

July 11, 2012

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. 0159198

15810 Park Ten Place
Suite 300
Houston, Texas 77084-5140
(281) 600-1000
(281) 600-1001 (fax)

Subject: First Quarter 2012 Monitoring Data Transmittal
Former Cameron Iron Works Facility, Houston, Texas
VCP No. 221; RN101474880; CN600374821



Dear Mr. Riggle:

On behalf of Cameron International Corporation (Cameron), Environmental Resources Management (ERM) is providing the First Quarter 2012 ground water monitoring results for the Former Cameron Iron Works Facility (the facility) for your review and consideration. This quarterly ground water sampling event was completed in February 2012 in accordance with the Texas Commission of Environmental Quality's (TCEQ) November 18, 2011 comments on the *Comments to the Third Quarter 2011 Monitoring Data Transmittal* dated November 14, 2011.

All ground water analytical results collected during this sampling event were compared with the response action objectives outlined in the Response Action Plan (RAP), dated August 28, 2003. Table 1 lists the wells that require a response action and the proposed action for each well. The ground water analytical results are summarized in Table 2. Figure 1 illustrates the analytical data on the site map. A concentration versus time graph for each monitor well is also included in Attachment 2.

The laboratory reports and data usability summaries will be provided in the 2012 Annual Ground Water Monitoring Report and Field Activities Summary.

Concentration Trends and Response Action Plan Activities

Cameron has taken action to address elevated concentrations of constituents of concern (COCs) at selected well locations where upward trends were previously identified. The actions included expanding the ground water treatment galleries in February and July 2011, followed by 60 sodium permanganate treatments across the site. Ground water flow conditions continue to warrant close attention because of the drought and the I-610/I-10 Interchange dewatering project. This dewatering project was first described in the *First Half 2011 Monitoring Data Transmittal*, dated August 15, 2011. Routine data collection and evaluation activities were undertaken to assess ground water flow conditions. The following discussion provides details on the recent monitoring results for monitor wells of interest.

MW-59

Throughout much of 2011, the reported concentrations of 1,1-dichloroethene (1,1-DCE) at MW-59 were slightly above the Protective Concentration Limit (PCL) and were generally stable to decreasing. Construction activities in the area of MW-59 damaged the well and it was not sampled in First Quarter 2012. Repair and redevelopment tasks were completed in March 2012. MW-59 lies within the capture zone of the facility's ground water treatment system and will remain on the quarterly sampling schedule.

MW-74

The reported concentrations of 1,1-DCE at MW-74 have fluctuated above and below the PCL over the last several years and the reported concentrations of 1,1-DCE remain within the historical range of values. This monitor well is influenced by the dewatering project and will remain on the quarterly sampling schedule.

MW-84

The increasing concentrations of COCs above their PCLs in MW-84 were reported since 2009 and prompted an expansion of the treatment system in this area. Following treatment in July 2011, COC concentrations in MW-84 decreased and Cameron is monitoring this location for the presence of permanganate. Treatments will continue in this area to address the elevated concentrations at MW-84 and this well will remain on the quarterly sampling schedule.

MW-122

The concentration of trichloroethene (TCE) is above the PCL in MW-122 and this monitor well is located in an area of historically elevated concentrations. A review of the most-recent trend data indicates that the concentrations of TCE are stable to decreasing. MW-122 will remain on the quarterly sampling schedule.

MW-125

The concentrations of COCs in MW-125 have remained generally stable. Permanganate treatment in both upgradient and downgradient wells was conducted in July 2011. This area will continue to be monitored for the presence of permanganate and MW-125 will remain on the quarterly sampling schedule.

MW-134

The reported concentrations of 1,1-DCE in MW-134 have been generally stable over the past four sampling events at levels slightly above its PCL. Prior to this, the concentrations fluctuated above and below its PCL. The concentrations at MW-134 are influenced by the dewatering project. MW-134 will remain on the quarterly sampling schedule.

MW-171

The concentrations of 1,1-DCE at MW-171 have been below the PCL but above the MQL since August of 2008. This trend continued in the first quarter of 2012. Consistent with the TCEQ's comment letter dated March 21, 2012, MW-171 will be moved to the semiannual sampling schedule.

