Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-108*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*December 5, 2008*	Northing	*1743046.8*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1786029.1*
Logged By	*Brad Barton*	Borehole Depth	*20'*	Surface Elev. (ft)	*1312.2*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1314.67*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND* *February 10, 2009*
				DTW (btoc)	*20.25'* *February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*20'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 9'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.48'*
Screen Type	*PVC*	Filter Interval	*9' - 20'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.0	1.8/5	NA	Bentonite	CL	(0' - 1') Lean CLAY (CL) with fine sand and gravel (5-10%), med. plastic, stiff, very dark grayish-brown (3/5 2.5YR), moist, organics (rootlets, topsoil)	Started drilling 1030
	1.5				CL/CH	(1' - 5.5') Lean / Fat CLAY (CL/CH), med. plastic, high dry strength, stiff to very stiff, low dilatancy, high toughness, dark reddish-brown (3/2 5YR), moist	
	NR	NR					
5	1.2	5/5			CH	(5.5' - 12.7') Fat CLAY (CH) 100% fines, med. to high plasticity, very stiff to hard (4.5 tons/ft2 - penetrometer), reddish brown (3/4 5YR), no odor, moist, homogenous, (massive)	No odor
	3.2						
	5.2						
	6.4						
10	3.8	5/5				10' - Grades to brown (5/2 7.5YR)	
	4.8						
	18.9						
	20.2	5/5			CL/CHg	(12.7' - 17.5') Lean / Fat CLAY (CL/CH) with limestone gravel fragments (15-20%), up to 1.5" in diameter, med. plasticity, soft to med. stiff (1.75 tons/ft2 - penetrometer), no dilatancy, (possible residual bedrock, however it appears as a gravelly clay)	
	14.1						
15	19.6			Sand		15' - Greenish gray (5/1 GREY 2), soft, less limestone fragments (<5%), HC odor	HC odor
	29.5	5/5					
	24.3						
	94.3				LS	(17.5' - 20') LIMESTONE, greenish gray, completely weathered, wet, strong HC odor, intact rock in a clayey gravel matrix (gradational contact, residual bedrock)	~~Strong HC odor~~
	324.0						
20	167.0					20' - Bottom of borehole	Stopped drilling 1110
							Pictures #186 (0-5) and #187-188 (5-10)
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-109*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	November 26, 2008	Northing	1742923.7
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785880.3
Logged By	Brad Barton	Borehole Depth	25.44'	Surface Elev. (ft)	1314.1
Drill Rig	Failing-10	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1316.48
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	17.17'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	25.44'	Slot Size (in)	0.010	Seal Interval	0.5' - 9'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.4'
Screen Type	PVC	Filter Interval	9' - 25.44'	Development	Five well volumes were removed following SOP-13
Screen Length	15'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.0	4.2/5	NA	Bentonite	ML	(0' - 0.6') Clayey SILT (ML), med. plasticity, med. stiff to soft, black, earthy odor, moist, organic (rootlets, topsoil)	Started drilling 1025
	3.5				CL/CH	(0.6' - 5.2') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to stiff, med. to high dry strength, med. to high toughness, dark brown grades to med. brown, moist to slightly moist	
	0.0						
	0.4						
	0.8					4' - Light olive gray	
5	NR	NR				(4.2' - 5') No Recovery	
	0.0	3.1/5			CH	(5.2' - 10') Fat CLAY (CH), high plasticity, high dry strength, no dilatancy, high toughness, light grayish brown, soft, slightly moist, to moist, no HCl rxn	
	1.2						
	1.8						
	0.1					(8.1' - 10') No Recovery	
	NR	NR					
10							
	1.1	3.2/5			SH	(10' - 12.2') possible SHALE layer, med. gray, massive to blocky, very sever weathering, med. hard, med. strong, very brittle, dry, no odor, no HCl rxn, (rock is crushed from drilling, residual bedrock)	No odor
	1.2						
	0.7				LS	(12'2 - 25.44') LIMESTONE, pale yellowish-brown, mod. to severely weathered, mod. hard to med. hard, weak rock, dry to damp, no odor, strong HCl rxn	No odor
	NR	NR				(13.2' - 15') No Recovery	
15							
	2.2	5/5		Sand		15' - Grades from light brown to very pale brown	
	1.2						
	0.5				LS	17.1' - Completely weathered to a sandy fat clay with limestone fragments in a clay matrix, moist soft to med. stiff clay	
	0.6						
	0.7						
20							
	1.4	4/5					
	1.5					21.7' to 22.5' - Wet	
	2.0						
	0.0					23' to 23.3' - Dark gray	
						23.8' - Dark gray	
	NR	NR				(24' - 25') No Recovery	
25							
	NR	NR				(25' - 25.44') No Recovery	
						25.44' - Bottom of borehole	Stopped drilling 1200
							Pictures #170 (0-15), #171 (15-20), and #172 (20-25)

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-110*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*November 14, 2008*	Northing	*1741227.1*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1784956.2*
Logged By	*Brad Barton*	Borehole Depth	*29.99'*	Surface Elev. (ft)	*1311.3*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1313.93*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*11.10'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*29.99'*	Slot Size (in)	*0.010*	Seal Interval	*20' - 22'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*Grout*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*0.5' - 20'*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.61'*
Screen Type	*PVC*	Filter Interval	*22' - 29.99*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*7'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.0	5/5	NA	Grout	ML	(0' - 0.7') Clayey SILT (ML), med. plasticity, soft to med. stiff, black to dark brown, earthy odor, organic (rootlets)	Started drilling 1505 No odor
	1.1				CL	(0.7' - 9.25') Lean CLAY (CL), med. plasticity, med. stiff to stiff, reddish-brown, no dilatancy, high toughness, no odor	
	1.6						
	1.1						
5	0.9						
	0.5	4.9/5					
	1.8						
	2.0						
	1.2						
10	1.2				CLg	9.25' - minor limestone gravels in clay	
	NR	NR				(9.9' - 10' No Recovery	
	0.8	4.8/5					
	1.3						
	1.0						
	0.8						
	0.3						
15	NR	NR				(14.8' - 15') No Recovery	
	3.0	4.6/5				15' - Wet	
	2.0				LS	(16' - 29.99') LIMESTONE, very pale brown, severely weathered, hard to mod. hard, highly fractured, competent rock, wet, strong HCl rxn	
	3.0						
	2.2						
	1.5						
20	NR	NR				(19.6' - 20') No Recovery	
	0.5	2.5/5					
	0.9						
	9.4					21.9' - Dry	
						~22.4' - Dark gray	
	NR	NR				(22.5' - 25') No Recovery	
25				Sand		25' - Platy rock, wet	
	414.0	3.3/4.99				25' to 25.2' - Strong HC odor, free product in rock, black oily stains in rock that is fractured	Strong HC odor, free product
	8.7						
	3.5					27.5' - Slightly moist to dry	
	1.0					(28.3' - 29.99') No Recovery	
	NR	NR				29.99' - Bottom of borehole	Picture #114 Stopped drilling 1615

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-111*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*November 18, 2008*	Northing	*1742704.7*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1786624.0*
Logged By	*Brad Barton*	Borehole Depth	*20'*	Surface Elev. (ft)	*1296.0*
Drill Rig	*Failing-10*	Borehole Dia.	*7 3/4"*	TOC Elev. (ft)	*1299.02*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*7.9'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*20'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 9'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.99'*
Screen Type	*PVC*	Filter Interval	*9' - 20'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	3.5	2.5/5	NA	Bentonite	ML / CL/CH	(0' - 0.5') Clayey SILT (ML), med. plasticity, dark brown to black, earthy odor, moist, soft, no strata, no cementation, organic (rootlets, topsoil)	Started drilling 1005
	0.1					(0.5' - 16') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to stiff, grades from dark brown / black to med. brown, no odor, moist, 100% fines (alluvium)	Little recovery, No odor
	1.3					(2.5' - 5') No Recovery	
	NR	NR				PID = 2.1 from cuttings	
5						PID = 2.2 from cuttings 5' - Grades to med. reddish brown, mm sized blocky black fragments (organic)	
	1.9	5/5					
	0.0						
	5.6						
	23.5						
10	81.9						
	72.8	5/5				10' - Trace to minor coarse sand in matrix (<10%), slight HC odor, moist to very moist	Slight HC odor
	220.0					10.5' - minor limestone fragments (sub-angular), 90% fines, grades to light olive gray with med. brown, HC odor	Strong HC odor
	1537.0					11' - Strong HC odor, very moist to wet	
	4403.0						
15	329.0			Sand		14' to 15'- Med. brown, slight HC odor	Slight odor
	95.8	2.25/5			LS	(16' - 20') LIMESTONE, severely to completely weathered, grayish-orange, fractured, slight HC odor, slightly moist, limestone fragments up to 2" in diameter, sub-angular to angular, hard, strong HCl rxn, in a sandy fat clay, matrix is soft (residual bedrock)	Slight odor
	85.8						Driller reports hard drilling at ~17' bgs
	NR	NR				17' - Dark gray, hard to moderately hard (17.'25 - 20') No Recovery	
20						20' - Bottom of borehole (terminated due to refusal)	Stopped drilling 1130
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-111A*
Project *Third Phase Investigation* **Project No.** *1914350*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	November 19, 2008	Northing	1742704.7
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1786624.0
Logged By	Brad Barton	Borehole Depth	5.75'	Surface Elev. (ft)	1296.0
Drill Rig	Failing-10	Borehole Dia.	7 3/4"	TOC Elev. (ft)	1299.02
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	December 12, 2008
				DTW (btoc)	Dry	December 12, 2008

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	Bentonite	Surface Seal	--
Casing Joints	--	Backfill Interval	0' - 5.75'	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	8.4	4/5	NA	Bentonite	ML CL/CH	(0' - 0.5') Clayey SILT (ML) 100% fines, med. plasticity, black, earthy odor, moist, organic (rootlets) (0.5' - 5.75') Lean / Fat CLAY (CL/CH) 100% fines, med. to high plasticity, med. stiff to stiff, grades from dark brown to med. Brown with minor light reddish-brown intermixed, no odor, moist, minor black blocky fragments (mm sized, organic)	No odor
	28.4						
	27.1						
	23.4						
5	NR	NR				(4' - 5) No Recovery) PID = 18 from cuttings 5' - Grades from med. brown to light brown	
	24.5	0.75/0.75				5.75' - Bottom of borehole	
10							
15							
20							
25							

NOTES:
* No water encountered in borehole while drilling, TD = 5.75' bgs
* Left borehole open with a cover per Doug Mick
* No water on 11/20/2008, 0730
* No water on 11/21/2008, 1415
* No water on 11/26/2008, 1300
* No water on 12/12/2008, ~1400
* Backfilled with Bentonite

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-112*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*November 18, 2008*	Northing	*1742747.9*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1786874.0*
Logged By	*Brad Barton*	Borehole Depth	*14.94'*	Surface Elev. (ft)	*1292.3*
Drill Rig	*Failing-10*	Borehole Dia.	*7 3/4"*	TOC Elev. (ft)	*1294.79*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*5.1'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*14.94'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 4'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.45'*
Screen Type	*PVC*	Filter Interval	*4' - 14.94'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.5	4/5	NA	Bentonite	ML / CL/CH	(0' - 0.5') Clayey SILT (ML), black, earthy odor, moist to very moist, soft, no structure, no cement, massive, organic (rootlets, topsoil) (0.5' - 10.5') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to stiff, grades from dark brown / black to med. brown with minor reddish-brown color, no odor, moist, no structure, some minor black spots (organic), 100% fines, (alluvium)	Started drilling 1305
	2.8						No odor
	2.9						
	4.0						
5	NR	NR				(4' - 5') No Recovery PID = 5.6 from cuttings 5' - Increase in coarse sand (<10%), med. reddish brown, black staining, slight HC odor	Slight odor
	5.0	5/5		Sand			
	56.6						
	28.0						
	50.7					8.5' - Very moist to wet, med. brown with light olive gray, HC odor	HC odor
10	68.4						
	53.4	4/4.94			LS	(10.5' - 14.94') LIMESTONE, grayish orange, completely to severely weathered, highly fractured, some platy structure, wet, strong HCl rxn, (residual bedrock), limestone fragments in sandy fat clay matrix, fragments are angular to sub-angular, hard, up to	
	27.8						
	30.0						
	28.2					~13.8' - Dark gray, hard, moist	14' - Driller reports harder drilling ~14.5' - Cuttings are dark gray and moist
15	NR	NR				(14' - 14.94') No Recovery PID = 17.2 from cuttings 14.94' - Bottom of borehole (terminated due to refusal)	Stopped drilling 1350
20							Picture #118
25							

Borehole / Well Completion Log

Client El Paso Corporation **Well ID** TW-113
Project Third Phase Investigation **Project No.** 1914351

MWH

Drilling

Drilling Contractor	AEI	Completion Date	November 18, 2008	Northing	1743057.9
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1786772.6
Logged By	Brad Barton	Borehole Depth	14.84'	Surface Elev. (ft)	1293.7
Drill Rig	Failing-10	Borehole Dia.	7 3/4"	TOC Elev. (ft)	1296.31
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	5.61'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.84'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.62'
Screen Type	PVC	Filter Interval	4' - 14.84'	Development	Five well volumes
Screen Length	10'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	3.0	4/5	NA	Bentonite	ML	(0' - 0.5') Clayey SILT (ML), med. plasticity, black, earthy odor, moist to very moist, organic (rootlets)	Started drilling 1415
	3.4				CL/CH	(0.5' - 14') Lean / Fat CLAY (CL/CH), med. to high plasticity, stiff to med. stiff, black to med. brown, no odor, moist, no HCl rxn, no stratification, no cementation	
	3.3						
	3.4						
5	NR	NR				(4' - 5') No Recovery PID = 3.6 from cuttings	
	54.9	5/5		Sand	CL/CHg	5' - Limestone fragments ~1cm diameter, sub-angular, <5% in clay matrix, strong HCl rxn	
	187.0					7' - Grades from med. brown to light olive gray, moist to wet, strong odor	Strong odor
	1647.0						
	400.0					9' - Sandy fat clay transition, soft	
10	4136.0					10' to 11.5' - Olive gray color	
	3218.0	4/4.94					
	3343.0					11.5' - Med. brown color with olive gray intermixed	
	9999.0						
	2764.0				LS	(13.8' - 14.85') LIMESTONE, loose strata, grayish-orange, completely weathered, fractured, HC odor, wet-saturated, in a sandy fat clay matrix	HC odor
15	NR	NR				(14' - 15') No Recovery PID = 131 from cuttings 14.94' - Bottom of borehole (terminated due to refusal)	Stopped drilling 1515
							Picture #119
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-114*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*November 18, 2008*	Northing	*1743309.7*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1786685.9*
Logged By	*Brad Barton*	Borehole Depth	*15'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*Failing-10*	Borehole Dia.	*7 3/4"*	TOC Elev. (ft)	*1297.3*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*5.11'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*15'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 4'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.65'*
Screen Type	*PVC*	Filter Interval	*4' - 15'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.3	4/5	NA	Bentonite	ML	(0' - 0.5') Clayey SILT (ML), med. plasticity, black, earthy odor, moist to very moist, organic (rootlets, topsoil)	Started drilling 540
	3.0				CL/CH	(0.5' - 9') Lean / Fat CLAY (CL/CH), med. to high plasticity, stiff to very stiff, black to med. brown, no odor, moist (alluvium)	No odor
	3.7						
	4.8						
5	NR	NR				(4' - 5') No Recovery PID = 3.7 from cuttings	
	2.0	4/5		Sand			
	4.8						
	4.2						
	6.8						
10	NR	NR			LS	(9' - 10') No Recovery PID = 5.5 from cuttings	
	3.6	3/5				(9' - 15') LIMESTONE, light grayish orange, completely weathered, hard to moderately hard, limestone fragments in a sandy fat clay matrix, strong HCl rxn, no odor, (fragments up to 1" in diameter)	No odor
	2.9						
	2.7						
	NR	NR				Very moist (13' - 15') No Recovery PID = 2.4 from cuttings PID = 2.8 from cuttings	
15						~14.5' Color change to dark gray from cuttings 15' - Bottom of borehole (terminated due to refusal)	Harder drilling Stopped drilling 1630 Picture #120
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-115*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 20, 2009	Northing	1743498.2
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785407.5
Logged By	Brad Barton	Borehole Depth	14.62'	Surface Elev. (ft)	1314.1
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1317.22
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	5.23'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.62'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+3.13'
Screen Type	PVC	Filter Interval	4' - 14.62'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	10.2	2.4/5	NA	Bentonite	GM/GC	(0' - 0.9') Silty / Clayey GRAVEL (GM/GC) with asphalt, sub-rounded, black, loose to soft, no odor, moist, (gravels from road)	Started drilling 1200
	305.0				CL/CH	(0.9' - 7.9') Lean / Fat Clay (CL/CH), med. to high plasticity, soft to med. stiff, light olive brown to dark brown, strong HC odor, moist	Strong HC odor
	860.0					(2.4' - 5') No Recovery	
	NR	NR					
5	885.0	4.6/5		Sand			
	892.0						
	778.0				LS	(7.9' - 14.62') LIMESTONE, very pale brown, completely weathered, highly fractured, slight HC odor, limestone fragments in a sandy fat clay, up to 2" in diameter, sub-angular to angular, clay matrix is soft, dry to slightly moist	Slight HC odor
	597.0						
	85.4						
10	NR	NR				(9.6' - 10') No Recovery	No odor
	22.7	2.1/4.62			LS	10' - No odor	
	6.6				LS	10' to 10.5' - Wet 10.5' to 11' - Competent limestone	
	NR	NR				(12.1' - 14.62') No Recovery	
15						14.62' - Bottom of borehole	Stopped drilling 1230
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-116S*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 20, 2009	Northing	1743660.6
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785628.5
Logged By	Brad Barton	Borehole Depth	11'	Surface Elev. (ft)	1308.8
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1311.23
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	3.74'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	11'	Slot Size (in)	0.010	Seal Interval	0.5' - 5'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.39'
Screen Type	PVC	Filter Interval	5' - 11'	Development	Five well volumes
Screen Length	5'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	7.5				ML	(0' - 0.7') Clayey SILT (ML), med. plasticity, soft, black to dark brown, earthy odor, very moist, organic (rootlets)	Started drilling 0955
					CL/CH	(0.7' - 6') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to soft, dark brown, no odor, moist	No odor
	6.4						
	9.0	4.6/5		Bentonite			
	6.2						
	6.1						
5	NR	NR				(4.6' - 5') No Recovery	
	6.6		NA				
	14.8	2.8/4.92			LS	(6' - 11') LIMESTONE, completely weathered, highly fractured, slight HC odor, moist, limestone fragments in a sandy fat clay matrix, up to 2" in diameter, sub-angular to angular, hard to mod. hard, clay matrix is soft, strong HCl rxn	Slight HC odor
	8.3			Sand		7.7' to 7.8' - Wet	
	NR	NR				(7.8' - 10') No Recovery	
10					LS	10' - No odor	No odor
	6.7	1/1			LS	10' to 10.1' - Wet	
						10' to 10.5' - Competent limestone	Stopped drilling 1020
						11' - Bottom of borehole	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-116D*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*January 20, 2009*	Northing	*1743658.2*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1785626.3*
Logged By	*Brad Barton*	Borehole Depth	*19.92'*	Surface Elev. (ft)	*1308.9*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1311.49*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND* *February 10, 2009*
				DTW (btoc)	*4.12'* *February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*19.92'*	Slot Size (in)	*0.010*	Seal Interval	*10' - 12'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*Grout*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*0.5' - 10'*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.57'*
Screen Type	*PVC*	Filter Interval	*12' - 19.92'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*7'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	5.2				ML	(0' - 0.9') Clayey SILT (ML), med. plasticity, soft, black to dark brown, earthy odor, very moist, organic (rootlets)	Started drilling 0840
	4.8				CL/CH	(0.9' - 5.6') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to stiff, no dilatancy, dark brown, no odor, moist	No odor
	5.8	4.8/5				2' to 2.2' - Minor limestone fragments, up to 1" in diameter	
	6.3						
	6.0						
5	NR	NR		Grout		(4.8' - 5') No Recovery 5' - Limestone fragments in clay, up to 1/4" in diameter	
	6.3				LS	(5.6' - 19.92') LIMESTONE, completely weathered, highly fractured, moist, fragments in a sandy fat clay matrix, up to 2" in diameter, hard to mod. hard, strong HCl rxn, no odor	No odor
	15.0	2.8/5				6.5' to 7.5' - Strong HC odor, minor black HC stains	Strong HC odor
	78.6					7.7' - Wet	
	NR	NR				(7.8' - 10') No recovery	
10			NA			10' to 10.2' - Wet	
	3.5						
	4.6	2.7/5					
	22.4					(12.7' - 15') No Recovery	
	NR	NR					
15						15' to 15.5' - Wet 15.5' to 16.2' - Very moist	Driller reports softer drilling at ~15' - 17' bgs
	8.6			Sand			
	8.1	2.8/5					
	7.6					17.5' - Dark gray (17.7' - 19.92') No Recovery	
	NR	NR					
20						19.92' - Bottom of borehole	Stopped drilling 0915
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-118*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*December 3, 2008*	Northing	*1744808.0*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1785382.9*
Logged By	*Brad Barton*	Borehole Depth	*29.90'*	Surface Elev. (ft)	*1321.8*
Drill Rig	*Failing-10*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1324.39*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*12.68'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*29.90'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 19'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.6*
Screen Type	*PVC*	Filter Interval	*19' - 29.9'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.3	4.7/5	NA	Bentonite	GM	(0' - 1.6') Silty GRAVEL (GM), gravel >50%, rounded to sub-rounded, gray (Muncel - 4/3 10YR), no odor, dry, no HCl rxn, (road base, fill)	Started drilling 12/1/08 1550 No odor Rig drilling with difficulty No odor
	5.7				CL/CH	0.5' - Moist (1.6' - 9.2') Lean / Fat CLAY (CL/CH), med. to high plasticity, med. stiff to stiff, no dilatancy, med. toughness, dark brown to med. brown, no odor, moist, no HCl rxn, (alluvium)	
	5.1						
	3.2				CL/CHg	4' to 4.7' - Minor limestone fragments, up to 3/4" in diameter, sub-rounded to sub-angular, strong HCl rxn, matrix supported, composes up to 15% of matrix	
	2.5						
5	NR	NR			CL/CH	(4.7' - 5') No Recovery 5' - No limestone fragments, moist, soft to med. stiff	
	2.3						
	4.1	4.8/5					
	7.4						
	7.3						
	3.0				LS	(9.2' - 29.9') LIMESTONE, light brownish-gray, mod. weathered, fractured (based on size of fragments), strong HCl rxn, no odor	Hard drilling Rig breaks 12/1/08 1625 Broke down again 12/2/08 1205 Started drilling again 12/3/08 1315
10	NR	NR					
	0.0					10.8' to 11.9' - Wet	
	1.3	3.9/5			LS	12' - Brownish-yellow (6/6 10YR), completely weathered (residual bedrock), composed of fragments up to 1.5" in diameter, angular to sub-angular, hard to strong, supported in a sandy fat clay matrix, changes from very pale brown to reddish-brown, soft to m	
	1.4						
	1.5						
15	NR	NR				(13.9' - 15' No Recovery 15' - Light brownish-gray (6/2 2.5YR)	
	0.2	2.8/5					
	0.7						
	1.9					(17.8' - 20') No Recovery	
	NR	NR					
20							
	6.1	1.9/5				20.9' - Gray (5/1 5Y)	
	75.0					21.8' - Slight odor (21.9' - 25') No Recovery	
	NR	NR		Sand			
25							
	166.0	1.6/4.9					Cutting wet at ~26.5' bgs Pictures #176 (0-5, 5-10), #177 (10-15, 15-20, 20-25), and #178 (25-30) Stopped drilling 12/3/08 1415
	126.0						
	NR	NR				29.9' - Bottom of borehole	

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-119*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*December 3, 2008*	Northing	*1744957.9*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1785376.7*
Logged By	*Brad Barton*	Borehole Depth	*25'*	Surface Elev. (ft)	*1321.5*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1324.17*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*12.16'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*25'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 14'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.67*
Screen Type	*PVC*	Filter Interval	*14' - 25'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.7	2/5	NA	Bentonite	GC	(0' - 1.9') Clayey GRAVEL (GC), 30-35% fine gravel and coarse sand, 65-70% fines, med. plasticity, stiff to med. stiff, very dark brown (3/2 10YR), no odor, moist	Started drilling 1535 No odor
	0.9					~1.4' - Dark gray to dark brown with limestone fragments	
					LS	(1.9' - 25') LIMESTONE, very pale brown (7/3 10YR), completely weathered (residual bedrock), composed of fragments up to 2" in diameter, angular to sub-angular, hard, strong, supported in a sandy fat clay matrix, ranging from very pale brown to reddish-	No odor
	NR	NR				(2' - 5') No Recovery	
5							
	1.7	2.5/5					
	1.3						
	0.5					(7.5' - 10') No Recovery	
	NR	NR					
10							
	5.3	2.3/5				10.1' to 10.9' - Wet (free water seeping from freshly open core pieces)	Clay "balls" and wet cuttings coming from borehole
	5.4						
	2.1					(12.3' - 15') No Recovery	
	NR	NR					
15							
	2.7	3.2/5		Sand		15' to 17' - Wet (free water seeping from broken core samples)	Wet cuttings coming from borehole
	2.2						
	2.7					~17.2' - Matrix contains more silt and less clay content, friable	
	1.2						
	NR	NR					Pictures #179 (0-5, 5-10, 10-15) and #180 (15-20, 20-25
20							
	6.8	2.6/5				20' to 22.6' - dark greenish-gray (4/0 GREY I)	
	6.3						
	80.9					22.5' to 22.6' - slight odor	Very wet cuttings coming from borehole, strong odor
						(22.6' - 25') No Recovery	
	NR	NR					
25						25' - Bottom of borehole	Free product on bottom of auger flight during removal Stopped drilling 1645

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-120*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 7, 2009	Northing	1744892.1
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785179.8
Logged By	Brad Barton	Borehole Depth	29.82'	Surface Elev. (ft)	1324.2
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1327.26
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	14.14'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	29.82'	Slot Size (in)	0.010	Seal Interval	0.5' - 19'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+3.03
Screen Type	PVC	Filter Interval	19' - 29.82'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
					CL/CH	(0' - 5') No Recovery Grass and asphalt at surface	Started drilling 0810
	NR	NR				PID = 0.5 from cuttings	
5						(5' - 12.8') Lean / Fat CLAY (CL/CH) with asphalt, med. to high plasticity, soft to med. stiff, high dry strength, no dilatancy, black (asphalt) to very dark brown (2/2 10YR), asphalt odor, no cementation, moist, chunks of asphalt in clay matrix	
	3.1						
	2.0						
	1.0	4.8/5					
	1.4					9' - Very moist	
	0.2						
10	NR	NR		Bentonite		(9.8' - 10') No Recovery 10' - No asphalt	
	0.5						
					CL/CHg	11.1' - Limestone fragments in clay, up to 2" in diameter	
	1.4						
	2.2	4.5/5					
					LS	12.7' to 12.8' - Wet (12.8' - 29.82') LIMESTONE, grayish-brown (5/2 10YR), severely to completely weathered to a sandy fat clay with limestone fragments up to 2" in diameter, sub-angular to angular, no odor, strong HCl rxn	
	0.5						
	1.0						
15	NR	NR	NA			13.2' - Light yellowish-brown (6/4 10YR) (14.5' - 15') No Recovery	
	0.2						
	0.2	2.3/5					
	0.2					17' - Gray (5/1 7.5YR) (17.3' - 20') No Recovery	
	NR	NR					
20							
	0.5	1.8/5					
	0.2					21.5' - Gradual color change back to light yellowish-brown (21.8' - 25') No Recovery	
	NR	NR					
25				Sand		25' - Gray 25' to 25.9' - Very moist	
	0.6	2/4.82					
	0.7					(27' - 29.82') No Recovery	
	NR	NR					
						29.82' - Bottom of borehole	Stopped drilling 0910

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-121*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	December 4, 2008	Northing	1744924.0
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785494.5
Logged By	Brad Barton	Borehole Depth	25'	Surface Elev. (ft)	1316.6
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1319.24
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	7.59'	February 10, 2009
				DTW (btoc)	7.65'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	25'	Slot Size (in)	0.010	Seal Interval	0.5' - 14'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.69
Screen Type	PVC	Filter Interval	14' - 25'	Development	Five well volumes
Screen Length	10'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.6	4.9/5	NA	Bentonite	ML	(0' - 0.7') Sandy SILT (ML), ~ 25% fine sand, ~75% fines, low plasticity, soft, very dark gray (3/1 7.5YR), no odor, moist, organics (rootlets)	Started drilling 1250 No odor
	4.0				CL	0.5' - ~20% fine sand, 80% fines, low to med. plasticity, low dry strength, rapid dilatancy, low toughness, grayish-brown (5/2 10YR), wet, contains dark black partial tank debris	No odor
	3.9				LS	(1.7' - 3.3') Lean CLAY (CL) with sand, <10% sand, 90% fines, med. plasticity, stiff to very stiff, no dilatancy, dark reddish-brown (3/4 5YR), no odor, moist, massive, possible trace fine gravel	No odor
	2.4					(3.3' - 25') LIMESTONE, very pale brown (7/3 10YR), completely weathered (residual bedrock), composed of fragments up to 2" in diameter, angular to sub-angular, hard, strong, supported in a sandy fat clay matrix ranging from very pale brown to reddish-bro	Driller reports hard drilling at ~4' bgs
5	NR	NR					
	5.2	2.6/5					
	4.9					(4.9' - 5') No Recovery	
	5.9					(7.6' - 10') No Recovery	
	NR	NR					
10						10' to 10.3' - Wet	
	3.7	2.4/5					
	4.9						
	11.1					(12.3' - 15') No Recovery	
	NR	NR					Wet cuttings at top of borehole
15							
	5.1	2/5					
	7.9					(17' - 20') No Recovery	
	NR	NR		Sand			Cuttings turn dark bluish gray (4/1 Grey 2)
20							
	15.1	2.6/5					
	903.0					21.2' to 21.8' - Wet, strong odor, free product, sheen on water	Strong odor, free product
	38.5					21.8' to 22' - Sandy Fat CLAY (CH) matrix, dark brown	
						(22.6' - 25') No Recovery	
	NR	NR					Free product on bottom auger (5') flight during removal
25						25' - Bottom of borehole	Stopped drilling 1355
							Pictures #181 (0-5, 5-10, 10-15) and #182 (15-20, 20-25)

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-122*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	December 5, 2008	Northing	1745276.6
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785570.7
Logged By	Brad Barton	Borehole Depth	30'	Surface Elev. (ft)	1317.3
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1319.97
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	7.74'	February 10, 2009
				DTW (btoc)	7.79'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	30'	Slot Size (in)	0.010	Seal Interval	0' - 19'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.64
Screen Type	PVC	Filter Interval	19' - 30'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	3.7	4.8/5	NA	Bentonite	CL/CH	(0' - 1.9') Lean CLAY (CL), med. to plasticity, stiff to very stiff, med. toughness, reddish-brown (4/3 2.5YR), no odor, moist (rootlets)	Started drilling 0805 No odor
	3.5				LS	(1.9' - 30') LIMESTONE, very pale brown (8/3 10YR), mod. to severely weathered, mod. fractured, mod. strong, moist, strong HCl rxn, no odor, voids observed up to 1/8", intact limestone fragments in a reddish-brown fat clay matrix	No odor
	3.2						
	2.8					2.3' to 2.4' - Fat clay (CH)	
	2.0					4.5' to 4.6' - Dark reddish brown fat clay (CH)	
	NR	NR				(4.8' - 5') No Recovery	
	3.9	2.5/5				5.2' - Severely to completely weathered (residual), trace bedrock structure (remnant fractures), friable, intact limestone fragments in a sandy silt matrix, rock is intensely fractured to crushed, no odor	No odor
	4.6						
	4.3					(7.5' - 10') No Recovery	
	NR	NR					
10							
	3.4	2.6/5					
	2.8						
	1.7					(12.6' - 15') No Recovery	
	NR	NR					
15							
	5.0	2/5				15' - Yellowish-brown, completely to severely weathered, friable, weak with intact rock fragments up to 2" in diameter	Pictures #183(0-5, 5-10, 10-15) and #184-185 (15-20, 20-25, 25-30)
	4.6					(17' - 20') No Recovery	
	NR	NR					
20							
	680.0	2.4/5		Sand			Free product
	771.0					20.3' - Greenish-gray (5/1 GREY I)	
	169.0					20.5' - Free product observed in recovered core, free product appears to be along fractures within the limestone	Gray cutting coming to the surface at 22' bgs
	NR	NR				(22.4' - 25') No Recovery	Cuttings begin to ball up at 23.5' bgs
25							Strong odor, free product
	474.0	2.8/5				25' - Strong odor, wet, saturated with free product, free product along fractures, rock is crushed	Very hard drilling at 25.5' bgs, rig chattering and struggling
	502.0						
	334.0					27.6' - Moist, no free product visible	27.5' - Gray, strong odor, wet cuttings at surface
	NR	NR				(27.8' - 30') No Recovery	
						30' - Bottom of borehole	Stopped drilling at 0920

Borehole / Well Completion Log

Client El Paso Corporation **Well ID** TW-123
Project Third Phase Investigation **Project No.** 1914351

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 8, 2009	Northing	1744628.1
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1786189.4
Logged By	Brad Barton	Borehole Depth	14.95'	Surface Elev. (ft)	1305.1
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1307.83
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	5.96'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.95'	Slot Size (in)	0.010	Seal Interval	0.5' - 9'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.69
Screen Type	PVC	Filter Interval	9' - 14.95'	Development	Five well volumes
Screen Length	5'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	7.6	3/5	(0-2)	Bentonite	GM	(0' - 1.2') Silty GRAVEL (GM), fine silt and minor clay ~10-20%, black, no odor, loose	Started drilling 1025 No odor Sample TW-122 (0-2) taken at 1025
	365.0				CLg	(1.2' - 13.9') Lean CLAY (CL), med. plasticity, stiff, no dilatancy, med. toughness, dark brown to black, strong HC odor, no HCl rxn, no cementation,	Strong HC odor
	188.0		(2-4)				Sample TW-122 (2-4) taken at 1030
	NR	NR			CL	(3' - 5') No Recovery	
5						5' - Grades to med. brown	
	137.0	4.9/5	(4-6)				Sample TW-122 (4-6) taken at 1035
	354.0		(6-8)				Sample TW-122 (6-8) taken at 1040
	718.0						
	204.0		(8-10)				Sample TW-122 (8-10) taken at 1045
	79.5						
10	NR	NR				(9.9' - 10') No Recovery	
	304.0	4.9/4.95	(10-12)	Sand		10' - Slight olive gray	Sample TW-122 (10-12) taken at 1050
	369.0						
	128.0		(12-14)				Sample TW-122 (12-14) taken at 1055
	564.0				LS	(13.9' - 14.95') LIMESTONE, med. gray, severely to completely weathered, fractured, black HC staining, fragments in a sandy fat clay matrix, wet, (competent bedrock at 14.9')	
15	570.0		(14-16)				Sample TW-122 (14-16) taken at 1100
	NR	NR				(14.5' - 14.95') No Recovery 14.95' - Bottom of borehole (terminated due to refusal)	Stopped drilling 1100 All samples tested for total lead
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-124*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	December 1, 2008	Northing	1739701.2
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1784356.7
Logged By	Brad Barton	Borehole Depth	10'	Surface Elev. (ft)	1317.1
Drill Rig	Failing-10	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1319.55
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	7.16'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	10'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.49
Screen Type	PVC	Filter Interval	4' - 10'	Development	Five well volumes
Screen Length	5'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.4	4.9/5	NA	Bentonite	ML	(0' - 0.6') Clayey SILT (ML), med. plasticity, soft to med. stiff, black, earthy odor, moist, organic (rootlets, topsoil)	Started drilling 1405 No odor
	3.5				CL/CH	(0.6' - 5.2') Lean / Fat CLAY (CL/CH) with minor silt, med. to high plasticity, soft to med. stiff, no dilatancy, high toughness, med. brown, no odor, moist	
	4.2						
	3.2						
	9.5					4' - Strong HC odor, black HC staining	Strong HC odor
5	NR	NR		Sand		(4.9' - 5') No Recovery	
	69.6	2.2/5			LS	(5.2' - 10') LIMESTONE, severely to completely weathered, highly fractured, wet, limestone fragments in a sandy fat clay matrix, up to 2" in diameter, sub-angular to angular, med. hard, clay matrix is soft, light orangish-brown, black HC staining, HC odor	HC odor
	7.8						
	NR	NR				6.25' - Dry to damp, strong HCl rxn 7.2' - Intact hard limestone in shoe of sample barrel (7.2' - 10') No Recovery	PID = 7.1 from cutting from 5' - 10' interval
10						10' - Bottom of borehole	Stopped drilling 1425
							Picture #175 (0-5, 5-10)
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-125*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*January 6, 2009*	Northing	*1739572.7*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1784682.2*
Logged By	*Brad Barton*	Borehole Depth	*19.95'*	Surface Elev. (ft)	*1326.8*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1329.78*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*13.46'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*19.95'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 9'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+2.96*
Screen Type	*PVC*	Filter Interval	*9' - 19.95'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.5	1.3/5	NA	Bentonite	ML	(0' - 0.75') Clayey SILT (ML), med. plasticity, soft to med. stiff, earthy odor, moist, organic (rootlets)	Started drilling 1030 No odor
	1.1				CL	(0.75' - 10') Lean CLAY (CL) with silt, low to med. plasticity, stiff to very stiff, olive gray (4/2 5YR), no odor, moist (1.3' - 5') No Recovery	
	NR	NR					
5	1.3						
	1.4						
	0.9	5/5					
	1.0						
	1.0						
10	1.5			Sand	LS	(10' - 19.95') LIMESTONE, pale yellow (7/3 5Y), completely weathered, weak HCl rxn, limestone fragments in a sandy clay, up to 1" in diameter, moist to very moist, no odor	No odor
	1.1	3/5					
	1.3					12.6' to 12.75' - Light gray (13' - 15') No Recovery	
	NR	NR					
15	1.0						
	1.5	2.5/4.95				16.5' - Wet 17' - Severely weathered , strong HCl rxn (17.5' - 19.95') No Recovery	
	1.0						Wet cuttings from 15' - 20' bgs
	NR	NR					
20						19.95' - Bottom of borehole	Stopped drilling 1100
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-126*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 6, 2009	Northing	1740269.1
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785355.8
Logged By	Brad Barton	Borehole Depth	14.99'	Surface Elev. (ft)	1304.0
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1306.72
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	5.38'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.99'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.69
Screen Type	PVC	Filter Interval	4' - 14.99'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.2			Bentonite	ML	(0' - 0.5') Clayey SILT (ML), med. plasticity, soft to med. stiff, black, earthy odor, organic (rootlets)	Started drilling 1505 No odor
	1.2				CL/CH	(0.5' - 13.3') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft to med. stiff, dark grayish brown (4/2 10YR), no odor	
	1.4	4.8/5					
	0.6						
	0.7						
5	NR	NR				(4.6' - 5') No Recovery	
	124.0					5' to 7' - HC odor	HC odor
	29.4				CL/CHg	6' - Minor limestone fragments in clay up to pebble size	
	5.9	4.8/5	NA				
	2.7						
	3.3			Sand			
10	NR	NR				(9.8' - 10') No Recovery	
	1.5					10' - Wet	
	1.1	3.6/4.99			LS	12' - Limestone fragments in clay up to 2" in diameter	
	1.8						
	1.9				LS	(13.3' - 14.99') LIMESTONE, very pale brown (7/3 10YR), severely weathered, fractured, mod. hard, wet, strong HCl rxn, no odor	No odor Driller reports hard drilling at ~ 13' bgs
	NR	NR				(13.6' - 14.99') No Recovery	
15						14.99' - Bottom of borehole	Stopped drilling 1530
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-128*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	January 6, 2009	Northing	1739799.0
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785604.5
Logged By	Brad Barton	Borehole Depth	19.83'	Surface Elev. (ft)	1304.9
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1307.37
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	3.87'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	19.83'	Slot Size (in)	0.010	Seal Interval	0.5' - 9'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.51
Screen Type	PVC	Filter Interval	9' - 19.83'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.8	2.2/5	NA	Bentonite	ML	(0' - 0.5') Clayey SILT (ML), med. plasticity, black	Started drilling 1320
	1.8				CL/CH	(0.5' - 9.2') Lean / Fat CLAY (CL/CH), med. to high plasticity, strong brown (4/6 7.5YR)	
	NR	NR				(2.2' - 5') No Recovery	
5	1.6	4.7/5					
	1.4						
	2.1				CL/CHg	4.5' - Limestone fragments in clay, up to 1/2" in diameter	
	2.2						
	2.2				LS	(9.2' - 19.83') LIMESTONE pale yellow (7/3 2.5YR), completely weathered, fragments in a sandy fat clay matrix, fragments are sub-angular to angular, hard, strong HCl rxn, clay is soft, no odor	No odor
10	NR	NR				(9.7' - 10') No Recovery	
	1.9	2.1/5					
	1.8					(12.1' - 15') No Recovery	
	NR	NR		Sand			
15	2.1	2.3/4.83				15' - Wet 15.5' to 15.8' - Dark gray (5/1 2.5Y)	
	2.2				LS	15.8' - Severely weathered	Driller reports soft drilling at 16' - 18' bgs
	2.6					(17.3' - 19.83') No Recovery	
	NR	NR					Driller reports hard drilling at 18' bgs
20						19.83' - Bottom of borehole	Stopped drilling 1355
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-129*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	December 10, 2008	Northing	1740146.9
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1785317.5
Logged By	Brad Barton	Borehole Depth	14.89'	Surface Elev. (ft)	1306.3
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1309.43
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	6.01'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.89'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+3.11
Screen Type	PVC	Filter Interval	4' - 14.89'	Development	Five well volumes
Screen Length	10'	Seal Material	Bentonite		were removed following SOP-13

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.8			Bentonite	ML	(0' - 1.1') Clayey SILT (ML), med. to low plasticity, soft to med. stiff, black (2.5/1 5YR), earthy odor, no HCl rxn, organic (rootlets, topsoil)	Started drilling 1235
	0.7				CL/CH	(1.1' - 10') Lean / Fat CLAY (CL/CH), med. to high plasticity, stiff to very stiff, no dilatancy, high toughness, dark brown (3/3 7.5YR), moist, no HCl rxn, (alluvium)	
	0.6	4.8/5					
	0.5						
	0.4					4.1' - Minor limestone gravels (~1-2 cm) in clay matrix (<5%)	
5	NR	NR				(4.8' - 5') No Recovery	
	94.9					5' - Strong HC odor 5.3' to 5.5' - Black HC staining	Strong HC odor
	28.2						
	2.7	4.9/5	NA			7' - Slight HC odor	Slight HC odor
	1.8					8' - Very moist to wet	
	2.6						
10	NR	NR		Sand		(9.9' - 10') No Recovery	Strong HC odor
	8.3				LS	(10' - 14.89') LIMESTONE, light yellowish brown (6/3 2.5Y), completely weathered to a sandy fat clay matrix (residual bedrock), soft to med. stiff, wet, weak HCl rxn, strong HC odor	Driller reports hard drilling at 11' - 12' bgs
	13.8	2.9/4.89				11' to 12' - Black HC staining	
	2.6					~11.4' - Limestone gravels in clay matrix, gravels are angular to sub-angular, hard, platy, strong HCl rxn	No odor
	NR	NR				12.2' - Pale yellow (8/3 2.5Y), moist to dry, no odor, strong HCl rxn (12.9' - 14.89') No Recovery	
15						14.89' - Bottom of borehole	Stopped drilling 1305
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-130*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	AEI	Completion Date	December 11, 2008	Northing	1740715.9
Drilled by	Charles Clark	Drilling Fluid	--	Easting	1784675.1
Logged By	Brad Barton	Borehole Depth	14.89'	Surface Elev. (ft)	1304.8
Drill Rig	Failing-6	Borehole Dia.	8 3/4"	TOC Elev. (ft)	1307.49
Drilling Method	Hollow Stem Auger				

Samples

Sample Method	Split Spoon	Sample Interval	Continuous	DTP (btoc)	ND	February 10, 2009
				DTW (btoc)	6.32'	February 10, 2009

* DTP & DTW measured after well development

Well

Total Depth (bgs)	14.89'	Slot Size (in)	0.010	Seal Interval	0.5' - 4'
Casing Type	PVC	Backfill Material	--	Surface Seal	--
Casing Joints	Threaded / Flush	Backfill Interval	--	Surface Seal Interval	--
Casing Dia.	2"	Filter Material	12/20 Silica Sand	Stick-up/down	+2.66
Screen Type	PVC	Filter Interval	4' - 14.89'	Development	Five well volumes were removed following SOP-13
Screen Length	10'	Seal Material	Bentonite		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.5	4.8/5	NA	Bentonite	ML	(0' - 0.9') Clayey SILT (ML), med. plasticity, soft, none to low dilatancy, black (7.5/1 7.5YR), earthy odor, very moist to moist, (rootlets)	Started drilling 1610
	1.7				CL/CH	(0.9' - 10.8') Lean / Fat CLAY (CL/CH), soft to med. stiff, black to dark brown, moist	
	0.7						
	0.9						
	0.4					4' - Limestone gravel in clay matrix at <5%, 5/8 strong brown	
5	NR	NR				(4.8' - 5') No Recovery	
	1.5						
	1.3						
	1.1	4.8/5		Sand			
	2.2					8.1' - Very moist to wet	
	2.7					9.1' - Slight HC odor	Slight HC odor
10	NR	NR				(9.8' - 10') No Recovery	
	3.4				LS	(10.8' - 14.89') LIMESTONE, pale brown (6/3 10YR), completely weathered to a sandy fat clay, fragments of limestone up to 1-2cm, intact	
	3.2	4.2/4.89					
	3.0						
	4.3					13.8' - Light brownish gray (6/2 10YR), fragments up to 1" in diameter, moist, no odor	No odor
15	NR	NR				(14.2' - 14.89') No Recovery 14.89' - Bottom of borehole	Stopped drilling 1635
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *TW-131*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*AEI*	Completion Date	*January 6, 2009*	Northing	*1740641.2*
Drilled by	*Charles Clark*	Drilling Fluid	*--*	Easting	*1785296.3*
Logged By	*Brad Barton*	Borehole Depth	*19.82'*	Surface Elev. (ft)	*1302.6*
Drill Rig	*Failing-6*	Borehole Dia.	*8 3/4"*	TOC Elev. (ft)	*1305.84*
Drilling Method	*Hollow Stem Auger*				

