83-32-9)	U		4.0	1	09/27/11	10/04/11
Acenaphthylene (208-96-8)	U		4.0	"	"	"
Acetophenone (98-86-2)	U		10.0	"	"	"
Anthracene (120-12-7)	U		4.0	"	"	"
Atrazine (1912-24-9)	U		10.0	"	"	"
Benzaldehyde (100-52-7)	U		10.0	"	"	"
Benzoic acid (65-85-0)	U		20.0	"	"	"
Benzo (a) anthracene (56-55-3)	U		10.0	"	"	"
Benzo (a) pyrene (50-32-8)	U		10.0	"	"	"
Benzo (b) fluoranthene (205-99-2)	U		10.0	"	"	"
Benzo (g,h,i) perylene (191-24-2)	U		10.0	"	"	"
Benzo (k) fluoranthene (207-08-9)	U		10.0	"	"	"
Benzyl alcohol (100-51-6)	U		10.0	"	"	"
1,1'-Biphenyl (92-52-4)	U		10.0	"	"	"
Bis(2-chloroethoxy)methane (111-91-1)	U		10.0	"	"	"
Bis(2-chloroethyl)ether (111-44-4)	U		10.0	"	"	"
Bis(2-chloroisopropyl)ether (108-60-1)	U		10.0	"	"	"
Bis(2-ethylhexyl)phthalate (117-81-7)	U		10.0	"	"	"
4-Bromophenyl phenyl ether (101-55-3)	U		10.0	"	"	"
Butyl benzyl phthalate (85-68-7)	U		10.0	"	"	"
Carbazole (86-74-8)	U		10.0	"	"	"
Caprolactam (105-60-2)	U		10.0	"	"	"
4-Chloroaniline (106-47-8)	U		10.0	"	"	"
2-Chloronaphthalene (91-58-7)	U		10.0	"	"	"



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Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-17

Station ID: Site #3 (506344A/506349B)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Chlorophenol (95-57-8)	U		10.0	1	09/27/11	10/04/11
4-Chlorophenyl phenyl ether (7005-72-3)	U		10.0	"	"	"
4-Chloro-3-methylphenol (59-50-7)	U		10.0	"	"	"
Chrysene (218-01-9)	U		10.0	"	"	"
Dibenzofuran (132-64-9)	U		10.0	"	"	"
Dibenz (a,h) anthracene (53-70-3)	U		10.0	"	"	"
1,2-Dichlorobenzene (95-50-1)	U		10.0	"	"	"
1,3-Dichlorobenzene (541-73-1)	U		10.0	"	"	"
1,4-Dichlorobenzene (106-46-7)	U		10.0	"	"	"
3,3'-Dichlorobenzidine (91-94-1)	U		10.0	"	"	"
2,4-Dichlorophenol (120-83-2)	U		10.0	"	"	"
Diethyl phthalate (84-66-2)	U		10.0	"	"	"
2,4-Dimethylphenol (105-67-9)	U		10.0	"	"	"
Dimethyl phthalate (131-11-3)	U		10.0	"	"	"
2,4-Dinitrophenol (51-28-5)	U		40.0	"	"	"
2,4-Dinitrotoluene (121-14-2)	U		10.0	"	"	"
2,6-Dinitrotoluene (606-20-2)	U		10.0	"	"	"
4,6-Dinitro-2-methylphenol (534-52-1)	U		40.0	"	"	"
Di-n-butyl phthalate (84-74-2)	U		10.0	"	"	"
Di-n-octyl phthalate (117-84-0)	U		10.0	"	"	"
Fluoranthene (206-44-0)	U		4.0	"	"	"
Fluorene (86-73-7)	U		4.0	"	"	"
Hexachlorobenzene (118-74-1)	U		10.0	"	"	"
Hexachlorobutadiene (87-68-3)	U		10.0	"	"	"
Hexachlorocyclopentadiene (77-47-4)	U		10.0	"	"	"
Hexachloroethane (67-72-1)	U		10.0	"	"	"
Indeno (1,2,3-cd) pyrene (193-39-5)	U		10.0	"	"	"
Isophorone (78-59-1)	U		10.0	"	"	"
2-Methylnaphthalene (91-57-6)	U		4.0	"	"	"
2-Methylphenol (95-48-7)	U		10.0	"	"	"
3 &/or 4-Methylphenol (106-44-5)	U		10.0	"	"	"
Naphthalene (91-20-3)	U		4.0	"	"	"
2-Nitroaniline (88-74-4)	U		16.0	"	"	"
3-Nitroaniline (99-09-2)	U		16.0	"	"	"
4-Nitroaniline (100-01-6)	U		16.0	"	"	"
Nitrobenzene (98-95-3)	U		10.0	"	"	"



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-17

Station ID: Site #3 (506344A/506349B)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Targets (Continued)

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
2-Nitrophenol (88-75-5)	U		10.0	1	09/27/11	10/04/11
4-Nitrophenol (100-02-7)	U		26.0	"	"	"
N-Nitrosodiphenylamine (86-30-6)	U		10.0	"	"	"
N-Nitrosodi-n-propylamine (621-64-7)	U		10.0	"	"	"
Pentachlorophenol (87-86-5)	U		10.0	"	"	"
Phenanthrene (85-01-8)	U		4.0	"	"	"
Phenol (108-95-2)	U		10.0	"	"	"
Pyrene (129-00-0)	U		4.0	"	"	"
1,2,4-Trichlorobenzene (120-82-1)	U		10.0	"	"	"
2,4,5-Trichlorophenol (95-95-4)	U		10.0	"	"	"
2,4,6-Trichlorophenol (88-06-2)	U		10.0	"	"	"
Pyridine (110-86-1)	U		10.0	"	"	10/05/11



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Semivolatiles by EPA Method 8270 - GC/MS

Lab ID: 1109034-17

Station ID: Site #3 (506344A/506349B)

Batch: B1I2701

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 500 ml

Sample Qualifiers: HTS

Tentatively Identified Compounds

Compound (CAS)	Result µg/l	Analyte Qualifiers	Retention Time	Dilution	Prepared	Analyzed
Unknown (NA)	7		3.92	1	09/27/11	10/04/11

Total # of TICs: 1

The compounds listed are *tentatively* identified by the best match with the NIST or Wiley mass spectral data base or by manual interpretation. The concentrations are estimated based on a Response Factor of 1.0 to the nearest internal standard. A minimum of the top 10 most significant peaks that are at least 5% in area of the nearest internal standard are reported, excluding those found in the laboratory blank.

BJS



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Metals by EPA Method 6020 - ICP MS

Lab ID: 1109034-17

Station ID: Site #3 (506344A/506349B)

Batch: B1I2704

Date Collected: 08/26/11

Sample Type: Liquid

Sample Volume: 50 ml

Sample Qualifiers:

Targets

Analyte (CAS Number)	Result µg/l	Analyte Qualifiers	Reporting Limit	Dilution	Prepared	Analyzed
Aluminum (7429-90-5)	172		50.0	10	09/26/11	09/29/11
Antimony (7440-36-0)	U		5.0	"	"	"
Arsenic (7440-38-2)	6.8		5.0	"	"	"
Barium (7440-39-3)	165		5.0	"	"	"
Beryllium (7440-41-7)	U		5.0	"	"	"
Cadmium (7440-43-9)	U		5.0	"	"	"
Chromium (7440-47-3)	U		5.0	"	"	"
Cobalt (7440-48-4)	U		5.0	"	"	"
Copper (7440-50-8)	U		5.0	"	"	"
Lead (7439-92-1)	U		5.0	"	"	"
Manganese (7439-96-5)	249		5.0	"	"	"
Molybdenum (7439-98-7)	U		5.0	"	"	"
Nickel (7440-02-2)	9.6		5.0	"	"	"
Selenium (7782-49-2)	7.3		5.0	"	"	"
Silver (7440-22-4)	U		5.0	"	"	"
Thallium (7440-28-0)	U		5.0	"	"	"
Vanadium (7440-62-2)	U		5.0	"	"	"
Zinc (7440-66-6)	U		10.0	"	"	"
Uranium (7440-61-1)	U		5.0	"	"	"
Thorium (7440-29-1)	U		5.0	"	"	"

