Exide Technologies

Log of Boring: 2012-FWCS-12

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/15/2013	Drilling Method:	DPT
Driller:	Dan Spaust	Borehole Diameter (in.):	2
Driller's License:	3038	Total Depth (ft):	5
Field Supervisor:	Will Vienne, P.G.	Northing:	7102059.9189
Logged By:	Will Vienne, P.G.	Easting:	2479678.4051
Sampling Method:	4' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.7/4	2 - 2.7	CL	(0 - 5.0) Silty CLAY, very dark gray, moderately abundant decayed plant material, common limestone granules, moist, soft, low plasticity.
1				
2				
3				
4	1/1	4 - 5		
5				

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2013-MW-17A

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/15/2013	Drilling Method:	DPT
Driller:	Dan Spaust	Borehole Diameter (in.):	2
Driller's License:	3038	Total Depth (ft):	5
Field Supervisor:	Will Vienne, P.G.	Northing:	7102073.3953
Logged By:	Will Vienne, P.G.	Easting:	2479606.9524
Sampling Method:	4' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4/4	0 - 0.5	CL	(0 - 5.0) Silty CLAY, very dark gray, dark brownish gray with increased silt below 4', soft to slightly firm, low plasticity, moderate to abundant decayed plant material, trace limestone granules and pebbles.
1		0.5 - 2		
2				
3		2 - 4		
4	1/1	4 - 5		
5				

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Notes:

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Exide Technologies

Log of Boring: 2013-RO-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102103.5329
Logged By:	Roberta Russell	Easting:	2479578.3769
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.5/5	0 - 0.5	CL	(0 - 1.0) Silty CLAY/CLAY, dark reddish brown, moist, soft to firm, low plasticity.
1		0.5 - 1		
		1 - 1.5		(1.0 - 1.1) Sandy CLAY, dark reddish brown with trace orange Fe-ox staining, moist, soft, low plasticity clay.
2		1.5 - 2		(1.1 - 5.0) Silty CLAY/CLAY, dark reddish brown, light brown from 2.5 to 5', wet at 3.7', moist, soft, low to medium plasticity.
3				
4				
5				

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Notes:

Borehole plugged with bentonite chips upon completion.

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Exide Technologies

Log of Boring: 2013-RO-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102126.4439
Logged By:	Roberta Russell	Easting:	2479562.0249
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.7/5	0 - 0.5	CL	(0 - 4.5) CLAY/silty CLAY, dark reddish brown, moist, firm, low to medium plasticity.
1		0.5 - 1		
2		1 - 1.5		
3		1.5 - 2		
4				
5			NR	(4.5 - 4.7) Gravelly CLAY, dark reddish brown, wet, soft, low plasticity clay. (4.7 - 5.0) No recovery.

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2013-RO-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/15/2013	Drilling Method:	DPT
Driller:	Dan Spaust	Borehole Diameter (in.):	2
Driller's License:	3038	Total Depth (ft):	5
Field Supervisor:	Will Vienne, P.G.	Northing:	7102104.7761
Logged By:	Will Vienne, P.G.	Easting:	2479557.0085
Sampling Method:	4' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	3.2/4	0 - 0.5	CL	(0 - 5.0) Silty CLAY, dark brownish gray, very moist, soft, low to medium plasticity, abundant limestone granules, trace limestone pebbles.
1		0.5 - 2		
2				
3		2 - 4		
4	0.6/1	4 - 5		
5				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7101666.6928
Logged By:	Roberta Russell	Easting:	2480460.5413
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	5/5	0 - 0.5	FILL	(0 - 3.6) FILL, dark reddish brown, silty clay with sand and gravel, plastic chip at 1', moist, soft to firm, low plasticity.
1		0.5 - 2		
2				
3		2 - 4		
4			ML	(3.6 - 4.1) SILT w/GRAVEL,~30-40% gravel, light reddish brown, fine to medium grained gravel.
		4 - 5	CL	(4.1 - 5.0) Silty CLAY, dark reddish brown, moist, firm, medium plasticity.
5				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-3A

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7101641.6386
Logged By:	Roberta Russell	Easting:	2480461.4981
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.4/5	0 - 0.5	CL	(0 - 0.5) Sandy CLAY, dark reddish brown, moist, soft, low plasticity clay.
1		0.5 - 2	CH	(0.5 - 4.0) CLAY, dark reddish brown, abundant black staining from 3-4', moist, wet at 3', soft, high plasticity.
2				
3		2 - 4		
4		4 - 5	CL	(4.0 - 5.0) Sandy CLAY, light grayish brown, trace black staining, wet, soft, low plasticity clay.
5				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-10

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102156.5364
Logged By:	Roberta Russell	Easting:	2479518.8436
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.5/5		FILL	(0 - 0.7) FILL, dark reddish brown, silty clay with gravel, dry, soft.
1		0.5 - 2	CL	(0.7 - 3.0) Silty CLAY, dark reddish brown, moist, soft, low to medium plasticity.
2				
3		2 - 4	SW	(3.0 - 5.0) Silty SAND, ~30% calcareous sand, dark reddish brown, dry, soft.
4		4 - 5		
5				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-10A

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	DPT
Driller:	Margarito Estrada	Borehole Diameter (in.):	2
Driller's License:	58164	Total Depth (ft):	5
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102143.1089
Logged By:	Roberta Russell	Easting:	2479512.8889
Sampling Method:	5' Lined Tube	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	5/5	0 - 0.5	CL	(0 - 1.8) Silty CLAY, dark red to reddish brown, abundant orange Fe-ox staining, moist, soft, low plasticity.
1		0.5 - 2		
2			CL/SC	(1.8 - 2.3) Sandy CLAY/clayey SAND, dark reddish brown, some orange Fe-ox staining, moist, soft, low plasticity clay.
3		2 - 4	CL	(2.3 - 4.0) Silty CLAY/CLAY, dark reddish brown, moist, soft, low to medium plasticity.
4		4 - 5		(4.0 - 4.9) Gravelly CLAY, ~20% medium gravel, light reddish brown, moist, soft, low plasticity clay.
5				(4.9 - 5.0) CLAY, light reddish brown, wet, soft, medium plasticity.

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-11

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/6/2013	Drilling Method:	Hand Auger
Driller:	Margarito Estrada	Borehole Diameter (in.):	3
Driller's License:	58164	Total Depth (ft):	4
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102319.6421
Logged By:	Roberta Russell	Easting:	2479301.9603
Sampling Method:	3"X6" Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	0.5/0.5		CL	(0 - 4.0) Silty CLAY/CLAY, dark reddish brown, greater plasticity with depth, moderate orange Fe-ox staining, moist, firm to hard, low to medium plasticity.
	0.5/0.5	0.5 - 2		
1	0.5/0.5			
	0.5/0.5			
2	0.5/0.5	2 - 4		
	0.5/0.5			
3	0.5/0.5			
	0.5/0.5			
4				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: SCC-11A

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/6/2013	Drilling Method:	Hand Auger
Driller:	Margarito Estrada	Borehole Diameter (in.):	3
Driller's License:	58164	Total Depth (ft):	3
Field Supervisor:	Tim Jennings, P.G.	Northing:	7102283.5451
Logged By:	Roberta Russell	Easting:	2479298.0939
Sampling Method:	3"X6" Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	0.5/0.5	0 - 0.5	CL	(0 - 3.0) Silty CLAY, dark reddish brown, trace red Fe staining, moist, soft to firm, low plasticity.
	0.5/0.5	0.5 - 2		
1	0.5/0.5			
	0.5/0.5			
2	0.5/0.5	2 - 3		
	0.5/0.5			
3				

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Notes:

Borehole plugged with bentonite chips upon completion.

This boring log should not be used seperately from the report to which it is attached.

Site Investigation Report Boring Logs (PBW, 2012a)

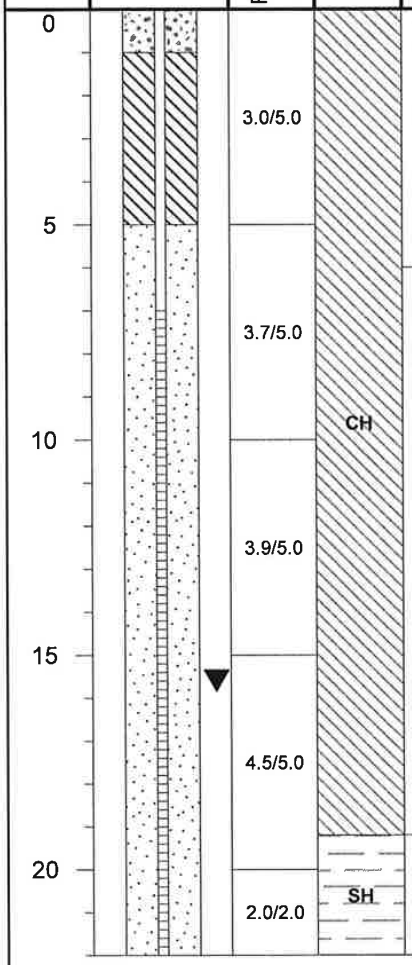
Exide Technologies

Log of Boring: MW-19

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/12/2012	Drilling Method:	HSA
Drilling Company:	StrataCore	Borehole Diameter (in.):	8.25
Driller:	Mario Robles	Total Depth (ft):	22
Driller's License:	52694	Northing:	7102589.0425
Logged By:	Christopher Moore, P.G.	Easting:	2481314.6445
Sampling Method:	3"x 5' Barrel	Ground Elev. (ft AMSL):	650.33



Lithologic Description

(0 - 6.0) CLAY, CH, dark grayish brown, moist, firm, medium to high plasticity, trace gravel, no odor or staining observed.

2.0-3.5: with limestone gravel.

(6.0 - 19.2) CLAY, CH, gray and yellowish brown, moist, firm, high plasticity.

9.5: wire fragment, possible fill/reworked material above.

Below 10.0: fractured, orange staining along fracture planes.

11.5-12.0: gravelly, moist to wet.

13.0-13.2: silty/gravelly, moist to wet.

13.9-14.2: gravelly, moist to wet.

(19.2 - 22.0) SHALE, dark gray, moist, hard, laminated, fissle.

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Notes:
Boring location hand probed to 5 feet to check for utilities.

Initial Fluid Level (1/16/12)
▼ Depth to water: 15.58 ft BGS

This Log of Boring should not be used seperately from the report to which it is attached.

Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 5.0) Bentonite Hole Plug
(5.0 - 22.0) 20/40 Silica Sand

Well Materials
(+2.6 - 7.0) Casing, 2" Sch 40 FJT PVC
(7.0 - 22.0) Screen, 2" Sch 40 FJT PVC, 0.01 slot

TOC Elevation (ft AMSL)
653.34

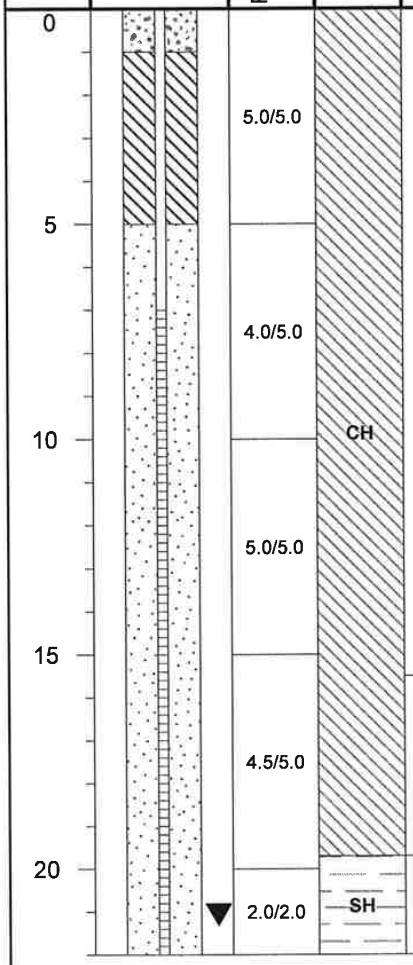
Exide Technologies

Log of Boring: MW-20

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/12/2012	Drilling Method:	HSA
Drilling Company:	StrataCore	Borehole Diameter (in.):	8.25
Driller:	Mario Robles	Total Depth (ft):	22
Driller's License:	52694	Northing:	7101791.617
Logged By:	Christopher Moore, P.G.	Easting:	2481082.2078
Sampling Method:	3"x 5' Barrel	Ground Elev. (ft AMSL):	641.73



Lithologic Description

(0 - 15.5) CLAY, CH, dark grayish brown, moist, firm, medium to high plasticity, trace sand size carbonate nodules, no odor, no staining or foreign material observed.

3.0-.3.9: some gravel size carbonate nodules.

(15.5 - 19.7) CLAY, CH, gray and yellowish brown, moist, firm, high plasticity, fractured, orange staining along fracture planes.

(19.7 - 22) SHALE, dark gray, moist, hard, laminated, fissle.

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Notes:
Boring location hand probed to 5 feet to check for utilities.

This Log of Boring should not be used seperately from the report to which it is attached.

Initial Fluid Level (1/16/12)
▼ Depth to water: 21.05 ft BGS

Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 5.0) Bentonite Hole Plug
(5.0 - 22.0) 20/40 Silica Sand

Well Materials
(+2.6 - 7.0) Casing, 2" Sch 40 FJT PVC
(7.0 - 22.0) Screen, 2" Sch 40 FJT PVC, 0.01 slot

TOC Elevation (ft AMSL)
644.7

Exide Technologies

Log of Boring: 2012-BG-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7098992.01
Logged By:	Christopher Moore, P.G.	Easting:	2476012.67
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	0.9/2.0	0-2	CH	(0 - 2.0) CLAY, CH, light brown, moist, soft to firm, medium to high plasticity, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099083.46
Logged By:	Christopher Moore, P.G.	Easting:	2476047.00
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	1.3/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, dark brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

PBW
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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099093.22
Logged By:	Christopher Moore, P.G.	Easting:	2475820.22
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	1.5/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, dark brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099222.60
Logged By:	Christopher Moore, P.G.	Easting:	2475950.23
Sampling Method:	Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099109.89
Logged By:	Christopher Moore, P.G.	Easting:	2475620.3
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0 1 2	1.4/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace sand, trace roots, no staining or foreign material observed, no odor.