Samples

Sample Method	*Split Spoon*	Sample Interval	*Continuous*	DTP (btoc)	*ND*	*February 10, 2009*
				DTW (btoc)	*9.22'*	*February 10, 2009*

* DTP & DTW measured after well development

Well

Total Depth (bgs)	*19.82'*	Slot Size (in)	*0.010*	Seal Interval	*0.5' - 9'*
Casing Type	*PVC*	Backfill Material	*--*	Surface Seal	*--*
Casing Joints	*Threaded / Flush*	Backfill Interval	*--*	Surface Seal Interval	*--*
Casing Dia.	*2"*	Filter Material	*12/20 Silica Sand*	Stick-up/down	*+3.25*
Screen Type	*PVC*	Filter Interval	*9' - 19.82'*	Development	*Five well volumes were removed following SOP-13*
Screen Length	*10'*	Seal Material	*Bentonite*		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.7				ML	(0' - 0.5') Clayey SILT (ML) med. plasticity, stiff to med. stiff, black (2/1 10YR), earthy odor, organic (rootlets)	Started drilling 0830 No odor
	1.9				CL	(0.5' - 13.2') Lean CLAY (CL), med. plasticity, med. stiff to stiff, dark brown (3/3 10YR), no odor	
	2.2	4.8/5					
	0.7			Bentonite			
	2.0						
5	NR	NR				(4.8' - 5') No Recovery	
	0.8						
	0.5						
	0.7	4.8/5					
	1.3						
	4.4						
10	NR	NR	NA			(9.8' - 10') No Recovery	
	1.2					10.25' - Yellowish-brown (5/8 10YR)	
	1.2						
	1.3	4.6/5			CLg	12.2' - Limestone fragments intermixed in clay, up to 1" in diameter	
	1.8				LS	(13.2' - 19.82') LIMESTONE, pale yellow (7/3 2.5Y), severely weathered, mod. hard, mod. strong, wet, strong HCl rxn	
	1.3						
15	NR	NR		Sand		(14.6' - 15') No Recovery	
	1.2				LS	15' - Completely weathered to a clay matrix with limestone fragments up to 2" in diameter in a sandy fat clay, fragments are sub-angular to angular	
	1.7	2.6/4.82				15.8' to 16.5' - Moist	
	2.0					16.2' - Med. Gray (6/0 GREY I)	
						(17.6' - 19.82') No Recovery	
	NR	NR					
20						19.82' - Bottom of borehole	Stopped drilling 0910
25							

Borehole / Well Completion Log

MWH

Monitoring Well **TW-LF**

Project *El Dorado Refinery - Third Phase Env. Investigation* Owner *EPME-PC*

Location *El Dorado, KS* Project Number *1914029*

Surface Elev. *NA* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA*

Hole Depth *4.9 ft* Screen: Diameter *NA* Length *NA* Type/Size *NA*

Hole Diameter *2.0 in* Casing: Diameter *NA* Length *NA* Type *NA*

Drill Co. *Below Ground Surface* Drilling Method *Macrocore* Sand Pack *NA*

Driller Driller Reg. # *KS 710* Log By *D. Bollenback*

Start Date *1/11/2008* Completion Date *1/11/2008* Checked By *N. Day*

COMMENTS

Bentonite Grout (Chips) Sand Pack

	PID (ppm)	Laboratory Sample Interval	Sample Recovery	Graphic Log	USCS	Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS.	Well Completion
0							
	0.5				CL	Very silty CLAY, soft, high plasticity, high dry strength, medium toughness, no odor, moist, roots, dusky yllowish brown (10YR 2/2).	
2					CL	Silty CLAY, medium stiff to stiff, plastic, high dry strength, high houghness, no odor, moist, moderate brown (5YR 4/4).	
4						Weathered LIMESTONE, fractured, crumbles, very pale orange (10YR 8/2).	
						End of boring = 4.9'	
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-01*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742838.5*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785537.5*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1319.3*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	8.3	4/4	NA	Bentonite	ML	(0' - 0.5') Topsoil	Grass and gravel (next top road) Picture #159 (0-4)
	22.0				CL	(0.5' - 2.5') Lean CLAY (CL), med. plasticity, stiff, dark brown to med. brown, moist, (rootlets up to 1cm)	
	45.0				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, clay, (some minor rootlets)	
	0.2					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-02*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742821.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785526.8*
Logged By	*Brad Barton*	Borehole Depth	*8'*	Surface Elev. (ft)	*1319.6*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 8'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS		SOIL / ROCK DESCRIPTION	REMARKS
	3.4	4/4		Bentonite		*Fill*	**(0' - 0.25') Topsoil, grass and gravel** **(0.25' - 0.75') Limestone fill** **(0.75' - 5') Fill, coarse grained with fine grained material, rusty brown, odor, wet**	**Adjacent to gravel road** **Picture #158 (0-4, 4-8)**
	14.6							
	13.4		(2-4)					**Sample STFPSB-02-2-4 taken at 1540**
	1229.0							
5	2560.0	4/4						
	307.0		(5-7)			*LS*	**(5' - 8') LIMESTONE, light gray to tan, weathered, highly fractured, dry**	**Sample STFPSB-02-5-7 taken at 1550**
	62.4							
	39.5						**8' - Bottom of borehole (terminated due to refusal)**	
10								
15								
20								
25								

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-03*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742805.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785514.7*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1319.8*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	4.8	4/4	NA	Bentonite	ML	(0' - 1') Topsoil, grass and roots	Grass and gravel (next top road) Picture #160 (0-4)
	23.4				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist, (minor rootlets)	
	6.1				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
	3.2					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-04*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742824.6*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785556.5*
Logged By	*Brad Barton*	Borehole Depth	*3.75'*	Surface Elev. (ft)	*1319.9*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 3.75'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	7.2	3.75/3.75	NA	Bentonite	ML	(0' - 1') Clayey SILT (ML), dark brown to black, moist (topsoil, rootlets)	Adjacent to gravel road Picture #161 (0-3.75)
	2.8				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, dark to med. brown, moist	
	6.0				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
	5.4					3.75' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-05*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742806.4*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785544.0*
Logged By	*Brad Barton*	Borehole Depth	*8'*	Surface Elev. (ft)	*1320.2*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 8'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS		SOIL / ROCK DESCRIPTION	REMARKS
	11.2	4/4	NA	Bentonite		*Fill*	**(0' - 1') Topsoil, black, moist, (rootlets)**	**Adjacent to gravel road**
	7.4						**(1' - 6') Fill, limestone with fill material, rusty brown, very moist**	**Pictures #162 (0-4) and #163 (4-8)**
	3.0						**2.5' to 5.5' - Chert balls, moist to wet**	
	4.8							
5	9.2	4/4					**5' - Brown**	
	23.8						**5.5' to 6' - Clayey material, wet**	
	5.9					*LS*	**(6' - 8') LIMESTONE, light gray to tan, weathered, highly fractured, dry**	
	5.5						**8' - Bottom of borehole (terminated due to refusal)**	
10								
15								
20								
25								

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-06*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 5400*
Drilling Method *GeoProbe*

Completion Date *November 11, 2008*
Drilling Fluid *--*
Borehole Depth *4'*
Borehole Dia. *2 1/4"*

Northing *1742790.2*
Easting *1785532.8*
Surface Elev. (ft) *1320.5*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) *--* *--*
DTW (btoc) *--* *--*
* DTP & DTW measured after well development

Well

Total Depth (bgs) *--*
Casing Type *--*
Casing Joints *--*
Casing Dia. *--*
Screen Type *--*
Screen Length *--*

Slot Size (in) *--*
Backfill Material *Bentonite*
Backfill Interval *0' - 4'*
Filter Material *--*
Filter Interval *--*
Seal Material *--*

Seal Interval *--*
Surface Seal *--*
Surface Seal Interval *--*
Stick-up/down *--*
Development *--*

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.6	4/4	NA	Bentonite	ML	(0' - 1') Clayey with minor gravel, black, moist to wet, (topsoil, rootlets)	Grass and gravel (next top road) Picture #164 (0-4)
	3.9				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	4.7				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
	3.3					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-07*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742801.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785553.1*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1320.4*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.2	4/4	NA	Bentonite	ML	(0' - 1') Clayey with minor gravel, dark brown to black, moist to wet, (topsoil)	10' lateral distance from road Picture #165 (0-4)
	4.8				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	4.7				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
	5.8					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-08*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 5400*
Drilling Method *GeoProbe*

Completion Date *November 11, 2008*
Drilling Fluid *--*
Borehole Depth *4'*
Borehole Dia. *2 1/4"*

Northing *1742814.9*
Easting *1785514.3*
Surface Elev. (ft) *1319.6*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) *--*
Casing Type *--*
Casing Joints *--*
Casing Dia. *--*
Screen Type *--*
Screen Length *--*

Slot Size (in) *--*
Backfill Material *Bentonite*
Backfill Interval *0' - 4'*
Filter Material *--*
Filter Interval *--*
Seal Material *--*

Seal Interval *--*
Surface Seal *--*
Surface Seal Interval *--*
Stick-up/down *--*
Development *--*

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	4.8	4/4	NA	Bentonite	ML	(0' - 1') Clayey, dark brown to black, wet, (topsoil, minor rootlets)	Grass and some water Picture #166 (0-4)
	4.3				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	3.0				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
	3.0					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-09*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742818.4*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785520.2*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1319.6*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	2.2	4/4	NA	Bentonite	ML	(0' - 1') Clayey, dark brown to black, moist to wet, (topsoil)	Grass (near gravel road) Picture #167 (0-4)
	1.2				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	1.7				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, with minor clay in limestone, light gray to brown	
	1.8					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-10*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742835.2*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785524.0*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1319.2*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	0.9	4/4	NA	Bentonite	ML	(0' - 1') Clayey, dark brown to black, moist to wet, (topsoil, minor rootlets)	Grass (near gravel road) Picture #168 (0-4)
	3.2				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	5.5				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, with minor clay in limestone, light gray to brown	
	4.2					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-11*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742828.5*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785527.3*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1319.4*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS		SOIL / ROCK DESCRIPTION	REMARKS
	2.2	4/4	NA	Bentonite		*Fill*	(0' - 1') Clayey, dark brown to black, moist to wet, (topsoil, minor rootlets) (1' - 3.8') Fill material, limestone to 1.5' 1.5' to 3.5' - Fill material, rusty brown, moist to wet	Grass (near gravel road) Picture #169 (0-4)
	2.3							
	5.1							
	33.2						3.5' - Clayey fill material	
						LS	(3.8' - 4') LIMESTONE, light gray to tan, weathered, highly fractured	
5							4' - Bottom of borehole (terminated due to refusal)	
10								
15								
20								
25								

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-12*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742812.1*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785556.6*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1320.2*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	1.8	4/4	NA	Bentonite	ML	(0' - 1') Clayey, dark brown to black, moist to wet, (topsoil, minor rootlets)	Grass (near gravel road) Picture #170 (0-4)
	2.6				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown, moist	
	5.1				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, brittle	
	4.6					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-13*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742795.5*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785545.3*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1320.5*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	5.4	4/4	NA	Bentonite	ML	(0' - 1') Clayey, dark brown to black, moist to wet, soft, (topsoil)	Grass (near gravel road) Picture #171 (0-4)
	4.2				CL	(1' - 2.5') Lean CLAY (CL) with silt and limestone fragments, med. plasticity, med. brown to light gray / brown, moist	
	3.7				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, brittle, dry	
	3.3					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-14*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742796.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785525.8*
Logged By	*Brad Barton*	Borehole Depth	*4'*	Surface Elev. (ft)	*1320.2*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 4'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	3.4	4/4	NA	Bentonite	GC	(0' - 1') Clayey GRAVEL, sub-angular, dark brown to black, moist, brittle (topsoil, road surface)	Gravelly road surface Picture #172 (0-4)
	4.4				CL	(1' - 2.5') Lean CLAY (CL) with silt, med. plasticity, stiff, med. brown to dark brown, moist	
	4.3				LS	(2.5' - 4') LIMESTONE, light gray to tan, weathered, highly fractured, brittle, dry, minor clay	
	5.2					4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-15*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 11, 2008*	Northing	*1742830.6*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1785550.1*
Logged By	*Brad Barton*	Borehole Depth	*8'*	Surface Elev. (ft)	*1319.7*
Drill Rig	*GeoProbe 5400*	Borehole Dia.	*2 1/4"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*0' - 8'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	6.9	4/4	NA	Bentonite	ML	(0' - 1') Gravelly / Clayey, black, moist, (topsoil)	Gravelly road surface
	7.4				CL	(1' - 2.5') Lean CLAY (CL) with silt and minor limestone fragments, med. plasticity, stiff, dark brown to black, moist	Picture #173 (0-4), and #174 (4-8)
	7.2				Fill	(2.5' to 5') Fill material, limestone to 3' 3' to 3.5' - Fill material, fine grained, orange, moist to wet 3.5' to 4' - Fill material, black, rusty, moist 4' to 5' - Fill material, fine-grained, black, rusty, moist to wet	
	15.6						
5	7.5	4/4			LS	(5' - 8') LIMESTONE, light gray to tan, weathered, fractured, brittle, dry	
	5.4						
	5.6						
	4.9					8' - Bottom of borehole (terminated due to refusal)	
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *STFPSB-16*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 5400*
Drilling Method *GeoProbe*

Completion Date *November 11, 2008*
Drilling Fluid *--*
Borehole Depth *4'*
Borehole Dia. *2 1/4"*

Northing *1742839.2*
Easting *1785556.5*
Surface Elev. (ft) *1319.6*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) *--*
Casing Type *--*
Casing Joints *--*
Casing Dia. *--*
Screen Type *--*
Screen Length *--*

Slot Size (in) *--*
Backfill Material *Bentonite*
Backfill Interval *0' - 4'*
Filter Material *--*
Filter Interval *--*
Seal Material *--*

Seal Interval *--*
Surface Seal *--*
Surface Seal Interval *--*
Stick-up/down *--*
Development *--*

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	7.0	4/4	NA	Bentonite	GC	(0' - 1') Clayey GRAVEL, dark brown to black, moist, brittle (topsoil, road surface)	Gravelly road surface Picture #175 (0-4)
	8.5				CL	(1' - 3') Lean CLAY (CL) with silt, intermixed with limestone fragments, med. plasticity, dark brown with tan limestone	
	6.3						
	6.7				SH	(3' - 4') SILTSTONE, light gray with white nodules, very-fine grained, soft, loose, minor limestone fragments, minor clay content ~5-10%, very-fine silt 4' - Bottom of borehole (terminated due to refusal)	
5							
10							
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-01*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 28, 2008*	Northing	*1743876.1*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786452.8*
Logged By	*Brad Barton*	Borehole Depth	*13.5'*	Surface Elev. (ft)	*1297.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*5' - 13.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	*Water*	**(0' - 5') Water, staff gauge reading = 0.50'**	**Marley Pond Started boring 1500 ~1' from deck of boat to water surface**
5	NR	NR	NA	Bentonite	*CL*	**5' - Pond bottom (5' - 10') No Recovery**	
10	255.0	3.5/3.5				**(10' - 13.2') Silty CLAY (CL) with minor fines sands, 90-95% fines, med. plasticity, brown to dark brown, very moist to wet, firm, some minor black HC staining**	
	55.5						
	40.2					**12.5' - Increased sand content, minor gravel, moist**	
	20.7					**13.5' - Bottom of boring (terminated due to refusal)**	**Only 6" of recovery, could not sample**
15						**NOTE: * Could not pull out rods, left in for track-hoe to pull out on 10/28/2008**	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-02*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 28, 2008*	Northing	*1743981.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786400.6*
Logged By	*Brad Barton*	Borehole Depth	*13.25'*	Surface Elev. (ft)	*1297.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*9' - 13.25'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5	Water	Water		water	Water	(0' - 9') Water, ~9' from water surface to sediment resting on bottom of pond, staff gauge reading = 0.50'	Marley Pond Started boring 1330 ~1' from deck of boat to water surface
10	236.0 130.0 53.5 50.5 14.9	4/4 0.25/0.25	NA	Bentonite	Sediment CL LS	(9' - 9.5') Sediment from pond, black, strong HC odor, wet, soft (9.5' - 13.25') Lean CLAY (CL) with minor silt, high plasticity, gray to dark gray with some light brown silt, odor, moist, firm, stiff, 12.5' - Increased gravel and sand, 25% gravel (13' - 13.25') LIMESTONE, weathered, gravel sized fragments in a light brown clay, moist, 13.25' - Bottom of borehole (terminated due to refusal)	Odor Too wet and not enough recovery to sample
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-03*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 29, 2008*	Northing	*1744567.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786960.4*
Logged By	*Brad Barton*	Borehole Depth	*10.5'*	Surface Elev. (ft)	*1295.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7' - 10.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5	Water	Water		water	Water	(0' - 7') Water, staff gauge reading = 0.54'	Polishing Pond ~1' from deck of boat to water surface * Pictures #111 and #112 Slight odor
10	0.1 0.3 0.6 0.5	3.5/3.5	NA	Bentonite	Sediment CL	(7' - 7.5') Clayey sediments, black, slight odor (7.5' - 10.5') Silty CLAY (CL), med. to high plasticity, very stiff, black to dark brown, moist, soft, black HC staining - Increased silt towards bottom of boring, dark brown with black HC staining 10.5' - Bottom of borehole (terminated due to refusal) NOTE: * Boring shoe didn't have any limestone in it, suspected by drillers that they hit top of limestone but could not sample due to refusal of rods.	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-04*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 29, 2008*	Northing	*1744540.2*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787100.6*
Logged By	*Brad Barton*	Borehole Depth	*12'*	Surface Elev. (ft)	*1295.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6' - 12'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6') Water, staff gauge reading = 0.54'	Polishing Pond ~1' from deck of boat to water surface * Pictures #113 (6' - 9.5', left to right) and #114 (9.5' - 12', right to left)
5							
	0.2	4/4		Bentonite	Sediment CL	(6' - 6.25') Sediment, black, very slight odor (pond sediment) (6.25' - 12') Silty CLAY (CL), med. to high plasticity, black with brown streaks of silty clay, very moist to wet, soft	Very slight odor
	0.1						
	0.2						
	0.1						
10	0.2	2/2	(3.75-5.75			~10.5' - Brown with black HC staining, moist, tight clay	Sample PSB-04-3.74-5.75
	0.2					12' - Bottom of borehole	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-05*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 420M*
Drilling Method *GeoProbe*

Completion Date *October 29, 2008*
Drilling Fluid *--*
Borehole Depth *11'*
Borehole Dia. *2 1/8"*

Northing *1744497.8*
Easting *1786905.3*
Surface Elev. (ft) *1295.1*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) *--*
Casing Type *--*
Casing Joints *--*
Casing Dia. *--*
Screen Type *--*
Screen Length *--*

Slot Size (in) *--*
Backfill Material *Bentonite*
Backfill Interval *6' - 11'*
Filter Material *--*
Filter Interval *--*
Seal Material *--*

Seal Interval *--*
Surface Seal *--*
Surface Seal Interval *--*
Stick-up/down *--*
Development *--*

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6') Water, staff gauge reading = 0.54'	Polishing Pond ~1' from deck of boat to water surface * Pictures #117 (6' - 9.5', right to left) and #118 (9.5' - 11', left to right)
5							
	5.8	4/4		Bentonite	CL	(6' - 11') Silty CLAY (CL) with minor silt, first 2" consists of black sediment with minor HC odor, med. to high plasticity, soft to stiff, brown with black HC staining, moist to wet	Minor HC odor
	14.3						
	5.5						
	7.8		(2.8-4.8)				Sample PSB-05-2.8-4.8
10	25.4	1/1				10.5' - Black with HC staining, strong odor 11' - Limestone, weathered, highly fractured, black staining 11' - Bottom of borehole (terminated due to refusal)	Strong HC odor
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-06*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 30, 2008*	Northing	*1744437.7*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786941.3*
Logged By	*Brad Barton*	Borehole Depth	*14.5'*	Surface Elev. (ft)	*1295.2*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*8.5' - 14.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 8.5') Water, staff gauge reading = 0.61'	Aeration Pond #3 ~1' from deck of boat to water surface * Pictures # (8.5' - 11.5', right to left) and (11.5' - 14.5', left to right)
5							Odor
	1.4	4/4		Bentonite	Sediment	(8.5' - 8.75') Clayey sediment, black with HC staining, wet (pond sediment)	
10	314.0				CL	(8.75' - 14.5') Lean CLAY (CL), med. to high plasticity, very stiff, med. Brown with black HC staining, odor, moist	
	465.0						
	688.0					12' - Gravel, <15%	
	484.0	2/2	(3.75-5.75			~13' - Black to brown, increased HC staining, wet	Sample PSB-06-3.75-5.75
	60.0						
15						14.5' - Bottom of borehole (terminated due to refusal), hit top of limestone, some cobble sized limestone in core, weathered, highly impacted, black HC staining	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-07*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 30, 2008*	Northing	*1744385.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787185.3*
Logged By	*Brad Barton*	Borehole Depth	*16'*	Surface Elev. (ft)	*1295.2*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*12' - 16'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5, 10	Water	Water		water	Water	(0' - 12') Water, staff gauge reading = 0.61'	Aeration Pond #3 ~1' from deck of boat to water surface * Picture #120 (15' - 16', left to right), last 1' looked same
15	16.3 96.3 45.4 55.5	4/4	NA	Bentonite	Sediment CL	(12' - 12.25') Clayey sediment, black, wet (pond sediment) (12.25' - 16') Silty CLAY(CL) with some minor gravel towards 16' bws, med. to high plasticity, stiff, med. brown with black HC staining, odor, moist	Odor
20, 25						16' - Bottom of borehole (terminated due to refusal)	

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-08*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 420M*
Drilling Method *GeoProbe*

Completion Date *October 30, 2008*
Drilling Fluid *--*
Borehole Depth *17.5'*
Borehole Dia. *2 1/8"*

Northing *1744204.4*
Easting *1787125.8*
Surface Elev. (ft) *1295.2*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) --
Casing Type --
Casing Joints --
Casing Dia. --
Screen Type --
Screen Length --

Slot Size (in) --
Backfill Material *Bentonite*
Backfill Interval *14' - 17.5'*
Filter Material --
Filter Interval --
Seal Material --

Seal Interval --
Surface Seal --
Surface Seal Interval --
Stick-up/down --
Development --

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
0–14	Water	Water		water	Water	(0' - 14') Water, staff gauge reading = 0.61'	Aeration Pond #3 ~1' from deck of boat to water surface * Picture #121 (14-16, right to left, 16-17 top to bottom, 17-17.5 left to right)
14–17.5	13.4 1264.0 830.0 697.0	3.5/3.5	NA	Bentonite	Sediment CL	(14' - 14.25') Clayey sediment, black, odor, wet (pond sediment) (14.25' - 17.5') Silty CLAY (CL) with some minor gravel towards the bottom of the core, med. to high plasticity, very stiff, med. brown with black HC staining, odor, moist	Odor
17.5						17.5' - Bottom of borehole (terminated due to refusal)	

5
10
15
20
25

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-09*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 30, 2008*	Northing	*1744142.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787180.6*
Logged By	*Brad Barton*	Borehole Depth	*21'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*12.5' - 21'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5, 10	Water	Water		water	Water	(0' - 12.5') Water, staff gauge reading = 1.30'	Aeration Pond #2 ~1' from deck of boat to water surface * Picture #122 (12-16.5, bottom, 16.5-17.5 top)
15	0.4, 0.3, 54.9, 24.0	4/4	NA	Bentonite	Sediment, CL	(12.5' - 12.75') Clayey sediment, black, odor, wet (12.75' - 17.5') silty CLAY (CL) with some minor gravel, med. to high plasticity, med. brown with black HC staining, odor, moist, (missing some of sample due to a rock sliding through shoe)	Odor
20	10.9	1/4			LS	(17.5' - 21') No Recovery - due to a rock in the shoe displacing all of the sample, possible limestone bedrock	
	NR	NR					
25						21' - Bottom of borehole (terminated due to refusal)	

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-10*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 31, 2008*	Northing	*1744168.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787265.7*
Logged By	*Brad Barton*	Borehole Depth	*16'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*12.5' - 16'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5, 10	Water	Water		water	*Water*	**(0' - 12.5') Water, staff gauge reading = 0.50'**	**Aeration Pond #2 ~1' from deck of boat to water surface * Picture #123 (12-15, 15-16)**
15	0.2 0.2 0.3 0.8	3.5/3.5	NA	Bentonite	*Sediment* *CL* *CLg*	**(12.5' - 12.75') Clayey sediment, black, slight odor, wet, (pond sediment)** **(12.75' - 16') Silty CLAY (CL) with <10% sand, med. to high plasticity, stiff, med. brown with black HC staining, some red-brown patches of sandy silt, moist** **15.5' - Minor gravel** **16' - Bottom of borehole (terminated due to refusal)**	**Slight odor**
20, 25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-11*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 31, 2008*	Northing	*1744116.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787315.0*
Logged By	*Brad Barton*	Borehole Depth	*21'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*14.5' - 21'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 14.5') Water, staff gauge reading = 1.30'	Aeration Pond #1 ~1' from deck of boat to water surface * Picture #124 (14.5-18.5 right to left, and 18.5-21 right to left))
15	2.8	2/4		Bentonite	Sediment	(14.5' - 15') Sediments, black, oily with sheen, residue for 6", strong odor (pond sediment)	Strong odor Odor
	1.1				CL	(15' - 20') Silty CLAY (CL), med. to high plasticity, med. brown with black HC staining, odor, moist	Only 2' of recovery from 14.5' to 18.5' due to compaction of pond sediments
	0.6				CLg	17' - Limestone fragments in clay	
	27.6						
	56.9	2.5/2.5	(4-6)				Sample PSB-11-4-6
20	6.9				LS	(20' - 21') LIMESTONE, light gray to tan, weathered with clay, highly fractured, HC odor, some black HC staining, wet, sand and gravel (fine, med., coarse) in a light brown clay	HC odor
	1.0					21' - Bottom of borehole (terminated due to refusal)	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-12*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*October 31, 2008*	Northing	*1744076.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787224.0*
Logged By	*Brad Barton*	Borehole Depth	*18'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*13.5' - 18'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 13.5') Water, staff gauge reading = 1.30'	Aeration Pond #1 ~1' from deck of boat to water surface * Picture #127 (13.5-16 right to left, and 16-18 right to left)
5							
10							
	3.3	4/4		Bentonite	Sediment CL	(13.5' - 14') Clayey sediment, black, strong odor, oily with sheen, wet, (14' - 18') Silty CLAY (CL), med. to high plasticity, stiff, med. brown with black HC staining, moist	Strong odor
15	4.4						
	219.0						Sample PSB-12-2-4
	164.0		(2-4)				
	663.0	0.5/0.5				18' - Bottom of borehole (terminated due to refusal)	* No bedrock encountered - all clay
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-13*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 3, 2008*	Northing	*1744031.8*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787264.5*
Logged By	*Brad Barton*	Borehole Depth	*16'*	Surface Elev. (ft)	*1296.0*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*11' - 16'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 11') Water. Staff gauge reading = 0.60'	Equalization Pond ~1' from deck of boat to water surface * Picture #128 (11-15 left to right, and 15-16 left to right)
5							
10							
	11.9	4/4		Bentonite	Sediment CL	(11' - 11.25') Clayey sediment, black, wet (pond sediment) (11.25' - 16') Silty CLAY (CL), med. to high plasticity, stiff, med. brown with black staining, strong HC odor, moist	Strong odor
	24.3						
	27.9						
15	21.5		(2.75-4.75				Sample PSB-13-2.75-4.75
	5.9	1/1				16' - Bottom of borehole (terminated due to refusal)	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-14*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 3, 2008*	Northing	*1744080.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787334.0*
Logged By	*Brad Barton*	Borehole Depth	*16.5'*	Surface Elev. (ft)	*1296.0*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*12.5' - 16.5*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5, 10	Water	Water		water	*Water*	**(0' - 12.5') Water, staff gauge reading = 0.60'**	**Equalization Pond ~1' from deck of boat to water surface * Picture #129 (12.5-15.5 bottom-left to right, and 15.5-16.5 top-left to right)**
15	8.6, 4.9, 10.5, 26.0	4/4	NA	Bentonite	*Sediment* *CL*	**(12.5' - 12.75') Clayey sediment, black, strong odor, wet (pond sediment) (12.75' - 16.5') Silty CLAY (CL), med. to high plasticity, stiff, med. brown with black staining, odor, moist**	**Strong odor Odor**
20, 25						**16.5' - Bottom of borehole (terminated due to refusal)**	

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-15*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 3, 2008*	Northing	*1743576.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787546.7*
Logged By	*Brad Barton*	Borehole Depth	*21'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6' - 21'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6') Water, staff gauge reading = 0.69'	Southeast Pond ~1' from deck of boat to water surface * Picture #130 (top-left to right 6-9, 9-13, 13-16.5 left to right-bottom)
5							
	0.7	4/4		Bentonite	Sediment	(6' - 6.5') Clayey sediment, black, wet (pond sediment)	
	0.8				CL	(6.5' - 20') Silty CLAY (CL), med. to high plasticity, stiff, med. brown with black staining (spots), moist	
	2.6						
10	2.6						
	3.4	4/4					
	1.0						
	1.3						Odor
	0.9						
15	1.7	4/4					
	1.9						
	1.8						
	2.2						
	2.3	3/3					
20	1.7		(12.5-14.5		CLg	19.5' - Some gravels in clay	Sample PSB-15-12.5-14.5
	2.4				LS	(20' - 21') LIMESTONE, light gray to light brown, weathered, fractured, moist, odor, some clay mixed	
						21' - Bottom of borehole (terminated due to refusal)	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-16*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 3, 2008*	Northing	*1743712.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787468.3*
Logged By	*Brad Barton*	Borehole Depth	*21'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7' - 21'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7') Water, staff gauge reading = 0.69'	Southeast Pond ~1' from deck of boat to water surface * Picture #132 (top-right to left 7-10.5, 10.5-14.5, 14.5-19, 19-21 bottom)
5							Odor
	2.1	4/4		Bentonite	Sediment	(7' - 7.5') Clayey sediment, black, odor, wet (pond sediments)	
	1.3				CL	(7.5' - 19.5') Silty CLAY (CL), black to dark brown	
10	1.0						
	1.3						
	1.2	4/4				Med. brown with black spots	
	1.0						
	1.1					Light brown with black spots	
15	1.2						
	0.8	4/4					
	0.8						
	1.2						
	1.6						
	1.3	2/2	(11.5-13.5		CLg	~19' - Gravel in clay	Sample PSB-16-11.5-13.5
20	41.3				LS	(19.5' - 21') LIMESTONE, light brown to light gray, weathered, highly fractured, wet, odor, some clay mixed	
						21' - Bottom of borehole (terminated due to refusal)	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-17*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 4, 2008*	Northing	*1743934.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787280.6*
Logged By	*Brad Barton*	Borehole Depth	*20'*	Surface Elev. (ft)	*1295.3*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6.5' - 20'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6.5') Water, staff gauge reading = 0.69'	Southeast Pond ~1' from deck of boat to water surface * Pictures #133 (6.5-10.5 right to left), #134 (left to right-bottom 9-12, 12-15, 15-17.5 top) (after offset), #135 (17.5-20 right to left)
5							
	3.0	4/4		Bentonite	Sediment	(6.5' - 7') Clayey sediment, black, odor, wet	Odor
	24.8				CL	(7' - 19.5') Silty CLAY (CL) with some minor red silty sand mixed in (<15%), med. to high plasticity, stiff, gradual change from black to med. brown over first 6", some black HC staining (spots), moist	
	8.5						
10	10.8						
	4.4	4/4					* Had to offset due to losing a core, only offset ~1' west
	4.3						
	5.7						
	3.8						
15	9.5	4/4					
	8.3					~15.5' - Higher silt content, ~20-30%, tan-brown, less stiff	
	9.6						
	7.1						
	13.8						Sample PSB-17-11-13
	8.0	1.5/1.5	(11-13)				
20	10.5				LS	~19.5' - LIMESTONE, tan to tan-brown, weathered, fractured, with clay intermixed, wet 20' - Bottom of borehole (terminated due to refusal)	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-18*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 4, 2008*	Northing	*1743611.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787404.9*
Logged By	*Brad Barton*	Borehole Depth	*18'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6.5' - 18'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6.5') Water, staff gauge reading 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Pictures #136 (6.5-10.5), #137 (10.5-13 right to left), #138 (13-15 right to left). #139 (15-17 right to left), #140 (17-18 left to right)
5							
	44.2	4/4		Bentonite	Sediment	(6.5' - 7') Clayey sediment, black, odor, wet	Odor
	36.9				CL	(7' - 20') Silty CLAY (CL), 10-15% silt, med. to high plasticity, stiff, med. brown with black HC staining and some red-brown spots of silt, moist	
	16.6					6.5' to 8.5' - Clay is highly impacted, black, odor	Odor
10	10.9						
	9.8	4/4					
	6.9						
	6.1						
	5.6						
15	7.7	3.5/3.5					
	7.2					15' to 17' - Increased silt content, 15-20%, med. plasticity, tan-brown, visible black staining, damp to moist	
	5.2		(9-11)				PSB-18-9-11
	8.9						
						18' - Bottom of borehole (terminated due to refusal)	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-19*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 4, 2008*	Northing	*1743661.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1787234.8*
Logged By	*Brad Barton*	Borehole Depth	*21'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7' - 21'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7') Water, staff gauge reading = 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Picture #141 (top-right to left 7-11, 11-15, 15-18, 18-21 bottom)
5							
	13.5	4/4		Bentonite	Sediment	(7' - 7.25') Clayey sediment, black, odor, wet	Odor
	6.9				CL	(7.25' - 19.5') Silty CLAY (CL), minor silt, med. to high plasticity, stiff, dark brown to black with HC staining, moist to wet	
	7.0						
10	9.8						
	6.7	4/4				11' - Med. brown with minor black HC staining	
	7.3						
	6.9						
	8.0						
15	7.3	4/4				15' - Increased silt, 10-15%, tan-brown with minor black HC staining, stiff, moist to wet	
	6.8						
	8.0					18' - tan-brown to light gray	
	44.9						
	78.4	2/2(11.75-13.7			LS	(19.5' - 21') LIMESTONE, weathered, wet	Sample PSB-19-11.75-13.75
20	158.0					20.5' - Some black HC staining	
						21' - Bottom of borehole	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-20*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 420M*
Drilling Method *GeoProbe*

Completion Date *November 6, 2008*
Drilling Fluid *--*
Borehole Depth *18'*
Borehole Dia. *2 1/8"*

Northing *1743924.9*
Easting *1787179.2*
Surface Elev. (ft) *1294.7*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) *--*
Casing Type *--*
Casing Joints *--*
Casing Dia. *--*
Screen Type *--*
Screen Length *--*

Slot Size (in) *--*
Backfill Material *Bentonite*
Backfill Interval *8' - 18'*
Filter Material *--*
Filter Interval *--*
Seal Material *--*

Seal Interval *--*
Surface Seal *--*
Surface Seal Interval *--*
Stick-up/down *--*
Development *--*

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 8') Water, staff gauge reading = 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Pictures #142 (top 8-12, 12-15.5 right to left), #143 (15.5-17.5, 17.5-18)
5							
	160.0	4/4		Bentonite	Sediment	(8' - 8.5') Clayey sediment, black, odor, wet	Odor
	17.8				CL	(8.5' - 18') Silty CLAY (CL), 10-15% silt, med. to high plasticity, stiff, med. brown with black HC staining and minor red-brown silt, moist	
10	13.4						
	5.8						
	3.4	4/4				Decreased black HC staining	
	2.7						
	4.6						
15	6.3					Decreased silt content, tan-brown	
	2.4						
	9.7	2/2	(7.5-9.5)				Sample PSB-20-7.5-9.5
	5.6						
						18' - Bottom of borehole (terminated due to refusal)	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-21*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 6, 2008*	Northing	*1743962.7*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786955.7*
Logged By	*Brad Barton*	Borehole Depth	*12'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7.5' - 12'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7.5') Water, staff gauge reading = 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Pictures #144 (7.5-11) and #145 (11-12)
5							
	378.0	4/4		Bentonite	Sediment	(7.5' - 8') Clayey sediment, black, odor, wet (pond sediment)	Odor
	37.8				CL	(8' - 11.5') Silty CLAY (CL), med. to high plasticity, stiff, med. brown with black HC staining, moist	
10	16.9						Sample PSB-21-2-4
	23.3		(2-4)		CLg	10.5' - Minor gravel, 5-10%, sub-angular	
	112.0	0.5/0.5			LS	(11.5' - 12') LIMESTONE, light gray to gray, weathered, fractured, wet, odor, some black HC staining	Odor
						12' - Bottom of borehole (terminated due to refusal)	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-22*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 6, 2008*	Northing	*1744198.1*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786972.4*
Logged By	*Brad Barton*	Borehole Depth	*12.5'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*8' - 12.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 8') Water, staff gauge reading = 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Picture #146 (8-12, 12-12.5)
5							
	72.1	4/4		Bentonite	Sediment	(8' - 8.25') Sediment, black, odor, wet (pond sediment)	Odor
					CL	(8.25' - 12') Silty CLAY (CL), 10-15% silt, med. to high plasticity, stiff, med. brown with black HC staining, moist	
10	17.9						
	281.0						Sample PSB-22-2.25-4.25
	410.0		(2.25-4.25		CLg	Minor gravel, sub-angular	
	173.0	0.5/0.5			LS	(12' - 12.5') LIMESTONE, mixed with clay, cobble sized, gravel, sub-angular, light gray to gray, wet, black HC staining, odor	Odor
						12.5' - Bottom of borehole (terminated due to refusal)	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-23*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 7, 2008*	Northing	*1744280.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786700.6*
Logged By	*Brad Barton*	Borehole Depth	*13'*	Surface Elev. (ft)	*1294.7*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*8' - 13'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
5	Water	Water		water	Water	(0' - 8') Water, staff gauge reading = 0.50'	West Oxidation Pond ~1' from deck of boat to water surface * Pictures #147 (8-12) and #148 (12-13)
10	179.0	4/4		Bentonite	Sediment	(8' - 8.5') Clayey sediment, black, odor, wet	Odor
	10.6				CL	(8.5' - 12') Silty CLAY (CL), med. to high plasticity, med. brown to dark gray, moist	
	31.7						
	268.0		(2.5-4.5)		CLg	11' - Gravel, up to 0.5" in diameter, sub-angular	Sample PSB-23-2.5-4.5
	109.0	1/1			LS	(12' - 13') LIMESTONE, light gray, weathered, highly fractured, wet, odor, with minor clay and gravel with silt	Odor
15						13' - Bottom of borehole (terminated due to refusal)	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-24*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 7, 2008*	Northing	*1744462.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786675.2*
Logged By	*Brad Barton*	Borehole Depth	*12'*	Surface Elev. (ft)	*1296.6*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6' - 12'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6') Water, staff gauge reading = 0.58'	Primary Pond ~1' from deck of boat to water surface * Picture #149 (6-10, 10-12)
5							
	35.4	4/4		Bentonite	Sediment	(6' - 6.25') Clayey sediment, black, odor, wet	Odor
	36.8				CL	(6.25' - 11') Silty CLAY (CL), 20-30% silt, med. to high plasticity, med. gray to med. brown, black HC staining, odor, moist	
	64.9						
	24.3						
10	125.0	2/2	(3.75-5.75		CLg	10' - Gravel, sub-angular, increased black (oil) staining	Sample PSB-24-3.75-5.75
	231.0				LS	(11' - 12') LIMESTONE, gray to light gray, mixed with clay	
						12' - Bottom of borehole (terminated due to refusal)	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-25*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 7, 2008*	Northing	*1744539.1*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786542.7*
Logged By	*Brad Barton*	Borehole Depth	*10.5'*	Surface Elev. (ft)	*1296.6*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6.5' - 10.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	*Water*	**(0' - 6.5') Water, staff gauge reading = 0.58'**	**Primary Pond ~1' from deck of boat to water surface * Picture #150 (6.5-10.5)**
5							
	25.5	4/4	NA	Bentonite	*Sediment*	**(6.5' - 7') Clayey sediment, black, odor, wet**	**Odor**
	61.7				*CL*	**(7' - 10.5') Silty CLAY (CL), med. to high plasticity, light brown with black HC staining, moist to very moist, soft**	
	39.7						
10	12.5				*CLg*	**9.5' - Gravel 10' - Gravel 10-15%, sub-angular, increased silt 10.5' - Bottom of borehole (terminated due to refusal)**	*** Hit top of limestone, couldn't recover any sample from drillers**
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-26*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 7, 2008*	Northing	*1744551.2*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786726.1*
Logged By	*Brad Barton*	Borehole Depth	*12'*	Surface Elev. (ft)	*1296.6*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*6.5' - 12'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 6.5') Water, staff gauge reading = 0.58'	Primary Pond ~1' from deck of boat to water surface * Picture #151 (6.5-10.5, 10.5-12)
5							
	8.4	4/4		Bentonite	Sediment	(6.5' - 6.75') Clayey sediment, black, wet	
	12.6				CL	(6.75' - 11.5') Silty CLAY (CL), ~20-25% silt, med. to high plasticity, med. brown to light brown, with black HC staining, soft	
	66.6						
10	114.0				CLg	10' - Gravel, sub-angular, intermixed	Sample PSB-26-3.25-5.25
	9.0	1.5/1.5	(3.25-5.25				
	10.1				LS	(11.5' - 12') LIMESTONE, light gray, weathered, fractured, gravel with clay, sub-angular, wet, with black HC staining 12' - Bottom of borehole (terminated due to refusal)	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-27*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 10, 2008*	Northing	*1744278.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786284.3*
Logged By	*Brad Barton*	Borehole Depth	*17.5'*	Surface Elev. (ft)	*1303.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7.5' - 17.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7.5') Water, staff gauge reading 1.0'	Primary Pond ~1' from deck of boat to water surface * Picture #154 (bottom 7.5-9, 9-12, 12-15, 15-17.5 top)
5							
	237.0	4/4		Bentonite	Sediment	(7.5' - 8') Clayey sediment, black, odor, wet	
	125.0				CL	(8' - 17') Silty CLAY (CL), med. to high plasticity, med. brown with black HC staining, moist to wet, soft	Odor
10	27.8						Sample PSB-27-2-4
	215.0		(2-4)			Less black HC staining	
	22.1	4/4					
	28.9					Less black HC staining	
	39.5						
15	36.6						
	49.5	2/2	(7.5-9.5)		CLg	16.5' - Gravel	Sample PSB-27-7.5-9.5
	337.0				LS	(17' - 17.5') LIMESTONE, light gray, weathered, highly fractured, wet, odor, gravel, sub-angular	Odor
						17.5' - Bottom of borehole (terminated due to refusal)	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-28*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*November 10, 2008*	Northing	*1744192.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786288.9*
Logged By	*Brad Barton*	Borehole Depth	*20'*	Surface Elev. (ft)	*1303.1*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2 1/8"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7.5' - 20'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7.5') Water, staff gauge reading 1.0'	Primary Pond ~1' from deck of boat to water surface * Picture #155 (bottom 7.5-9, 9-12, 12-15, 15-18, 18-20 top)
5							
	10.4	4/4		Bentonite	Sediment	(7.5' - 8') Clayey sediment, black, odor, wet, up to 1" of sediment	Odor
	73.6				CL	(8' - 19') Silty CLAY (CL), med. to high plasticity, med. brown with black HC staining, moist to wet, soft	
10	40.2						Sample PSB-28-2-4
	173.0		(2-4)			Less black HC staining	
	118.0	4/4					
	60.3						
	132.0				CLg	14' - Gravel, 20-30%, sub-angular, up to cobble size	
15	76.4						
	116.0	4/4				16.5' - Gravel	
	102.0						
	50.9					18' - Gray, possible weathered limestone intermixed with silty clay	Sample PSB-28-10-12 Strong odor
	25.2		(10-12)		LS	(19' - 20') LIMESTONE, light gray with light yellow mix, weathered, highly fractured, wet, strong odor, gravel, sub-angular	
20	14.9	0.5/0.5				20' - Bottom of borehole (terminated due to refusal)	
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-29*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor *Plains Environmental*
Drilled by *Jason Auernheimer*
Logged By *Brad Barton*
Drill Rig *GeoProbe 420M*
Drilling Method *GeoProbe*

Completion Date *May 27, 2009*
Drilling Fluid *--*
Borehole Depth *11'*
Borehole Dia. *2"*

Northing *1743910.3*
Easting *1787397.2*
Surface Elev. (ft) *1294.7*
TOC Elev. (ft) *--*

Samples

Sample Method *4' Core*
Sample Interval *Continuous*

DTP (btoc) -- --
DTW (btoc) -- --
* DTP & DTW measured after well development

Well

Total Depth (bgs) --
Casing Type --
Casing Joints --
Casing Dia. --
Screen Type --
Screen Length --

Slot Size (in) --
Backfill Material *Bentonite*
Backfill Interval *7' - 11'*
Filter Material --
Filter Interval --
Seal Material --

Seal Interval --
Surface Seal --
Surface Seal Interval --
Stick-up/down --
Development --

