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**IT CORPORATION**  
A Member of The IT Group

**THIRD QUARTER 2002 GROUNDWATER MONITORING REPORT  
FORMER THOMAS A. SHORT COMPANY PROPERTY  
OAKLAND, ALAMEDA COUNTY, CALIFORNIA**

October 15, 2002

**Alameda County**

OCT 24 2002

**Environmental Health**

3430 Wood St  
- 08

Prepared for:

California Department of Transportation  
Office of Environmental Engineering  
Box 23660  
Oakland, California 94623-0660

Prepared by:

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1326 North Market Boulevard  
Sacramento, California 95834

EA No.: 04-911052  
Task Order No.: 04-0911052-WB  
Contract No.: 43A0078

IT Project No.: 830714

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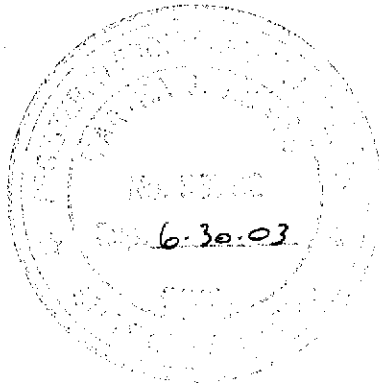
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**THIRD QUARTER 2002 GROUNDWATER MONITORING REPORT  
FORMER THOMAS A. SHORT COMPANY PROPERTY  
OAKLAND, ALAMEDA COUNTY, CALIFORNIA**

IT Corporation (IT), is pleased to submit this report for third quarterly 2002 groundwater monitoring conducted at the former Thomas A. Short Company property, Oakland, Alameda County, California. This report is submitted in accordance with Contract No. 43A0078, Task Order No. 04-911052-WB.

The material and data in this report were prepared under the supervision and direction of the undersigned and performed consistent with generally accepted professional consulting principles and practices.

**IT Corporation**



Martha Adams  
Martha Adams, P.E.  
Project Manager

Distribution: Chris Wilson, Caltrans  
File 830714

## 1.0 Project History

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The Thomas Short property (Figure 1) was purchased by Caltrans in 1994. According to a previous report on this site (Geocon, 2001), one 4,000-gallon gasoline underground storage tank (UST) and one 1,000-gallon diesel UST were located at the site. The USTs were removed in January 1993. Groundwater samples collected from monitoring well W-1 in February and October 1993, following UST removal, were reported to contain 4.6 and 3.7 milligrams per liter (mg/l) total petroleum hydrocarbons as gasoline (TPHg), respectively (Geocon, 2001).

Three additional monitoring wells were installed in November 1996. The monitoring wells were buried during construction activities before groundwater samples could be collected. The wells have subsequently not been located.

Three more monitoring wells were installed in May 2000. Based on the results from six quarters of groundwater monitoring, groundwater has been encountered at depths ranging from approximately 2.45 to 5.03 meters (8.03 to 16.5 feet) from top of casing. Groundwater gradient directions have varied from east, southeast, southwest, and west. TPHg concentrations have ranged from below the detection limit to 11 mg/l and total petroleum hydrocarbons as diesel (TPHd) concentrations have ranged from below the detection limit to 2.45 mg/l. Benzene concentrations have ranged from below the detection limit to 191 µg/l. Toluene and ethyl benzene have been detected at levels that do not exceed their respective risk-based screening levels. Xylene concentrations have ranged from below the detection limit to 121 µg/l. Various other volatile organic compounds common to gasoline have been reported. Methyl tertiary butyl ether (MTBE) concentrations have ranged from below the detection limit to 7 µg/l, well below its risk-based screening level of 1,800 µg/l.

## 2.0 Groundwater Sampling Event

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### 2.1 Groundwater Sampling and Analytical Program

Groundwater sampling for the third quarter of 2002 was conducted on July 11, 2002, by personnel of IT. This monitoring event included the collection and analysis of groundwater samples from three on-site monitoring wells. Monitoring procedures are included in Appendix A. Groundwater sample field data sheets are included in Appendix B.

Groundwater samples were analyzed by Sparger Technology, Inc. (Sparger), of Sacramento, California, a California-certified analytical laboratory. Samples were collected, retained, and transported to the laboratory using chain of custody procedures. The analyses were conducted on a normal turn-around basis in general accordance with holding times specified by the U.S. Environmental Protection Agency (EPA). The analyses were performed in general accordance with the following EPA methods listed.

<b>Matrix</b>	<b>Analyses</b>
Water	Total Petroleum Hydrocarbons as Gasoline EPA Method 8015 modified
Water	Total Petroleum Hydrocarbons as Diesel EPA Method 8015 modified
Water	Total Petroleum Hydrocarbons EPA Method 1664
Water	Fuel Oxygenate Compounds EPA Method 8260B
Water	Volatile Organic Compounds EPA Method 8260B
Water	California Assessment Manual (CAM) 17 Metals EPA 6010/7470
Water	Total Dissolved Solids

Samples collected for CAM 17 Metals analysis were transferred into unpreserved containers in the field. The samples were filtered and preserved at the laboratory prior to analysis.

### 2.2 Quality Assurance Program

The quality assurance (QA) program included the collection and analysis of travel blanks. These additional samples were submitted for analysis to assess potential errors introduced during transport of the groundwater samples. A trip blank was carried in the insulated chest with the groundwater samples. The trip blank consisted of two volatile organic analysis (VOA) vials filled at the laboratory with water that had been purged of volatile organic compounds. The trip blank was analyzed for TPHg, fuel oxygenate compounds, and volatile organic compounds

(VOCs) in accordance with the methods listed in section 2.1. A brief assessment of the QA data is presented in this report.

The purpose of the travel blanks was to assess potential "cross contamination" of samples during storage and transport to the laboratory. During this program, one set of travel blanks was analyzed. TPHg, fuel oxygenate compounds, and VOCs were not reported present in the travel blank set at concentrations exceeding reporting limits of the analytical method used by the laboratory. Based on the results of the travel blank analysis, the groundwater samples are judged to be free of interferences which may have occurred during storage and transport to the laboratory.



### 3.0 Monitoring Results

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The monitoring results from the groundwater samples collected during the third quarter 2002 sampling event are summarized below. Monitoring well locations are shown on Figure 2. Current and historical groundwater elevation data are presented on Tables 1 and 2. The current groundwater gradient is depicted on Figure 3. Current analytical results are summarized on Tables 3, 4, and 5. Selected compounds are plotted on Figure 4. Historical analytical data are presented on Tables 6, 7, and 8.

#### 3.1 Summary

Site Location:	<u>Former Thomas A. Short Company</u> <u>3430 Wood Street, Oakland, California, Figure 1</u>
Current Phase of Project:	<u>Monitoring</u>
Frequency of Monitoring:	<u>Quarterly</u>
Separate-Phase Hydrocarbons Present:	<u>None present</u>
Water Purged from Wells This Quarter:	<u>6.75 gallons (from 3 monitoring wells)</u>
Range of Depth to Groundwater:	<u>10.72 to 15.02 (feet from top of casing), Table 1</u> <u>3.3 to 4.6 (meters from top of casing)</u>
Groundwater Elevation Change Since Last Quarter:	<u>Groundwater elevations decreased in all wells.</u> <u>Decreases ranged from -0.87 to -0.24 feet</u> <u>-0.27 to -0.07 meters</u>
Groundwater Gradient:	<u>0.011, Figure 3</u>
Groundwater Flow Direction:	<u>East, Figure 3</u>

#### 3.2 Analytical Results

Total petroleum hydrocarbons were not reported in the groundwater samples analyzed at concentrations greater than the analytical method reporting limits (Table 3). TPHg was reported by the laboratory in groundwater samples from wells MW-4 and MW-5 at concentrations of 2.9 and 4.1 mg/l, respectively. TPHd was reported by the laboratory in groundwater samples from wells MW-4 and MW-5 at concentrations of 1.26 and 2.45 mg/L, respectively. TPHg and TPHd were not reported in the groundwater sample from well MW-6 at concentrations above the laboratory analytical method reporting limit (Table 3).

Benzene, toluene, ethylbenzene, and xylenes were reported in groundwater samples collected from well MW-5. The reported concentrations were 0.099 mg/l, 0.0046 mg/l, 0.043 mg/l, and 0.0056 mg/l, respectively. Benzene was also reported in the groundwater samples collected from well MW-4 at a concentration 0.0097 mg/l. Toluene, ethylbenzene, and xylenes were not reported in the groundwater samples collected from wells MW-4 and MW-6. Benzene was not reported in the groundwater sample collected from well MW-6 (Table 3).

MTBE and other fuel oxygenate compounds were not reported by the laboratory in the groundwater samples collected (Table 3).

Additional volatile organic compounds (VOCs) were reported in groundwater samples collected from wells MW-4 and MW-5 (Table 4). The following VOCs and concentration ranges were reported (in mg/l).

1,2,4-trimethylbenzene	0.0054 (MW-5)	Isopropylbenzene	0.049 (MW-5)
1,3,5-trimethylbenzene	0.0084 (MW-5)	N-butylbenzene	0.064 (MW-5)
2-Butanone	0.0078 to 0.0088	N-propylbenzene	0.097 (MW-5)
2-Hexanone	0.010 (MW-5)	Sec-butylbenzene	0.012 (MW-5)
Acetone	0.013 (MW-4)	Tert-butylbenzene	0.004 to 0.021
Acrolein	0.100 (MW-4)	Trichloroethene	0.0022 to 0.005
2-Chloroethylvinyl ether	0.030 (MW-4)		

The only metals that groundwater samples were reported to contain were barium and zinc (Table 5). Barium was reported in groundwater samples collected from wells MW-4, MW-5, and MW-6 at concentrations ranging from 0.21 to 0.42 mg/l. Zinc was reported in groundwater samples collected from wells MW-4, MW-5, and MW-6 at concentrations ranging from 0.02 to 0.043 mg/l.

Laboratory analytical reports and chain-of-custody documentation are included in Appendix C.

### **3.3 Discussion of Analytical Results**

Groundwater analytical results from the Third Quarter 2002 sampling event are generally consistent with historical data. Compared to April 2002 data, the TPHg concentration decreased from 11 to 2.9 mg/l in well MW-4, increased from 1.2 to 4.1 mg/l in well MW-5, and remained the same, none detected, in well MW-6 (Table 6). TPHd concentrations increased from 1.17 to 1.26 mg/l in well MW-4, increased from 0.942 to 2.45 mg/l in well MW-5, and remained the

same, none detected, in well MW-6 (Table 6). Benzene decreased in well MW-4 from 0.035 to 0.0097 mg/l, and toluene, ethylbenzene, and xylenes decreased to none detected (Table 6). Benzene increased in well MW-5 to its highest level, from 0.053 to 0.099 mg/l. Toluene, ethylbenzene, and xylenes also increased from the previous quarter to 0.0046, 0.043, and 0.0056 mg/l, respectively. BTEX results are generally consistent with historical results for well MW-6 (Table 6). MTBE results are generally consistent with historical results and trends for wells MW-5 and MW-6 (Table 6).

Remaining VOC results are generally comparable to historical compounds and concentrations reported for MW-6 (Table 7). For MW-4, the 1,3,5-trimethyl benzene, isopropylbenzene, n-butylbenzene, n-propylbenzene, and sec-butyl benzene decreased to below the method reporting limits. For MW-4, the compounds 2-butanone, 2-chloroethyl vinyl ether, acetone, acrolein, and trichloroethene increased from below the method reporting limits to 7.8, 30, 13, 100, and 5.0 µg/l, respectively. For MW-5, the compounds 1,2,4-trimethylbenzene, 2-butanone, 2-hexanone, and trichloroethene increased from below the method reporting limit to 5.4, 8.8, 10, and 2.2 µg/l.

Historically, groundwater samples from the site were reported to contain arsenic, barium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, vanadium and zinc. Current results reported barium and zinc (Table 8). The barium and zinc results are generally comparable to historical concentrations. The reason for the difference between current results and historical results is not known.

### 3.4 Comparison to Risk-Based Screening Levels

The analytical results will be compared to risk-based screening levels (RBSLs). The RBSLs (RWQCB, 2001) were developed by the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), to address environmental protection goals as set forth in the Water Quality Control Plan for the San Francisco Bay Basin (RWQCB, 1995). The RBSLs developed for groundwater that is not a current or potential drinking water resource are used for comparison to the current quarter's groundwater data. RBSLs are presented in Tables 6, 7, and 8.

Constituent	RBSL (mg/l)	Wells with Groundwater Results Exceeding RBSL
TPHg	0.500	MW-4, MW-5
TPHd	0.640	MW-4, MW-5
Benzene	0.046	MW-5
Barium	0.0039	MW-4, MW-5, MW-6

Constituent	RBSL (mg/l)	Wells with Groundwater Results Exceeding RBSL
Zinc	0.023	MW-5, MW-6

### 3.5 Monitoring Well Survey

As a result of construction activities at the site, the three monitoring wells were re-surveyed during this sampling event. The site is a location for storing steel piles used for freeway column retrofit work associated with the I-80/I-580 retrofit project. A vehicle used to transport piles apparently struck the standpipes for MW-5 and MW-6. The standpipe for MW-5 was loosened when struck, so was re-grouted. The standpipe for MW-6 was broken when struck, so a new standpipe was installed.

The top of casing (TOC) elevation for MW-4 remains unchanged. The TOC elevation for MW-5 changed from 12.33 to 12.35 feet mean sea level (MSL) and the TOC elevation for MW-6 changed from 11.49 to 12.01 feet MSL. Tables 1 and 2 reflect these revisions. Appendix D contains the monitoring well survey data.

## **4.0 Recommendations**

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IT recommends continued groundwater monitoring to evaluate temporal changes in groundwater quality.

## 5.0 References

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Caltrans (California Department of Transportation), 2001a, District 4, Office of Environmental Engineering, Task Order No. 04-911052-WB: dated August 2001.

IT (IT Corporation), 2001b, Work plan, groundwater monitoring, former Thomas A. Short Company property, Oakland, Alameda County, California: dated December 19, 2001.

IT, 2001c, Health and safety plan, groundwater monitoring, former Thomas A. Short Company property, Oakland, Alameda County, California: dated December 19, 2001.