KD



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Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

Blank (B1I2701-BLK1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Surrogates

ANALYTE	Result µg/l	Analyte Qualifier	Spike Level	%REC	%REC Limits
Surr: 2-Fluorophenol	63.1		75.0	84.2	39-109
Surr: Phenol-d5	69.2		75.0	92.3	41-107
Surr: 2-Chlorophenol-d4	63.2		75.0	84.3	45-104
Surr: 1,2-Dichlorobenzene-d4	40.4		50.0	80.7	34-100
Surr: Nitrobenzene-d5	48.7		50.0	97.4	41-128
Surr: 2-Fluorobiphenyl	45.6		50.0	91.2	46-108
Surr: 2,4,6-Tribromophenol	70.2		75.0	93.6	51-143
Surr: Terphenyl-d14	46.0		50.0	92.0	60-133

Blank (B1I2701-BLK1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Acenaphthene	U	2.0
Acenaphthylene	U	2.0
Acetophenone	U	5.0
Anthracene	U	2.0
Atrazine	U	5.0
Benzaldehyde	U	5.0
Benzoic acid	U	10.0
Benzo (a) anthracene	U	5.0
Benzo (a) pyrene	U	5.0
Benzo (b) fluoranthene	U	5.0
Benzo (g,h,i) perylene	U	5.0
Benzo (k) fluoranthene	U	5.0
Benzyl alcohol	U	5.0
1,1'-Biphenyl	U	5.0
Bis(2-chloroethoxy)methane	U	5.0



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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

Blank (B1I2701-BLK1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Bis(2-chloroethyl)ether	U	5.0
Bis(2-chloroisopropyl)ether	U	5.0
Bis(2-ethylhexyl)phthalate	U	5.0
4-Bromophenyl phenyl ether	U	5.0
Butyl benzyl phthalate	U	5.0
Carbazole	U	5.0
Caprolactam	U	5.0
4-Chloroaniline	U	5.0
2-Chloronaphthalene	U	5.0
2-Chlorophenol	U	5.0
4-Chlorophenyl phenyl ether	U	5.0
4-Chloro-3-methylphenol	U	5.0
Chrysene	U	5.0
Dibenzofuran	U	5.0
Dibenz (a,h) anthracene	U	5.0
1,2-Dichlorobenzene	U	5.0
1,3-Dichlorobenzene	U	5.0
1,4-Dichlorobenzene	U	5.0
3,3'-Dichlorobenzidine	U	5.0
2,4-Dichlorophenol	U	5.0
Diethyl phthalate	U	5.0
2,4-Dimethylphenol	U	5.0
Dimethyl phthalate	U	5.0
2,4-Dinitrophenol	U	20.0
2,4-Dinitrotoluene	U	5.0
2,6-Dinitrotoluene	U	5.0
4,6-Dinitro-2-methylphenol	U	20.0
Di-n-butyl phthalate	U	5.0
Di-n-octyl phthalate	U	5.0



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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

Blank (B1I2701-BLK1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Fluoranthene	U	2.0
Fluorene	U	2.0
Hexachlorobenzene	U	5.0
Hexachlorobutadiene	U	5.0
Hexachlorocyclopentadiene	U	5.0
Hexachloroethane	U	5.0
Indeno (1,2,3-cd) pyrene	U	5.0
Isophorone	U	5.0
2-Methylnaphthalene	U	2.0
2-Methylphenol	U	5.0
3 &/or 4-Methylphenol	U	5.0
Naphthalene	U	2.0
2-Nitroaniline	U	8.0
3-Nitroaniline	U	8.0
4-Nitroaniline	U	8.0
Nitrobenzene	U	5.0
2-Nitrophenol	U	5.0
4-Nitrophenol	U	13.0
N-Nitrosodiphenylamine	U	5.0
N-Nitrosodi-n-propylamine	U	5.0
Pentachlorophenol	U	5.0
Phenanthrene	U	2.0
Phenol	U	5.0
Pyrene	U	2.0
1,2,4-Trichlorobenzene	U	5.0
2,4,5-Trichlorophenol	U	5.0
2,4,6-Trichlorophenol	U	5.0
Pyridine	U	5.0



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS (B1I2701-BS1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Surrogates

ANALYTE	Result µg/l	Analyte Qualifier	Spike Level	%REC %REC	Limits
<i>Surr: 2-Fluorophenol</i>	64.8		75.0	86.4	39-109
<i>Surr: Phenol-d5</i>	67.6		75.0	90.1	41-107
<i>Surr: 2-Chlorophenol-d4</i>	63.0		75.0	84.1	45-104
<i>Surr: 1,2-Dichlorobenzene-d4</i>	41.2		50.0	82.4	34-100
<i>Surr: Nitrobenzene-d5</i>	48.6		50.0	97.2	41-128
<i>Surr: 2-Fluorobiphenyl</i>	45.5		50.0	90.9	46-108
<i>Surr: 2,4,6-Tribromophenol</i>	80.9		75.0	108	51-143
<i>Surr: Terphenyl-d14</i>	46.1		50.0	92.2	60-133

LCS (B1I2701-BS1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Acenaphthene	46.2		2.0	50.0	92.4	61-116
Acenaphthylene	46.2		2.0	50.0	92.5	70-121
Acetophenone	48.3		5.0	50.0	96.7	63-134
Anthracene	48.7		2.0	50.0	97.4	68-122
Atrazine	52.5		5.0	50.0	105	74-127
Benzaldehyde	45.7		5.0	50.0	91.3	53-136
Benzoic acid	46.9		10.0	50.0	93.9	41-134
Benzo (a) anthracene	52.8		5.0	50.0	106	76-125
Benzo (a) pyrene	57.0		5.0	50.0	114	75-125
Benzo (b) fluoranthene	52.3		5.0	50.0	105	70-130
Benzo (g,h,i) perylene	57.8		5.0	50.0	116	67-142
Benzo (k) fluoranthene	50.5		5.0	50.0	101	68-136
Benzyl alcohol	48.2		5.0	50.0	96.5	67-119
1,1'-Biphenyl	42.3		5.0	50.0	84.6	60-129
Bis(2-chloroethoxy)methane	46.8		5.0	50.0	93.6	66-126



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS (B1I2701-BS1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Bis(2-chloroethyl)ether	47.3		5.0	50.0	94.6	62-125
Bis(2-chloroisopropyl)ether	46.2		5.0	50.0	92.3	51-138
Bis(2-ethylhexyl)phthalate	56.9		5.0	50.0	114	79-138
4-Bromophenyl phenyl ether	50.0		5.0	50.0	100	64-123
Butyl benzyl phthalate	55.6		5.0	50.0	111	77-132
Carbazole	51.7		5.0	50.0	103	71-124
Caprolactam	50.5		5.0	50.0	101	56-124
4-Chloroaniline	43.6		5.0	50.0	87.3	54-122
2-Chloronaphthalene	44.8		5.0	50.0	89.5	62-122
2-Chlorophenol	45.5		5.0	50.0	91.0	66-115
4-Chlorophenyl phenyl ether	39.1		5.0	50.0	78.1	63-130
4-Chloro-3-methylphenol	50.5		5.0	50.0	101	63-119
Chrysene	50.5		5.0	50.0	101	76-125
Dibenzofuran	46.7		5.0	50.0	93.3	67-123
Dibenz (a,h) anthracene	59.2		5.0	50.0	118	61-145
1,2-Dichlorobenzene	38.2		5.0	50.0	76.4	48-100
1,3-Dichlorobenzene	34.6		5.0	50.0	69.1	36-100
1,4-Dichlorobenzene	36.2		5.0	50.0	72.5	36-100
3,3'-Dichlorobenzidine	60.0		5.0	50.0	120	40-139
2,4-Dichlorophenol	48.1		5.0	50.0	96.1	69-125
Diethyl phthalate	50.0		5.0	50.0	99.9	72-124
2,4-Dimethylphenol	43.5		5.0	50.0	87.1	48-136
Dimethyl phthalate	49.7		5.0	50.0	99.4	71-122
2,4-Dinitrophenol	54.0		20.0	50.0	108	42-152
2,4-Dinitrotoluene	54.6		5.0	50.0	109	61-121
2,6-Dinitrotoluene	51.6		5.0	50.0	103	68-128
4,6-Dinitro-2-methylphenol	54.6		20.0	50.0	109	46-146
Di-n-butyl phthalate	53.0		5.0	50.0	106	75-136
Di-n-octyl phthalate	54.5		5.0	50.0	109	64-134