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7') Water	Southeast Pond
5							
					Sediment	(7' - 7.5') Sediment, 0.5' thick	
	NR	NR		Bentonite	CL/CH	(7.5' - 8') No Recovery	
10	1.9 / 2.2	2/1.5	(2-3.5)			(9.5 - 11') Lean / Fat CLAY (CL/CH), med. to high plasticity, very stiff to stiff, no dilatancy, very dark grey (3/1 10YR), wet to very moist, no odor 11' - Bottom of borehole (terminated due to refusal)	Time: 1330 Sample PSB-29-2-3.5 * Excess recovery due to expanding clay Time: 1600 Went down two times and got refusal both times Background PID = 0 - 0.7 ppm
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-30*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 28, 2009*	Northing	*1743873.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787089.4*
Logged By	*Brad Barton*	Borehole Depth	*18'*	Surface Elev. (ft)	*1295.5*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*8.5' - 18'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	*Water*	**(0' - 8.5') Water, staff gauge = 1.3'**	**West Oxidation Pond, south borehole**
5							
					Sediment	**(8.5' - 9.5') Sediment, 1' thick**	
10	NR	NR		Bentonite	*CL/CH*	**(9.5' - 11.5') No Recovery, due to going down with a closed system**	
	21.7	5/3	(2-4)			**(11.5' - 18') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft, no dilatancy, very dark greenish brown (3/2 2.5Y), slight HC odor, very moist**	**Sample PSB-30-2-4 * Excess recovery due to expanding clay Slight HC odor**
	19.8						
	19.3						
15	15.9	5/3	(5-7)			**15.5' - Minor black HC staining in clay matrix**	**Sample PSB-30-5-7 * Excess recovery due to expanding clay**
	11.9					**16.5' - Minor limestone fragments up to 1/4" in diameter in clay matrix**	
	16.8		(7-8.5)				
	20.2	1.4/0.5				**18' - Bottom of borehole (terminated due to refusal)**	**Sample PSB-7-8.5 * Excess recovery due to expanding clay**
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-31*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 28, 2009*	Northing	*1744266.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786869.6*
Logged By	*Brad Barton*	Borehole Depth	*13.5'*	Surface Elev. (ft)	*1295.5*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*8.5' - 13.5'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 8.5') Water, staff gauge = 1.3'	West Oxidation Pond, north borehole
5							
					Sediment	(8.5' - 9.5') Sediment, 1' thick	
10	NR	NR		Bentonite	CL/CH	(9.5' - 11.5') No Recovery, due to going down with a closed system	
	125.0 / 1315.0	5/2	(2-4)			(11.5' - 13.5') Lean / Fat CLAY (CL/CH), med. plasticity, soft, very dark grayish brown, strong HC odor, very moist to wet, black HC staining in clay	Sample PSB-31-2-4 * Excess recovery due to expanding clay Strong HC odor
						13.5' - Bottom of borehole, stopped 4' below sediment/soil interface	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-32*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 28, 2009*	Northing	*1744094.4*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787258.9*
Logged By	*Brad Barton*	Borehole Depth	*16'*	Surface Elev. (ft)	*1295.5*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*11' - 16'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	*Water*	**(0' - 11') Water, staff gauge = 1.48'**	**Aeration Pond #1**
				Bentonite	*Sediment*	**(11' - 12') Sediment, 1' thick**	
	NR	NR			*CL/CH*	**(12' - 14') No Recovery**	
	115.0 / 245.0	4.3/2	(2-4)			**(14' - 16') Lean / Fat CLAY (CL/CH), soft to med. stiff, no dilatancy, very dark grayish brown, strong HC odor, very moist to wet, black HC staining in clay matrix**	**Sample PSB-32-2-4 * Excess recovery due to expanding clay Strong HC odor**
						16' Bottom of borehole	

5 10 15 20 25

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-33*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 29, 2009*	Northing	*1744315.0*
Drilled by	*Jason Auernheimer*	Drilling Fluid	*--*	Easting	*1787098.1*
Logged By	*Brad Barton*	Borehole Depth	*16.5'*	Surface Elev. (ft)	*1295.2*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	*--*
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*12' - 16.5*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 12') Water, staff gauge = 0.60'	Aeration Pond #3
5							
10							
				Bentonite	Sediment	(12' - 12.5') Sediment, 0.5' thick	
	NR	NR			CL/CH	(12.5' - 14.5') No Recover, due to going down with a closed system	
15	365.0	3.3/2	(2-4)			(14.5' - 16.5') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft to med. stiff, dark grayish brown with minor black HC staining in clay matrix, HC odor, very moist	Sample PSB-33-2-4 * Excess recovery due to expanding clay HC odor Background PID = 0.0 ppm
	185.0					16.5' - Bottom of borehole	
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-34*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 29, 2009*	Northing	*1744518.5*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786674.3*
Logged By	*Brad Barton*	Borehole Depth	*11.25'*	Surface Elev. (ft)	*1296.5*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*7' - 11.25'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 7') Water, staff gauge = 0.52'	Primary Pond
5							
					Sediment	(7' - 7.25') Sediment, 3" thick	
	NR	NR		Bentonite	CL/CH	(7.25' - 9.25') No Recovery, due to going down with a closed system	
10	22.3	2/2	(2-4)			(9.25' - 10.75') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft to med. stiff, dark grayish brown with black HC staining, HC odor, wet	Sample PSB-34-2-4 HC odor Strong HC odor
	24.5				CL/CHg	(10.75' - 11.25') CLAY and Limestone fragments, black, HC staining, strong HC odor, soft, clayey matrix with limestone fragments up to 1", wet 11.25' - Bottom of borehole	Background PID = 0.0 ppm
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-35*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 26, 2009*	Northing	*1743934.3*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786422.6*
Logged By	*Brad Barton*	Borehole Depth	*11'*	Surface Elev. (ft)	*1296.5*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*4' - 11'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 4') Water, staff gauge reading was Approx. 1/2" below 0 reading	Marley Pond
5				Bentonite	Sediment	(4' - 7') Pond Sediment, 3' thick	
	NR	NR			CL/CH	(7' - 9') No Recovery	
10	46.4 82.6	3.5/2	(9-11)			(9' - 11') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft, no dilatancy, strong brown, mod. HC odor, very moist	Sample PSB-35-2-4 Mod. HC odor * Excess recovery due to expanding clay Background PID = 0 - 0.1 ppm
						11' - Bottom of borehole	
15							
20							
25							

Borehole / Well Completion Log

Client *El Paso Corporation* **Well ID** *PSB-36*
Project *Third Phase Investigation* **Project No.** *1914351*

MWH

Drilling

Drilling Contractor	*Plains Environmental*	Completion Date	*May 27, 2009*	Northing	*1744250.9*
Drilled by	*Jason Auernheimer*	Drilling Fluid	--	Easting	*1786301.4*
Logged By	*Brad Barton*	Borehole Depth	*18'*	Surface Elev. (ft)	*1302.8*
Drill Rig	*GeoProbe 420M*	Borehole Dia.	*2"*	TOC Elev. (ft)	--
Drilling Method	*GeoProbe*				

Samples

Sample Method	*4' Core*	Sample Interval	*Continuous*	DTP (btoc)	-- --
				DTW (btoc)	-- --

* DTP & DTW measured after well development

Well

Total Depth (bgs)	--	Slot Size (in)	--	Seal Interval	--
Casing Type	--	Backfill Material	*Bentonite*	Surface Seal	--
Casing Joints	--	Backfill Interval	*2' - 18'*	Surface Seal Interval	--
Casing Dia.	--	Filter Material	--	Stick-up/down	--
Screen Type	--	Filter Interval	--	Development	--
Screen Length	--	Seal Material	--		

DEPTH (ft)	PID	RECOV	LAB SAMPLE	WELL	ASTM CLASS	SOIL / ROCK DESCRIPTION	REMARKS
	Water	Water		water	Water	(0' - 2') Water, staff gauge reading = 0.7'	Spray Pond
5				Bentonite	Sediment	(2' - 8') Sediment, 6' thick	
	NR	NR			CL/CH	(8' - 10') No Recovery, went down with a closed system to prevent cross-contamination	Time: 0930
10	3.1	5/3	(2-4)			(10' - 18') Lean / Fat CLAY (CL/CH), med. to high plasticity, soft to med. stiff, brown with black HC staining, mod. HC odor, wet to very moist	Sample PSB-36-2-4 taken at 1120
	6.3						Mod. HC odor
	13.0						
	4.4	5/3	(5-7)				Sample PSB-36-5-7 taken at 1130
15	9.0						
	9.1						
	8.5	1.7/2	(8-10)				Sample PSB-36-8-10 taken at 1140
	36.0					17.5' - Limestone fragments in clay matrix, color change to pale olive brown 18' - Limestone fragments up to 1" in diameter 18' - Bottom of borehole, stopped 10' below sediment/soil interface due to stopping sampling	* Loss of recovery due to hitting limestone fragments Time: 1050
20							
25							

Appendix F

Soil Headspace Gas Data Map Series

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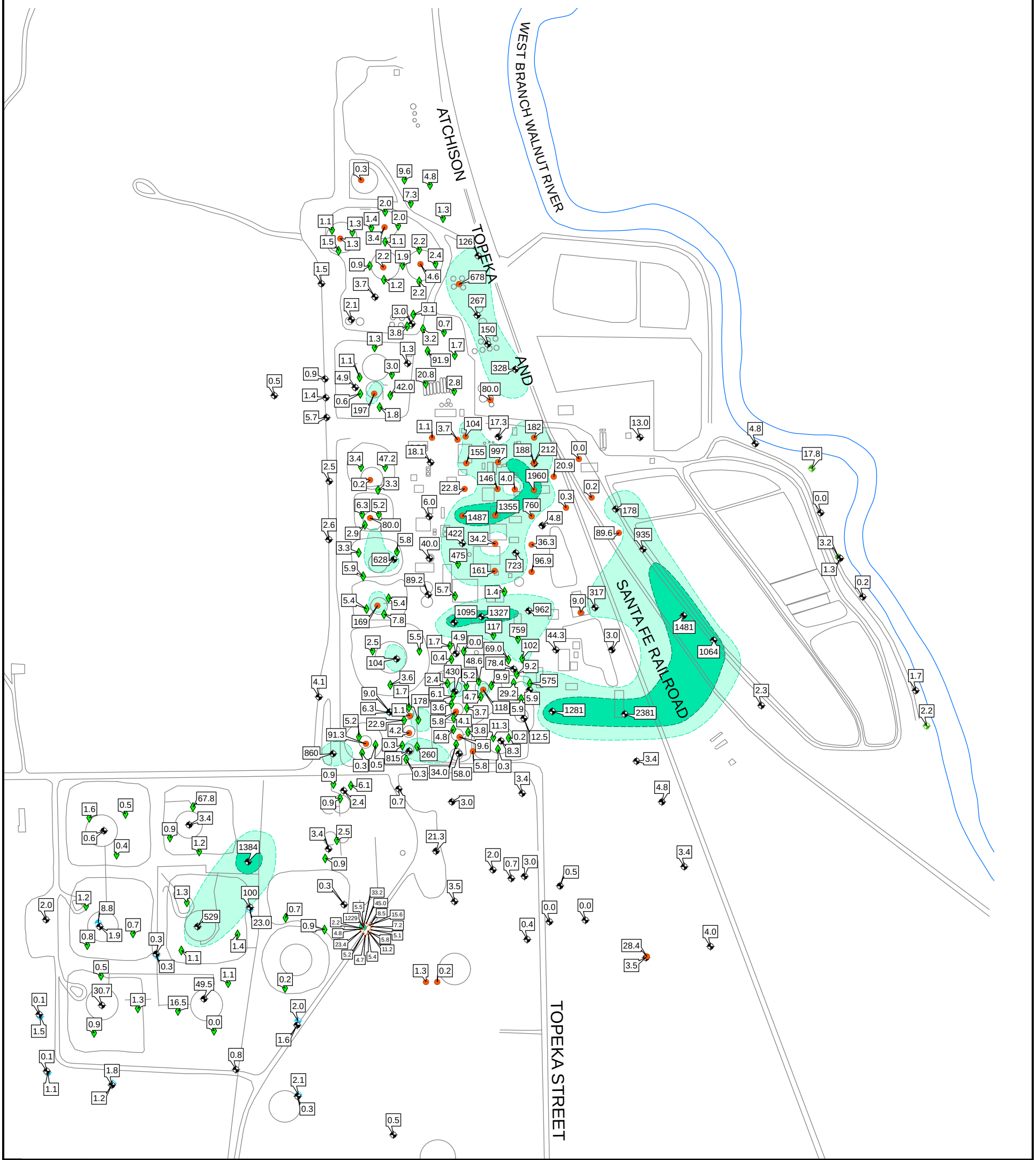

LEGEND:

- SHALLOW SOIL SAMPLE
- SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 0-4 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-008C_SiteSoilVOC_0-4.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 0-4' SAMPLING INTERVAL NORTHERN AREA

MWH

FIGURE: F-1

TITLE: SOIL HEADSPACE GAS DATA, 0-4' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-1

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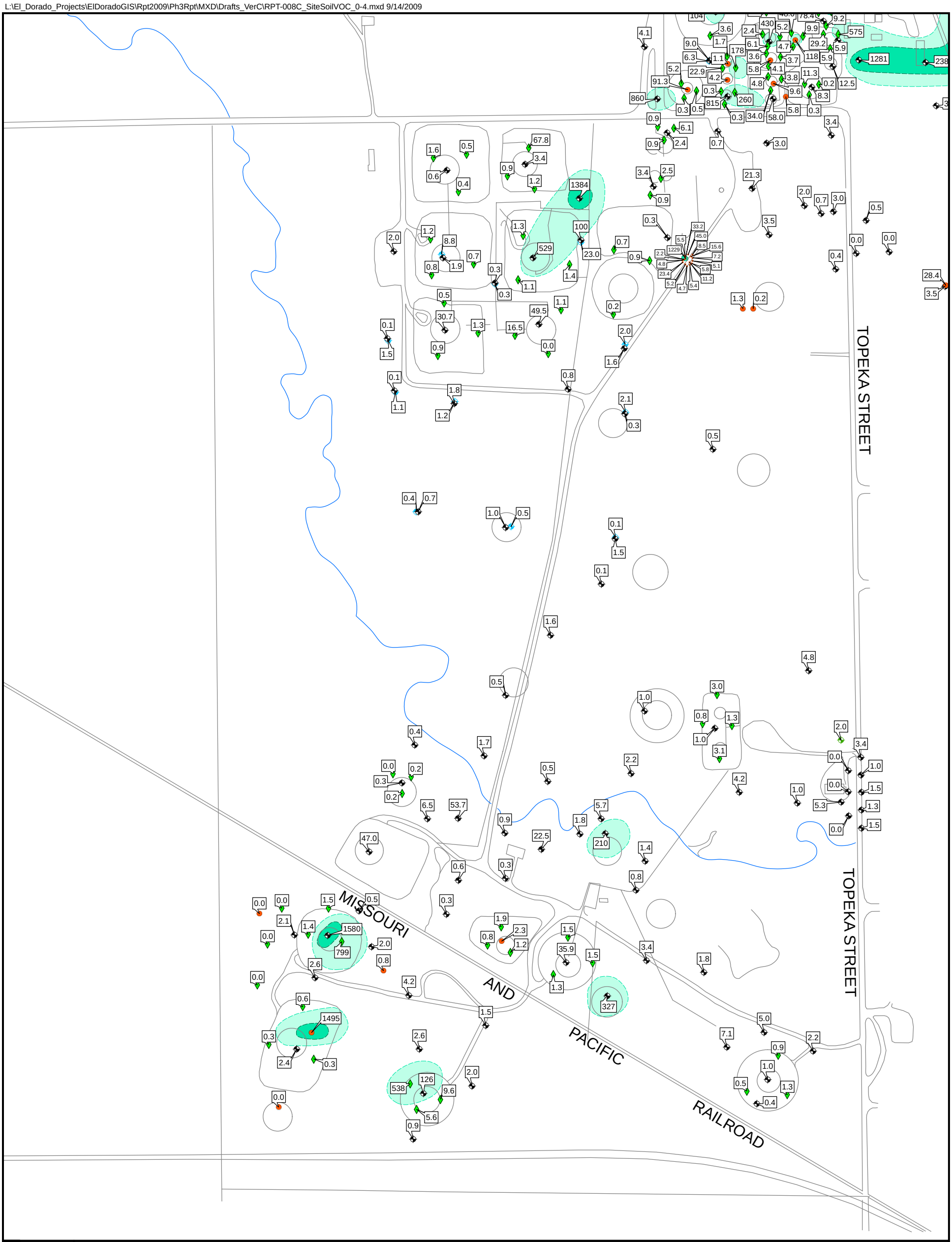


TITLE

SOIL HEADSPACE GAS DATA,
0-4' SAMPLING INTERVAL
SOUTHERN AREA

FIGURE

F-2

LEGEND:

- SHALLOW SOIL SAMPLE
- SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 0-4 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-008C_SiteSoilVOC_0-4.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS

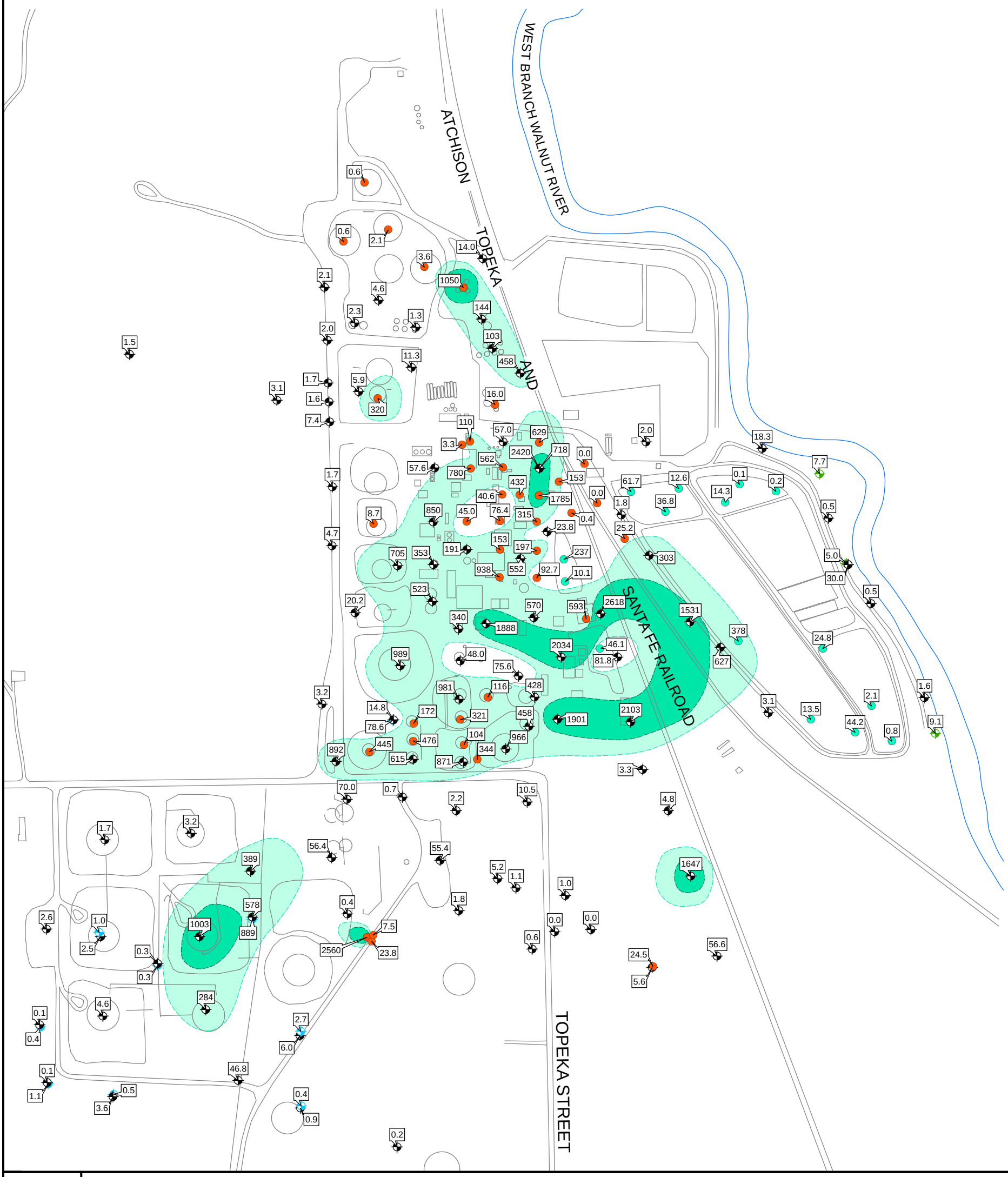
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 0-4' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-2

L:\El_Dorado_Projects\ElDoradoGIS\Rpt2009\Ph3Rpt\MXD\Drafts_VerC\RPT-009C_SiteSoilVOC_4-8.mxd 9/14/2009



LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 4-8 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

TITLE: SOIL HEADSPACE GAS DATA, 4-8' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-3

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-009C_SiteSoilVOC_4-8.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 4-8' SAMPLING INTERVAL NORTHERN AREA

MWH

FIGURE: F-3

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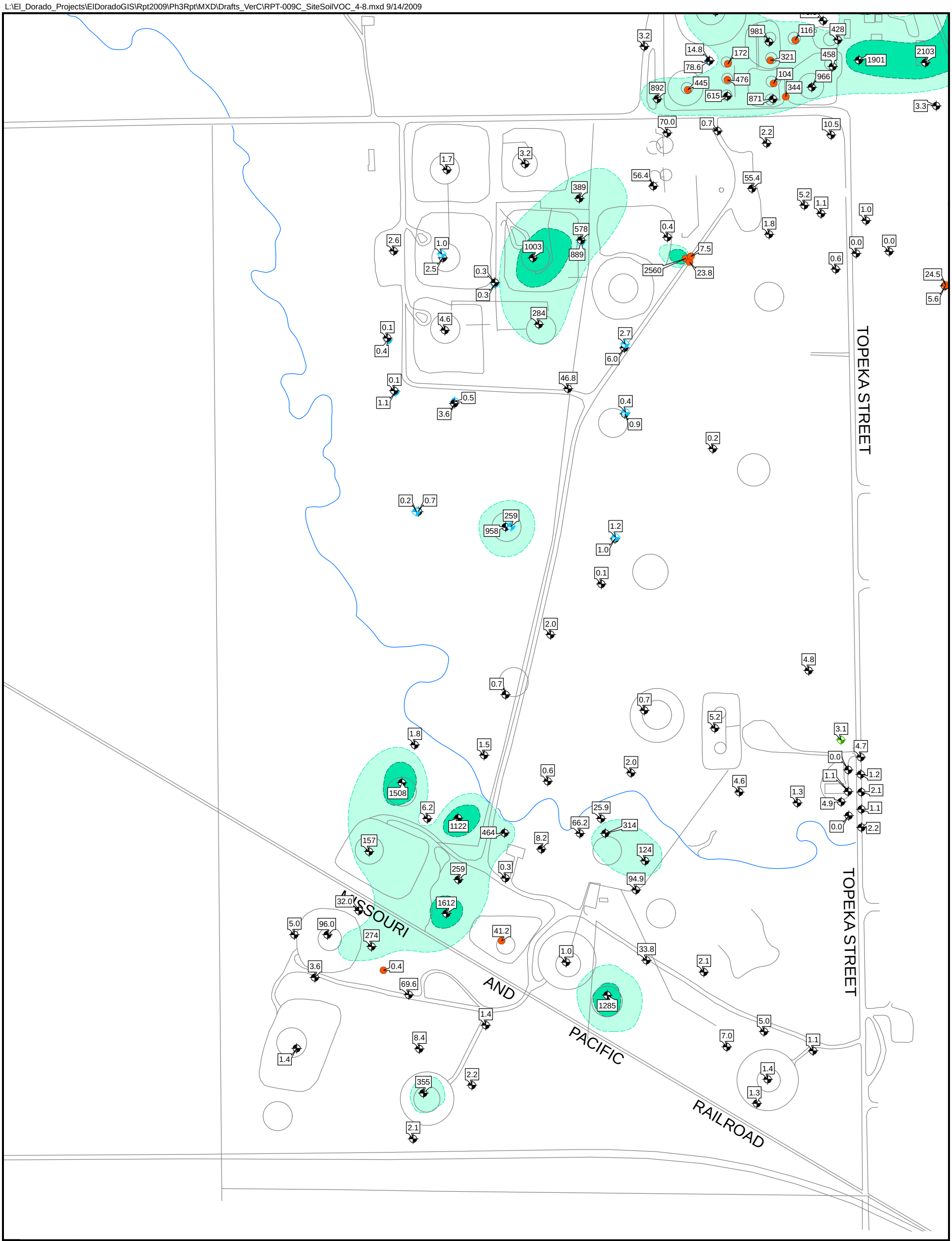

TITLE
SOIL HEADSPACE GAS DATA,
4-8' SAMPLING INTERVAL
SOUTHERN AREA

FIGURE
F-4

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 4-8 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-009C_SiteSoilVOC_4-8.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 4-8' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-4

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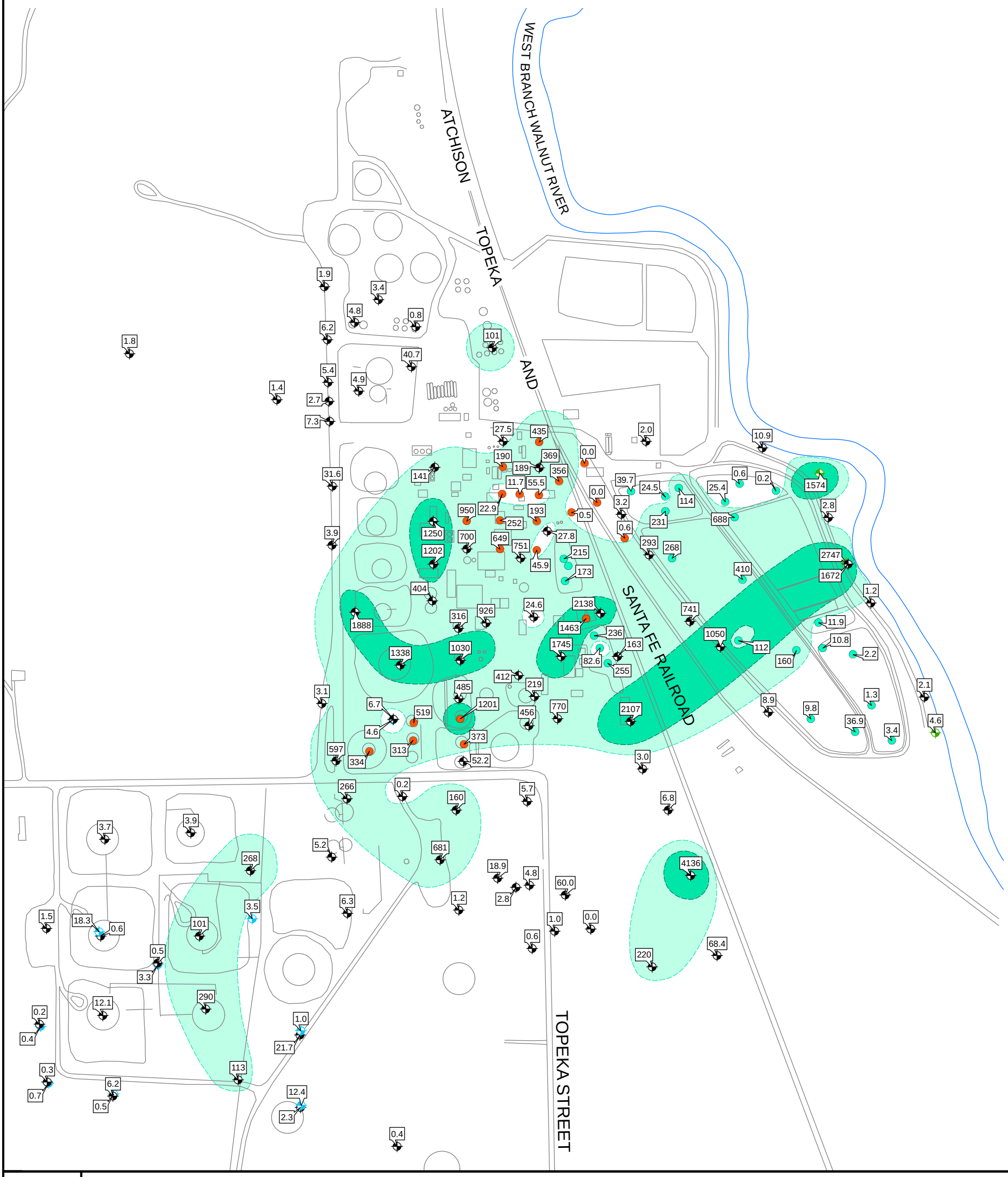

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 8-12 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

TITLE
SOIL HEADSPACE GAS DATA, 8-12' SAMPLING INTERVAL NORTHERN AREA

FIGURE
F-5

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-010C_SiteSoilVOC_8-12.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 8-12' SAMPLING INTERVAL NORTHERN AREA

MWH

FIGURE: F-5

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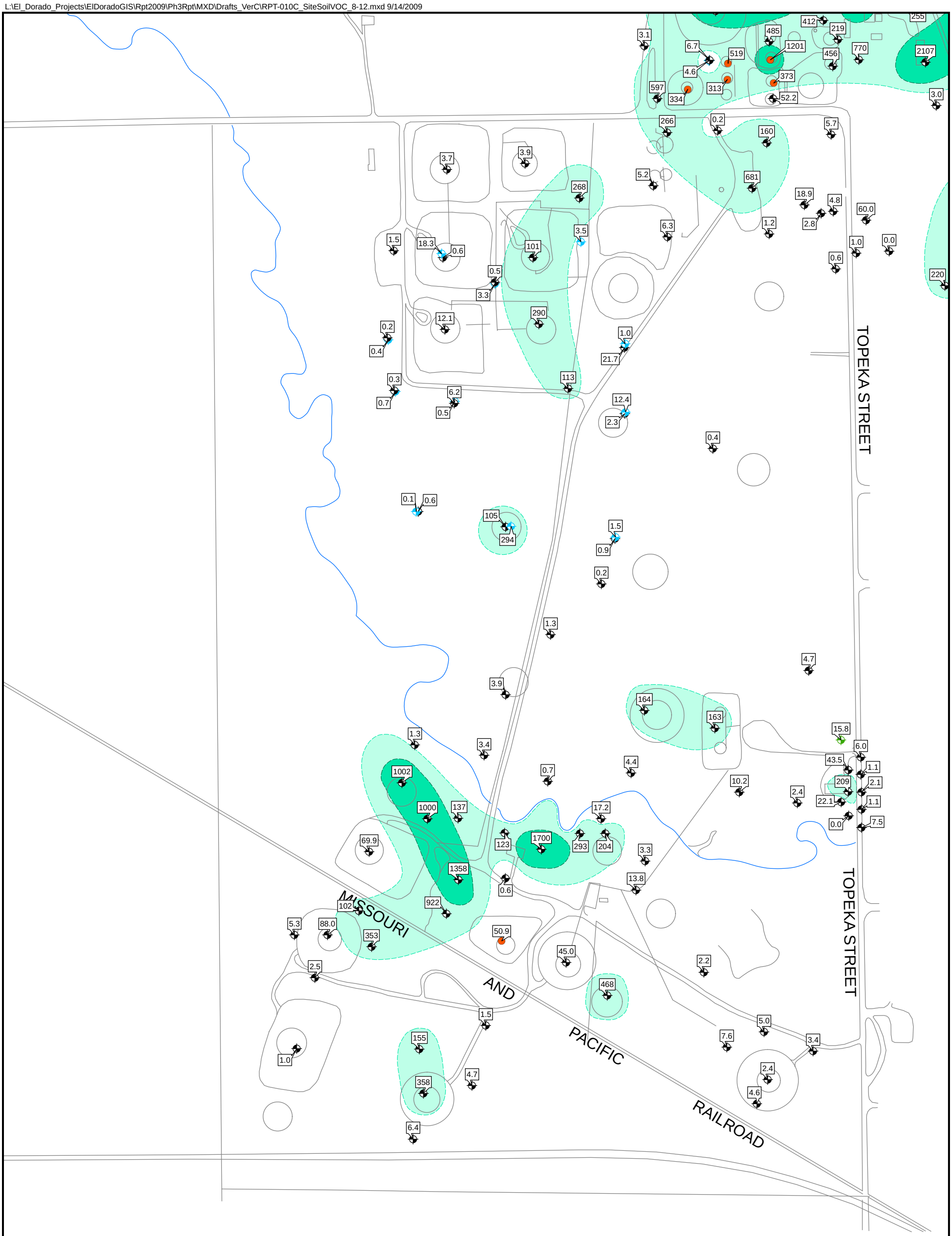


TITLE
SOIL HEADSPACE GAS DATA,
8-12' SAMPLING INTERVAL
SOUTHERN AREA

FIGURE
F-6

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 8-12 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

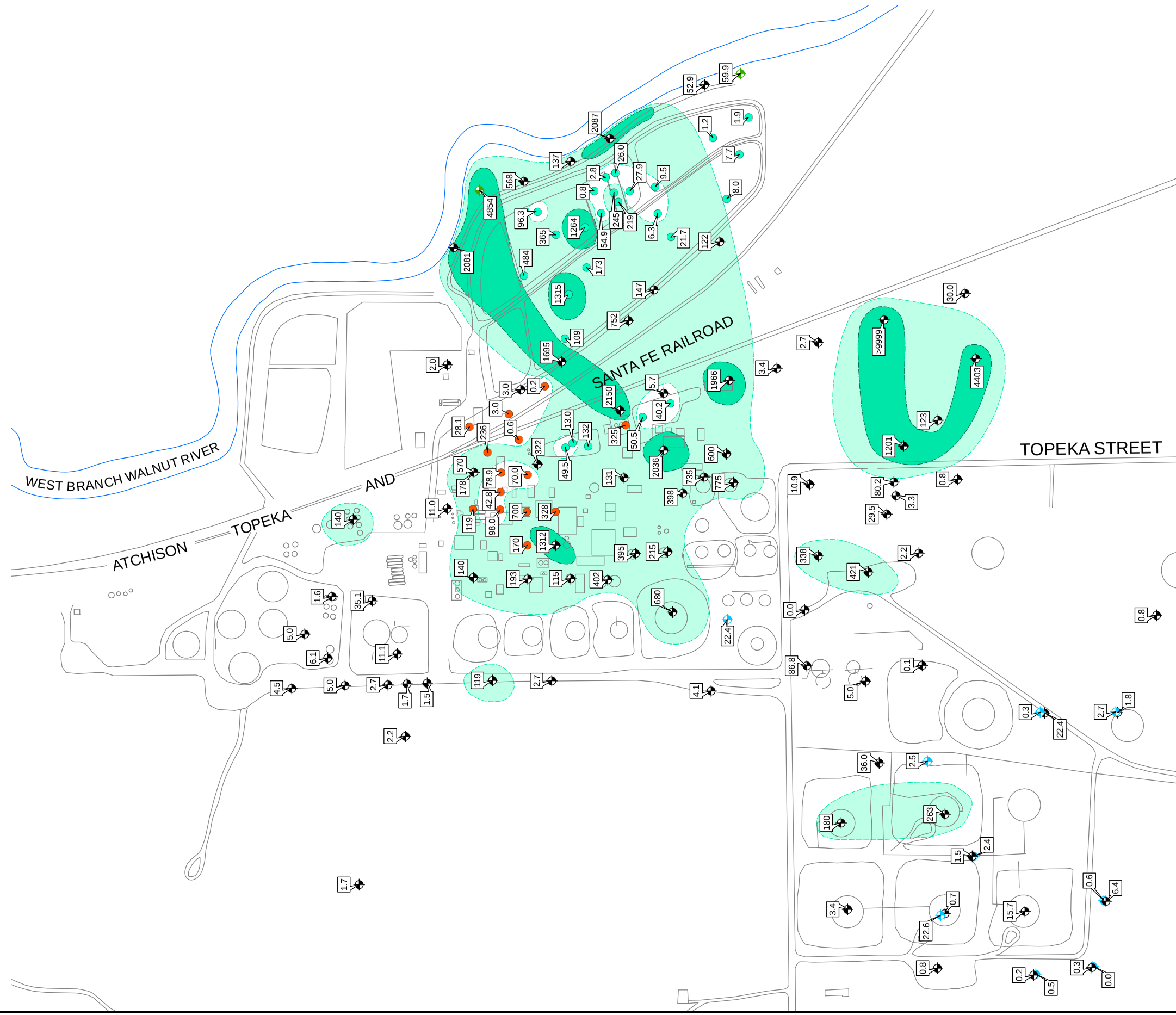
DESIGNED BY	R. Hultgren	07/09
DRAWN BY	R. Hultgren	09/09
CHECKED BY	R. Hultgren	09/09
APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-010C_SiteSoilVOC_8-12.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 8-12' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-6



SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 12-16 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCES:
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-011C_SiteSoilVOC_12-16.mxd	

elpaso

MWH

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 12-16' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-7

TITLE
SOIL HEADSPACE GAS DATA, 12-16' SAMPLING INTERVAL NORTHERN AREA
FIGURE
F-7

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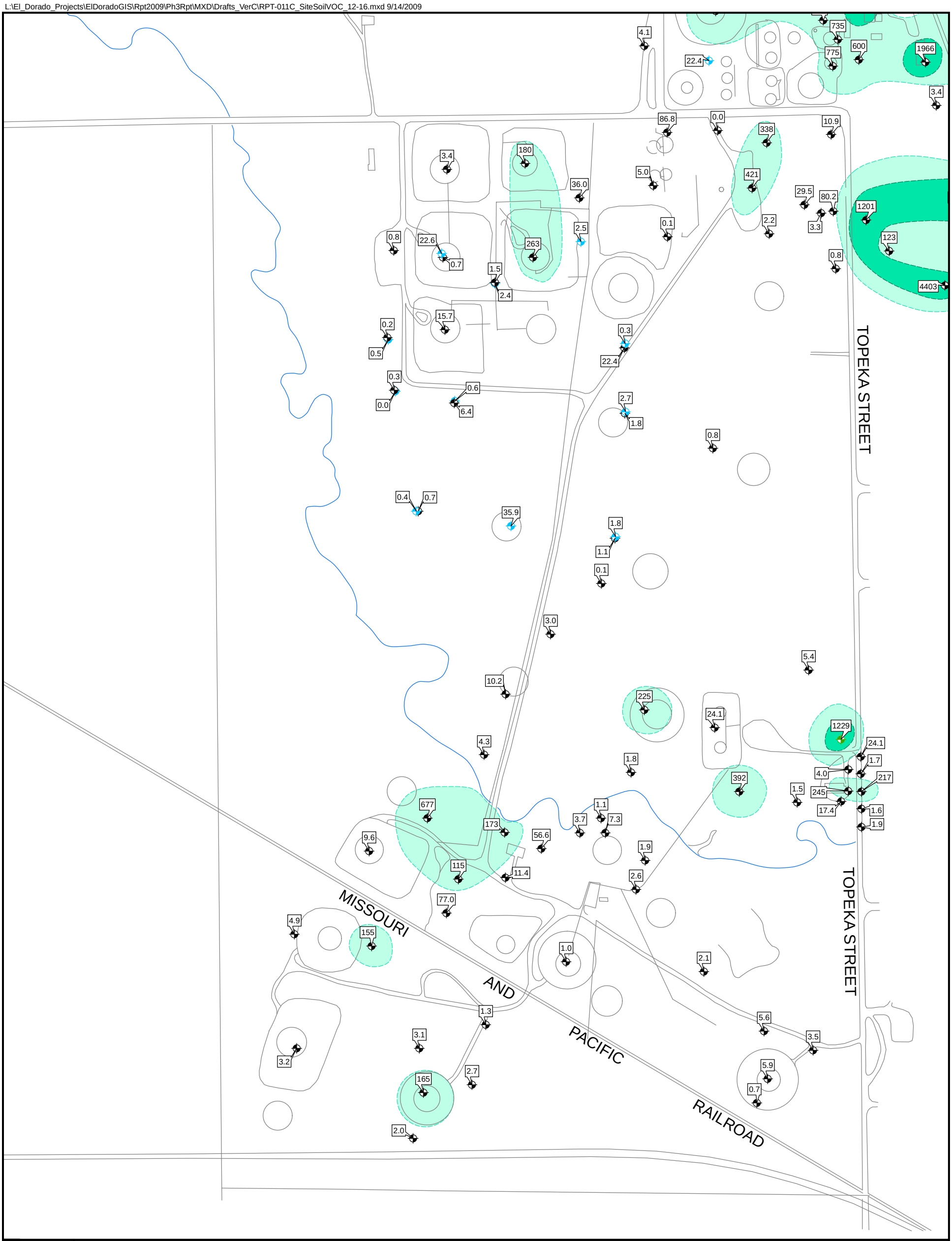

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 12-16 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
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FILE NAME	RPT-011C_SiteSoilVOC_12-16.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

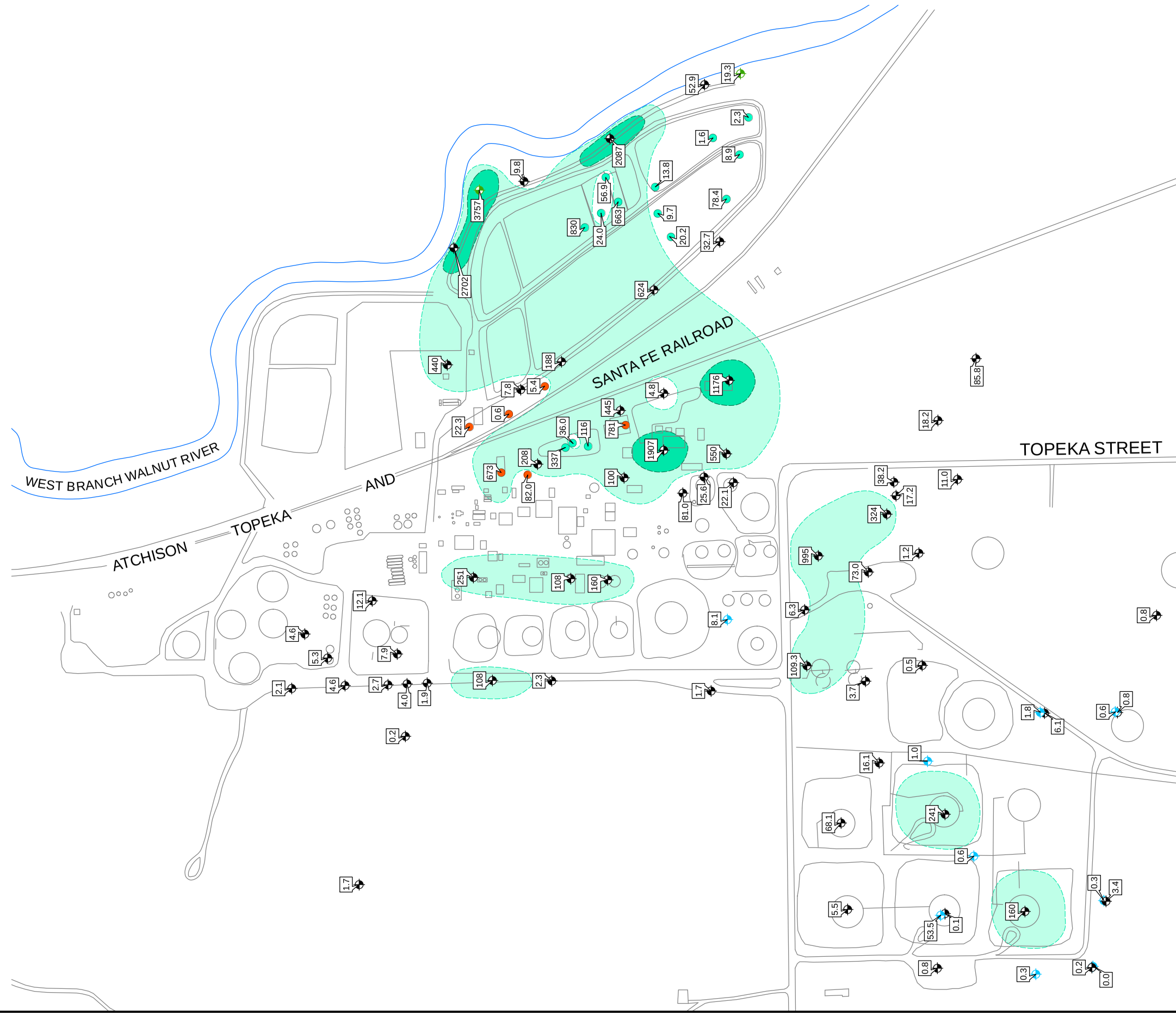
TITLE: SOIL HEADSPACE GAS DATA, 12-16' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-8

TITLE: SOIL HEADSPACE GAS DATA, 12-16' SAMPLING INTERVAL SOUTHERN AREA

FIGURE: F-8



LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 16-20 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCES:
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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PROJECT NO.	1914351.90010408	
FILE NAME	RPT-012C_SiteSoilVOC_16-20.mxd	

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE
0 400 800
SCALE IN FEET

MWH

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 16-20' SAMPLING INTERVAL NORTHERN AREA
FIGURE: F-9