Geocon (Geotechnical & Environmental Consultants), 2001, Monitoring Well Installation and Groundwater Sampling Report: Former Thomas A. Short Co. Oakland, Alameda County, California, Task Order No. 04-190270-RM, Geocon Project No. S8225-06-103: dated June 2001.

RWQCB (Regional Water Quality Control Board, San Francisco Bay Region), 1995, San Francisco Bay basin (region 2), water quality control plan: dated June 21, 1995.

RWQCB, 2001, Application of risk-based screening levels and decision making to sites with impacted soil and groundwater; volume 1: summary tier 1 lookup tables: interim final dated December 2001.

**Table 1**  
**Third Quarter 2002 Groundwater Elevations**  
Former Thomas Short Company  
Oakland, California

Well Number	Well TOC Elevation (feet-MSL)	Screened Interval (feet bgs)	Date Measured	Depth to Groundwater (feet bTOC)	Free Product Thickness (feet)	Groundwater Elevation (feet-MSL)
MW-4	8.33	5 to 15	07/11/02	10.72	0	-2.39
MW-5	12.35	5 to 15	07/11/02	15.02	0	-2.67
MW-6	12.01	5 to 15	07/11/02	14.24	0	-2.23

Notes:

1. MSL = Mean Sea Level
2. TOC = Top of Casing
3. bgs = below ground surface
4. bTOC = below top of casing

**Table 2**  
**Historical Groundwater Elevations**  
Former Thomas Short Company  
Oakland, California

Well Number	Well TOC Elevation (feet-MSL)	Screened Interval (feet bgs)	Date Measured	Depth to Groundwater (feet bTOC)	Free Product Thickness (feet)	Groundwater Elevation (feet-MSL)
MW-4	8.33	5 to 15	06/19/00	12.71	0	-4.38
			11/27/00	11.51	0	-3.18
	03/29/01		9.58	0	-1.25	
	01/15/02		8.03	0	0.30	
	04/19/02		10.42	0	-2.09	
	07/11/02		10.72	0	-2.39	
MW-5	12.33	5 to 15	06/19/00	16.5	0	-4.17
			11/27/00	14.72	0	-2.39
	03/29/01		13.30	0	-0.97	
	01/15/02		11.92	0	0.41	
	04/19/02		14.13	0	-1.80	
	07/11/02		15.02	0	-2.67	
MW-6	11.49	5 to 15	06/19/00	15.31	0	-3.82
			11/27/00	14.09	0	-2.60
	03/29/01		12.71	0	-1.22	
	01/15/02		11.58	0	-0.09	
	04/19/02		13.48	0	-1.99	
	07/11/02		14.24	0	-2.23	
	12.01					

Notes:

1. MSL = Mean Sea Level
2. TOC = Top of Casing
3. bgs = below ground surface
4. bTOC = below top of casing



**Table 3**  
**Third Quarter 2002 Groundwater Analytical Results**  
**Selected Compounds**  
Former Thomas Short Company  
Oakland, California

Sample Designation	MW-4	MW-5	MW-6	Trip Blank
Sampling Date	07/11/02	07/11/02	07/11/02	07/11/02
<u>Petroleum Hydrocarbons, mg/l</u>				
Total Petroleum Hydrocarbons	<5	<5	<5	---
TPH as Gasoline	2.9	4.1	<0.050	<0.050
TPH as Diesel	1.26	2.45	<0.050	---
<u>Selected Volatile Organic Compounds, ug/l</u>				
Benzene	9.7	99	<2.0	<2.0
Toulene	<2.0	4.6	<2.0	<2.0
Ethylbenzene	<2.0	43	<2.0	<2.0
Total Xylenes	<2.0	5.6	<2.0	<2.0
<u>Fuel Oxygenates, ug/l</u>				
MTBE	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids, mg/l	2280	1440	3060	---

Notes:

1. TPH = Total Petroleum Hydrocarbons
2. mg/l = milligrams per liter
3. ug/l = micrograms per liter
4. "<" = not detected at concentrations above the indicated amount.

**Table 4**  
**Third Quarter 2002 Groundwater Analytical Results**  
**Additional Volatile Organic Compounds**  
Former Thomas Short Company  
Oakland, California

Sample Designation Sampling Date	MW-4 07/11/02	MW-5 07/11/02	MW-6 07/11/02	Trip Blank 07/11/02
1,2,4-trimethylbenzene	<2.0	5.4	<2.0	<2.0
1,3,5-trimethylbenzene	<2.0	8.4	<2.0	<2.0
2-Butanone	7.8	8.8	<2.0	<2.0
2-Hexanone	<2.0	10	<2.0	<2.0
Acetone	13	<2.0	<2.0	<2.0
Acrolein	100	<2.0	<2.0	<2.0
2-Chloroethylvinyl ether	30	<2.0	<2.0	<2.0
isopropylbenzene (Cumene)	<2.0	49	<2.0	<2.0
n-butylbenzene	<2.0	64	<2.0	<2.0
n-propylbenzene	<2.0	97	<2.0	<2.0
sec-butylbenzene	<2.0	12	<2.0	<2.0
tert-butylbenzene	4.0	21	<2.0	<2.0
trichloroethene	5.0	2.2	<2.0	<2.0

Notes:

1. Concentrations reported in micrograms per liter.
2. "<" = not detected at concentrations above the indicated amount.

**Table 5**  
**Third Quarter 2002 Groundwater Analytical Results**  
**Heavy Metals**  
Former Thomas Short Company  
Oakland, California

Sample Designation Sampling Date	MW-4 07/11/02	MW-5 07/11/02	MW-6 07/11/02
Antimony	<0.060	<0.060	<0.060
Arsenic	<0.080	<0.080	<0.080
Barium	0.31	0.42	0.21
Beryllium	<0.0030	<0.0030	<0.0030
Cadmium	<0.0050	<0.0050	<0.0050
Chromium	<0.010	<0.010	<0.010
Cobalt	<0.050	<0.050	<0.050
Copper	<0.020	<0.020	<0.020
Lead	<0.010	<0.010	<0.010
Mercury	<0.00020	<0.00020	<0.00020
Molybdenum	<0.050	<0.050	<0.050
Nickel	<0.040	<0.040	<0.040
Selenium	<0.10	<0.10	<0.10
Silver	<0.010	<0.010	<0.010
Thallium	<0.10	<0.10	<0.10
Vanadium	<0.050	<0.050	<0.050
Zinc	0.02	0.041	0.043

Notes:

1. Metals analyses conducted in general accordance with U.S. Environmental Protection Agency (EPA) Methods 6010 and 7471.
2. Concentrations reported in milligrams per liter.
3. "<" = not detected at concentrations above the indicated amount.

**Table 6**  
**Historical Groundwater Analytical Results**  
**Petroleum Hydrocarbons**  
**Former Thomas Short Company**  
**Oakland, California**

Sample Designation Sampling Date	MW-4 5/26/00	MW-4 11/27/00	MW-4 3/29/01	MW-4 1/15/02	MW-4 4/19/02	MW-4 7/11/02	MW-5 5/26/00	MW-5 11/27/00	MW-5 3/29/01	MW-5 1/15/02	MW-5 4/19/02	MW-5 7/11/02	MW-6 5/26/00	MW-6 11/27/00	MW-6 3/29/01	MW-6 1/15/02	MW-6 4/19/02	MW-6 7/11/02	Risk-Based Screening Levels
<u>Petroleum Hydrocarbons, mg/l</u>																			
Total Petroleum Hydrocarbons	---	---	---	<5	<5	<5	---	---	---	<5	<5	<5	---	---	---	<5	<5	<5	
TPH as Gasoline	<b>4.8</b>	<b>4.2</b>	<b>8.1</b>	<0.050	<b>11</b>	<b>2.9</b>	<b>4.6</b>	<b>1.7</b>	<b>2.7</b>	<b>7.8</b>	<b>1.2</b>	<b>4.1</b>	<b>4.4</b>	<b>0.32</b>	<b>0.26</b>	<b>3.5</b>	<0.050	<0.050	0.500
TPH as Diesel	<b>0.5</b>	<b>0.47</b>	<b>0.61</b>	<0.050	<b>1.17</b>	<b>1.26</b>	<b>0.6</b>	<b>0.45</b>	<b>0.96</b>	<0.050	<b>0.942</b>	<b>2.45</b>	<b>0.4</b>	<b>0.18</b>	<b>0.42</b>	<0.050	<0.050	<0.050	0.640
<u>Selected Volatile Organic Compounds, ug/l</u>																			
Benzene	<b>122</b>	<b>55</b>	<b>51</b>	<b>47</b>	<b>35</b>	<b>9.7</b>	<b>98</b>	<b>39</b>	<b>35</b>	<b>63</b>	<b>53</b>	<b>99</b>	<b>191</b>	<b>16</b>	<b>52</b>	<2.0	<2.0	<2.0	46
Toluene	<b>39</b>	<b>18</b>	<b>23</b>	<b>18</b>	<b>13</b>	<2.0	<b>7</b>	<b>2</b>	<b>1.1</b>	<b>3.1</b>	<b>2.5</b>	<b>4.6</b>	<b>14</b>	<b>0.51</b>	<b>0.62</b>	<2.0	<2.0	<2.0	130
Ethylbenzene	<b>126</b>	<b>65</b>	<b>160</b>	<b>130</b>	<b>140</b>	<2.0	<b>35</b>	<b>3.8</b>	<b>3.5</b>	<b>18</b>	<b>18</b>	<b>43</b>	<b>110</b>	<b>1.1</b>	<b>1.1</b>	<2.0	<2.0	<2.0	290
Total Xylenes	<b>24.7</b>	<b>26.3</b>	<b>44.5</b>	<b>32.5</b>	<b>23</b>	<2.0	<b>44</b>	<b>6.1</b>	<b>3.2</b>	<2.0	<2.0	<b>5.6</b>	<b>121</b>	<b>0.88</b>	<0.50	<2.0	<2.0	<2.0	13
<u>Fuel Oxygenates, ug/l</u>																			
MTBE	<0.5	<b>1.2</b>	<5.0	<2.0	<2.0	<2.0	<b>7</b>	<b>1.5</b>	<5.0	<2.0	<2.0	<2.0	<b>7</b>	<b>1.8</b>	<5.0	<2.0	<2.0	<2.0	1800
Total Dissolved Solids, mg/l	---	---	---	---	<b>2240</b>	<b>2280</b>	---	---	---	---	<b>1410</b>	<b>1440</b>	---	---	---	---	<b>2820</b>	<b>3060</b>	---

Notes:

1. TPH = Total Petroleum Hydrocarbons
2. mg/l = milligrams per liter
3. ug/l = micrograms per liter
4. "<" = not detected at concentrations above the indicated amount.
5. Risk-based screening levels (RBSLs) for groundwater that is not a current or potential drinking water source.
6. Bold results exceed RBSLs.

**Table 8**  
**Historical Groundwater Analytical Results**  
**Heavy Metals**  
Former Thomas Short Company  
Oakland, California

Sample Designation Sampling Date	MW-4 5/26/00	MW-4 11/27/00	MW-4 3/29/01	MW-4 1/15/02	MW-4 4/19/02	MW-4 7/11/02	MW-5 5/26/00	MW-5 11/27/00	MW-5 3/29/01	MW-5 1/15/02	MW-5 4/19/02	MW-5 7/11/02	MW-6 5/26/00	MW-6 11/27/00	MW-6 3/29/01	MW-6 1/15/02	MW-6 4/19/02	MW-6 7/11/02	Risk-Based Screening Levels
Antimony	--	<0.0050	<0.0050	<0.060	<0.060	<0.060	--	<0.0050	<0.0050	<0.060	<0.060	<0.060	--	<0.0050	<0.0050	<0.060	<0.060	<0.060	0.030
Arsenic	--	0.01	0.009	<0.080	<0.080	<0.080	--	0.030	0.010	<0.080	<0.080	<0.080	--	0.0091	0.0091	<0.080	<0.080	<0.080	0.036
Barium	--	<b>0.47</b>	<b>0.33</b>	<b>0.34</b>	<b>0.30</b>	<b>0.31</b>	--	<b>1.2</b>	<b>0.20</b>	<b>0.19</b>	<b>0.32</b>	<b>0.42</b>	--	<b>0.20</b>	<b>0.11</b>	<b>0.092</b>	<b>0.12</b>	<b>0.21</b>	0.0039
Beryllium	--	<0.0010	<0.0010	<0.0030	<0.0030	<0.0030	--	<0.0010	<0.0010	<0.0030	<0.0030	<0.0030	--	<0.0010	<0.0010	<0.0030	<0.0030	<0.0030	0.0051
Cadmium	--	<0.0030	<0.0030	<0.0050	<0.0050	<0.0050	--	<0.0030	<0.0030	<0.0050	<0.0050	<0.0050	--	<0.0030	<0.0030	<0.0050	<0.0050	<0.0050	0.0011
Chromium	--	0.0032	<0.003	<0.010	<0.010	<0.010	--	0.05	<0.003	<0.010	<b>0.22</b>	<0.010	--	<0.003	<0.003	<0.010	<0.010	<0.010	0.180
Cobalt	--	<0.003	<0.003	<0.050	<0.050	<0.050	--	<b>0.01</b>	<0.003	<0.050	<0.050	<0.050	--	<b>0.0049</b>	<b>0.0040</b>	<0.050	<0.050	<0.050	0.0030
Copper	--	<b>0.01</b>	<b>0.010</b>	<0.020	<0.020	<0.020	--	<b>0.05</b>	<b>0.010</b>	<0.020	<0.020	<0.020	--	<b>0.010</b>	<b>0.020</b>	<0.020	<b>0.23</b>	<0.020	0.0031
Lead	<b>0.20</b>	<b>0.0077</b>	<0.0050	<0.010	<0.010	<0.010	<b>0.33</b>	<b>0.020</b>	<0.0050	<0.010	<0.010	<0.010	<b>0.40</b>	<0.0050	<0.0050	<0.010	<0.010	<0.010	0.0032
Mercury	--	<0.004	<0.004	<0.00020	<0.00020	<0.00020	--	<0.004	<0.004	<0.00020	<0.00020	<0.00020	--	<0.004	<0.004	<0.00020	<0.00020	<0.00020	0.000012
Molybdenum	--	0.0064	0.0060	<0.050	<0.050	<0.050	--	0.010	<0.005	<0.050	<0.050	<0.050	--	0.010	0.0064	<0.050	<0.050	<0.050	0.240
Nickel	--	<b>0.030</b>	0.0056	<0.040	<0.040	<0.040	--	<b>0.010</b>	0.0062	<0.040	<0.040	<0.040	--	<b>0.040</b>	<b>0.010</b>	<0.040	<b>0.10</b>	<0.040	0.0082
Selenium	--	<0.0050	<b>0.0058</b>	<0.10	<0.10	<0.10	--	<0.0050	<0.0050	<0.10	<0.10	<0.10	--	<0.0050	<0.0050	<0.10	<0.10	<0.10	0.0050
Silver	--	<b>0.020</b>	<b>0.010</b>	<0.010	<0.010	<0.010	--	<b>0.010</b>	<b>0.0013</b>	<0.010	<0.010	<0.010	--	<b>0.010</b>	<b>0.001</b>	<0.010	<0.010	<0.010	0.00012
Thallium	--	<0.0050	<0.0050	<0.10	<0.10	<0.10	--	<0.0050	<0.0050	<0.10	<0.10	<0.10	--	<0.0050	<0.0050	<0.10	<0.10	<0.10	0.040
Vanadium	--	0.0034	0.003	<0.050	<0.050	<0.050	--	<b>0.050</b>	<0.003	<0.050	<0.050	<0.050	--	0.0036	0.003	<0.050	<0.050	<0.050	0.019
Zinc	--	<b>0.070</b>	0.020	<0.015	0.015	0.02	--	0.010	<b>0.030</b>	0.020	<b>0.16</b>	<b>0.041</b>	--	<b>0.050</b>	<b>0.37</b>	<b>0.031</b>	0.02	<b>0.043</b>	0.023

Notes:

1. Metals analyses conducted in general accordance with U.S. Environmental Protection Agency (EPA) Methods 6010 and 7471.
2. Concentrations reported in milligrams per liter.
3. "<" = not detected at concentrations above the indicated amount.
4. Risk-based screening levels (RBSLs) for groundwater that is not a current or potential drinking water source.
5. Bold results exceed RBSLs.

