

Environmental
Resources
Management

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August 15, 2011

Mr. Mark Riggle
Project Manager
Voluntary Cleanup Section
Texas Commission on Environmental Quality
Mail Code 221
12118 North IH 35, Building D
Austin, Texas 78753

Project No. 0137833

Subject: First Half 2011 Monitoring Data Transmittal
Former Cameron Iron Works Facility, Houston, Texas
VCP No. 221



Dear Mr. Riggle:

On behalf of Cameron International Corporation (Cameron), Environmental Resources Management (ERM) is providing the First Half 2011 monitoring results for the Former Cameron Iron Works Facility in Houston, Texas for your review and consideration. This report presents a summary of the actions undertaken to monitor the apparent movement of the plume in some areas downgradient of the Former Cameron Iron Works Facility (the facility) during the First Half 2011. A summary table (Table 1, Attachment 1) has been created to convey this information, as well as the future course of action for each area.

The semiannual ground water and surface water sampling event was completed in May 2011. Based on a review of these results, the concentration trends were generally consistent with those reported in the 2010 Annual Ground Water Monitoring Report. Some plume migration was apparent during the First Half of 2011, and this issue has taken top priority as described below.

Assessment of Plume Migration

Cameron is actively engaged in investigating and responding to some plume movement in the northern portion of Pinewood Estates. The change in flow direction – from generally north to south to north to east-southeast appears to have caused plume movement to the east of MW-139. Likewise, some eastward plume movement is apparent near MW-122.

To assess the plume movement in the northern portion of Pinewood Estates, a review of historical water level data was conducted at MW-163, MW-78, and MW-145 and revealed steady downward trends in all three wells since 2005. A cause of this decline appears to be the I-10 widening project. During the reconstruction of the I-10/I610 Interchange, an east-bound, below grade entrance ramp to I-10 (referred to as the 'Silber Tunnel') was added to the interchange. ERM received information from the Texas Department of Transportation (TxDOT) through an open records request relating to the construction details of the Silber Tunnel.

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A review of the construction drawings indicated the deepest portion of the tunnel dips to less than 35 feet above Mean Sea Level (ftMSL) and is below the water table elevation in the area. A storm water drainage system (referred to as the Silber Tunnel Pump Station) was built to handle runoff from rainfall events and is believed to depress the ground water elevation below the roadway in the vicinity of the tunnel.

The other possible contributor to the plume movement is the extended drought conditions in the Houston area. Houston's Hobby Airport, the nearest reporting station to the facility, recorded the second driest February through July ever – receiving only 10.47 inches of rainfall since February 2011 - a deficit of nearly 20 inches.

The drainage system constructed at the I-10/I610 Interchange combined with the record setting drought conditions in the area are believed to have induced the eastward plume movement in the northern portion of Pinewood Estates. ERM has expanded the in-situ ground water treatment program to address plume migration and these modifications will be described in a forth-coming addendum to the RAP. ERM continues to assess the adequacy of the monitor well network to monitor the full extent of affected ground water and has made the appropriate notifications consistent with TCEQ requirements.

Evaluation of Analytical Results from the First Half 2011

The ground water analytical results collected during the first half of 2011 were compared with the response action obligations outlined in the RAP. The boundary wells are referred to as "trigger wells" because of their position on the plume boundary and purpose to detect the potential for plume movement. Table 1 indicates which trigger wells require a response action and the proposed response action for each. The ground water analytical results for the trigger wells are presented in Table 2, and the analytical results for the non-trigger wells are presented in Table 3.

The reported surface water concentrations, summarized on Table 4, are below both the critical PCLs and 80% of the critical PCLs as established in the *Human Health and Ecological Risk Assessment for Surface Water and Sediment*, dated June 19, 2003.

The laboratory reports and data usability summaries will be provided in the 2011 Annual Ground Water Monitoring Report and Field Activities Summary.