TITLE
SOIL HEADSPACE GAS DATA, 16-20' SAMPLING INTERVAL NORTHERN AREA

FIGURE
F-9

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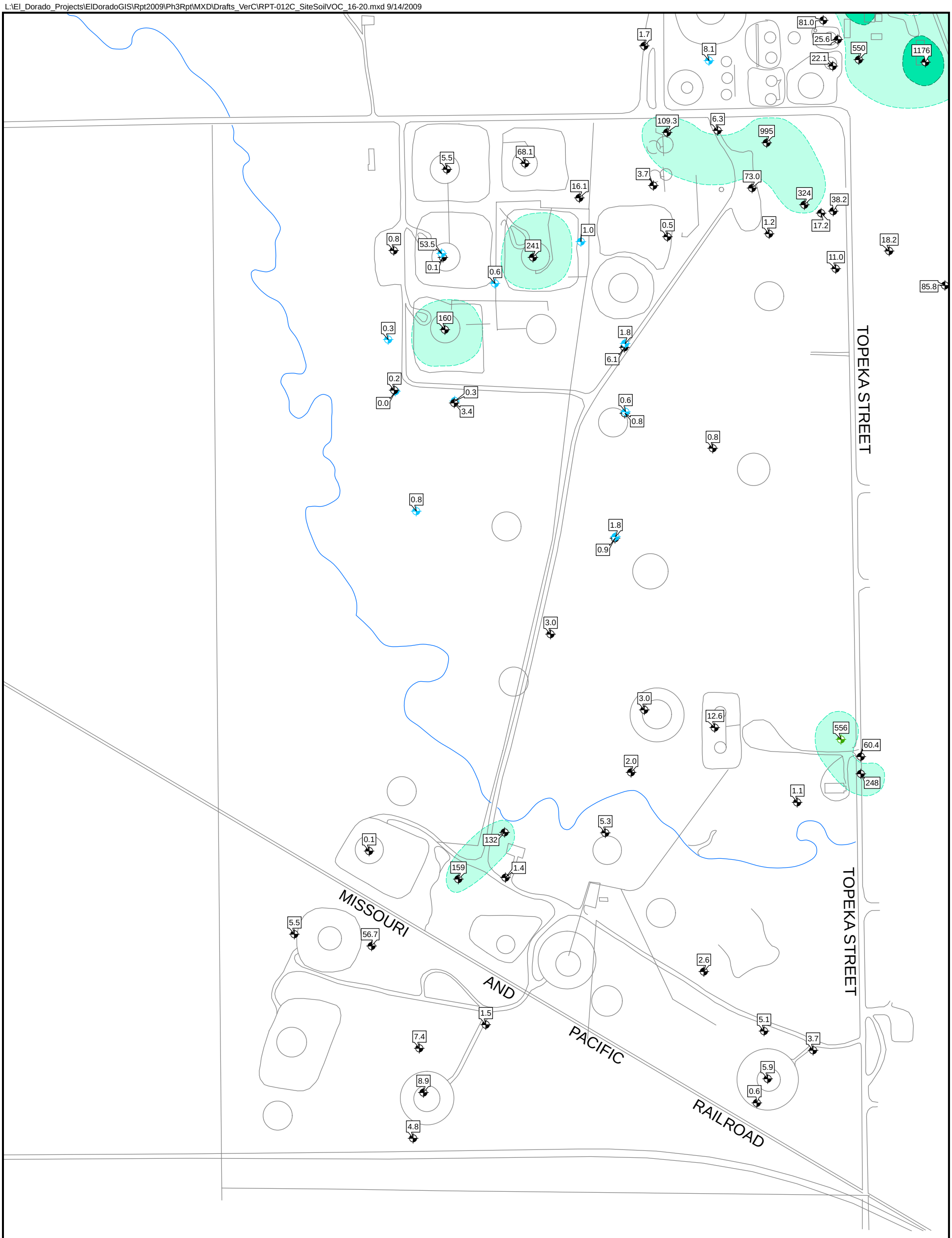

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 16-20 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

TITLE
SOIL HEADSPACE GAS DATA, 16-20' SAMPLING INTERVAL SOUTHERN AREA

FIGURE
F-10

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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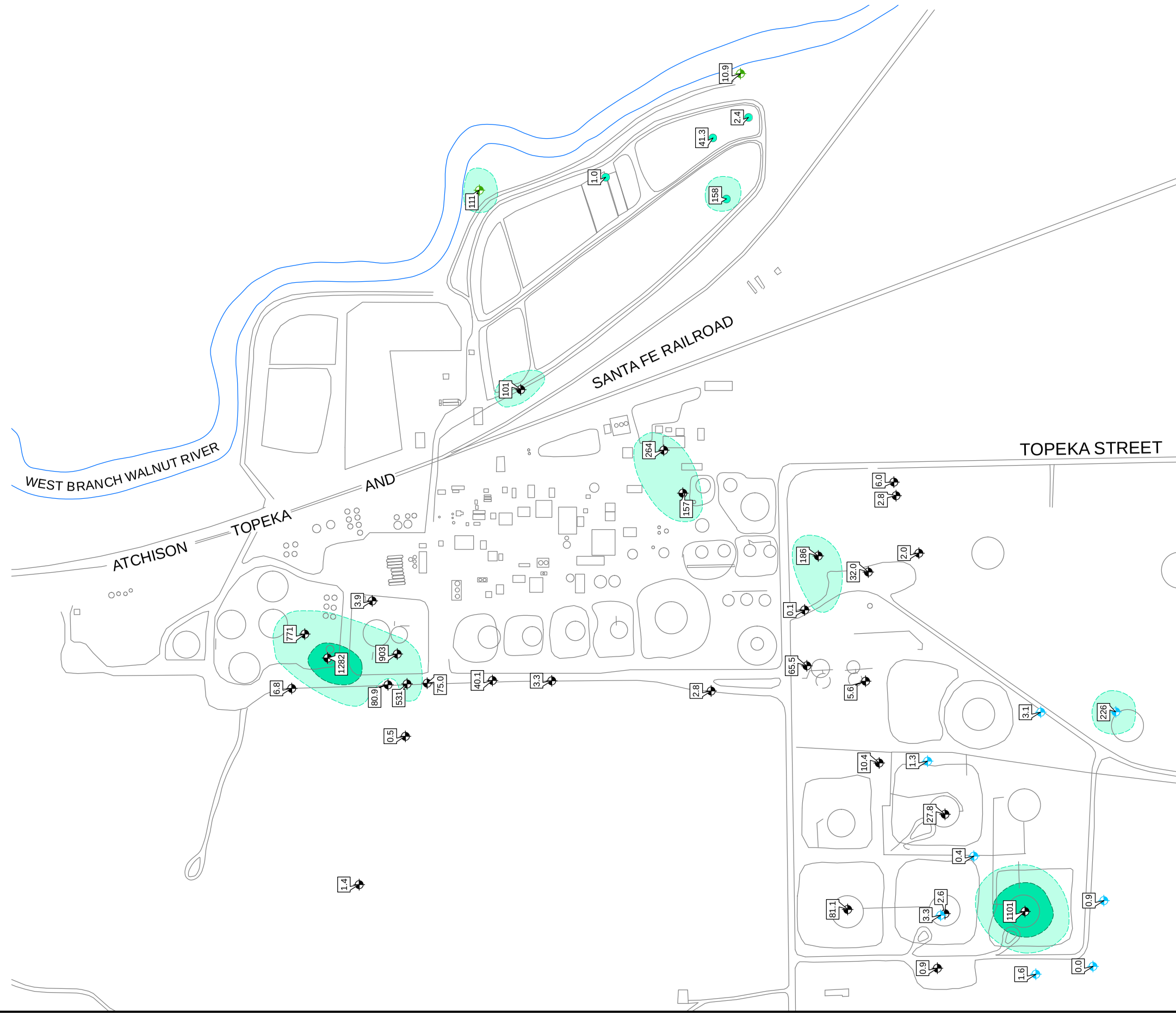
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-012C_SiteSoilVOC_16-20.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 16-20' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-10



SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 20-24 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-013C_SiteSoilVOC_20-24.mxd	

elpaso

MWH

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 20-24' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-11

TITLE: SOIL HEADSPACE GAS DATA, 20-24' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-11

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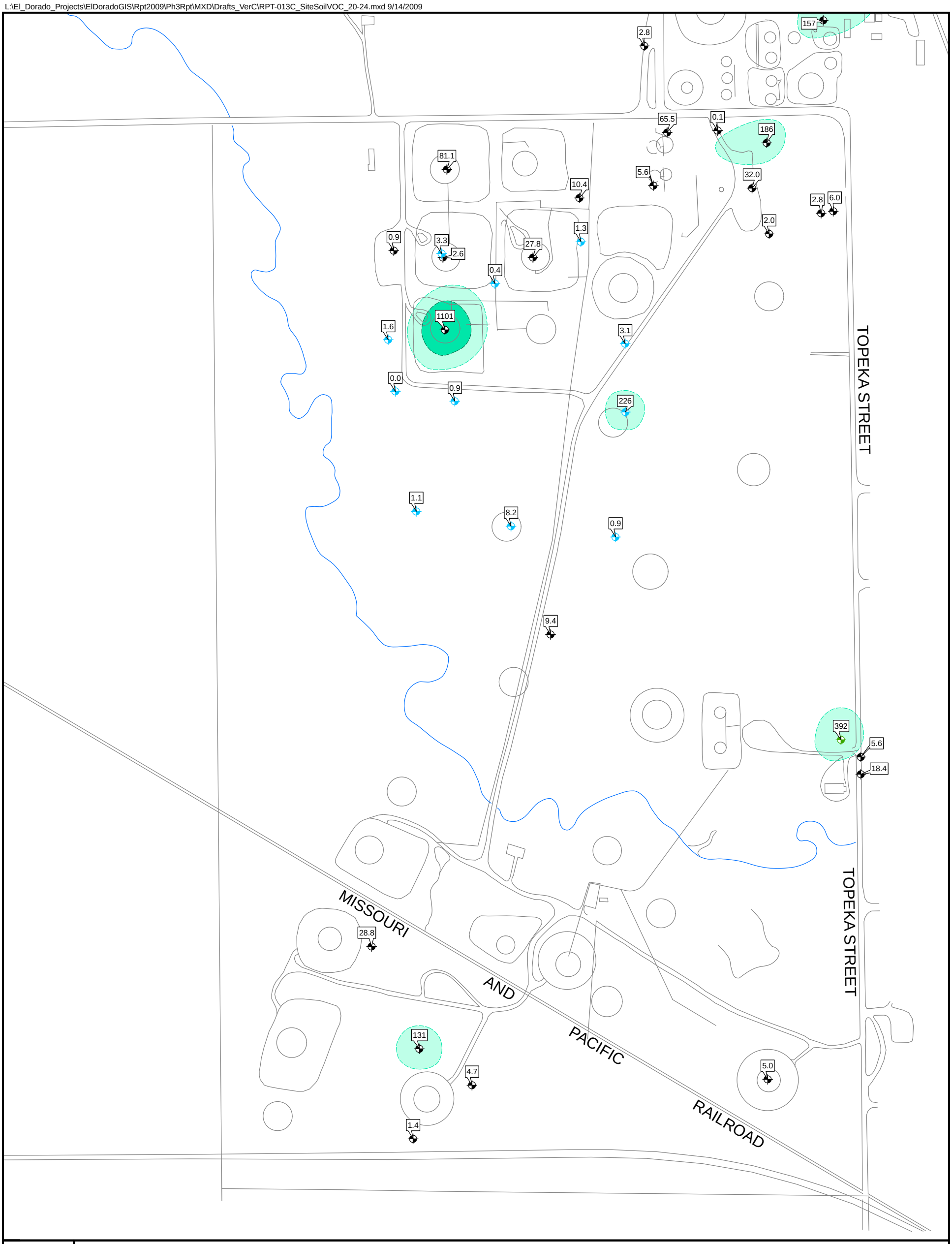

TITLE

SOIL HEADSPACE GAS DATA, 20-24' SAMPLING INTERVAL SOUTHERN AREA

FIGURE

F-12

LEGEND:

- SOIL BORING
- POND SOIL BORING
- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 20-24 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

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PROJECT NO.	1914351.90010408	
FILE NAME	RPT-013C_SiteSoilVOC_20-24.mxd	

elpaso

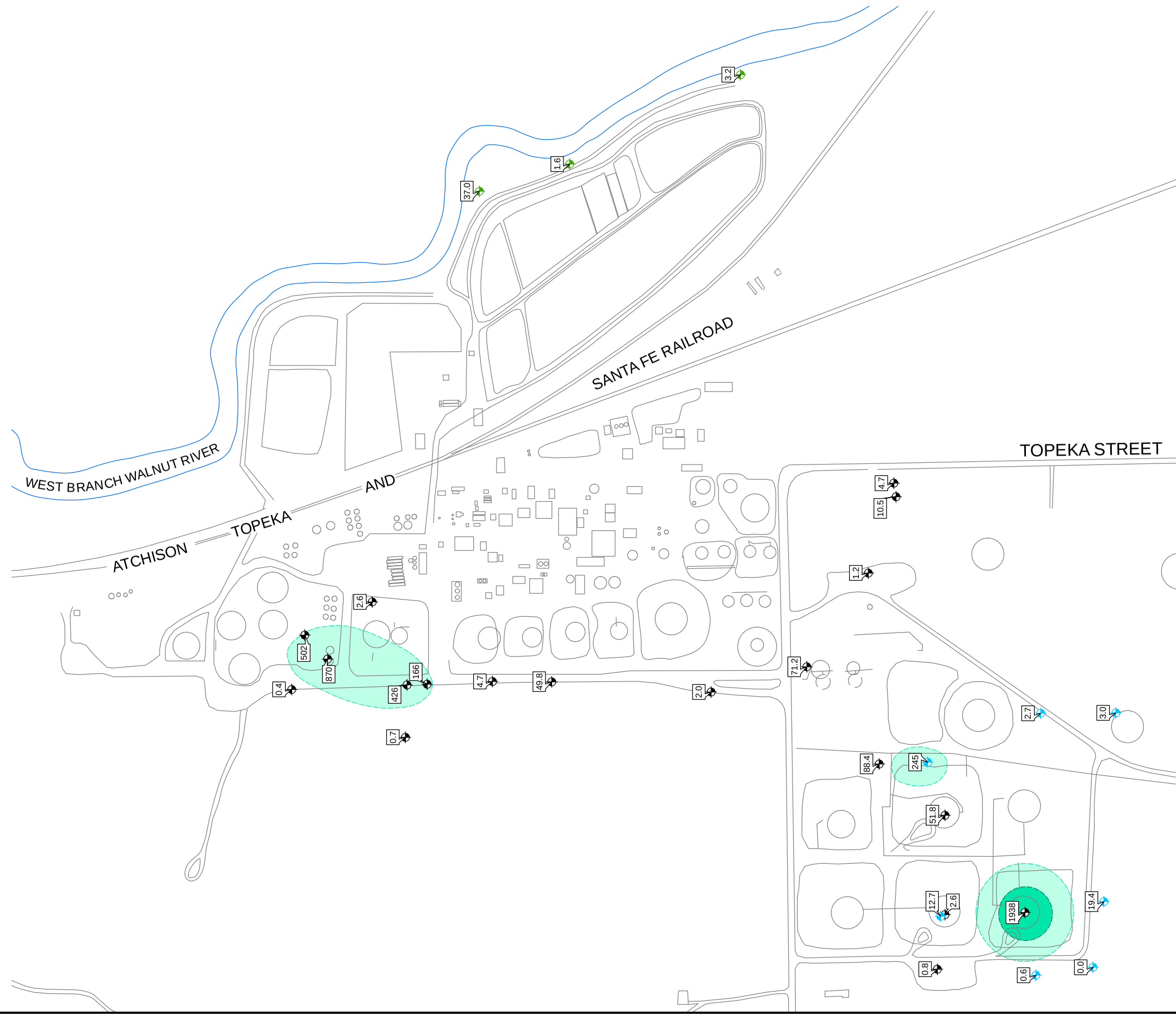
PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 20-24' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-12



LEGEND:

- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 24-28 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

MWH

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 24-28' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-13

elpaso

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-014C_SiteSoilVOC_24-28.mxd	

TITLE
SOIL HEADSPACE GAS DATA, 24-28' SAMPLING INTERVAL NORTHERN AREA
FIGURE
F-13

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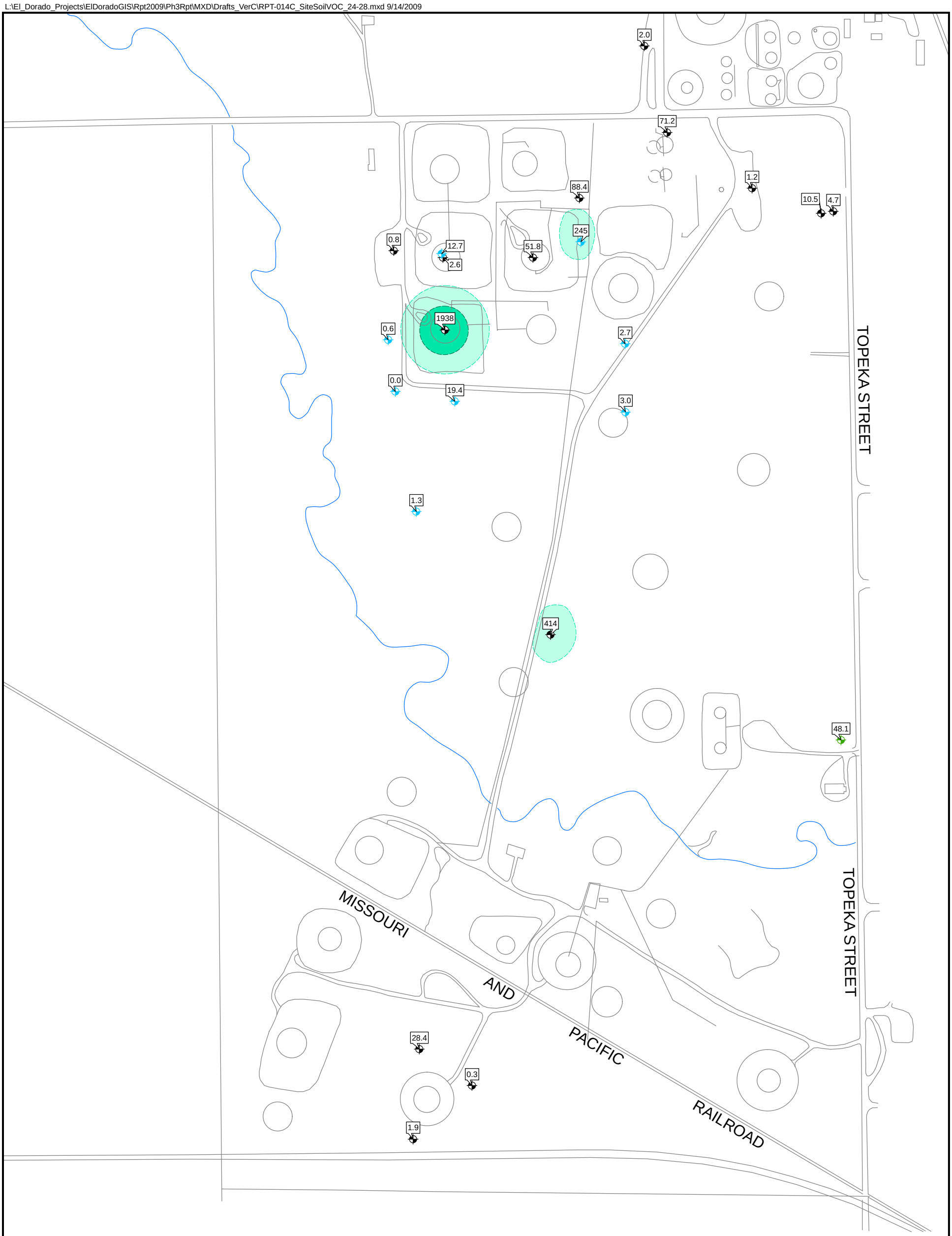

TITLE

SOIL HEADSPACE GAS DATA, 24-28' SAMPLING INTERVAL SOUTHERN AREA

FIGURE

F-14

LEGEND:

- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 24-28 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
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PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-014C_SiteSoilVOC_24-28.mxd	

elpaso

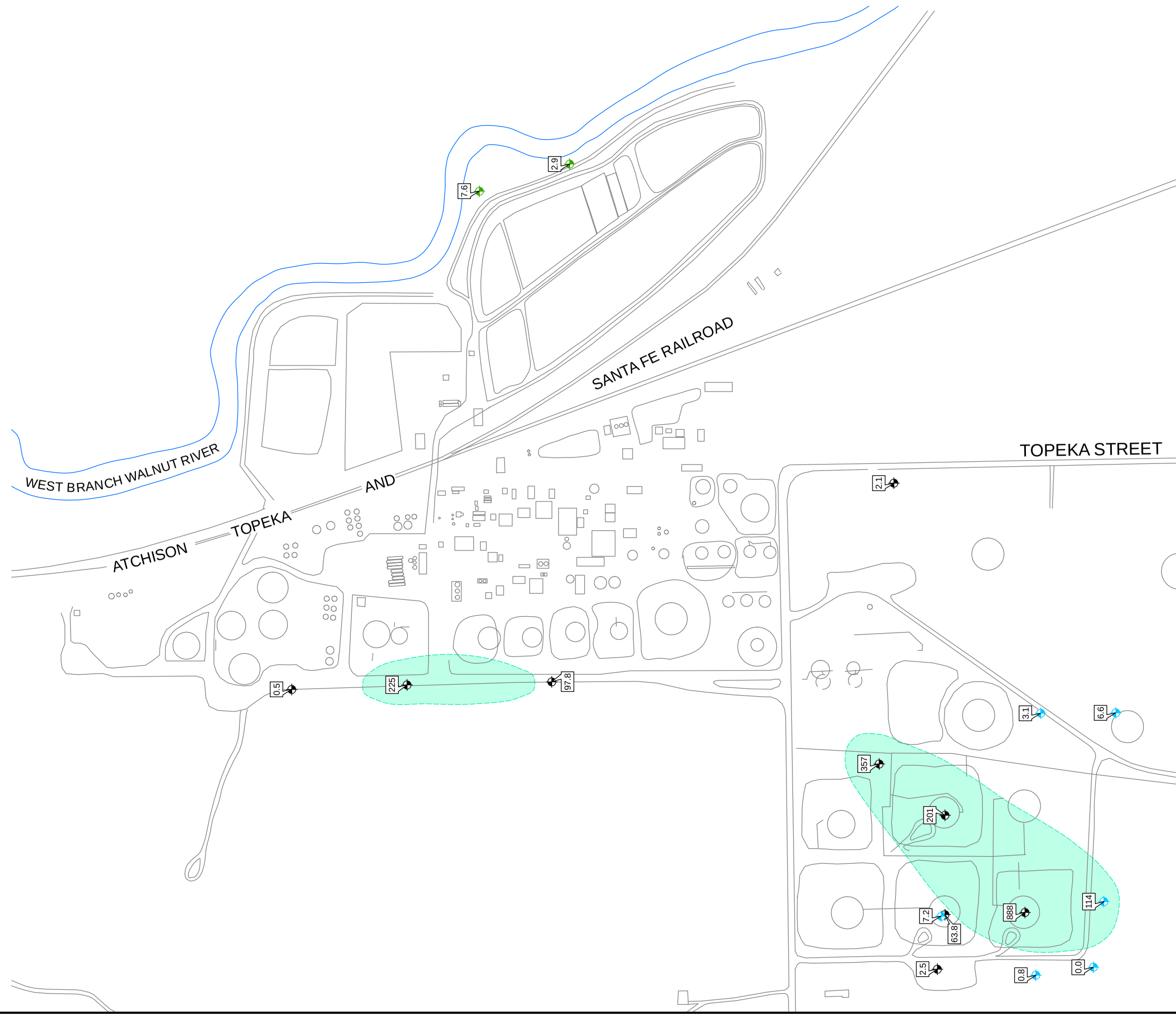
PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 24-28' SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-14



LEGEND:

- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N W E S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 28-32 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

DRAWING REFERENCE(S):
1. LINE DRAWING SITE MAP BASED ON AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

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APPROVED BY	W. Pickens	09/09
PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-015C_SiteSoilVOC_28-32.mxd	

elpaso

MWH

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: SOIL HEADSPACE GAS DATA, 28-32 SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-15

TITLE: SOIL HEADSPACE GAS DATA, 28-32' SAMPLING INTERVAL NORTHERN AREA

FIGURE: F-15

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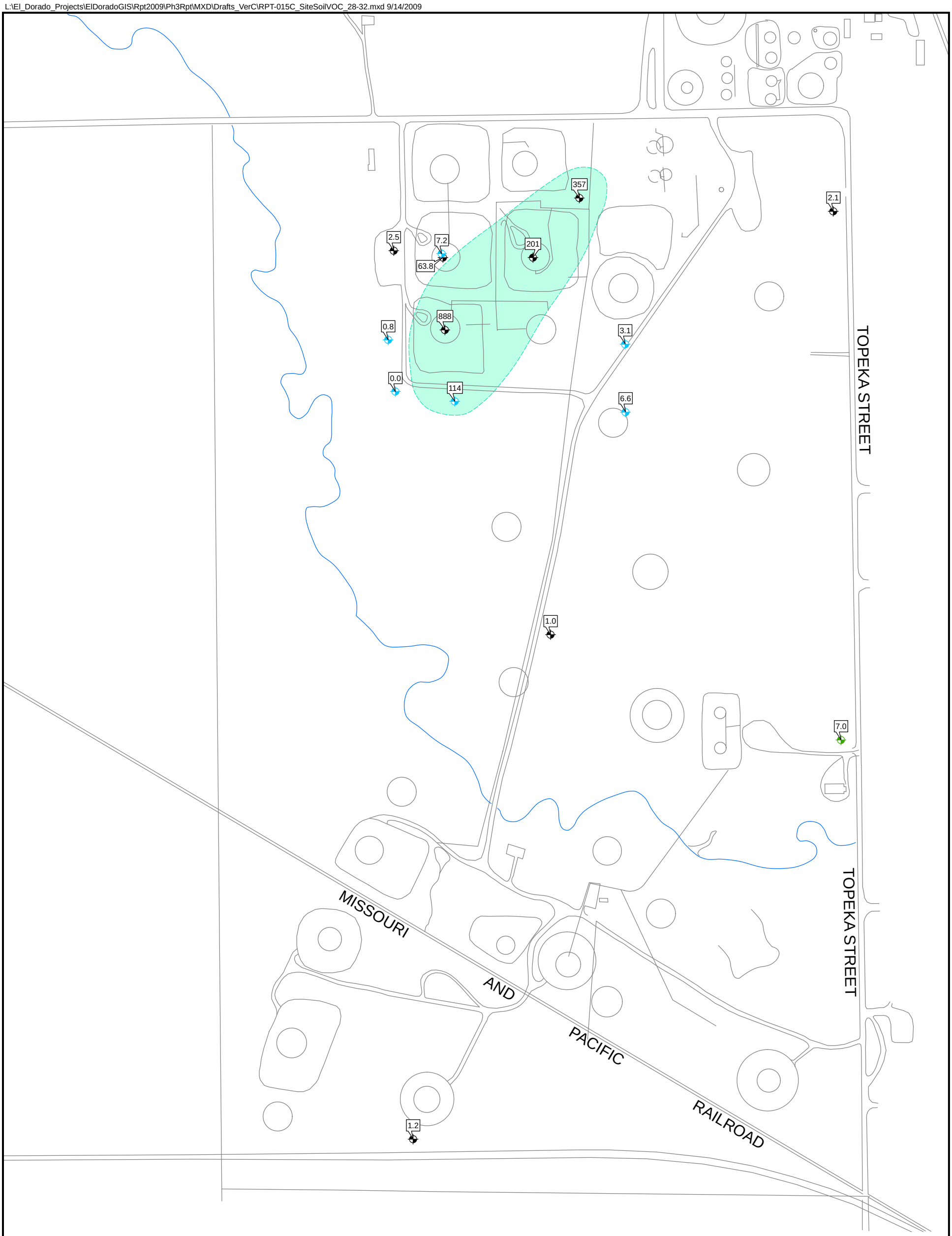

LEGEND:

- SHALLOW MONITORING WELL (ALLUVIUM AND WEATHERED BEDROCK)
- DEEP WEATHERED BEDROCK MONITORING WELL (DOYLE SHALE OR SHALLOW FORT RILEY FORMATION)
- DEEP FORT RILEY MONITORING WELL

SOIL HEADSPACE GAS CONCENTRATIONS

- MAXIMUM PID RESULT <100 PPMV
- MAXIMUM PID RESULT 100 - 1000 PPMV
- MAXIMUM PID RESULT >1000 PPMV

N
W E
S

SCALE

0 400 800

SCALE IN FEET

NOTES:
WELLS AND SOIL BORINGS LABELED WITH MAXIMUM HEADSPACE PID RESULTS (PPMV) OBSERVED AT 28-32 FEET BELOW GROUND SURFACE.
PID = PHOTOIONIZATION DETECTOR

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PROJECT MANAGER	D. Mick	09/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-015C_SiteSoilVOC_28-32.mxd	

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PROJECT LOCATION: EL DORADO, KANSAS
PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE: SOIL HEADSPACE GAS DATA, 28-32 SAMPLING INTERVAL SOUTHERN AREA

MWH

FIGURE: F-16

TITLE: SOIL HEADSPACE GAS DATA, 28-32' SAMPLING INTERVAL SOUTHERN AREA

FIGURE: F-16

Appendix G

Pre-Investigation Data

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS
(Page 1 of 45)

		Location Identification	**EDR-A1**	**EDR-A1**	**EDR-A2**	**EDR-A3**
		Field Sample Identification	**A1-1.5-2**	**A1-3.5-4**	**A2-1.25-1.75**	**A3-1-1.25**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/30/2006**	**5/30/2006**
		Depth (feet)	**1.5 - 2**	**3.5 - 4**	**1.25 - 1.75**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	<3.2	<3.1	<3	<3.2
PHC as gasoline (µg/kg)	450000	150000	<65000 D	<63000 D	<61000 D	<65000 D
Metals (mg/kg)						
Arsenic	38	N/A	**72**	**5.6**	**6.8**	**7**
Barium	140000	N/A	**2200**	**290**	**250**	**190**
Cadmium	1000	N/A	<13	<1.2	<1.3	<1.3
Chromium, Total	4000	N/A	**290**	**28**	**45**	**26**
Lead	1000	N/A	**170**	**15**	**57**	**17**
Mercury	20	N/A	**0.018**	**0.022**	**0.037**	**0.16**
Selenium	10000	N/A	<27	<2.4	<2.6	<2.6
Silver	10000	N/A	<13	<1.2	<1.3	<1.3
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	--	--	--
1,1,1-Trichloroethane	1800000	5500	--	--	--	--
1,1,2,2-Tetrachloroethane	12000	30	--	--	--	--
1,1,2-Trichloroethane	20000	70	--	--	--	--
1,1-Dichloroethane	2100000	13000	--	--	--	--
1,1-Dichloroethene	1400	800	--	--	--	--
1,1-Dichloropropene	N/A	N/A	--	--	--	--
1,2,3-Trichlorobenzene	N/A	N/A	--	--	--	--
1,2,3-Trichloropropane	280	0.7	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2,4-Trimethylbenzene	9700	2900	--	--	--	--
1,2-Dibromo-3-chloropropane	N/A	N/A	--	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Dichloroethane	7300	40	--	--	--	--
1,2-Dichloropropane	9300	60	--	--	--	--
1,3,5-Trimethylbenzene	69400	830	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,3-Dichloropropane	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
2,2-Dichloropropane	N/A	N/A	--	--	--	--
2-Butanone (MEK)	21000000	12000	--	--	--	--
2-Chlorotoluene	N/A	N/A	--	--	--	--
2-Hexanone	3600000	1400	--	--	--	--
4-Chlorotoluene	N/A	N/A	--	--	--	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	--	--	--
Acetone	6200000	3800	--	--	--	--
Benzene	17000	80	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-A1**	**EDR-A1**	**EDR-A2**	**EDR-A3**
		Field Sample Identification	**A1-1.5-2**	**A1-3.5-4**	**A2-1.25-1.75**	**A3-1-1.25**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/30/2006**	**5/30/2006**
		Depth (feet)	**1.5 - 2**	**3.5 - 4**	**1.25 - 1.75**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	--	--	--
Bromochloromethane	N/A	N/A	--	--	--	--
Bromodichloromethane	23000	1210	--	--	--	--
Bromoform	2400000	1720	--	--	--	--
Bromomethane	15000	90	--	--	--	--
Carbon disulfide	950000	450	--	--	--	--
Carbon tetrachloride	7000	200	--	--	--	--
Chlorobenzene	240000	4800	--	--	--	--
Chloroethane	N/A	N/A	--	--	--	--
Chloroform	6000	960	--	--	--	--
Chloromethane	140000	220	--	--	--	--
cis-1,2-Dichloroethylene	180000	800	--	--	--	--
cis-1,3-Dichloropropene	2500[b]	30[b]	--	--	--	--
Dibromochloromethane	230000	1330	--	--	--	--
Dibromomethane	N/A	N/A	--	--	--	--
Dichlorodifluoromethane	290000	23000	--	--	--	--
Ethylbenzene	650000	55000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Iodomethane (Methyl iodide)	N/A	N/A	--	--	--	--
Isopropyl ether	N/A	N/A	--	--	--	--
Isopropylbenzene (Cumene)	N/A	N/A	--	--	--	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	--	--	--
Methylene chloride	230000	30	--	--	--	--
n-Butylbenzene	395000	12000	--	--	--	--
n-Propylbenzene	400000	44000	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
o-Xylene	700000[b]	700000[b]	--	--	--	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	--	--	--
sec-Butylbenzene	380000	9000	--	--	--	--
Styrene	2400000	16000	--	--	--	--
t-Butylbenzene	N/A	N/A	--	--	--	--
tert-Butyl methyl ether	15000000	90	--	--	--	--
Tetrachloroethylene (PCE)	140000	180	--	--	--	--
Toluene	1000000	40000	--	--	--	--
trans-1,2-Dichloroethene	290000	1500	--	--	--	--
trans-1,3-Dichloropropene	2500[b]	300[b]	--	--	--	--
Trichloroethylene (TCE)	98000	200	--	--	--	--
Trichlorofluoromethane	N/A	N/A	--	--	--	--
Vinyl acetate	N/A	N/A	--	--	--	--
Vinyl chloride	540	20	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-A1**	**EDR-A1**	**EDR-A2**	**EDR-A3**
		Field Sample Identification	**A1-1.5-2**	**A1-3.5-4**	**A2-1.25-1.75**	**A3-1-1.25**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/30/2006**	**5/30/2006**
		Depth (feet)	**1.5 - 2**	**3.5 - 4**	**1.25 - 1.75**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Diphenylhydrazine	330	N/A	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
1-Chloronaphthalene	N/A	N/A	--	--	--	--
1-Methylnaphthalene	N/A	N/A	--	--	--	--
1-Naphthylamine	N/A	N/A	--	--	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	--	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	--	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	--	--	--
2,4,6-Trichlorophenol	1700000	150000	--	--	--	--
2,4-Dichlorophenol	2000000	54000	--	--	--	--
2,4-Dimethyl phenol	14000000	81000	--	--	--	--
2,4-Dinitrophenol	1200000	2100	--	--	--	--
2,4-Dinitrotoluene	28000	90	--	--	--	--
2,6-Dichlorophenol	N/A	N/A	--	--	--	--
2,6-Dinitrotoluene	28000	70	--	--	--	--
2-Chloronaphthalene	N/A	N/A	--	--	--	--
2-Chlorophenol	N/A	N/A	--	--	--	--
2-Methylnaphthalene	N/A	N/A	--	--	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	--	--	--
2-Nitroaniline	N/A	N/A	--	--	--	--
2-Nitrophenol	N/A	N/A	--	--	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	--	--	--
3-Methylcholanthrene	N/A	N/A	--	--	--	--
3-Nitroaniline	N/A	N/A	--	--	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	--	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	--	--	--
4-Chloroaniline	N/A	N/A	--	--	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Nitroaniline	N/A	N/A	--	--	--	--
4-Nitrophenol	N/A	N/A	--	--	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	--	--	--
Acenaphthene	300000	300000	--	--	--	--
Acenaphthylene	N/A	N/A	--	--	--	--
Acetophenone	1600	0.6	--	--	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-A1	EDR-A1	EDR-A2	EDR-A3
		Field Sample Identification	A1-1.5-2	A1-3.5-4	A2-1.25-1.75	A3-1-1.25
		Date Collected	5/30/2006	5/30/2006	5/30/2006	5/30/2006
		Depth (feet)	1.5 - 2	3.5 - 4	1.25 - 1.75	1 - 1.25
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	--	--	--
Benzidine	80	0.2	--	--	--	--
Benzo(a)anthracene	26000	35000	--	--	--	--
Benzo(a)pyrene	2600	16000	--	--	--	--
Benzo(b)fluoranthene	19000	19000	--	--	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	--	--	--
Benzo(k)fluoranthene	10000	10000	--	--	--	--
Benzoic acid	N/A	N/A	--	--	--	--
Benzyl alcohol	N/A	N/A	--	--	--	--
Benzyl butyl phthalate	1500000	1500000	--	--	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	--	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	--	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	--	--	--
Carbazole	250000	54000	--	--	--	--
Chrysene	6400	6400	--	--	--	--
Cresols, m & p	3400000	6500	--	--	--	--
Di-n-butyl phthalate	N/A	N/A	--	--	--	--
Di-n-octylphthalate	14000000	17000000	--	--	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	--	--	--
Dibenz(a,j)acridine	N/A	N/A	--	--	--	--
Dibenzofuran	1351000	86500	--	--	--	--
Diethyl Phthalate	3200000	3200000	--	--	--	--
Dimethyl phthalate	N/A	N/A	--	--	--	--
Dimethylphenylethylamine	N/A	N/A	--	--	--	--
Ethyl methanesulfonate	N/A	N/A	--	--	--	--
Fluoranthene	220000	220000	--	--	--	--
Fluorene	270000	270000	--	--	--	--
Hexachlorobenzene	12000	11000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	--	--	--
Hexachloroethane	680000	26000	--	--	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	--	--	--
Isophorone	N/A	N/A	--	--	--	--
Methyl methanesulfonate	N/A	N/A	--	--	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	--	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	--	--	--
n-Nitrosodimethylamine	N/A	N/A	--	--	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	--	--	--
n-Nitrosopiperidine	N/A	N/A	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
Nitrobenzene	110000	90	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-A1**	**EDR-A1**	**EDR-A2**	**EDR-A3**
		Field Sample Identification	**A1-1.5-2**	**A1-3.5-4**	**A2-1.25-1.75**	**A3-1-1.25**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/30/2006**	**5/30/2006**
		Depth (feet)	**1.5 - 2**	**3.5 - 4**	**1.25 - 1.75**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	--	--	--
Pentachloronitrobenzene	N/A	N/A	--	--	--	--
Pentachlorophenol	160000	20000	--	--	--	--
Phenacetin	N/A	N/A	--	--	--	--
Phenanthrene	N/A	N/A	--	--	--	--
Phenol	32000000	560000	--	--	--	--
Pronamide	N/A	N/A	--	--	--	--
Pyrene	140000	140000	--	--	--	--
Pyridine	150000	50	--	--	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-A4**	**EDR-A5**	**EDR-B1**	**EDR-B2**
		Field Sample Identification	**A4-1-1.5**	**A5-1.5-2**	**B1-1-1.5**	**B2-1.5-2**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1 - 1.5**	**1.5 - 2**	**1 - 1.5**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	<3.1	<3.2	**13**	<3.1
PHC as gasoline (µg/kg)	450000	150000	<62000 D	<64000 D	<62000 D	<62000 D
Metals (mg/kg)						
Arsenic	38	N/A	**6.7**	**7.3**	**8.9**	**7.5**
Barium	140000	N/A	**130**	**180**	**190**	**200**
Cadmium	1000	N/A	<1.2	<1.3	<1.3	<1.2
Chromium, Total	4000	N/A	**22**	**28**	**37**	**27**
Lead	1000	N/A	**22**	**19**	**26**	**17**
Mercury	20	N/A	**0.043**	**0.025**	**0.036**	**0.017**
Selenium	10000	N/A	<2.3	<2.7	<2.6	<2.4
Silver	10000	N/A	<1.2	<1.3	<1.3	<1.2
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	--	--	--
1,1,1-Trichloroethane	1800000	5500	--	--	--	--
1,1,2,2-Tetrachloroethane	12000	30	--	--	--	--
1,1,2-Trichloroethane	20000	70	--	--	--	--
1,1-Dichloroethane	2100000	13000	--	--	--	--
1,1-Dichloroethene	1400	800	--	--	--	--
1,1-Dichloropropene	N/A	N/A	--	--	--	--
1,2,3-Trichlorobenzene	N/A	N/A	--	--	--	--
1,2,3-Trichloropropane	280	0.7	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2,4-Trimethylbenzene	9700	2900	--	--	--	--
1,2-Dibromo-3-chloropropane	N/A	N/A	--	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Dichloroethane	7300	40	--	--	--	--
1,2-Dichloropropane	9300	60	--	--	--	--
1,3,5-Trimethylbenzene	69400	830	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,3-Dichloropropane	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
2,2-Dichloropropane	N/A	N/A	--	--	--	--
2-Butanone (MEK)	21000000	12000	--	--	--	--
2-Chlorotoluene	N/A	N/A	--	--	--	--
2-Hexanone	3600000	1400	--	--	--	--
4-Chlorotoluene	N/A	N/A	--	--	--	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	--	--	--
Acetone	6200000	3800	--	--	--	--
Benzene	17000	80	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-A4	EDR-A5	EDR-B1	EDR-B2
		Field Sample Identification	A4-1-1.5	A5-1.5-2	B1-1-1.5	B2-1.5-2
		Date Collected	5/30/2006	5/30/2006	5/31/2006	5/31/2006
		Depth (feet)	1 - 1.5	1.5 - 2	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	--	--	--
Bromochloromethane	N/A	N/A	--	--	--	--
Bromodichloromethane	23000	1210	--	--	--	--
Bromoform	2400000	1720	--	--	--	--
Bromomethane	15000	90	--	--	--	--
Carbon disulfide	950000	450	--	--	--	--
Carbon tetrachloride	7000	200	--	--	--	--
Chlorobenzene	240000	4800	--	--	--	--
Chloroethane	N/A	N/A	--	--	--	--
Chloroform	6000	960	--	--	--	--
Chloromethane	140000	220	--	--	--	--
cis-1,2-Dichloroethylene	180000	800	--	--	--	--
cis-1,3-Dichloropropene	2500[b]	30[b]	--	--	--	--
Dibromochloromethane	230000	1330	--	--	--	--
Dibromomethane	N/A	N/A	--	--	--	--
Dichlorodifluoromethane	290000	23000	--	--	--	--
Ethylbenzene	650000	55000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Iodomethane (Methyl iodide)	N/A	N/A	--	--	--	--
Isopropyl ether	N/A	N/A	--	--	--	--
Isopropylbenzene (Cumene)	N/A	N/A	--	--	--	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	--	--	--
Methylene chloride	230000	30	--	--	--	--
n-Butylbenzene	395000	12000	--	--	--	--
n-Propylbenzene	400000	44000	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
o-Xylene	700000[b]	700000[b]	--	--	--	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	--	--	--
sec-Butylbenzene	380000	9000	--	--	--	--
Styrene	2400000	16000	--	--	--	--
t-Butylbenzene	N/A	N/A	--	--	--	--
tert-Butyl methyl ether	15000000	90	--	--	--	--
Tetrachloroethylene (PCE)	140000	180	--	--	--	--
Toluene	1000000	40000	--	--	--	--
trans-1,2-Dichloroethene	290000	1500	--	--	--	--
trans-1,3-Dichloropropene	2500[b]	300[b]	--	--	--	--
Trichloroethylene (TCE)	98000	200	--	--	--	--
Trichlorofluoromethane	N/A	N/A	--	--	--	--
Vinyl acetate	N/A	N/A	--	--	--	--
Vinyl chloride	540	20	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-A4	EDR-A5	EDR-B1	EDR-B2
		Field Sample Identification	A4-1-1.5	A5-1.5-2	B1-1-1.5	B2-1.5-2
		Date Collected	5/30/2006	5/30/2006	5/31/2006	5/31/2006
		Depth (feet)	1 - 1.5	1.5 - 2	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Diphenylhydrazine	330	N/A	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
1-Chloronaphthalene	N/A	N/A	--	--	--	--
1-Methylnaphthalene	N/A	N/A	--	--	--	--
1-Naphthylamine	N/A	N/A	--	--	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	--	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	--	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	--	--	--
2,4,6-Trichlorophenol	1700000	150000	--	--	--	--
2,4-Dichlorophenol	2000000	54000	--	--	--	--
2,4-Dimethyl phenol	14000000	81000	--	--	--	--
2,4-Dinitrophenol	1200000	2100	--	--	--	--
2,4-Dinitrotoluene	28000	90	--	--	--	--
2,6-Dichlorophenol	N/A	N/A	--	--	--	--
2,6-Dinitrotoluene	28000	70	--	--	--	--
2-Chloronaphthalene	N/A	N/A	--	--	--	--
2-Chlorophenol	N/A	N/A	--	--	--	--
2-Methylnaphthalene	N/A	N/A	--	--	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	--	--	--
2-Nitroaniline	N/A	N/A	--	--	--	--
2-Nitrophenol	N/A	N/A	--	--	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	--	--	--
3-Methylcholanthrene	N/A	N/A	--	--	--	--
3-Nitroaniline	N/A	N/A	--	--	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	--	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	--	--	--
4-Chloroaniline	N/A	N/A	--	--	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Nitroaniline	N/A	N/A	--	--	--	--
4-Nitrophenol	N/A	N/A	--	--	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	--	--	--
Acenaphthene	300000	300000	--	--	--	--
Acenaphthylene	N/A	N/A	--	--	--	--
Acetophenone	1600	0.6	--	--	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-A4	EDR-A5	EDR-B1	EDR-B2
		Field Sample Identification	A4-1-1.5	A5-1.5-2	B1-1-1.5	B2-1.5-2
		Date Collected	5/30/2006	5/30/2006	5/31/2006	5/31/2006
		Depth (feet)	1 - 1.5	1.5 - 2	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	--	--	--
Benzidine	80	0.2	--	--	--	--
Benzo(a)anthracene	26000	35000	--	--	--	--
Benzo(a)pyrene	2600	16000	--	--	--	--
Benzo(b)fluoranthene	19000	19000	--	--	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	--	--	--
Benzo(k)fluoranthene	10000	10000	--	--	--	--
Benzoic acid	N/A	N/A	--	--	--	--
Benzyl alcohol	N/A	N/A	--	--	--	--
Benzyl butyl phthalate	1500000	1500000	--	--	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	--	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	--	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	--	--	--
Carbazole	250000	54000	--	--	--	--
Chrysene	6400	6400	--	--	--	--
Cresols, m & p	3400000	6500	--	--	--	--
Di-n-butyl phthalate	N/A	N/A	--	--	--	--
Di-n-octylphthalate	14000000	17000000	--	--	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	--	--	--
Dibenz(a,j)acridine	N/A	N/A	--	--	--	--
Dibenzofuran	1351000	86500	--	--	--	--
Diethyl Phthalate	3200000	3200000	--	--	--	--
Dimethyl phthalate	N/A	N/A	--	--	--	--
Dimethylphenylethylamine	N/A	N/A	--	--	--	--
Ethyl methanesulfonate	N/A	N/A	--	--	--	--
Fluoranthene	220000	220000	--	--	--	--
Fluorene	270000	270000	--	--	--	--
Hexachlorobenzene	12000	11000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	--	--	--
Hexachloroethane	680000	26000	--	--	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	--	--	--
Isophorone	N/A	N/A	--	--	--	--
Methyl methanesulfonate	N/A	N/A	--	--	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	--	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	--	--	--
n-Nitrosodimethylamine	N/A	N/A	--	--	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	--	--	--
n-Nitrosopiperidine	N/A	N/A	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
Nitrobenzene	110000	90	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-A4**	**EDR-A5**	**EDR-B1**	**EDR-B2**
		Field Sample Identification	**A4-1-1.5**	**A5-1.5-2**	**B1-1-1.5**	**B2-1.5-2**
		Date Collected	**5/30/2006**	**5/30/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1 - 1.5**	**1.5 - 2**	**1 - 1.5**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	--	--	--
Pentachloronitrobenzene	N/A	N/A	--	--	--	--
Pentachlorophenol	160000	20000	--	--	--	--
Phenacetin	N/A	N/A	--	--	--	--
Phenanthrene	N/A	N/A	--	--	--	--
Phenol	32000000	560000	--	--	--	--
Pronamide	N/A	N/A	--	--	--	--
Pyrene	140000	140000	--	--	--	--
Pyridine	150000	50	--	--	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-B2**	**EDR-B3**	**EDR-B3 Dup**	**EDR-B3**
		Field Sample Identification	**B2-3-3.5**	**B3-1-1.25**	**B3-51**	**B3-1-1.25**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3 - 3.5**	**1 - 1.25**	**1 - 1.25**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	<3	**4.3**	<3.1	--
PHC as gasoline (µg/kg)	450000	150000	<61000 D	<62000 D	<61000 D	--
Metals (mg/kg)						
Arsenic	38	N/A	**6.3**	**7.9**	**7.6**	--
Barium	140000	N/A	**290**	**220**	**210**	--
Cadmium	1000	N/A	<1.2	<1.1	<1.2	--
Chromium, Total	4000	N/A	**25**	**34**	**28**	--
Lead	1000	N/A	**17**	**30**	**23**	--
Mercury	20	N/A	**0.026**	**0.036**	**0.067**	--
Selenium	10000	N/A	<2.4	<2.3	<2.5	--
Silver	10000	N/A	<1.2	<1.1	<1.2	--
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	--	--	<5.5
1,1,1-Trichloroethane	1800000	5500	--	--	--	<5.5
1,1,2,2-Tetrachloroethane	12000	30	--	--	--	<5.5
1,1,2-Trichloroethane	20000	70	--	--	--	<5.5
1,1-Dichloroethane	2100000	13000	--	--	--	<5.5
1,1-Dichloroethene	1400	800	--	--	--	<5.5
1,1-Dichloropropene	N/A	N/A	--	--	--	<5.5
1,2,3-Trichlorobenzene	N/A	N/A	--	--	--	<5.5
1,2,3-Trichloropropane	280	0.7	--	--	--	<5.5
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	<5.5
1,2,4-Trimethylbenzene	9700	2900	--	--	--	<5.5
1,2-Dibromo-3-chloropropane	N/A	N/A	--	--	--	<5.5
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	--	--	<5.5
1,2-Dichlorobenzene	990000	77000	--	--	--	<5.5
1,2-Dichloroethane	7300	40	--	--	--	<5.5
1,2-Dichloropropane	9300	60	--	--	--	<5.5
1,3,5-Trimethylbenzene	69400	830	--	--	--	<5.5
1,3-Dichlorobenzene	N/A	N/A	--	--	--	<5.5
1,3-Dichloropropane	N/A	N/A	--	--	--	<5.5
1,4-Dichlorobenzene	92000	9500	--	--	--	<5.5
2,2-Dichloropropane	N/A	N/A	--	--	--	<5.5
2-Butanone (MEK)	21000000	12000	--	--	--	<28
2-Chlorotoluene	N/A	N/A	--	--	--	<5.5
2-Hexanone	3600000	1400	--	--	--	<28
4-Chlorotoluene	N/A	N/A	--	--	--	<5.5
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	--	--	<28
Acetone	6200000	3800	--	--	--	**78 J**
Benzene	17000	80	--	--	--	<5.5

