

Appendix D

Phase II Environmental Site Assessment



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November 9, 2009

Mr. Glenn Laird, AICP
Environmental Services Department Manager
Harris County Flood Control District
9900 Northwest Freeway
Houston, Texas 77092

Subject: Phase II Environmental Site Assessment
42 Acre Tract, Deer Park, TX
HCFCD Project ID G504-01-00-R001

Dear Mr. Laird:

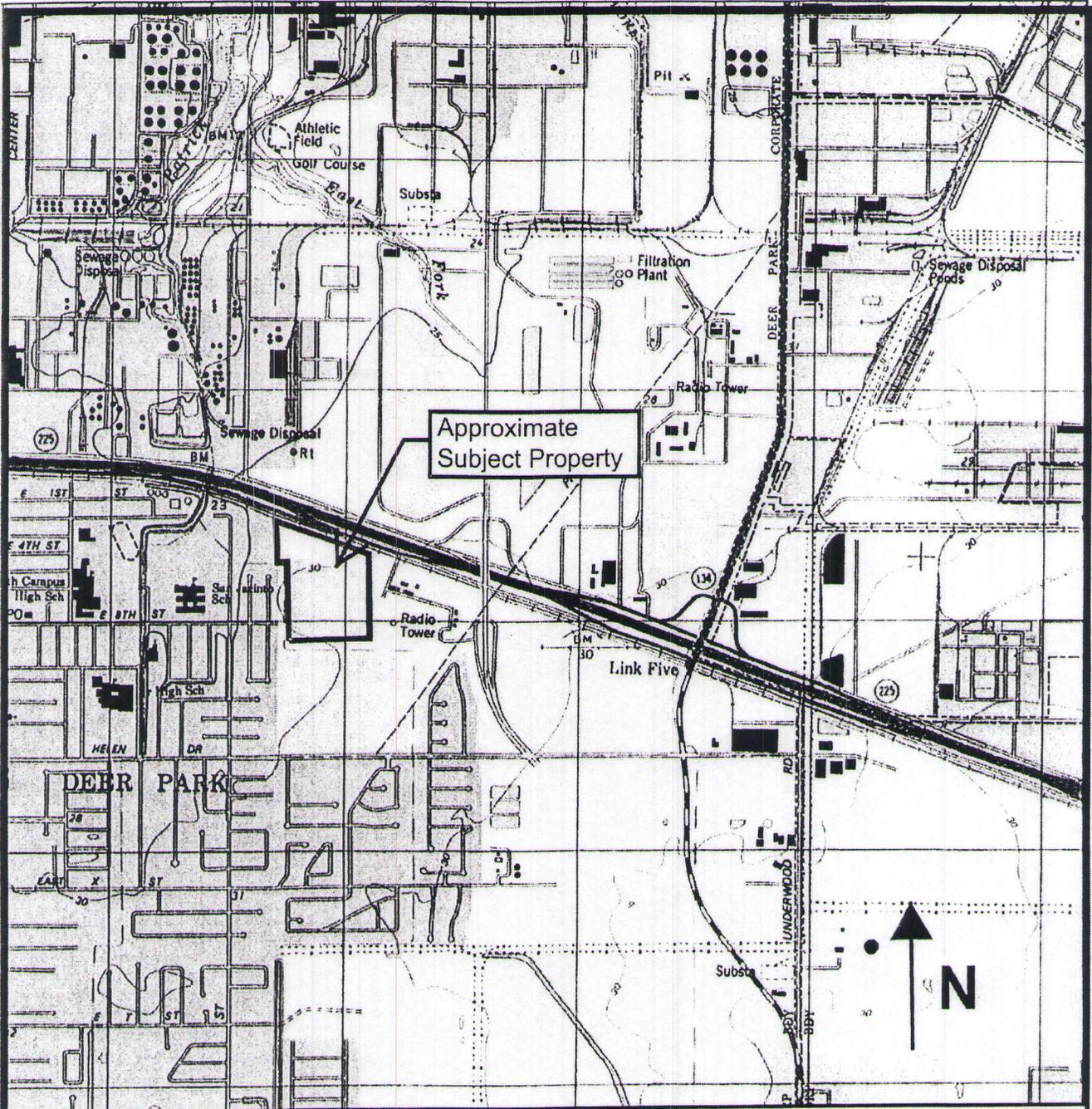
Camp Dresser & McKee Inc. (CDM) is pleased to provide this letter report summarizing the Phase II Environmental Site Assessment (ESA) performed at the undeveloped 42-acre tract (the subject property) located on Highway 225 East feeder Road between 6406 and 6402 Highway 225 in Houston, Texas. The location of the subject property is shown on **Figure 1**. The Phase II ESA activities were performed on October 5, 2009. This report includes a brief description of the project background, scope of work, findings, and conclusions.