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS (B1I2701-BS1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Fluoranthene	52.3		2.0	50.0	105	74-123
Fluorene	42.8		2.0	50.0	85.7	65-129
Hexachlorobenzene	48.5		5.0	50.0	97.1	67-121
Hexachlorobutadiene	40.5		5.0	50.0	81.0	29-112
Hexachlorocyclopentadiene	45.6		5.0	50.0	91.2	32-122
Hexachloroethane	33.2		5.0	50.0	66.5	24-100
Indeno (1,2,3-cd) pyrene	58.9		5.0	50.0	118	65-143
Isophorone	49.0		5.0	50.0	98.0	67-125
2-Methylnaphthalene	46.4		2.0	50.0	92.8	64-117
2-Methylphenol	46.5		5.0	50.0	93.0	60-131
3 &/or 4-Methylphenol	47.0		5.0	50.0	94.0	57-136
Naphthalene	43.1		2.0	50.0	86.2	65-115
2-Nitroaniline	53.0		8.0	50.0	106	65-126
3-Nitroaniline	55.7		8.0	50.0	111	57-136
4-Nitroaniline	63.4		8.0	50.0	127	64-137
Nitrobenzene	46.7		5.0	50.0	93.3	68-126
2-Nitrophenol	51.2		5.0	50.0	102	62-137
4-Nitrophenol	52.2		13.0	50.0	104	52-132
N-Nitrosodiphenylamine	48.8		5.0	50.0	97.5	66-125
N-Nitrosodi-n-propylamine	51.0		5.0	50.0	102	61-123
Pentachlorophenol	56.3		5.0	50.0	113	49-134
Phenanthrene	48.8		2.0	50.0	97.6	69-121
Phenol	44.0		5.0	50.0	88.0	62-115
Pyrene	47.9		2.0	50.0	95.7	58-134
1,2,4-Trichlorobenzene	43.0		5.0	50.0	86.0	40-100
2,4,5-Trichlorophenol	51.0		5.0	50.0	102	68-127
2,4,6-Trichlorophenol	50.3		5.0	50.0	101	65-128
Pyridine	35.9		5.0	50.0	71.8	70-130



Environmental Protection Agency
Region 6 Laboratory

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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS Dup (B1I2701-BSD1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Surrogates

ANALYTE	Result µg/l	Analyte Qualifier	Spike Level	%REC %REC	%REC Limits
Surr: 2-Fluorophenol	63.9		75.0	85.1	39-109
Surr: Phenol-d5	65.4		75.0	87.3	41-107
Surr: 2-Chlorophenol-d4	61.6		75.0	82.2	45-104
Surr: 1,2-Dichlorobenzene-d4	39.4		50.0	78.8	34-100
Surr: Nitrobenzene-d5	47.3		50.0	94.5	41-128
Surr: 2-Fluorobiphenyl	45.2		50.0	90.5	46-108
Surr: 2,4,6-Tribromophenol	80.3		75.0	107	51-143
Surr: Terphenyl-d14	44.6		50.0	89.3	60-133

LCS Dup (B1I2701-BSD1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit
Acenaphthene	46.4		2.0	50.0		92.7	61-116	0.30	30
Acenaphthylene	46.0		2.0	50.0		92.1	70-121	0.43	30
Acetophenone	47.8		5.0	50.0		95.5	63-134	1.19	30
Anthracene	49.2		2.0	50.0		98.5	68-122	1.10	30
Atrazine	51.9		5.0	50.0		104	74-127	1.15	30
Benzaldehyde	45.5		5.0	50.0		91.0	53-136	0.35	30
Benzoic acid	52.2		10.0	50.0		104	41-134	10.7	30
Benzo (a) anthracene	52.5		5.0	50.0		105	76-125	0.61	30
Benzo (a) pyrene	56.0		5.0	50.0		112	75-125	1.63	30
Benzo (b) fluoranthene	50.7		5.0	50.0		101	70-130	3.18	30
Benzo (g,h,i) perylene	60.4		5.0	50.0		121	67-142	4.44	30
Benzo (k) fluoranthene	50.3		5.0	50.0		101	68-136	0.50	30
Benzyl alcohol	47.0		5.0	50.0		94.0	67-119	2.65	30
1,1'-Biphenyl	42.0		5.0	50.0		84.1	60-129	0.62	30
Bis(2-chloroethoxy)methane	46.5		5.0	50.0		93.0	66-126	0.64	30



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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS Dup (B1I2701-BSD1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Bis(2-chloroethyl)ether	47.0		5.0	50.0		93.9 62-125	0.70	30
Bis(2-chloroisopropyl)ether	45.4		5.0	50.0		90.8 51-138	1.59	30
Bis(2-ethylhexyl)phthalate	55.3		5.0	50.0		111 79-138	2.85	30
4-Bromophenyl phenyl ether	50.2		5.0	50.0		100 64-123	0.36	30
Butyl benzyl phthalate	53.5		5.0	50.0		107 77-132	3.76	30
Carbazole	52.0		5.0	50.0		104 71-124	0.64	30
Caprolactam	52.0		5.0	50.0		104 56-124	2.97	30
4-Chloroaniline	45.0		5.0	50.0		89.9 54-122	2.96	30
2-Chloronaphthalene	44.6		5.0	50.0		89.3 62-122	0.31	30
2-Chlorophenol	45.2		5.0	50.0		90.4 66-115	0.68	30
4-Chlorophenyl phenyl ether	39.4		5.0	50.0		78.8 63-130	0.84	30
4-Chloro-3-methylphenol	50.8		5.0	50.0		102 63-119	0.59	30
Chrysene	49.7		5.0	50.0		99.4 76-125	1.50	30
Dibenzofuran	47.2		5.0	50.0		94.4 67-123	1.15	30
Dibenz (a,h) anthracene	62.8		5.0	50.0		126 61-145	5.94	30
1,2-Dichlorobenzene	37.6		5.0	50.0		75.1 48-100	1.74	30
1,3-Dichlorobenzene	33.3		5.0	50.0		66.6 36-100	3.68	30
1,4-Dichlorobenzene	35.3		5.0	50.0		70.7 36-100	2.52	30
3,3'-Dichlorobenzidine	58.5		5.0	50.0		117 40-139	2.51	30
2,4-Dichlorophenol	48.1		5.0	50.0		96.2 69-125	0.08	30
Diethyl phthalate	49.9		5.0	50.0		99.9 72-124	0.02	30
2,4-Dimethylphenol	44.0		5.0	50.0		87.9 48-136	0.94	30
Dimethyl phthalate	49.7		5.0	50.0		99.3 71-122	0.06	30
2,4-Dinitrophenol	59.4		20.0	50.0		119 42-152	9.53	30
2,4-Dinitrotoluene	54.5		5.0	50.0		109 61-121	0.16	30
2,6-Dinitrotoluene	51.5		5.0	50.0		103 68-128	0.14	30
4,6-Dinitro-2-methylphenol	57.0		20.0	50.0		114 46-146	4.36	30
Di-n-butyl phthalate	53.6		5.0	50.0		107 75-136	0.99	30
Di-n-octyl phthalate	53.8		5.0	50.0		108 64-134	1.37	30



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Semivolatiles by EPA Method 8270 - GC/MS - Quality Control

Batch: B1I2701

Sample Type: Liquid

LCS Dup (B1I2701-BSD1)