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-B2	EDR-B3	EDR-B3 Dup	EDR-B3
		Field Sample Identification	B2-3-3.5	B3-1-1.25	B3-51	B3-1-1.25
		Date Collected	5/31/2006	5/31/2006	5/31/2006	6/2/2006
		Depth (feet)	3 - 3.5	1 - 1.25	1 - 1.25	1 - 1.25
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	--	--	<5.5
Bromochloromethane	N/A	N/A	--	--	--	<5.5
Bromodichloromethane	23000	1210	--	--	--	<5.5
Bromoform	2400000	1720	--	--	--	<5.5
Bromomethane	15000	90	--	--	--	<5.5
Carbon disulfide	950000	450	--	--	--	<5.5
Carbon tetrachloride	7000	200	--	--	--	<5.5
Chlorobenzene	240000	4800	--	--	--	<5.5
Chloroethane	N/A	N/A	--	--	--	<5.5
Chloroform	6000	960	--	--	--	<5.5
Chloromethane	140000	220	--	--	--	<5.5
cis-1,2-Dichloroethylene	180000	800	--	--	--	<5.5
cis-1,3-Dichloropropene	2500[b]	30[b]	--	--	--	<5.5
Dibromochloromethane	230000	1330	--	--	--	<5.5
Dibromomethane	N/A	N/A	--	--	--	<5.5
Dichlorodifluoromethane	290000	23000	--	--	--	<5.5
Ethylbenzene	650000	55000	--	--	--	<5.5
Hexachlorobutadiene	140000	100000	--	--	--	<5.5
Iodomethane (Methyl iodide)	N/A	N/A	--	--	--	<5.5
Isopropyl ether	N/A	N/A	--	--	--	<5.5
Isopropylbenzene (Cumene)	N/A	N/A	--	--	--	<5.5
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	--	--	<11
Methylene chloride	230000	30	--	--	--	<5.5
n-Butylbenzene	395000	12000	--	--	--	<5.5
n-Propylbenzene	400000	44000	--	--	--	<5.5
Naphthalene	320000	140000	--	--	--	<5.5
o-Xylene	700000[b]	700000[b]	--	--	--	<5.5
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	--	--	<5.5
sec-Butylbenzene	380000	9000	--	--	--	<5.5
Styrene	2400000	16000	--	--	--	<5.5
t-Butylbenzene	N/A	N/A	--	--	--	<5.5
tert-Butyl methyl ether	15000000	90	--	--	--	<5.5
Tetrachloroethylene (PCE)	140000	180	--	--	--	<5.5
Toluene	1000000	40000	--	--	--	<5.5
trans-1,2-Dichloroethene	290000	1500	--	--	--	<5.5
trans-1,3-Dichloropropene	2500[b]	300[b]	--	--	--	<5.5
Trichloroethylene (TCE)	98000	200	--	--	--	<5.5
Trichlorofluoromethane	N/A	N/A	--	--	--	<5.5
Vinyl acetate	N/A	N/A	--	--	--	<28
Vinyl chloride	540	20	--	--	--	<5.5

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-B2**	**EDR-B3**	**EDR-B3 Dup**	**EDR-B3**
		Field Sample Identification	**B2-3-3.5**	**B3-1-1.25**	**B3-51**	**B3-1-1.25**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3 - 3.5**	**1 - 1.25**	**1 - 1.25**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	<410	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	<410	--	--
1,2-Dichlorobenzene	990000	77000	--	<410	--	--
1,2-Diphenylhydrazine	330	N/A	--	*<410*	--	--
1,3-Dichlorobenzene	N/A	N/A	--	<410	--	--
1,4-Dichlorobenzene	92000	9500	--	<410	--	--
1-Chloronaphthalene	N/A	N/A	--	<410	--	--
1-Methylnaphthalene	N/A	N/A	--	<410	--	--
1-Naphthylamine	N/A	N/A	--	<410	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	<410	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	<410	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	<2100	--	--
2,4,6-Trichlorophenol	1700000	150000	--	<410	--	--
2,4-Dichlorophenol	2000000	54000	--	<410	--	--
2,4-Dimethyl phenol	14000000	81000	--	<410	--	--
2,4-Dinitrophenol	1200000	2100	--	*<2100*	--	--
2,4-Dinitrotoluene	28000	90	--	*<410*	--	--
2,6-Dichlorophenol	N/A	N/A	--	<410	--	--
2,6-Dinitrotoluene	28000	70	--	*<410*	--	--
2-Chloronaphthalene	N/A	N/A	--	<410	--	--
2-Chlorophenol	N/A	N/A	--	<410	--	--
2-Methylnaphthalene	N/A	N/A	--	<410	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	<410	--	--
2-Nitroaniline	N/A	N/A	--	<410	--	--
2-Nitrophenol	N/A	N/A	--	<410	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	<2100	--	--
3-Methylcholanthrene	N/A	N/A	--	<410	--	--
3-Nitroaniline	N/A	N/A	--	<410	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	<2100 UJ	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	<410	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	<410	--	--
4-Chloroaniline	N/A	N/A	--	<410	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	<410	--	--
4-Nitroaniline	N/A	N/A	--	<410	--	--
4-Nitrophenol	N/A	N/A	--	<2100	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	<410	--	--
Acenaphthene	300000	300000	--	<410	--	--
Acenaphthylene	N/A	N/A	--	<410	--	--
Acetophenone	1600	0.6	--	*<410*	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	<410	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-B2	EDR-B3	EDR-B3 Dup	EDR-B3
		Field Sample Identification	B2-3-3.5	B3-1-1.25	B3-51	B3-1-1.25
		Date Collected	5/31/2006	5/31/2006	5/31/2006	6/2/2006
		Depth (feet)	3 - 3.5	1 - 1.25	1 - 1.25	1 - 1.25
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	<410	--	--
Benzidine	80	0.2	--	*<2100*	--	--
Benzo(a)anthracene	26000	35000	--	<410	--	--
Benzo(a)pyrene	2600	16000	--	<410	--	--
Benzo(b)fluoranthene	19000	19000	--	<410	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	<410	--	--
Benzo(k)fluoranthene	10000	10000	--	<410	--	--
Benzoic acid	N/A	N/A	--	<2100	--	--
Benzyl alcohol	N/A	N/A	--	<410	--	--
Benzyl butyl phthalate	1500000	1500000	--	<410	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	<410	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	<410	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	<410	--	--
Carbazole	250000	54000	--	<410	--	--
Chrysene	6400	6400	--	<410	--	--
Cresols, m & p	3400000	6500	--	<810	--	--
Di-n-butyl phthalate	N/A	N/A	--	<410	--	--
Di-n-octylphthalate	14000000	17000000	--	<410	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	<410	--	--
Dibenz(a,j)acridine	N/A	N/A	--	<410	--	--
Dibenzofuran	1351000	86500	--	<410	--	--
Diethyl Phthalate	3200000	3200000	--	<410	--	--
Dimethyl phthalate	N/A	N/A	--	<410	--	--
Dimethylphenylethylamine	N/A	N/A	--	<410	--	--
Ethyl methanesulfonate	N/A	N/A	--	<410	--	--
Fluoranthene	220000	220000	--	<410	--	--
Fluorene	270000	270000	--	<410	--	--
Hexachlorobenzene	12000	11000	--	<410	--	--
Hexachlorobutadiene	140000	100000	--	<410	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	<410	--	--
Hexachloroethane	680000	26000	--	<410	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	<410	--	--
Isophorone	N/A	N/A	--	<410	--	--
Methyl methanesulfonate	N/A	N/A	--	<410	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	<410	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	<410	--	--
n-Nitrosodimethylamine	N/A	N/A	--	<410	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	<410	--	--
n-Nitrosopiperidine	N/A	N/A	--	<410	--	--
Naphthalene	320000	140000	--	<410	--	--
Nitrobenzene	110000	90	--	*<410*	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-B2**	**EDR-B3**	**EDR-B3 Dup**	**EDR-B3**
		Field Sample Identification	**B2-3-3.5**	**B3-1-1.25**	**B3-51**	**B3-1-1.25**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3 - 3.5**	**1 - 1.25**	**1 - 1.25**	**1 - 1.25**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	<410	--	--
Pentachloronitrobenzene	N/A	N/A	--	<410	--	--
Pentachlorophenol	160000	20000	--	<2100	--	--
Phenacetin	N/A	N/A	--	<410	--	--
Phenanthrene	N/A	N/A	--	<410	--	--
Phenol	32000000	560000	--	<410	--	--
Pronamide	N/A	N/A	--	<410	--	--
Pyrene	140000	140000	--	<410	--	--
Pyridine	150000	50	--	*<410*	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-B4**	**EDR-B4 Dup**	**EDR-B5**	**EDR-C1**
		Field Sample Identification	**B4-1-1.25**	**B4-50**	**B5-1.5-2**	**C1-1-1.5**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1 - 1.25**	**1 - 1.25**	**1.5 - 2**	**1 - 1.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	**5.1**	**4.4**	**9.8**	<3.1
PHC as gasoline (µg/kg)	450000	150000	<64000 D	<65000 D	<64000 D	<63000 D
Metals (mg/kg)						
Arsenic	38	N/A	**12**	**13**	**7.7**	**7.5**
Barium	140000	N/A	**160**	**170**	**150**	**230**
Cadmium	1000	N/A	<1.2	<1.3	<1.3	<1.3
Chromium, Total	4000	N/A	**25**	**26**	**25**	**31**
Lead	1000	N/A	**15**	**16**	**18**	**21**
Mercury	20	N/A	**0.034**	**0.027**	**0.025**	**0.026**
Selenium	10000	N/A	<2.4	<2.6	<2.6	<2.5
Silver	10000	N/A	<1.2	<1.3	<1.3	<1.3
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	--	--	--
1,1,1-Trichloroethane	1800000	5500	--	--	--	--
1,1,2,2-Tetrachloroethane	12000	30	--	--	--	--
1,1,2-Trichloroethane	20000	70	--	--	--	--
1,1-Dichloroethane	2100000	13000	--	--	--	--
1,1-Dichloroethene	1400	800	--	--	--	--
1,1-Dichloropropene	N/A	N/A	--	--	--	--
1,2,3-Trichlorobenzene	N/A	N/A	--	--	--	--
1,2,3-Trichloropropane	280	0.7	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2,4-Trimethylbenzene	9700	2900	--	--	--	--
1,2-Dibromo-3-chloropropane	N/A	N/A	--	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Dichloroethane	7300	40	--	--	--	--
1,2-Dichloropropane	9300	60	--	--	--	--
1,3,5-Trimethylbenzene	69400	830	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,3-Dichloropropane	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
2,2-Dichloropropane	N/A	N/A	--	--	--	--
2-Butanone (MEK)	21000000	12000	--	--	--	--
2-Chlorotoluene	N/A	N/A	--	--	--	--
2-Hexanone	3600000	1400	--	--	--	--
4-Chlorotoluene	N/A	N/A	--	--	--	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	--	--	--
Acetone	6200000	3800	--	--	--	--
Benzene	17000	80	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-B4	EDR-B4 Dup	EDR-B5	EDR-C1
		Field Sample Identification	B4-1-1.25	B4-50	B5-1.5-2	C1-1-1.5
		Date Collected	5/31/2006	5/31/2006	5/31/2006	5/31/2006
		Depth (feet)	1 - 1.25	1 - 1.25	1.5 - 2	1 - 1.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	--	--	--
Bromochloromethane	N/A	N/A	--	--	--	--
Bromodichloromethane	23000	1210	--	--	--	--
Bromoform	2400000	1720	--	--	--	--
Bromomethane	15000	90	--	--	--	--
Carbon disulfide	950000	450	--	--	--	--
Carbon tetrachloride	7000	200	--	--	--	--
Chlorobenzene	240000	4800	--	--	--	--
Chloroethane	N/A	N/A	--	--	--	--
Chloroform	6000	960	--	--	--	--
Chloromethane	140000	220	--	--	--	--
cis-1,2-Dichloroethylene	180000	800	--	--	--	--
cis-1,3-Dichloropropene	2500[b]	30[b]	--	--	--	--
Dibromochloromethane	230000	1330	--	--	--	--
Dibromomethane	N/A	N/A	--	--	--	--
Dichlorodifluoromethane	290000	23000	--	--	--	--
Ethylbenzene	650000	55000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Iodomethane (Methyl iodide)	N/A	N/A	--	--	--	--
Isopropyl ether	N/A	N/A	--	--	--	--
Isopropylbenzene (Cumene)	N/A	N/A	--	--	--	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	--	--	--
Methylene chloride	230000	30	--	--	--	--
n-Butylbenzene	395000	12000	--	--	--	--
n-Propylbenzene	400000	44000	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
o-Xylene	700000[b]	700000[b]	--	--	--	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	--	--	--
sec-Butylbenzene	380000	9000	--	--	--	--
Styrene	2400000	16000	--	--	--	--
t-Butylbenzene	N/A	N/A	--	--	--	--
tert-Butyl methyl ether	15000000	90	--	--	--	--
Tetrachloroethylene (PCE)	140000	180	--	--	--	--
Toluene	1000000	40000	--	--	--	--
trans-1,2-Dichloroethene	290000	1500	--	--	--	--
trans-1,3-Dichloropropene	2500[b]	300[b]	--	--	--	--
Trichloroethylene (TCE)	98000	200	--	--	--	--
Trichlorofluoromethane	N/A	N/A	--	--	--	--
Vinyl acetate	N/A	N/A	--	--	--	--
Vinyl chloride	540	20	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

	Location Identification		EDR-B4	EDR-B4 Dup	EDR-B5	EDR-C1
	Field Sample Identification		B4-1-1.25	B4-50	B5-1.5-2	C1-1-1.5
	Date Collected		5/31/2006	5/31/2006	5/31/2006	5/31/2006
	Depth (feet)		1 - 1.25	1 - 1.25	1.5 - 2	1 - 1.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Diphenylhydrazine	330	N/A	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
1-Chloronaphthalene	N/A	N/A	--	--	--	--
1-Methylnaphthalene	N/A	N/A	--	--	--	--
1-Naphthylamine	N/A	N/A	--	--	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	--	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	--	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	--	--	--
2,4,6-Trichlorophenol	1700000	150000	--	--	--	--
2,4-Dichlorophenol	2000000	54000	--	--	--	--
2,4-Dimethyl phenol	14000000	81000	--	--	--	--
2,4-Dinitrophenol	1200000	2100	--	--	--	--
2,4-Dinitrotoluene	28000	90	--	--	--	--
2,6-Dichlorophenol	N/A	N/A	--	--	--	--
2,6-Dinitrotoluene	28000	70	--	--	--	--
2-Chloronaphthalene	N/A	N/A	--	--	--	--
2-Chlorophenol	N/A	N/A	--	--	--	--
2-Methylnaphthalene	N/A	N/A	--	--	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	--	--	--
2-Nitroaniline	N/A	N/A	--	--	--	--
2-Nitrophenol	N/A	N/A	--	--	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	--	--	--
3-Methylcholanthrene	N/A	N/A	--	--	--	--
3-Nitroaniline	N/A	N/A	--	--	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	--	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	--	--	--
4-Chloroaniline	N/A	N/A	--	--	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Nitroaniline	N/A	N/A	--	--	--	--
4-Nitrophenol	N/A	N/A	--	--	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	--	--	--
Acenaphthene	300000	300000	--	--	--	--
Acenaphthylene	N/A	N/A	--	--	--	--
Acetophenone	1600	0.6	--	--	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-B4	EDR-B4 Dup	EDR-B5	EDR-C1
		Field Sample Identification	B4-1-1.25	B4-50	B5-1.5-2	C1-1-1.5
		Date Collected	5/31/2006	5/31/2006	5/31/2006	5/31/2006
		Depth (feet)	1 - 1.25	1 - 1.25	1.5 - 2	1 - 1.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	--	--	--
Benzidine	80	0.2	--	--	--	--
Benzo(a)anthracene	26000	35000	--	--	--	--
Benzo(a)pyrene	2600	16000	--	--	--	--
Benzo(b)fluoranthene	19000	19000	--	--	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	--	--	--
Benzo(k)fluoranthene	10000	10000	--	--	--	--
Benzoic acid	N/A	N/A	--	--	--	--
Benzyl alcohol	N/A	N/A	--	--	--	--
Benzyl butyl phthalate	1500000	1500000	--	--	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	--	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	--	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	--	--	--
Carbazole	250000	54000	--	--	--	--
Chrysene	6400	6400	--	--	--	--
Cresols, m & p	3400000	6500	--	--	--	--
Di-n-butyl phthalate	N/A	N/A	--	--	--	--
Di-n-octylphthalate	14000000	17000000	--	--	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	--	--	--
Dibenz(a,j)acridine	N/A	N/A	--	--	--	--
Dibenzofuran	1351000	86500	--	--	--	--
Diethyl Phthalate	3200000	3200000	--	--	--	--
Dimethyl phthalate	N/A	N/A	--	--	--	--
Dimethylphenylethylamine	N/A	N/A	--	--	--	--
Ethyl methanesulfonate	N/A	N/A	--	--	--	--
Fluoranthene	220000	220000	--	--	--	--
Fluorene	270000	270000	--	--	--	--
Hexachlorobenzene	12000	11000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	--	--	--
Hexachloroethane	680000	26000	--	--	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	--	--	--
Isophorone	N/A	N/A	--	--	--	--
Methyl methanesulfonate	N/A	N/A	--	--	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	--	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	--	--	--
n-Nitrosodimethylamine	N/A	N/A	--	--	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	--	--	--
n-Nitrosopiperidine	N/A	N/A	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
Nitrobenzene	110000	90	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-B4**	**EDR-B4 Dup**	**EDR-B5**	**EDR-C1**
		Field Sample Identification	**B4-1-1.25**	**B4-50**	**B5-1.5-2**	**C1-1-1.5**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1 - 1.25**	**1 - 1.25**	**1.5 - 2**	**1 - 1.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	--	--	--
Pentachloronitrobenzene	N/A	N/A	--	--	--	--
Pentachlorophenol	160000	20000	--	--	--	--
Phenacetin	N/A	N/A	--	--	--	--
Phenanthrene	N/A	N/A	--	--	--	--
Phenol	32000000	560000	--	--	--	--
Pronamide	N/A	N/A	--	--	--	--
Pyrene	140000	140000	--	--	--	--
Pyridine	150000	50	--	--	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C2**	**EDR-C2**	**EDR-C3**	**EDR-C3**
		Field Sample Identification	**C2-1.25-1.75**	**C2-1.25-1.75**	**C3-1-1.5**	**C3-3-3.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1.25 - 1.75**	**1.25 - 1.75**	**1 - 1.5**	**3 - 3.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	**9.6**	--	<2.9	<2.9
PHC as gasoline (µg/kg)	450000	150000	<62000 D	--	<5800 D	<59000 D
Metals (mg/kg)						
Arsenic	38	N/A	**7**	--	**6.2**	**5.7**
Barium	140000	N/A	**230**	--	**270 J**	**210**
Cadmium	1000	N/A	<0.97	--	<1.1	<0.95
Chromium, Total	4000	N/A	**42**	--	**24 J**	**26**
Lead	1000	N/A	**36**	--	**17**	**20**
Mercury	20	N/A	**0.034**	--	**0.03**	**0.035**
Selenium	10000	N/A	<1.9	--	<2.2 J	<1.9
Silver	10000	N/A	<0.97	--	<1.1	<0.95
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	<5.7	--	--
1,1,1-Trichloroethane	1800000	5500	--	<5.7	--	--
1,1,2,2-Tetrachloroethane	12000	30	--	<5.7	--	--
1,1,2-Trichloroethane	20000	70	--	<5.7	--	--
1,1-Dichloroethane	2100000	13000	--	<5.7	--	--
1,1-Dichloroethene	1400	800	--	<5.7	--	--
1,1-Dichloropropene	N/A	N/A	--	<5.7	--	--
1,2,3-Trichlorobenzene	N/A	N/A	--	<5.7	--	--
1,2,3-Trichloropropane	280	0.7	--	<5.7	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	<5.7	--	--
1,2,4-Trimethylbenzene	9700	2900	--	<5.7	--	--
1,2-Dibromo-3-chloropropane	N/A	N/A	--	<5.7	--	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	<5.7	--	--
1,2-Dichlorobenzene	990000	77000	--	<5.7	--	--
1,2-Dichloroethane	7300	40	--	<5.7	--	--
1,2-Dichloropropane	9300	60	--	<5.7	--	--
1,3,5-Trimethylbenzene	69400	830	--	<5.7	--	--
1,3-Dichlorobenzene	N/A	N/A	--	<5.7	--	--
1,3-Dichloropropane	N/A	N/A	--	<5.7	--	--
1,4-Dichlorobenzene	92000	9500	--	<5.7	--	--
2,2-Dichloropropane	N/A	N/A	--	<5.7	--	--
2-Butanone (MEK)	21000000	12000	--	<28	--	--
2-Chlorotoluene	N/A	N/A	--	<5.7	--	--
2-Hexanone	3600000	1400	--	<28	--	--
4-Chlorotoluene	N/A	N/A	--	<5.7	--	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	<28	--	--
Acetone	6200000	3800	--	**110 J**	--	--
Benzene	17000	80	--	<5.7	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-C2	EDR-C2	EDR-C3	EDR-C3
		Field Sample Identification	C2-1.25-1.75	C2-1.25-1.75	C3-1-1.5	C3-3-3.5
		Date Collected	5/31/2006	6/2/2006	5/31/2006	5/31/2006
		Depth (feet)	1.25 - 1.75	1.25 - 1.75	1 - 1.5	3 - 3.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	<5.7	--	--
Bromochloromethane	N/A	N/A	--	<5.7	--	--
Bromodichloromethane	23000	1210	--	<5.7	--	--
Bromoform	2400000	1720	--	<5.7	--	--
Bromomethane	15000	90	--	<5.7	--	--
Carbon disulfide	950000	450	--	<5.7	--	--
Carbon tetrachloride	7000	200	--	<5.7	--	--
Chlorobenzene	240000	4800	--	<5.7	--	--
Chloroethane	N/A	N/A	--	<5.7	--	--
Chloroform	6000	960	--	<5.7	--	--
Chloromethane	140000	220	--	<5.7	--	--
cis-1,2-Dichloroethylene	180000	800	--	<5.7	--	--
cis-1,3-Dichloropropene	2500[b]	30[b]	--	<5.7	--	--
Dibromochloromethane	230000	1330	--	<5.7	--	--
Dibromomethane	N/A	N/A	--	<5.7	--	--
Dichlorodifluoromethane	290000	23000	--	<5.7	--	--
Ethylbenzene	650000	55000	--	<5.7	--	--
Hexachlorobutadiene	140000	100000	--	<5.7	--	--
Iodomethane (Methyl iodide)	N/A	N/A	--	<5.7	--	--
Isopropyl ether	N/A	N/A	--	<5.7	--	--
Isopropylbenzene (Cumene)	N/A	N/A	--	<5.7	--	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	<11	--	--
Methylene chloride	230000	30	--	<5.7	--	--
n-Butylbenzene	395000	12000	--	<5.7	--	--
n-Propylbenzene	400000	44000	--	<5.7	--	--
Naphthalene	320000	140000	--	<5.7	--	--
o-Xylene	700000[b]	700000[b]	--	<5.7	--	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	<5.7	--	--
sec-Butylbenzene	380000	9000	--	<5.7	--	--
Styrene	2400000	16000	--	<5.7	--	--
t-Butylbenzene	N/A	N/A	--	<5.7	--	--
tert-Butyl methyl ether	15000000	90	--	<5.7	--	--
Tetrachloroethylene (PCE)	140000	180	--	<5.7	--	--
Toluene	1000000	40000	--	<5.7	--	--
trans-1,2-Dichloroethene	290000	1500	--	<5.7	--	--
trans-1,3-Dichloropropene	2500[b]	300[b]	--	<5.7	--	--
Trichloroethylene (TCE)	98000	200	--	<5.7	--	--
Trichlorofluoromethane	N/A	N/A	--	<5.7	--	--
Vinyl acetate	N/A	N/A	--	<28	--	--
Vinyl chloride	540	20	--	<5.7	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C2**	**EDR-C2**	**EDR-C3**	**EDR-C3**
		Field Sample Identification	**C2-1.25-1.75**	**C2-1.25-1.75**	**C3-1-1.5**	**C3-3-3.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1.25 - 1.75**	**1.25 - 1.75**	**1 - 1.5**	**3 - 3.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	<410	--	--	<390
1,2,4-Trichlorobenzene	4900000	25000	<410	--	--	<390
1,2-Dichlorobenzene	990000	77000	<410	--	--	<390
1,2-Diphenylhydrazine	330	N/A	*<410*	--	--	*<390*
1,3-Dichlorobenzene	N/A	N/A	<410	--	--	<390
1,4-Dichlorobenzene	92000	9500	<410	--	--	<390
1-Chloronaphthalene	N/A	N/A	<410	--	--	<390
1-Methylnaphthalene	N/A	N/A	<410	--	--	<390
1-Naphthylamine	N/A	N/A	<410	--	--	<390
2,2'-oxybis(1-chloro)Propane	N/A	N/A	<410	--	--	<390
2,3,4,6-Tetrachlorophenol	20000000	6800000	<410	--	--	<390
2,4,5-Trichlorophenol	680000000	9200000	<2100	--	--	<2000
2,4,6-Trichlorophenol	1700000	150000	<410	--	--	<390
2,4-Dichlorophenol	2000000	54000	<410	--	--	<390
2,4-Dimethyl phenol	14000000	81000	<410	--	--	<390
2,4-Dinitrophenol	1200000	2100	<2100	--	--	<2000
2,4-Dinitrotoluene	28000	90	<410	--	--	<390
2,6-Dichlorophenol	N/A	N/A	<410	--	--	<390
2,6-Dinitrotoluene	28000	70	<410	--	--	<390
2-Chloronaphthalene	N/A	N/A	<410	--	--	<390
2-Chlorophenol	N/A	N/A	<410	--	--	<390
2-Methylnaphthalene	N/A	N/A	<410	--	--	<390
2-Methylphenol (o-Cresol)	6500000	29000	<410	--	--	<390
2-Nitroaniline	N/A	N/A	<410	--	--	<390
2-Nitrophenol	N/A	N/A	<410	--	--	<390
3,3'-Dichlorobenzidine	N/A	N/A	<2100	--	--	<2000
3-Methylcholanthrene	N/A	N/A	<410	--	--	<390
3-Nitroaniline	N/A	N/A	<410	--	--	<390
4,6-Dinitro-2-methylphenol	N/A	N/A	<2100 UJ	--	--	<2000 UJ
4-Bromophenyl phenyl ether	N/A	N/A	<410	--	--	<390
4-Chloro-3-methylphenol	N/A	N/A	<410	--	--	<390
4-Chloroaniline	N/A	N/A	<410	--	--	<390
4-Chlorophenyl phenyl ether	N/A	N/A	<410	--	--	<390
4-Nitroaniline	N/A	N/A	<410	--	--	<390
4-Nitrophenol	N/A	N/A	<2100	--	--	<2000
7,12-Dimethylbenz(a)anthracene	N/A	N/A	<410	--	--	<390
Acenaphthene	300000	300000	<410	--	--	<390
Acenaphthylene	N/A	N/A	<410	--	--	<390
Acetophenone	1600	0.6	*<410*	--	--	*<390*
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	<410	--	--	<390

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C2**	**EDR-C2**	**EDR-C3**	**EDR-C3**
		Field Sample Identification	**C2-1.25-1.75**	**C2-1.25-1.75**	**C3-1-1.5**	**C3-3-3.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1.25 - 1.75**	**1.25 - 1.75**	**1 - 1.5**	**3 - 3.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	<410	--	--	<390
Benzidine	80	0.2	*<2100*	--	--	*<2000*
Benzo(a)anthracene	26000	35000	<410	--	--	<390
Benzo(a)pyrene	2600	16000	<410	--	--	<390
Benzo(b)fluoranthene	19000	19000	<410	--	--	<390
Benzo(g,h,i)perylene	N/A	N/A	<410	--	--	<390
Benzo(k)fluoranthene	10000	10000	<410	--	--	<390
Benzoic acid	N/A	N/A	<2100	--	--	<2000
Benzyl alcohol	N/A	N/A	<410	--	--	<390
Benzyl butyl phthalate	1500000	1500000	<410	--	--	<390
bis(2-chloroethoxy) Methane	N/A	N/A	<410	--	--	<390
bis(2-chloroisopropyl) Ether	82000	490	<410	--	--	<390
bis(2-ethylhexyl) Phthalate	1400000	18000000	<410	--	--	<390
Carbazole	250000	54000	<410	--	--	<390
Chrysene	6400	6400	<410	--	--	<390
Cresols, m & p	3400000	6500	<810	--	--	<770
Di-n-butyl phthalate	N/A	N/A	<410	--	--	<390
Di-n-octylphthalate	14000000	17000000	<410	--	--	<390
Dibenz(a,h)anthracene	N/A	N/A	<410	--	--	<390
Dibenz(a,j)acridine	N/A	N/A	<410	--	--	<390
Dibenzofuran	1351000	86500	<410	--	--	<390
Diethyl Phthalate	3200000	3200000	<410	--	--	<390
Dimethyl phthalate	N/A	N/A	<410	--	--	<390
Dimethylphenylethylamine	N/A	N/A	<410	--	--	<390
Ethyl methanesulfonate	N/A	N/A	<410	--	--	<390
Fluoranthene	220000	220000	<410	--	--	<390
Fluorene	270000	270000	<410	--	--	<390
Hexachlorobenzene	12000	11000	<410	--	--	<390
Hexachlorobutadiene	140000	100000	<410	--	--	<390
Hexachlorocyclopentadiene	N/A	N/A	<410	--	--	<390
Hexachloroethane	680000	26000	<410	--	--	<390
Indeno(1,2,3-c,d)Pyrene	760	760	<410	--	--	<390
Isophorone	N/A	N/A	<410	--	--	<390
Methyl methanesulfonate	N/A	N/A	<410	--	--	<390
n-Nitroso-di-n-butylamine	N/A	N/A	<410	--	--	<390
n-Nitroso-di-n-propylamine	N/A	N/A	<410	--	--	<390
n-Nitrosodimethylamine	N/A	N/A	<410	--	--	<390
n-Nitrosodiphenylamine	N/A	N/A	<410	--	--	<390
n-Nitrosopiperidine	N/A	N/A	<410	--	--	<390
Naphthalene	320000	140000	<410	--	--	<390
Nitrobenzene	110000	90	*<410*	--	--	*<390*

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C2**	**EDR-C2**	**EDR-C3**	**EDR-C3**
		Field Sample Identification	**C2-1.25-1.75**	**C2-1.25-1.75**	**C3-1-1.5**	**C3-3-3.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**1.25 - 1.75**	**1.25 - 1.75**	**1 - 1.5**	**3 - 3.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	<410	--	--	<390
Pentachloronitrobenzene	N/A	N/A	<410	--	--	<390
Pentachlorophenol	160000	20000	<2100	--	--	<2000
Phenacetin	N/A	N/A	<410	--	--	<390
Phenanthrene	N/A	N/A	<410	--	--	<390
Phenol	32000000	560000	<410	--	--	<390
Pronamide	N/A	N/A	<410	--	--	<390
Pyrene	140000	140000	<410	--	--	<390
Pyridine	150000	50	*<410*	--	--	*<390*

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg micrograms per kilogram.
mg/kg milligrams per kilogram.
Bold Bolded result indicates positively identified compound.

Shaded Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
-- Not scheduled.
N/A Not applicable.
D Sample dilution required for analysis; reported values reflect the dilution.
J Data are estimated due to associated quality control data.
T Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ Potential low bias, possible false negative.
GW Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C3**	**EDR-C4**	**EDR-C5**	**EDR-D1**
		Field Sample Identification	**C3-3-3.5**	**C4-1-1.25**	**C5-1-1.5**	**D1-1.5-2**
		Date Collected	**6/2/2006**	**5/31/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**3 - 3.5**	**1 - 1.25**	**1 - 1.5**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	--	**170 DJ**	**2400 DJ**	<3.1
PHC as gasoline (µg/kg)	450000	150000	--	<66000 D	<65000 D	<62000 D
Metals (mg/kg)						
Arsenic	38	N/A	--	**11**	**7.5**	**5.8**
Barium	140000	N/A	--	**160**	**150**	**170**
Cadmium	1000	N/A	--	<1.3	<1.2	<1.2
Chromium, Total	4000	N/A	--	**42**	**98**	**22**
Lead	1000	N/A	--	**190**	**1100**	**15**
Mercury	20	N/A	--	**0.12**	**0.12**	**0.011**
Selenium	10000	N/A	--	<2.7	<2.5	<2.3
Silver	10000	N/A	--	<1.3	<1.2	<1.2
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	<5.6	--	--	--
1,1,1-Trichloroethane	1800000	5500	<5.6	--	--	--
1,1,2,2-Tetrachloroethane	12000	30	<5.6	--	--	--
1,1,2-Trichloroethane	20000	70	<5.6	--	--	--
1,1-Dichloroethane	2100000	13000	<5.6	--	--	--
1,1-Dichloroethene	1400	800	<5.6	--	--	--
1,1-Dichloropropene	N/A	N/A	<5.6	--	--	--
1,2,3-Trichlorobenzene	N/A	N/A	<5.6	--	--	--
1,2,3-Trichloropropane	280	0.7	<5.6	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	<5.6	--	--	--
1,2,4-Trimethylbenzene	9700	2900	<5.6	--	--	--
1,2-Dibromo-3-chloropropane	N/A	N/A	<5.6	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	<5.6	--	--	--
1,2-Dichlorobenzene	990000	77000	<5.6	--	--	--
1,2-Dichloroethane	7300	40	<5.6	--	--	--
1,2-Dichloropropane	9300	60	<5.6	--	--	--
1,3,5-Trimethylbenzene	69400	830	<5.6	--	--	--
1,3-Dichlorobenzene	N/A	N/A	<5.6	--	--	--
1,3-Dichloropropane	N/A	N/A	<5.6	--	--	--
1,4-Dichlorobenzene	92000	9500	<5.6	--	--	--
2,2-Dichloropropane	N/A	N/A	<5.6	--	--	--
2-Butanone (MEK)	21000000	12000	<28	--	--	--
2-Chlorotoluene	N/A	N/A	<5.6	--	--	--
2-Hexanone	3600000	1400	<28	--	--	--
4-Chlorotoluene	N/A	N/A	<5.6	--	--	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	<28	--	--	--
Acetone	6200000	3800	**88 J**	--	--	--
Benzene	17000	80	<5.6	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

	Location Identification		EDR-C3	EDR-C4	EDR-C5	EDR-D1
	Field Sample Identification		C3-3-3.5	C4-1-1.25	C5-1-1.5	D1-1.5-2
	Date Collected		6/2/2006	5/31/2006	5/31/2006	5/31/2006
	Depth (feet)		3 - 3.5	1 - 1.25	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	<5.6	--	--	--
Bromochloromethane	N/A	N/A	<5.6	--	--	--
Bromodichloromethane	23000	1210	<5.6	--	--	--
Bromoform	2400000	1720	<5.6	--	--	--
Bromomethane	15000	90	<5.6	--	--	--
Carbon disulfide	950000	450	<5.6	--	--	--
Carbon tetrachloride	7000	200	<5.6	--	--	--
Chlorobenzene	240000	4800	<5.6	--	--	--
Chloroethane	N/A	N/A	<5.6	--	--	--
Chloroform	6000	960	<5.6	--	--	--
Chloromethane	140000	220	<5.6	--	--	--
cis-1,2-Dichloroethylene	180000	800	<5.6	--	--	--
cis-1,3-Dichloropropene	2500[b]	30[b]	<5.6	--	--	--
Dibromochloromethane	230000	1330	<5.6	--	--	--
Dibromomethane	N/A	N/A	<5.6	--	--	--
Dichlorodifluoromethane	290000	23000	<5.6	--	--	--
Ethylbenzene	650000	55000	<5.6	--	--	--
Hexachlorobutadiene	140000	100000	<5.6	--	--	--
Iodomethane (Methyl iodide)	N/A	N/A	<5.6	--	--	--
Isopropyl ether	N/A	N/A	<5.6	--	--	--
Isopropylbenzene (Cumene)	N/A	N/A	<5.6	--	--	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	<11	--	--	--
Methylene chloride	230000	30	<5.6	--	--	--
n-Butylbenzene	395000	12000	<5.6	--	--	--
n-Propylbenzene	400000	44000	<5.6	--	--	--
Naphthalene	320000	140000	<5.6	--	--	--
o-Xylene	700000[b]	700000[b]	<5.6	--	--	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	<5.6	--	--	--
sec-Butylbenzene	380000	9000	<5.6	--	--	--
Styrene	2400000	16000	<5.6	--	--	--
t-Butylbenzene	N/A	N/A	<5.6	--	--	--
tert-Butyl methyl ether	15000000	90	<5.6	--	--	--
Tetrachloroethylene (PCE)	140000	180	<5.6	--	--	--
Toluene	1000000	40000	<5.6	--	--	--
trans-1,2-Dichloroethene	290000	1500	<5.6	--	--	--
trans-1,3-Dichloropropene	2500[b]	300[b]	<5.6	--	--	--
Trichloroethylene (TCE)	98000	200	<5.6	--	--	--
Trichlorofluoromethane	N/A	N/A	<5.6	--	--	--
Vinyl acetate	N/A	N/A	<28	--	--	--
Vinyl chloride	540	20	<5.6	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