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-6

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099308.28
Logged By:	Christopher Moore, P.G.	Easting:	2475765.83
Sampling Method:	Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-7

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099174.55
Logged By:	Christopher Moore, P.G.	Easting:	2475459.86
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	1.4/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-8

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099468.68
Logged By:	Christopher Moore, P.G.	Easting:	2475553.85
Sampling Method:	Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-9

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099228.98
Logged By:	Christopher Moore, P.G.	Easting:	2474750.45
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0 1 2	1.6/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, dark grayish brown, moist, soft to firm, medium plasticity, trace limestone gravel, trace roots, some dark red oxidized staining, no foreign material observed, no odor.

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BG-10

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/29/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7099466.86
Logged By:	Christopher Moore, P.G.	Easting:	2474833.08
Sampling Method:	Hand Auger	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1				
2				

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Notes:
Borehole backfilled with cuttings upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BSA-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102274.07
Logged By:	Christopher Moore, P.G.	Easting:	2480624.4
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0 1 2	2.0/2.0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, mottled black and brown, moist, soft to firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed, no odor.

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Notes:
Boring location hand probed to 3 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BSA-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102224.29
Logged By:	Christopher Moore, P.G.	Easting:	2480672.30
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL/CH	(0 - 2.0) CLAY, CL/CH, very dark brown, moist, firm, medium to high plasticity, some sand size carbonate nodules, gravel fill on surface, no staining observed, no odor.
1				
2				

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Notes:
Boring location hand probed to 3 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BSA-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102173.2055
Logged By:	Christopher Moore, P.G.	Easting:	2480638.61
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0			CL	(0 - 0.5) SILTY CLAY, CL, brownish yellow, moist, soft, medium plasticity, trace gravel, no staining or foreign material observed, no odor.
1	2.0/2.0	0-2	CL/CH	(0.5 - 2.0) CLAY, CL/CH, very dark brown, moist, firm, medium to high plasticity, some sand size carbonate nodules, no staining observed, no odor. 1.7: black plastic fragment (1" x 1", 1/8" thick).
2				

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Notes:
Boring location hand probed to 3 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BSA-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102165.32
Logged By:	Christopher Moore, P.G.	Easting:	2480739.17
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0-2	CL	(0 - 0.7) SILTY CLAY, CL, mottled very dark grayish brown and brown, moist, soft-firm, medium plasticity, some sand size carbonate nodules, gravel fill on surface, no staining observed, no odor.
1			CL/CH	(0.7 - 2.0) CLAY, CLCH, dark gray, moist, firm, medium to high plasticity, trace sand size carbonate nodules, no staining or foreign material observed, no odor.
2				

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Notes:
Boring location hand probed to 3 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BY-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102377.15
Logged By:	Christopher Moore, P.G.	Easting:	2479500.79
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0	0-2	CL	(0 - 0.9) SILTY CLAY, CL, light yellowish brown, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed, no odor.
1					(0.9 - 2.0) SILTY CLAY, CL, grayish brown, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed, no odor.
2					

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Notes:
Boring location hand probed to 3.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BY-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102343.16
Logged By:	Christopher Moore, P.G.	Easting:	2479613.26
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 1 2	2.0/2.0	0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, mottled very dark gray and light yellowish brown, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed to 1.9, no odor. 1.9: black plastic fragment (approximately 0.5 in x 1 in x 1/8 in thick)

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Notes:
Boring location hand probed to 2.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BY-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102238.79
Logged By:	Christopher Moore, P.G.	Easting:	2479660.34
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 – 2	2.0/2.0	0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, mottled very dark gray and light yellowish brown, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed to 1.9, no odor. 1.9: gravel size slag fragment (black and oxidized orange, hard, dense, porus)

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Notes:
Boring location hand probed to 2.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BY-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102230.77
Logged By:	Christopher Moore, P.G.	Easting:	2479578.92
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 – 1 – 2	2.0/2.0	0	0-2	CL	(0 - 2.0) SILTY CLAY, CL, mottled very dark gray and light yellowish brown, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed to 1.9, no odor. 1.2: gravel. 1.7-1.9: gravel, 1.9: gravel size slag fragment (black and oxidized orange, hard, dense, porous)

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Notes:
Boring location hand probed to 1.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-BY-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2
Driller's License:	52694	Northing:	7102282.36
Logged By:	Christopher Moore, P.G.	Easting:	2479515.5369
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	2.0/2.0	0	0-2	CL/CH	(0 - 2.0) SILTY CLAY, CL, very dark gray, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed to 1.9, no odor.
1					
2					

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Notes:
Boring location hand probed to 3.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-CUFT-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101785.23
Logged By:	Christopher Moore, P.G.	Easting:	2479393.50
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Soil pH	Sample Interval	USCS	Lithologic Description
0					(0 - 1.6) SILTY CLAY, CL, grayish brown, moist, soft, medium plasticity, no staining observed, no odor. 0-0.3: fine sand lenses, fill. 1.3: angular gravel fragment.
1		6.5	0-2		
2	3.5/4.0			CL	(1.6 - 4.0) SILTY CLAY, CL, very dark gray, moist, firm medium plasticity, some oxidized lenses, trace sand size carbonate nodules, no foreign material observed, no odor.
3		6.82			
4					

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-CUFT-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101782.80
Logged By:	Christopher Moore, P.G.	Easting:	2479434.31
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Soil pH	Sample Interval	USCS	Lithologic Description
0	4.0/4.0	6.38	0-2	CL	(0 - 2.1) SILTY CLAY, CL, yellowish brown and very dark gray, moist, soft to firm, medium plasticity, trace angular carbonate gravel (possible fill or reworked material), no staining observed, no odor
1					
2		6.32			(2.1 - 4.0) SILTY CLAY, CL, very dark gray, moist, firm medium plasticity, some oxidized lenses, trace sand size carbonate nodules, no foreign material observed, no odor.
3					
4					

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Notes:
Boring location hand probed to 4.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-RMSA-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2.5
Driller's License:	52694	Northing:	7101962.48
Logged By:	Christopher Moore, P.G.	Easting:	2480181.93
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Soil pH	Sample Interval	USCS	Lithologic Description
0					CON	(0 - 1.0) CONCRETE, cored.
1					GP	(1.0 - 2.5) GRAVEL, base material, angular limestone gravel, no staining or foreign material observed, no odor.
2	1.0/1.0	0	7.10	1.5-2.5		

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Notes:
Boring location hand probed to 2.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion and concrete patched.
Refusal at 2.5
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-RMSA-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2.5
Driller's License:	52694	Northing:	7101817.28
Logged By:	Christopher Moore, P.G.	Easting:	2480247.42
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Soil pH	Sample Interval	USCS	Lithologic Description
0					CON	(0 - 0.5) CONCRETE, drilled out.
1	2.0/2.0	0.4	10.76	0.5-2.5	CL/CH	(0.5 - 1.4) CLAY, CL/CH, dark gray, moist, soft to very soft, medium plasticity, no staining or foreign material observed, no odor.
2					CL	(1.4 - 2.5) CLAY, CL, black, moist to wet, very soft, medium plasticity, no staining or foreign material observed, no odor.

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion and concrete patched.
Water entering the borehole from base of concrete upon removal of sampler. Water sample collected from base of boring.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-RMSA-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	3
Driller's License:	52694	Northing:	7101783.35
Logged By:	Christopher Moore, P.G.	Easting:	2480191.27
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Soil pH	Sample Interval	USCS	Lithologic Description
0					CON	(0 - 1.0) CONCRETE, drilled out.
1	2.0/2.0	0.2	6.83	1-3	CL/CH	(1.0 - 3.0) CLAY, CL/CH, mottled very dark gray and black, moist, firm, medium plasticity, no staining or foreign material observed, no odor. 2.4-2.6: some sand.
2						
3						

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion and concrete patched.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-RMSA-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/6/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	3.5
Driller's License:	52694	Northing:	7101861.10
Logged By:	Christopher Moore, P.G.	Easting:	2480122.65
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Soil pH	Sample Interval	USCS	Lithologic Description
0					CON	(0 - 1.5) CONCRETE and asphalt, drilled out.
1						
2	2.0/2.0	0.5	6.95	1.5-3.5	CL	(1.5 - 1.8) SILTY CLAY, CL, with sand and gravel, fill, grayish brown, moist to wet, soft to firm, low plasticity, no staining observed, no odor.
					CL/CH	(1.8 - 3.5) CLAY, CL/CH, very dark gray, moist, soft, medium plasticity, trace woody organic fragments (native), no staining or foreign material observed, no odor.
3						

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion and concrete patched.
Water entering the borehole from base of concrete upon removal of sampler. Water sample collected from base of boring.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SDA-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101558.98
Logged By:	Christopher Moore, P.G.	Easting:	2480088.96
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.0/4.0	0-2	CL	(0 - 3.0) SILTY CLAY, CL, light olive brown, moist, soft, medium plasticity, trace sand size carbonate nodules, no staining or foreign material observed, no odor.
1				
2		2-4		
3				(3.0 - 4.0) SILTY CLAY, CL, grayish brown, moist, soft to firm, medium plasticity, fractured, orange staining in fractures, no foreign material observed, no odor.
4				

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SDA-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101557.95
Logged By:	Christopher Moore, P.G.	Easting:	2480184.84
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.0/4.0	0-2	CL	(0 - 4.0) SILTY CLAY, CL, dark grayish brown, moist, soft to firm, medium plasticity, trace sand size carbonate nodules, no staining or foreign material observed, no odor.
1				
2		2-4		
3				
4				

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SDA-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101552.75
Logged By:	Christopher Moore, P.G.	Easting:	2480291.52
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0 1 2 3 4	4.0/4.0	0-2 2-4	CL	(0 - 4.0) SILTY CLAY, CL, very dark gray, moist, soft, medium plasticity, trace sand size carbonate nodules, no staining or foreign material observed, no odor.

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SDA-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	4
Driller's License:	52694	Northing:	7101174.44
Logged By:	Christopher Moore, P.G.	Easting:	2479970.62
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	4.0/4.0	0-2	ML	(0 - 0.3) SILT, ML, dark grayish brown, with clay, moist, soft, low to medium plasticity, some roots, no staining or foreign material observed, no odor.
1				(0.3 - 4.0) SILT, ML, very pale brown, weathered limestone, dry to moist, very soft, non-plastic, some limestone fragments, no staining or foreign material observed, no odor.
2		2-4		
3				
4				

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Notes:
Boring location hand probed to 1.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SDA-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/4/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	2.9
Driller's License:	52694	Northing:	7101170.31
Logged By:	Christopher Moore, P.G.	Easting:	2480098.36
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	Sample Interval	USCS	Lithologic Description
0	2.9/2.9	0-2	ML	(0 - 1.1) SILT, ML, brown, moist, soft, low plasticity, no staining or foreign material observed, no odor. 0.9-1.1: limestone fragments.
1				(1.1 - 2.9) SILT, ML, very pale brown, weathered limestone, dry to moist, very soft, non-plastic, some limestone fragments, no staining or foreign material observed, no odor.
2		2-2.9		

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Notes:
Boring location hand probed to 1.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Refusal at 2.9
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SL-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	5.5
Driller's License:	52694	Northing:	7102343.75
Logged By:	Christopher Moore, P.G.	Easting:	2479384.49
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	4.0/4.0	0	0-2	CH	(0 - 5.5) CLAY, CH, dark gray, moist, firm, medium plasticity, fill, with angular gravel, no odor. 2.0-2.5: with black, gravel size slag fragments.
1					
2		0.1	2-4		
3					
4	0/1.5				
5					

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Notes:
Boring location hand probed to 2.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
No recovery below 4.0 feet Refusal at 5.5 feet.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SL-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	8
Driller's License:	52694	Northing:	7102486.2
Logged By:	Christopher Moore, P.G.	Easting:	2479520.54
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 1.2) CLAY, CH, dark gray, moist, soft, medium plasticity, no staining or foreign material observed, no odor.
1		0	0-2		
2	4.0/4.0				(1.2 - 8.0) CLAY, CH, light grayish brown and light gray, moist, soft to firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed, no odor. 7.5: Wet, silty.
3		0			
4				CH	
5		0			
6	4.0/4.0	0	5-7		
7					
8		0			

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Notes:
Boring location hand probed to 4.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Saturated soils encountered at 7.5 feet. Boring terminated at 8.0 feet and water sample collected from base of boring.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-SL-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	12
Driller's License:	52694	Northing:	7102514.89
Logged By:	Christopher Moore, P.G.	Easting:	2479697.92
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 3.5) CLAY, CH, dark gray, moist, soft to firm, medium plasticity, no staining or foreign material observed, no odor.
1		0	0-2		
2	4.0/4.0				
3		0.1			
4					(3.5 - 9.0) CLAY, CH, light grayish brown and light gray, moist, firm, medium plasticity, some sand size carbonate nodules, no staining or foreign material observed, no odor.
5		0			
6	4.0/4.0			CH	
7		0.1			
8					
9		0.1	8-10		(9.0 - 12.0) CLAY, CH, light gray, moist, firm to hard, high plasticity, laminated, orange staining along laminations, fractured, no foreign material observed, no odor. 10.3-10.8: sand laminae, wet.
10	3.5/4.0				
11		0.1			
12					

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Notes:
Boring location hand probed to 4.0 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Saturated soils encountered at 10.3 feet. Boring terminated at 12.0 feet and water sample collected from base of boring.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	8
Driller's License:	52694	Northing:	7102385.51
Logged By:	Christopher Moore, P.G.	Easting:	2480118.633
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 8.0) CLAY, CH, dark gray, moist, soft to firm, medium plasticity, trace sand size carbonate nodules, no odor. 2.0-2.5: black, gravel size slag fragments. 4.0-5.0 some sand. 4.5: wet, sample saturated, borehole filling with water.
1		0	0-2		
2	2.7/4.0				
3		0.1	2-4		
4				CH	
5		0			
6	3.5/4.0				
7		0.1			
8					