Objective

The Phase I ESA identified an industrial facility located immediately east of the subject property that has been in operation since the 1960's. In order to determine if this facility may have had an environmental impact on the subject property, a Phase II ESA, consisting of soil and groundwater sampling, was performed.

Background

The subject property is owned by Texan Land & Cattle II Ltd, H. Ben Taub, Kitchco Realty Ltd and Metco Realty Ltd. CDM was retained by Harris County Flood Control District (HCFCD) to perform a Phase I ESA at the subject property in order to assess the potential for soil or groundwater impacts. The Phase I ESA report, originally dated November 2008 was prepared pursuant to ASTM Standard E-1527-05. An update was issued to the report in August 2009 that included additional information that was not available at the time the original report was issued regarding the adjacent Monarca Corporation and Kinder Morgan Pipeline facilities.



Reference: USGS 7.5 Minute Series (Topographic Map)
 Target Quad: LaPorte, Texas (1995). Scale 1: 24,000

Undeveloped 42.741 Acres
 Approximate Location: 6404 Highway 225
 Harris County, Texas

Harris County Flood Control Project G504-01-00-R001
SITE LOCATION MAP

Figure 1



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The update also provided recommendations for sampling based upon the additional information. A summary of the Phase I ESA findings is presented below.

The subject property consists of an undeveloped 42.74 acre lot with no buildings or roadways. Access to the property is through two gates, one located at the west side of the property, and a second at the southeastern corner of the property. The majority of the property is moderately to densely wooded with mixed vegetation. The northern portion (approximately one-fifth) is lightly wooded with low-lying brush. The property also has cleared pathways and access areas located along the north, east and south fence line. **Figure 2** provides a site layout.

The property is used for agriculture rangeland. CDM observed cattle roaming the subject property. Several partially constructed animal pens were staged along the west, south, and east portions of the property. A covered trough and several watering tubs were located on the property.

CDM observed distressed vegetation along the east side fence line that separates the subject property from the adjacent property at 6402 Highway 225. The distressed vegetation was limited to an approximate 12-inch band that ran the entire length of the fence line indicating a possible herbicide application.

No motorized equipment, pesticides, herbicides, or chemicals were observed stored on the subject property. CDM observed a small amount of scrap metal parts, debris, and equipment stored on the property. These miscellaneous parts and metal debris included an old shopping cart, fencing material, metal posts, and part of a plow or tiller. At the north central end of the property, CDM observed a partially buried concrete pad or base. The concrete pad appeared broken and buried with metal posts. The origin or prior use for the materials could not be determined. No hazardous or industrial waste was observed at the subject property.

According to the regulatory databases searched, there have been no regulatory reported spills or environmental conditions associated with the subject property.

CDM did not observe any utilities supplied to the subject property. No potable water or wastewater services are currently supplied to the subject property. Electricity and gas were not observed to be supplied to the subject property.

The Phase I ESA did not identify any Recognized Environmental Conditions (RECs) (as defined by ASTM Standard E-1527-05) at the subject property however; a potential REC, an area or process that although does not currently meet the ASTM standard for a REC but has conditions that may have impacted the environment without current observable evidence, was identified at the subject property associated with the adjacent Kinder Morgan Pipeline Terminal.



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The soil cores were visually classified in the field in accordance to a modified United Soils Classification System (USCS). Field monitoring during drilling included the use of a portable Organic-Vapor Monitor (OVM), calibrated to an isobutene standard to screen the soil cores for the presence of volatile organic vapors. Each of the four borings was sampled at the ground surface for Total Petroleum Hydrocarbons (TPH) to determine if petroleum hydrocarbons have run-off from the adjacent pipeline compressor station. No impacted soils were identified through use of the OVM or by visual and/or olfactory indicators; therefore no additional soil samples were collected from the borings. Soil boring logs and temporary well construction details are included in **Attachment A**.