	Location Identification		EDR-C3	EDR-C4	EDR-C5	EDR-D1
	Field Sample Identification		C3-3-3.5	C4-1-1.25	C5-1-1.5	D1-1.5-2
	Date Collected		6/2/2006	5/31/2006	5/31/2006	5/31/2006
	Depth (feet)		3 - 3.5	1 - 1.25	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	--	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	--
1,2-Dichlorobenzene	990000	77000	--	--	--	--
1,2-Diphenylhydrazine	330	N/A	--	--	--	--
1,3-Dichlorobenzene	N/A	N/A	--	--	--	--
1,4-Dichlorobenzene	92000	9500	--	--	--	--
1-Chloronaphthalene	N/A	N/A	--	--	--	--
1-Methylnaphthalene	N/A	N/A	--	--	--	--
1-Naphthylamine	N/A	N/A	--	--	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	--	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	--	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	--	--	--
2,4,6-Trichlorophenol	1700000	150000	--	--	--	--
2,4-Dichlorophenol	2000000	54000	--	--	--	--
2,4-Dimethyl phenol	14000000	81000	--	--	--	--
2,4-Dinitrophenol	1200000	2100	--	--	--	--
2,4-Dinitrotoluene	28000	90	--	--	--	--
2,6-Dichlorophenol	N/A	N/A	--	--	--	--
2,6-Dinitrotoluene	28000	70	--	--	--	--
2-Chloronaphthalene	N/A	N/A	--	--	--	--
2-Chlorophenol	N/A	N/A	--	--	--	--
2-Methylnaphthalene	N/A	N/A	--	--	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	--	--	--
2-Nitroaniline	N/A	N/A	--	--	--	--
2-Nitrophenol	N/A	N/A	--	--	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	--	--	--
3-Methylcholanthrene	N/A	N/A	--	--	--	--
3-Nitroaniline	N/A	N/A	--	--	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	--	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	--	--	--
4-Chloroaniline	N/A	N/A	--	--	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	--	--	--
4-Nitroaniline	N/A	N/A	--	--	--	--
4-Nitrophenol	N/A	N/A	--	--	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	--	--	--
Acenaphthene	300000	300000	--	--	--	--
Acenaphthylene	N/A	N/A	--	--	--	--
Acetophenone	1600	0.6	--	--	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-C3	EDR-C4	EDR-C5	EDR-D1
		Field Sample Identification	C3-3-3.5	C4-1-1.25	C5-1-1.5	D1-1.5-2
		Date Collected	6/2/2006	5/31/2006	5/31/2006	5/31/2006
		Depth (feet)	3 - 3.5	1 - 1.25	1 - 1.5	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	--	--	--
Benzidine	80	0.2	--	--	--	--
Benzo(a)anthracene	26000	35000	--	--	--	--
Benzo(a)pyrene	2600	16000	--	--	--	--
Benzo(b)fluoranthene	19000	19000	--	--	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	--	--	--
Benzo(k)fluoranthene	10000	10000	--	--	--	--
Benzoic acid	N/A	N/A	--	--	--	--
Benzyl alcohol	N/A	N/A	--	--	--	--
Benzyl butyl phthalate	1500000	1500000	--	--	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	--	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	--	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	--	--	--
Carbazole	250000	54000	--	--	--	--
Chrysene	6400	6400	--	--	--	--
Cresols, m & p	3400000	6500	--	--	--	--
Di-n-butyl phthalate	N/A	N/A	--	--	--	--
Di-n-octylphthalate	14000000	17000000	--	--	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	--	--	--
Dibenz(a,j)acridine	N/A	N/A	--	--	--	--
Dibenzofuran	1351000	86500	--	--	--	--
Diethyl Phthalate	3200000	3200000	--	--	--	--
Dimethyl phthalate	N/A	N/A	--	--	--	--
Dimethylphenylethylamine	N/A	N/A	--	--	--	--
Ethyl methanesulfonate	N/A	N/A	--	--	--	--
Fluoranthene	220000	220000	--	--	--	--
Fluorene	270000	270000	--	--	--	--
Hexachlorobenzene	12000	11000	--	--	--	--
Hexachlorobutadiene	140000	100000	--	--	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	--	--	--
Hexachloroethane	680000	26000	--	--	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	--	--	--
Isophorone	N/A	N/A	--	--	--	--
Methyl methanesulfonate	N/A	N/A	--	--	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	--	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	--	--	--
n-Nitrosodimethylamine	N/A	N/A	--	--	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	--	--	--
n-Nitrosopiperidine	N/A	N/A	--	--	--	--
Naphthalene	320000	140000	--	--	--	--
Nitrobenzene	110000	90	--	--	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-C3**	**EDR-C4**	**EDR-C5**	**EDR-D1**
		Field Sample Identification	**C3-3-3.5**	**C4-1-1.25**	**C5-1-1.5**	**D1-1.5-2**
		Date Collected	**6/2/2006**	**5/31/2006**	**5/31/2006**	**5/31/2006**
		Depth (feet)	**3 - 3.5**	**1 - 1.25**	**1 - 1.5**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	--	--	--
Pentachloronitrobenzene	N/A	N/A	--	--	--	--
Pentachlorophenol	160000	20000	--	--	--	--
Phenacetin	N/A	N/A	--	--	--	--
Phenanthrene	N/A	N/A	--	--	--	--
Phenol	32000000	560000	--	--	--	--
Pronamide	N/A	N/A	--	--	--	--
Pyrene	140000	140000	--	--	--	--
Pyridine	150000	50	--	--	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D1**	**EDR-D2**	**EDR-D2**	**EDR-D2**
		Field Sample Identification	**D1-3.5-4**	**D2-1.5-2**	**D2-3.5-4**	**D2-1.5-2**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3.5 - 4**	**1.5 - 2**	**3.5 - 4**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	<3.1	<3	<3.1	--
PHC as gasoline (µg/kg)	450000	150000	<62000 D	<59000 D	<63000 D	--
Metals (mg/kg)						
Arsenic	38	N/A	**6**	**5.2**	**6.2**	--
Barium	140000	N/A	**200**	**160**	**270**	--
Cadmium	1000	N/A	<1.3	<1.2	<1.2	--
Chromium, Total	4000	N/A	**26**	**20**	**26**	--
Lead	1000	N/A	**21**	**16**	**17**	--
Mercury	20	N/A	**0.026**	**0.012**	**0.021**	--
Selenium	10000	N/A	<2.6	<2.4	<2.5	--
Silver	10000	N/A	<1.3	<1.2	<1.2	--
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	--	--	<5.2
1,1,1-Trichloroethane	1800000	5500	--	--	--	<5.2
1,1,2,2-Tetrachloroethane	12000	30	--	--	--	<5.2
1,1,2-Trichloroethane	20000	70	--	--	--	<5.2
1,1-Dichloroethane	2100000	13000	--	--	--	<5.2
1,1-Dichloroethene	1400	800	--	--	--	<5.2
1,1-Dichloropropene	N/A	N/A	--	--	--	<5.2
1,2,3-Trichlorobenzene	N/A	N/A	--	--	--	<5.2
1,2,3-Trichloropropane	280	0.7	--	--	--	<5.2
1,2,4-Trichlorobenzene	4900000	25000	--	--	--	<5.2
1,2,4-Trimethylbenzene	9700	2900	--	--	--	<5.2
1,2-Dibromo-3-chloropropane	N/A	N/A	--	--	--	<5.2
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	--	--	<5.2
1,2-Dichlorobenzene	990000	77000	--	--	--	<5.2
1,2-Dichloroethane	7300	40	--	--	--	<5.2
1,2-Dichloropropane	9300	60	--	--	--	<5.2
1,3,5-Trimethylbenzene	69400	830	--	--	--	<5.2
1,3-Dichlorobenzene	N/A	N/A	--	--	--	<5.2
1,3-Dichloropropane	N/A	N/A	--	--	--	<5.2
1,4-Dichlorobenzene	92000	9500	--	--	--	<5.2
2,2-Dichloropropane	N/A	N/A	--	--	--	<5.2
2-Butanone (MEK)	21000000	12000	--	--	--	<26
2-Chlorotoluene	N/A	N/A	--	--	--	<5.2
2-Hexanone	3600000	1400	--	--	--	<26
4-Chlorotoluene	N/A	N/A	--	--	--	<5.2
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	--	--	<26
Acetone	6200000	3800	--	--	--	**130 J**
Benzene	17000	80	--	--	--	<5.2

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-D1	EDR-D2	EDR-D2	EDR-D2
		Field Sample Identification	D1-3.5-4	D2-1.5-2	D2-3.5-4	D2-1.5-2
		Date Collected	5/31/2006	5/31/2006	5/31/2006	6/2/2006
		Depth (feet)	3.5 - 4	1.5 - 2	3.5 - 4	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	--	--	<5.2
Bromochloromethane	N/A	N/A	--	--	--	<5.2
Bromodichloromethane	23000	1210	--	--	--	<5.2
Bromoform	2400000	1720	--	--	--	<5.2
Bromomethane	15000	90	--	--	--	<5.2
Carbon disulfide	950000	450	--	--	--	<5.2
Carbon tetrachloride	7000	200	--	--	--	<5.2
Chlorobenzene	240000	4800	--	--	--	<5.2
Chloroethane	N/A	N/A	--	--	--	<5.2
Chloroform	6000	960	--	--	--	<5.2
Chloromethane	140000	220	--	--	--	<5.2
cis-1,2-Dichloroethylene	180000	800	--	--	--	<5.2
cis-1,3-Dichloropropene	2500[b]	30[b]	--	--	--	<5.2
Dibromochloromethane	230000	1330	--	--	--	<5.2
Dibromomethane	N/A	N/A	--	--	--	<5.2
Dichlorodifluoromethane	290000	23000	--	--	--	<5.2
Ethylbenzene	650000	55000	--	--	--	<5.2
Hexachlorobutadiene	140000	100000	--	--	--	<5.2
Iodomethane (Methyl iodide)	N/A	N/A	--	--	--	<5.2
Isopropyl ether	N/A	N/A	--	--	--	<5.2
Isopropylbenzene (Cumene)	N/A	N/A	--	--	--	<5.2
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	--	--	<10
Methylene chloride	230000	30	--	--	--	<5.2
n-Butylbenzene	395000	12000	--	--	--	<5.2
n-Propylbenzene	400000	44000	--	--	--	<5.2
Naphthalene	320000	140000	--	--	--	<5.2
o-Xylene	700000[b]	700000[b]	--	--	--	<5.2
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	--	--	<5.2
sec-Butylbenzene	380000	9000	--	--	--	<5.2
Styrene	2400000	16000	--	--	--	<5.2
t-Butylbenzene	N/A	N/A	--	--	--	<5.2
tert-Butyl methyl ether	15000000	90	--	--	--	<5.2
Tetrachloroethylene (PCE)	140000	180	--	--	--	<5.2
Toluene	1000000	40000	--	--	--	<5.2
trans-1,2-Dichloroethene	290000	1500	--	--	--	<5.2
trans-1,3-Dichloropropene	2500[b]	300[b]	--	--	--	<5.2
Trichloroethylene (TCE)	98000	200	--	--	--	<5.2
Trichlorofluoromethane	N/A	N/A	--	--	--	<5.2
Vinyl acetate	N/A	N/A	--	--	--	<26
Vinyl chloride	540	20	--	--	--	<5.2

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D1**	**EDR-D2**	**EDR-D2**	**EDR-D2**
		Field Sample Identification	**D1-3.5-4**	**D2-1.5-2**	**D2-3.5-4**	**D2-1.5-2**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3.5 - 4**	**1.5 - 2**	**3.5 - 4**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--	<390	--	--
1,2,4-Trichlorobenzene	4900000	25000	--	<390	--	--
1,2-Dichlorobenzene	990000	77000	--	<390	--	--
1,2-Diphenylhydrazine	330	N/A	--	*<390*	--	--
1,3-Dichlorobenzene	N/A	N/A	--	<390	--	--
1,4-Dichlorobenzene	92000	9500	--	<390	--	--
1-Chloronaphthalene	N/A	N/A	--	<390	--	--
1-Methylnaphthalene	N/A	N/A	--	<390	--	--
1-Naphthylamine	N/A	N/A	--	<390	--	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--	<390	--	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--	<390	--	--
2,4,5-Trichlorophenol	680000000	9200000	--	<2000	--	--
2,4,6-Trichlorophenol	1700000	150000	--	<390	--	--
2,4-Dichlorophenol	2000000	54000	--	<390	--	--
2,4-Dimethyl phenol	14000000	81000	--	<390	--	--
2,4-Dinitrophenol	1200000	2100	--	<2000	--	--
2,4-Dinitrotoluene	28000	90	--	*<390*	--	--
2,6-Dichlorophenol	N/A	N/A	--	<390	--	--
2,6-Dinitrotoluene	28000	70	--	*<390*	--	--
2-Chloronaphthalene	N/A	N/A	--	<390	--	--
2-Chlorophenol	N/A	N/A	--	<390	--	--
2-Methylnaphthalene	N/A	N/A	--	<390	--	--
2-Methylphenol (o-Cresol)	6500000	29000	--	<390	--	--
2-Nitroaniline	N/A	N/A	--	<390	--	--
2-Nitrophenol	N/A	N/A	--	<390	--	--
3,3'-Dichlorobenzidine	N/A	N/A	--	<2000	--	--
3-Methylcholanthrene	N/A	N/A	--	<390	--	--
3-Nitroaniline	N/A	N/A	--	<390	--	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--	<2000 UJ	--	--
4-Bromophenyl phenyl ether	N/A	N/A	--	<390	--	--
4-Chloro-3-methylphenol	N/A	N/A	--	<390	--	--
4-Chloroaniline	N/A	N/A	--	<390	--	--
4-Chlorophenyl phenyl ether	N/A	N/A	--	<390	--	--
4-Nitroaniline	N/A	N/A	--	<390	--	--
4-Nitrophenol	N/A	N/A	--	<2000	--	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--	<390	--	--
Acenaphthene	300000	300000	--	<390	--	--
Acenaphthylene	N/A	N/A	--	<390	--	--
Acetophenone	1600	0.6	--	*<390*	--	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--	<390	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-D1	EDR-D2	EDR-D2	EDR-D2
		Field Sample Identification	D1-3.5-4	D2-1.5-2	D2-3.5-4	D2-1.5-2
		Date Collected	5/31/2006	5/31/2006	5/31/2006	6/2/2006
		Depth (feet)	3.5 - 4	1.5 - 2	3.5 - 4	1.5 - 2
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	--	*<390*	--	--
Benzidine	80	0.2	--	<2000	--	--
Benzo(a)anthracene	26000	35000	--	<390	--	--
Benzo(a)pyrene	2600	16000	--	<390	--	--
Benzo(b)fluoranthene	19000	19000	--	<390	--	--
Benzo(g,h,i)perylene	N/A	N/A	--	<390	--	--
Benzo(k)fluoranthene	10000	10000	--	<390	--	--
Benzoic acid	N/A	N/A	--	<2000	--	--
Benzyl alcohol	N/A	N/A	--	<390	--	--
Benzyl butyl phthalate	1500000	1500000	--	<390	--	--
bis(2-chloroethoxy) Methane	N/A	N/A	--	<390	--	--
bis(2-chloroisopropyl) Ether	82000	490	--	<390	--	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--	<390	--	--
Carbazole	250000	54000	--	<390	--	--
Chrysene	6400	6400	--	<390	--	--
Cresols, m & p	3400000	6500	--	<780	--	--
Di-n-butyl phthalate	N/A	N/A	--	<390	--	--
Di-n-octylphthalate	14000000	17000000	--	<390	--	--
Dibenz(a,h)anthracene	N/A	N/A	--	<390	--	--
Dibenz(a,j)acridine	N/A	N/A	--	<390	--	--
Dibenzofuran	1351000	86500	--	<390	--	--
Diethyl Phthalate	3200000	3200000	--	<390	--	--
Dimethyl phthalate	N/A	N/A	--	<390	--	--
Dimethylphenylethylamine	N/A	N/A	--	<390	--	--
Ethyl methanesulfonate	N/A	N/A	--	<390	--	--
Fluoranthene	220000	220000	--	<390	--	--
Fluorene	270000	270000	--	<390	--	--
Hexachlorobenzene	12000	11000	--	<390	--	--
Hexachlorobutadiene	140000	100000	--	<390	--	--
Hexachlorocyclopentadiene	N/A	N/A	--	<390	--	--
Hexachloroethane	680000	26000	--	<390	--	--
Indeno(1,2,3-c,d)Pyrene	760	760	--	<390	--	--
Isophorone	N/A	N/A	--	<390	--	--
Methyl methanesulfonate	N/A	N/A	--	<390	--	--
n-Nitroso-di-n-butylamine	N/A	N/A	--	<390	--	--
n-Nitroso-di-n-propylamine	N/A	N/A	--	<390	--	--
n-Nitrosodimethylamine	N/A	N/A	--	<390	--	--
n-Nitrosodiphenylamine	N/A	N/A	--	<390	--	--
n-Nitrosopiperidine	N/A	N/A	--	<390	--	--
Naphthalene	320000	140000	--	<390	--	--
Nitrobenzene	110000	90	--	*<390*	--	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D1**	**EDR-D2**	**EDR-D2**	**EDR-D2**
		Field Sample Identification	**D1-3.5-4**	**D2-1.5-2**	**D2-3.5-4**	**D2-1.5-2**
		Date Collected	**5/31/2006**	**5/31/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**3.5 - 4**	**1.5 - 2**	**3.5 - 4**	**1.5 - 2**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	--	<390	--	--
Pentachloronitrobenzene	N/A	N/A	--	<390	--	--
Pentachlorophenol	160000	20000	--	<2000	--	--
Phenacetin	N/A	N/A	--	<390	--	--
Phenanthrene	N/A	N/A	--	<390	--	--
Phenol	32000000	560000	--	<390	--	--
Pronamide	N/A	N/A	--	<390	--	--
Pyrene	140000	140000	--	<390	--	--
Pyridine	150000	50	--	*<390*	--	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D3**	**EDR-D3**	**EDR-D4**	**EDR-D4**
		Field Sample Identification	**D3-0.75-1**	**D3-0.75-1**	**D4-1-1.5**	**D4-1-1.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**0.75 - 1**	**0.75 - 1**	**1 - 1.5**	**1 - 1.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Petroleum Hydrocarbons	**Soil**	**Soil to GW**				
PHC as diesel fuel (mg/kg)	20000	15000	**380 DJ**	--	<3.1	--
PHC as gasoline (µg/kg)	450000	150000	<62000 D	--	<6200 D	--
Metals (mg/kg)						
Arsenic	38	N/A	**11**	--	**23**	--
Barium	140000	N/A	**160**	--	**220 J**	--
Cadmium	1000	N/A	<1.2	--	<1.2	--
Chromium, Total	4000	N/A	**71**	--	**100 J**	--
Lead	1000	N/A	**1600**	--	**220 J**	--
Mercury	20	N/A	**1.6 D**	--	**0.22**	--
Selenium	10000	N/A	<2.5	--	<2.3 J	--
Silver	10000	N/A	<1.2	--	<1.2	--
Volatile Organic Compounds (µg/kg)						
1,1,1,2-Tetrachloroethane	N/A	N/A	--	<6.2	--	<5.3
1,1,1-Trichloroethane	1800000	5500	--	<6.2	--	<5.3
1,1,2,2-Tetrachloroethane	12000	30	--	<6.2	--	<5.3
1,1,2-Trichloroethane	20000	70	--	<6.2	--	<5.3
1,1-Dichloroethane	2100000	13000	--	<6.2	--	<5.3
1,1-Dichloroethene	1400	800	--	<6.2	--	<5.3
1,1-Dichloropropene	N/A	N/A	--	<6.2	--	<5.3
1,2,3-Trichlorobenzene	N/A	N/A	--	<6.2	--	<5.3
1,2,3-Trichloropropane	280	0.7	--	*<6.2*	--	*<5.3*
1,2,4-Trichlorobenzene	4900000	25000	--	<6.2	--	<5.3
1,2,4-Trimethylbenzene	9700	2900	--	<6.2	--	<5.3
1,2-Dibromo-3-chloropropane	N/A	N/A	--	<6.2	--	<5.3
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--	*<6.2*	--	*<5.3*
1,2-Dichlorobenzene	990000	77000	--	<6.2	--	<5.3
1,2-Dichloroethane	7300	40	--	<6.2	--	<5.3
1,2-Dichloropropane	9300	60	--	<6.2	--	<5.3
1,3,5-Trimethylbenzene	69400	830	--	<6.2	--	<5.3
1,3-Dichlorobenzene	N/A	N/A	--	<6.2	--	<5.3
1,3-Dichloropropane	N/A	N/A	--	<6.2	--	<5.3
1,4-Dichlorobenzene	92000	9500	--	<6.2	--	<5.3
2,2-Dichloropropane	N/A	N/A	--	<6.2	--	<5.3
2-Butanone (MEK)	21000000	12000	--	<31	--	**28 J**
2-Chlorotoluene	N/A	N/A	--	<6.2	--	<5.3
2-Hexanone	3600000	1400	--	<31	--	<27
4-Chlorotoluene	N/A	N/A	--	<6.2	--	<5.3
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--	<31	--	<27
Acetone	6200000	3800	--	**100 J**	--	**150 J**
Benzene	17000	80	--	<6.2	--	<5.3

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-D3	EDR-D3	EDR-D4	EDR-D4
		Field Sample Identification	D3-0.75-1	D3-0.75-1	D4-1-1.5	D4-1-1.5
		Date Collected	5/31/2006	6/2/2006	5/31/2006	6/2/2006
		Depth (feet)	0.75 - 1	0.75 - 1	1 - 1.5	1 - 1.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**					
Volatile Organic Compounds (µg/kg) (continued)						
Bromobenzene	N/A	N/A	--	<6.2	--	<5.3
Bromochloromethane	N/A	N/A	--	<6.2	--	<5.3
Bromodichloromethane	23000	1210	--	<6.2	--	<5.3
Bromoform	2400000	1720	--	<6.2	--	<5.3
Bromomethane	15000	90	--	<6.2	--	<5.3
Carbon disulfide	950000	450	--	<6.2	--	<5.3
Carbon tetrachloride	7000	200	--	<6.2	--	<5.3
Chlorobenzene	240000	4800	--	<6.2	--	<5.3
Chloroethane	N/A	N/A	--	<6.2	--	<5.3
Chloroform	6000	960	--	<6.2	--	<5.3
Chloromethane	140000	220	--	<6.2	--	<5.3
cis-1,2-Dichloroethylene	180000	800	--	<6.2	--	<5.3
cis-1,3-Dichloropropene	2500[b]	30[b]	--	<6.2	--	<5.3
Dibromochloromethane	230000	1330	--	<6.2	--	<5.3
Dibromomethane	N/A	N/A	--	<6.2	--	<5.3
Dichlorodifluoromethane	290000	23000	--	<6.2	--	<5.3
Ethylbenzene	650000	55000	--	<6.2	--	<5.3
Hexachlorobutadiene	140000	100000	--	<6.2	--	<5.3
Iodomethane (Methyl iodide)	N/A	N/A	--	<6.2	--	<5.3
Isopropyl ether	N/A	N/A	--	<6.2	--	<5.3
Isopropylbenzene (Cumene)	N/A	N/A	--	<6.2	--	<5.3
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--	<12	--	<11
Methylene chloride	230000	30	--	<6.2	--	<5.3
n-Butylbenzene	395000	12000	--	<6.2	--	<5.3
n-Propylbenzene	400000	44000	--	<6.2	--	<5.3
Naphthalene	320000	140000	--	<6.2	--	<5.3
o-Xylene	700000[b]	700000[b]	--	<6.2	--	<5.3
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--	<6.2	--	<5.3
sec-Butylbenzene	380000	9000	--	<6.2	--	<5.3
Styrene	2400000	16000	--	<6.2	--	<5.3
t-Butylbenzene	N/A	N/A	--	<6.2	--	<5.3
tert-Butyl methyl ether	15000000	90	--	<6.2	--	<5.3
Tetrachloroethylene (PCE)	140000	180	--	<6.2	--	<5.3
Toluene	1000000	40000	--	<6.2	--	<5.3
trans-1,2-Dichloroethene	290000	1500	--	<6.2	--	<5.3
trans-1,3-Dichloropropene	2500[b]	300[b]	--	<6.2	--	<5.3
Trichloroethylene (TCE)	98000	200	--	<6.2	--	<5.3
Trichlorofluoromethane	N/A	N/A	--	<6.2	--	<5.3
Vinyl acetate	N/A	N/A	--	<31	--	<27
Vinyl chloride	540	20	--	<6.2	--	<5.3

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D3**	**EDR-D3**	**EDR-D4**	**EDR-D4**
		Field Sample Identification	**D3-0.75-1**	**D3-0.75-1**	**D4-1-1.5**	**D4-1-1.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**0.75 - 1**	**0.75 - 1**	**1 - 1.5**	**1 - 1.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg)						
1,2,4,5-Tetrachlorobenzene	N/A	N/A	<2000 D	--	<410	--
1,2,4-Trichlorobenzene	4900000	25000	<2000 D	--	<410	--
1,2-Dichlorobenzene	990000	77000	<2000 D	--	<410	--
1,2-Diphenylhydrazine	330	N/A	*<2000 D*	--	*<410*	--
1,3-Dichlorobenzene	N/A	N/A	<2000 D	--	<410	--
1,4-Dichlorobenzene	92000	9500	<2000 D	--	<410	--
1-Chloronaphthalene	N/A	N/A	<2000 D	--	<410	--
1-Methylnaphthalene	N/A	N/A	<2000 D	--	<410	--
1-Naphthylamine	N/A	N/A	<2000 D	--	<410	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	<2000 D	--	<410	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	<2000 D	--	<410	--
2,4,5-Trichlorophenol	680000000	9200000	<10000 D	--	<2100	--
2,4,6-Trichlorophenol	1700000	150000	<2000 D	--	<410	--
2,4-Dichlorophenol	2000000	54000	<2000 D	--	<410	--
2,4-Dimethyl phenol	14000000	81000	<2000 D	--	<410	--
2,4-Dinitrophenol	1200000	2100	*<10000 D*	--	*<2100*	--
2,4-Dinitrotoluene	28000	90	*<2000 D*	--	*<410*	--
2,6-Dichlorophenol	N/A	N/A	<2000 D	--	<410	--
2,6-Dinitrotoluene	28000	70	*<2000 D*	--	*<410*	--
2-Chloronaphthalene	N/A	N/A	<2000 D	--	<410	--
2-Chlorophenol	N/A	N/A	<2000 D	--	<410	--
2-Methylnaphthalene	N/A	N/A	<2000 D	--	<410	--
2-Methylphenol (o-Cresol)	6500000	29000	<2000 D	--	<410	--
2-Nitroaniline	N/A	N/A	<2000 D	--	<410	--
2-Nitrophenol	N/A	N/A	<2000 D	--	<410	--
3,3'-Dichlorobenzidine	N/A	N/A	<10000 D	--	<2100	--
3-Methylcholanthrene	N/A	N/A	<2000 D	--	<410	--
3-Nitroaniline	N/A	N/A	<2000 D	--	<410	--
4,6-Dinitro-2-methylphenol	N/A	N/A	<10000 DUJ	--	<2100 UJ	--
4-Bromophenyl phenyl ether	N/A	N/A	<2000 D	--	<410	--
4-Chloro-3-methylphenol	N/A	N/A	<2000 D	--	<410	--
4-Chloroaniline	N/A	N/A	<2000 D	--	<410	--
4-Chlorophenyl phenyl ether	N/A	N/A	<2000 D	--	<410	--
4-Nitroaniline	N/A	N/A	<2000 D	--	<410	--
4-Nitrophenol	N/A	N/A	<10000 D	--	<2100	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	<2000 D	--	<410	--
Acenaphthene	300000	300000	<2000 D	--	<410	--
Acenaphthylene	N/A	N/A	<2000 D	--	<410	--
Acetophenone	1600	0.6	*<2000 D*	--	*<410*	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	<2000 D	--	<410	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	EDR-D3	EDR-D3	EDR-D4	EDR-D4
		Field Sample Identification	D3-0.75-1	D3-0.75-1	D4-1-1.5	D4-1-1.5
		Date Collected	5/31/2006	6/2/2006	5/31/2006	6/2/2006
		Depth (feet)	0.75 - 1	0.75 - 1	1 - 1.5	1 - 1.5
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Anthracene	13000	13000	<2000 D	--	<410	--
Benzidine	80	0.2	*<10000 D*	--	*<2100*	--
Benzo(a)anthracene	26000	35000	<2000 D	--	<410	--
Benzo(a)pyrene	2600	16000	<2000 D	--	<410	--
Benzo(b)fluoranthene	19000	19000	<2000 D	--	<410	--
Benzo(g,h,i)perylene	N/A	N/A	<2000 D	--	<410	--
Benzo(k)fluoranthene	10000	10000	<2000 D	--	<410	--
Benzoic acid	N/A	N/A	<10000 D	--	<2100	--
Benzyl alcohol	N/A	N/A	<2000 D	--	<410	--
Benzyl butyl phthalate	1500000	1500000	<2000 D	--	<410	--
bis(2-chloroethoxy) Methane	N/A	N/A	<2000 D	--	<410	--
bis(2-chloroisopropyl) Ether	82000	490	*<2000 D*	--	<410	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	<2000 D	--	<410	--
Carbazole	250000	54000	<2000 D	--	<410	--
Chrysene	6400	6400	<2000 D	--	<410	--
Cresols, m & p	3400000	6500	<4100 D	--	<820	--
Di-n-butyl phthalate	N/A	N/A	<2000 D	--	<410	--
Di-n-octylphthalate	14000000	17000000	<2000 D	--	<410	--
Dibenz(a,h)anthracene	N/A	N/A	<2000 D	--	<410	--
Dibenz(a,j)acridine	N/A	N/A	<2000 D	--	<410	--
Dibenzofuran	1351000	86500	<2000 D	--	<410	--
Diethyl Phthalate	3200000	3200000	<2000 D	--	<410	--
Dimethyl phthalate	N/A	N/A	<2000 D	--	<410	--
Dimethylphenylethylamine	N/A	N/A	<2000 D	--	<410	--
Ethyl methanesulfonate	N/A	N/A	<2000 D	--	<410	--
Fluoranthene	220000	220000	<2000 D	--	<410	--
Fluorene	270000	270000	<2000 D	--	<410	--
Hexachlorobenzene	12000	11000	<2000 D	--	<410	--
Hexachlorobutadiene	140000	100000	<2000 D	--	<410	--
Hexachlorocyclopentadiene	N/A	N/A	<2000 D	--	<410	--
Hexachloroethane	680000	26000	<2000 D	--	<410	--
Indeno(1,2,3-c,d)Pyrene	760	760	*<2000 D*	--	<410	--
Isophorone	N/A	N/A	<2000 D	--	<410	--
Methyl methanesulfonate	N/A	N/A	<2000 D	--	<410	--
n-Nitroso-di-n-butylamine	N/A	N/A	<2000 D	--	<410	--
n-Nitroso-di-n-propylamine	N/A	N/A	<2000 D	--	<410	--
n-Nitrosodimethylamine	N/A	N/A	<2000 D	--	<410	--
n-Nitrosodiphenylamine	N/A	N/A	<2000 D	--	<410	--
n-Nitrosopiperidine	N/A	N/A	<2000 D	--	<410	--
Naphthalene	320000	140000	<2000 D	--	<410	--
Nitrobenzene	110000	90	*<2000 D*	--	*<410*	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D3**	**EDR-D3**	**EDR-D4**	**EDR-D4**
		Field Sample Identification	**D3-0.75-1**	**D3-0.75-1**	**D4-1-1.5**	**D4-1-1.5**
		Date Collected	**5/31/2006**	**6/2/2006**	**5/31/2006**	**6/2/2006**
		Depth (feet)	**0.75 - 1**	**0.75 - 1**	**1 - 1.5**	**1 - 1.5**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**					
Semi-Volatile Organic Compounds (µg/kg) (continued)						
Pentachlorobenzene	N/A	N/A	<2000 D	--	<410	--
Pentachloronitrobenzene	N/A	N/A	<2000 D	--	<410	--
Pentachlorophenol	160000	20000	<10000 D	--	<2100	--
Phenacetin	N/A	N/A	<2000 D	--	<410	--
Phenanthrene	N/A	N/A	<2000 D	--	<410	--
Phenol	32000000	560000	<2000 D	--	<410	--
Pronamide	N/A	N/A	<2000 D	--	<410	--
Pyrene	140000	140000	<2000 D	--	<410	--
Pyridine	150000	50	*<2000 D*	--	*<410*	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D5**
		Field Sample Identification	**D5-0.5-0.75**
		Date Collected	**5/31/2006**
		Depth (feet)	**0.5 - 0.75**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**		
Petroleum Hydrocarbons	**Soil**	**Soil to GW**	
PHC as diesel fuel (mg/kg)	20000	15000	**270 DJ**
PHC as gasoline (µg/kg)	450000	150000	<65000 D
Metals (mg/kg)			
Arsenic	38	N/A	**12**
Barium	140000	N/A	**490**
Cadmium	1000	N/A	**3.2**
Chromium, Total	4000	N/A	**41**
Lead	1000	N/A	**1100**
Mercury	20	N/A	**3.4 D**
Selenium	10000	N/A	<2.4
Silver	10000	N/A	<1.2
Volatile Organic Compounds (µg/kg)			
1,1,1,2-Tetrachloroethane	N/A	N/A	--
1,1,1-Trichloroethane	1800000	5500	--
1,1,2,2-Tetrachloroethane	12000	30	--
1,1,2-Trichloroethane	20000	70	--
1,1-Dichloroethane	2100000	13000	--
1,1-Dichloroethene	1400	800	--
1,1-Dichloropropene	N/A	N/A	--
1,2,3-Trichlorobenzene	N/A	N/A	--
1,2,3-Trichloropropane	280	0.7	--
1,2,4-Trichlorobenzene	4900000	25000	--
1,2,4-Trimethylbenzene	9700	2900	--
1,2-Dibromo-3-chloropropane	N/A	N/A	--
1,2-Dibromoethane (Ethylene dibromide)	200	0.6	--
1,2-Dichlorobenzene	990000	77000	--
1,2-Dichloroethane	7300	40	--
1,2-Dichloropropane	9300	60	--
1,3,5-Trimethylbenzene	69400	830	--
1,3-Dichlorobenzene	N/A	N/A	--
1,3-Dichloropropane	N/A	N/A	--
1,4-Dichlorobenzene	92000	9500	--
2,2-Dichloropropane	N/A	N/A	--
2-Butanone (MEK)	21000000	12000	--
2-Chlorotoluene	N/A	N/A	--
2-Hexanone	3600000	1400	--
4-Chlorotoluene	N/A	N/A	--
4-Methyl-2-pentanone (MIBK)	N/A	N/A	--
Acetone	6200000	3800	--
Benzene	17000	80	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D5**
		Field Sample Identification	**D5-0.5-0.75**
		Date Collected	**5/31/2006**
		Depth (feet)	**0.5 - 0.75**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[a]**		
Volatile Organic Compounds (µg/kg) (continued)			
Bromobenzene	N/A	N/A	--
Bromochloromethane	N/A	N/A	--
Bromodichloromethane	23000	1210	--
Bromoform	2400000	1720	--
Bromomethane	15000	90	--
Carbon disulfide	950000	450	--
Carbon tetrachloride	7000	200	--
Chlorobenzene	240000	4800	--
Chloroethane	N/A	N/A	--
Chloroform	6000	960	--
Chloromethane	140000	220	--
cis-1,2-Dichloroethylene	180000	800	--
cis-1,3-Dichloropropene	2500[b]	30[b]	--
Dibromochloromethane	230000	1330	--
Dibromomethane	N/A	N/A	--
Dichlorodifluoromethane	290000	23000	--
Ethylbenzene	650000	55000	--
Hexachlorobutadiene	140000	100000	--
Iodomethane (Methyl iodide)	N/A	N/A	--
Isopropyl ether	N/A	N/A	--
Isopropylbenzene (Cumene)	N/A	N/A	--
m,p-Xylene (Sum of isomers)	700000[b]	700000[b]	--
Methylene chloride	230000	30	--
n-Butylbenzene	395000	12000	--
n-Propylbenzene	400000	44000	--
Naphthalene	320000	140000	--
o-Xylene	700000[b]	700000[b]	--
p-Cymene (P-Isopropyltoluene)	N/A	N/A	--
sec-Butylbenzene	380000	9000	--
Styrene	2400000	16000	--
t-Butylbenzene	N/A	N/A	--
tert-Butyl methyl ether	15000000	90	--
Tetrachloroethylene (PCE)	140000	180	--
Toluene	1000000	40000	--
trans-1,2-Dichloroethene	290000	1500	--
trans-1,3-Dichloropropene	2500[b]	300[b]	--
Trichloroethylene (TCE)	98000	200	--
Trichlorofluoromethane	N/A	N/A	--
Vinyl acetate	N/A	N/A	--
Vinyl chloride	540	20	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D5**
		Field Sample Identification	**D5-0.5-0.75**
		Date Collected	**5/31/2006**
		Depth (feet)	**0.5 - 0.75**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**		
Semi-Volatile Organic Compounds (µg/kg)			
1,2,4,5-Tetrachlorobenzene	N/A	N/A	--
1,2,4-Trichlorobenzene	4900000	25000	--
1,2-Dichlorobenzene	990000	77000	--
1,2-Diphenylhydrazine	330	N/A	--
1,3-Dichlorobenzene	N/A	N/A	--
1,4-Dichlorobenzene	92000	9500	--
1-Chloronaphthalene	N/A	N/A	--
1-Methylnaphthalene	N/A	N/A	--
1-Naphthylamine	N/A	N/A	--
2,2'-oxybis(1-chloro)Propane	N/A	N/A	--
2,3,4,6-Tetrachlorophenol	20000000	6800000	--
2,4,5-Trichlorophenol	680000000	9200000	--
2,4,6-Trichlorophenol	1700000	150000	--
2,4-Dichlorophenol	2000000	54000	--
2,4-Dimethyl phenol	14000000	81000	--
2,4-Dinitrophenol	1200000	2100	--
2,4-Dinitrotoluene	28000	90	--
2,6-Dichlorophenol	N/A	N/A	--
2,6-Dinitrotoluene	28000	70	--
2-Chloronaphthalene	N/A	N/A	--
2-Chlorophenol	N/A	N/A	--
2-Methylnaphthalene	N/A	N/A	--
2-Methylphenol (o-Cresol)	6500000	29000	--
2-Nitroaniline	N/A	N/A	--
2-Nitrophenol	N/A	N/A	--
3,3'-Dichlorobenzidine	N/A	N/A	--
3-Methylcholanthrene	N/A	N/A	--
3-Nitroaniline	N/A	N/A	--
4,6-Dinitro-2-methylphenol	N/A	N/A	--
4-Bromophenyl phenyl ether	N/A	N/A	--
4-Chloro-3-methylphenol	N/A	N/A	--
4-Chloroaniline	N/A	N/A	--
4-Chlorophenyl phenyl ether	N/A	N/A	--
4-Nitroaniline	N/A	N/A	--
4-Nitrophenol	N/A	N/A	--
7,12-Dimethylbenz(a)anthracene	N/A	N/A	--
Acenaphthene	300000	300000	--
Acenaphthylene	N/A	N/A	--
Acetophenone	1600	0.6	--
Aniline (Phenylamine, Aminobenzene)	N/A	N/A	--

TABLE 1

SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D5**
		Field Sample Identification	**D5-0.5-0.75**
		Date Collected	**5/31/2006**
		Depth (feet)	**0.5 - 0.75**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**		
Semi-Volatile Organic Compounds (µg/kg) (continued)			
Anthracene	13000	13000	--
Benzidine	80	0.2	--
Benzo(a)anthracene	26000	35000	--
Benzo(a)pyrene	2600	16000	--
Benzo(b)fluoranthene	19000	19000	--
Benzo(g,h,i)perylene	N/A	N/A	--
Benzo(k)fluoranthene	10000	10000	--
Benzoic acid	N/A	N/A	--
Benzyl alcohol	N/A	N/A	--
Benzyl butyl phthalate	1500000	1500000	--
bis(2-chloroethoxy) Methane	N/A	N/A	--
bis(2-chloroisopropyl) Ether	82000	490	--
bis(2-ethylhexyl) Phthalate	1400000	18000000	--
Carbazole	250000	54000	--
Chrysene	6400	6400	--
Cresols, m & p	3400000	6500	--
Di-n-butyl phthalate	N/A	N/A	--
Di-n-octylphthalate	14000000	17000000	--
Dibenz(a,h)anthracene	N/A	N/A	--
Dibenz(a,j)acridine	N/A	N/A	--
Dibenzofuran	1351000	86500	--
Diethyl Phthalate	3200000	3200000	--
Dimethyl phthalate	N/A	N/A	--
Dimethylphenylethylamine	N/A	N/A	--
Ethyl methanesulfonate	N/A	N/A	--
Fluoranthene	220000	220000	--
Fluorene	270000	270000	--
Hexachlorobenzene	12000	11000	--
Hexachlorobutadiene	140000	100000	--
Hexachlorocyclopentadiene	N/A	N/A	--
Hexachloroethane	680000	26000	--
Indeno(1,2,3-c,d)Pyrene	760	760	--
Isophorone	N/A	N/A	--
Methyl methanesulfonate	N/A	N/A	--
n-Nitroso-di-n-butylamine	N/A	N/A	--
n-Nitroso-di-n-propylamine	N/A	N/A	--
n-Nitrosodimethylamine	N/A	N/A	--
n-Nitrosodiphenylamine	N/A	N/A	--
n-Nitrosopiperidine	N/A	N/A	--
Naphthalene	320000	140000	--
Nitrobenzene	110000	90	--

TABLE 1

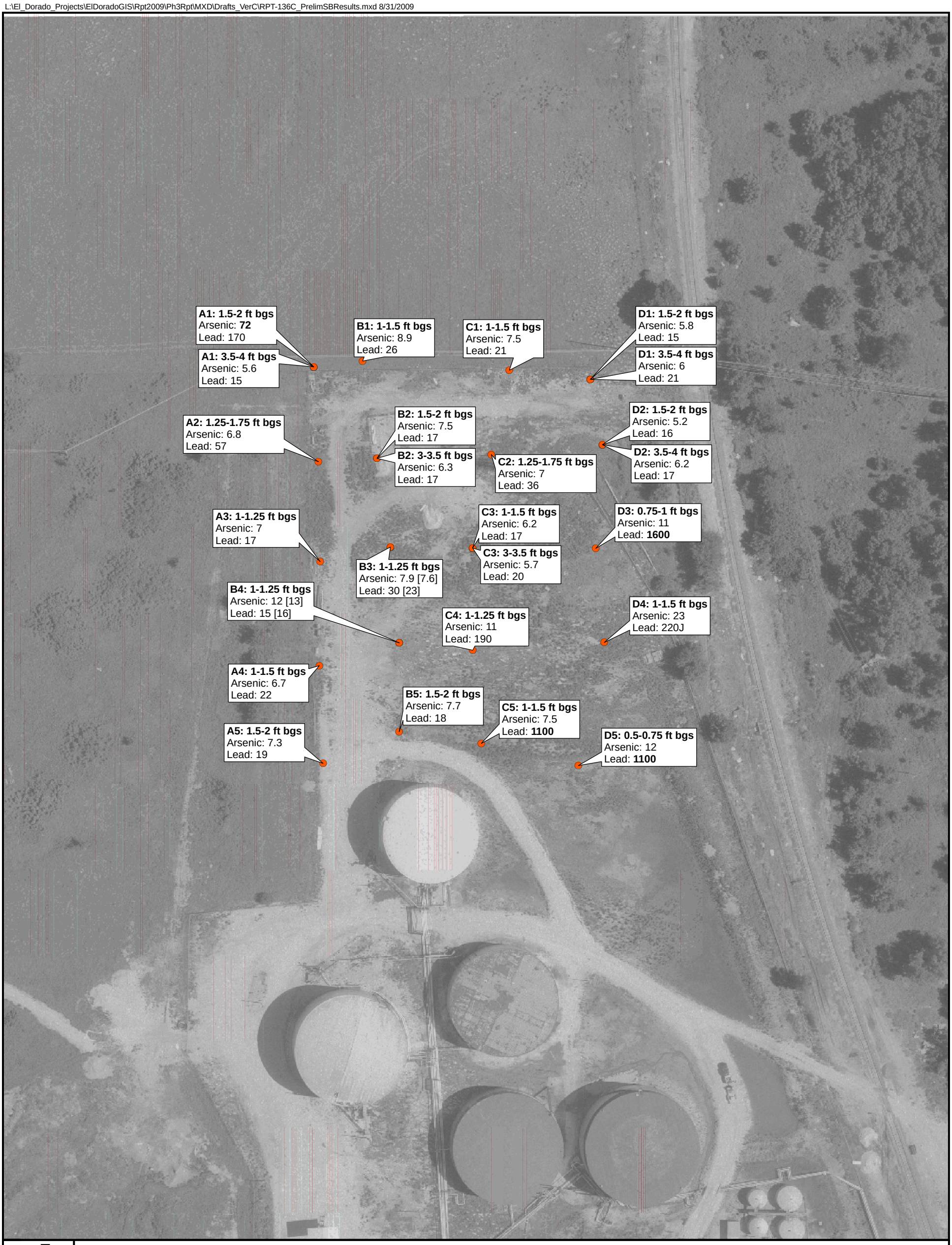
SUMMARY OF SOIL SAMPLES RESULTS
PRE-INVESTIGATION SAMPLING
EL PASO CORPORATION, EL DORADO, KANSAS

		Location Identification	**EDR-D5**
		Field Sample Identification	**D5-0.5-0.75**
		Date Collected	**5/31/2006**
		Depth (feet)	**0.5 - 0.75**
Analyte/Methods (Units)	**KDHE Risk-Based Stds[(a)]**		
Semi-Volatile Organic Compounds (µg/kg) (continued)			
Pentachlorobenzene	N/A	N/A	--
Pentachloronitrobenzene	N/A	N/A	--
Pentachlorophenol	160000	20000	--
Phenacetin	N/A	N/A	--
Phenanthrene	N/A	N/A	--
Phenol	32000000	560000	--
Pronamide	N/A	N/A	--
Pyrene	140000	140000	--
Pyridine	150000	50	--

(a) Risk-Based Standards of Kansas (Kansas Department of Health and Environment, 2003 and 2003 and 2004 revisions).
(b) Standard is for the total concentration of the analyte.

µg/kg	micrograms per kilogram.
mg/kg	milligrams per kilogram.
Bold	Bolded result indicates positively identified compound.
Italics	Italicized result indicates result greater than the standard.
Shaded	Shaded result indicates result or reporting limit greater than or equal to the mitigation action level.
--	Not scheduled.
N/A	Not applicable.
D	Sample dilution required for analysis; reported values reflect the dilution.
J	Data are estimated due to associated quality control data.
T	Analyte was positively identified but the reported concentration is estimated; reported concentration is less than the reporting limit, but greater than the method detection limit.
UJ	Potential low bias, possible false negative.
GW	Ground water

L:\El_Dorado_Projects\ElDoradoGIS\Rpt2009\Ph3Rpt\MXD\Drafts_VerC\RPT-136C_PrelimSBResults.mxd 8/31/2009



TITLE
PRELIMINARY INVESTIGATION
SOIL BORING LOCATION
DATA MAP

FIGURE
1

LEGEND:

- SOIL BORING

NOTES:
SOIL BORINGS LABELED WITH NAME, SAMPLING DEPTH, ANALYTE, AND ARSENIC AND LEAD CONCENTRATIONS IN SOIL (mg/kg).
KANSAS TIER 2 RISK-BASED STANDARD FOR NON-RESIDENTIAL SOIL PATHWAY FOR ARSENIC = 38 mg/kg; LEAD = 1,000 mg/kg.
RESULTS EXCEEDING SCREENING LEVEL ARE SHOWN IN **BOLDFACE** TYPE.
SOIL SAMPLES COLLECTED MAY 30-31, 2006.
ft bgs = FEET BELOW GROUND SURFACE.
DUPLICATE RESULTS SHOWN IN BRACKETS [ ].
J = DATA ARE ESTIMATED DUE TO ASSOCIATED QUALITY CONTROL DATA.

N
W E
S

SCALE
0 100 200
SCALE IN FEET

DRAWING REFERENCE(S):
1. AERIAL PHOTOGRAPH PRODUCED BY AERO-METRIC, INC. FROM JUNE 15, 2005 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	08/09
DRAWN BY	R. Hultgren	08/09
CHECKED BY	R. Hultgren	08/09
APPROVED BY	W. Pickens	08/09
PROJECT MANAGER	D. Mick	08/09
PROJECT NO.	1914351.90010408	
FILE NAME	RPT-136C_PrelimSBResults.mxd	

elpaso

PROJECT LOCATION
EL DORADO, KANSAS
PROJECT
EL PASO MERCHANT ENERGY - PETROLEUM CO.
TITLE
PRELIMINARY INVESTIGATION
SOIL BORING LOCATION DATA MAP

MWH

FIGURE
1

Appendix H

Geotechnical Data

DAILY FIELD REPORT

MWH

DATE: 1/11/07

PROJECT PHASE: EDR Phase III

JOB NO: 1914029

CLIENT: EPMEPC

WEATHER: Sunny, cool

TEMP: 30s to 40's

Field Geologist: David Bollenback

Personnel:			
MWH	David Bollenback, Matt Warner		
Contractor	**Non-Manual**	**Manual**	**Activities**
BGS	0	2	1 TW-LF, 5 geotech boring via Shelby tubes

Primary Equipment On-Site:

Equipment	**Contractor**	**Area**	**Usage**
Geoprobe 6620DT	BGS	South Tank Farm and Main Site.	Direct Push sampling
Buckets of Alconox and Water	BGS and MWH	South Tank Farm and Main Site.	Cleaning rods and equipment
Water level indicator	MWH Wichita Retail	South Tank Farm and Main Site.	Gauging water levels
Mini-ray	MWH Wichita Rental	South Tank Farm and Main Site.	OV readings
Chevy Silverado	Enterprise	South Tank Farm and Main Site.	Site truck

Visitors:

Time	**Name**	**Representing**	**Remarks**

Planning/Action Items:

Date	**Event**
1-11-08	Attempted TW-LF, GP-01,02,03,04, and 05

Activities Completed:

- Attempted to set well in Land Farm, TW-LF. Hit limestone at 3.6' and refusal at 4.9. PID read 0.0 throughout sample. No Well was set.
- Geoprobe recovered 5 successful Shelby tubes.
- GP-01 – At TW-13 location
- GP-02 – At TW-20 location
- GP-03 – moved from TW-30 to TW-27 location due to refusal.
- GP-04 – moved from BH-129 and BH-130 due to gravel refusal and contamination, done at SB-07
- GP-05 – moved from BH-136 to TW-69 due to gravel refusal.
- All Shelby tubes capped with wax and delivered to GSI for testing.