**Table 7**  
**Historical Groundwater Analytical Results**  
**Additional Volatile Organic Compounds**  
Former Thomas Short Company  
Oakland, California

Well Number Date Sampled	MW-4 5/26/00	MW-4 11/27/00	MW-4 3/29/01	MW-4 1/15/02	MW-4 4/19/02	MW-4 7/11/02	MW-5 5/26/00	MW-5 11/27/00	MW-5 3/29/01	MW-5 1/15/02	MW-5 4/19/02	MW-5 7/11/02	MW-6 5/26/00	MW-6 11/27/00	MW-6 3/29/01	MW-6 1/15/02	MW-6 4/19/02	MW-6 7/11/02	Risk-Based Screening Levels
1,1,2-trichloroethane	<5.0	<5.0	<5.0	9.6	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	930
1,2,4-trimethylbenzene	<5.0	<5.0	<5.0	<2.0	<10	<2.0	96	<5.0	<5.0	<2.0	<2.0	5.4	149	<5.0	<5.0	<2.0	<2.0	<2.0	
1,2-dichloroethane	<5.0	<5.0	<5.0	3.9	<10	<2.0	<5.0	<5.0	<5.0	3.9	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	500
1,2-dichloropropane	<5.0	<5.0	<5.0	4.1	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	100
1,3,5-trimethylbenzene	12	<5.0	8	<2.0	190	<2.0	51	<5.0	<5.0	<2.0	<b>16</b>	<b>8.4</b>	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	
2-Butanone	<5.0	<5.0	<5.0	<2.0	<10	7.8	<5.0	<5.0	<5.0	<2.0	<2.0	8.8	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	14000
2-Chloroethylvinyl ether	<5.0	<5.0	<5.0	<2.0	<10	30	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	
2-Hexanone	<5.0	<5.0	<5.0	<2.0	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	10	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	
4-chlorotoluene	<5.0	<5.0	<5.0	<2.0	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	7.4	<5.0	<5.0	<2.0	<2.0	<2.0	
4-Isopropyltoluene	5	<5.0	8	3.6	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	6.6	<5.0	<5.0	<2.0	<2.0	<2.0	
Acetone	<5.0	<5.0	<5.0	<2.0	<10	13	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	1500
Acrolein	<5.0	<5.0	<5.0	<2.0	<10	100	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	
bromodichloromethane	<5.0	<5.0	<5.0	6.8	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	420
chloroform	<5.0	<5.0	<5.0	23	<10	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	28
isopropylbenzene (Cumene)	141	70	180	180	190	<2.0	29	<5.0	7.1	25	16	49	25	<5.0	<5.0	<2.0	<2.0	<2.0	
naphthalene	101	<5.0	45	12	<10	<2.0	14	<5.0	15	<b>38</b>	<2.0	<2.0	44	<5.0	<5.0	<2.0	<2.0	<2.0	24
n-butylbenzene	18	7.3	26	17	22	<2.0	21	<5.0	<5.0	21	9.8	64	17	<5.0	<5.0	<2.0	<2.0	<2.0	
n-propylbenzene	170	63	280	<2.0	300	<2.0	31	<5.0	11	45	26	97	36	<5.0	<5.0	<2.0	<2.0	<2.0	
sec-butylbenzene	0.6	<5.0	12	11	13	<2.0	8.2	<5.0	<5.0	5.1	4.2	12	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	
tert-butylbenzene	14	9.9	21	20	25	4.0	11	<5.0	14	16	16	21	5.4	<5.0	<5.0	<2.0	<2.0	<2.0	
trichloroethene	<5.0	<5.0	<5.0	6.7	<10	5.0	<5.0	<5.0	<5.0	<2.0	<2.0	2.2	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	360

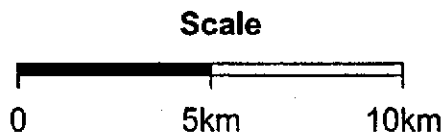
Notes:

1. Concentrations reported in micrograms per liter.
2. "<" = not detected at concentrations above the indicated amount.
3. Risk-based screening levels (RBSLs) for groundwater that is not a current or potential drinking water source.
4. Bold results exceed RBSLs.



**Project Location**  
**3430 Wood Street**  
**Oakland, California**

Reference:  
 Microsoft Expedia, Streets 98



**Figure 1**

**SITE LOCATION MAP**



Caltrans-Cypress GW (Thomas Short Co.)  
 Quarterly GW Monitoring  
 Task Order No.04-911052-WB

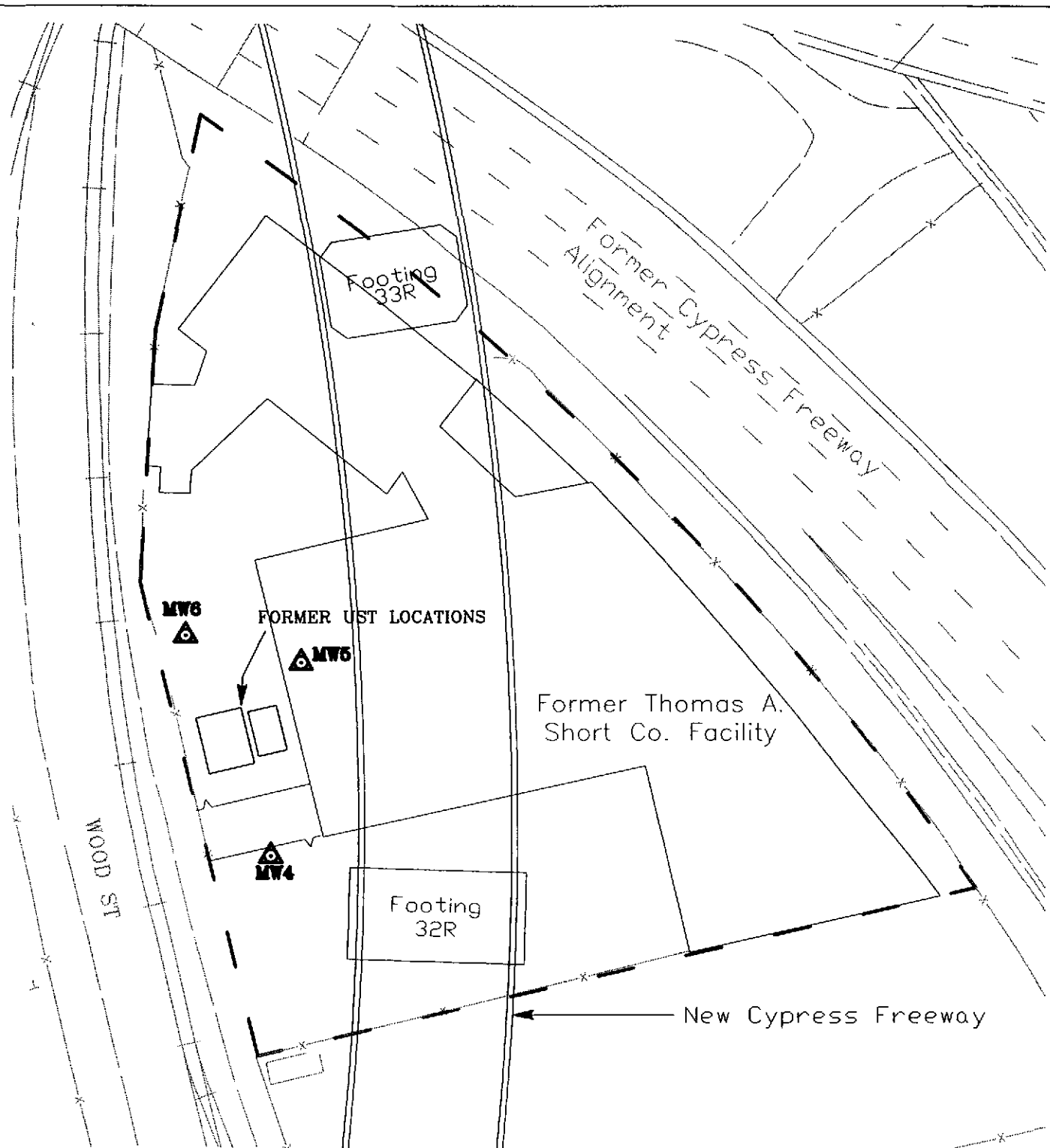
PROJECT NUMBER 830714

CHECKED BY

APPROVED BY

DFB 3/26/02

DRAWN BY



**LEGEND**

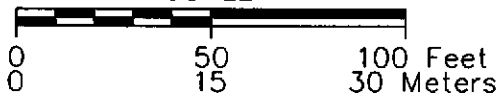


WELL LOCATION AND DESIGNATION

**Notes:**

- 1. Base map compiled from maps provided by Caltrans.
- 2. All locations and dimensions are approximate.

**SCALE**



**FIGURE 2**

**MONITORING WELL LOCATIONS**

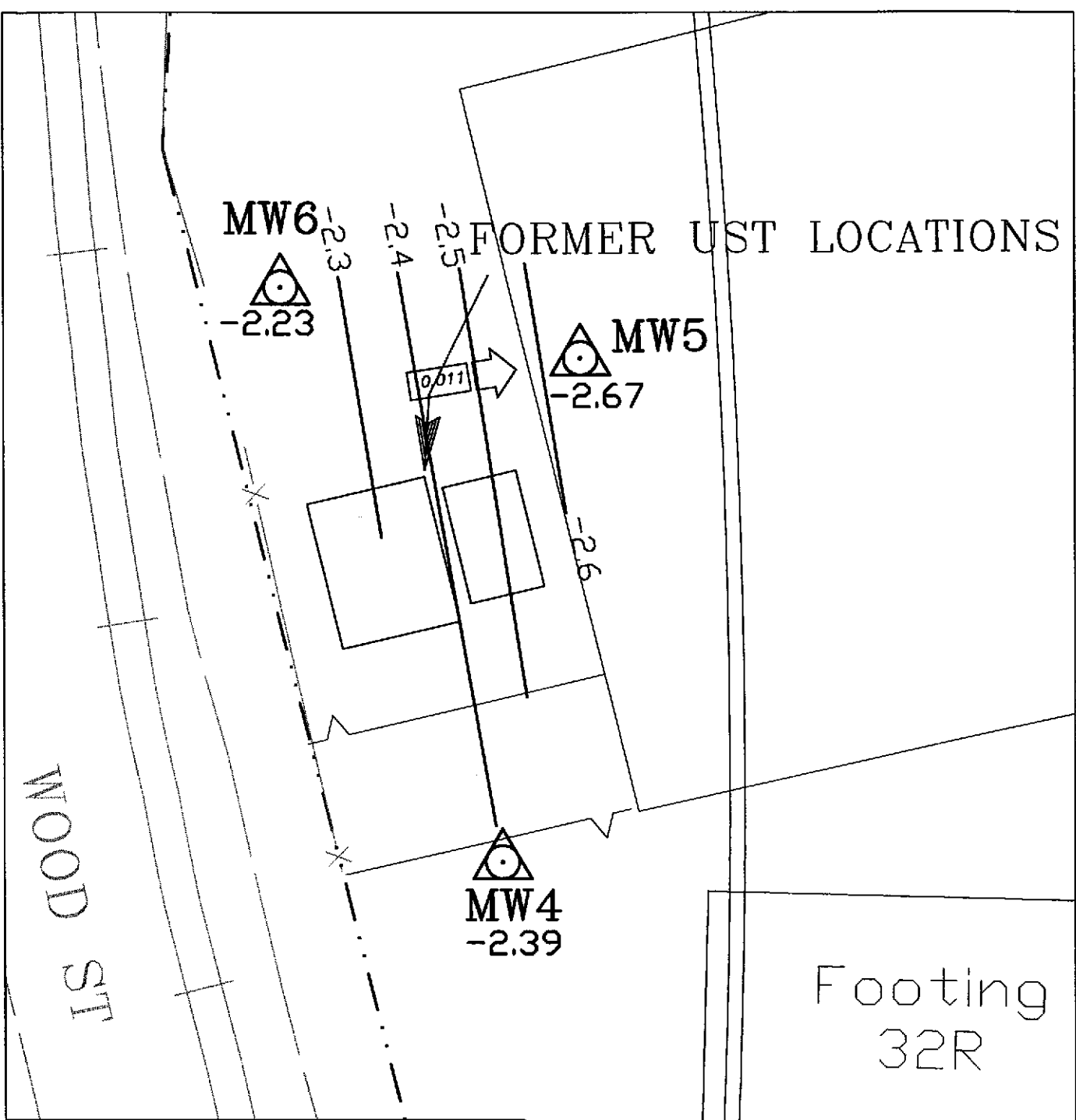
Caltrans - Former Thomas A. Short Co. Property  
Oakland, California



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PROJECT NUMBER 830714  
 CHECKED BY  
 APPROVED BY  
 CBD 7/29/02  
 DRAWN BY

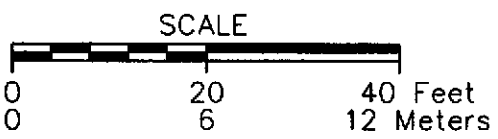


**LEGEND**

- WELL LOCATION, DESIGNATION, AND GROUNDWATER ELEVATION IN FEET
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW AND GRADIENT

**Notes:**

1. Base map compiled from maps provided by Caltrans.
2. All locations and dimensions are approximate.
3. Groundwater elevations reported in feet above mean sea level.