After encountering groundwater, a temporary monitoring well consisting of 10-feet of 1-inch diameter PVC monitor well screen and sufficient PVC blank pipe to extend above the ground surface was installed in each borehole. A 10 foot length of monitoring well screen was employed rather than the proposed 5 foot length due to inter-bedded nature of the subsurface soils observed by the CDM geologist on-site. Following the installation of the temporary monitoring well, a groundwater sample was collected from each of the identified sampling locations. After groundwater sampling was completed, the temporary monitoring well was removed from the ground and the borings were abandoned by backfilling with bentonite pellets.

Soil and Groundwater Sampling

Soil samples were collected by filling a clean, laboratory-supplied 4-oz glass jar with surface soil from each sampling location. Groundwater samples were collected from each sampling location using a Geotech peristaltic pump and a new length of 3/8 inch outer-diameter (OD) polyethylene tubing. Groundwater was pumped directly into two clean, laboratory-supplied unpreserved 1-liter amber jars and six clean, laboratory-supplied 40-mL volatile organic analysis (VOA) vials with hydrochloric acid (HCl) preservative.

After samples were collected they were wrapped in bubble-wrap and placed immediately into a cooler with ice for shipment to the analytical laboratory (Accutest Laboratories, Houston, Texas). The sampling procedures followed the protocols outlined in the CDM letter proposal dated September 15, 2009.

The soil samples were analyzed for total petroleum hydrocarbons (TPH) by Texas Method TX1005. The groundwater samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B, semi-volatile organic compounds (SVOCs) by EPA Method 8270C, and TPH by Texas Method TX1005.



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Analytical Results and Discussion

The TPH analysis of the four soil samples did not report any petroleum hydrocarbons at concentrations greater than the method detection limits (MDL). Refer to **Attachment B** for complete soil laboratory analytical results.

The VOC, SVOC and TPH analysis of the four groundwater samples did not report any compound at concentrations greater than the MDLs. Refer to **Attachment B** for complete groundwater laboratory analytical results.

Based upon these results, there is no indication of release from the adjacent Kinder Morgan facility that has caused environmental impact at the subject property.

Investigation Derived Waste

Investigation derived waste (IDW) from the sampling at the subject property was placed into two 55-gallon metal drums. The water IDW and soil IDW were separated and placed into different drums. The two drums were staged outside of the subject property on the HCFCD right-of-way and the lids were secured. Columbia Environmental Services Inc. has been contracted regarding the drums and will be removing them for disposal.

Conclusions

Based on this limited subsurface investigation, the following is concluded:

- Surface soil samples analyzed for TPH from the four soil borings did not indicate impacts to the subject property from the adjacent facility, due to the fact that no petroleum constituents were detected above their respective MDLs.
- Groundwater samples analyzed for VOCs, SVOCs and TPH from the four temporary monitoring wells did not indicate impacts to the subject property from the adjacent facility, due to the fact that no compounds were detected above their respective MDLs.



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Closing

In closing, CDM would like to thank Harris County Flood Control District for the opportunity to assist you with this project. If you have any questions, please feel free to contact us at (713) 423-7300.

Very truly yours,

A handwritten signature in black ink that reads 'Camille W. Sowells'.

Camille W. Sowells, P.E., BCEE
Sr. Project Manager
Camp Dresser & McKee Inc.
TBPE Firm Registration No. F-3043

Attachments

Attachment A

Soil Boring Logs



3050 Post Oak Blvd, Suite 300
Houston, TX 77056

BOREHOLE LOG

SB-1

Client: Harris County Flood Control District
Project Location: Deer Park, Texas

Project Name: Phase II 42 Acre Tract
Project Number: 10738-66349

Drilling Contractor: Alpine Field Services
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: Josh Crow
Drilling Date: Start: 10/5/09 **End:** 10/5/09
Borehole Coordinates:

Surface Elevation (ft.):
Total Depth (ft.): 16
Depth to Initial Water Level (ft. BGS): 12
Abandonment Method: Bentonite Chips
Field Screening Instrument: OVM
Logged By: Matt Paxson

N E

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0					
GP	1	48/48	1	0.0			CH	CLAY, red/orange, high plasticity, stiff, dry, no odor
			2					CLAY, dark gray, high plasticity, stiff, dry, no odor
			3					
GP	2	48/48	4	0.0			CH	CLAY, light gray, high plasticity, stiff, dry, no odor
			5					
			6					CLAY, light gray/tan, high plasticity, stiff, dry, no odor
GP	3	48/48	7	0.0			CH	CLAY, red/orange, high plasticity, stiff, dry, no odor
			8					
			9					
GP	4	48/48	10	0.0			SP-SC	SAND with trace clay, red/orange, well sorted, loose, wet, no odor
			11					
			12					
			13					
			14					
			15					
			16					End of Boring at 16 feet bgs
			17					
			18					
			19					
			20					
			21					
			22					
			23					
			24					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
 HSA - Hollow Stem Auger
 SSA - Solid Stem Auger
 HA - Hand Auger
 AR - Air Rotary
 DTR - Dual Tube Rotary
 FR - Foam Rotary
 MR - Mud Rotary
 RC - Reverse Circulation
 CT - Cable Tool
 JET - Jetting
 D - Driving
 DTC - Drill Through Casing

SAMPLING TYPES:
 AS - Auger/Grab Sample
 CS - California Sampler
 BX - 1.5" Rock Core
 NX - 2.1" Rock Core
 GP - Geoprobe
 HP - Hydro Punch
 SS - Split Spoon
 ST - Shelby Tube
 WS - Wash Sample
OTHER:
 AGS - Above Ground Surface

REMARKS

Soil sample collected at surface and groundwater collected from temporary well before plugging and abandonment

Reviewed by:

Date:



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Houston, TX 77056

BOREHOLE LOG

SB-2

Client: Harris County Flood Control District
Project Location: Deer Park, Texas

Project Name: Phase II 42 Acre Tract
Project Number: 10738-66349

Drilling Contractor: Alpine Field Services
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: Josh Crow
Drilling Date: Start: 10/5/09 **End:** 10/5/09
Borehole Coordinates:

Surface Elevation (ft.):
Total Depth (ft.): 20
Depth to Initial Water Level (ft. BGS): 16
Abandonment Method: Bentonite Chips
Field Screening Instrument: OVM
Logged By: Matt Paxson

N E

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0					
GP	1	48/48	1	0.0			CH	CLAY, dark gray, high plasticity, medium soft, dry, no odor
			2					
			3					
			4					
GP	2	48/48	5	0.0			CL	CLAY, light gray/tan, medium plasticity, stiff to hard, dry, no odor
			6					
			7					
			8					
GP	3	48/48	9	0.0			CH	CLAY, orange/red, high plasticity, stiff, dry, no odor
			10					
			11					
			12					
GP	4	48/48	13	0.0				
			14					
			15					
			16					
GP	5	48/48	17	0.0			SP	SAND with trace clay, orange/red, well sorted, loose, wet, no odor
			18				CH	CLAY, orange/red, high plasticity, stiff, dry, no odor
			19					
			20					End of Boring at 20 feet bgs
			21					
			22					
			23					
			24					

EXPLANATION OF ABBREVIATIONS

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OTHER:
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REMARKS

Soil sample collected at surface and groundwater collected from temporary well before plugging and abandonment

Reviewed by:

Date:



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Houston, TX 77056

BOREHOLE LOG

SB-3

Client: Harris County Flood Control District
Project Location: Deer Park, Texas

Project Name: Phase II 42 Acre Tract
Project Number: 10738-66349

Drilling Contractor: Alpine Field Services
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: Josh Crow
Drilling Date: Start: 10/5/09 **End:** 10/5/09
Borehole Coordinates:

Surface Elevation (ft.):
Total Depth (ft.): 20
Depth to Initial Water Level (ft. BGS): 10
Abandonment Method: Bentonite Chips
Field Screening Instrument: OVM
Logged By: Matt Paxson