Conclusions and Recommendations

Cameron proposes to undertake the following response actions to meet the requirements of the RAP in the next three months:

- COC concentrations will be monitored at MW-59, MW-74, MW-84, MW-125, MW-134, MW-171, MW-173, and MW-174 on a quarterly basis. The next sampling event is scheduled for August 2011;
- MW-173 has had reported detections above the PCL prior to the installation of a remediation system to address affected ground water in the area. Since then,

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concentrations of COCs have remained below their PCLs for three consecutive sampling events. MW-173 will continue to be monitored quarterly to monitor the effectiveness of the remediation system;

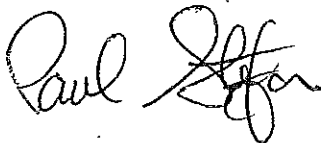
- MW-97 has reported concentrations of 1,1-DCE above and below PCL over the past several sampling events. However, it is believed the ground water treatment system located to the north of the monitor well will address this affected ground water. MW-97 will remain on the semi-annual sampling schedule;
- COC concentrations in MW-122 will be monitored during the third quarter 2011 but will remain on the semi-annual sampling schedule until consistent data is reported;
- Monitoring/injection wells will continue to be monitored for the presence of permanganate;
- Permanganate treatment/injection event is scheduled for July 2011; and
- Enhancements to the treatment galleries will be implemented to respond to unanticipated plume movement.

The next scheduled ground water monitoring event will be the third quarter sampling event in August 2011, when select trigger wells will be sampled as outlined in the RAP.

Please contact Mr. Ted Fasting of Cameron International Corporation at (713) 513-3325 or me at (281) 600-1023 with any questions or comments.

Sincerely,

Environmental Resources Management



Paul Stefan, P.G.

PAS/skd
Attachment



cc: Marsha Hill, Texas Commission on Environmental Quality, Region X II
Ted Fasting, Cameron International Corporation
Bruce Himmelreich, Cameron International Corporation, (without attachment)

Tables
Attachment 1

August 15, 2011
Project No. 0137833

Environmental Resources Management
15810 Park Ten Place, Suite 300
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TABLE 1

Summary of Response Action Plan Implementation
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Well	COCs elevated above MQL	COCs elevated above PCL	Need for Additional Notification (Yes or No)	In-situ Treatment (Yes or No)	Sampling Frequency
MW-59	1,1-dichloroethane		no (a)	no (b)	Quarterly
MW-59	1,1-dichloroethene	1,1-dichloroethene	no (a)	no (b)	Quarterly
MW-74	1,1-dichloroethene		no (a)	no	Quarterly
MW-84	1,1-dichloroethane		no (a)	yes (c)	Quarterly
MW-84	1,1-dichloroethene	1,1-dichloroethene	no (a)	yes (c)	Quarterly
MW-84	1,2-dichloroethane		no (a)	yes (c)	Quarterly
MW-84	cis-1,2-dichloroethene		no (a)	yes (c)	Quarterly
MW-84	tetrachloroethene		no (a)	yes (c)	Quarterly
MW-84	trichloroethene		no (a)	yes (c)	Quarterly
MW-84	Vinyl chloride	Vinyl chloride	no (a)	yes (c)	Quarterly
MW-125	Tetrachloroethene	Tetrachloroethene	no (a)	yes (c)	Quarterly
MW-134	1,1-dichloroethane		no (a)	yes (c)	Quarterly
MW-134	1,1-dichloroethene	1,1-dichloroethene	no (a)	yes (c)	Quarterly
MW-171	1,1-dichloroethane		no (a)	no	Quarterly
MW-171	1,1-dichloroethene		no (a)	no	Quarterly
MW-171	cis-1,2-dichloroethene		no (a)	no	Quarterly
MW-173			no (a)	no	Quarterly

NOTES:

COCs = Chemicals of Concern

MQL = Method Quantitation Limit

PCL = Protective Concentration Level

(a) Properties in the vicinity of the affected ground water have been previously notified.