Prepared: 9/27/2011 Analyzed: 10/4/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Fluoranthene	52.7		2.0	50.0	105	74-123	0.65	30
Fluorene	43.0		2.0	50.0	86.0	65-129	0.35	30
Hexachlorobenzene	48.4		5.0	50.0	96.7	67-121	0.33	30
Hexachlorobutadiene	39.5		5.0	50.0	79.0	29-112	2.55	30
Hexachlorocyclopentadiene	45.0		5.0	50.0	90.1	32-122	1.26	30
Hexachloroethane	31.1		5.0	50.0	62.2	24-100	6.72	30
Indeno (1,2,3-cd) pyrene	62.2		5.0	50.0	124	65-143	5.45	30
Isophorone	48.6		5.0	50.0	97.2	67-125	0.76	30
2-Methylnaphthalene	46.5		2.0	50.0	93.1	64-117	0.34	30
2-Methylphenol	45.7		5.0	50.0	91.3	60-131	1.76	30
3 &/or 4-Methylphenol	46.1		5.0	50.0	92.2	57-136	1.91	30
Naphthalene	43.0		2.0	50.0	86.0	65-115	0.16	30
2-Nitroaniline	53.9		8.0	50.0	108	65-126	1.70	30
3-Nitroaniline	56.4		8.0	50.0	113	57-136	1.39	30
4-Nitroaniline	66.2		8.0	50.0	132	64-137	4.37	30
Nitrobenzene	46.4		5.0	50.0	92.8	68-126	0.54	30
2-Nitrophenol	51.5		5.0	50.0	103	62-137	0.62	30
4-Nitrophenol	53.9		13.0	50.0	108	52-132	3.20	30
N-Nitrosodiphenylamine	49.2		5.0	50.0	98.3	66-125	0.80	30
N-Nitrosodi-n-propylamine	49.6		5.0	50.0	99.1	61-123	2.84	30
Pentachlorophenol	58.0		5.0	50.0	116	49-134	2.94	30
Phenanthrene	48.4		2.0	50.0	96.8	69-121	0.76	30
Phenol	43.6		5.0	50.0	87.1	62-115	1.07	30
Pyrene	47.1		2.0	50.0	94.3	58-134	1.54	30
1,2,4-Trichlorobenzene	42.1		5.0	50.0	84.3	40-100	2.00	30
2,4,5-Trichlorophenol	50.9		5.0	50.0	102	68-127	0.04	30
2,4,6-Trichlorophenol	50.7		5.0	50.0	101	65-128	0.83	30
Pyridine	38.2		5.0	50.0	76.4	70-130	6.21	30



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Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2104

Sample Type: Phasic by Wt.

Blank (B1I2104-BLK1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Aluminum	U	50.0
Antimony	U	5.0
Arsenic	U	5.0
Barium	U	5.0
Beryllium	U	5.0
Cadmium	U	5.0
Chromium	U	5.0
Cobalt	U	5.0
Copper	U	5.0
Lead	U	5.0
Manganese	U	5.0
Molybdenum	U	5.0
Nickel	U	5.0
Selenium	U	5.0
Silver	U	5.0
Thallium	U	5.0
Vanadium	U	5.0
Zinc	U	10.0
Uranium	U	5.0
Thorium	U	5.0

LCS (B1I2104-BS1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	%REC %REC Limits
Aluminum	175	50.0	200	87.3 85-115
Antimony	204	5.0	200	102 85-115



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2104

Sample Type: Phasic by Wt.

LCS (B1I2104-BS1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Arsenic	210		5.0	200	105	85-115
Barium	201		5.0	200	101	85-115
Beryllium	201		5.0	200	101	85-115
Cadmium	207		5.0	200	103	85-115
Chromium	205		5.0	200	102	85-115
Cobalt	216		5.0	200	108	85-115
Copper	206		5.0	200	103	85-115
Lead	219		5.0	200	109	85-115
Manganese	213		5.0	200	107	85-115
Molybdenum	200		5.0	200	100	85-115
Nickel	206		5.0	200	103	85-115
Selenium	217		5.0	200	109	85-115
Silver	205		5.0	200	103	85-115
Thallium	214		5.0	200	107	85-115
Vanadium	195		5.0	200	97.6	85-115
Zinc	209		10.0	200	105	85-115
Uranium	205		5.0	200	102	85-115
Thorium	203		5.0			85-115

Matrix Spike (B1I2104-MS1)

Source: 1109024-09

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Aluminum	17,200		4,500	18,000	21.6	95.6	70-130
Antimony	18,400		450	18,000	14.3	102	70-130
Arsenic	19,100		450	18,000		106	70-130
Barium	18,500		450	18,000	84.4	102	70-130



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2104

Sample Type: Phasic by Wt.

Matrix Spike (B1I2104-MS1)

Source: 1109024-09

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Beryllium	18,000		450	18,000	2.2	100	70-130
Cadmium	18,700		450	18,000		104	70-130
Chromium	18,500		450	18,000	397	101	70-130
Cobalt	19,500		450	18,000	16.6	108	70-130
Copper	18,400		450	18,000	94.7	102	70-130
Lead	19,700		450	18,000	408	107	70-130
Manganese	22,800		450	18,000	2,560	113	70-130
Molybdenum	18,200		450	18,000	35.0	101	70-130
Nickel	18,500		450	18,000	69.0	102	70-130
Selenium	20,000		450	18,000		111	70-130
Silver	18,500		450	18,000	3.3	103	70-130
Thallium	19,400		450	18,000	350	106	70-130
Vanadium	17,700		450	18,000		98.2	70-130
Zinc	19,800		899	18,000	131	110	70-130
Uranium	18,600		450	18,000	46.2	103	70-130
Thorium	18,400		450		36.5		70-130

Matrix Spike Dup (B1I2104-MSD1)

Source: 1109024-09

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit
Aluminum	22,900		4,990	20,000	21.6	114	70-130	28.1 #	20
Antimony	20,300		499	20,000	14.3	102	70-130	9.80	20
Arsenic	21,400		499	20,000		107	70-130	11.6	20
Barium	20,500		499	20,000	84.4	102	70-130	10.2	20
Beryllium	20,200		499	20,000	2.2	101	70-130	11.6	20
Cadmium	20,500		499	20,000		103	70-130	9.14	20



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Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2104

Sample Type: Phasic by Wt.

Matrix Spike Dup (B1I2104-MSD1)

Source: 1109024-09

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD RPD	Limit
Chromium	20,500		499	20,000	397	101 70-130	9.94	20
Cobalt	21,300		499	20,000	16.6	107 70-130	8.93	20
Copper	20,200		499	20,000	94.7	101 70-130	9.67	20
Lead	22,000		499	20,000	408	108 70-130	10.8	20
Manganese	32,700		499	20,000	2,560	151 # 70-130	35.6 #	20
Molybdenum	20,100		499	20,000	35.0	101 70-130	10.0	20
Nickel	20,400		499	20,000	69.0	102 70-130	9.92	20
Selenium	21,800		499	20,000		109 70-130	8.59	20
Silver	20,300		499	20,000	3.3	102 70-130	9.53	20
Thallium	21,600		499	20,000	350	107 70-130	10.7	20
Vanadium	19,500		499	20,000		97.8 70-130	9.97	20
Zinc	21,500		998	20,000	131	107 70-130	7.83	20
Uranium	20,800		499	20,000	46.2	104 70-130	11.3	20
Thorium	20,400		499		36.5	70-130	10.1	20

Reference (B1I2104-SRM1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD RPD	Limit
Aluminum	82,900		19,100	115,000		72.1 47.6-152		
Antimony	41,000		1,910	66,000		62.1 41.8-157		
Arsenic	154,000		1,910	253,000		61.1 60.8-139		
Barium	1,550		1,910	1,600		96.6 62.5-137		
Beryllium	5,980		1,910	4,900		122 61.2-138		
Cadmium	12,600		1,910	10,900		116 70.6-128		
Chromium	30,500		1,910	27,100		113 68.3-131		
Cobalt	28,400		1,910	37,400		75.8 64.7-135		



Environmental Protection Agency
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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2104

Sample Type: Phasic by Wt.