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Notes:
Boring location hand probed to 4.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Saturated soils encountered at 4.5 feet. Boring terminated and water sample collected from base of boring.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	18
Driller's License:	52694	Northing:	7102389.57
Logged By:	Christopher Moore, P.G.	Easting:	2480411.84
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 4.0) CLAY, CH, dark gray, moist, soft, medium plasticity, some sand size carbonate nodules, no odor. 3.0-4.0: glass fragments, duct tape, black gravel size slag fragments with metallic odor.
1		0	0-2		
2	2.6/4.0				
3		0.1	2-4		
4					(4.0 - 11.0) CLAY, CH, dark gray, moist, firm, medium to high plasticity, some sand size carbonate nodules, no staining or foreign material observed.
5		0.1			
6	4.0/4.0				
7		0.1			
8					
9		0.1		CH	
10	4.0/4.0				
11		0.1			(11.0 - 13.3) CLAY, CH, gray, moist, firm to hard, high plasticity, laminated, yellowish brown/orange staining in laminae, no foreign material observed, no odor.
12					
13		0.1			(13.3 - 18.0) CLAY/SHALE, dark gray, moist firm to hard, high plasticity, laminated, fractured, yellowish brown/orange staining in fractures, no odor.
14	4.0/4.0				
15		0.1			
16					
17	2.0/2.0		16-18		
18					

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Notes:
Boring location hand probed to 4 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Refusal at 18.0 feet, No water obeserved in borehole after 1 hour following completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/10/2012	Drilling Method:	Geoprobe
Drilling Company:	StrataCore	Borehole Diameter (in.):	2.25
Driller:	Mario Robles	Total Depth (ft):	19
Driller's License:	52694	Northing:	7102442.92
Logged By:	Christopher Moore, P.G.	Easting:	2480662.06
Sampling Method:	2"x 4' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 4.5) CLAY, CH, dark gray and very dark gray, moist, firm, medium plasticity, possible fill material, some angular gravel, 0.5-0.7 angular black plastic fragments, no odor.
1		0	0-2		
2	3.0/4.0				
3		0			
4					
5		0			(4.5 - 14.8) CLAY, CH, brownish yellow, moist, firm, moist to hard, medium to high plasticity, trace sand size carbonate nodules, no staining or foreign material observed, no odor. 10.0-14.8: mottled light gray, increased carbonate nodules. 12.2-12.4: sand lens, dry.
6	4.0/4.0				
7		0.1			
8					
9		0.1		CH	
10	4.0/4.0				
11		0.1			
12					
13		0.1			
14	3.6/4.0				
15		0.1			(14.8 - 19.0) CLAY, CH, dark gray, moist, firm to hard, high plasticity, laminated, fractured, yellowish brown/orange staining in fractures, no staining or foreign material observed, no odor.
16					
17	3.0/3.0				
18		0.1	17-19		
19					

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Notes:
Boring location hand probed to 4.5 feet to check for utilities.
Borehole plugged with bentonite chips upon completion.
Refusal at 19.0 feet, No water obeserved in borehole after 1 hour following completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/22/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	4
Driller's License:	NA	Northing:	7102395.75
Logged By:	Christopher Moore, P.G.	Easting:	2480119.01
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					(0 - 4.0) CLAY, CH, dark gray, moist, soft to firm, medium plasticity, no staining or foreign material observed, no odor. Borehole filling with water at approximately 3 feet.
1	--	0		CH	
2					
3	1.2/2.0	0	2-4		
4					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/22/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	1
Driller's License:	NA	Northing:	7102459.95
Logged By:	Christopher Moore, P.G.	Easting:	2480666.14
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	0.5/1.0	0	NA	CH	(0 - 1.0) CLAY, CH, dark grayish brown, moist, soft to firm, medium plasticity. Slag fragment at approximately 0.5 feet blocked sample barrel.
1					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-NDA-6

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/22/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7102503.41
Logged By:	Christopher Moore, P.G.	Easting:	2480665.79
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	1.2/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, dark grayish brown, moist, soft to firm, medium plasticity, no staining or foreign material observed, no odor.
1					
2					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/18/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7102016.84
Logged By:	Christopher Moore, P.G.	Easting:	2479679.40
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0	0.6/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist, firm, medium plasticity, trace roots, no staining or foreign material observed, no odor.
1					
2					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101912.01
Logged By:	Christopher Moore, P.G.	Easting:	2479827.17
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					
1	1.3/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist, firm, medium plasticity, some sand, white crystalline material deposited in cracks to approximately 1 foot, no odor.
2					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101904.02
Logged By:	Christopher Moore, P.G.	Easting:	2479836.71
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					
1	1.0/2.0	0.1	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist, soft to firm, medium plasticity, some sand, no staining or foreign material observed, no odor.
2					

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Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101885.93
Logged By:	Christopher Moore, P.G.	Easting:	2479858.70
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					
1	1.0/2.0	0.1	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist to wet, soft to firm, medium plasticity, some sand, no staining or foreign material observed, no odor.
2					

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101863.34
Logged By:	Christopher Moore, P.G.	Easting:	2479891.18
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 1 2	1.1/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist, soft to firm, medium plasticity, some sand, white crystalline material present on surface, no staining or foreign material observed below surface, no odor.

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-6

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101823.97
Logged By:	Christopher Moore, P.G.	Easting:	2479944.65
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 1 2	0.9/2.0	0.1	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist to wet, soft to firm, medium plasticity, some sand, white crystalline material present on surface, no staining or foreign material observed below surface, no odor.

PBW
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Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-7

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/19/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101804.83
Logged By:	Christopher Moore, P.G.	Easting:	2479965.58
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0 – 1 – 2	1.3/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist to wet, soft to firm, medium plasticity, some sand, white crystalline material present on surface, no staining or foreign material observed below surface, no odor.

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-8

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/18/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101745.75
Logged By:	Christopher Moore, P.G.	Easting:	2480046.41
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					
1	1.5/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark brown, moist to wet, very soft, medium plasticity, no staining or foreign material observed, no odor.
2					

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Exide Technologies

Log of Boring: 2012-FWCS-9

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/18/2012	Drilling Method:	Hand Sampler
Drilling Company:	NA	Borehole Diameter (in.):	2.25
Driller:	NA	Total Depth (ft):	2
Driller's License:	NA	Northing:	7101706.18
Logged By:	Christopher Moore, P.G.	Easting:	2480100.38
Sampling Method:	2"x 2' Barrel	Ground Elev. (ft AMSL):	--

Depth (ft)	Recovery (ft/ft)	PID (ppm)	Sample Interval	USCS	Lithologic Description
0					
1	0.5/2.0	0	0-2	CH	(0 - 2.0) CLAY, CH, very dark gray, wet, very soft, medium plasticity, no staining or foreign material observed, no odor.
2					

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Borehole plugged with bentonite chips upon completion.
This Log of Boring should not be used seperately from the report to which it is attached.

Geotechnical Engineering Report Boring Logs (Rone, 2011)

Project No.	Boring No.	
11-16996	B 1-10	Exide Technologies Frisco, Texas

Rone Engineering

Location

Water Observations
Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.

Completion Depth **10.0'**

Completion Date **8-23-11**

Surface Elevation

Type **CFA**

Depth, Ft	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - very hard to hard, dark brown, with limestone fragments and calcareous nodules and sand		4.5+		86	64	22	42	17		
					4.5+						19		
5			- brown and gray, with calcareous nodules		4.5+						15		
					4.5+		88	53	19	34	16		
					4.5+/2.5						18		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 1-10**

Plate A.2

Project No.	Boring No.	
11-16996	B 1-25	Exide Technologies Frisco, Texas

Rone Engineering

Location	Water Observations
	Groundwater seepage was observed at a depth of about 18' while drilling.
Completion Depth 25.0'	Completion Date 8-23-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY (CH) - very hard, dark brown and gray, with limestone fragments, calcareous nodules, roots and trash (pieces of glass, nails, plastic)		4.5+						14		
					4.5+		87	65	22	43	20	106	24230
			SANDY CLAY (CL) - very hard to hard, light yellowish brown, with calcareous nodules		4.5+						16		
5					2.5		64	49	17	32	17		
					3.75						21		
10			- layer of calcareous material										
					4.5+						17		
			- dark brown, with sand seams										
15			FAT CLAY (CH) - dark gray										
			▽		NR								
20			SHALEY CLAY - gray										
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 1-25**

Plate A.3

Project No. 11-16996	Boring No. B 1-35	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 39.0'	Completion Date 8-23-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - dark brown and gray, with limestone fragments, possible fill								9		
5													
			FAT CLAY (CH) - very hard to hard, light yellowish brown and gray, with calcareous nodules		4.5+						8		
					3.25		99	70	25	45	28		
10													
			SHALEY CLAY (CH) - very hard, gray		4.5+						23		
15													
			▽		4.5+						20		
20													
					4.5+		99	67	23	44	19	109	16280
25													
			CLAYEY SAND (SC) - gray		3.5						17		
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 1-35** *Continued Next Page* **Plate A.4a**

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 1-35		
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 39.0'	Completion Date 8-23-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			SHALEY CLAY (CH) - very hard, gray		4.5+		99	56	20	36	16		
35			SHALE - gray										
						100/3.5"							
			Boring Terminated at 39 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 1-35**

Plate A.4b

Project No.	Boring No.	
11-16996	B 2-10	Exide Technologies Frisco, Texas

Rone Engineering [redacted]

Location	Water Observations
	Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.
Completion Depth 10.0'	Completion Date 8-23-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: SANDY FAT CLAY - very hard, dark brown, with limestone fragments and calcareous nodules		4.5+		69	55	19	36	21		
			- pieces of trash at 2'		4.5+						21	103	10520
5			**SANDY CLAY (CL)** - hard, light yellowish brown, with gravel, calcareous		4.5+						14		
					3.5						20		
			- light gray and yellowish brown, with sand seams		4.5+						22		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 2-10**

Plate A.5

Project No.	Boring No.	
11-16996	B 2-25	Exide Technologies Frisco, Texas

Rone Engineering [redacted]

Location	Water Observations
	Groundwater seepage was observed at a depth of about 11' while drilling.
Completion Depth 25.0'	Completion Date 8-23-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - dark brown to brown and gray, with calcareous nodules		4.5+						19		
					4.5+						18		
5			**SANDY LEAN CLAY (CL)** - light yellowish brown and gray, calcareous		4.5+		65	38	14	24	16		
					4.5						15		
					3.5						29		
10			- with limestone layers 10'-12' ▽										
			SHALEY CLAY (CH) - very hard, dark gray		4.5+						22		
15													
					4.5+		99	63	23	40	19	109	17170
20			- slickensided										
					4.5+						20	107	9250
25			- slickensided										
			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/29/11

LOG OF BORING NO. **B 2-25**

Plate A.6

Project No.	Boring No.		Rone Engineering
11-16996	B 2-35	Exide Technologies Frisco, Texas	
Location		Water Observations **Groundwater seepage was observed at a depth of about 25' while drilling.**	
Completion Depth 35.0'	Completion Date 8-25-11		
Surface Elevation		Type CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - hard, dark brown, with calcareous nodules and limestone fragments, possible fill								16		
					2.5		89	60	22	38	26	97	4820
5			- dark brown and gray		2.5/4.5						29		
			- dark gray and olive, with calcareous nodules		2.25						28		
					2.25		89	69	24	45	27		
10			**FAT CLAY (CH)** - dark gray										
					1.75		57	54	18	36	19		
15			- with gravel size calcareous nodules 14'-15'										
			SHALEY CLAY (CH) - hard to very hard, light gray and yellowish brown		3.0						30	91	4720
20			- slickensided										
					4.5+		99	62	22	40	21	107	15310
25			- dark gray, slickensided ▽										
					4.5+						15		
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 2-35** *Continued Next Page* **Plate A.7a**

Project No. 11-16996	Boring No. B 2-35	Exide Technologies Frisco, Texas	Rone Engineering [redacted]
Location		Water Observations: Groundwater seepage was observed at a depth of about 25' while drilling.	
Completion Depth 35.0'	Completion Date 8-25-11		
Surface Elevation		Type: CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			- slickensided		4.5+						16	118	23710
35			SHALE -gray			100/3.0"							
			Boring Terminated at 38 Feet										

LOG OF BORING NO. B 2-35

Plate A.7b

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No. 11-16996	Boring No. B 3-10	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 10.0'	Completion Date 8-26-11		
Surface Elevation		Type CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - dark brown to brown, with limestone fragments, calcareous nodules, plastic, organics and paper, sandy		4.5+						11		
							69	60	20	40	11		
5											18		
			- dark gray, with calcareous nodules, paper, trash				80	63	22	41	30		
											22		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 3-10** **Plate A.8**

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 3-25		
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 21.0'	Completion Date 8-26-11		
Surface Elevation		Type: HSA/CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAY - dark grayish brown, limestone fragments and roots, with plastic, slag, gravel and paper								12		
							54	58	20	38	9		
5											26		
											43		
			FILL: FAT CLAY - firm, dark gray and yellowish brown		1.25		73	60	20	40	32		
10			FILL: FAT CLAY - very soft, gray, with calcareous nodules and wood, wet										
			- calcareous nodules 14' to 14.5'		0.25						24		
15			SHALEY CLAY (CH) - gray, with iron oxides stains										
					3.0		99	80	28	52	27		
20						46/12"							
			Boring Terminated at 21 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 3-25**

Plate A.9

Project No. 11-16996	Boring No. B 3-35	Exide Technologies Frisco, Texas	Rone Engineering [redacted]
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 35.0'	Completion Date 8-29-11		
Surface Elevation	Type HSA/CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAY - brown, with gravel, wood, and slag				69	50	19	31	8		
			FILL: SLAG - gray, slag, rock fragments, gravel size										
5													
			CLAY (CH) - dark brown, with slag, gravel and rock fragments, possible fill			N=50/5.0"					23		
10													
			FAT CLAY (CH) - soft to firm, dark grayish brown and yellowish brown, with weathered limestone		1.0		96	65	24	41	36		
15													
			▽		0.5			68	23	45	35		
20													
			- dark grayish brown and yellowish brown, with weathered limestone		1.25						36		
25													
			SHALEY CLAY (CH) - gray			N=64		55	18	37	19		
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 3-35** *Continued Next Page* **Plate A.10a**