(b) MW-59 is within the capture zone of EW-1.

(c) Injection wells located in this area were injected with sodium permanganate in 2009. This area is being gauged regularly for the presence of permanganate. Additional permanganate will be injected as needed to reduce concentration levels to the PCL.

TABLE 2

Summary of Monitor Well Ground Water Data for Trigger Wells
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	MQL	Critical PCLs (a)	MW-177R		MW-59		MW-71		MW-72		MW-74		MW-77		MW-80		MW-81		MW-84	
			Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:
1,1-Dichloroethane	0.0050	0.0050	26	4/27/2011	23	4/26/2011	27	4/26/2011	24	4/29/2011	27	4/27/2011	37	4/28/2011	38	4/26/2011	35	4/27/2011	31	5/2/2011
1,1-Dichloroethane	0.0050	4.9		0.00088 J		0.0015 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.014		ND (0.0050)		0.074
1,1-Dichloroethane	0.0050	0.0070		0.00088 J		0.008		ND (0.0050)		ND (0.0050)		0.006 J		ND (0.0050)		0.18		ND (0.0050)		0.36
1,2-Dichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0014 J
cis-1,2-Dichloroethane	0.0050	0.070		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0024 J		ND (0.0050)		0.0035 J
Tetrachloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0018 J
Trichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0017 J
Vinyl Chloride	0.0020	0.0020		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		0.0016 J		ND (0.0020)		0.0091
Constituent	MQL	Critical PCLs (a)	MW-85R		MW-86		MW-97		MW-98		MW-99		MW-117		MW-119		MW-122		MW-123	
1,1-Dichloroethane	0.0050	4.9	29	4/27/2011	40	4/27/2011	33	4/29/2011	36	4/29/2011	32	4/28/2011	25	4/28/2011	28	4/29/2011	28	4/28/2011	28	4/28/2011
1,1-Dichloroethane	0.0050	0.0070		ND (0.0050)		ND (0.0050)		0.00067 J		ND (0.0050)		0.001 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
1,1-Dichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		0.0074		ND (0.0050)		0.0069		ND (0.0050)		0.00078 J		ND (0.0050)		ND (0.0050)
1,2-Dichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0009 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
cis-1,2-Dichloroethane	0.0050	0.070		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
Tetrachloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		0.00065 J		ND (0.0050)		0.00099 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
Trichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.00064 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
Vinyl Chloride	0.0020	0.0020		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)
Constituent	MQL	Critical PCLs (a)	MW-125		MW-131		MW-134		MW-139		MW-146		MW-168		MW-171		MW-173		MW-173	
1,1-Dichloroethane	0.0050	4.9	32	4/29/2011	32	4/26/2011	30	4/27/2011	25	4/27/2011	30	4/27/2011	35	5/2/2011	25	4/28/2011	35	5/2/2011	35	5/2/2011
1,1-Dichloroethane	0.0050	0.0070		ND (0.0050)		ND (0.0050)		0.00092 J		0.017		ND (0.0050)		ND (0.0050)		0.0018 J		ND (0.0050)		ND (0.0050)
1,1-Dichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		0.012		0.021		ND (0.0050)		ND (0.0050)		0.0023 J		ND (0.0050)		ND (0.0050)
1,2-Dichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
cis-1,2-Dichloroethane	0.0050	0.070		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0047 J		ND (0.0050)		ND (0.0050)		0.00084 J		ND (0.0050)		ND (0.0050)
Tetrachloroethane	0.0050	0.0050		0.0099		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
Trichloroethane	0.0050	0.0050		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
Vinyl Chloride	0.0020	0.0020		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)

NOTES:

The reported concentrations are in mg/L.
0.0088 = exceedance of TOEC Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water critical PCLs.
 Bold values exceed the MQL.

ND (0.0050) = Not Detected at the method quantization limit given in parentheses.
 MQL = Method Quantization Limit.

(a) TOEC Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water PCLs, Table 3, table for TRRP Rule dated April 2008.