**FIGURE 3**

**PIEZOMETRIC ELEVATION CONTOUR MAP**

Caltrans - Former Thomas  
 A. Short Co. Property  
 Oakland, California



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DPB 3/26/02

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WOOD ST

TPH - <5  
 TPHg - <0.050  
 TPHd - <0.050  
 benzene - <0.0020  
 toluene - <0.0020  
 ethylbenzene - <0.0020  
 xylenes - <0.0020  
 MTBE - <0.0020

MW6

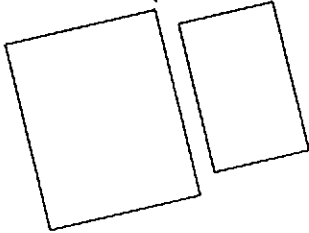


FORMER UST LOCATIONS

MW5



TPH - <5  
 TPHg - 4.1  
 TPHd - 2.45  
 benzene - 0.099  
 toluene - 0.0046  
 ethylbenzene - 0.043  
 xylenes - 0.0056  
 MTBE - <0.0020



MW4

TPH - <5  
 TPHg - 2.9  
 TPHd - 1.26  
 benzene - 0.0097  
 toluene - <0.0020  
 ethylbenzene - <0.0020  
 xylenes - <0.0020  
 MTBE - <0.0020

Footing 32R

LEGEND



WELL LOCATION AND DESIGNATION

FIGURE 4

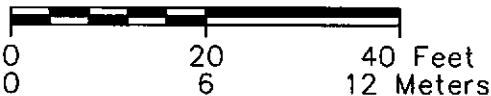
PETROLEUM HYDROCARBON CONCENTRATIONS

Caltrans - Former Thomas  
 A. Short Co. Property  
 Oakland, California

Notes:

1. Base map compiled from maps provided by Caltrans.
2. All locations and dimensions are approximate.
3. Concentrations reported in milligrams per liter.

SCALE



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## **Appendix A**

### **Groundwater Monitoring Procedures**

The procedures that were used for collecting the groundwater samples are presented below.

- General safety procedures were reviewed with the field investigation staff prior to commencement of field activities.

#### **Groundwater Sampling Procedures**

- Field activities and equipment utilization were recorded on field report forms.
- Water levels within each well casing were measured to the nearest 0.01-foot and the presence of free-phase petroleum product evaluated. The water level meter was rinsed with deionized water between wells.
- Purging was conducted using dedicated, disposable, polyethylene bailers. A minimum of three well casing volumes of water was removed from each well during purging. Wells that purge dry were purged dry twice, if at least three casing volumes of water could not be removed. Well purging activities were recorded on groundwater sample collection forms.
- The temperature, conductivity, and pH of the groundwater removed during purging of the wells was monitored.
- Water removed from the wells was contained in 208-liter (55-gallon) drums. Labels were placed on the drums with the contents, date, well number, and job number recorded on the label. The drums were stored at the site pending disposal/recycling.
- All wells were purged before any of the samples were collected. Groundwater sample collection followed in the order that the wells were purged.
- Groundwater samples were collected following recovery of water levels within the wells to at least 90 percent (%) of the pre-purge levels. A water level measurement was made prior to sample collection to confirm the recovery of water levels within the wells.
- A dedicated, disposable, polyethylene bottom valve bailer was used for collection of each groundwater sample. Polyethylene bailers were discarded after each sample was collected. New nylon rope was used to lower the bailers into the wells. The nylon rope was discarded after each well.
- Groundwater samples were placed into laboratory-supplied containers containing preservatives, except samples retained for heavy metal analyses.

- Groundwater was discharged from the bailer via a bottom-emptying device. Discharge to the containers was conducted in a manner to minimize bubbling and agitation of the liquid. The volatile organic analysis vials were filled to the top forming a meniscus to minimize the headspace.
- Groundwater samples were collected in the following order for the indicated analyses: volatile organic compounds and fuel oxygenate compounds, total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as diesel, total recoverable petroleum hydrocarbons, and heavy metals. Groundwater grab samples collected for heavy metals analyses were not filtered in the field, but were filtered at the laboratory prior to analysis.

### ***Sample Retention and Analysis Procedures***

- Chain of custody procedures, including the use of chain of custody forms, were used to document sample handling and transport from collection to delivery to the laboratory for analysis.
- The samples were placed on ice in an insulated chest overnight in the custody of an IT Corporation (IT) employee. The samples were picked up within approximately 24 hours of collection of the last sample by a courier supplied by the laboratory, or were delivered to the laboratory by IT personnel within approximately 24 hours of collection of the last sample. The samples were transported to the laboratory in a motor vehicle.
- Groundwater samples were labeled with the well number followed by the date.
- Laboratory quality assurance/quality control procedures are summarized below:
  - Method Blank Frequency = one per 20 samples
  - Matrix Spike/Matrix Spike Duplicate = one per 20 samples
  - Laboratory Control Sample/Laboratory Control Sample Duplicate = one per 20 samples

**FIELD REPORT  
WATER LEVEL / FLOATING PRODUCT  
SURVEY**

SHAW Environmental & Infrastructure, Inc.  
1326 North Market Boulevard  
Sacramento, California 95834

PROJECT NO : 830714 / 01010000

LOCATION : 3430 Wood Street, Oakland

DATE: 7-11-02

CLIENT : Caltrans

SAMPLER : Paul Weinhardt

Former Thomas Short Co. Property

WELL ID	TIME	TOTAL DEPTH (Feet)	DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	COMMENTS
MW-4	751	15.50	10.72			
MW-5	754	19.00	15.02			
MW-6	748	19.00	14.24	—	—	

Comments :

  
Signature

# WATER SAMPLE FIELD DATA SHEET

PROJECT NO : 830714 / 01010000  
 PURGED BY : Paul Weinhardt  
 SAMPLED BY : Paul Weinhardt

SAMPLE ID : MW4  
 CLIENT NAME : Caltrans - Former Thomas Short Co.  
 LOCATION : 3430 Wood Street, Oakland, CA

TYPE: Groundwater  Surface Water \_\_\_\_\_ Leachate \_\_\_\_\_ Other \_\_\_\_\_  
 CASING DIAMETER (inches): 2  3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_  
(.163) (.367) (.652) (.826) (1.47) (1"- .041 / 8"-2.61)

CASING ELEVATION (feet/MSL) : \_\_\_\_\_ VOLUME IN CASING (gal.) : .81  
 DEPTH OF WELL (feet) : 15.50 CALCULATED PURGE (gal.) : 2.43  
 DEPTH TO WATER (feet) : 10.72 ACTUAL PURGE VOL. (gal.) : 2.25

DATE PURGED : 7-11-02 END PURGE : 824  
 DATE SAMPLED : 7-11-02 SAMPLING TIME : 901  
 DTW AT SAMPLE TIME : 11.51

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
<u>817</u>	<u>.75</u>	<u>7.03</u>	<u>3.260</u>	<u>16.4°</u>	<u>cloudy</u>	<u>mod</u>
<u>820</u>	<u>1.50</u>	<u>7.24</u>	<u>1.790</u>	<u>16.20</u>	<u>BLACK</u>	<u>Hvy</u>
<u>824</u>	<u>2.25</u>	<u>7.07</u>	<u>1.230</u>	<u>17.20</u>	<u>BLACK</u>	<u>Hvy</u>

OTHER: \_\_\_\_\_ ODOR: \_\_\_\_\_  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1): \_\_\_\_\_

**PURGING EQUIPMENT**

**SAMPLING EQUIPMENT**

\_\_\_\_\_ 2" Bladder Pump \_\_\_\_\_ Bailer (Teflon)  
 \_\_\_\_\_ Centrifugal Pump \_\_\_\_\_ Bailer (PVC)  
 \_\_\_\_\_ Submersible Pump \_\_\_\_\_ Bailer (Stainless Steel)  
 Dispo Bailer \_\_\_\_\_ Dedicated

\_\_\_\_\_ 2" Bladder Pump \_\_\_\_\_ Bailer (Teflon)  
 \_\_\_\_\_ Bomb Sampler \_\_\_\_\_ Bailer (Stainless Steel)  
 \_\_\_\_\_ Dipper \_\_\_\_\_ Submersible Pump  
 Dispo Bailer \_\_\_\_\_ Dedicated

Other: \_\_\_\_\_

Other: \_\_\_\_\_

WELL INTEGRITY: Good LOCK: \_\_\_\_\_

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

pH, E.C., Temp. Meter Calibration: Date: \_\_\_\_\_ Time: \_\_\_\_\_ Meter Serial No.: \_\_\_\_\_  
 E.C. 1000 / \_\_\_\_\_ pH 7 / \_\_\_\_\_ pH 10 / \_\_\_\_\_ pH 4 / \_\_\_\_\_  
 Temperature °C \_\_\_\_\_

SIGNATURE: Paul Weinhardt REVIEWED BY: PK PAGE 1 OF 3

# WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 830714 / 01010000  
 PURGED BY: Paul Weinhardt  
 SAMPLED BY: Paul Weinhardt

SAMPLE ID: MWS  
 CLIENT NAME: Caltrans - Former Thomas Short Co.  
 LOCATION: 3430 Wood Street, Oakland, CA

TYPE: Groundwater  Surface Water \_\_\_\_\_ Leachate \_\_\_\_\_ Other \_\_\_\_\_  
 CASING DIAMETER (inches): 2  3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_  
(.163) (.367) (.652) (.826) (1.47) (1"-041 / 8"-2.61)

CASING ELEVATION (feet/MSL): \_\_\_\_\_ VOLUME IN CASING (gal.): 167  
 DEPTH OF WELL (feet): 19.00 CALCULATED PURGE (gal.): 2.02  
 DEPTH TO WATER (feet): 15.02 ACTUAL PURGE VOL. (gal.): ~~1.99~~ 2.25

DATE PURGED: 7-11-02 END PURGE: 836  
 DATE SAMPLED: 7-11-02 SAMPLING TIME: 912  
 DTW AT SAMPLE TIME: 14.99

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
<u>829</u>	<u>1.5</u>	<u>7.32</u>	<u>1.950</u>	<u>16.80</u>	<u>BLACK</u>	<u>High</u>
<u>832</u>	<u>1.5</u>	<u>7.21</u>	<u>1.610</u>	<u>16.40</u>	<u>BLACK</u>	<u>High</u>
<u>836</u>	<u>2.25</u>	<u>7.51</u>	<u>2.190</u>	<u>16.60</u>	<u>BLACK</u>	<u>High</u>

OTHER: \_\_\_\_\_ ODOR: \_\_\_\_\_  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1 ): \_\_\_\_\_

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)	<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)
<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Bailer (PVC)	<input type="checkbox"/> Bomb Sampler	<input type="checkbox"/> Bailer (Stainless Steel)
<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Bailer (Stainless Steel)	<input type="checkbox"/> Dipper	<input type="checkbox"/> Submersible Pump
<input checked="" type="checkbox"/> Dispo Bailer	<input type="checkbox"/> Dedicated	<input checked="" type="checkbox"/> Dispo Bailer	<input type="checkbox"/> Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: RESET WELL MONUMENT LOCK: DOLPHIN

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

pH, E.C., Temp. Meter Calibration: Date: \_\_\_\_\_ Time: \_\_\_\_\_ Meter Serial No.: \_\_\_\_\_  
 E.C. 1000 \_\_\_\_\_ / \_\_\_\_\_ pH 7 \_\_\_\_\_ / \_\_\_\_\_ pH 10 \_\_\_\_\_ / \_\_\_\_\_ pH 4 \_\_\_\_\_ / \_\_\_\_\_  
 Temperature °C \_\_\_\_\_

SIGNATURE: Paul Weinhardt REVIEWED BY: [Signature] PAGE 2 OF 3

# WATER SAMPLE FIELD DATA SHEET

PROJECT NO : 830714 / 01010000  
 PURGED BY : Paul Weinhardt  
 SAMPLED BY : Paul Weinhardt

SAMPLE ID : MW6  
 CLIENT NAME : Caltrans - Former Thomas Short Co.  
 LOCATION : 3430 Wood Street, Oakland, CA

TYPE: Groundwater  Surface Water \_\_\_\_\_ Leachate \_\_\_\_\_ Other \_\_\_\_\_  
 CASING DIAMETER (inches): 2  3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_  
(.163) (.367) (.652) (.826) (1.47) (1"- .041 / 8"-2.61)

CASING ELEVATION (feet/MSL) : \_\_\_\_\_ VOLUME IN CASING (gal.) : .80  
 DEPTH OF WELL (feet) : 19.0 CALCULATED PURGE (gal.) : 2.42  
 DEPTH TO WATER (feet) : 14.24 ACTUAL PURGE VOL. (gal.) : 2.25

DATE PURGED : 7-11-02 END PURGE : 8<sup>11</sup>  
 DATE SAMPLED : 7-11-02 SAMPLING TIME : 848  
 DTW AT SAMPLE TIME : 14.78