MW-173

The concentrations of 1,1-DCE were reported above the PCL in MW-173 prior to the installation of the remediation system in June 2010. Since then, concentrations of 1,1-DCE have been reported below the PCL and the COCs have been reported as *Not Detected* since October 2010. The response action addressed the affected ground water in this area and it is proposed that MW-173 be monitored semiannually to assess the effectiveness of the remediation system.

MW-174

The concentration of 1,1-DCE was first reported above the PCL in August 2011 at MW-174. A confirmation sample was collected and verified the concentration. A permanganate treatment was conducted upgradient of MW-174 in July 2011 followed by another treatment in March 2012. This area will continue to be monitored for the presence of permanganate and MW-174 will remain on the quarterly sampling schedule.

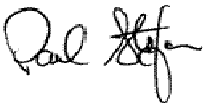
Conclusions

Ground water concentrations were monitored at several wells in the first quarter of 2012 to assess the effectiveness of the remedy at controlling affected ground water. The drought and dewatering project at the I-610/I-10 Interchange are influencing concentration trends in some areas of the off-site plume. Cameron continues to implement the corrective action for this site and will provide an Amended Response Action Plan in the Summer of 2012.

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/tsb
Attachments

cc: Marsha Hill, Texas Commission on Environmental Quality, Region XII
Ted Fasting, Cameron International Corporation
Bruce Himmelreich, Cameron International Corporation (without attachments)
President, Stablewood Property Owners Association
Robin Morse, Crain, Caton, and James, P.C.
Larry Nettles, Vinson & Elkins

Tables
Attachment 1

July 11, 2012
Project No. 0159198

Environmental Resources Management
15810 Park Ten Place, Suite 300
Houston, Texas 77084
(281) 600-1000

TABLE 1

Summary of Response Action Plan Implementation
 First Quarter 2012 Monitoring Data Transmittal

Former Cameron Iron Works Facility
 Houston, Texas

<u>Well</u>	<u>COCs elevated above MQL</u>	<u>COCs elevated above PCL</u>	<u>Need for Additional Notification (Yes or No)</u>	<u>In-situ Treatment (Yes or No)</u>	<u>Sampling Frequency</u>
MW-59	Not Sampled in First Quarter 2012		no (a)	no (b)	Quarterly
MW-74	1,1-dichloroethane		no (a)	no	Quarterly
MW-74	1,1-dichloroethene	1,1-dichloroethene	no (a)	no	Quarterly
MW-74	Vinyl chloride		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	cis-1,2-dichloroethene		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-122	1,1-dichloroethene		no (a)	no	Quarterly
MW-122	Trichloroethene	Trichloroethene	no (a)	no	Quarterly
MW-125	Tetrachloroethene	Tetrachloroethene	no (a)	yes (c)	Quarterly
MW-134	1,1-dichloroethane		no (a)	no	Quarterly
MW-134	1,1-dichloroethene	1,1-dichloroethene	no (a)	no	Quarterly
MW-171	1,1-dichloroethane		no (a)	no	Quarterly
MW-171	1,1-dichloroethene		no (a)	no	Quarterly
MW-173			no (a)	no	Semiannual
MW-174	1,1-dichloroethane		no (a)	yes (c)	Quarterly
MW-174	1,1-dichloroethene	1,1-dichloroethene	no (a)	yes (c)	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 treated with sodium permanganate during July 2011 with a follow-up treatment planned for March 2012. This area is being gauged regularly for the presence of permanganate. Additional permanganate will be injected as needed to maintain treatment.

TABLE 2

Summary of Ground Water Data for Trigger Wells
First Quarter 2012 Monitoring Data Transmittal

Former Cameron Iron Works Facility
Houston, Texas

Constituent	MQL	Critical PCLs (a)	Location:	MW-59	MW-74	MW-84	MW-122	MW-125
			Depth: (b)		27	33	29	BAILED
			Date:		2/6/2012	2/6/2012	2/6/2012	2/6/2012
1,1-Dichloroethane	0.0050	4.9		NS	0.014	0.043	ND (0.00050)	ND (0.00050)
1,1-Dichloroethene	0.0050	0.0070		NS	0.015	0.20	0.0058	ND (0.00050)
1,2-Dichloroethane	0.0050	0.0050		NS	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
cis-1,2-Dichloroethene	0.0050	0.070		NS	ND (0.00050)	0.0017 J	ND (0.00050)	ND (0.00050)
Tetrachloroethene	0.0050	0.0050		NS	ND (0.00060)	ND (0.00060)	ND (0.00060)	0.011
Trichloroethene	0.0050	0.0050		NS	ND (0.00050)	0.0011 J	0.011	ND (0.00050)
Vinyl Chloride	0.0020	0.0020		NS	0.0013 J	0.0057	ND (0.00050)	ND (0.00050)