(b) The sample depths are reported in feet below ground surface.

(c) MW-134 was covered with construction debris and not sampled in the Second Half of 2010.

(d) MW-134 was covered with construction debris and not sampled in the Second Half of 2010.

J = Estimated data, the reported sample concentration is approximated due to exceedance of CC requirements.

L = Blasted Low.

U = Not detected, the SCL is estimated.

NS = Not sampled.

TABLE 3

Summary of Monitor Well Ground Water Data
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	Critical PCLs (a)	Location: Depth: (b)	Date:	KMW-01		KMW-07		KMW-13		KMW-14		MW-01		MW-02(C)		MW-02(S)		MW-03(S)		MW-02R		MW-07R	
				21	4/29/2011	25	4/22/2011	25	4/25/2011	25	4/22/2011	25	4/25/2011	23	4/26/2011	23	4/25/2011	23	4/21/2011	23	4/25/2011	23	4/21/2011
1,1-Dichloroethane	4.9		0.0077 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0052 J	0.0050	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.025	NA	0.0016 J	NA
1,1-Dichloroethane	0.0070		0.0017 J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
1,2-Dichloroethane	0.0050			ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
cis-1,2-Dichloroethane	0.0050			ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Tetrachloroethene	0.0050			ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Trichloroethene	0.0050			ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Vinyl Chloride	0.0020			ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)

Constituent	Critical PCLs (a)	Location: Depth: (b)	Date:	MW-15R		MW-16R (d)		MW-17R		MW-35		MW-42		MW-43R		MW-44		MW-48		MW-50R		MW-52	
				20	4/27/2011	24	4/22/2011	20	4/27/2011	33	4/22/2011	24	4/27/2011	34	P&A'd	24	4/27/2011	25	P&A'd	23	4/21/2011	25	4/25/2011
1,1-Dichloroethane	4.9			ND (0.0050)	NS	NS	NS	0.0068 J	NA	NA	NA	NA	0.0059	NA	NA	NA	NA	NS	NS	NS	NS	0.038	NA
1,1-Dichloroethane	0.0070		0.0012 J	ND (0.0050)	NS	NS	NS	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	
1,2-Dichloroethane	0.0050			ND (0.0050)	NS	NS	NS	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	
cis-1,2-Dichloroethane	0.070			ND (0.0050)	NS	NS	NS	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	
Tetrachloroethene	0.0050			ND (0.0050)	NS	NS	NS	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	
Trichloroethene	0.0050			ND (0.0050)	NS	NS	NS	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	
Vinyl Chloride	0.0020			ND (0.0050)	NS	NS	NS	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	

Constituent	Critical PCLs (a)	Location: Depth: (b)	Date:	MW-54		MW-56		MW-58		MW-59		MW-60		MW-61		MW-62		MW-63		MW-64		MW-65	
				30	4/22/2011	24	4/22/2011	23	4/22/2011	25	4/26/2011	23	4/26/2011	34	4/26/2011	23	4/26/2011	25	4/22/2011	25	4/22/2011	25	4/25/2011
1,1-Dichloroethane	4.9			NA	NA	NA	NA	NA	NA	0.0015 J	0.0015 J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.00088 J	NA
1,1-Dichloroethane	0.0070		0.38	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
1,2-Dichloroethane	0.0050			NA	NA	NA	NA	NA	NA	0.008	0.008	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
cis-1,2-Dichloroethane	0.070		8.6	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Tetrachloroethene	0.0050		0.092	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Trichloroethene	0.0050		0.89	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)
Vinyl Chloride	0.0020		0.13	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)

NOTES:

The reported concentrations are in mg/L.

0.028 = exceedance of TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Groundwater critical PCLs.

NA = Not Analyzed.

NS = Not Sampled.

ND (0.0050) = Not Detected at the method quantitation limit given in parentheses.

(a) TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water PCLs, Table 3, table for TRRP Rule dated March 25, 2009.