Project No. 11-16996	Boring No. B 3-35	Exide Technologies Frisco, Texas	Rone Engineering [redacted]
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 35.0'	Completion Date 8-29-11		
Surface Elevation		Type HSA/CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
						N=94/11.5"					18		
35			Boring Terminated at 35 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 3-35

Plate A.10b

Project No.	Boring No.	
11-16996	B 4-10	Exide Technologies Frisco, Texas

Rone Engineering [redacted]

Location	Water Observations
	Groundwater seepage was observed at a depth of about 8' while drilling.
Completion Depth 10.0'	Completion Date 8-26-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - very hard, dark brown, brown and gray, with limestone fragments and calcareous nodules		4.5+		86	56	20	36	12		
					4.5+						11		
5											23		
											18		
			- becomes sandy at 8'		4.5+		64	56	20	36	17		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/28/11

LOG OF BORING NO. B 4-10

Plate A.11

Project No.	Boring No.		Rone Engineering
11-16996	B 4-35	Exide Technologies Frisco, Texas	[redacted]
Location		Water Observations **Groundwater seepage was observed at a depth of about 13' while drilling.**	
Completion Depth 38.0'	Completion Date 8-25-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAYEY SAND - loose, brown, with limestone fragments and calcareous nodules								10		
			- light gray and yellowish brown		0.5		34	58	20	38	19		
			FILL: SANDY FAT CLAY - firm, dark brown		2.25						35		
5					1.25						47		
					1.25		69	62	23	39	36		
10													
			FAT CLAY (CH) - hard, brown, with sand ▽		3.75						20		
15													
			- light yellowish brown and light gray		2.25						26		
20													
			SHALEY CLAY (CH) - dark gray, slickensided		4.5+		98	56	21	35	17	115	9500
25													
					4.5+						18	113	13770
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 4-35** *Continued Next Page* **Plate A.12a**

Project No.	Boring No.	
11-16996	B 4-35	Exide Technologies Frisco, Texas

Rone Engineering

Location	Water Observations
	Groundwater seepage was observed at a depth of about 13' while drilling.
Completion Depth 38.0'	Completion Date 8-25-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
					4.5+						21		
35			SHALE - dark gray										
						100/4.0"							
			Boring Terminated at 38 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 4-35**

Plate A.12b

Project No.	Boring No.		
11-16996	B 5-10	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 10.0'	Completion Date 8-22-11		
Surface Elevation		Type HSA/CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - very hard, dark brown, with limestone gravel		4.5+		60	59	19	40	14		
			- with plastic										
5											7		
					4.5+						14		
			FAT CLAY (CH) - hard, dark brown, with limestone fragments		3.25		96	68	24	44	32		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 5-10**

Plate A.13

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 5-25		
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 28.0'	Completion Date 8-26-11		
Surface Elevation		Type: CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: LIMESTONE BASE - light brown								2		
											7		
5			FILL: FAT CLAY - very hard, dark brown, with limestone fragments		4.5+			67	23	44	29		
											6		
					2.25			71	24	47	33		
10			FAT CLAY (CH) - light gray and yellowish brown, with sand seams										
					4.5+						20		
15													
			SHALEY CLAY (CH) - very hard, gray, with ferrous stains		4.5+		97	65	23	42	25		
20													
			- slickensided								20	111	
25			SHALE - dark gray										
						100/4.0"							
			Boring Terminated at 28 Feet										

LOG OF BORING NO. B 5-25

Plate A.14

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No.	Boring No.		Rone Engineering
11-16996	B 6-10	Exide Technologies Frisco, Texas	
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 10.0'	Completion Date 8-22-11		
Surface Elevation		Type CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAY - dark brown, with gravel, limestone fragments, slag fragments and plastic fragments		4.5+						13		
			- with concrete fragments and plastic								12		
5													
			FILL: SANDY FAT CLAY - soft, brown		0.75		64	59	22	37	30		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 6-10** **Plate A.15**

Project No.	Boring No.		
11-16996	B 6-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 28.0'	Completion Date 8-26-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: SANDY FAT CLAY - brown to dark brown, with limestone fragments			100/5.25"							
											12		
			FILL: CLAY - light gray, with ground concrete, concrete fragments, fine to medium				70	58	21	37	11		
								40	23	17	7		
						24/12"					11		
5			FILL: FAT CLAY - dark brown, with plastic, glass, slag, wood fragments, concrete fragments					61	30	31	25		
					2.0						35		
											34		
						12/12"							
10			FAT CLAY (CH) - hard, dark brown										
					2.25		85	64	22	42	29		
15													
			SHALEY CLAY (CH) - hard to very hard, light brown and gray, with iron stains		4.5						28		
20													
			- slickensided		3.0		66	46	15	31	16	119	20310
25			SHALE - gray										
						100/2.75"							
			Boring Terminated at 28 Feet										

LOG OF BORING NO. **B 6-25**

Plate A.16

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No.	Boring No.	
11-16996	B 7-10	Exide Technologies Frisco, Texas

Rone Engineering

Location

Water Observations
Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.

Completion Depth 10.0'

Completion Date 8-22-11

Surface Elevation

Type HSA/CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - very hard, brown, with limestone fragments		4.5+		80	59	20	39	19		
			FILL: SLAG GRAVEL - brown, with slag broken fragments										
5													
											6		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 7-10**

Plate A.17

Project No.	Boring No.		
11-16996	B 7-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was observed at a depth of about 13' while drilling.	
Completion Depth 29.0'	Completion Date 8-29-11		
Surface Elevation	Type HSA/CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - dark brown and dark gray, with gravel sized slag fragments								11		
						3/12"							
			FILL: SLAG - gray, slag fragments, gravel size								7		
5						7/12"							
			- slag and plastic				34	50	19	31	14		
						5/12"							
			- slag fragments, plastic, piece of shoe, cloth and wood								27		
10													
			FAT CLAY (CH) - firm, dark gray and brown		1.0						37		
15													
			- with sand seams		2.0		82	66	24	42	18	107	3850
20													
			SHALEY CLAY (CH) - very hard, dark gray, with iron staining		4.5+						27		
25													
			SHALE - dark gray			100/4.75"							
			Boring Terminated at 29 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 7-25

Plate A.18

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 8-10		
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 8.0'	Completion Date 8-22-11		
Surface Elevation		Type: CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: SLAG GRAVEL - broken slag, concrete fragments, rubber, plastic fragments, with brown clay					46	16	30			
5													
			Boring Terminated at 8 Feet										

LOG OF BORING NO. **B 8-10**

Plate A.19

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No. 11-16996	Boring No. B 8-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast, broken rock								6		
			SANDY FAT CLAY (CH) - very hard, dark brown and olive, with limestone fragments		4.5+		52	55	18	37	9		
5					4.5+						10		
					4.5+						12		
			FAT CLAY (CH) - firm, dark gray and brown, with calcareous nodules		1.5		87	66	22	44	29		
10													
			- with sand		1.75						33		
15													
			- with gravel at 18'-20'								15		
20													
			SHALEY CLAY (CH) - very hard, gray		4.5+		90	79	27	52	26		
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 8-25** **Plate A.20**

Project No.	Boring No.	
11-16996	B 9-10	Exide Technologies Frisco, Texas

Rone Engineering

Location	Water Observations
	Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.
Completion Depth 10.0'	Completion Date 8-24-11
Surface Elevation	Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast, broken roack, with layer of clay								16		
			FAT CLAY (CH) - firm to very hard, dark gray and olive, with limestone fragments and gravel, possible fill		1.75		54	59	21	38	17		
5					4.5+						18		
			FAT CLAY (CH) - hard to firm, dark brown and gray, possible fill, with gravel layer 8'-10'		3.0						33		
					1.25						31		
10			Boring Terminated at 10 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/27/11

LOG OF BORING NO. B 9-10

Plate A.21

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 9-25		
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast, broken rock								5		
			SANDY FAT CLAY (CH) - firm, dark brown to brown, with gravel		2.0						25		
5					2.0		61	59	20	39	19		
					3.0						29		
			- brown and gray		1.5						34		
10													
			FAT CLAY (CH) - hard, dark gray and brown, with sand		2.5		82	63	23	40	25		
15													
			FAT CLAY (CH) - firm, brown, with sand, wet		1.25						30	96	3070
20													
					1.25						24	101	2760
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 9-25**

Plate A.22

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B10-25		
Location		Water Observations: Groundwater seepage was observed at a depth of about 13' while drilling.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - gray, railroad ballast								8		
			SANDY FAT CLAY (CH) - very hard to firm, dark brown and gray, with limestone fragments		4.5+		64	54	18	36	18		
5					2.0						24		
					1.5						27		
					2.75						33		
10													
			▽										
			FAT CLAY (CH) - firm to very soft, dark gray and brown, wet		2.0						35		
15													
					<0.25						42		
20													
			CLAYEY SAND (SC) - light brown, with gravel				23	42	17	25	18		
25			Boring Terminated at 25 Feet										

LOG OF BORING NO. **B10-25**

Plate A.23

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B11-25		
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 25.0'	Completion Date 8-29-11		
Surface Elevation		Type: CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: - gravel fragments, concrete, dark brown clay and slag								13		
							36	36	17	19	12		
			FILL: - gravel slag, plastic, concrete and brown clay										
5			FILL: - slag and concrete fragments										
10													
15			FAT CLAY (CH) - soft to firm, dark brown and gray, with trace gravel, wet										
			▽		0.5						32		
20													
			- dark gray and yellowish brown, with calcareous nodules		1.5						25	101	3640
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B11-25**

Plate A.24

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B12-25		
Location		Water Observations: Groundwater seepage was not observed at a depth of about 12' while drilling.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast and limestone gravel										
			FILL: FAT CLAY - very hard to hard, dark gray and brown		4.5+						18	108	15620
5					4.5+						30		
					2.75		88	62	23	39	24		
			- firm, gray, dark brown and olive		1.25						30		
10													
			- organics and wood fragments at 13'-15'								247		
15													
			FAT CLAY (CH) - firm to hard, dark gray and brown, with sand		1.0		77	58	21	37	30	94	3060
20													
					3.0						26		
25			Boring Terminated at 25 Feet										

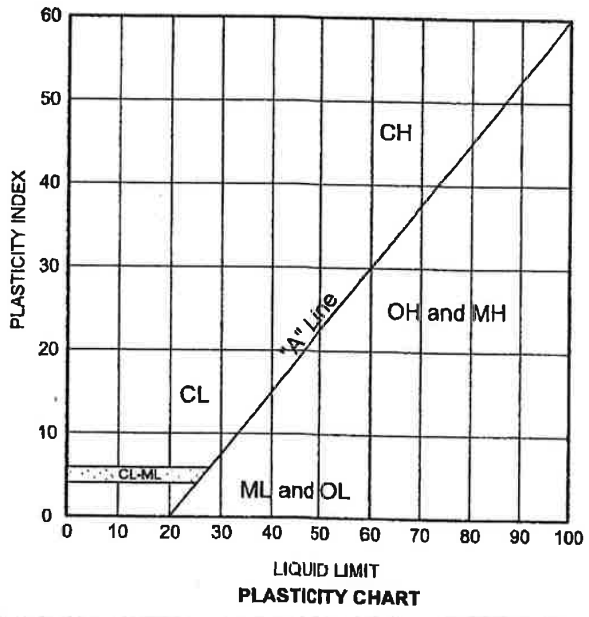
RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B12-25**

Plate A.25

Rone Engineering [redacted]

Major Divisions			Grp. Sym.	Typical Names	Laboratory Classification Criteria
Coarse - Grained Soils (more than half of the material is larger than No. 200 Sieve size)	Gravels (more than half of coarse fraction is larger than No. 4 Sieve size)	Clean gravels (Little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel form grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent.....GW,GP,SW,SP; More than 12 percent.....GM,GC,SM,SC; 5 to 12 percent.....Borderline cases requiring dual symbols
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4: $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3; Not meeting all gradation requirements for GW
		Gravels with fines (Appreciable amount of fines)	GM	Silty gravels, gravel - sand - silt mixtures	Liquid and Plastic limits below "A" line or P.I. greater than 4; Liquid and plastic limits plotting in hatched zone between 4 and 7 are borderline cases requiring use of dual symbols
			GC	Clayey gravels, gravel - sand - clay mixtures	Liquid and Plastic limits above "A" line with P.I. greater than 7
	Sands (more than half of coarse fraction is smaller than No. 4 Sieve size)	Clean sands (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6: $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand silt mixtures	Liquid and Plastic limits below "A" line or P.I. less than 4; Liquid and plastic limits plotting between 4 and 7 are borderline cases requiring use of dual symbols
			SC	Clayey sands, sand clay mixtures	Liquid and Plastic limits above "A" line with P.I. greater than 7
Fine - Grained Soils (more than half of the material is smaller than No. 200 Sieve)	Silts and Clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, and lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and Clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity, organic silts	
	Highly Organic soils		Pt	Peat and other highly organic soils	



PLASTICITY CHART

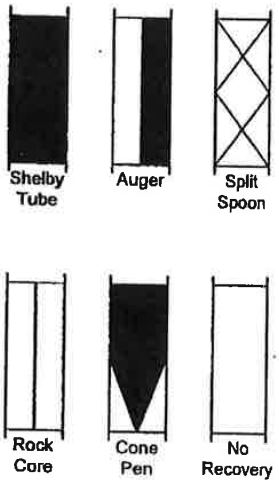
UNIFIED SOIL CLASSIFICATION SYSTEM

PLATE A.26

SOIL OR ROCK TYPES

CLAY	SAND-*WELL GRADED*
FAT CLAY	LIMESTONE-WEATHERED
LEAN CLAY	CONCRETE
SANDY CLAY	FILL
LIMESTONE	GRAVEL
CLAYEY SAND	CLAYEY GRAVEL
SHALE	MARL
SAND-*POORLY GRADED*	SILT

Rone Engineering



TERMS DESCRIBING CONSISTENCY, CONDITION, AND STRUCTURE OF SOIL

Fine Grained Soils (More than 50% Passing No. 200 Sieve)

Consistency	Penetrometer Reading, (tsf)	Unconfined Compression, (psf)
Very Soft	≤ 0.5	≤ 1000
Soft	0.5 to 1.0	1000 to 2000
Firm	1.0 to 2.0	2000 to 4000
Hard	2.0 to 4.0	4000 to 8000
Very Hard	> 4.0	> 8000

Coarse Grained Soils (More than 50% Retained on No. 200 Sieve)

Penetration Resistance (Blows / Foot)	Descriptive Item	Relative Density
0 to 4	Very Loose	0 to 20%
4 to 10	Loose	20 to 40%
10 to 30	Medium Dense	40 to 70%
30 to 50	Dense	70 to 90%
Over 50	Very Dense	90 to 100%

Soil Structure

Calcareous	Contains appreciable deposits of calcium carbonate; generally nodular
Slickensided	Having inclined planes of weakness that ate slick and glossy in appearance
Laminated	Composed of thin layers of varying color or texture
Fissured	Containing cracks, sometimes filled with fine sand or silt
Interbedded	Composed of alternated layers of different soil types, usually in approximately equal proportions

TERMS DESCRIBING PHYSICAL PROPERTIES OF ROCK

Hardness and Degree of Cementation

Very Soft or Plastic	Can be remolded in hand; corresponds in consistency up to hard in soils
Soft	Can be scratched with fingernail
Moderately Hard	Can be scratched easily with knife; cannot be scratched with fingernail
Hard	Difficult to scratch with knife
Very Hard	Cannot be scratched with knife
Poorly Cemented or Friable	Easily crumbled
Cemented	Bound together by chemically precipitated material; Quartz, calcite, dolomite, siderite, and iron oxide are common cementing materials.