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
<u>803</u>	<u>.75</u>	<u>7.03</u>	<u>5.080</u>	<u>17.6°</u>	<u>Cloudy</u>	<u>MOD</u>
<u>807</u>	<u>1.50</u>	<u>7.34</u>	<u>4.720</u>	<u>17.1°</u>	<u>Cloudy</u>	<u>MOD</u>
<u>811</u>	<u>2.25</u>	<u>7.37</u>	<u>4.820</u>	<u>17.1°</u>	<u>Cloudy</u>	<u>MOD</u>

OTHER: \_\_\_\_\_ ODOR: \_\_\_\_\_  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): \_\_\_\_\_

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)	<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)
<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Bailer (PVC)	<input type="checkbox"/> Bomb Sampler	<input type="checkbox"/> Bailer (Stainless Steel)
<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Bailer (Stainless Steel)	<input type="checkbox"/> Dipper	<input type="checkbox"/> Submersible Pump
<input checked="" type="checkbox"/> Dispo Bailer	<input type="checkbox"/> Dedicated	<input checked="" type="checkbox"/> Dispo Bailer	<input type="checkbox"/> Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: Good LOCK: \_\_\_\_\_

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

pH, E.C., Temp. Meter Calibration: Date: \_\_\_\_\_ Time: \_\_\_\_\_ Meter Serial No.: \_\_\_\_\_  
 E.C. 1000 \_\_\_\_\_ / \_\_\_\_\_ pH 7 \_\_\_\_\_ / \_\_\_\_\_ pH 10 \_\_\_\_\_ / \_\_\_\_\_ pH 4 \_\_\_\_\_ / \_\_\_\_\_  
 Temperature °C \_\_\_\_\_

SIGNATURE: Paul Weinhardt REVIEWED BY: [Signature] PAGE 3 OF 3



**Drum Inventory Record**

830714 / 01010000

Project No

Former Thomas Short Co. Property

3430 Wood Street, Oakland

Location

7-11-02

Date

Caltrans

Client

Paul Weinhardt

Sampler

THUR

Day of Week

DRUM NUMBER OR ID	WELL OR SOURCE ID(s)	TYPE OF MATERIAL	AMOUNT OF MATERIAL IN DRUM	DATE ACCUMULATED OR GENERATED
<p>APPROX 35 GAL IN DRUM ON SITE</p>				

Sketch locations of drums, include drum ID's

COMMENTS:

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Number of Drums From This Event 1

Total Number of Drums At Site 1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46517  
**Sample ID** MB for HBN 153048 [VMXV/1974]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
(continued)							
trans-1,3-Dichloropropene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1,2-Trichloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Toluene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2-Dibromoethane (EDB)	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,3-Dichloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
2-Hexanone	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Dibromochloromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Tetrachloroethene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1,1,2-Tetrachloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Chlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Ethylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
M+P-Xylene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Bromoform	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Styrene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
o-Xylene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1,2,2-Tetrachloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2,3-Trichloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Isopropylbenzene (Cumene)	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Bromobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
n-Propylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
2-Chlorotoluene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
4-Chlorotoluene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,3,5-Trimethylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
tert-Butylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2,4-Trimethylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
sec-Butylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,3-Dichlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,4-Dichlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
4-Isopropyltoluene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2-Dichlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
n-Butylbenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46517  
**Sample ID** MB for HBN 153048 [VMXV/1974]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
<i>(continued)</i>							
1,2-Dibromo-3-chloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2,4-Trichlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Naphthalene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Hexachlorobutadiene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2,3-Trichlorobenzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1

Surrogates	Result	Recovery	Limits
1,2-Dichloroethane-d4	52.6 ug/L	105 %	(76 - 135)
Toluene d8	48.1 ug/L	96 %	(88 - 118)
4-Bromofluorobenzene	50 ug/L	100 %	(86 - 121)

Lab Control Sample Report

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46518  
**Sample ID** LCS for HBN 153048 [VMXV/1974]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/12/02	07/12/02	63	2.0	ug/L	1:1
Benzene	8260B	07/12/02	07/12/02	49	2.0	ug/L	1:1
Trichloroethene	8260B	07/12/02	07/12/02	46	2.0	ug/L	1:1
Toluene	8260B	07/12/02	07/12/02	47	2.0	ug/L	1:1
Chlorobenzene	8260B	07/12/02	07/12/02	46	2.0	ug/L	1:1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46519  
**Sample ID** LCSD for HBN 153048 [VMXV/1974  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/12/02	07/12/02	66	2.0	ug/L	1:1
Benzene	8260B	07/12/02	07/12/02	57	2.0	ug/L	1:1
Trichloroethene	8260B	07/12/02	07/12/02	54	2.0	ug/L	1:1
Toluene	8260B	07/12/02	07/12/02	55	2.0	ug/L	1:1
Chlorobenzene	8260B	07/12/02	07/12/02	54	2.0	ug/L	1:1

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46520  
**Sample ID** MS for HBN 153048 [VMXV/1974]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/12/02	07/12/02	63	2.0	ug/L	1:1
Benzene	8260B	07/12/02	07/12/02	49	2.0	ug/L	1:1
Trichloroethene	8260B	07/12/02	07/12/02	46	2.0	ug/L	1:1
Toluene	8260B	07/12/02	07/12/02	46	2.0	ug/L	1:1
Chlorobenzene	8260B	07/12/02	07/12/02	47	2.0	ug/L	1:1

**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46521  
**Sample ID** MSD for HBN 153048 [VMXV/1974]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/12/02	07/12/02	66	2.0	ug/L	1
Benzene	8260B	07/12/02	07/12/02	52	2.0	ug/L	1
Trichloroethene	8260B	07/12/02	07/12/02	49	2.0	ug/L	1:1
Toluene	8260B	07/12/02	07/12/02	49	2.0	ug/L	1
Chlorobenzene	8260B	07/12/02	07/12/02	49	2.0	ug/L	1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46522  
**Sample ID** MB for HBN 153145 [VMXV/1975]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Tertiary butanol	8260B	07/12/02	07/12/02	ND	10	ug/L	1:1
Methyl-tert-butyl-ether	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Di-isopropyl ether	8260B	07/12/02	07/12/02	ND	5.0	ug/L	1:1
Ethyl tert-butyl ether	8260B	07/12/02	07/12/02	ND	5.0	ug/L	1:1
Tertiaryamyl methylether	8260B	07/12/02	07/12/02	ND	5.0	ug/L	1:1

Surrogates	Result	Recovery	Limits
Dibromodifluoromethane	49.5 ug/L	99 %	(76 - 135)



**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46523  
**Sample ID** LCS for HBN 153145 [VMXV/1975]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Tertiary butanol	8260B	07/12/02	07/12/02	53	10	ug/L	1:
Methyl-tert-butyl-ether	8260B	07/12/02	07/12/02	49	2.0	ug/L	1:
Di-isopropyl ether	8260B	07/12/02	07/12/02	45	5.0	ug/L	1:1
Ethyl tert-butyl ether	8260B	07/12/02	07/12/02	46	5.0	ug/L	1:
Tertiaryamyl methylether	8260B	07/12/02	07/12/02	45	5.0	ug/L	1:

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46524  
**Sample ID** LCSD for HBN 153145 [VMXV/1975  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Tertiary butanol	8260B	07/12/02	07/12/02	50	10	ug/L	1:1
Methyl-tert-butyl-ether	8260B	07/12/02	07/12/02	50	2.0	ug/L	1:1
Di-isopropyl ether	8260B	07/12/02	07/12/02	46	5.0	ug/L	1:1
Ethyl tert-butyl ether	8260B	07/12/02	07/12/02	46	5.0	ug/L	1:1
Tertiaryamyl methylether	8260B	07/12/02	07/12/02	45	5.0	ug/L	1:1

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46525  
**Sample ID** MS for HBN 153145 [VMXV/1975]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Tertiary butanol	8260B	07/12/02	07/12/02	56	10	ug/L	1:
Methyl-tert-butyl-ether	8260B	07/12/02	07/12/02	49	2.0	ug/L	1:
Di-isopropyl ether	8260B	07/12/02	07/12/02	46	5.0	ug/L	1:1
Ethyl tert-butyl ether	8260B	07/12/02	07/12/02	46	5.0	ug/L	1:
Tertiaryamyl methylether	8260B	07/12/02	07/12/02	45	5.0	ug/L	1:

**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46526  
**Sample ID** MSD for HBN 153145 [VMXV/1975]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Tertiary butanol	8260B	07/12/02	07/12/02	56	10	ug/L	1:1
Methyl-tert-butyl-ether	8260B	07/12/02	07/12/02	48	2.0	ug/L	1:1
Di-isopropyl ether	8260B	07/12/02	07/12/02	44	5.0	ug/L	1:1
Ethyl tert-butyl ether	8260B	07/12/02	07/12/02	45	5.0	ug/L	1:1
Tertiaryamyl methylether	8260B	07/12/02	07/12/02	44	5.0	ug/L	1:1



Environmental Laboratories

Analytical Laboratory Division  
Mobile Laboratory Division  
Scientific Division

Method Blank Report

Client ID Shaw Environmental & Infrastructure  
Workorder ID 830714 Former Thomas Short  
Laboratory ID 47102  
Sample ID MB for HBN 155256 [ICPV/3923]  
Matrix Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	ND	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	ND	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	ND	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	ND	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	ND	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	ND	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	ND	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	ND	0.015	mg/L	1:1

**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47103  
**Sample ID** LCS for HBN 155256 [ICPV/3923]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	0.54	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	0.52	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	0.57	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	0.11	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	0.20	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	0.49	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	0.20	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	0.52	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	0.50	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	0.49	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	1.0	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	0.48	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	0.038	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	0.48	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	0.19	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	0.55	0.015	mg/L	1:1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47104  
**Sample ID** LCSD for HBN 155256 [ICPV/3923  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	0.55	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	0.53	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	0.57	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	0.11	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	0.20	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	0.51	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	0.20	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	0.52	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	0.50	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	0.49	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	1.0	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	0.50	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	0.034	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	0.48	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	0.19	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	0.55	0.015	mg/L	1:1

**Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47105  
**Sample ID** DUP for HBN 155256 [ICPV/3923]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	ND	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	ND	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	0.30	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	ND	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	ND	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	ND	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	ND	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	0.044	0.015	mg/L	1:1



**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47106  
**Sample ID** MS for HBN 155256 [ICPV/3923]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	0.51	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	0.51	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	0.97	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	0.11	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	0.19	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	0.47	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	0.19	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	0.50	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	0.46	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	0.48	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	0.97	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	0.50	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	0.034	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	0.43	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	0.17	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	0.55	0.015	mg/L	1:1

**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47107  
**Sample ID** MSD for HBN 155256 [ICPV/3923]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	6010B	07/25/02	07/30/02	0.53	0.060	mg/L	1:1
Arsenic	6010B	07/25/02	07/30/02	0.52	0.080	mg/L	1:1
Barium	6010B	07/25/02	07/30/02	1.0	0.020	mg/L	1:1
Beryllium	6010B	07/25/02	07/30/02	0.11	0.0030	mg/L	1:1
Cadmium	6010B	07/25/02	07/30/02	0.19	0.0050	mg/L	1:1
Chromium	6010B	07/25/02	07/30/02	0.48	0.010	mg/L	1:1
Cobalt	6010B	07/25/02	07/30/02	0.20	0.050	mg/L	1:1
Copper	6010B	07/25/02	07/30/02	0.52	0.020	mg/L	1:1
Lead	6010B	07/25/02	07/30/02	0.47	0.010	mg/L	1:1
Molybdenum	6010B	07/25/02	07/30/02	0.50	0.050	mg/L	1:1
Nickel	6010B	07/25/02	07/30/02	0.96	0.040	mg/L	1:1
Selenium	6010B	07/25/02	07/30/02	0.49	0.10	mg/L	1:1
Silver	6010B	07/25/02	07/30/02	0.023	0.010	mg/L	1:1
Thallium	6010B	07/25/02	07/30/02	0.46	0.10	mg/L	1:1
Vanadium	6010B	07/25/02	07/30/02	0.20	0.050	mg/L	1:1
Zinc	6010B	07/25/02	07/30/02	0.54	0.015	mg/L	1:1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47131  
**Sample ID** MB for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Dichlorodifluoromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Chloromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Vinyl chloride	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Bromomethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Chloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Trichlorofluoromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Acrolein	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,1-Dichloroethene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Acetone	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Methyl iodide	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Carbon disulfide	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Dichloromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Acrylonitrile	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
trans-1,2-Dichloroethene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,1-Dichloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Vinyl acetate	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
cis-1,2-Dichloroethene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
2-Butanone (MEK)	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Bromochloromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Chloroform	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
2,2-dichloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
1,1,1-Trichloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
1,1-dichloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Carbon tetrachloride	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Benzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
1,2-Dichloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Dibromomethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Bromodichloromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
1,2-Dichloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
Trichloroethene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
2-Chloroethylvinyl ether	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
cis-1,3-Dichloropropene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:
4-Methyl-2-pentanone	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47131  
**Sample ID** MB for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
(continued)							
trans-1,3-Dichloropropene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,1,2-Trichloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Toluene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2-Dibromoethane (EDB)	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,3-Dichloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
2-Hexanone	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Dibromochloromethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Tetrachloroethene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,1,1,2-Tetrachloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Chlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Ethylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
M+P-Xylene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Bromoform	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Styrene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
o-Xylene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,1,2,2-Tetrachloroethane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2,3-Trichloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Isopropylbenzene (Cumene)	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Bromobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
n-Propylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
2-Chlorotoluene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
4-Chlorotoluene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,3,5-Trimethylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
tert-Butylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2,4-Trimethylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
sec-Butylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,3-Dichlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,4-Dichlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
4-Isopropyltoluene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2-Dichlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
n-Butylbenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47131  
**Sample ID** MB for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
<b>(continued)</b>							
1,2-Dibromo-3-chloropropane	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2,4-Trichlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Naphthalene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
Hexachlorobutadiene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
1,2,3-Trichlorobenzene	8260B	07/17/02	07/17/02	ND	2.0	ug/L	1:1
<b>Surrogates</b>	<b>Result</b>	<b>Recovery</b>	<b>Limits</b>				
1,2-Dichloroethane-d4	43.4 ug/L	87 %	(76 - 135)				
Toluene d8	50.1 ug/L	100 %	(88 - 118)				
4-Bromofluorobenzene	53.5 ug/L	107 %	(86 - 121)				