(b) The sample depths are reported in feet below ground surface.

(c) Not sampled due to permanganate in well.

(d) Monitor well was inaccessible due to debris and was not sampled.

J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.

L = Biased Low.

U = Not detected, the SQL is estimated

TABLE 3 (Contd)

Summary of Monitor Well Ground Water Data
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	Critical PCLs (a)	Location: Depth: (b)	MW-70	MW-73	MW-75R	MW-76	MW-78	MW-79	MW-82	MW-83	MW-87	MW-88
1,1-Dichloroethane	4.9	25	4/28/2011	4/28/2011	4/28/2011	4/27/2011	4/26/2011	4/26/2011	4/27/2011	4/26/2011	4/28/2011	5/3/2011
1,1-Dichloroethane	0.0070	0.031	0.0039 J	0.021	0.013	0.0045 J	0.028	0.022	0.023	0.0076	0.0048 J	ND (0.0050)
1,1-Dichloroethane	0.0050	0.1	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.0086	0.087	0.089	0.022	0.0037	ND (0.0050)
1,2-Dichloroethane	0.070	0.16	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.0012 J	0.0065 J	0.012	0.0042 J	0.0006 J	ND (0.0050)
cis-1,2-Dichloroethane	0.0050	0.0049 J	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.0011 J	0.0041 J	0.0027 J	0.072	0.013	0.0017 J	ND (0.0050)
Tetrachloroethene	0.0050	0.11	0.0016 J	0.016 J	0.0078	0.002 J	0.002 J	0.0022 J	0.014	0.0071	0.001 J	0.0017 J
Trichloroethene	0.0050	0.0098	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	0.0074	0.029	0.0043	ND (0.0020)	ND (0.0020)
Vinyl Chloride	0.0020											
Constituent	Critical PCLs (a) <th>Location: Depth: (b)</th> <th>MW-91</th> <th>MW-90</th> <th>MW-92</th> <th>MW-93 (c)</th> <th>MW-94</th> <th>MW-96R</th> <th>MW-99</th> <th>MW-100</th> <th>MW-101</th>	Location: Depth: (b)	MW-91	MW-90	MW-92	MW-93 (c)	MW-94	MW-96R	MW-99	MW-100	MW-101	
1,1-Dichloroethane	4.9	37	5/3/2011	4/29/2011	4/29/2011	4/29/2011	4/26/2011	4/29/2011	4/28/2011	4/28/2011	4/28/2011	
1,1-Dichloroethane	0.0070	0.0058	0.0008 J	0.016 J	0.004 J	NS	ND (0.0050)	0.18	0.0069	0.0078	0.0047 J	
1,1-Dichloroethane	0.0050	0.021	ND (0.0050)	0.013	0.004 J	NS	ND (0.0050)	0.0049 J	0.0009 J	0.026	0.02	
1,2-Dichloroethane	0.0050	0.0087 J	ND (0.0050)	0.00066 J	ND (0.0050)	NS	ND (0.0050)	0.0072 J	0.0009 J	ND (0.0050)	ND (0.0050)	
cis-1,2-Dichloroethane	0.070	0.0027 J	0.0063	0.0068	0.001 J	NS	ND (0.0050)	0.00084 J	0.00099 J	0.0038 J	0.0012 J	
Tetrachloroethene	0.0050	0.49	0.76	0.49	0.3	NS	ND (0.0050)	0.00084 J	0.00084 J	0.071	0.021	
Trichloroethene	0.0050	0.016	0.037	0.04	0.007	NS	ND (0.0050)	0.00063 J	0.00063 J	0.058	0.0031 J	
Vinyl Chloride	0.0020	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	NS	ND (0.0020)	0.0016 J	ND (0.0020)	ND (0.0020)	ND (0.0020)	
Constituent	Critical PCLs (a) <th>Location: Depth: (b)</th> <th>MW-102</th> <th>MW-106</th> <th>MW-107</th> <th>MW-108</th> <th>MW-109</th> <th>MW-110</th> <th>MW-111</th> <th>MW-112</th> <th>MW-113</th> <th>MW-114</th>	Location: Depth: (b)	MW-102	MW-106	MW-107	MW-108	MW-109	MW-110	MW-111	MW-112	MW-113	MW-114
1,1-Dichloroethane	4.9	45	4/29/2011	4/29/2011	4/29/2011	4/25/2011	4/25/2011	4/25/2011	4/25/2011	4/25/2011	4/25/2011	5/2/2011
1,1-Dichloroethane	0.0070	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.00099 J	NA	NA	NA	NA	NA	NA	0.0064
1,1-Dichloroethane	0.0050	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.011	0.54	0.067	0.048	0.067	0.089	0.067	0.025
1,2-Dichloroethane	0.0050	ND (0.0050)	ND (0.0050)	ND (0.0050)	NA	NA	NA	NA	NA	NA	NA	0.0037
cis-1,2-Dichloroethane	0.070	0.0007 J	0.001 J	0.001 J	0.015	0.17	0.035	0.0015 J	0.035	0.054	ND (0.0050)	0.018
Tetrachloroethene	0.0050	0.16	0.33	0.33	0.24	0.01	0.01	0.0015 J	0.0015 J	0.054	ND (0.0050)	0.18
Trichloroethene	0.0050	0.0015 J	0.0023 J	0.0078	0.0032 J	0.017	0.017	0.0052	0.0052	0.0039 J	ND (0.0050)	0.05
Vinyl Chloride	0.0020	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	0.084	0.026	0.028	0.028	0.051	0.0025	0.0011 J