Reference (B1I2104-SRM1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	Source Result	%REC Limits	RPD RPD Limit
Copper	1,870,000	1,910	1.77E6	106	74.6-126	
Lead	61,900	1,910	56,900	109	72.7-127	
Manganese	76,400	1,910	61,000	125	68.2-132	
Nickel	19,300	1,910	16,300	118	55.2-145	
Selenium	4,330	1,910	10,000	43.3	41-159	
Silver	6,460	1,910	5,900	110	45.8-154	
Thallium	11,200	1,910	9,500	117	30.5-169	
Vanadium	16,800	1,910	17,600	95.7	65.9-134	
Zinc	35,900	3,820	47,500	75.7	43.2-156	



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2105

Sample Type: Liquid

Blank (B1I2105-BLK1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Aluminum	U	50.0
Antimony	U	5.0
Arsenic	U	5.0
Barium	U	5.0
Beryllium	U	5.0
Cadmium	U	5.0
Chromium	U	5.0
Cobalt	U	5.0
Copper	U	5.0
Lead	U	5.0
Manganese	U	5.0
Molybdenum	U	5.0
Nickel	U	5.0
Selenium	U	5.0
Silver	U	5.0
Thallium	U	5.0
Vanadium	U	5.0
Zinc	U	10.0
Uranium	U	5.0
Thorium	U	5.0

LCS (B1I2105-BS1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	%REC %REC Limits
Aluminum	184	50.0	200	92.2 85-115
Antimony	202	5.0	200	101 85-115



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2105

Sample Type: Liquid

LCS (B1I2105-BS1)

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Arsenic	207		5.0	200	104	85-115
Barium	203		5.0	200	101	85-115
Beryllium	205		5.0	200	102	85-115
Cadmium	206		5.0	200	103	85-115
Chromium	207		5.0	200	103	85-115
Cobalt	221		5.0	200	111	85-115
Copper	207		5.0	200	104	85-115
Lead	217		5.0	200	109	85-115
Manganese	220		5.0	200	110	85-115
Molybdenum	203		5.0	200	101	85-115
Nickel	207		5.0	200	104	85-115
Selenium	215		5.0	200	108	85-115
Silver	205		5.0	200	103	85-115
Thallium	218		5.0	200	109	85-115
Vanadium	205		5.0	200	102	85-115
Zinc	213		10.0	200	106	85-115
Uranium	206		5.0	200	103	85-115
Thorium	206		5.0			85-115

Matrix Spike (B1I2105-MS1)

Source: 1109024-01

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Aluminum	1,190		50.0	200	1,320	NR	# 70-130
Antimony	202		5.0	200	0.4	101	70-130
Arsenic	224		5.0	200	7.7	108	70-130
Barium	393		5.0	200	196	98.6	70-130



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2105

Sample Type: Liquid

Matrix Spike (B1I2105-MS1)

Source: 1109024-01

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Beryllium	207		5.0	200	0.1	104	70-130
Cadmium	203		5.0	200		101	70-130
Chromium	200		5.0	200	3.3	98.5	70-130
Cobalt	212		5.0	200	1.6	105	70-130
Copper	196		5.0	200	4.8	95.5	70-130
Lead	221		5.0	200	5.6	108	70-130
Manganese	676		5.0	200	482	97.0	70-130
Molybdenum	214		5.0	200	5.8	104	70-130
Nickel	209		5.0	200	11.2	98.7	70-130
Selenium	230		5.0	200	8.0	111	70-130
Silver	192		5.0	200	0.03	95.8	70-130
Thallium	217		5.0	200	2.8	107	70-130
Vanadium	206		5.0	200	1.9	102	70-130
Zinc	208		10.0	200	6.8	100	70-130
Uranium	230		5.0	200	5.9	112	70-130
Thorium	208		5.0		0.5		70-130

Matrix Spike Dup (B1I2105-MSD1)

Source: 1109024-01

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit
Aluminum	1,260		50.0	200	1,320	NR #	70-130	5.92	20
Antimony	205		5.0	200	0.4	102	70-130	1.24	20
Arsenic	217		5.0	200	7.7	105	70-130	3.16	20
Barium	403		5.0	200	196	104	70-130	2.60	20
Beryllium	217		5.0	200	0.1	109	70-130	4.74	20
Cadmium	206		5.0	200		103	70-130	1.56	20



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2105

Sample Type: Liquid

Matrix Spike Dup (B1I2105-MSD1)

Source: 1109024-01

Prepared: 9/20/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	Source Result	%REC %REC	Limit	RPD RPD	Limit
Chromium	200	5.0	200	3.3	98.4	70-130	0.10	20
Cobalt	206	5.0	200	1.6	102	70-130	2.59	20
Copper	193	5.0	200	4.8	94.3	70-130	1.29	20
Lead	224	5.0	200	5.6	109	70-130	1.52	20
Manganese	679	5.0	200	482	98.2	70-130	0.37	20
Molybdenum	212	5.0	200	5.8	103	70-130	0.94	20
Nickel	201	5.0	200	11.2	94.8	70-130	3.76	20
Selenium	223	5.0	200	8.0	108	70-130	2.73	20
Silver	193	5.0	200	0.03	96.6	70-130	0.86	20
Thallium	222	5.0	200	2.8	109	70-130	2.20	20
Vanadium	211	5.0	200	1.9	105	70-130	2.41	20
Zinc	200	10.0	200	6.8	96.7	70-130	3.57	20
Uranium	236	5.0	200	5.9	115	70-130	2.55	20
Thorium	208	5.0		0.5		70-130	0.35	20



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2703

Sample Type: Phasic by Wt.

Blank (B1I2703-BLK1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Aluminum	U	5,000
Antimony	U	500
Arsenic	U	500
Barium	U	500
Beryllium	U	500
Cadmium	U	500
Chromium	U	500
Cobalt	U	500
Copper	U	500
Lead	U	500
Manganese	U	500
Molybdenum	U	500
Nickel	U	500
Selenium	U	500
Silver	U	500
Thallium	U	500
Vanadium	U	500
Zinc	U	1,000
Uranium	U	500
Thorium	U	500

LCS (B1I2703-BS1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	%REC %REC Limits
Aluminum	17,900	5,000	20,000	89.5 85-115
Antimony	20,700	500	20,000	104 85-115



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2703

Sample Type: Phasic by Wt.

LCS (B1I2703-BS1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	%REC %REC Limits
Arsenic	21,500	500	20,000	108 85-115
Barium	20,500	500	20,000	103 85-115
Beryllium	20,900	500	20,000	104 85-115
Cadmium	21,100	500	20,000	105 85-115
Chromium	20,600	500	20,000	103 85-115
Cobalt	21,400	500	20,000	107 85-115
Copper	20,600	500	20,000	103 85-115
Lead	22,100	500	20,000	110 85-115
Manganese	21,400	500	20,000	107 85-115
Molybdenum	20,100	500	20,000	101 85-115
Nickel	20,500	500	20,000	102 85-115
Selenium	22,300	500	20,000	112 85-115
Silver	20,500	500	20,000	102 85-115
Thallium	21,300	500	20,000	107 85-115
Vanadium	20,200	500	20,000	101 85-115
Zinc	20,900	1,000	20,000	105 85-115
Uranium	20,800	500	20,000	104 85-115
Thorium	20,800	500		85-115

Matrix Spike (B1I2703-MS1)

Source: 1109034-06

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	Source Result	%REC %REC Limits
Aluminum	20,400	4,380	17,500	2,410	103 70-130
Antimony	17,900	438	17,500	10.7	102 70-130
Arsenic	19,100	438	17,500	42.0	109 70-130
Barium	18,100	438	17,500	295	101 70-130



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2703

Sample Type: Phasic by Wt.