Meetings / Conversations with Client / Contractors:

- None.

Safety Issues:

- None

DISTRIBUTION: 1. Proj Mgr. 2.Field Office 3. File 2111179

By: Dave Bollenback

Title: Geologist

GSI

March 6, 2008

RECEIVED
MAR 17 2008
BY: LD WCH-1

Mr. Doug Mick
MWH Americas, Inc.
8200 E. 34th Street North, Suite 1201
Wichita, Kansas 67226

Subject: Soil Laboratory Testing – Revised Report
El Dorado Refinery
El Dorado, Kansas
GSI Project No. 077377

Mr. Mick:

Pursuant to your request, Geotechnical Services, Inc. has performed a laboratory testing program on fifteen soil samples which were submitted to our laboratory on December 4, 2007 and January 16, 2008, by representatives of MWH Americas Inc.

All fifteen soil samples were tested in accordance with:

ASTM D 422 – Particle Size Analysis of Soils;
ASTM D 854 – Specific Gravity of Soil Solids by Water Pycnometer;
ASTM D 2216 – Moisture Content of Soil and Rock by Mass;
ASTM D 2487 – Classification of Soils for Engineering Purposes (USCS); and
ASTM D 4318 – Liquid Limit, Plastic Limit and Plasticity Index of Soils.

A Summary of Laboratory Testing and Particle Size Distribution Reports for each sample are enclosed. The reports for sample numbers 9, 11, and 14, originally submitted on December 28, 2007, have been revised.

Please contact our office should you have any questions regarding the testing methods used or the testing results provided.

Respectfully,
Geotechnical Services Inc.

David Edwards

David A. Edwards, P.E.
Principal Engineer

Enclosures: Summary of Laboratory Testing (1), Particle Size Distribution Reports (15)

G:\JOBS\Wichita\077\077377\077377 Laboratory Testing 03-06.doc

Sample No.	Sample Type	USCS Soil Classifcation	Sample Color	Moisture Content (%)	Dry Unit Weight (lb/ft^3)	Unconfined Compressive Strength ($kips/ft^2$)	Atterberg Limits Liquid Limit	Atterberg Limits Plastic Limit	Atterberg Limits Plasticity Index	Percent Passing No. 200 Sieve	Specific Gravity	Remarks
1	Bulk	CH - Fat Clay	Dark Brown	30.5			60	27	33	99.0	2.67	
2	Bulk	CH - Fat Clay	Dark Brown	27.2			50	23	27	98.0	2.62	
3	Bulk	CH - Fat Clay	Dark Brown	28.6			54	25	29	99.0	2.63	
4	Bulk	CH - Fat Clay	Dark Brown	27.0			56	23	33	99.0	2.60	
5	Bulk	CH - Fat Clay	Dark Brown	27.9			54	23	31	99.0	2.61	
6	Bulk	CH - Fat Clay	Dark Brown	23.9			53	23	30	99.0	2.60	
7	Bulk	CL - Lean Clay	Dark Brown	24.6			47	21	26	99.0	2.60	
8	Bulk	CL - Lean Clay	Very Dark Brown	33.2			43	18	25	99.0	2.63	
9	Bulk	CH - Fat Clay	Dark Brown	27.3			52	23	29	99.0	2.61	
10	Bulk	CL - Lean Clay	Dark Brown	27.4			49	23	26	99.0	2.63	
11	Bulk	CL - Lean Clay	Dark Brown	20.1			44	17	27	96.0	2.64	
12	Bulk	CH - Fat Clay	Dark Brown	27.7			55	24	31	99.0	2.64	
13	Bulk	CH - Fat Clay	Dark Brown	29.4			57	24	33	99.0	2.65	
14	Bulk	CL - Lean Clay	Dark Brown	28.4			49	22	27	99.0	2.62	
15	Bulk	CH - Fat Clay	Dark Brown	27.4			51	22	29	99.0	2.64	

GSI Geotechnical Services, Inc.

SUMMARY OF FIELD AND LABORATORY TEST RESULTS

Project: **El Dorado Refinery**

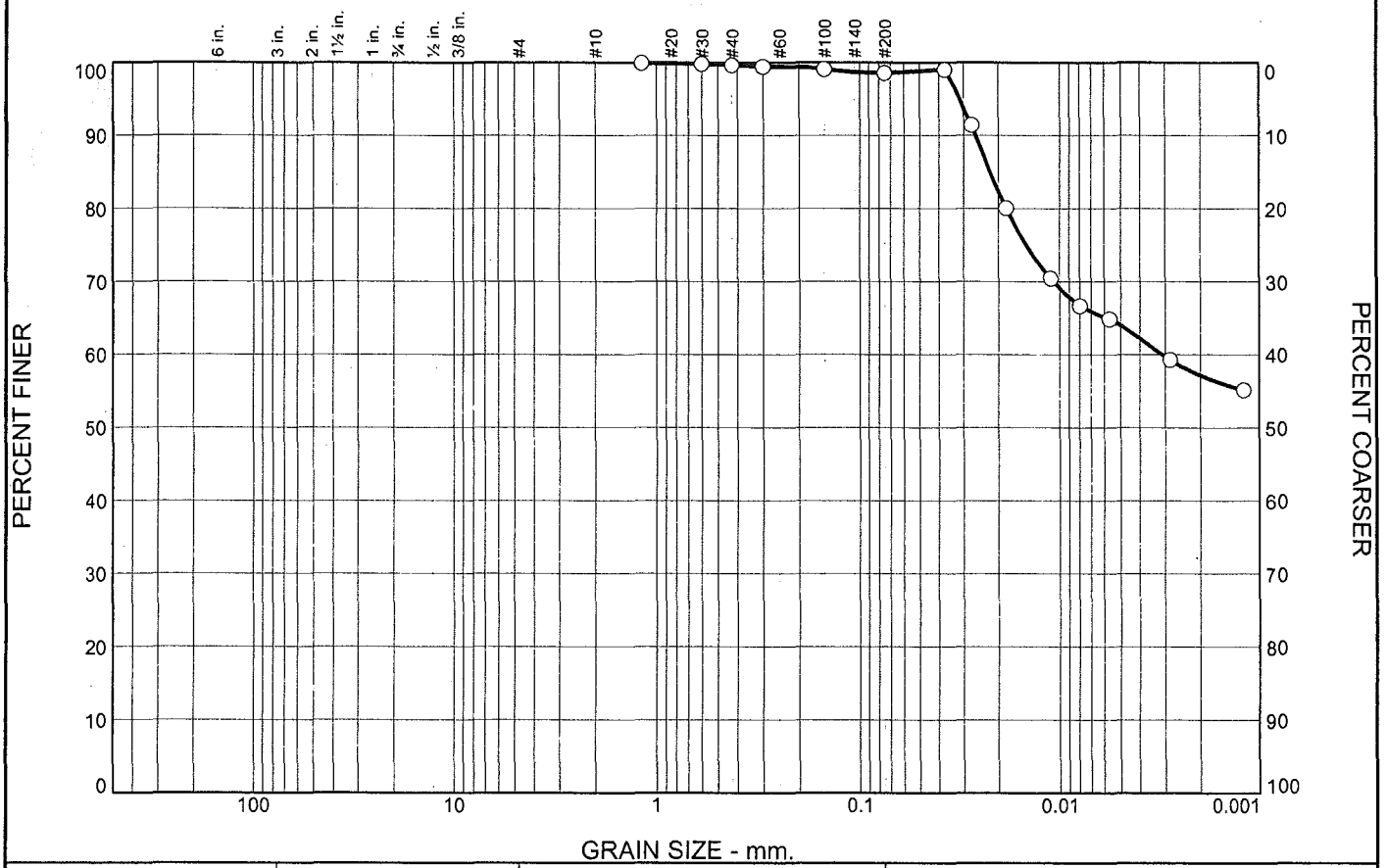
Location: **El Dorado, Kansas**

Job Number: **077377**

Date: **12/28/2007 rev. 03/06/2008**

This report shall not be reproduced, except in full, without the written approval of the laboratory.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	35	64

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	99		
#100	99		
#200	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 27 LL= 60 PI= 33

Coefficients

D_{85}= 0.0221 D_{60}= 0.0031 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

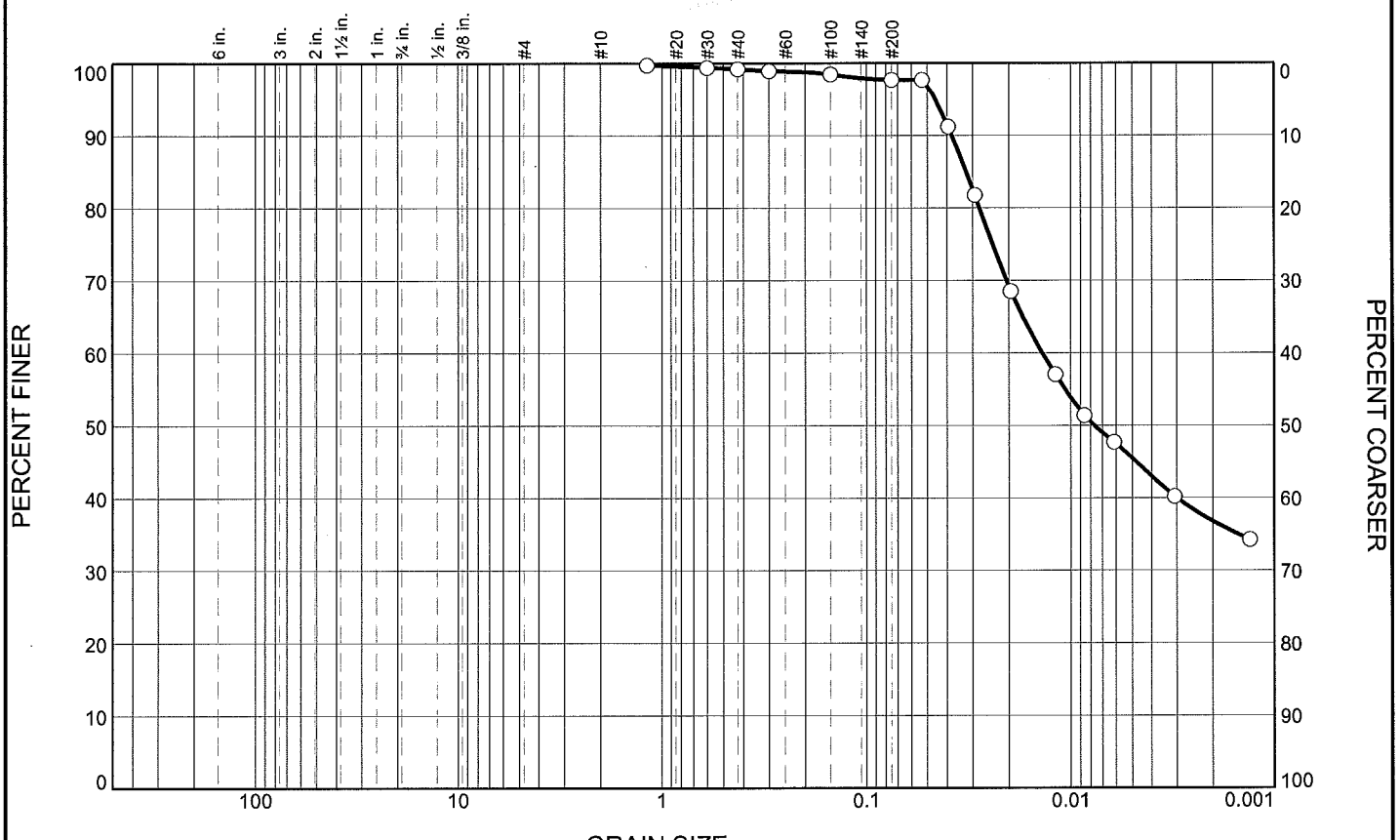
Sample Number: #1 **Date:** 12-12-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	53	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	99		
#40	99		
#50	99		
#100	98		
#200	98		
#270	98		
0.0395 mm.	91		
0.0292 mm.	82		
0.0196 mm.	68		
0.0119 mm.	57		
0.0086 mm.	51		
0.0061 mm.	48		
0.0031 mm.	40		
0.0013 mm.	34		

* (no specification provided)

Soil Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 23 LL= 50 PI= 27

Coefficients

D_{85}= 0.0322 D_{60}= 0.0138 D_{50}= 0.0077
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

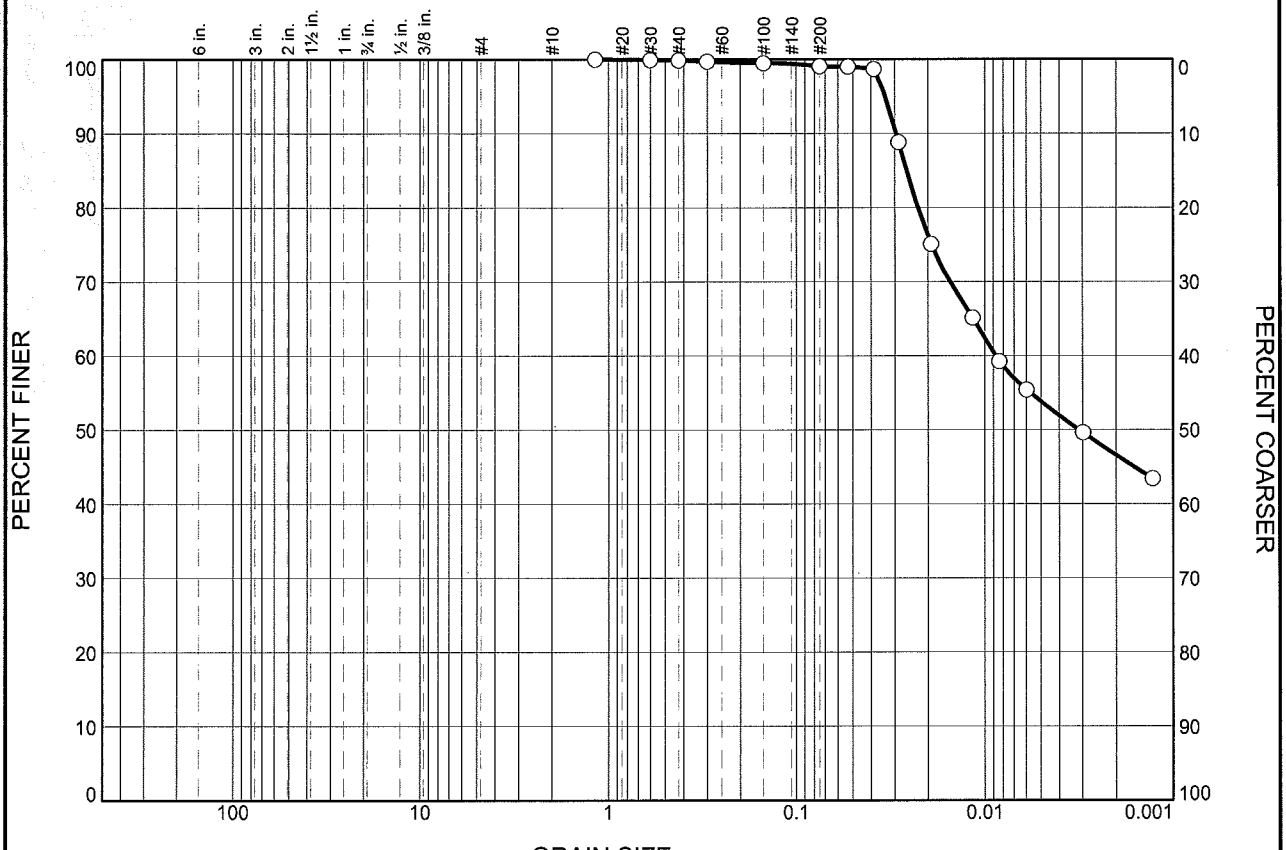
Sample No.: #2 **Source of Sample:** **Date:** 12-12-07
Location: **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	0	1	45	54

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	100		
#200	99		
#270	99		
0.0386 mm.	99		
0.0286 mm.	89		
0.0192 mm.	75		
0.0116 mm.	65		
0.0084 mm.	59		
0.0060 mm.	55		
0.0030 mm.	50		
0.0013 mm.	43		

* (no specification provided)

Soil Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 25 LL= 54 PI= 29

Coefficients

D_{85}= 0.0260 D_{60}= 0.0088 D_{50}= 0.0031
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(33)

Remarks

Sample No.: #3 **Source of Sample:** **Date:** 12-12-07
Location: **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	54	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	100		
#200	99		
#270	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 23 LL= 56 PI= 33

Coefficients

D_{85}= 0.0378 D_{60}= 0.0166 D_{50}= 0.0083
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: #4 **Date:** 12-12-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	0	1	56	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 23 LL= 54 PI= 31

Coefficients

D_{85}= 0.0348 D_{60}= 0.0160 D_{50}= 0.0094
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(35)

Remarks

Sample Number: #5 **Date:** 12-12-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	55	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 23 LL= 53 PI= 30

Coefficients

D_{85}= 0.0378 D_{60}= 0.0184 D_{50}= 0.0099
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: #6 **Date:** 12-14-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	56	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	99		
#100	99		
#200	99		
#270	99		

* (no specification provided)

Material Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 21 LL= 47 PI= 26

Coefficients

D_{85}= 0.0295 D_{60}= 0.0146 D_{50}= 0.0092
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

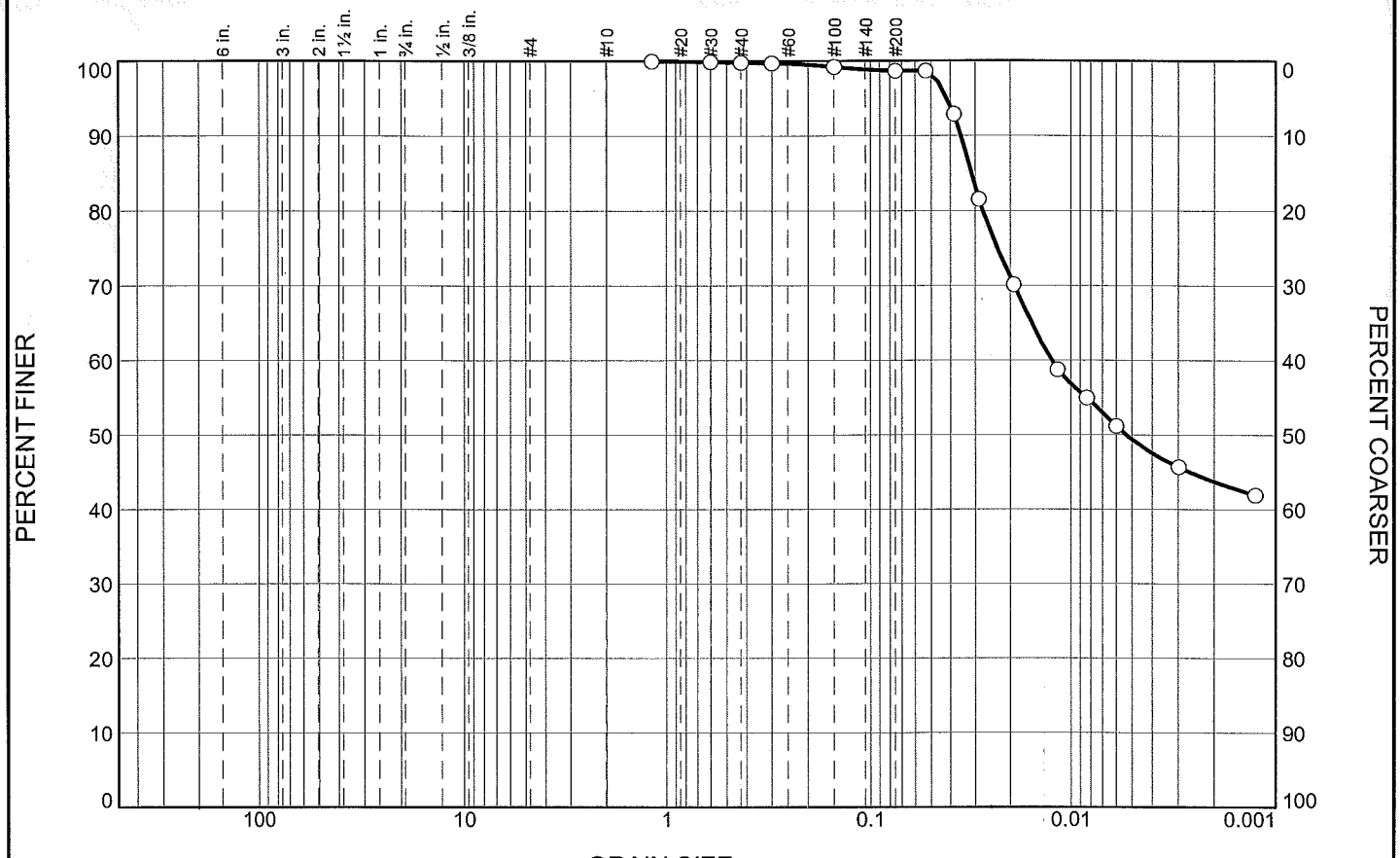
Sample Number: #7 **Date:** 12-14-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	50	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		
0.0383 mm.	93		
0.0287 mm.	82		
0.0192 mm.	70		
0.0116 mm.	59		
0.0083 mm.	55		
0.0060 mm.	51		
0.0030 mm.	46		
0.0013 mm.	42		

* (no specification provided)

Soil Description

CL - Very Dark Brown Silty Lean Clay

Atterberg Limits

PL= 18 LL= 43 PI= 25

Coefficients

D_{85}= 0.0313 D_{60}= 0.0125 D_{50}= 0.0054
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.63

Sample No.: #8 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	50	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		
0.0383 mm.	93		
0.0287 mm.	82		
0.0192 mm.	70		
0.0116 mm.	59		
0.0083 mm.	55		
0.0060 mm.	51		
0.0030 mm.	46		
0.0013 mm.	42		

* (no specification provided)

Soil Description

CL - Very Dark Brown Silty Lean Clay

Atterberg Limits

PL= 18 LL= 43 PI= 25

Coefficients

D_{85}= 0.0313 D_{60}= 0.0125 D_{50}= 0.0054
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

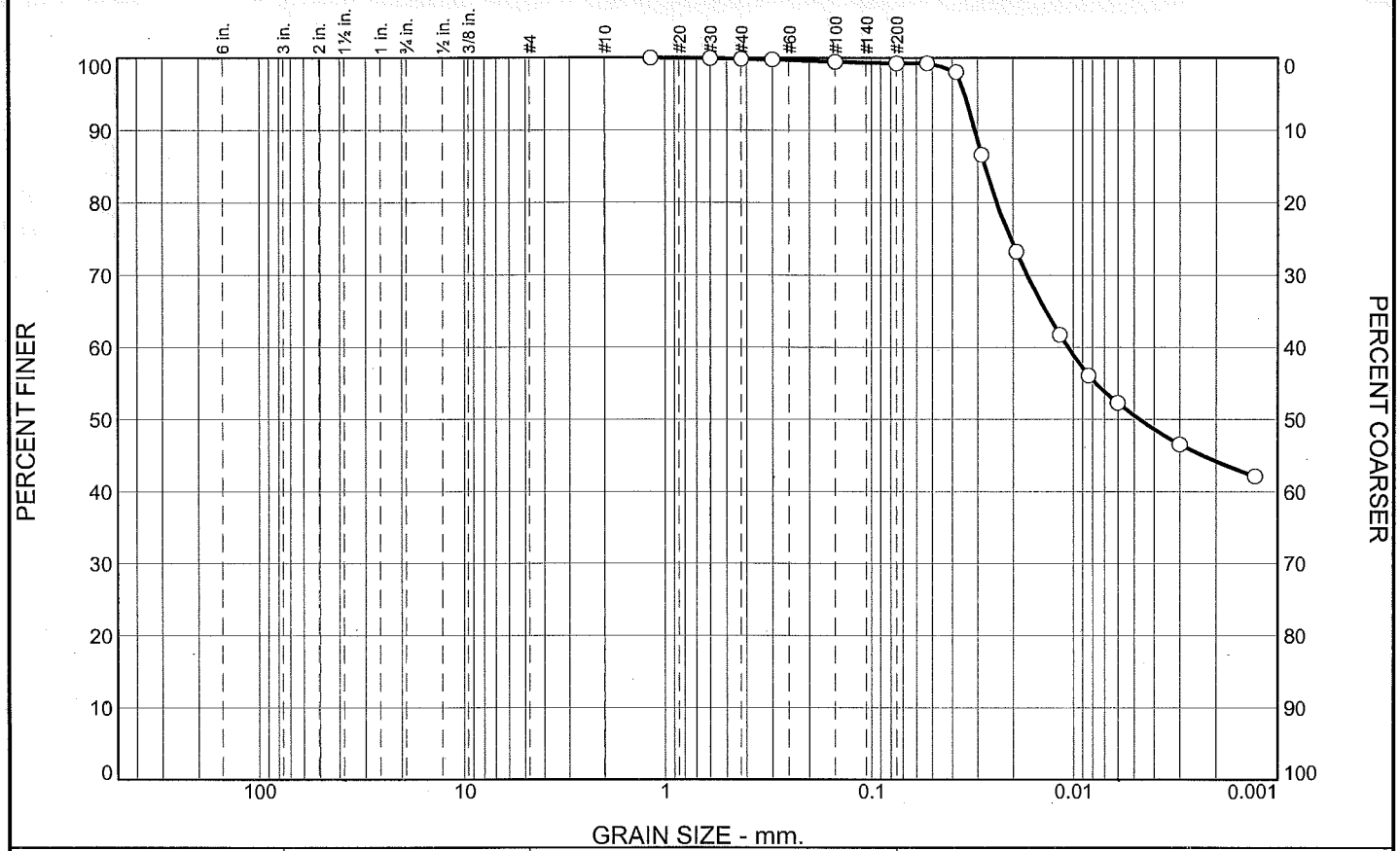
Specific Gravity by ASTM D-854 = 2.63

Sample No.: #8 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	48	51

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		
0.0382 mm.	98		
0.0286 mm.	87		
0.0192 mm.	73		
0.0116 mm.	62		
0.0084 mm.	56		
0.0060 mm.	52		
0.0030 mm.	47		
0.0013 mm.	42		

* (no specification provided)

Soil Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 23 LL= 52 PI= 29

Coefficients

D_{85}= 0.0276 D_{60}= 0.0106 D_{50}= 0.0047
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

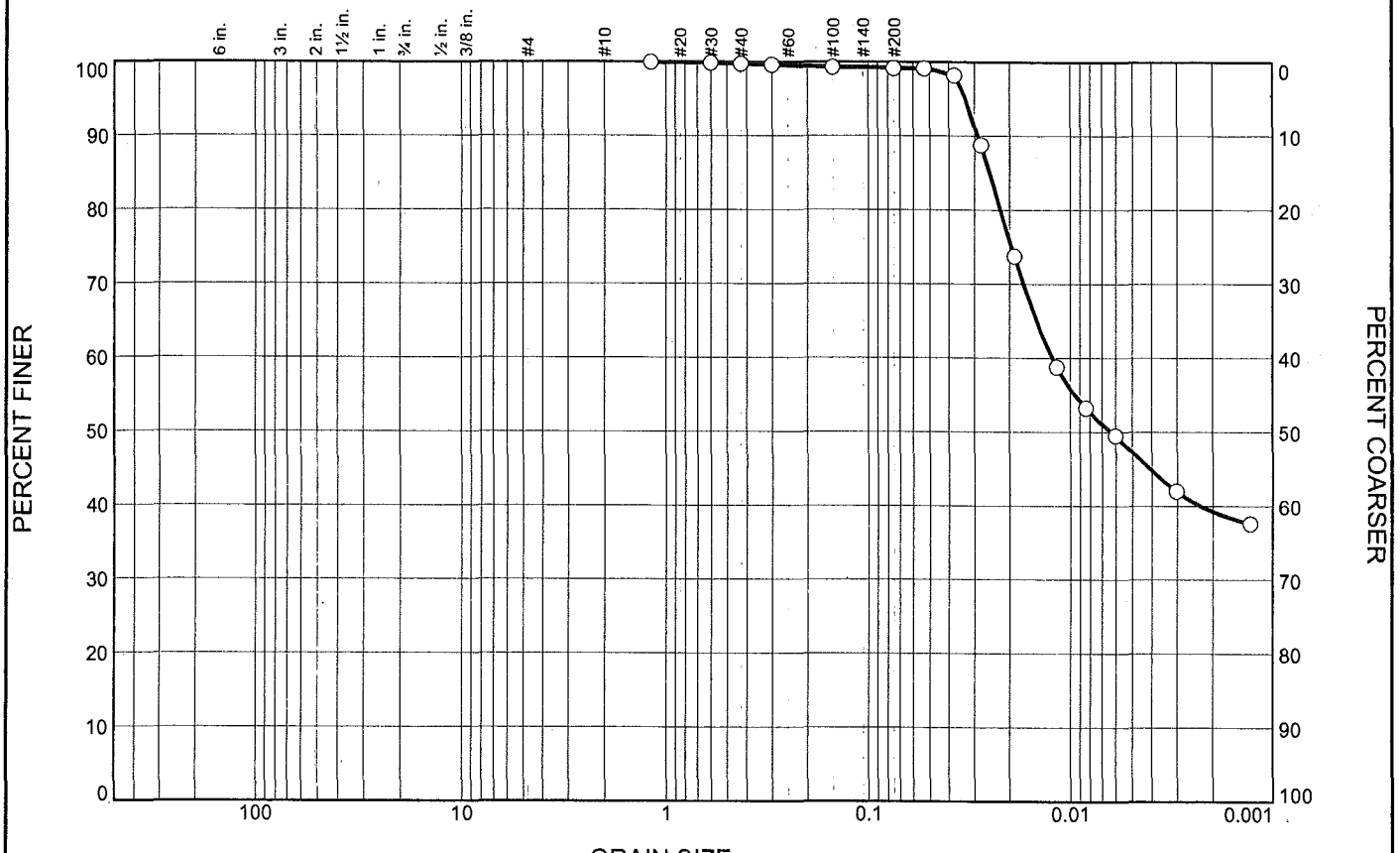
Sample No.: #9 **Source of Sample:** **Date:** 12-14-07
Location: **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	52	47

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		

* (no specification provided)

Material Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 23 LL= 49 PI= 26

Coefficients

D_{85}= 0.0254 D_{60}= 0.0123 D_{50}= 0.0063
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

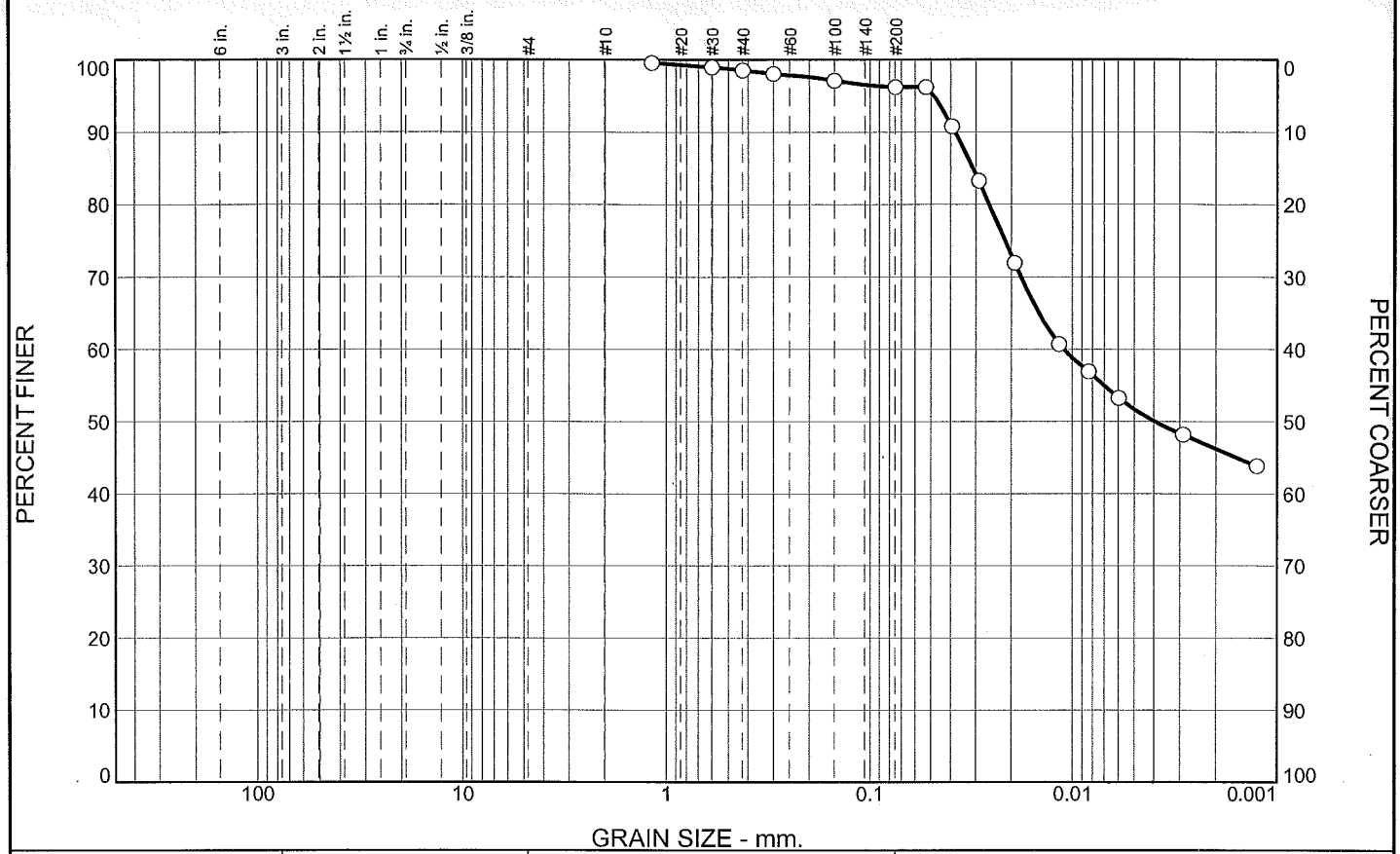
Sample Number: #10 **Date:** 12-14-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					3	44	52

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	99		
#40	99		
#50	98		
#100	97		
#200	96		
#270	96		
0.0394 mm.	91		
0.0289 mm.	83		
0.0192 mm.	72		
0.0116 mm.	61		
0.0083 mm.	57		
0.0060 mm.	53		
0.0029 mm.	48		
0.0013 mm.	44		

* (no specification provided)

Soil Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 17 LL= 44 PI= 27

Coefficients

D_{85}= 0.0309 D_{60}= 0.0110 D_{50}= 0.0040
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: #11 **Source of Sample:** **Date:** 12-13-07
Location: **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	41	58

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	100		
#200	99		
#270	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 24 LL= 55 PI= 31

Coefficients

D_{85}= 0.0218 D_{60}= 0.0067 D_{50}= 0.0020
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

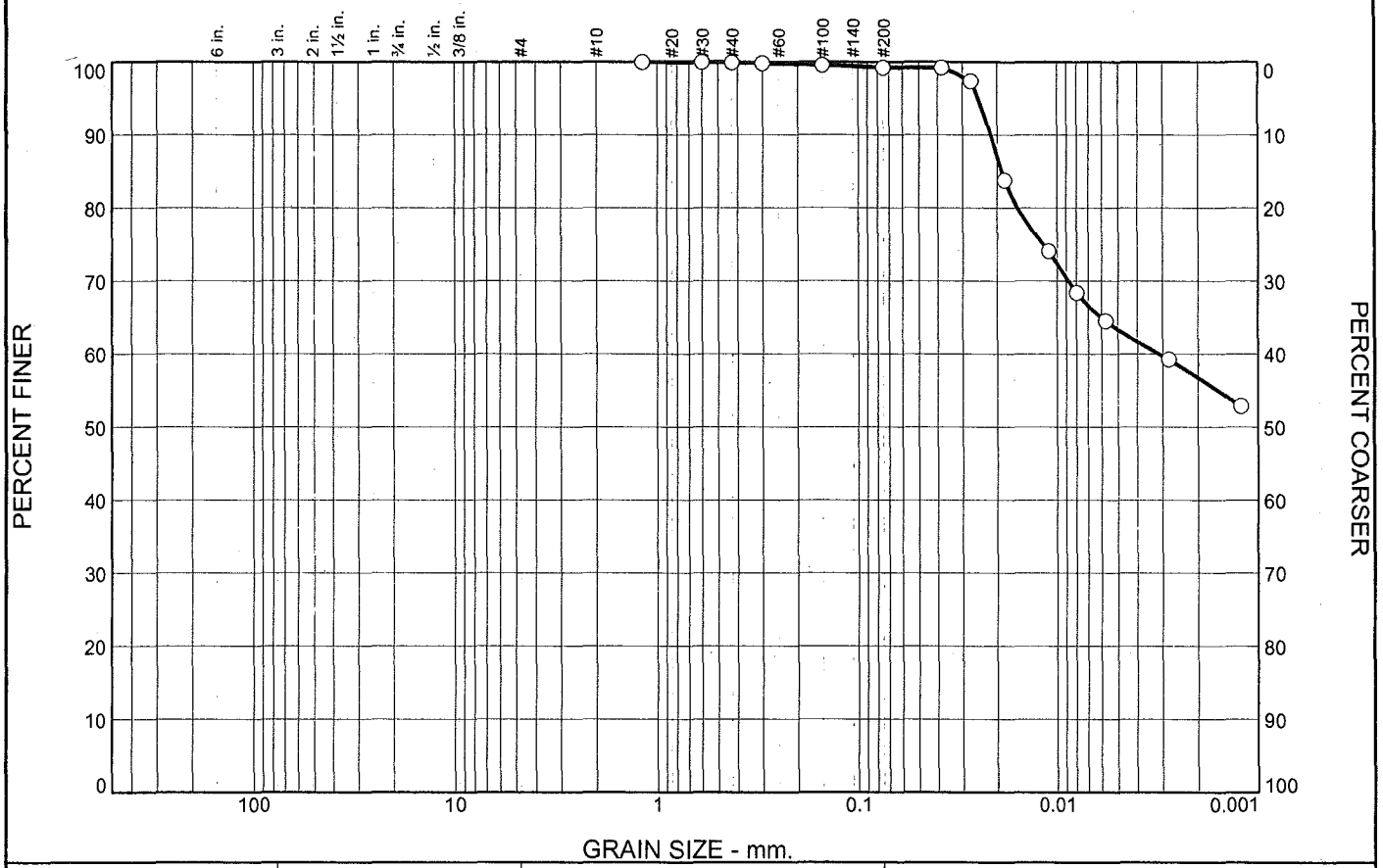
Sample Number: #12 **Date:** 12-13-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	0	1	36	63

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	100		
#200	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 24 LL= 57 PI= 33

Coefficients

D_{85}= 0.0190 D_{60}= 0.0031 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(38)

Remarks

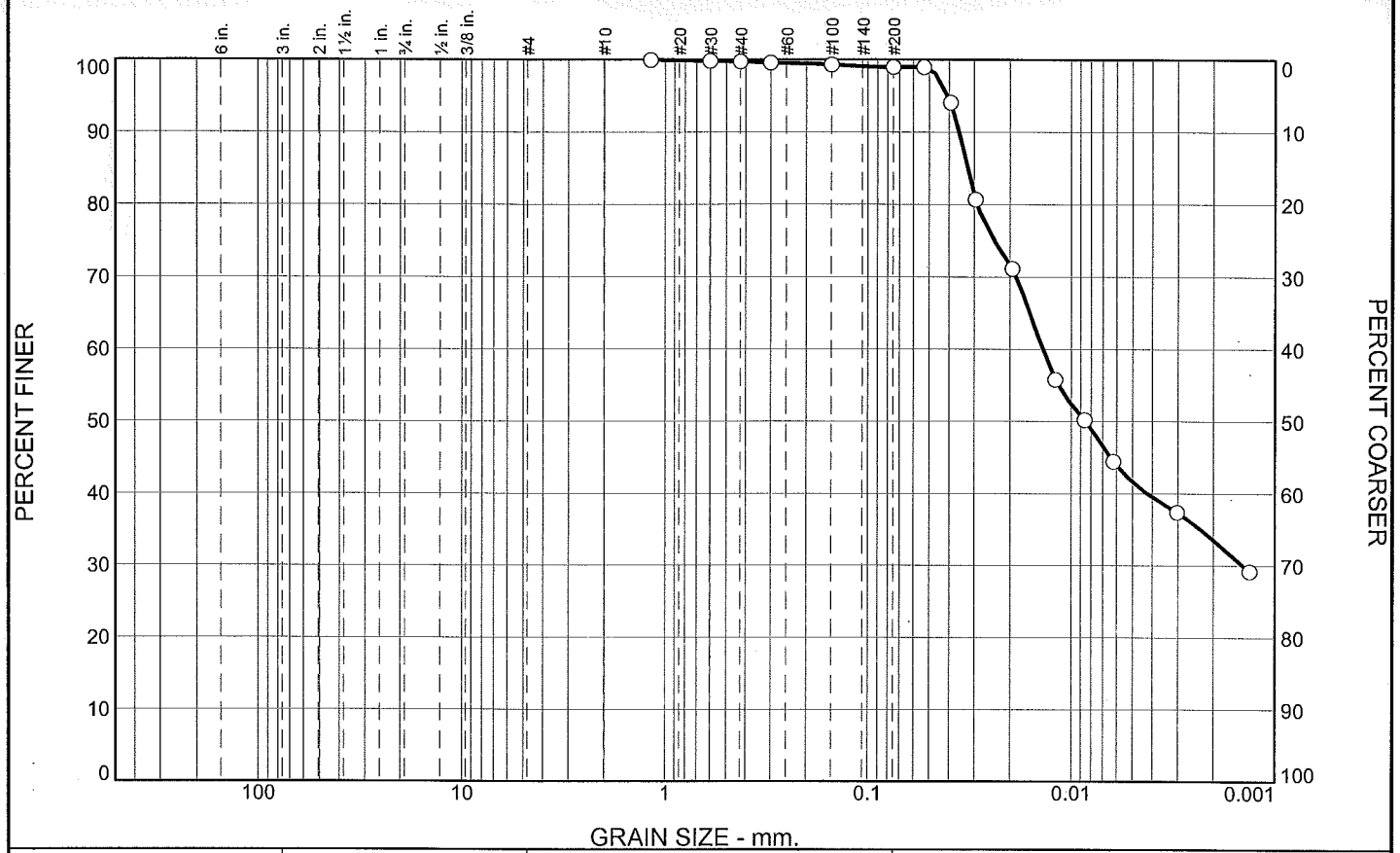
Sample Number: #13 **Date:** 12-13-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	57	42

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		
0.0391 mm.	94		
0.0295 mm.	81		
0.0195 mm.	71		
0.0119 mm.	56		
0.0086 mm.	50		
0.0062 mm.	44		
0.0030 mm.	37		
0.0013 mm.	29		

* (no specification provided)

Soil Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 22 LL= 49 PI= 27

Coefficients

D_{85}= 0.0324 D_{60}= 0.0137 D_{50}= 0.0085
D_{30}= 0.0014 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: #14 **Source of Sample:** **Date:** 12-13-07
Location: **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					1	55	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#30	100		
#40	100		
#50	100		
#100	99		
#200	99		
#270	99		

* (no specification provided)

Material Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 22 LL= 51 PI= 29

Coefficients

D_{85}= 0.0269 D_{60}= 0.0131 D_{50}= 0.0077
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: #15 **Date:** 12-15-07

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: Laboratory Testing
Project No: 077377 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

March 6, 2008

Mr. Doug Mick
MWH Americas, Inc.
8200 E. 34th Street North, Suite 1201
Wichita, Kansas 67226

Subject: Soil Laboratory Testing – Revised Report
El Dorado Refinery
El Dorado, Kansas
GSI Project No. 077377

Mr. Mick:

Pursuant to your request, Geotechnical Services, Inc. has performed a laboratory testing program on fifteen soil samples which were submitted to our laboratory on December 4, 2007 and January 16, 2008, by representatives of MWH Americas Inc.

All fifteen soil samples were tested in accordance with:

ASTM D 422 – Particle Size Analysis of Soils;
ASTM D 854 – Specific Gravity of Soil Solids by Water Pycnometer;
ASTM D 2216 – Moisture Content of Soil and Rock by Mass;
ASTM D 2487 – Classification of Soils for Engineering Purposes (USCS); and
ASTM D 4318 – Liquid Limit, Plastic Limit and Plasticity Index of Soils.

A Summary of Laboratory Testing and Particle Size Distribution Reports for each sample are enclosed. The reports for sample numbers 9, 11, and 14, originally submitted on December 28, 2007, have been revised.

Please contact our office should you have any questions regarding the testing methods used or the testing results provided.

Respectfully,
Geotechnical Services Inc.

David A. Edwards, P.E.
Principal Engineer

Enclosures: Summary of Laboratory Testing (1), Particle Size Distribution Reports (15)

G:\JOBS\Wichita\077\077377\077377 Laboratory Testing 03-06.doc

GSI

January 30, 2008

RECEIVED
FEB 01 2008
BY: WCH-1 CT

Mr. Dave Bollenback
MWH Americas, Inc.
8200 E. 34th Street North, Suite 1201
Wichita, Kansas 67226

Subject: Soil Laboratory Testing
El Dorado Refinery
El Dorado, Kansas
GSI Project No. 087016

Dear Mr. Bollenback:

Pursuant to your request, Geotechnical Services, Inc. has performed laboratory testing on five soil samples submitted to our laboratory by representatives of MWH Americas Inc.