NOTES:

- The reported concentrations are in mg/L.
- 0.028 = exceedance of TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Groundwater critical PCLs.
- NA = Not Analyzed.
- NS = Not Sampled.
- ND (0.0050) = Not Detected at the method quantitation limit given in parentheses.
- (a) TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water PCLs, Table 3, table for TRRP Rule dated March 25, 2009.
- (b) The sample depths are reported in feet below ground surface.
- (c) Not sampled due to permanganate in well.
- (d) Monitor well was inaccessible due to debris and was not sampled.
- J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.
- L = Biased Low.
- U = Not detected, the SQL is estimated

TABLE 3 (Cont'd)

Summary of Monitor Well Ground Water Data
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	Critical PCLs (a)	MW-115		MW-116		MW-118		MW-119		MW-120		MW-121		MW-124		MW-126		MW-127		MW-128	
		Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:	Location: Depth: (b)	Date:
1,1-Dichloroethane	4.9	MW-115 34	4/28/2011	MW-116 27	4/28/2011	MW-118 27	4/29/2011	MW-119 28	4/29/2011	MW-120 25	4/27/2011	MW-121 28	4/27/2011	MW-124 29	4/29/2011	MW-126 32	4/27/2011	MW-127 32	4/28/2011	MW-128 40	4/28/2011
1,1-Dichloroethane	0.0070		ND (0.0050)		0.0014 J		0.018		ND (0.0050)		0.005		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)
1,2-Dichloroethane	0.0050		0.37		0.023		0.0099 J		0.0079 J		0.0089		0.031		0.0074		0.0022 J		0.0062		0.0062
cis-1,2-Dichloroethene	0.070		0.0064		0.0033 J		0.014		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0028 J		ND (0.0050)		ND (0.0050)		ND (0.0050)
Tetrachloroethene	0.0050		ND (0.0050)		0.0012 J		0.02		ND (0.0050)		0.043		ND (0.0050)		0.037		ND (0.0050)		0.00063 J		0.0033 J
Trichloroethene	0.0050		0.0042 J		0.0096		0.029		ND (0.0050)		0.0046 J		ND (0.0050)		0.47		ND (0.0050)		0.0043 J		ND (0.0050)
Vinyl Chloride	0.0020		ND (0.0020)		ND (0.0020)		0.00057 J		ND (0.0020)		0.0026		ND (0.0020)		0.0045		ND (0.0020)		ND (0.0020)		ND (0.0020)
Location: MW-129																					
Depth: (b) MW-130																					
Date: 4/29/2011																					
1,1-Dichloroethane	4.9	MW-129 35	4/29/2011	MW-130 25	4/26/2011	MW-133 30	10/19/2010	MW-134 26	4/27/2011	MW-135 25	4/26/2011	MW-139 25	4/27/2011	MW-140 (c) 30	4/26/2011	MW-141 30	4/26/2011	MW-142 33	4/26/2011	MW-143 24	4/26/2011
1,1-Dichloroethane	0.0070		0.044		ND (0.0050)		0.0021 J		0.00032 J		ND (0.0050)		0.017		NS		0.0093		ND (0.0050)		ND (0.0050)