Constituent	MQL	Critical PCLs (a)	Location:	MW-134	MW-171	MW-173	MW-174
			Depth: (b)	25.5	24	BAILED	34
			Date:	2/6/2012	2/6/2012	2/6/2012	2/6/2012
1,1-Dichloroethane	0.0050	4.9		0.0014 J	0.0014 J	ND (0.00050)	0.0040 J
1,1-Dichloroethene	0.0050	0.0070		0.010	0.0015 J	ND (0.00050)	0.110
1,2-Dichloroethane	0.0050	0.0050		ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
cis-1,2-Dichloroethene	0.0050	0.070		ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Tetrachloroethene	0.0050	0.0050		ND (0.00060)	ND (0.00060)	ND (0.00060)	ND (0.00060)
Trichloroethene	0.0050	0.0050		ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Vinyl Chloride	0.0020	0.0020		ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)

NOTES:

The reported concentrations are in mg/L.

0.023 = exceedance of TCEQ Texas Risk Reduction Program (TRRP) Tier 1 Residential Class 2 Ground Water critical PCLs.

Bold values exceed the MQL.

ND (0.00050) = *Not Detected* at the Sample Detection Limit (SDL) given in parentheses.

MQL = Method Quantitation Limit.

(a) TCEQ 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 top of casing elevations.

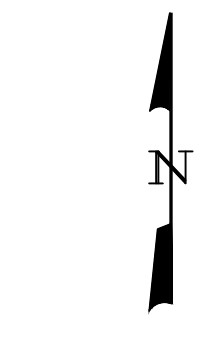
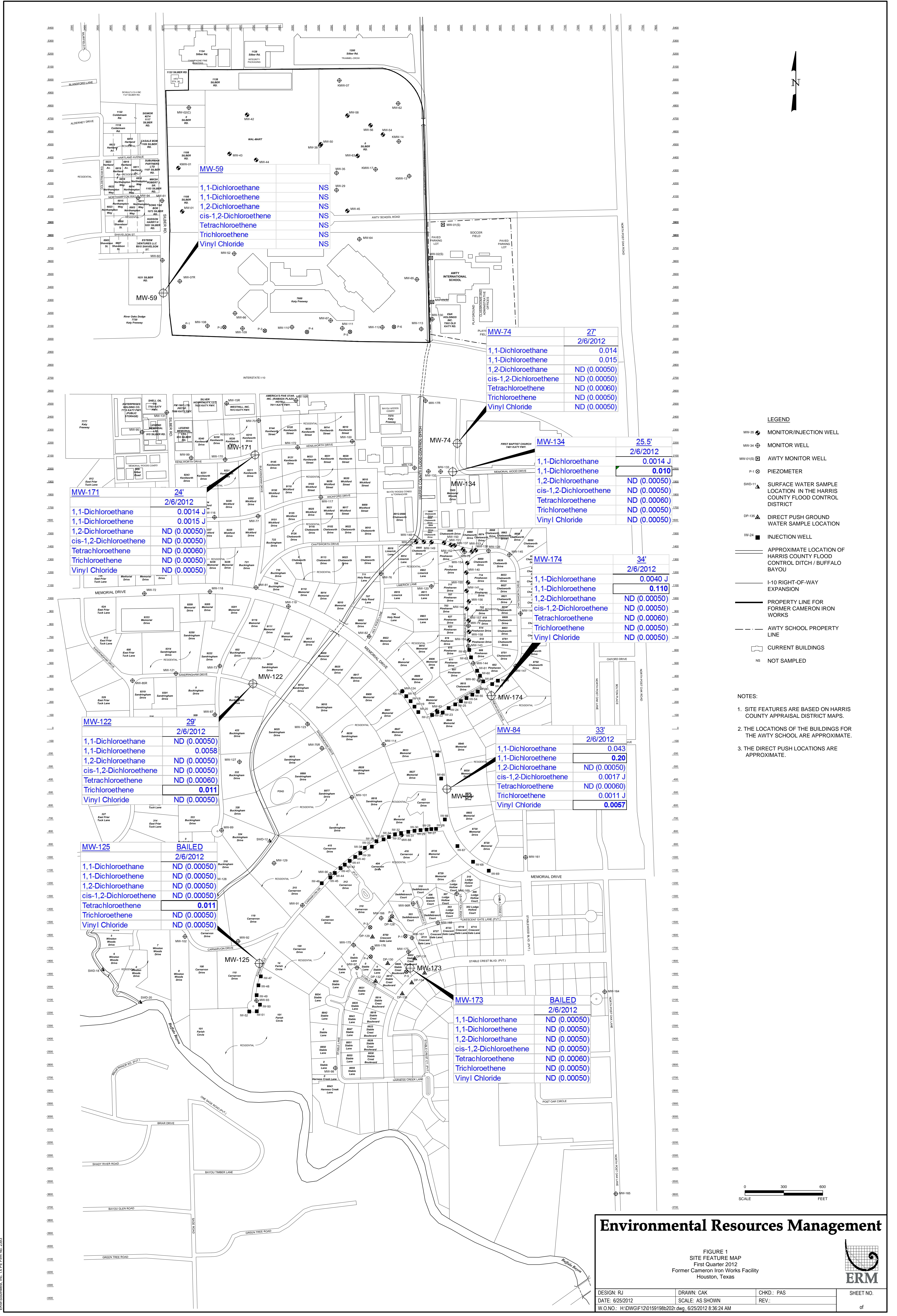
J = Estimated data, the reported sample concentration is approximated due to exceedance of QC requirements.