**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47132  
**Sample ID** LCS for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/17/02	07/17/02	66	2.0	ug/L	1:1
Benzene	8260B	07/17/02	07/17/02	50	2.0	ug/L	1:1
Trichloroethene	8260B	07/17/02	07/17/02	45	2.0	ug/L	1:1
Toluene	8260B	07/17/02	07/17/02	45	2.0	ug/L	1:1
Chlorobenzene	8260B	07/17/02	07/17/02	48	2.0	ug/L	1:1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47133  
**Sample ID** LCSD for HBN 155556 [VMXV/1992  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/17/02	07/17/02	66	2.0	ug/L	1:
Benzene	8260B	07/17/02	07/17/02	50	2.0	ug/L	1:
Trichloroethene	8260B	07/17/02	07/17/02	46	2.0	ug/L	1:1
Toluene	8260B	07/17/02	07/17/02	46	2.0	ug/L	1:
Chlorobenzene	8260B	07/17/02	07/17/02	49	2.0	ug/L	1:

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47134  
**Sample ID** MS for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/17/02	07/17/02	64	2.0	ug/L	1:1
Benzene	8260B	07/17/02	07/17/02	49	2.0	ug/L	1:1
Trichloroethene	8260B	07/17/02	07/17/02	45	2.0	ug/L	1:1
Toluene	8260B	07/17/02	07/17/02	44	2.0	ug/L	1:1
Chlorobenzene	8260B	07/17/02	07/17/02	48	2.0	ug/L	1:1



**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47135  
**Sample ID** MSD for HBN 155556 [VMXV/1992]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
1,1-Dichloroethene	8260B	07/17/02	07/17/02	62	2.0	ug/L	1:
Benzene	8260B	07/17/02	07/17/02	49	2.0	ug/L	1:
Trichloroethene	8260B	07/17/02	07/17/02	45	2.0	ug/L	1:1
Toluene	8260B	07/17/02	07/17/02	44	2.0	ug/L	1:
Chlorobenzene	8260B	07/17/02	07/17/02	48	2.0	ug/L	1:

Method Blank Report

Client ID Shaw Environmental & Infrastructure  
Workorder ID 830714 Former Thomas Short  
Laboratory ID 47252  
Sample ID MB for HBN 156080 [DIGV/1377]  
Matrix Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	ND0.00020		mg/L	1:1

**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47253  
**Sample ID** LCS for HBN 156080 [DIGV/1377]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	0.001070	0.00020	mg/L	1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47254  
**Sample ID** LCSD for HBN 156080 [DIGV/1377  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	0.001040.00020		mg/L	1:1

**Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47255  
**Sample ID** DUP for HBN 156080 [DIGV/1377]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	ND0.00020		mg/L	1:

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47256  
**Sample ID** MS for HBN 156080 [DIGV/1377]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	0.0009800	0.00020	mg/L	1:1

**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47257  
**Sample ID** MSD for HBN 156080 [DIGV/1377]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Mercury	EPA 7470A	07/26/02	08/01/02	0.001000.00020		mg/L	1:

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47275  
**Sample ID** MB for HBN 156091 [TDSV/1106]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	ND	10	mg/L	1:1



**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47276  
**Sample ID** LCS for HBN 156091 [TDSV/1106]  
**Matrix** Water

---

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	507	10	mg/L	1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47277  
**Sample ID** LCSD for HBN 156091 [TDSV/1106  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	522	10	mg/L	1:1

**Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47278  
**Sample ID** DUP for HBN 156091 [TDSV/1106]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	2760	10	mg/L	1

Martha Adams  
Shaw Environmental & Infrastructure  
1326 N. Market Blvd.  
Sacramento, CA 95834

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Client	Shaw Environmental & Infrastructure
Workorder	14923 830714 Former Thomas Short
Received	07/11/02

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The samples were received in EPA specified containers. The samples were transported and received under documented chain of custody and stored at four (4) degrees C until analysis was performed.

Sparger Technology, Inc. ID Suffix Keys - These descriptors will follow the Sparger Technology, Inc. ID numbers and help identify the specific sample and clarify the report.

- DUP - Matrix Duplicate
- MS - Matrix Spike
- MSD - Matrix Spike Duplicate
- LCS - Lab Control Sample
- LCSD - Lab Control Sample Duplicate
- RPD - Relative Percent Difference
- QC - Additional Quality Control
- DIL - Results from a diluted sample
- ND - None Detected
- RL - Reporting Limit

Note: In an effort to conserve paper, the results are printed on both sides of the paper.



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Ray James  
Laboratory Director

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923001  
**Sample ID** MW-4  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

EPA Method 7470A Mercury - EPA 7470A

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Mercury	07/26/02	08/01/02	ND	0.00020 mg/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923001  
**Sample ID** MW-4  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B Oxygenates - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Tertiary butanol	07/17/02	07/17/02	ND	10 ug/L	1:1
Methyl-tert-butyl-ether	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Di-isopropyl ether	07/17/02	07/17/02	ND	5.0 ug/L	1:1
Ethyl tert-butyl ether	07/17/02	07/17/02	ND	5.0 ug/L	1:1
Tertiaryamyl methylether	07/17/02	07/17/02	ND	5.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
Dibromodifluoromethane	58.3 ug/L	117 %	(76 - 135)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
 Workorder # 14923  
 Laboratory ID 14923001  
 Sample ID MW-4  
 Matrix Water

Workorder ID 830714 Former Thomas Short  
 Sampled 07/11/02  
 Received 07/11/02  
 Reported 08/05/02

8260B GC/MS Volatiles - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Dichlorodifluoromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Chloromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Vinyl chloride	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Bromomethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Chloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Trichlorofluoromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>Acrolein</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>100</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,1-Dichloroethene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>Acetone</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>13</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Methyl iodide	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Carbon disulfide	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Dichloromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Acrylonitrile	07/17/02	07/17/02	ND	2.0 ug/L	1:1
trans-1,2-Dichloroethene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1-Dichloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Vinyl acetate	07/17/02	07/17/02	ND	2.0 ug/L	1:1
cis-1,2-Dichloroethene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>2-Butanone (MEK)</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>7.8</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Bromochloromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Chloroform	07/17/02	07/17/02	ND	2.0 ug/L	1:1
2,2-dichloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1,1-Trichloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1-dichloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Carbon tetrachloride	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>Benzene</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>9.7</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,2-Dichloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Dibromomethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Bromodichloromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2-Dichloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>Trichloroethene</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>5.0</b>	<b>2.0 ug/L</b>	<b>1:1</b>
<b>2-Chloroethylvinyl ether</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>30</b>	<b>2.0 ug/L</b>	<b>1:1</b>
cis-1,3-Dichloropropene	07/17/02	07/17/02	ND	2.0 ug/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923001  
**Sample ID** MW-4  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
4-Methyl-2-pentanone	07/17/02	07/17/02	ND	2.0 ug/L	1:1
trans-1,3-Dichloropropene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1,2-Trichloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Toluene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2-Dibromoethane (EDB)	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,3-Dichloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
2-Hexanone	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Dibromochloromethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Tetrachloroethene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1,1,2-Tetrachloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Chlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Ethylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
M+P-Xylene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Bromoform	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Styrene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
o-Xylene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,1,2,2-Tetrachloroethane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2,3-Trichloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Isopropylbenzene (Cumene)	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Bromobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
n-Propylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
2-Chlorotoluene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
4-Chlorotoluene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,3,5-Trimethylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
<b>tert-Butylbenzene</b>	<b>07/17/02</b>	<b>07/17/02</b>	<b>4.0</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,2,4-Trimethylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
sec-Butylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,3-Dichlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,4-Dichlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
4-Isopropyltoluene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2-Dichlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
n-Butylbenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1



**Test Certificate of Analysis**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923001  
**Sample ID** MW-4  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

**8260B GC/MS Volatiles - 8260B (continued)**

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
1,2-Dibromo-3-chloropropane	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2,4-Trichlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Naphthalene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
Hexachlorobutadiene	07/17/02	07/17/02	ND	2.0 ug/L	1:1
1,2,3-Trichlorobenzene	07/17/02	07/17/02	ND	2.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
1,2-Dichloroethane-d4	50.2 ug/L	100 %	(76 - 135)
Toluene d8	49.1 ug/L	98 %	(88 - 118)
4-Bromofluorobenzene	47.6 ug/L	95 %	(86 - 121)

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923001  
**Sample ID** MW-4  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

Metals, CAM16 - 6010B

Parameter	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	07/25/02	07/30/02	ND	0.060	mg/L	1:1
Arsenic	07/25/02	07/30/02	ND	0.080	mg/L	1:1
<b>Barium</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.31</b>	<b>0.020</b>	<b>mg/L</b>	<b>1:1</b>
Beryllium	07/25/02	07/30/02	ND	0.0030	mg/L	1:1
Cadmium	07/25/02	07/30/02	ND	0.0050	mg/L	1:1
Chromium	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Cobalt	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Copper	07/25/02	07/30/02	ND	0.020	mg/L	1:1
Lead	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Molybdenum	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Nickel	07/25/02	07/30/02	ND	0.040	mg/L	1:1
Selenium	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Silver	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Thallium	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Vanadium	07/25/02	07/30/02	ND	0.050	mg/L	1:1
<b>Zinc</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.020</b>	<b>0.015</b>	<b>mg/L</b>	<b>1:1</b>



Analytical Laboratory Division  
Mobile Laboratory Division  
Scientific Division

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923002  
**Sample ID** MW-5  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

EPA Method 7470A Mercury - EPA 7470A

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Mercury	07/26/02	08/01/02	ND	0.00020 mg/L	1:1

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923002  
Sample ID MW-5  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

8260B Oxygenates - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Tertiary butanol	07/12/02	07/12/02	ND	10 ug/L	1:1
Methyl-tert-butyl-ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Di-isopropyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Ethyl tert-butyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Tertiaryamyl methylether	07/12/02	07/12/02	ND	5.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
Dibromodifluoromethane	46.7 ug/L	93 %	(76 - 135)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923002  
Sample ID MW-5  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

8260B GC/MS Volatiles - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Dichlorodifluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl chloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Trichlorofluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrolein	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acetone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Methyl iodide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon disulfide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrylonitrile	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl acetate	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>2-Butanone (MEK)</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>8.8</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Bromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2,2-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon tetrachloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>Benzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>99</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,2-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dibromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromodichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>Trichloroethene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>2.2</b>	<b>2.0 ug/L</b>	<b>1:1</b>
2-Chloroethylvinyl ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923002  
Sample ID MW-5  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
4-Methyl-2-pentanone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,2-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>Toluene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>4.6</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,2-Dibromoethane (EDB)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>2-Hexanone</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>10</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Dibromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Tetrachloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>Ethylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>43</b>	<b>2.0 ug/L</b>	<b>1:1</b>
<b>M+P-Xylene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>3.6</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Bromoform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Styrene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>o-Xylene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>2.0</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,1,2,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>Isopropylbenzene (Cumene)</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>49</b>	<b>2.0 ug/L</b>	<b>1:1</b>
Bromobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>n-Propylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>97</b>	<b>2.0 ug/L</b>	<b>1:1</b>
2-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>1,3,5-Trimethylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>8.4</b>	<b>2.0 ug/L</b>	<b>1:1</b>
<b>tert-Butylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>21</b>	<b>2.0 ug/L</b>	<b>1:1</b>
<b>1,2,4-Trimethylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>5.4</b>	<b>2.0 ug/L</b>	<b>1:1</b>
<b>sec-Butylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>12</b>	<b>2.0 ug/L</b>	<b>1:1</b>
1,3-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,4-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Isopropyltoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
<b>n-Butylbenzene</b>	<b>07/12/02</b>	<b>07/12/02</b>	<b>64</b>	<b>2.0 ug/L</b>	<b>1:1</b>

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923002  
**Sample ID** MW-5  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
1,2-Dibromo-3-chloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,4-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Naphthalene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Hexachlorobutadiene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
1,2-Dichloroethane-d4	50.9 ug/L	102 %	(76 - 135)
Toluene d8	51.6 ug/L	103 %	(88 - 118)
4-Bromofluorobenzene	52.2 ug/L	104 %	(86 - 121)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923002  
Sample ID MW-5  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

Metals, CAM16 - 6010B

Parameter	Prep Date	Analyzed	Result	RL	Units	Dilution
Antimony	07/25/02	07/30/02	ND	0.060	mg/L	1:1
Arsenic	07/25/02	07/30/02	ND	0.080	mg/L	1:1
<b>Barium</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.42</b>	<b>0.020</b>	<b>mg/L</b>	<b>1:1</b>
Beryllium	07/25/02	07/30/02	ND	0.0030	mg/L	1:1
Cadmium	07/25/02	07/30/02	ND	0.0050	mg/L	1:1
Chromium	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Cobalt	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Copper	07/25/02	07/30/02	ND	0.020	mg/L	1:1
Lead	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Molybdenum	07/25/02	07/30/02	ND	0.050	mg/L	1:1
Nickel	07/25/02	07/30/02	ND	0.040	mg/L	1:1
Selenium	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Silver	07/25/02	07/30/02	ND	0.010	mg/L	1:1
Thallium	07/25/02	07/30/02	ND	0.10	mg/L	1:1
Vanadium	07/25/02	07/30/02	ND	0.050	mg/L	1:1
<b>Zinc</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.041</b>	<b>0.015</b>	<b>mg/L</b>	<b>1:1</b>



Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923003  
**Sample ID** MW-6  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

EPA Method 7470A Mercury - EPA 7470A

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Mercury	07/26/02	08/01/02	ND	0.00020 mg/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923003  
**Sample ID** MW-6  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B Oxygenates - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Tertiary butanol	07/12/02	07/12/02	ND	10 ug/L	1:1
Methyl-tert-butyl-ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Di-isopropyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Ethyl tert-butyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Tertiaryamyl methylether	07/12/02	07/12/02	ND	5.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
Dibromodifluoromethane	46.8 ug/L	94 %	(76 - 135)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923003  
Sample ID MW-6  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