1,2-Dichloroethane	0.0050		0.21		ND (0.0050)		0.0084		0.012		ND (0.0050)		0.021		NS		0.042		0.0055		0.0055
cis-1,2-Dichloroethene	0.070		0.001 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0047 J		NS		ND (0.0050)		ND (0.0050)		ND (0.0050)
Tetrachloroethene	0.0050		0.011		ND (0.0050)		0.00069 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		NS		0.0015 J		ND (0.0050)		ND (0.0050)
Trichloroethene	0.0050		0.079		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		NS		0.0024 J		0.0008 J		ND (0.0050)
Vinyl Chloride	0.0020		0.026		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		NS		0.0019 J		0.0005 J		ND (0.0020)
Location: MW-144																					
Depth: (b) MW-145																					
Date: 4/26/2011																					
1,1-Dichloroethane	4.9	MW-144 25	4/26/2011	MW-145 28	4/27/2011	MW-149 27	4/28/2011	MW-166 BAILED	5/4/2011	MW-167 BAILED	5/4/2011	MW-169 35	4/29/2011	MW-170 25	4/28/2011	MW-174 34	4/26/2011	MW-175 BAILED	5/4/2011	MW-176 37	5/2/2011
1,1-Dichloroethane	0.0070		0.016		0.00065 J		0.0035 J		0.001 J		ND (0.0050)		0.0038 J		ND (0.0050)		0.0022 J		ND (0.0050)		ND (0.0050)
1,2-Dichloroethane	0.0050		0.12		0.0019 J		0.0044 J		0.0036		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.005		ND (0.0050)		ND (0.0050)
cis-1,2-Dichloroethene	0.070		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0057		ND (0.0050)		ND (0.0050)
Tetrachloroethene	0.0050		0.0068 J		ND (0.0050)		0.0027 J		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.0016 J		0.0037 J		0.0037 J		ND (0.0050)
Trichloroethene	0.0050		ND (0.0050)		ND (0.0050)		0.0084		ND (0.0050)		ND (0.0050)		ND (0.0050)		0.009		ND (0.0050)		ND (0.0050)		ND (0.0050)
Vinyl Chloride	0.0020		0.0023		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)		ND (0.0020)

NOTES:

- The reported concentrations are in mg/L.
- 0.028 = exceedance of TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Groundwater critical PCLs.
- NA = Not Analyzed.
- NS = Not Sampled.
- ND (0.0050) = Not Detected at the method quantitation limit given in parentheses.
- (a) TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water PCLs, Table 3, table for TRRP Rule dated March 25, 2009.
- (b) The sample depths are reported in feet below ground surface.
- (c) Not sampled due to permanganate in well.
- (d) Monitor well was inaccessible due to debris and was not sampled.
- J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.
- L = Biased Low.
- U = Not detected, the SQL is estimated.