NS = Not Sampled.

Figures
Attachment 2

July 11, 2012
Project No. 0159198

Environmental Resources Management
15810 Park Ten Place, Suite 300
Houston, Texas 77084
(281) 600-1000

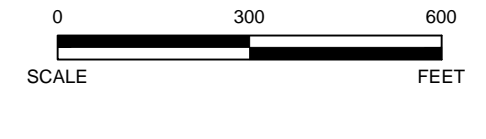


LEGEND

- MW-35 ◉ MONITOR/INJECTION WELL
- MW-34 ⊕ MONITOR WELL
- MW-01(S) ⊕ AWTY MONITOR WELL
- P-1 ⊕ PIEZOMETER
- SWD-11 ▲ SURFACE WATER SAMPLE LOCATION IN THE HARRIS COUNTY FLOOD CONTROL DISTRICT
- DP-135 ▲ DIRECT PUSH GROUND WATER SAMPLE LOCATION
- IW-24 ■ INJECTION WELL
- APPROXIMATE LOCATION OF HARRIS COUNTY FLOOD CONTROL DITCH/BUFFALO BAYOU
- I-10 RIGHT-OF-WAY EXPANSION
- PROPERTY LINE FOR FORMER CAMERON IRON WORKS
- - - AWTY SCHOOL PROPERTY LINE
- ▭ CURRENT BUILDINGS
- NS NOT SAMPLED

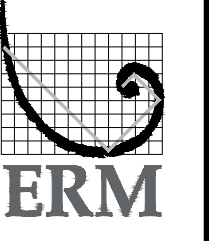
NOTES:

- SITE FEATURES ARE BASED ON HARRIS COUNTY APPRAISAL DISTRICT MAPS.
- THE LOCATIONS OF THE BUILDINGS FOR THE AWTY SCHOOL ARE APPROXIMATE.
- THE DIRECT PUSH LOCATIONS ARE APPROXIMATE.



Environmental Resources Management

FIGURE 1
SITE FEATURE MAP
First Quarter 2012
Former Cameron Iron Works Facility
Houston, Texas



DESIGN: RJ	DRAWN: CAK	CHKD: PAS	SHEET NO.
DATE: 6/25/2012	SCALE: AS SHOWN	REV.:	
W.O.NO.: H:\DWG\F12015919862012.dwg, 6/25/2012 8:36:24 AM			of