Degree of Weathering

Unweathered	Rock in its natural state before being exposed to atmospheric agents
Slightly Weathered	Noted predominantly by color change with no disintegrated zones
Weathered	Complete color change with zones of slightly decomposed rock
Extremely Weathered	Complete color change with consistency, texture, and general appearance approaching soil

KEY TO CLASSIFICATION AND SYMBOLS **PLATE A.27**

Phase II RCRA Facility Investigation Boring Logs (JDC, 1998a)

JDC
JD Consulting, LLC
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

LOG OF BORING

Boring No.: RRS#1
Sheet 1 of 1

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acetate liner & Discrete Soil Sample per Intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling: Method	Sampling: OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	NR			NR – no recovery			
	B			CLAY – some gravel (10%), damp, firm–grades into a silty gravel	1		
1	C						
	C (dup)			GRAVELY SILT – gravel & silt (75%), well graded 25% clay matrix, loose, damp			
	D			GRAVEL – angular, well graded, loose, damp less than 10% matrix, clean gravel	2		
2				CLAY – with some well rounded calcareous gravel, less than 20% pebbles & granule, soft, moist			
3	E				3		
	E (dup)						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

JDC
JD Consulting, LLC
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

LOG OF BORING

Boring No.: RRS#2

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acotate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Sheet 1 of 1
Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			RAILROAD BALLAST GRAVEL – grading into clay	1		
1	B						
	C			CLAY – soft, moist with alternating bands of brownish yellow to gray color (6" bands) with calcareous gravel (20%)	2		
2	D						
3					3		
	E			CLAY – soft, moist, black			
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

JD Consulting, LLC
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

LOG OF BORING

Boring No.: RRS#3
Sheet 1 of 1

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acetate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	NR			NR – no recovery			
	B			GRAVELY CLAY – firm, dry, gray			
1	C			SANDY GRAVEL – well graded, angular pebble and granules with less than 10% silty sand matrix, loose, damp	1		
	D			GRAVELY CLAY – with 10% to 30% well rounded pebbles (limey calcareous pebbles), soft, moist, brownish yellow			
2					2		
3				CLAY – with decreasing gravel (less than 10%) soft, moist, grayish black @ TD	3		
	E						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: RRS#4

Client: GNB Technologies | Job No.: 027-01 | Sheet 1 of 1
Site: Frisco, Texas – Phase I RFI | Start Date: 6/18/98 | Finish Date: 6/18/98
Geologist: J. Greg Dennis | Driller: ESDI / M. McNitt
Drilling Method: Geoprobe | Drill Bit: – | Ground Water: –
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals | Total Depth: 4.0 ft.
Coordinates: – | Elev., GL (ft. msl): – | Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0				NR – no recovery (railroad ballast @ surface)			
1	C		GP	GRAVELY CLAY – firm , damp, gray	1		
	D		GP	GRAVEL – clean, less than 10% silty sand matrix, greater than 90% gravel, angular to sub angular, well graded granules & pebbles, loose, moist			
2	E		CL	CLAY – soft, with moderate plasticity, with 20% gravel, well rounded pebbles, moist, brownish yellow	2		
3					3		
	F		CL	CLAY – soft, with moderate plasticity, moist, black			
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: NTSB#1
Sheet 1 of 1

Client: CNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acotate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Finish Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Ground Water:
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	NR			NR – no recovery			
				GRAVELY FILL – white, silt (not sampled)			
1				FILL – dark, clay (not sampled)	1		
2	E			GRAVELY CLAY – with 20% – 30% calcareous gravel, well rounded pebbles & granules, stiff, light brown	2		
3	F				3		
	G						
4	G (dup)			TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#1

Client: GNB Technologies | Job No.: 027-01 | Sheet 1 of 1
Site: Frisco, Texas – Phase I RFI | Start Date: 6/18/98 | Finish Date: 6/18/98
Geologist: J. Greg Dennis | Driller: ESDI / M. McNitt
Drilling Method: Geoprobe | Drill Bit: – | Ground Water: –
Sampling Method: Continuous Shelby Tube w/acetate liner & Discrete Soil Sample per intervals | Total Depth: 4.0 ft.
Coordinates: – | Elev., GL (ft. msl): – | Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – stiff, dry, black			
1	B			CLAYEY SILT – stiff, dry, orange & gray mottled	1		
2	C				2		
3	D			CLAY – moist, soft, greenish, gray with orange mottling	3		
4	E			TOTAL DEPTH = 4' BGL.	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#2
Sheet 1 of 1

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acetate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water: –
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – some gravel (less than 20%), stiff, dry, grayish black (upper soil layer)			
	B			SILTY CLAY – loose, dry, white to brown			
1	C			CLAY – with well rounded calcareous gravel, dry, stiff, gray	1		
	D			CLAY – with fine grained gravel, (less than 20% granules), stiff, dry, grayish green			
2					2		
3					3		
	E						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#3

Client: GNB Technologies | Job No.: 027-01 | Sheet 1 of 1
Site: Frisco, Texas – Phase I RFI | Start Date: 6/18/98 | Finish Date: 6/18/98
Geologist: J. Greg Dennis | Driller: ESDI / M. McNitt
Drilling Method: Geoprobe | Drill Bit: – | Ground Water: –
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals | Total Depth: 4.0 ft.
Coordinates: – | Elev., GL (ft. msl): – | Elev., TOC (ft. msl): –

Depth (ft.)	Sampling: Method	Sampling: OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0				ROOTS & GRASS – soil root zone			
	A			GRAVELY CLAY – stiff, dry, light brown, grades into grayish brown clay with 20% gravel, well rounded pebbles & granules. Gravel decrease & less pebbles with depth, stiff, dry			
1	B				1		
	C						
	D						
2					2		
3					3		
	E						
	E (dup)						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#4
Sheet 1 of 1

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water: –
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – very loose, dry with 15% gravel (pebbles & cobbles)			
1	B			CLAY – loose to compact at depth, less than 20% gravel, decrease with depth (poorly graded mostly rounded granules, 5% gravel, very moist, black @ TD	1		
2	C				2		
3	D				3		
4	E E (dup)			TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#5

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Sheet 1 of 1
Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling: Method	Sampling: OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – roots, loose, damp, black			
1	B			CLAY – with less than 20% well rounded well graded gravel, compact, highly plastic, very moist greenish gray to olive	1		
	C						
	C (dup)						
	D						
2					2		
3					3		
	E						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#6

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Sheet 1 of 1
Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – root zone, loose, dry, black			
1	B			CLAY – with 10%–30% calcareous well rounded & graded gravel (pebbles & granules) compact to dense, damp, greenish gray to olive with orange mottling	1		
2	C				2		
3	D				3		
4	E			TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#7
Sheet 1 of 1

Client: CNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling: Method	Sampling: OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – (upper soil root zone) loose, dry, black			
	B						
1	C			CLAY – compact, dry, gray to grayish green	1		
	D						
2					2		
3					3		
	E						
	E (dup)						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#8
Client: GNB Technologies — Job No.: 027-01 — Sheet 1 of 1
Site: Frisco, Texas – Phase I RFI — Start Date: 6/18/98 — Finish Date: 6/18/98
Geologist: J. Greg Dennis — Driller: ESDI / M. McNitt
Drilling Method: Geoprobe — Drill Bit: – — Ground Water:
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals — Total Depth: 4.0 ft.
Coordinates: – — Elev., GL (ft. msl): – — Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	NR			NR / FILL– interval from 0 – 24" contains 12" of recovered fill, not sampled	1		
1	NR						
	NS						
2	F			SILT – calcareous material, laminated rock fragments to loose material recovered, individual layers are cohesive & very stiff, dry, tan, loose material is calcareous silt	2		
3	G				3		
	H						
4	I			TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#9-1

Client: CNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Sheet 1 of 1
Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – soil layer, dry, stiff, black			
	B			GRAVELLY CLAY – mixed with angular limestone pebbles, loose, dry, whitish brown			
1	C			LIMESTONE – layered, loose, layers are hard but brittle, dry, white	1		
				TOTAL DEPTH = 18" BGL			
2					2		
3					3		
4					4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#9-2
Sheet 1 of 1

Client: CNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acetate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling: Method	Sampling: OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – roots, dry, loose, black			
	B			SILTY CLAY – stiff, dry, gray			
1	C			SILTY CLAY – very stiff, loose, dry, orange to tan (calcareous material)	1		
	D						
2				SILTY CLAY – Same as above, grades into compact dry, grayish clay	2		
3					3		
	E						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

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LOG OF BORING

Boring No.: SDA#10

Client: GNB Technologies
Site: Frisco, Texas – Phase I RFI
Geologist: J. Greg Dennis
Drilling Method: Geoprobe
Sampling Method: Continuous Shelby Tube w/acatate liner & Discrete Soil Sample per intervals
Coordinates: –

Job No.: 027-01
Start Date: 6/18/98
Driller: ESDI / M. McNitt
Drill Bit: –
Total Depth: 4.0 ft.
Elev., GL (ft. msl): –

Sheet 1 of 1
Finish Date: 6/18/98
Ground Water:
Elev., TOC (ft. msl): –

Depth (ft.)	Sampling Method	Sampling OVM (ppm)	USCS Class	Sample Description	Depth (ft.)	Boring Completion	Remarks
0	A			CLAY – upper soil layer, soft, dry, black			
	B			CLAY – compact to loose, dry, brownish gray with orange mottling			
1	C				1		
	D						
2					2		
3				SHALEY CLAY – laminated, thin bedded, stiff, damp soft, moist, grayish black @ TD	3		
	E						
	E (dup)						
4				TOTAL DEPTH = 4' BGL	4		
5					5		
6					6		
7					7		

Notification of an On-Site Class II Industrial Waste Landfill Boring Logs (RMT/JN, 1995)

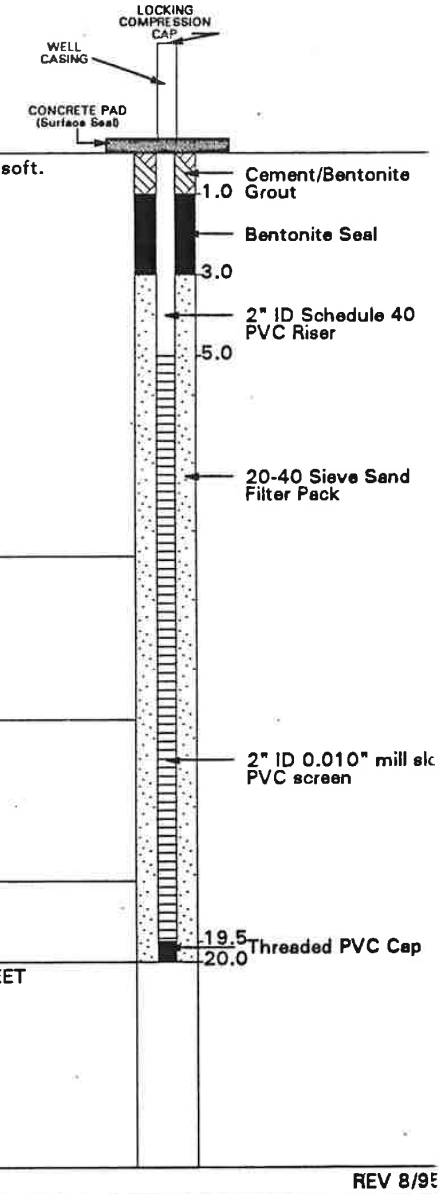
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B1/LMW-1

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: E.D.S.I./R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 inches
Site Coordinates: N: 1130.5500 E: 3406.1100	Total Depth: 20.00	Surface Elevation (ft.): 635.90	TOC Elevation (ft.): 638.74	PAD Elevation (ft.): 635.90
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.10	Date: 7/26/95	Time: 0832

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - dark brown, organic material, moist, soft.
	60	▼		5–8		CLAY (CH) - light brown to gray clay, firm.
				7–10		tan, plastic, moist with 10% angular chalk clasts.
	60			10–14		CLAYEY GRAVEL (GC) - tan clay, moist.
	60			14–18		CLAY (CH) - tan to gray, chalk clasts, saturated.
				18–20		SHALE - gray, massive, hard. (Eagle Ford Shale)
				20		BORING TERMINATED AT 20 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

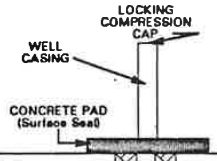
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B2/LMW-2

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GELLISPIE	Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6183.6400 E: 3546.9700	Total Depth: 30.00	Surface Elevation (ft.): 638.72	TOC Elevation (ft.): 641.01	PAD Elevation (ft.): 638.72
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.18	Date: 7/26/95	Time: 1045