TABLE 3 (Cont'd)

Summary of Monitor Well Ground Water Data
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	Critical PCLs (a)	Location: Depth: (b)	STABLEWOOD EXTRACTION WELLS					
			MW-177 5/2/2011	EW-1 (S) 3/25/2011	EW-2 (S) 3/25/2011	EW-3 (S) 3/25/2011	EW-4 (S) 3/25/2011	EW-5 (S) 3/25/2011
1,1-Dichloroethane	4.9	ND (0.0050)	0.011	0.0079	0.00096 J	0.0022 J	0.0036 J	ND (0.0005)
1,1-Dichloroethene	0.0070	ND (0.0050)	0.042	0.041	0.012	ND (0.0005)	ND (0.0005)	ND (0.0005)
1,2-Dichloroethane	0.0050	ND (0.0050)	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.070	ND (0.0050)	ND (0.0006)	ND (0.0006)	ND (0.0006)	ND (0.0006)	ND (0.0006)	ND (0.0006)
Tetrachloroethene	0.0050	ND (0.0050)	ND (0.0007)	ND (0.0007)	ND (0.0007)	ND (0.0007)	ND (0.0007)	ND (0.0007)
Trichloroethene	0.0050	ND (0.0050)	ND (0.0010)	0.0014 J	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)
Vinyl Chloride	0.0020	ND (0.0020)	ND (0.0010)					

NOTES:

- The reported concentrations are in mg/L.
- 0.028 = exceedance of TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Groundwater critical PCLs.
- NA = Not Analyzed.
- NS = Not Sampled.
- ND (0.0050) = Not Detected at the method quantitation limit given in parentheses.
- (a) TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water PCLs, Table 3, table for TRRP Rule dated March 25, 2009.
- (b) The sample depths are reported in feet below ground surface.
- (c) Not sampled due to permanganate in well.
- (d) Monitor well was inaccessible due to debris and was not sampled.
- J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.
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TABLE 4

Summary of Surface Water Data
First Half 2011 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	Critical PCLs (a)	80% Critical PCL (a)	Location: Date:	SWD-12		SWD-14		SWD-15	
				5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011
1,1-Dichloroethane	5.13	4.10		0.00052 J	0.00065 J	0.00058 J			
1,1-Dichloroethene	0.06	0.05		0.00076 J	0.0029 J	0.029			
1,2-Dichloroethane	0.554	0.443		ND (0.0050)	ND (0.0050)	ND (0.0050)			
cis-1,2-Dichloroethene	9.36	7.49		ND (0.0050)	ND (0.0050)	0.001 J			
Tetrachloroethene	0.790	0.632		ND (0.0050)	ND (0.0050)	ND (0.0050)			
Trichloroethene	1.110	0.888		0.00059 J	0.00064 J	0.0028 J			
Vinyl Chloride	0.0336	0.0269		ND (0.0020)	ND (0.0020)	0.00076 J			

Constituent	Critical PCLs (a)	80% Critical PCL (a)	Location: Date:	SWD-17		SWD-18		SWD-20	
				5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011
1,1-Dichloroethane	5.13	4.10		ND (0.0050)	ND (0.0050)	ND (0.0050)			
1,1-Dichloroethene	0.06	0.05		0.0066	0.0067	0.0012 J			
1,2-Dichloroethane	0.554	0.443		ND (0.0050)	ND (0.0050)	ND (0.0050)			
cis-1,2-Dichloroethene	9.36	7.49		0.00096 J	0.00099 J	ND (0.0050)			
Tetrachloroethene	0.790	0.632		0.011	0.012	0.0027 J			
Trichloroethene	1.110	0.888		0.00075 J	0.00077 J	ND (0.0050)			
Vinyl Chloride	0.0336	0.0269		ND (0.0020)	ND (0.0020)	ND (0.0020)			

NOTES:

The reported concentrations are in mg/L.

ND (0.0050) = Not Detected at the Reporting Limit given in parentheses.

J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.

L = Biased Low.

U = Not detected, the SQL is estimated

(a) Taken from the critical PCLs calculated in the *Human Health Ecological Risk Assessment for Surface Water and Sediment*, dated June 2003.

SWD = Surface Water Harris County Flood Control Ditch.