Matrix Spike (B1I2703-MS1)

Source: 1109034-06

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Beryllium	18,300		438	17,500	1.7	104	70-130
Cadmium	18,200		438	17,500		104	70-130
Chromium	17,400		438	17,500	292	97.9	70-130
Cobalt	18,400		438	17,500	17.2	105	70-130
Copper	17,500		438	17,500	120	99.0	70-130
Lead	19,100		438	17,500	225	108	70-130
Manganese	23,200		438	17,500	4,240	108	70-130
Molybdenum	17,600		438	17,500	38.4	100	70-130
Nickel	17,600		438	17,500	63.0	100	70-130
Selenium	19,500		438	17,500		111	70-130
Silver	17,800		438	17,500		102	70-130
Thallium	18,800		438	17,500	310	106	70-130
Vanadium	17,100		438	17,500		97.9	70-130
Zinc	18,000		876	17,500		103	70-130
Uranium	18,300		438	17,500	85.0	104	70-130
Thorium	18,000		438		41.3		70-130

Matrix Spike Dup (B1I2703-MSD1)

Source: 1109034-06

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit
Aluminum	20,700		4,780	19,100	2,410	95.6	70-130	1.40	20
Antimony	19,300		478	19,100	10.7	101	70-130	7.28	20
Arsenic	20,600		478	19,100	42.0	108	70-130	7.56	20
Barium	19,400		478	19,100	295	99.8	70-130	7.02	20
Beryllium	19,300		478	19,100	1.7	101	70-130	5.60	20
Cadmium	19,500		478	19,100		102	70-130	7.05	20



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2703

Sample Type: Phasic by Wt.

Matrix Spike Dup (B1I2703-MSD1)

Source: 1109034-06

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Chromium	19,000		478	19,100	292	97.6 70-130	8.36	20
Cobalt	20,000		478	19,100	17.2	105 70-130	8.63	20
Copper	18,800		478	19,100	120	97.6 70-130	7.34	20
Lead	20,600		478	19,100	225	107 70-130	7.79	20
Manganese	23,900		478	19,100	4,240	103 70-130	2.89	20
Molybdenum	19,100		478	19,100	38.4	99.6 70-130	7.86	20
Nickel	19,000		478	19,100	63.0	99.2 70-130	7.82	20
Selenium	21,400		478	19,100		112 70-130	9.53	20
Silver	19,300		478	19,100		101 70-130	8.02	20
Thallium	20,300		478	19,100	310	105 70-130	7.64	20
Vanadium	18,700		478	19,100		97.8 70-130	8.73	20
Zinc	19,300		956	19,100		101 70-130	7.00	20
Uranium	19,500		478	19,100	85.0	102 70-130	6.49	20
Thorium	19,300		478		41.3	70-130	6.69	20

Reference (B1I2703-SRM1)

Prepared: 9/27/2011 Analyzed: 9/30/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Aluminum	95,700		19,200	115,000		83.2 47.6-152		
Antimony	66,000		1,920	66,000		100 41.8-157		
Arsenic	252,000		1,920	253,000		99.5 60.8-139		
Barium	1,610		1,920	1,600		100 62.5-137		
Beryllium	6,270		1,920	4,900		128 61.2-138		
Cadmium	13,500		1,920	10,900		124 70.6-128		
Chromium	32,300		1,920	27,100		119 68.3-131		
Cobalt	41,800		1,920	37,400		112 64.7-135		



Environmental Protection Agency
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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2703

Sample Type: Phasic by Wt.

Reference (B1I2703-SRM1)

Prepared: 9/27/2011 Analyzed: 9/30/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD RPD Limit
Copper	2,070,000		1,920	1.77E6	117	74.6-126	
Lead	66,800		1,920	56,900	117	72.7-127	
Manganese	82,100		1,920	61,000	135	# 68.2-132	
Nickel	18,000		1,920	16,300	111	55.2-145	
Selenium	9,870		1,920	10,000	98.7	41-159	
Silver	5,570		1,920	5,900	94.4	45.8-154	
Thallium	11,500		1,920	9,500	122	30.5-169	
Vanadium	19,200		1,920	17,600	109	65.9-134	
Zinc	42,700		3,830	47,500	90.0	43.2-156	



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

Blank (B1I2704-BLK1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit
Aluminum	U	50.0
Antimony	U	5.0
Arsenic	U	5.0
Barium	U	5.0
Beryllium	U	5.0
Cadmium	U	5.0
Chromium	U	5.0
Cobalt	U	5.0
Copper	U	5.0
Lead	U	5.0
Manganese	U	5.0
Molybdenum	U	5.0
Nickel	U	5.0
Selenium	U	5.0
Silver	U	5.0
Thallium	U	5.0
Vanadium	U	5.0
Zinc	U	10.0
Uranium	U	5.0
Thorium	U	5.0

LCS (B1I2704-BS1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Reporting Qualifiers Limit	Spike Level	%REC %REC Limits
Aluminum	173	50.0	200	86.6 85-115
Antimony	207	5.0	200	103 85-115



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

LCS (B1I2704-BS1)

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	%REC %REC	Limits
Arsenic	211		5.0	200	105	85-115
Barium	205		5.0	200	102	85-115
Beryllium	210		5.0	200	105	85-115
Cadmium	207		5.0	200	104	85-115
Chromium	203		5.0	200	102	85-115
Cobalt	217		5.0	200	108	85-115
Copper	210		5.0	200	105	85-115
Lead	220		5.0	200	110	85-115
Manganese	216		5.0	200	108	85-115
Molybdenum	201		5.0	200	100	85-115
Nickel	208		5.0	200	104	85-115
Selenium	216		5.0	200	108	85-115
Silver	204		5.0	200	102	85-115
Thallium	219		5.0	200	109	85-115
Vanadium	197		5.0	200	98.7	85-115
Zinc	221		10.0	200	110	85-115
Uranium	206		5.0	200	103	85-115
Thorium	207		5.0			85-115

Matrix Spike (B1I2704-MS1)

Source: 1109034-01

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Aluminum	766		50.0	200	605	80.4	70-130
Antimony	208		5.0	200	0.5	104	70-130
Arsenic	222		5.0	200	8.0	107	70-130
Barium	385		5.0	200	181	102	70-130



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

Matrix Spike (B1I2704-MS1)

Source: 1109034-01

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Beryllium	207		5.0	200	0.08	104	70-130
Cadmium	206		5.0	200		103	70-130
Chromium	195		5.0	200	3.0	96.2	70-130
Cobalt	208		5.0	200	1.2	103	70-130
Copper	194		5.0	200	4.9	94.7	70-130
Lead	226		5.0	200	3.9	111	70-130
Manganese	456		5.0	200	248	104	70-130
Molybdenum	214		5.0	200	5.5	104	70-130
Nickel	203		5.0	200	11.7	95.7	70-130
Selenium	229		5.0	200	8.3	110	70-130
Silver	193		5.0	200	0.008	96.3	70-130
Thallium	220		5.0	200	3.9	108	70-130
Vanadium	207		5.0	200	1.5	103	70-130
Zinc	202		10.0	200	6.5	97.6	70-130
Uranium	234		5.0	200	5.9	114	70-130
Thorium	215		5.0		0.6		70-130

Matrix Spike (B1I2704-MS2)

Source: 1109034-12

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Aluminum	322		50.0	200	59.1	131	# 70-130
Antimony	210		5.0	200	0.4	105	70-130
Arsenic	217		5.0	200	7.1	105	70-130
Barium	346		5.0	200	146	100	70-130
Beryllium	209		5.0	200	0.03	104	70-130
Cadmium	204		5.0	200		102	70-130



Environmental Protection Agency
Region 6 Laboratory

10625 Fallstone Road, Houston, TX 77099
Phone:(281)983-2100 Fax:(281)983-2248

Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

Matrix Spike (B1I2704-MS2)

Source: 1109034-12

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits
Chromium	195		5.0	200	2.0	96.6	70-130
Cobalt	199		5.0	200	0.9	99.0	70-130
Copper	189		5.0	200	4.0	92.6	70-130
Lead	222		5.0	200	2.8	109	70-130
Manganese	346		5.0	200	146	99.7	70-130
Molybdenum	206		5.0	200	5.3	100	70-130
Nickel	197		5.0	200	10.7	93.3	70-130
Selenium	223		5.0	200	7.2	108	70-130
Silver	190		5.0	200		94.9	70-130
Thallium	221		5.0	200	1.1	110	70-130
Vanadium	204		5.0	200	0.6	102	70-130
Zinc	194		10.0	200	4.4	94.9	70-130
Uranium	233		5.0	200	6.1	113	70-130
Thorium	222		5.0		0.03		70-130

Matrix Spike Dup (B1I2704-MSD1)