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–4		CLAY (CH) - dark brown, organic material, moist, firm.
	60	▼		5–8		light brown and gray. plastic
	60			9–13		CLAY (CH) - light brown and gray, chalk pebble layers, saturated.
				13–15		CLAYEY GRAVEL (GC) -saturated, 20% angular gravel sized clasts.
	60			15–17		CLAY (CH) - tan with chalk clasts, grades down to harder gray clay.
				17–18		SAND (SP) - red, medium grained, saturated.
	12			18–21		SHALE - gray, massive, hard. (Eagle Ford Shale)
				21		BORING TERMINATED AT 21 FEET



WELL 1684E 8/23/95

F-204B Austin (8-95)

REV 8/95

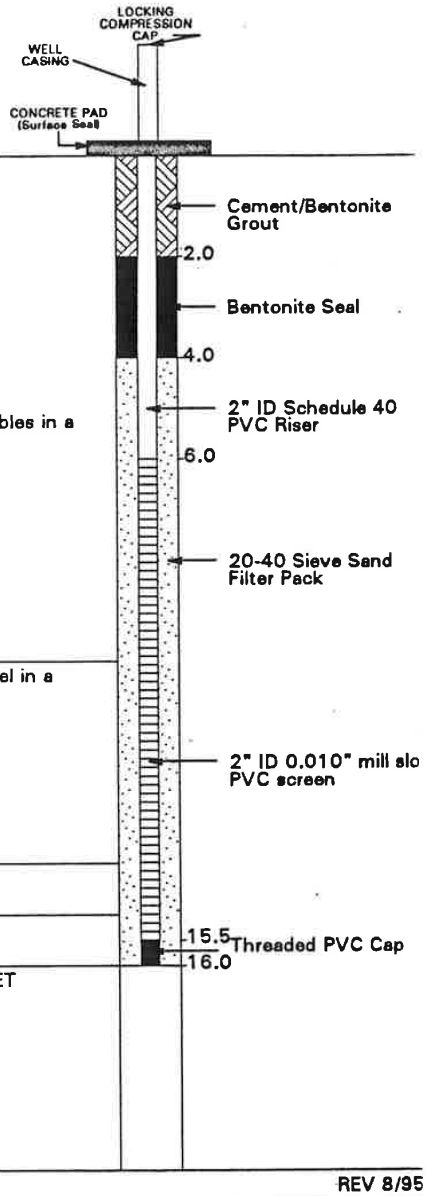
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B3/LMW-3

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGERS		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5364.7800 E: 3928.4200	Total Depth: 16.00	Surface Elevation (ft.): 637.76	TOC Elevation (ft.): 639.78	PAD Elevation (ft.): 637.76
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.18	Date: 7/26/95	Time: 0828

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) -dark brown, organic, moist, soft.
	60	▼		5–10		CLAY (CH) - tan, plastic, hard, with 10% chalk pebbles in a clay matrix.
				9		gravelly clay, tan, plastic, moist.
	60			10–14		CLAYEY GRAVEL (GC) - saturated, suspended gravel in a tan clay matrix.
				14		CLAY (CH) - gray, iron stained.
	12			15		SHALE - gray, massive, hard. (Eagle Ford Shale)
				16		BORING TERMINATED AT 16 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

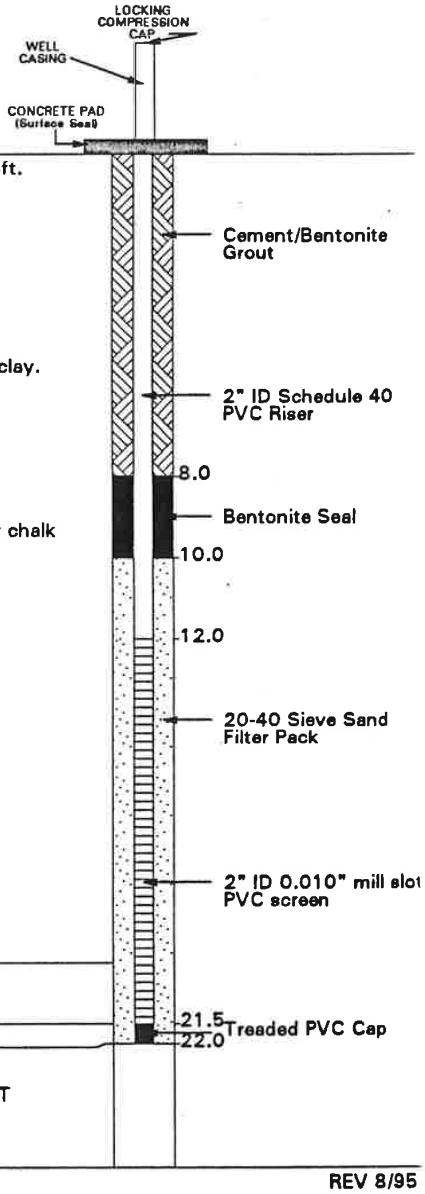
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B4/LMW-4

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5735.6900 E: 3757.2000	Total Depth: 22.00	Surface Elevation (ft.): 639.15	TOC Elevation (ft.): 641.42	PAD Elevation (ft.): 638.15
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.76	Date: 7/26/95	Time: 1030hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–9		CLAY (CH) - dark brown, organic material, moist, soft.
	60			9–13		light brown to gray, grades into a laminated brown clay.
	60			13–15		CLAY (CH) - tan, moderate plasticity, moist, angular chalk clasts.
	60			15–20		chalk clasts, saturated.
	24			20–21		tan, plastic, moist.
				21–22		SAND (SP) - 1.5 feet thick, red, soft, moist.
				22		SHALE - gray, massive, hard. (Eagle Ford Shale)
						BORING TERMINATED AT 22 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

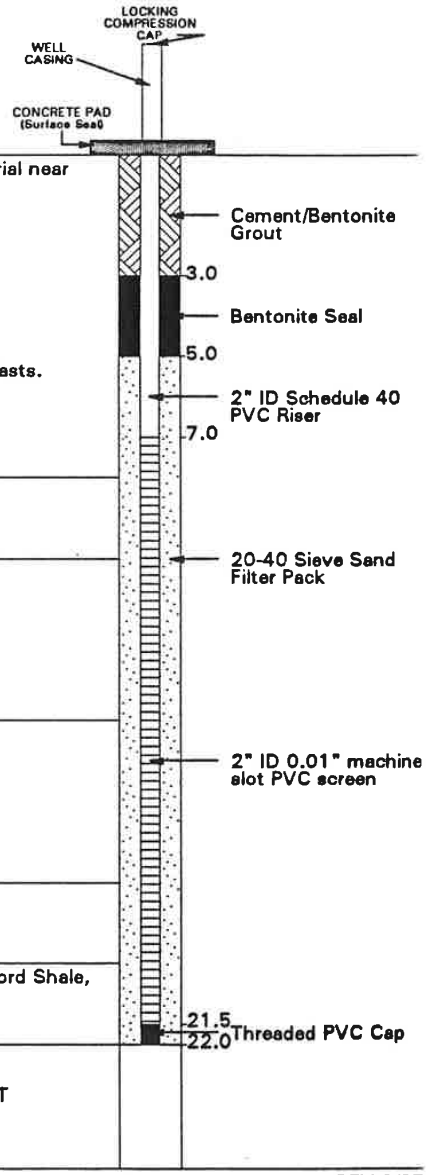
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B5/LMW-5

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5706.3200 E: 4174.7100	Total Depth: 22.00	Surface Elevation (ft.): 643.27	TOC Elevation (ft.): 646.61	PAD Elevation (ft.): 643.27
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 10.25	Date: 7/25/95	Time: 0647hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) - dark brown, moist, soft, organic material near surface.
	48			5–8		CLAY (CH) - dark tan to brown, hard, 10% chalk clasts.
	24			8–9		GRAVELLY CLAY (CL) - tan, moist.
	48	▼		9–14		CLAY (CH) - tan, hard.
	24			14–18		CLAYEY GRAVEL (GC) - tan.
	24			18–20		CLAY (CH) - tan, massive soft.
	24			20–22		SHALE - gray, hard, iron stained fractures. (Eagle Ford Shale, weathered)
				22–24		SHALE - gray, massive, hard. (Eagle Ford Shale) BORING TERMINATED AT 22 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT JONES & NEUSE

BORING NO. SB-6

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6171.1200 E: 4239.9600	Total Depth: 21.00	Surface Elevation (ft.): 652.79	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - brown , moderately organic, moist, firm.
	24			2		
	24			3		
				4		
				5		light brown and gray.
	24			6		
				7		tan to brown, very firm, massive.
	24			8		
				9		CLAY (CH) - tan, firm with horizontal jointing, 1-3" width, jointing coated with red and yellow staining.
	48			10		
				11		
				12		
				13		
				14		
	24			15		
				16		
	48			17		
				18		SILTY SAND (SM) - red, medium grained, friable, clay coating on graines.
				19		
				20		
	12			21		SHALE - gray, massive, hard. (Eagle Ford Shale)
				22		BORING TERMINATED AT 21 FEET
				23		
				24		

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

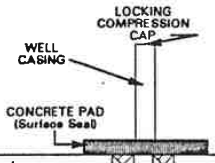
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B7/LMW-7

Client: GNB TECHNOLOGIES		Start Date: 2-2-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6574.6800 E: 4322.6900	Total Depth: 20.00	Surface Elevation (ft.): 657.45	TOC Elevation (ft.): 659.07	PAD Elevation (ft.): 657.45
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 8.06	Date: 7/26/95	Time: 1050hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - dark brown, soft, moist, organic material near surface.
	60			5–9		light brown to gray, grades to laminated brown clay.
				8–9		tan, moist with 10% angular chalk clasts.
	48			10–12		CLAYEY GRAVEL (GC) - tan, decreasing grain size with depth, saturated.
				12–20		CLAY (CH) - tan to gray, <5% chalk pebbles.
	36			18–19		weathered shale, fissile with horizontal jointing, iron staining.
	36			20		SHALE - gray, massive, hard. (Eagle Ford Shale) BORING TERMINATED AT 20 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

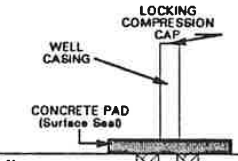
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B8/LMW-8

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5539.0400 E: 4812.0100	Total Depth: 22.00	Surface Elevation (ft.): 645.57	TOC Elevation (ft.): 648.68	PAD Elevation (ft.): 645.57
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 11.13	Date: 7/26/95	Time: 0630hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1–6		CLAY (CH) - dark brown, organic material, moist, firm.
	24					
	60			7		SANDY CLAY (CL) - tan, firm, 10-20% course sand and pebbles size chalk clasts.
	12	▼		10–12		
	48			12		CLAYEY GRAVEL (GC) - saturated.
				13–14		
	24			14–18		CLAY (CH) - brown, massive, very hard.
	24			18		no recovery
	24			19		SAND (SP) - gray and red, medium grained, moist.
				20–21		SHALE - gray, hard, massive. (Eagle Ford Shale)
				22–24		BORING TERMINATED AT 22 FEET



Cement/Bentonite Grout
3.0
Bentonite Seal
5.0
2" ID Schedule 40 PVC Riser
7.0
20-40 Sieve Sand Filter Pack
2" ID 0.01 inch machine slot PVC screen
21.5
22.0
Threaded PVC Cap

WELL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

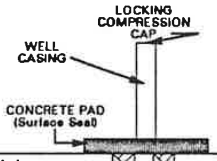
LOG OF TEST BORING

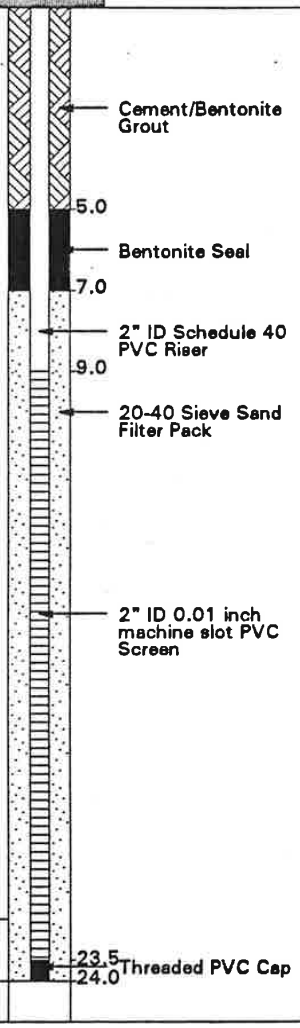
RMT, INC. JONES & NEUSE

BORING NO. B9/LMW-9

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5888.8400 E: 4833.3600	Total Depth: 24.00	Surface Elevation (ft.): 660.48	TOC Elevation (ft.): 663.72	PAD Elevation (ft.): 660.48
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 18.74ft.	Date: 4/24/95	Time:

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	12			1–4		CLAY (CH) - dark brown, soft, friable, organic material near surface, moist, moderately soft.
	12			4–5		
	24			5–7		gray, massive, hard, grading into jointed clay with red and yellow staining.
	24			7–9		
	24			9–12		
	24			12–14		
	24			14–17		tan to brown, jointed.
	24			17–20		gray, massive, jointed, dry.
	24			20–23		
	24			23–24		SHALE - gray, massive, hard. waxy texture, weathered. (Eagle Ford Shale)
				24		BORING TERMINATED AT 24 FEET





WELL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

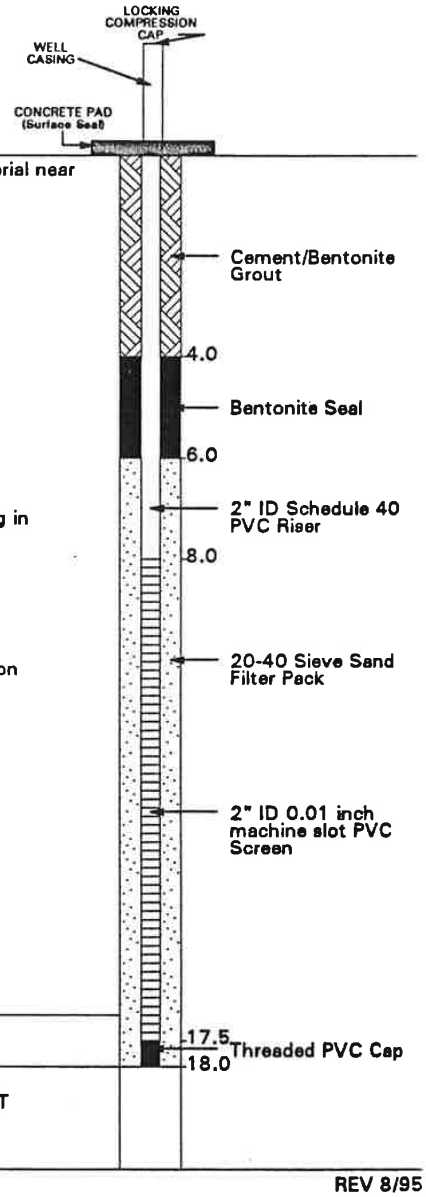
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. LMW-10