8260B GC/MS Volatiles - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Dichlorodifluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl chloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Trichlorofluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrolein	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acetone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Methyl iodide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon disulfide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrylonitrile	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl acetate	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Butanone (MEK)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2,2-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon tetrachloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Benzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dibromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromodichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Trichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Chloroethylvinyl ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923003  
**Sample ID** MW-6  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
4-Methyl-2-pentanone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,2-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Toluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dibromoethane (EDB)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Hexanone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dibromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Tetrachloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Ethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
M+P-Xylene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromoform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Styrene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
o-Xylene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,2,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Isopropylbenzene (Cumene)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
n-Propylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3,5-Trimethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
tert-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,4-Trimethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
sec-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,4-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Isopropyltoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
n-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923003  
**Sample ID** MW-6  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
1,2-Dibromo-3-chloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,4-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Naphthalene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Hexachlorobutadiene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
1,2-Dichloroethane-d4	51.9 ug/L	104 %	(76 - 135)
Toluene d8	49.2 ug/L	98 %	(88 - 118)
4-Bromofluorobenzene	51.4 ug/L	103 %	(86 - 121)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923003  
Sample ID MW-6  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

Metals, CAM16 - 6010B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Antimony	07/25/02	07/30/02	ND	0.060 mg/L	1:1
Arsenic	07/25/02	07/30/02	ND	0.080 mg/L	1:1
<b>Barium</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.21</b>	<b>0.020 mg/L</b>	<b>1:1</b>
Beryllium	07/25/02	07/30/02	ND	0.0030 mg/L	1:1
Cadmium	07/25/02	07/30/02	ND	0.0050 mg/L	1:1
Chromium	07/25/02	07/30/02	ND	0.010 mg/L	1:1
Cobalt	07/25/02	07/30/02	ND	0.050 mg/L	1:1
Copper	07/25/02	07/30/02	ND	0.020 mg/L	1:1
Lead	07/25/02	07/30/02	ND	0.010 mg/L	1:1
Molybdenum	07/25/02	07/30/02	ND	0.050 mg/L	1:1
Nickel	07/25/02	07/30/02	ND	0.040 mg/L	1:1
Selenium	07/25/02	07/30/02	ND	0.10 mg/L	1:1
Silver	07/25/02	07/30/02	ND	0.010 mg/L	1:1
Thallium	07/25/02	07/30/02	ND	0.10 mg/L	1:1
Vanadium	07/25/02	07/30/02	ND	0.050 mg/L	1:1
<b>Zinc</b>	<b>07/25/02</b>	<b>07/30/02</b>	<b>0.043</b>	<b>0.015 mg/L</b>	<b>1:1</b>

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923004  
**Sample ID** Trip Blank  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

**8260B Oxygenates - 8260B**

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Tertiary butanol	07/12/02	07/12/02	ND	10 ug/L	1:1
Methyl-tert-butyl-ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Di-isopropyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Ethyl tert-butyl ether	07/12/02	07/12/02	ND	5.0 ug/L	1:1
Tertiaryamyl methylether	07/12/02	07/12/02	ND	5.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
Dibromodifluoromethane	49.1 ug/L	98 %	(76 - 135)

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923004  
**Sample ID** Trip Blank  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
Dichlorodifluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl chloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Trichlorofluoromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrolein	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acetone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Methyl iodide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon disulfide	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Acrylonitrile	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Vinyl acetate	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,2-Dichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Butanone (MEK)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chloroform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2,2-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1-dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Carbon tetrachloride	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Benzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dibromomethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromodichloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Trichloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Chloroethylvinyl ether	07/12/02	07/12/02	ND	2.0 ug/L	1:1
cis-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1



Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923  
Laboratory ID 14923004  
Sample ID Trip Blank  
Matrix Water

Workorder ID 830714 Former Thomas Short  
Sampled 07/11/02  
Received 07/11/02  
Reported 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
4-Methyl-2-pentanone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
trans-1,3-Dichloropropene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,2-Trichloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Toluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dibromoethane (EDB)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3-Dichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Hexanone	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Dibromochloromethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Tetrachloroethene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,1,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Chlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Ethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
M+P-Xylene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromoform	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Styrene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
o-Xylene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,1,2,2-Tetrachloroethane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Isopropylbenzene (Cumene)	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Bromobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
n-Propylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
2-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Chlorotoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3,5-Trimethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
tert-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,4-Trimethylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
sec-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,3-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,4-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
4-Isopropyltoluene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2-Dichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
n-Butylbenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Test Certificate of Analysis

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923  
**Laboratory ID** 14923004  
**Sample ID** Trip Blank  
**Matrix** Water

**Workorder ID** 830714 Former Thomas Short  
**Sampled** 07/11/02  
**Received** 07/11/02  
**Reported** 08/05/02

8260B GC/MS Volatiles - 8260B (continued)

Parameter	Prep Date	Analyzed	Result	RL Units	Dilution
1,2-Dibromo-3-chloropropane	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,4-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Naphthalene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
Hexachlorobutadiene	07/12/02	07/12/02	ND	2.0 ug/L	1:1
1,2,3-Trichlorobenzene	07/12/02	07/12/02	ND	2.0 ug/L	1:1

Surrogates	Result	Recovery	Limits
1,2-Dichloroethane-d4	53.8 ug/L	108 %	(76 - 135)
Toluene d8	49.4 ug/L	99 %	(88 - 118)
4-Bromofluorobenzene	51.3 ug/L	103 %	(86 - 121)

Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
 Workorder # 14923

Workorder ID 830714 Former Thomas Short

Parameter TPHdiesel  
 Method 8015M DHS

Lab ID	Sample ID	Result	RL	Units	Collected	Analyzed	Matrix	Dilution
14923001	MW-4	1260	50	ug/L	07/11/02	07/15/02	Water	1:1
14923002	MW-5	2450	50	ug/L	07/11/02	07/15/02	Water	1:1
14923003	MW-6	ND	50	ug/L	07/11/02	07/15/02	Water	1:1

**Test Certificate of Analysis**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923

**Workorder ID** 830714 Former Thomas Short

**Parameter Method** TPHgas  
 8015M DHS

Lab ID	Sample ID	Result	RL	Units	Collected	Analyzed	Matrix	Dilution
14923001	MW-4	2900	50	ug/L	07/11/02	07/12/02	Water	1:1
14923002	MW-5	4100	50	ug/L	07/11/02	07/12/02	Water	1:1
14923003	MW-6	ND	50	ug/L	07/11/02	07/12/02	Water	1:1
14923004	Trip Blank	ND	50	ug/L	07/11/02	07/12/02	Water	1:1

**Test Certificate of Analysis**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder #** 14923

**Workorder ID** 830714 Former Thomas Short

**Parameter Method** Total Dissolved Solids  
 EPA 160.1

Lab ID	Sample ID	Result	RL	Units	Collected	Analyzed	Matrix	Dilution
14923001	MW-4	2280	10	mg/L	07/11/02	07/31/02	Water	1:1
14923002	MW-5	1440	10	mg/L	07/11/02	07/31/02	Water	1:1
14923003	MW-6	3060	10	mg/L	07/11/02	07/31/02	Water	1:1



Test Certificate of Analysis

Client ID Shaw Environmental & Infrastructure  
Workorder # 14923

Workorder ID 830714 Former Thomas Short

Parameter Total Pet. Hydrocarbons  
Method EPA 1664

Lab ID	Sample ID	Result	RL	Units	Collected	Analyzed	Matrix	Dilution
14923001	MW-4	ND	5000	ug/L	07/11/02	07/15/02	Water	1:1
14923002	MW-5	ND	5000	ug/L	07/11/02	07/15/02	Water	1:1
14923003	MW-6	ND	5000	ug/L	07/11/02	07/15/02	Water	1:1

Method Blank Report

Client ID           Shaw Environmental & Infrastructure  
Workorder ID       830714 Former Thomas Short  
Laboratory ID       46472  
Sample ID           MB for HBN 152658 [SGXV/1736]  
Matrix               Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHdiesel	8015M DHS	07/12/02	07/15/02	ND	50	ug/L	1

**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46473  
**Sample ID** LCS for HBN 152658 [SGXV/1736]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHdiesel	8015M DHS	07/12/02	07/15/02	375	50	ug/L	1:1





Environmental Laboratories

Analytical Laboratory Division  
Mobile Laboratory Division  
Scientific Division

Lab Control Sample Duplicate Report

Client ID Shaw Environmental & Infrastructure  
Workorder ID 830714 Former Thomas Short  
Laboratory ID 46474  
Sample ID LCSD for HBN 152658 [SGXV/1736  
Matrix Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHdiesel	8015M DHS	07/12/02	07/15/02	392	50	ug/L	1:

**Method Blank Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46512  
**Sample ID** MB for HBN 153045 [VGXV/2261]  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHgas	8015M DHS	07/12/02	07/12/02	ND	50	ug/L	1:1

**Lab Control Sample Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46513  
**Sample ID** LCS for HBN 153045 [VGXV/2261]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHgas	8015M DHS	07/12/02	07/12/02	1100	50	ug/L	1

**Lab Control Sample Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46514  
**Sample ID** LCSD for HBN 153045 [VGXV/2261  
**Matrix** Water

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Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHgas	8015M DHS	07/12/02	07/12/02	1100	50	ug/L	1:1

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46515  
**Sample ID** MS for HBN 153045 [VGXV/2261]  
**Matrix** Water

---

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHgas	8015M DHS	07/12/02	07/12/02	1150	50	ug/L	1:

**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 46516  
**Sample ID** MSD for HBN 153045 [VGXV/2261]  
**Matrix** Water

---

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
TPHgas	8015M DHS	07/12/02	07/12/02	1100	50	ug/L	1:1

Method Blank Report

Client ID Shaw Environmental & Infrastructure  
 Workorder ID 830714 Former Thomas Short  
 Laboratory ID 46517  
 Sample ID MB for HBN 153048 [VMXV/1974]  
 Matrix Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Dichlorodifluoromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Chloromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Vinyl chloride	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Bromomethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Chloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Trichlorofluoromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Acrolein	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1-Dichloroethene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Acetone	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Methyl iodide	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Carbon disulfide	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Dichloromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Acrylonitrile	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
trans-1,2-Dichloroethene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1-Dichloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Vinyl acetate	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
cis-1,2-Dichloroethene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
2-Butanone (MEK)	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Bromochloromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Chloroform	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
2,2-dichloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1,1-Trichloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,1-dichloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Carbon tetrachloride	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Benzene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2-Dichloroethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Dibromomethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Bromodichloromethane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
1,2-Dichloropropane	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
Trichloroethene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
2-Chloroethylvinyl ether	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
cis-1,3-Dichloropropene	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1
4-Methyl-2-pentanone	8260B	07/12/02	07/12/02	ND	2.0	ug/L	1:1

**Matrix Spike Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47279  
**Sample ID** MS for HBN 156091 [TDSV/1106]  
**Matrix** Water

---

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	1880	10	mg/L	1:1



**Matrix Spike Duplicate Report**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**Laboratory ID** 47280  
**Sample ID** MSD for HBN 156091 [TDSV/1106]  
**Matrix** Water

Parameter	Method	Prep Date	Analyzed	Result	RL	Units	Dilution
Total Dissolved Solids	EPA 160.1	07/12/02	07/31/02	1460	10	mg/L	1:

**QC SUMMARY**

<b>Client ID</b>	Shaw Environmental & Infrastructure	<b>Original</b>	14923001
<b>Workorder ID</b>	830714 Former Thomas Short	<b>Sample</b>	Duplicate [47105]
<b>QC Batch</b>	ICPP 3961		
<b>Matrix</b>	Water		

<b>Parameter</b>	<b>RPD</b>	<b>RPD Limits</b>
Antimony	00	(35)
Arsenic	00	(35)
Barium	2.3	(35)
Beryllium	00	(35)
Cadmium	00	(35)
Chromium	00	(35)
Cobalt	00	(35)
Copper	00	(35)
Lead	00	(35)
Molybdenum	00	(35)
Nickel	00	(35)
Selenium	00	(35)
Silver	00	(35)
Thallium	00	(35)
Vanadium	00	(35)
Zinc	75	(35)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** DIG 1383  
**Matrix** Water

**Original Sample** 14923001  
 Duplicate [47255]

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Parameter	RPD	RPD Limits
Mercury	0000	(35)

QC SUMMARY

<b>Client ID</b>	Shaw Environmental & Infrastructure	<b>Original</b>	14923001
<b>Workorder ID</b>	830714 Former Thomas Short	<b>Sample</b>	Duplicate [47278]
<b>QC Batch</b>	TDSX 1112		
<b>Matrix</b>	Water		

---

Parameter	RPD	RPD Limits
Total Dissolved Solids	19	(30)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VGX 2369  
**Matrix** Water

**Original Samples** 14924001  
Matrix Spike [46515]  
Matrix Spike Duplicate [46516]

Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
TPHgas	115	110	(65-135)	4.4	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2018  
**Matrix** Water

**Original Samples** 14923004  
 Matrix Spike [46520]  
 Matrix Spike Duplicate [46521]

Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
1,1-Dichloroethene	126	132	(61-145)	4.7	(20 MAX)
Benzene	98	104	(76-127)	5.9	(20 MAX)
Trichloroethene	92	98	(71-135)	6.3	(20 MAX)
Toluene	92	98	(76-130)	6.3	(20 MAX)
Chlorobenzene	94	98	(75-130)	4.2	(20 MAX)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2019  
**Matrix** Water

**Original Samples** 14923004  
Matrix Spike [46525]  
Matrix Spike Duplicate [46526]

Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
Tertiary butanol	112	112	(76-135)	00	(20 MAX)
Methyl-tert-butyl-ether	98	96	(76-135)	2.1	(20 MAX)
Di-isopropyl ether	92	88	(76-135)	4.4	(20 MAX)
Ethyl tert-butyl ether	92	90	(76-135)	2.2	(20 MAX)
Tertiaryamyl methylether	90	88	(76-135)	2.2	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** ICPP 3961  
**Matrix** Water