N E

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0					
			1					
GP	1	48/48	2	0.0			CH	CLAY, dark gray, high plasticity, stiff, dry, no odor
			3					
			4					
GP	2	48/48	5	0.0			CL	CLAY, light gray/tan, medium plasticity, stiff, dry, no odor
			6					
			7					
GP	3	48/48	8	0.0				
			9					
			10	0.0			MH	Silty CLAY, dark gray, medium plasticity, soft, moist, no odor
			11					
GP	4	48/48	12	0.0			CL	CLAY, orange/red, medium plasticity, stiff, dry, no odor
			13					
			14					
			15					
GP	5	48/48	16	0.0				
			17					
			18					
			19					
			20					End of Boring at 20 feet bgs
			21					
			22					
			23					
			24					

EXPLANATION OF ABBREVIATIONS

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OTHER:
 ACS - Above Ground Surface

REMARKS

Soil sample collected at surface and groundwater collected from temporary well before plugging and abandonment

Reviewed by:

Date:



3050 Post Oak Blvd, Suite 300
Houston, TX 77056

BOREHOLE LOG

SB-4

Client: Harris County Flood Control District
Project Location: Deer Park, Texas

Project Name: Phase II 42 Acre Tract
Project Number: 10738-66349

Drilling Contractor: Alpine Field Services
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: Josh Crow
Drilling Date: Start: 10/5/09 **End:** 10/5/09
Borehole Coordinates:

Surface Elevation (ft.):
Total Depth (ft.): 20
Depth to Initial Water Level (ft. BGS): 14
Abandonment Method: Bentonite Chips
Field Screening Instrument: OVM
Logged By: Matt Paxson

N E

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/48	0 1 2 3	0.0			CL	CLAY, dark gray, medium plasticity, medium soft, dry, no odor
GP	2	48/48	4 5 6 7	0.0			CL	CLAY, light tan, medium plasticity, very stiff, dry, no odor
GP	3	48/48	8 9 10 11	0.0			CH	CLAY, orange/red, high plasticity, stiff, dry, no odor
GP	4	48/48	12 13 14 15	0.0			SP	SAND, orange/red, well sorted, loose, wet, no odor
GP	5	48/48	16 17 18 19	0.0			CH	CLAY, light yellow, high plasticity, stiff, moist, no odor
			20 21 22 23 24					End of Boring at 20 feet bgs

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
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SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Soil sample collected at surface and groundwater collected from temporary well before plugging and abandonment

Reviewed by:

Date:



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Based on the fact that the Kinder Morgan facility has been in operation since prior to 1962 and they have a large maintenance yard adjacent to the subject property, CDM recommended that a Phase II ESA be conducted along the east side of the subject property.

Scope of Work

The Scope of Work for the Phase II ESA consisted of:

- Installing four soil borings/temporary monitoring wells to depths between 16 feet and 20 feet below ground surface (bgs);
- Collection of soil and groundwater samples;
- Laboratory analyses of the soil samples for total petroleum hydrocarbons (TPH) by Texas Method TX1005;
- Laboratory analysis of the groundwater samples for volatile organic compounds (VOCs) by EPA Method 8260B, semi-volatile organic compounds (SVOCs) by EPA Method 8270C, and TPH by Texas Method TX1005;
- Disposal of the investigation derived waste (IDW); and
- Preparation of this Phase II ESA Report.

This investigation was conducted, at the request and authorization of the HCFCD.

Field Investigation

The soil and groundwater sampling activities were conducted to assess if offsite activities had impacted soil or groundwater at the subject property. Soil boring/temporary well locations were chosen in accordance with the approved Phase II proposal. The four soil borings were advanced on October 5, 2009 and the locations are shown on **Figure 2**. The subsurface soil investigation was completed by Alpine Field Services utilizing a Bobcat®-mounted direct-push Geoprobe® unit to hydraulically push a two-inch Macro-Core® sampling rod to the desired depth.

Continuous soil cores were collected from each boring from the ground surface to the bottom of the boring. Soil boring SB-1 was advanced to 16 feet below ground surface (bgs) and soil borings SB-2, SB-3 and SB-4 were advanced to 20 feet bgs in order to collect soil and groundwater samples. Groundwater was encountered in each of the four borings prior to reaching the maximum depth.