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/ R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6390.7500 E: 4954.0700	Total Depth: 18.00	Surface Elevation (ft.): 681.03	TOC Elevation (ft.): 683.05	PAD Elevation (ft.): 681.03
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 11.26	Date: 7/26/95	Time: 1053hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	12			1		CLAY (CH) - dark brown, soft, friable, organic material near surface.
	12			2		
	24			3		
				4		
	24			5		tan, firm, massive clay, moist.
				6		
	36			7		fractures 1-3" width, moist, yellow and red staining in fractures
				8		
				9		
	24			10		gray, two 2" fractures observed filled with sand, iron stained.
		▼		11		
	36			12		
				13		
				14		
	24			15		
				16		
	12			17		SHALE - massive, very hard. (Eagle Ford Shale)
				18		BORING TERMINATED AT 18 FEET
				19		



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-11

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME 750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6380.1701 E: 4279.5396	Total Depth: 23.00	Surface Elevation (ft.): 655.15	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–4		CLAY (CH) - silty; stiff; plastic; olive with gray mottling; moist; color change from 1 ft to 3 ft to dark brown; some sand, fine grained, poorly graded, chalk matrix.
	60			5–9		CLAY (CH) - silty; very stiff; slightly plastic; olive with gray, rust, and yellow mottling; changing to gray with rust and yellow mottling; slightly moist, laminated.
	60			10–14		
	60			15–19		trace weathered shale silty sand seam, very fine grained; some laminated layers of soft, very plastic clay; tan.
	36			20–22		CLAY (CH) - sandy, very fine grained; plastic; stiff; yellowish brown with rust mottling; moist; some seams of weathered shale, gray, dense, hard.
				23		SHALE - gray; dense; hard. (Eagle Ford Shale)
				24		BORING TERMINATED AT 23 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, Inc. JONES & NEUSE

BORING NO. SB-12

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME 750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6472.1875 E: 4300.0402	Total Depth: 25.00	Surface Elevation (ft.): 656.40	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) - some sand, fine to medium grained, subrounded, poorly graded, sand is chalk matrix; slightly plastic; hard; dark brown change to brown at 3 ft.; moist.
	60			6–10		
	60			11–15		CLAY (CH) - silty; stiff; plastic; gray with rust and yellow mottling; laminated; moist.
	60			16–20		some weathered shale lenses.
				21–22		
				23–24		SHALE - grey; dense; hard. (Eagle Ford Shale)
				25		BORING TERMINATED AT 25 FEET
				26–29		

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

JONES & NEUSE

BORING NO. SB-13

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6459.5969 E: 4644.7713	Total Depth: 20.00	Surface Elevation (ft.): 669.41	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–15		CLAY (CH) - sandy, fine grained, poorly graded, subangular, sand is chalk matrix; silty; plastic; stiff; dark brown; moist.
						CLAY (CH) - silty; plastic; stiff; gray with rust and yellow mottling; laminated; slightly moist.
	60					very fine grained sand seam.
	60					some weathered shale, becoming more dense.
	60					SHALE - gray; dense; hard. (Eagle Ford Shale)
				20		BORING TERMINATED AT 20 FEET
				21–24		

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-14

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6414.7340 E: 4474.3169	Total Depth: 14.00	Surface Elevation (ft.): 656.75	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - silty; slightly plastic; stiff; gray with rust and yellow mottling; laminated; slightly moist.
	60					
	48			11–13		SHALE - gray; dense; hard. (Eagle Ford Shale)
				14		BORING TERMINATED AT 14 FEET
				15–19		

SOIL 1684E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, Inc. JONES & NEUSE

BORING NO. SB-15

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-21-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5712.6367 E: 4852.8441	Total Depth: 26.00	Surface Elevation (ft.): 650.92	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - sandy, fine to medium grained, poorly graded, sand is chalk matrix; slightly plastic; stiff; brown; moist.
	24			2		
	24			3		
				4		
				5		
	36			6		CLAY (CH) - trace silt; some chalk fragments, subangular; plastic; hard; brown with yellowish brown mottling; moist at 7.5 feet; change color to gray with rust and yellow mottling; laminated.
				7		
				8		
	24			9		
				10		
	36			11		
				12		
				13		
	24			14		
				15		
	36			16		
				17		
				18		CLAY (CH) - silty; some sand seams, very fine grained; plastic; stiff; brown with gray mottling; increase sand content with depth.
	24			19		
				20		
	36			21		CLAY (CH) - silty; plastic; stiff; some weathered shale; brown with dark gray mottling; moist; laminated.
				22		
				23		
	24			24		SHALE - dark gray; dense; hard. (Eagle Ford Shale)
				25		
				26		BORING TERMINATED AT 26 FEET
				27		
				28		
				29		

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT JONES & NEUSE

BORING NO. SB-16

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-21-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5625.1147 E: 4828.9834	Total Depth: 24.00	Surface Elevation (ft.): 647.94	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	48			1–4		CLAY (CH) - silty; some sand, medium grained, subangular, poorly graded, sand is chalk matrix; plastic; hard; dark brown; moist; roots.
						CLAY (CH) - sandy, medium grained, subangular; slightly plastic; stiff; light brown; moist.
	60			4–9		CLAY (CH) - sandy, medium to coarse grained, poorly graded, sand is chalk matrix; trace gravel size grains; plastic; stiff; light brown; moist.
	60			9–14		CLAY (CH) - silty; trace sand, fine grained; very plastic; stiff; light brown with rust and gray mottling; moist; increase fine grained sand content with depth.
	60			14–15		SANDY CLAY with gravel (CH) - fine to medium grained, subrounded, poorly graded; plastic; stiff; tan with rust mottling; wet.
				15–18		CLAY (CH) - silty; some very fine grained sand; plastic; stiff; brown with rust and gray mottling; laminated; moist.
	60			18–21		CLAY (CH) - trace silt, laminated; slightly plastic; hard; gray with rust and yellow mottling; very fine grained sand seam at 19 feet, gray, wet.
						fine grained sand seam from 20.5 to 20.7 ft., wet.
				22–24		SHALE - dark; dense; hard.
						BORING TERMINATED AT 24 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

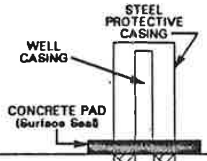
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. LMW-17

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-24-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 8 Inches
Site Coordinates: N: 5626.1663 E: 4507.0130	Total Depth: 23.00	Surface Elevation (ft.): 646.34	TOC Elevation (ft.): 648.84	PAD Elevation (ft.): 646.34
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 13.52	Date: 7/26/95	Time: 0643hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - trace sand, fine grained, poorly graded, subangular, sand is chalk matrix; plastic; hard; very dark brown; moist.
	24			2		
	24			3		
				4		
				5		
	36			6		
				7		
				8		
				9		
	60			10		increase sand content, fine to coarse grained; wet.
				11		
				12		
				13		
				14		silty sand seam, fine grained
	24			15		CLAYEY SAND (SC) - fine to coarse grained, subangular, poorly graded; no plasticity; loose; tan; wet.
	36			16		CLAYEY GRAVEL with sand (GC) - fine grained, rounded, poorly graded; loose; tan; wet.
				17		
				18		
				19		
	24			20		CLAY (CH) - silty; hard; plastic; gray with rust and yellow mottling; moist. sand seam, very fine grained.
	24			21		SHALE - gray; dense; hard. (Eagle Ford Shale)
				22		
				23		BORING TERMINATED AT 23 FEET
				24		



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-18

Client: GNB TECHNOLOGIES		Start Date: 7-25-95	End Date: 7-25-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5721.6077 E: 4494.9856	Total Depth: 24.00	Surface Elevation (ft.): 647.30	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	48			1–5		CLAY (CH) - silty; plastic; stiff; dark brown; some sand at depth, fine grained, poorly graded, sand is chalk matrix; trace roots from 0-2 feet.
	60			6–9		CLAY (CH) - trace silt; trace sand, fine grained, subangular, poorly graded, sand is chalk matrix; plastic; stiff; brown; moist; increase sand content with depth, grain size fine to medium; tan.
	60			10–13		CLAY (CH) - silty; sandy, very fine grained; plastic; soft; tan; wet.
	60			14		CLAYEY GRAVEL with sand (GC) - fine grained; poorly graded; rounded; loose; tan; wet.
				15–20		CLAY (CH) - silty; plastic; stiff; brown with gray and yellow mottling; laminated; increase silt with depth changing to gray with rust and yellow mottling.
	60			21–23		SHALE - gray; dense; hard. (Eagle Ford Shale)
				24		BORING TERMINATED AT 24 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

Phase I RCRA Facility Investigation Boring Logs (Lake, 1991; Lake, 1993)

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. P-1

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/8/90 | Boring depth: 25.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 20.0

Groundwater elevation: 636.14 (msl) | Date: 7/16/90 | Surface elevation: 645.95 (msl)

Depth (ft.)	USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH	CLAY, dark brown, stiff, with calcerous pebbles, root zone to 5'		
5	GC	GRAVEL, clayey, calcerous, wet		
	CH	CLAY, silty, tan		
10	CH	CLAY, silty, tan, with calcerous pebbles, moist		
	CH	CLAY, silty, calcareous, with gravel		
	CH	CLAY, tan, very stiff, with pebbles		
15	CH	SHALEY CLAY, gray, orange staining on parting surfaces		
	SH	SHALE, dark gray, fissile, brittle, yellow staining on parting surfaces, moist, pyrite nodule at 18.5'		
20	SH	SHALE, dark gray, fissile, brittle		
25				
30				
35				

USC SYMBOLS | CONSTRUCTION SYMBOLS | Samples

Log of Boring No. P-1

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 P-1 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. P-2

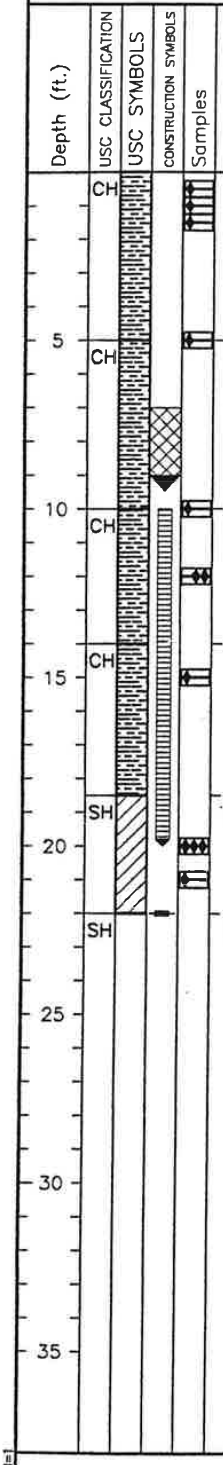
Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/9/90 | Boring depth: 22.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 20.0

Groundwater elevation: 633.35 (msl) | Date: 7/16/90 | Surface elevation: 642.82 (msl)



	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
CH	CLAY, dark brown, highly plastic, with small calcareous pebbles		
CH	CLAY, brown mottled orange, with calcareous pebbles		
CH	CLAY, silty, brownish gray, with calcareous pebbles		
CH	SHALEY CLAY, plastic, moderately fissile, less weathered at depth, selenite crystals found on parting surfaces		
SH	SHALE, dark gray, fissile, very brittle		
SH	LIMESTONE, layer, refusal at 22'		

Log of Boring No. P-2

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 P-2 PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-1N

Sheet 1 of 2

Sampling methods: 4.5" Split Spoon | Completion date: 6/22/90 | Boring depth: 62.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 59.5

Groundwater elevation: 622.01 (msl) | Date: 7/16/90 | Surface elevation: 679.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	LS				LIMESTONE, (Austin Chalk Group), light brown		
	CH				CLAY, light brown, moderately dry		
5	CH				SHALEY CLAY, light brown, calcareous, fissile		
	CH				SHALEY CLAY, dark gray, calcareous, fissile		
	SH				SHALE, dark gray, sand lense at 10.0'		
10	SH				SHALE, dark gray, hard, fissile, (refusal at 16', needed drilling method change from auger to mud rotary)		
15	SH				SHALE, dark gray		
20					<<< RIG CHANGE TO MOBILE B-53 >>>		
25	SH				SHALE, dark gray		
30							
35	SH				SHALE, dark gray		

Log of Boring No. B-1N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-1N PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B1-N

Sheet 2 of 2

Sampling methods: 4.5" Split Spoon | Completion date: 6/22/90 | Boring depth: 62.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: MOBILE-53 | Well depth: 59.5

Groundwater elevation: 622.01 (msl) | Date: 7/16/90 | Surface elevation: 679.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
40	SH				SHALE, dark gray		
	SH				SHALE, dark gray		
45	SH				SHALE, dark gray		
50	LS				LIMESTONE, partially fractured, crystal growth		
	SH				SHALE, dark gray, pyrite nodules at 55', sand layer at 56', shell fragments at 57–58', silt layer at 59'		
55							
60							
65							
70							

Log of Boring No. B1-N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B1-N PS.1of1

LAKE ENGINEERING, INC.