**Original Samples** 14923001  
 Matrix Spike [47106]  
 Matrix Spike Duplicate [47107]

Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
Antimony	103	105	(25-125)	1.9	(35 MAX)
Arsenic	102	104	(75-125)	1.9	(35 MAX)
Barium	131	137	(75-125)	4.5	(35 MAX)
Beryllium	107	108	(75-125)	0.90	(35 MAX)
Cadmium	94	97	(75-125)	3.1	(35 MAX)
Chromium	94	96	(75-125)	2.1	(35 MAX)
Cobalt	94	98	(75-125)	4.2	(35 MAX)
Copper	100	104	(75-125)	3.9	(35 MAX)
Lead	93	95	(75-125)	2.1	(35 MAX)
Molybdenum	97	99	(75-125)	2.0	(35 MAX)
Nickel	97	96	(75-125)	1.0	(35 MAX)
Selenium	100	98	(75-125)	2.0	(35 MAX)
Silver	67	45	(25-125)	39	(35 MAX)
Thallium	86	92	(50-125)	6.7	(35 MAX)
Vanadium	84	100	(75-125)	17	(35 MAX)
Zinc	106	104	(75-125)	1.9	(35 MAX)





Environmental Laboratories

Analytical Laboratory Division  
 Mobile Laboratory Division  
 Scientific Division

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2036  
**Matrix** Water

**Original Samples** 14933001  
 Matrix Spike [47134]  
 Matrix Spike Duplicate [47135]

Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
1,1-Dichloroethene	128	124	(61-145)	3.2	(20 MAX)
Benzene	98	98	(76-127)	00	(20 MAX)
Trichloroethene	90	90	(71-135)	00	(20 MAX)
Toluene	88	88	(76-130)	00	(20 MAX)
Chlorobenzene	96	96	(75-130)	00	(20 MAX)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** DIG 1383  
**Matrix** Water

**Original Samples** 14923001  
 Matrix Spike [47256]  
 Matrix Spike Duplicate [47257]

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Parameter	Spike % Recovery	Spike Dup % Recovery	Recovery Limits	RPD	RPD Limits
Mercury	98.0	100	(75-125)	2.02	(35 MAX)



Environmental Laboratories

Analytical Laboratory Division  
Mobile Laboratory Division  
Scientific Division

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** TDSX 1112  
**Matrix** Water

**Original Samples** 14923001  
Matrix Spike [47279]  
Matrix Spike Duplicate [47280]

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Parameter	Spike %Recovery	Spike Dup %Recovery	Recovery Limits	RPD	RPD Limits
Total Dissolved Solids	-81	-163	(75-125)	-67	(30 MAX)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** SGX 1775  
**Matrix** Water

**Samples** Lab Control Sample [46473]  
 Lab Control Sample Duplicate [46474]

Parameter	Check %Recovery	Check Dup %Recovery	Recovery Limits	RPD	RPD Limits
TPHdiesel	75	78	(65-135)	3.9	(20 MAX)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VGX 2369  
**Matrix** Water

**Samples** Lab Control Sample [46513]  
 Lab Control Sample Duplicate [46514]

Parameter	Check % Recovery	Check Dup % Recovery	Recovery Limits	RPD	RPD Limits
TPHgas	110	110	(65-135)	00	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2018  
**Matrix** Water

**Samples** Lab Control Sample [46518]  
 Lab Control Sample Duplicate [46519]

Parameter	Check % Recovery	Check Dup % Recovery	Recovery Limits	RPD	RPD Limits
1,1-Dichloroethene	126	132	(65-145)	4.7	(20 MAX)
Benzene	98	114	(71-127)	15	(20 MAX)
Trichloroethene	92	108	(75-135)	16	(20 MAX)
Toluene	94	110	(76-135)	16	(20 MAX)
Chlorobenzene	92	108	(76-135)	16	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2019  
**Matrix** Water

**Samples** Lab Control Sample [46523]  
 Lab Control Sample Duplicate [46524]

Parameter	Check %Recovery	Check Dup %Recovery	Recovery Limits	RPD	RPD Limits
Tertiary butanol	106	100	(76-135)	5.8	(20 MAX)
Methyl-tert-butyl-ether	98	100	(76-135)	2.0	(20 MAX)
Di-isopropyl ether	90	92	(76-135)	2.2	(20 MAX)
Ethyl tert-butyl ether	92	92	(76-135)	00	(20 MAX)
Tertiaryamyl methylether	90	90	(76-135)	00	(20 MAX)

**QC SUMMARY**

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** ICPP 3961  
**Matrix** Water

**Samples** Lab Control Sample [47103]  
Lab Control Sample Duplicate [47104]

Parameter	Check % Recovery	Check Dup % Recovery	Recovery Limits	RPD	RPD Limits
Antimony	109	110	(70-120)	0.90	(20 MAX)
Arsenic	104	106	(80-120)	1.9	(20 MAX)
Barium	114	113	(80-120)	0.90	(20 MAX)
Beryllium	107	107	(80-120)	00	(20 MAX)
Cadmium	100	100	(80-120)	00	(20 MAX)
Chromium	98	101	(80-120)	3.0	(20 MAX)
Cobalt	102	102	(80-120)	00	(20 MAX)
Copper	104	104	(80-120)	00	(20 MAX)
Lead	100	100	(80-120)	00	(20 MAX)
Molybdenum	98	98	(80-120)	00	(20 MAX)
Nickel	100	101	(80-120)	1.0	(20 MAX)
Selenium	96	99	(80-120)	3.1	(20 MAX)
Silver	76	67	(60-120)	13	(20 MAX)
Thallium	96	96	(80-120)	00	(20 MAX)
Vanadium	97	96	(80-120)	1.0	(20 MAX)
Zinc	110	110	(80-120)	00	(20 MAX)



QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** VMX 2036  
**Matrix** Water

**Samples** Lab Control Sample [47132]  
 Lab Control Sample Duplicate [47133]

Parameter	Check %Recovery	Check Dup %Recovery	Recovery Limits	RPD	RPD Limits
1,1-Dichloroethene	132	132	(65-145)	00	(20 MAX)
Benzene	100	100	(71-127)	00	(20 MAX)
Trichloroethene	90	92	(75-135)	2.2	(20 MAX)
Toluene	90	92	(76-135)	2.2	(20 MAX)
Chlorobenzene	96	98	(76-135)	2.1	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** DIG 1383  
**Matrix** Water

**Samples** Lab Control Sample [47253]  
 Lab Control Sample Duplicate [47254]

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Parameter	Check % Recovery	Check Dup % Recovery	Recovery Limits	RPD	RPD Limits
Mercury	107	104	(80-120)	2.84	(20 MAX)

QC SUMMARY

**Client ID** Shaw Environmental & Infrastructure  
**Workorder ID** 830714 Former Thomas Short  
**QC Batch** TDSX 1112  
**Matrix** Water

**Samples** Lab Control Sample [47276]  
 Lab Control Sample Duplicate [47277]

Parameter	Check %Recovery	Check Dup %Recovery	Recovery Limits	RPD	RPD Limits
Total Dissolved Solids	101	104	(80-120)	2.9	(20 MAX)

**WORKORDER DATA SHEET**

Jul 11, 2002 16:05

ID 14923                                  WO #14923    830714 Former Thomas Short    STATUS WP  
DESC A4B/R1-2 JR

CREATED    07/11/02 04:01    PO 830714    QA                                  TYPE CM    ACODE REPORT\_WO  
CLIENT     Shaw Shaw Environmental & Infrastructure  
PROFILE    10213 Standard Standard w/o discount

**WORKORDER SAMPLES**

1    **14923001**    14923001                                  MW-4  
WP                                  TYPE SAMPLE                                  MATRIX                                  Water  
COLLECTED 07/11/02 00:00                                  DUE                                  07/25/02 17:00

<u>Analyses</u>	<u>Turndays</u>
OXG/60W    8260B OXYGENATES WATR	10
8260 WATR    8260B GCMS VOLATILES WATR	10
8015M_G W    TPH Gas WATR	10
8015M_D W    TPHdiesel Water	10
1664TRPHW    TRPH 1664, Water	10
CAM16WATR    6010B ELEMENTS CAM16 WATER	10
160.1                  160.1 TOTAL DISSOLVED SOLIDS	10

2    **14923002**    14923002                                  MW-5  
WP                                  TYPE SAMPLE                                  MATRIX                                  Water  
COLLECTED 07/11/02 00:00                                  DUE                                  07/25/02 17:00

<u>Analyses</u>	<u>Turndays</u>
OXG/60W    8260B OXYGENATES WATR	10
8260 WATR    8260B GCMS VOLATILES WATR	10
8015M_G W    TPH Gas WATR	10
8015M_D W    TPHdiesel Water	10
1664TRPHW    TRPH 1664, Water	10
CAM16WATR    6010B ELEMENTS CAM16 WATER	10
160.1                  160.1 TOTAL DISSOLVED SOLIDS	10

3    **14923003**    14923003                                  MW-6  
WP                                  TYPE SAMPLE                                  MATRIX                                  Water  
COLLECTED 07/11/02 00:00                                  DUE                                  07/25/02 17:00

<u>Analyses</u>	<u>Turndays</u>
OXG/60W    8260B OXYGENATES WATR	10
8260 WATR    8260B GCMS VOLATILES WATR	10
8015M_G W    TPH Gas WATR	10
8015M_D W    TPHdiesel Water	10
1664TRPHW    TRPH 1664, Water	10
CAM16WATR    6010B ELEMENTS CAM16 WATER	10
160.1                  160.1 TOTAL DISSOLVED SOLIDS	10

# WORKORDER DATA SHEET

Jul 11, 2002 16:05

4 14923004 14923004 Trip Blank  
WP TYPE SAMPLE MATRIX Water  
COLLECTED 07/11/02 00:00 DUE 07/25/02 17:00

<u>Analyses</u>		<u>Turndays</u>
OXG/60W	8260B OXYGENATES WATR	10
8260 WATR	8260B GCMS VOLATILES WATR	10
8015M_G W	TPH Gas WATR	10

# CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

SHAW Environmental & Infrastructure, Inc.

Purchase Order: # 189348 for 2nd Qtr. 200

1326 North Market Boulevard, Sacramento, CA 95834

Lab: Sparger Technology, Sacto

Project Name: Caltrans, Former Thomas Short Property  
 Project Number: 830714 / 01010000  
 Project Manager: Martha Adams  
 Company: IT CORPORATION  
 Address: 1326 North Market Boulevard  
 Sacramento, CA 95834  
 Dir. Ph: (916) 565-4183 FAX: (916) 565-4356  
 Sampler's Signature: *Paul Wenhardt*

### Analysis Requested

Number of Containers	Fuel Oxygenates by 8260B; VOCs by 8260B; TPH as gas by 8015M	TPH as Diesel by 8015M	TRPH by 1664	CAM Metals by 6010/7470 NOT field filtered.	TDS											REMARKS
	1	6	6	3	3											Container Types
	HCl	NP	HCl	NP	NP											Preservations
MW-4	7-11	901	Water	8	4	1	1	1	1							
MW-5	↓	912	Water	8	4	1	1	1	1							
MW-6	↓	848	Water	8	4	1	1	1	1							
Trip Blank	↓	N/A	Water	2	2											

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	TURNAROUND REQUIREMENTS	REPORT REQUIREMENTS
Signature: <u><i>Paul Wenhardt</i></u>	Signature: <u><i>Sparger</i></u>	Signature: _____	Signature: _____	24 hr _____ 48 hr _____ 5 day _____ <input checked="" type="checkbox"/> Standard (~10-15 working days) Provide Verbal Preliminary Results _____ Provide FAX Preliminary Results _____ Requested Report Date: _____	<input checked="" type="checkbox"/> I. Routine Report <input type="checkbox"/> II. Report (includes DUP, MS MSD, as required, may be charged as samples) <input type="checkbox"/> III. Data Validation Report (includes All Raw Data) RWQCB (MDLs/PQLs/TRACE#)
Printed Name: <u>PAUL WENHARDT</u>	Printed Name: <u>Sparger</u>	Printed Name: _____	Printed Name: _____		
Firm: <u>SHAW GROUP</u>	Firm: <u>Sparger</u>	Firm: _____	Firm: _____		
Date/Time: <u>7-11-02 14:15</u>	Date/Time: <u>7/11/02 11:15</u>	Date/Time: _____	Date/Time: _____		

RELINQUISHED BY	RECEIVED BY	Special Instructions/Comments:	Container Types Key:
Signature: _____	Signature: _____	CAM 17 Metals to be filtered / preserved in the lab.  Sparger Technology 3050 Fite Circle, St. 112 Sacto, Ca 95827 916-362-8947 / Fx 362-0947 Contact: Will Fleming	40 ml VOA: 1
Printed Name: _____	Printed Name: _____		250 ml LPE: 2
Firm: _____	Firm: _____		500 ml LPE: 3
Date/Time: _____	Date/Time: _____		1 liter HDPE: 4
			500 ml glass: 5
			1 liter glass: 6
			2x6 s/s ring: 7
			glass jar: 8



# HUNTER SURVEYING, INC.

6216 Main Avenue, Suite A  
Orangevale, CA 95662  
Phone: (916) 988-5600  
Fax: (916) 988-5688

23 July 2002

**The Shaw Group, Inc.**  
1326 North Market Blvd.  
Sacramento, CA 95834

Attn: Paul Weinhardt

Re: **Monitoring Well Survey - Former Thomas A. Short Company Site**  
**3430 Wood Street, Oakland, California**

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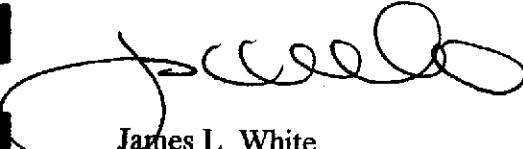
The following monitoring wells were surveyed by conventional total-station and digital-level surveying methods on 11 July 2002.

PT ID	NORTH	EAST	PVC	RIM	GRND
MW-4	487643.6	1483094.8	8.33	10.00	8.5
MW-5	487711.4	1483105.4	12.35	12.51	9.1
MW-6	487720.8	1483065.8	12.01	12.37	8.3

### Basis of Coordinates and Elevations:

NAD1927 Horizontal Feet Coordinates, CCS Zone 3, based on traditional survey methods established from MW-4 and holding the bearing of N 08°51'52" E to MW-5, coordinates values obtained from prior survey report dated 11 July 2000 (provided by The Shaw Group, Inc.).

NGVD1929 Vertical Feet Elevations based on digital leveling survey methods, established from holding the PVC elevation of MW-4 (elev = 8.33 feet), elevation obtained from prior survey report dated 11 July 2000 (provided by The Shaw Group, Inc.).

  
James L. White  
LS 7722