Source: 1109034-01

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit
Aluminum	768		50.0	200	605	81.6	70-130	0.31	20
Antimony	208		5.0	200	0.5	104	70-130	0.01	20
Arsenic	221		5.0	200	8.0	107	70-130	0.57	20
Barium	385		5.0	200	181	102	70-130	0.02	20
Beryllium	217		5.0	200	0.08	109	70-130	4.81	20
Cadmium	205		5.0	200		103	70-130	0.20	20
Chromium	200		5.0	200	3.0	98.4	70-130	2.30	20
Cobalt	204		5.0	200	1.2	101	70-130	1.88	20



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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

Matrix Spike Dup (B1I2704-MSD1)

Source: 1109034-01

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	RPD Limit
Copper	195		5.0	200	4.9	94.8	70-130	0.14	20
Lead	225		5.0	200	3.9	110	70-130	0.49	20
Manganese	447		5.0	200	248	99.7	70-130	1.97	20
Molybdenum	206		5.0	200	5.5	100	70-130	3.46	20
Nickel	203		5.0	200	11.7	95.6	70-130	0.05	20
Selenium	223		5.0	200	8.3	107	70-130	2.83	20
Silver	191		5.0	200	0.008	95.5	70-130	0.83	20
Thallium	221		5.0	200	3.9	108	70-130	0.28	20
Vanadium	209		5.0	200	1.5	104	70-130	0.84	20
Zinc	202		10.0	200	6.5	97.5	70-130	0.07	20
Uranium	235		5.0	200	5.9	115	70-130	0.49	20
Thorium	219		5.0		0.6		70-130	1.62	20

Matrix Spike Dup (B1I2704-MSD2)

Source: 1109034-12

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	RPD Limit
Aluminum	284		50.0	200	59.1	112	70-130	12.6	20
Antimony	212		5.0	200	0.4	106	70-130	1.13	20
Arsenic	219		5.0	200	7.1	106	70-130	0.96	20
Barium	357		5.0	200	146	106	70-130	3.02	20
Beryllium	208		5.0	200	0.03	104	70-130	0.45	20
Cadmium	205		5.0	200		103	70-130	0.54	20
Chromium	199		5.0	200	2.0	98.6	70-130	2.10	20
Cobalt	202		5.0	200	0.9	100	70-130	1.26	20
Copper	193		5.0	200	4.0	94.5	70-130	1.92	20
Lead	224		5.0	200	2.8	111	70-130	1.21	20



Environmental Protection Agency
Region 6 Laboratory

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Metals by EPA Method 6020 - ICP MS - Quality Control

Batch: B1I2704

Sample Type: Liquid

Matrix Spike Dup (B1I2704-MSD2)

Source: 1109034-12

Prepared: 9/26/2011 Analyzed: 9/29/2011

Targets (Continued)

ANALYTE	Result µg/l	Analyte Qualifiers	Reporting Limit	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Manganese	347		5.0	200	146	100 70-130	0.26	20
Molybdenum	208		5.0	200	5.3	101 70-130	1.03	20
Nickel	199		5.0	200	10.7	94.4 70-130	1.12	20
Selenium	220		5.0	200	7.2	106 70-130	1.10	20
Silver	191		5.0	200		95.5 70-130	0.60	20
Thallium	222		5.0	200	1.1	110 70-130	0.60	20
Vanadium	207		5.0	200	0.6	103 70-130	1.65	20
Zinc	196		10.0	200	4.4	95.9 70-130	0.99	20
Uranium	237		5.0	200	6.1	115 70-130	1.63	20
Thorium	226		5.0		0.03	70-130	1.93	20



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Notes and Definitions

K	The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
A	This sample was extracted at a single acid pH.
HTS	Sample was prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.
AES	Atomic Emission Spectrometer
CVAA	Cold Vapor Atomic Absorption
ECD	Electron Capture Detector
GC	Gas Chromatograph
GFAA	Graphite Furnace Atomic Absorption
ICP	Inductively Coupled Plasma
MS	Mass Spectrometer
NA	Not Applicable
NPD	Nitrogen Phosphorous Detector
NR	Not Reported
TCLP	Toxicity Characteristic Leaching Procedure
U	Undetected
#	Out of QC limits

Initial pressure in air analyses is the pressure at which the canister was received in psia (pounds *per* square inch absolute pressure).

The pH reported for Volatile liquid samples was tested using a 0-14 pH indicator strip for the purpose of verifying chemical preservation.

The statistical software used for the reporting of toxicity data is ToxCalc 5.0.32, Environmental Toxicity Data Analysis System 1994-2007 Tidepool Scientific Software.

ATTACHMENT H

NEIC DATA

United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

NEICSP0287S01

LABORATORY REPORT

Red River Pollutant Identification

Oklahoma

NEIC Project No.: SP0287

January 2012

Principal Analytical Chemist:

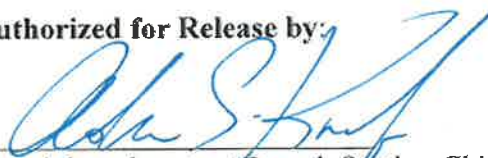


Jon Beihoffer

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P.O. Box 25227
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Denver, Colorado 80225-5227

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APPENDIX

A Chain of Custody Record (1 page)	
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**This Contents page shows all the sections contained in this report
and provides a clear indication of the end of this report.**

EXECUTIVE SUMMARY

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) National Enforcement Investigations Center (NEIC) provided laboratory assistance to EPA's Region 6 Environmental Services Branch laboratory for the Red River Fish Kill project in Oklahoma. The EPA Region 6 laboratory requested NEIC's assistance in identifying a white substance that is appearing in water samples from the Red River in Oklahoma during the Regional laboratory's analyses for the project.

This report contains laboratory analytical results for white solid material recovered from two gel samples from stations 508672 and 508674 (hereafter referred to as samples 508672 and 508674), as documented on the chain of custody record (**Appendix A**). All NEIC analyses were conducted in accordance with the NEIC quality system by NEIC chemists Jon Beihoffer, Willis Collins, Linda Johnson, Richard Martinez, and Stephanie Volz from October 2011 through December 2011.

SUMMARY OF FINDINGS

- Magnesium hydroxide and sodium chloride crystalline phases are present in the dried white solid recovered from samples 508672 and 508674.
- No organic constituents were detected in the dried white solid recovered from samples 508672 or 508674 by nuclear magnetic resonances (NMR) spectrometry, infrared (IR) spectroscopy, or Raman spectroscopy.
- The elemental analysis results for the dried white solid recovered from sample 508672 were 14.7 percent (%) weight per weight (wt/wt) of magnesium, 1.2% wt/wt of sodium, 0.77% wt/wt of sulfur, 0.59% wt/wt of calcium, and 0.46% wt/wt of silicon.
- The elemental analysis results for the dried white solid recovered from sample 508674 were 21.9% wt/wt of magnesium, 3.1% wt/wt of sodium, 1.2% wt/wt of calcium, 1.0% wt/wt of sulfur, and 1.0% wt/wt of silicon.

LABORATORY ACTIVITIES

INTRODUCTION

On October 3, 2011, the NEIC laboratory received two gel and two water samples collected on August 26 and 30, 2011, as part of the EPA Region 6 Red River Pollutant Fish Kill project in Oklahoma. Laboratory sample delivery, receipt, and transfer are summarized in Table 1. A copy of the chain of custody record is attached in **Appendix A**. The samples were maintained under custody in accordance with the NEIC operating procedure *Evidence Management*, NEICPROC/00-059R3.

Table 1. LABORATORY SAMPLE DELIVERY, RECEIPT, AND TRANSFER
Red River Pollutant Identification
Oklahoma

Event	Date	Comments
Samples received	October 3, 2011	Delivered to NEIC by UPS (tracking No. 1Z A42 00W01 5075 3585) and received by Jon Beihoffer.
Samples unpacked and inspected	October 3, 2011	Received one blue-and-white cooler sealed with tape and custody seal. The tape and custody seal were intact. Jon Beihoffer unpacked and inspected the cooler. The cooler contained two gel and two water samples. The samples were received intact. No ice was present, but the samples were cold to the touch. The samples were stored in a locked small Pelican case in walk-in cooler A in room 1C-210.