The soil samples were tested in accordance with:

ASTM D 422 – Particle Size Analysis of Soils;
ASTM D 854 – Specific Gravity of Soil Solids by Water Pycnometer;
ASTM D 2216 – Moisture Content of Soil and Rock by Mass;
ASTM D 2487 – Classification of Soils for Engineering Purposes (USCS); and
ASTM D 4318 – Liquid Limit, Plastic Limit and Plasticity Index of Soils.

A Liquid and Plastic Limits Test Report and a Particle Size Distribution Report for each soil sample are enclosed.

Please contact our office should you have any questions regarding the testing methods used or the testing results provided.

Respectfully,
Geotechnical Services Inc.

David Edwards

David A. Edwards, P.E.
Principal Engineer

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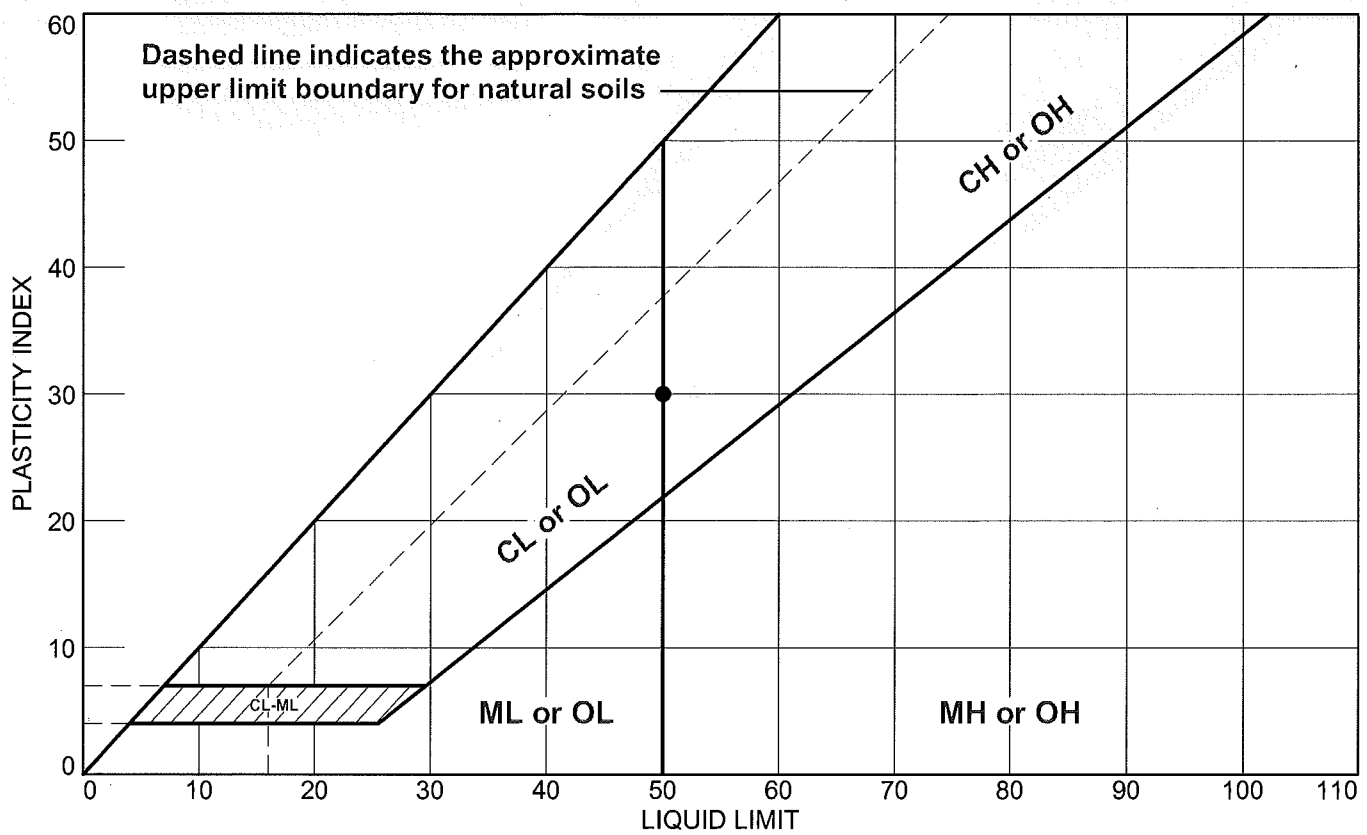
LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

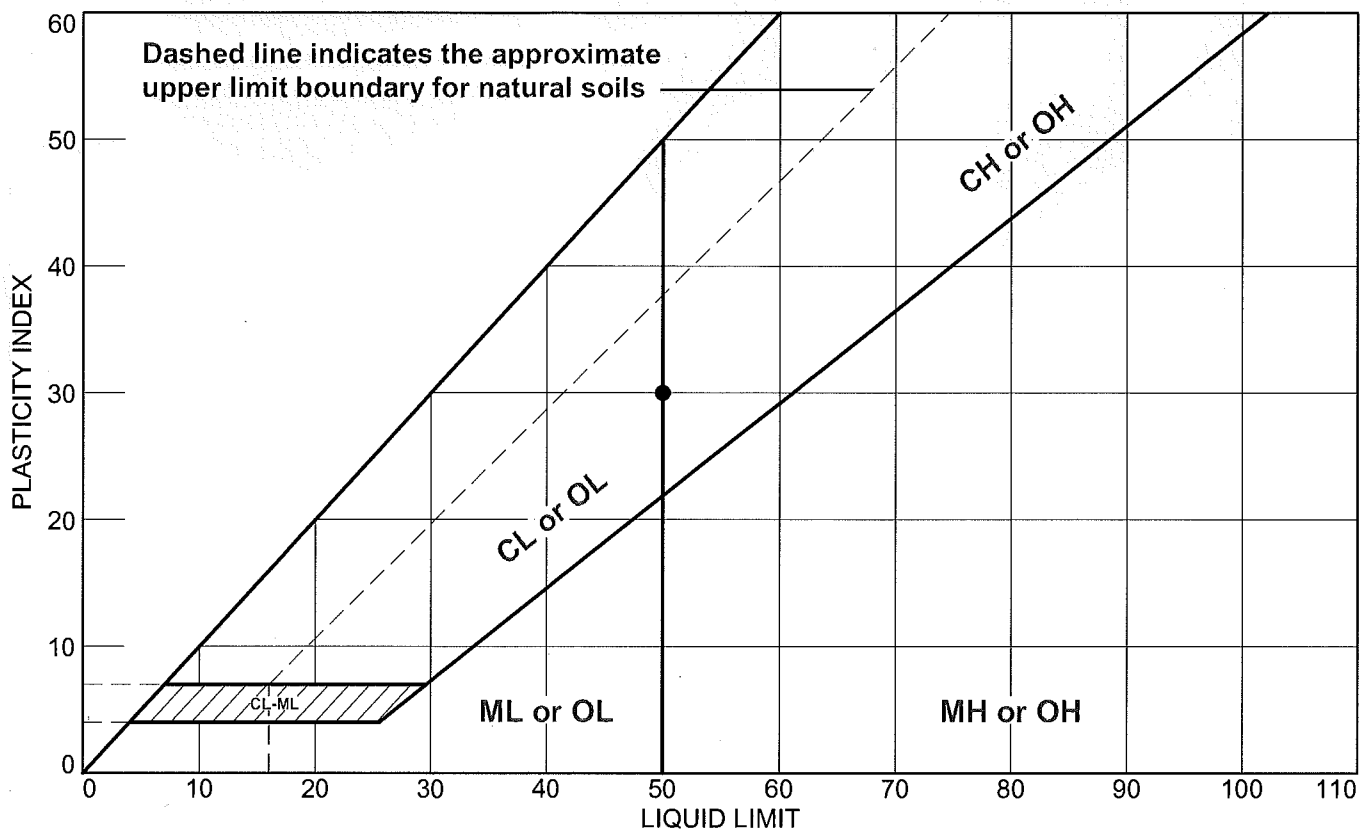
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●		GP-01		28.2	20	50	30	0.3	CL

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No.: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

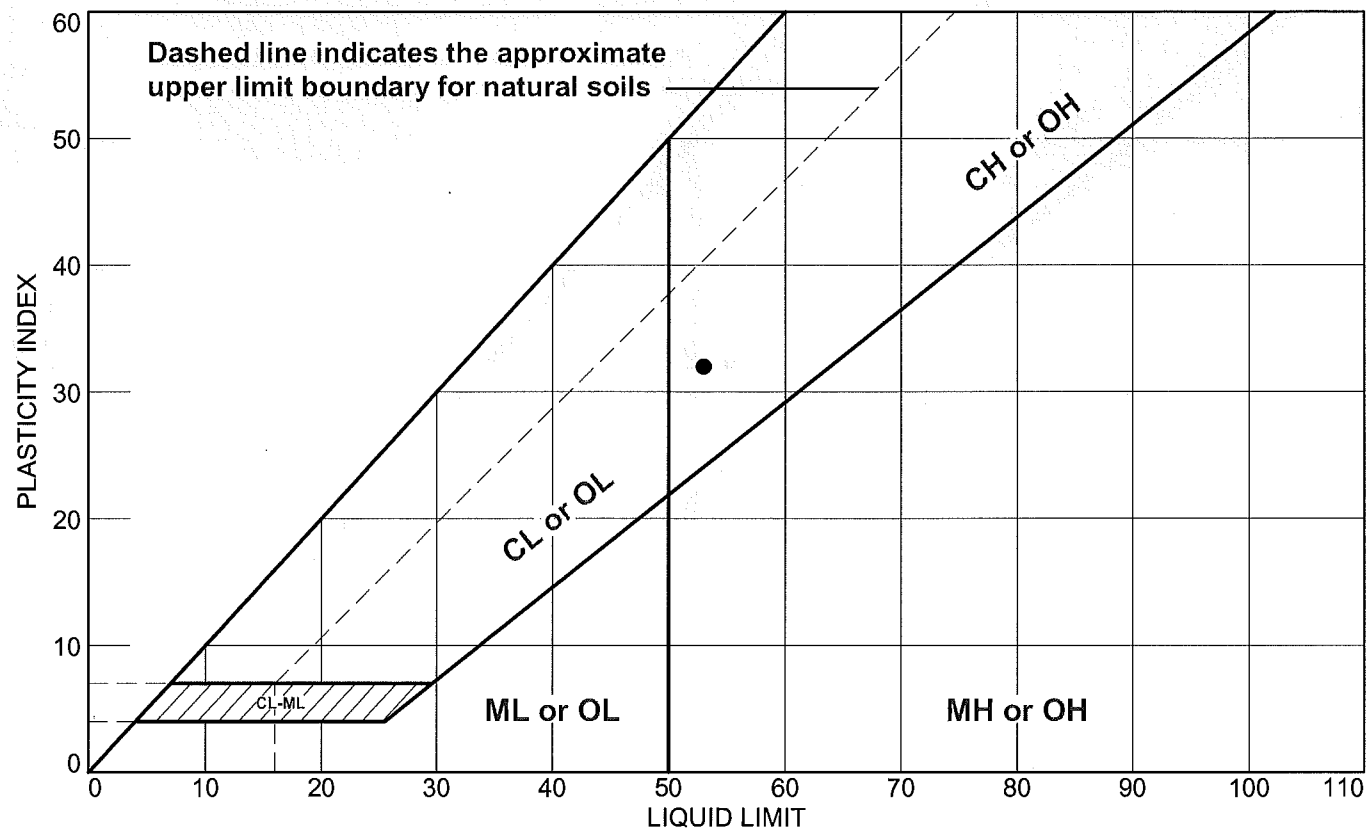
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●		GP-02		28.3	20	50	30	0.3	CL

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No.: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J. Schuller

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

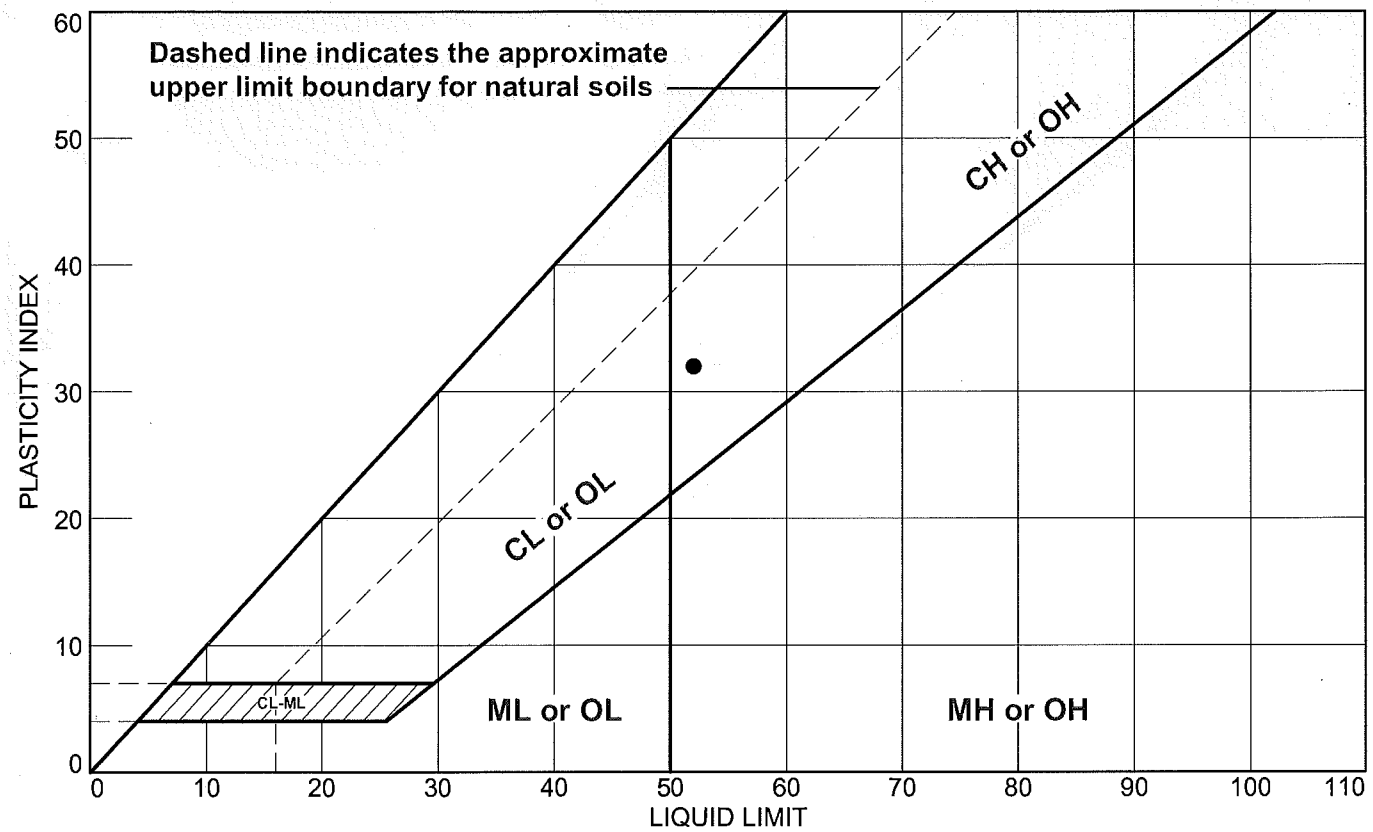
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●		GP-03		30.0	21	53	32	0.3	CH

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No.: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J. Schuller

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

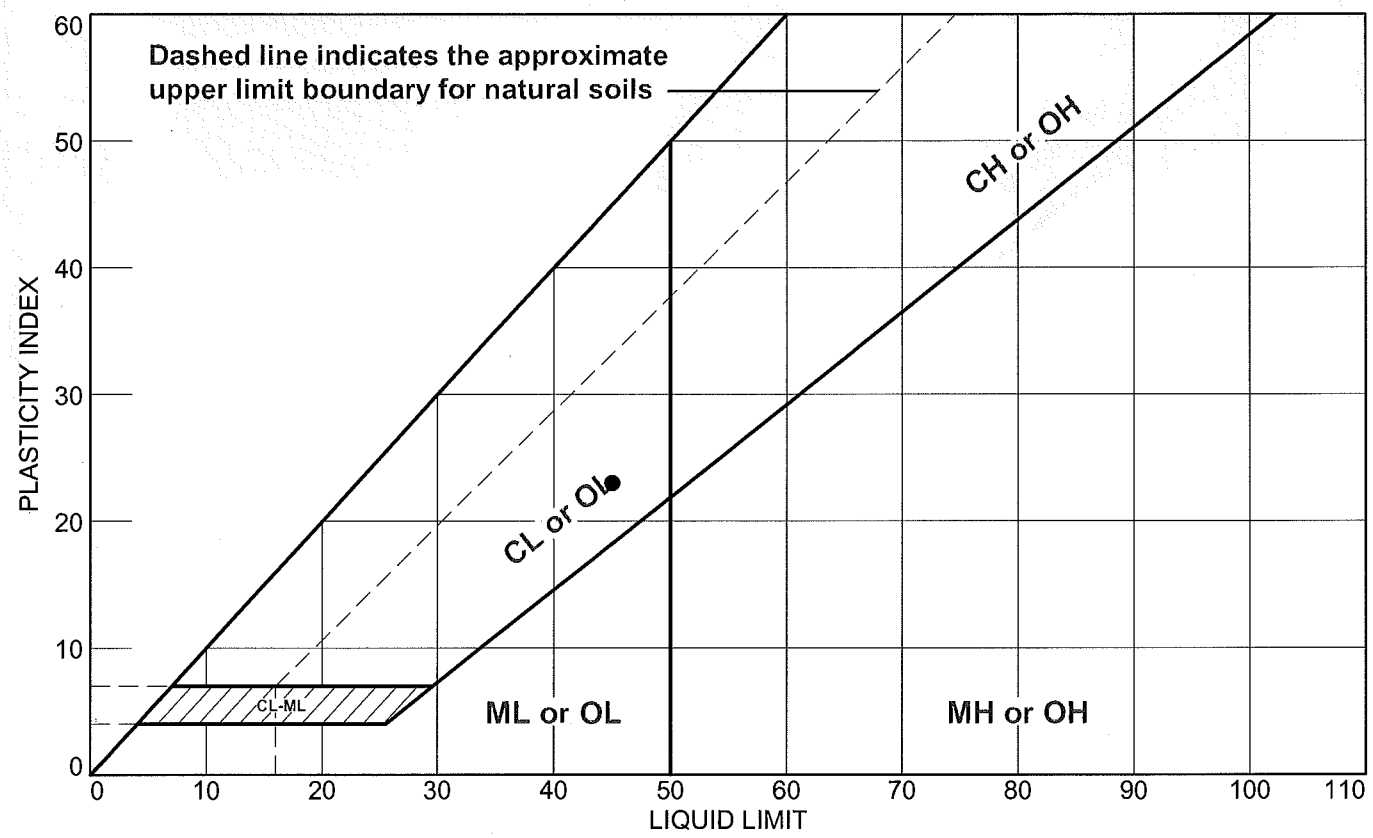
	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●		GP-04		29.2	20	52	32	0.3	CH

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No.: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J. Schuller

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●		GP-05		32.5	22	45	23	0.5	CL

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No.: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J. Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.8	42.7	56.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	99.9		
#30	99.8		
#40	99.6		
#50	99.5		
#100	99.2		
#200	98.8		
#270	98.8		
0.0367 mm.	99.6		
0.0274 mm.	90.0		
0.0183 mm.	78.5		
0.0111 mm.	67.0		
0.0081 mm.	61.3		
0.0058 mm.	57.4		
0.0029 mm.	51.9		
0.0012 mm.	46.1		

* (no specification provided)

Soil Description

Very Dark Brown Lean Clay

Atterberg Limits

PL= 20 LL= 50 PI= 30

Coefficients

D_{85}= 0.0235 D_{60}= 0.0074 D_{50}= 0.0022
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.66

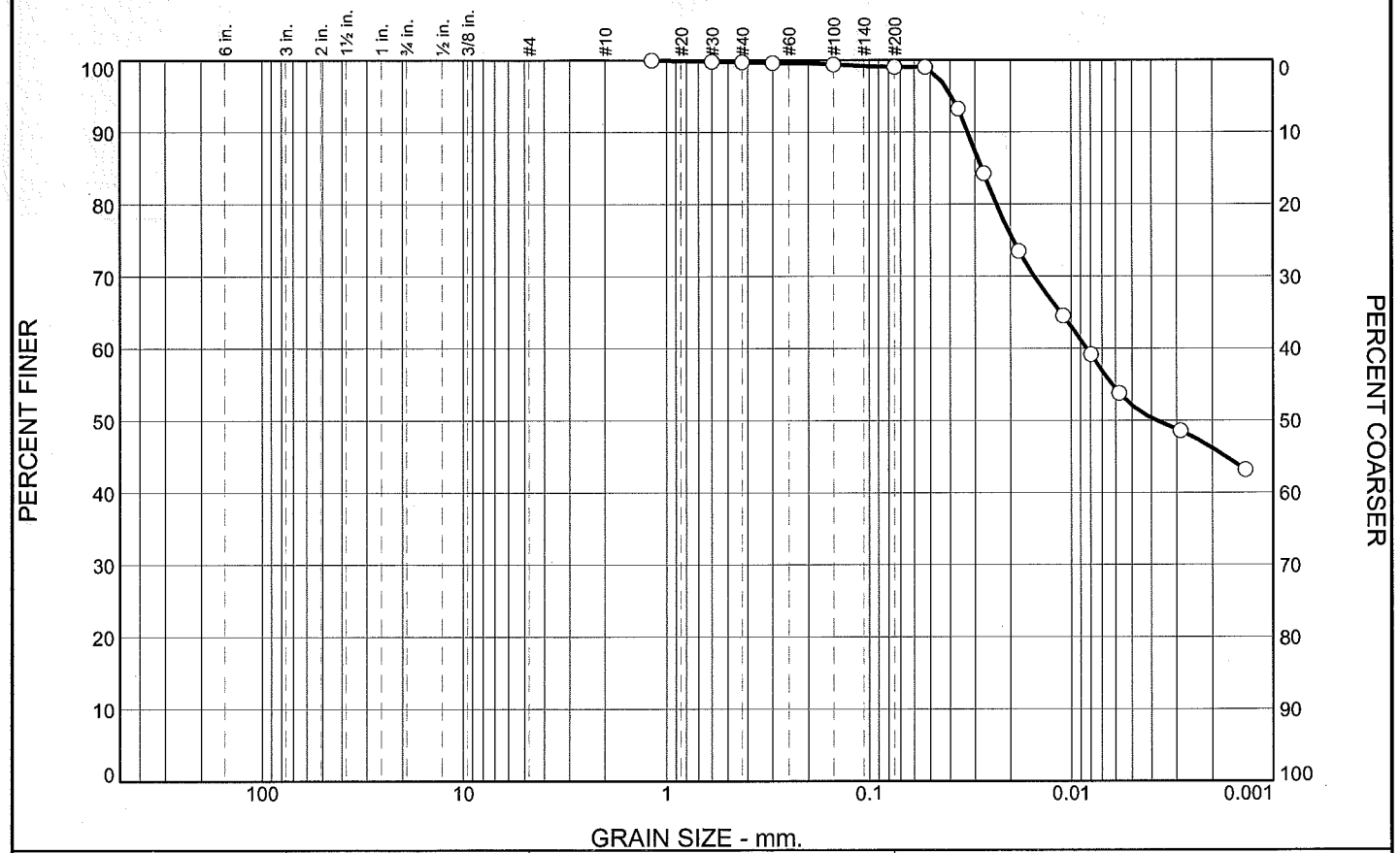
Sample No.: GP-01 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4603 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John J Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.7	46.9	52.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100.0		
#30	99.8		
#40	99.7		
#50	99.6		
#100	99.4		
#200	99.0		
#270	99.0		
0.0365 mm.	93.2		
0.0272 mm.	84.3		
0.0182 mm.	73.5		
0.0110 mm.	64.5		
0.0080 mm.	59.1		
0.0058 mm.	53.8		
0.0029 mm.	48.6		
0.0014 mm.	43.2		

* (no specification provided)

Soil Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 20 LL= 50 PI= 30

Coefficients

D_{85}= 0.0279 D_{60}= 0.0084 D_{50}= 0.0038
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.68

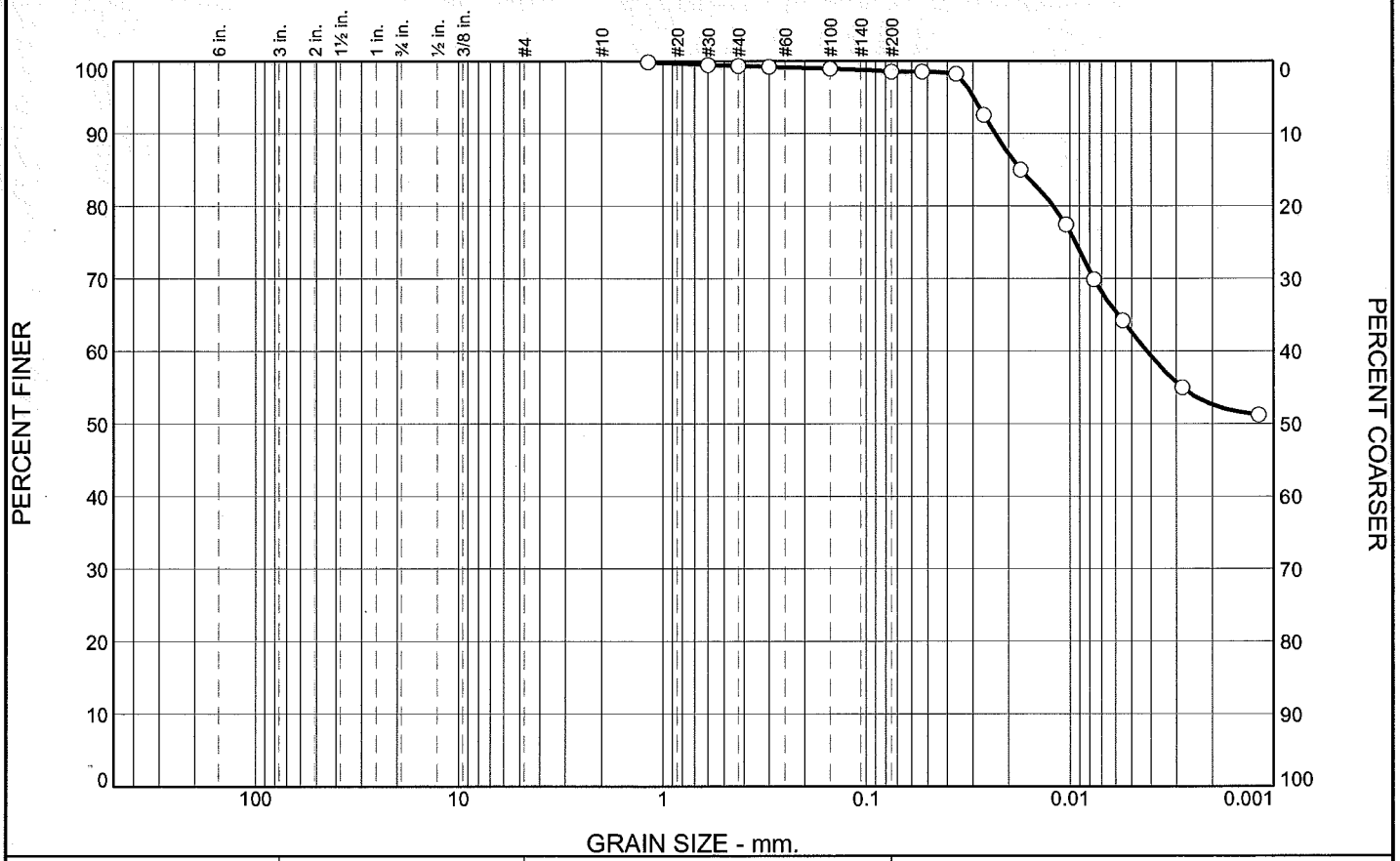
Sample No.: GP-02 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.8	35.9	62.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	99.9		
#30	99.5		
#40	99.3		
#50	99.2		
#100	98.9		
#200	98.5		
#270	98.5		
0.0362 mm.	98.2		
0.0264 mm.	92.6		
0.0174 mm.	85.0		
0.0104 mm.	77.4		
0.0076 mm.	69.9		
0.0055 mm.	64.2		
0.0028 mm.	55.0		
0.0012 mm.	51.2		

* (no specification provided)

Soil Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 21 LL= 53 PI= 32

Coefficients

D_{85}= 0.0174 D_{60}= 0.0042 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.71

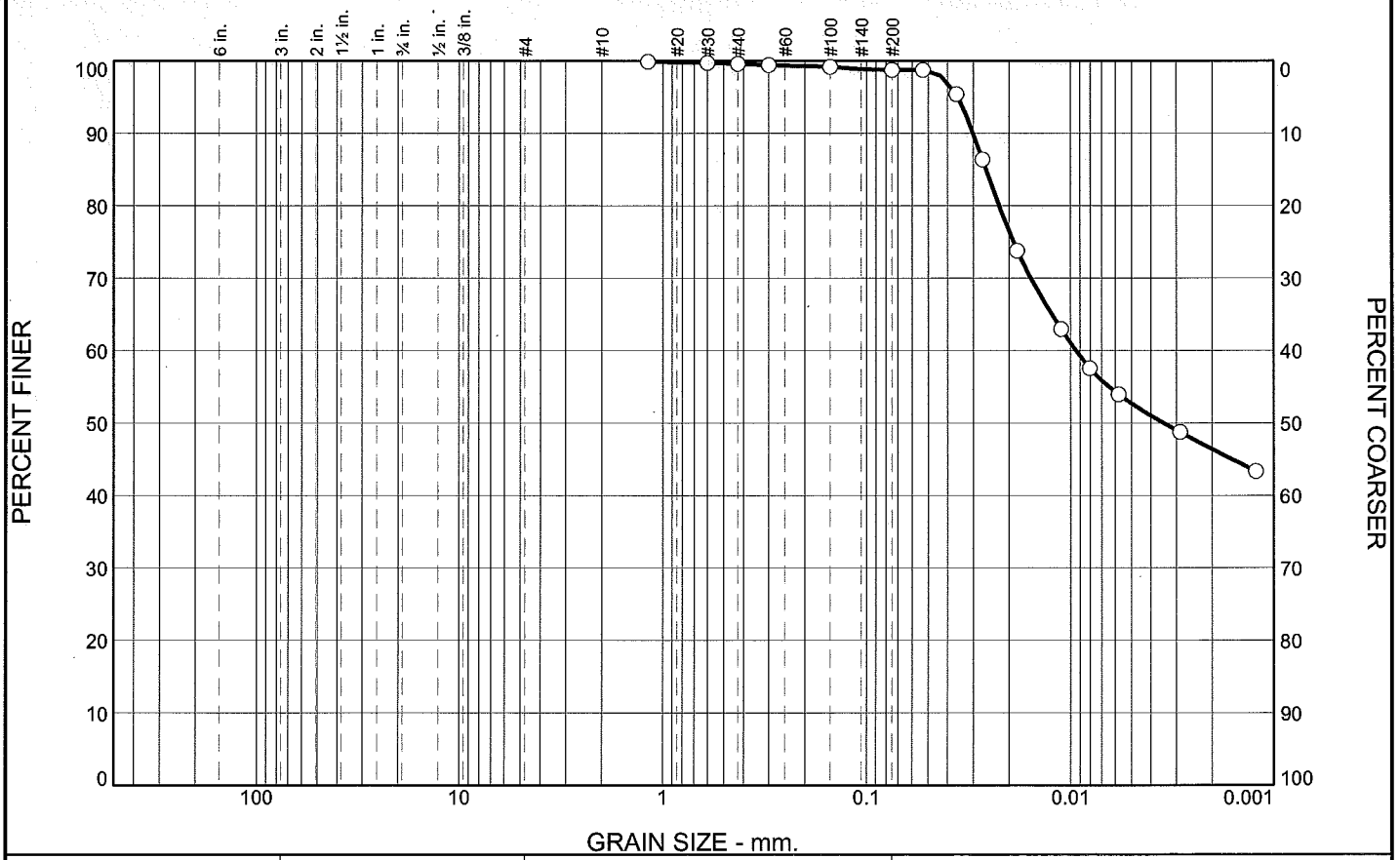
Sample No.: GP-03 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John Schuller

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.9	46.0	52.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	99.9		
#30	99.7		
#40	99.6		
#50	99.4		
#100	99.1		
#200	98.7		
#270	98.7		
0.0362 mm.	95.4		
0.0270 mm.	86.4		
0.0183 mm.	73.8		
0.0111 mm.	63.0		
0.0080 mm.	57.6		
0.0058 mm.	54.0		
0.0029 mm.	48.7		
0.0012 mm.	43.3		

* (no specification provided)

Soil Description

CH - Dark Brown Fat Clay

Atterberg Limits

PL= 20 LL= 52 PI= 32

Coefficients

D_{85}= 0.0260 D_{60}= 0.0094 D_{50}= 0.0035
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.67

Sample No.: GP-04 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John Schuller

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					3.2	47.1	48.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	99.9		
#30	99.4		
#40	99.1		
#50	98.5		
#100	97.2		
#200	95.9		
#270	95.9		
0.0387 mm.	92.5		
0.0285 mm.	85.0		
0.0192 mm.	71.7		
0.0118 mm.	58.5		
0.0084 mm.	54.7		
0.0061 mm.	50.9		
0.0030 mm.	43.6		
0.0013 mm.	36.0		

* (no specification provided)

Soil Description

CL - Dark Brown Lean Clay

Atterberg Limits

PL= 22 LL= 45 PI= 23

Coefficients

D_{85}= 0.0286 D_{60}= 0.0127 D_{50}= 0.0056
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Specific Gravity by ASTM D-854 = 2.59

Sample No.: GP-05 **Source of Sample:** **Date:**
Location: El Dorado, KS **Elev./Depth:**

GSI Geotechnical Services, Inc.
4503 East 47th Street South, Wichita, KS 67210
(316) 554-0725 Fax (316) 554-0744

Client: MWH Americas
Project: El Dorado Refinery
Project No: 087016 **Figure**

Tested By: Jon Nicolet **Checked By:** John Schuller

Appendix I

Off-Site Well Survey

MWH

BUILDING A BETTER WORLD

July 25, 2008

Brian Kellmann
Project Manager
El Paso Corporation
2 North Nevada Ave.
Colorado Springs, CO 80903

Re: Door to Door Water Well Survey Results
El Dorado Refinery
El Dorado, Kansas

Dear Mr. Kellmann:

This letter presents the results of the door-to-door water well survey of the residential properties located near the El Dorado Refinery site in El Dorado, Kansas (Site) which was conducted on June 10, 2008.

Background

In a letter addressed to El Paso Corporation dated March 31, 2008, the Kansas Department of Health and Environment (KDHE) requested that "*a door-to-door survey be conducted for the residential properties located east of Topeka Street and west of the railroad tracks between Refinery Road and 13th Street to determine if private wells exist and are being used, presenting a potential exposure pathway of concern.*" Although the KDHE request limited the door-to-door water well survey to areas north of 13th Street, a more broad-based survey was conducted between Refinery Road and 7th Street.

Preliminary Activities

Prior to executing the door-to-door water well survey, MWH prepared a notification packet, consisting of a notification letter and a response card, for delivery to each property owner located in the study area. The notification letter provided an explanation of the upcoming study. A self-addressed, stamped response card was provided to the residents to reduce the required number of door-to-door visits. One-hundred and twenty (120) response cards (50.2% of properties) were returned prior to conducting the survey.

MWH conducted a search of readily available well records (i.e., Kansas Geological Survey website review). The results of the search were inconclusive. The City of El Dorado Public Utilities Department provided a list of all properties in the survey area which receive City water bills. Four of the properties do not receive water bills; one property is used as storage only and receives no water. The property owners of the other three properties own multiple properties and pay the water bill for tenants.

8200 E. 34th Street North
Suite 1201
Wichita, Kansas
67226

TEL 316 634-1738
FAX 316 634-6211
www.mwhglobal.com

A property ownership base map was created by MWH for use in the door-to-door survey. The base map included property boundary lines for each property with a listing of owners. (See Figure 1 for identified water wells.)

Door-to-Door Survey

The notification packets were mailed on Tuesday, May 13, 2008. The door-to-door survey began 4 weeks later on Tuesday, June 10, 2008. The door-to-door survey was conducted by two pairs of MWH personnel using the "buddy system". The MWH teams included members knowledgeable about the Site and the sensitive nature of the door-to-door survey. The buddy system was employed primarily to ensure safety. During the survey, each team was equipped with a detailed survey checklist, a survey map, a communication response reference sheet, a questionnaire for each residence, notice cards, a GPS, a digital camera, cell phone, and a weather-resistant notebook.

Additionally, MWH prepared a list of appropriate responses to be used during the door-to-door field work. The responses were prepared to address questions raised by the residents in the study area.

The door-to-door survey encompassed the area east of the STF as shown in the attached figure. More specifically, the survey area included all residential properties located within the following area:

- Beginning at the intersection of North Topeka Street and Refinery Road, then proceeding due east to the RR Tracks, then following the RR Tracks southeast to 7th Street, then due west on 7th Street until North Denver Street, then due south on North Denver Street, until the RR Tracks, then northwest following the RR Tracks until North Topeka Street, then due north until returning to the point of origin.

This area includes approximately 239 residential properties, at least two trailer parks, a City Park, an apartment complex and several non-residential businesses. Only the residential properties were visited during the door-to-door survey.

In performing the door-to-door survey, each residence was visited one time initially, followed by a second visit for residences that were not home during the initial visit. The first visit was conducted from 1:00 pm to 5:00 pm during weekly business hours. The follow up visit was performed during the evening between 6:00 pm and 8:30 pm. After two attempts to contact the resident, a door-hangar with pertinent contact information was left at the residence as a final response mechanism.

The results of the survey are as follows:

Mail Survey Results

Total Number of Properties in Survey Area	Number of Cards Returned	No Well	Total Wells	Active Wells	Inactive Wells	Plugged Wells	Possible Wells	Number of Cards Returned "Unsure"
239	120	90	10	1	2	7	0	19

Door-to-Door Survey Results

Number of Properties to be contacted during Door-to-door Survey*	Number of Properties Reached during Door-to-door Survey**	No Wells	Total Wells	Active Wells	Inactive Wells	Plugged Wells	Possible Wells	Number Unable to Contact Owner
138	97	82	15	1	3	6	5	41

*One property (#216 – 827 N Washington St.) contains 3 wells – 2 plugged and 1 inactive.
**Number of properties includes several properties that responded by mail as "Unsure".

Results Summary Table

Total Wells	25	Active Wells	2
		Inactive Wells	5
		Plugged Wells	13
		Possible Wells	5
No Wells		172	
No Contact Made		41	
Total # of Properties in Survey Area		239	

Definitions

Active Well – In use
Inactive Well – Well exists and is not plugged, however, it is not used
Plugged Well – Plugged or abandoned wells
Possible Well – We have evidence that there may be a well (i.e., visually observed something that appeared to be a well)

List of Active Wells
1800 N. Topeka St.
1005 N. Denver St.

Conclusions
Out of 239 properties surveyed, two active wells were found in the survey area. Five properties contain structures that could be water wells. Structures were visually observed during the door-to-door survey, but could not be confirmed as actual wells. There are an additional 41 properties that have not been contacted, but there are no properties in the survey area which do not receive City water for domestic purposes.

Sincerely,

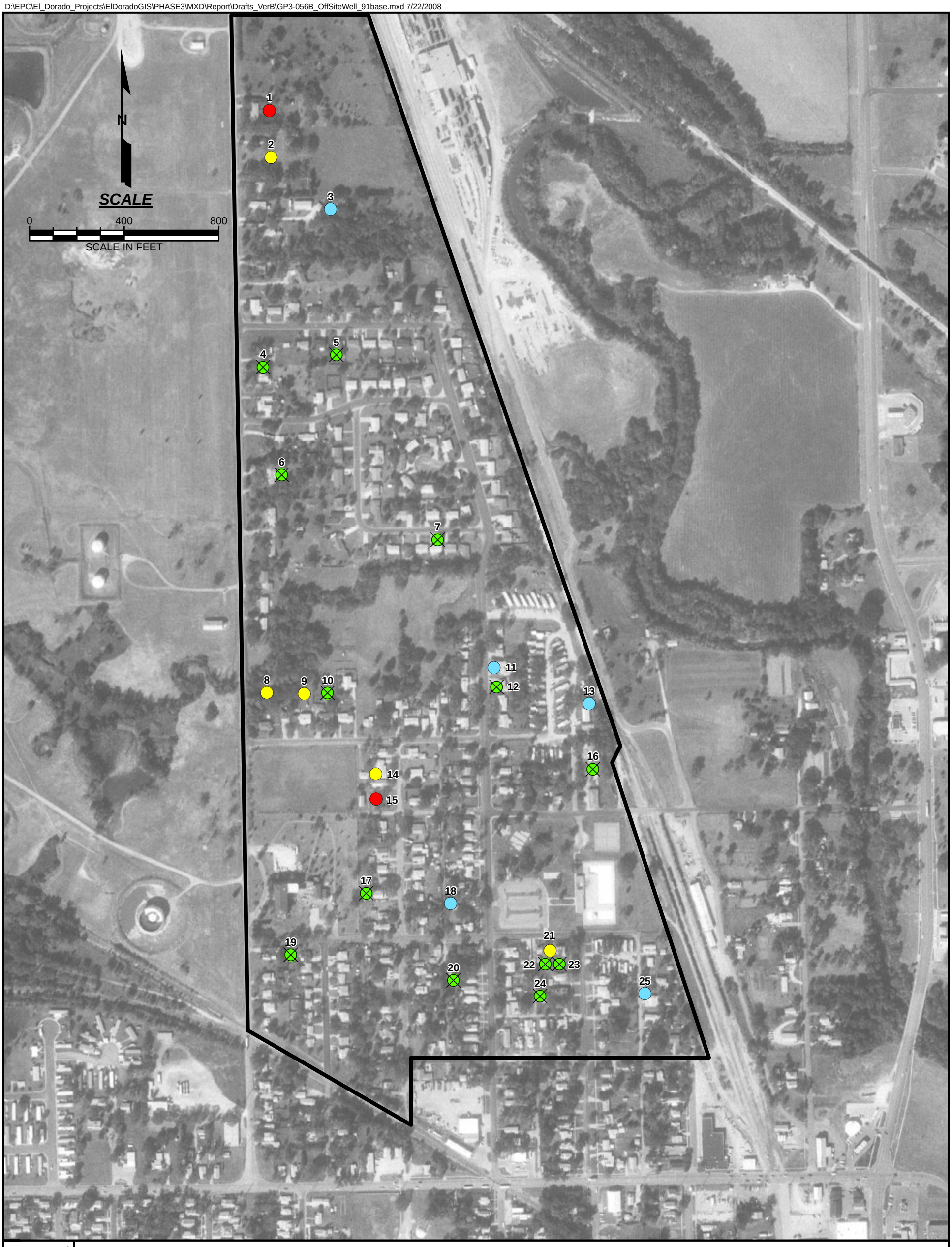
MWH

Doug Mick, P.G.

cc: Chris Fitzgerald (MWH)
Bill Pickens (MWH)
David Ellerbroek (MWH)

Enclosure

D:\EPC\El_Dorado_Projects\ElDoradoGIS\PHASE3\MXD\Report\Drafts_VerB\GP3-056B_OffSiteWell_91base.mxd 7/22/2008



TITLE

OFF-SITE WELL SURVEY RESULTS

FIGURE

1

LEGEND:

- ACTIVE WELL (LAWN & GARDEN) IN USE OR COULD BE USED EASILY
- INACTIVE WELL (LAWN & GARDEN) NO LONGER USED
- PLUGGED WELL
- POSSIBLE WELL
- STUDY BOUNDARY

PROPERTY #	ADDRESS	PROPERTY #	ADDRESS	PROPERTY #	ADDRESS
1	1800 N Topeka St.	11	1108 N Taylor St	21	827 N Washington St
2	1730 N Topeka St	12	1106 N Taylor St	22	827 N Washington St
3*	1618 1/2 N Topeka St	13**	1110 N Washington St	23	827 N Washington St
4	1460 N Topeka St	14	1009 N Denver St	24	819 N Washington St
5	625 W 14th Ave	15	1005 N Denver St	25	822 N Railroad St
6	1320 N Topeka St	16	330 W 9th Ave		
7	517 W 12th Ave	17	915 N Denver St		
8	720 W 10th Ave	18	907 N Taylor St		
9	706 W 10th Ave	19	845 N Atchison St		
10	702 W 10th Ave	20	827 N Taylor St		

* Legal description of property provided due to suspect property address: BEG 410.5N & 200E NE/C TOPEKA ST & 14TH AVE N109 E200 S109 W200 TO POB

** Conflicting reports regarding this property. Current owner reported no wells and past property owner reported that ther is an abandoned well on the property.

DRAWING REFERENCE(S):

AERIAL PHOTOGRAPH PRODUCED BY TERRASERVER-USA FROM OCTOBER 2, 1991 AERIAL SURVEY. STATE PLANE KANSAS SOUTH COORDINATES, NAD 83, US FEET.

DESIGNED BY	R. Hultgren	06/08
DRAWN BY	R. Hultgren	07/08
CHECKED BY	R. Hultgren	07/08
APPROVED BY	W. Pickens	07/08
PROJECT MANAGER	D. Mick	07/08
PROJECT NO.	1914029.710107	
FILE NAME	GP3-056B_OffSiteWell_91base.mxd	

elpaso

PROJECT LOCATION: EL DORADO, KANSAS

PROJECT: EL PASO MERCHANT ENERGY - PETROLEUM CO.

TITLE: OFF-SITE WELL SURVEY RESULTS

MWH

FIGURE: 1