ANALYTICAL PROCEDURES AND ANALYSTS

Table 2 lists the analytical procedures and analysts. The analytical procedures were used to determine the identity of the dried white solid material recovered from samples 508672 and 508674. The two water samples from stations 508670 and 508671 were not analyzed. All analyses were conducted by NEIC personnel in accordance with the NEIC quality system during October 2011 through December 2011. Data quality summaries for all laboratory measurements are maintained in the project file.

Table 2. ANALYTICAL PROCEDURES AND ANALYSTS
Red River Pollutant Identification
Oklahoma

Analytical Method/Procedures	Analyst
<i>Physical Description/Phase Separation</i> , NEICPROC/00-045R2	Jon Beihoffer
<i>Qualitative Identification by Infrared Spectroscopy</i> , NEICPROC/00-046R3	Stephanie Volz
<i>Raman Spectroscopy</i> , NEICPROC/09-001	Linda Johnson
<i>Analyses by Nuclear Magnetic Resonance Spectrometry</i> , NEICPROC/00-025R2	Jon Beihoffer
<i>X-Ray Diffraction for Qualitative Identification of Crystalline Phases</i> , NEICPROC/99-019R2	Richard Martinez
Elemental analysis by inductively coupled plasma-optical emission spectroscopy (ICP-OES), EPA SW-846 Method 6010C as guidance	Willis Collins

SAMPLE PREPARATION

The two gel samples were centrifuged at 3,000 revolutions per minute (rpm) for 5 minutes. After centrifuging, the gel from sample 508672 had two phases: a clear colorless nonviscous liquid on top and a white solid material on the bottom. The gel from sample 508674 had three phases: a clear colorless nonviscous liquid on top, a white solid material in the middle, and a clear, colorless, nonviscous liquid on the bottom. The liquid phases were transferred to glass vials, and the white solid materials were air-dried at room temperature for several days.

ANALYTICAL RESULTS

Table 3 contains the physical descriptions of the materials analyzed and summarizes the analytical results. Water samples from stations 508670 and 508671 were not analyzed because no organic constituents were detected in the dried white solid recovered from samples 508672 and 508674.

Elemental Analyses

A subsample of the dried white solid recovered from samples 508674 and 508672 was dissolved in 2 percent nitric acid solution and heated. Each subsample generated gas in the acid solution by bubbling, which is an indication of the presence of carbonates. The acid solutions were analyzed by inductively coupled plasma-optical emission spectroscopy (ICP-OES). The dried white solid recovered from sample 508672 contained 14.7% wt/wt of magnesium, 1.2% wt/wt of sodium, 0.77% wt/wt of sulfur, 0.59% wt/wt of calcium, and 0.46% wt/wt of silicon. The dried white solid recovered from sample 508674 contained 21.9% wt/wt of magnesium, 3.1% wt/wt of sodium, 1.2% wt/wt of calcium, 1.0% wt/wt of sulfur, and 1.0% wt/wt of silicon.

X-Ray Diffraction (XRD) Analyses

The diffraction pattern for the dried white solid recovered from samples 508672 and 508674 was consistent with a standard reference spectrum of magnesium hydroxide and had at least three matched lines with the International Centre for Diffraction Data diffraction pattern for magnesium hydroxide and sodium chloride. XRD analysis only detects constituents in the crystalline phase. Constituents that are amorphous are not detected by the analysis, which has a detection limit of 1 to 5 percent.

Infrared (IR) Analyses

The spectrum for the dried white solid recovered from sample 508672 was consistent with the spectrum of a standard of magnesium hydroxide and water. The spectrum for the dried white solid recovered from sample 508674 was consistent with the spectrum of a standard of magnesium hydroxide. The spectra were obtained using a diamond attenuated total reflectance (ATR) accessory. The detection limit for this analysis was 1 to 5 percent.

Nuclear Magnetic Resonance (NMR) Analyses

No constituent in a concentration of more than 100 parts per million (ppm) was extracted from subsamples of the dried white solids recovered from samples 508672 and 508674. Subsamples of the dried white solid recovered from sample 508672 were extracted in deuterated methanol and in deuterated toluene. No proton resonances were observed in these extractions. Subsamples of the dried white solid recovered from sample 508674 were extracted in deuterated acetone, in deuterated benzene, and in deuterated dimethyl sulfoxide. No proton resonances were observed in these extractions.

Raman Analyses

No useful information was obtained from the Raman analysis of a subsample of the dried white solid recovered from sample 508674. An interferogram was obtained for the sample, but the spectrum was noisy and did not contain any peaks.

Table 3. DESCRIPTIONS OF MATERIALS ANALYZED AND ANALYTICAL RESULTS
Red River Pollutant Identification
Oklahoma

Station No. Date Collected ¹	Station Location	Laboratory Physical Description	Analytical Results
508672 8/30/11	1109034-08	Dried white solid	Elemental results: 14.7% wt/wt of magnesium, 1.2% wt/wt of sodium, 0.77% wt/wt of sulfur, 0.59% wt/wt of calcium, and 0.46% wt/wt of silicon XRD results: magnesium hydroxide and sodium chloride crystalline phases are present. IR results: magnesium hydroxide is present, and no organic constituents detected. NMR results: no organic constituents detected in the extracts.
508674 8/26/11	1109024-10	Dried white solid	Elemental results: 21.9% wt/wt of magnesium, 3.1% wt/wt of sodium, 1.2% wt/wt of calcium, 1.0% wt/wt of sulfur, and 1.0% wt/wt of silicon XRD results: magnesium hydroxide and sodium chloride crystalline phases are present. IR results: magnesium hydroxide is preset, and no organic constituents detected. NMR results: no organic constituents detected in the extracts.
508670 8/26/11	1109024-04		Not analyzed
508671 8/30/11	1109034-05		Not analyzed

APPENDIX A

CHAIN OF CUSTODY RECORD
(1 page)

ENVIRONMENTAL PROTECTION AGENCY
OFFICIAL
CHAIN OF CUSTODY RECORD

[illegible]

ATTACHMENT I

EPA SUMMARY OF FINDINGS

Key Messages

EPA provides technical support to the State of Oklahoma in identifying cause of July 2011 Red River fish kill. The investigation is on-going.

OVERVIEW:

EPA analytical chemists recently determined that a type of mycotoxin, produced by a fungus, was found in water samples from the Red River and is a potential cause of the fish kill that occurred on the Red River in July 2011. The river borders Oklahoma and Texas. The state of Oklahoma requested EPA's assistance in identifying the cause of the fish kill.

Release Timeline: This Summary of Findings is publically releasable. Additionally, EPA scientists are working on a manuscript for rapid publication.

Key Messages:

- EPA scientists recently provided technical assistance to the State of Oklahoma to identify contaminants that are a potential cause of a fish kill that occurred on the Red River in July 2011. The river borders Oklahoma and Texas.
- EPA analytical chemists determined that a type of ergot alkaloid mycotoxin, produced by a fungus, was a potential cause of the fish kill.
- Mycotoxins are a by-product of fungal growth. Ergot alkaloids are produced by the fungi *of the genus Claviceps*, which can grow on rye, barley, wheat, and numerous grasses (such as marsh grass and fescue).
- At this time, EPA and the State of Oklahoma are uncertain how the mycotoxin may have entered the river. Fungi can grow on many different native grasses and it is possible that there was an outbreak of *Claviceps purpurea* on the native grasses in the area at the time of the fish kill. As the fungus dried, spores containing the ergot alkaloids could have been deposited in the river.
- Mycotoxins can be harmful to humans and animals. In humans, exposure to mycotoxins can result in itchy burning skin, hallucination, gangrene, and in extreme cases, death.
- Oklahoma officials collected water and sediment samples from the Red River at the time of the fish kill on July 9 and 13, 2011. They also collected samples on Sept. 14, 2011. The samples were sent to Oklahoma state laboratories for traditional analyses (to investigate for the presence of volatiles, semi-volatiles and metals). Other samples were sent to EPA to analyze for organic contaminants.