Project: Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-1R

Project no. 495.4.5

Sheet 1 of 3

Sampling methods: 4.5" Split Spoon | Completion date: 4/24/91 | Boring depth: 94.0

Drilling methods: 8.5" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 63.8

Groundwater elevation: 619.8 (msl) | Date: 4/24/91 | Surface elevation: 682.8 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	LS				LIMESTONE, (Austin Chalk Group), Light Brown		
	CH				CLAY, Light brown, weathered		
5	SH				SHALE, Dark gray w/ +/-" hard limestone lense @ 13.5'		
10							
15	SH				SHALE, Dark gray, Fossile, Calcareous		
20							
25							
30							
35	SH				SHALE, Dark gray, Fossile, Calcareous w/ fine limestone weathered areas		

Log of Boring No. B-1R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS

LAKE ENGINEERING, INC. Project: Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. B-1R

Project no. 495.4.5 Sheet 2 of 3

Sampling method: 4.5" Split Spoon Completion date: 4/24/91 Boring depth: 94.0

Drilling method: 8 5" Hollow Stem Auger Drilling: CME-55 Well depth: 63.8

Groundwater elevation: 619.8 (msl) Date: 4/24/91 Surface elevation: 682.8 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
40	SH				SHALE, Dark Grey, Fossile, Calcareous w/ (1/8"–1/4") intermittent lenses of limestone		
45	SH				SHALE, Dark grey, Calcareous w/ 1/4" pyrite nodules		
	SH				SHALE, Dark grey, Fossile, Calcareous w/ 6" weathered limestone lense @ 47.0'		
50	SH				SHALE, Dark grey, Fossile, Calcareous w/ " weathered limestone enses @ 53.5' and 57.0'		
55					sassard w/ang		
60	SH				SHALE, Dark grey, Fossile, Calcareous w/ weathered shale @ 62.0' – 63.0'		
65	SH				SHALE, Dark grey, Fossile, Calcareous w/ 1/4" weathered limestone erse @ 66.0'		
70							

Log of Boring No. B-1R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

LAKE ENGINEERING, INC

Project: Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-1R
Sheet 3 of 3

Project no. 495.4.5

Sampling methods: 4.5" Split Spoon | Completion date: 4/24/91 | Boring depth: 94.0

Drilling methods: 8.5" Hollow Stem Auger | Drilling rig: CME-55 | Well depth: 63.8

Groundwater elevation: 619.8 (msl) | Date: 4/24/91 | Surface elevation: 682.8 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, Dark gray, Fossile, Calcareous w/ 6" weathered limestone lense @ 74.5' – 75.0'		
75	SH				SHALE, Dark gray, Fossile, Calcareous w/ fine intermittent limestone lenses from 75.0' – 76.0'		
80	SH				SHALE, Dark gray, Fossile, Calcareous		
85	SH				SHALE, Dark gray, Fossile, Calcareous w/ fossils from 86.0' – 87.0'		
90							
95							
100							
105							

Log of Boring No. B-1R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-2R

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/11/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

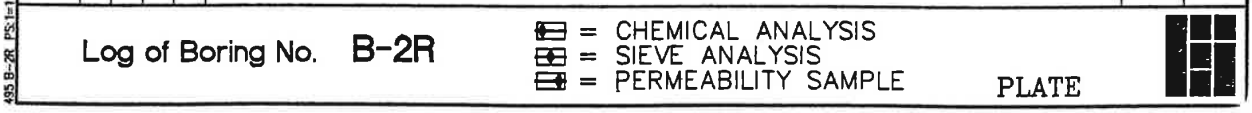
Groundwater elevation: 633.76 (msl) | Date: 7/16/90 | Surface elevation: 642.79 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CL				CLAY, dry, calcareous pebbles		
5	CL				CLAY, shaley		
10							
15							
	SH				SHALE		
20							
25							
30							
35							

Log of Boring No. B-2R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE



495 B-2R PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-3R

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/21/90 | Boring depth: 14.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 14.0

Groundwater elevation: 638.51 (msl) | Date: 7/16/90 | Surface elevation: 649.23 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, gray		
	CH				CLAY, gray		
5	CH				CLAY, gray, sandstone layers		
10	CH				SHALEY CLAY		
15							
20							
25							
30							
35							

Log of Boring No. B-3R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-3R PS-1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-4R

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/11/90 | Boring depth: 9.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 9.0

Groundwater elevation: 654.44 (msl) | Date: 7/16/90 | Surface elevation: 661.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CL				CLAY, dry		
5	CL				SHALEY CLAY		
	SH				SHALE, dark gray		
10							
15							
20							
25							
30							
35							

Log of Boring No. B-4R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-4R PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-5N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/7/90 | Boring depth: 19.5

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 16.5

Groundwater elevation: 621.05 (msl) | Date: 7/16/90 | Surface elevation: 629.97 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, silty, dark brown, calcareous, with sand size calcareous particles		
5							
	CH				CLAY, silty, very soft, moist, blocky		
10	MH				SILT, clayey, sand size calcareous particles		
	GC				GRAVEL, dense clay interfill, calcareous, wood fiber and sand size calcareous particles at 12.0–13.0'		
15	CH				SHALEY CLAY, yellow staining on parting surfaces, 3" seam of clayey gravel at 19.0'		
20	CH				SHALE, dark gray, fissile, brittle 19.25–19.50'		
25							
30							
35							

495.B-5N PS:1=1

Log of Boring No. B-5N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-7N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/10/90 | Boring depth: 25.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 24.0

Groundwater elevation: 634.66 (msl) | Date: 7/16/90 | Surface elevation: 644.08 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark brown to brown, calcareous, increase in amount and size of calcareous particles at depth		
5	CH				CLAY, gray mottled tan, slightly moist, blocky, with calcareous pebbles		
10	CH				CLAY, gray mottled tan, calcareous, fewer and smaller calcareous particles pebbles than above		
15	CH				SHALEY CLAY, gray, yellow and tan weathering, selenite crystals on parting surfaces		
20	SH				SHALE, dark gray, clayey, moist, very brittle,less brittle and more fissile at depth, shell fragments 23–25'		
25							
30							
35							

Log of Boring No. B-7N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.B-7N PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-8N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/15/90 | Boring depth: 20.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 14.0

Groundwater elevation: 618.89 (msl) | Date: 7/16/90 | Surface elevation: 626.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, highly plastic, calcareous, shell fragment at 3'		
5	CH				CLAY, dark brown, highly plastic, with calcareous pebbles		
	CH				SHALEY CLAY, gray, highly plastic, calcareous, light yellow and orange weathering on parting surfaces		
10	CH				SHALEY CLAY, gray, yellow weathering on parting surfaces		
	CH				SHALEY CLAY, dark gray, light yellow staining on parting surfaces		
	SH				SHALE, dark gray, fissile, thin sand lenses		
15	SH				SHALE, dark gray, brittle, fissile, very dry		
	SH				SHALE, dark gray, moderately fissile		
20							
25							
30							
35							

Log of Boring No. B-8N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.B-8N PS.1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-9N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon	Completion date: 6/12/90	Boring depth:	18.0
Drilling methods: 8.0" Hollow Stem Auger	Drill rig: CME–55	Well depth:	17.0
Groundwater elevation: 628.45 (msl)	Date: 7/16/90	Surface elevation:	637.02 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark to medium brown, calcareous, sand to gravel size calcareous pebbles		
5	GC				SAND, silty, clayey, calcareous, with gravel size pebbles		
10	CH				SHALEY CLAY, gray, orange staining on parting surfaces		
15	SH				SHALE, dark gray, fissile, very brittle, interbedded with sand layers 17.5–18.0'		
20							
25							
30							
35							

Log of Boring No. B-9N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.B-9N PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW10

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/13/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 637.95 (msl) | Date: 7/16/90 | Surface elevation: 645.12 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark to medium brown, with calcareous pebbles		
5	CH				CLAY, sandy, brown to brown mottled orange, with calcareous pebbles		
10	CH				CLAY, gray mottled orange–brown, dense, highly plastic		
15	CH				SHALEY CLAY, gray, moist, yellow and orange staining on parting surfaces		
20	SH				SHALE, dark gray, fissile, brittle, selenite crystals on parting surfaces		
25							
30							
35							

Log of Boring No. MW10

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW10 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW11

Project no. 495.4.5 Sheet 1 of 1

Sampling methods: 4.5" Split Spoon Completion date: 6/11/90 Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 17.0

Groundwater elevation: 615.76 (msl) Date: 7/16/90 Surface elevation: 625.58 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark brown, dense, highly plastic, calcareous, blocky with calcareous pebbles, shell fragment at 18.0"		
5	CH				CLAY, dark to medium brown, highly plastic, calcareous, moist, larger calcareous pebbles at depth		
10	GC				GRAVEL, sandy, clayey, calcareous		
	CH				CLAY, light brown to gray, moist, highly plastic		
15	SH				SHALE, dark gray, brittle, fissile		
20							
25							
30							
35							

Log of Boring No. MW11

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.MW11 PS-1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW12

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/19/90 | Boring depth: 18.5

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 18.5

Groundwater elevation: 624.43 (msl) | Date: 7/16/90 | Surface elevation: 633.94 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, medium brown, firm, calcareous pebbles		
5	CH				CLAY, medium brown, firm, calcareous pebbles		
10	CH				CLAY, medium brown, firm, calcareous pebbles		
	CH				SHALEY CLAY, brown to gray, yellow and orange weathering on parting surfaces LIMESTONE, very hard, 1" layer–12'		
15	SH				SHALE, dark gray, fissile		
	SH				COMPOSITE LOG, 0–12.0' 1st, 12.0–18.5' 2nd, 6' offset NW		
20							
25							
30							
35							

Log of Boring No. MW12

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW12 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW13

Project no. 495.4.5 Sheet 1 of 1

Sampling methods: 4.5" Split Spoon Completion date: 6/18/90 Boring depth: 25.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 22.0

Groundwater elevation: 620.94 (msl) Date: 7/16/90 Surface elevation: 636.17 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark brown, fill		
5	CH				CLAY, dark brown, dense, stiff		
	CL				CLAY, moist, loose, blocky		
	CH				CLAY, dark brown, dense, stiff		
	CL				CLAY, silty, dark brown, loose, moist, sand layers 8.0' and 9.0', shell fragments 11.0' and 12.0'		
10							
	CH				CLAY, dark brown, calcareous, stiff, no recovery 13.5–15.0'		
15	CL				CLAY, silty, dark brown, calcareous		
	SC				SILT, clayey, brown, calcareous		
20	GM				GRAVEL, silty, sandy, wet		
	CH				SHALEY CLAY, gray, yellow staining on parting surfaces		
	SH				SHALE, dark gray		
25							
30							
35							

Log of Boring No. MW13

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW13 PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW14

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/18/90 | Boring depth: 20.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 622.77 (msl) | Date: 7/16/90 | Surface elevation: 629.89 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, blocky, calcareous, with calcareous pebbles		
5	CL				CLAY, sandy, gravelly, brown, slightly moist, dense, stiff		
10	CH				CLAY, slightly silty, light brown mottled gray, calcareous pebbles, weathered limestone layers 13' and 13.5'		
	CH				CLAY, gray mottled brown		
15	MH				SILT, clayey, moist		
	CH				SHALEY CLAY, dark gray, dry, brittle, yellow staining on parting surfaces		
	SH				SHALE, dark gray, brittle, fissile		
20							
25							
30							
35							

Log of Boring No. MW14

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW14 PS-1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW15

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/11/90 | Boring depth: 22.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 22.0

Groundwater elevation: 617.05 (msl) | Date: 7/16/90 | Surface elevation: 624.99 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, moist, calcareous, blocky		
5	CH				CLAY, dark brown, blocky, moist, highly plastic, loose, shell fragments		
10	CH				CLAY, silty, sandy, dark gray, loose, very moist		
	CL				CLAY, stiff, sand size calcareous pebbles		
15	CH				CLAY, silty, dark brown mottled gray, calcareous, calcareous pebbles		
	GW				GRAVEL, sandy, well graded, well rounded, calcareous, wet, clayey at 17.5–18.5'		
20	SH				SHALE, dark gray, weathered		
25							
30							
35							

Log of Boring No. MW15

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW15 PS.fm1

LAKE ENGINEERING, INC. Project Remedial Investigation Boring no. MW16
Project no. 495.4.5 GNB, Incorporated – Frisco, Texas Sheet 1 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0
Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME–55 Well depth: 77.5
Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, blocky, calcareous, calcareous pebbles		
5	CH				CLAY, dark brown, moist, blocky		
10	CH				CLAY, brown, blocky, calcareous pebbles		
15	CH				CLAY, sandy, silty, gravelly, wet		
	CH				SHALEY CLAY, gray with yellow and orange staining on parting surface		
20	SH				SHALE, dark gray, brittle, fissle, grading to less brittle, yellow weathering on parting surface		
25	SH				SHALE, dark gray, shell fragments at 28.0' ((Rig change to Mobile B–53 for rock coring))		
30							
35							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16

Sheet 2 of 8

Sampling methods: 4.5" Split Spoon | Completion date: 5/23/90 | Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 77.5

Groundwater elevation: 562.54 (msl) | Date: 7/16/90 | Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, 1/4" clay layer at 36.0' and 37.0'		
40	SH				SHALE, dark gray, calcareous particles on parting surface from 42.0' to 136.0'		
45	SH				SHALE, dark gray, pyrite found at 48.5', 4" limestone layer at 53.0'		
55	SH				SHALE, dark gray, sandstone layers at 59.5' and 61.5' clay lense at 62.0', sandstone layers at 64.0' and 64.5'		
65	SH				SHALE, dark gray, limestone layers at 66.0', 66.5', and 68.0'		
70							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS: 1=1

LAKE ENGINEERING, INC. Project Remedial Investigation Boring no. MW16
Project no. 495.4.5 GNB, Incorporated – Frisco, Texas Sheet 3 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0
Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5
Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, limestone layers at 73.0' and 73.5'		
75	SH				SHALE, dark gray, limestone layers at 76.5', 79.0', and 84.5', sand layers at 82.0' and 84.0'		
80							
85	SH				SHALE, dark gray, limestone layer at 86.0'		
90							
95	SH				SHALE, dark gray, limestone layers at 96.0', 97.0', 103.0', and 104.0'		
100							
105							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS-1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 4 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, limestone layer at 107.0' and 108.0' sandstone layer at 108.75' and 110.0'		
110	SH				SHALE, dark gray, limestone layer		
115	SH				SHALE, dark gray, limestone layers		
120	SH				SHALE, dark gray, thin limestone layers throughout fossil fragments found in limestone layers		
125							
130	SH				SHALE, dark gray, limestone layers, fractures at 60 at 136.0' and 136.5'		
135							
	SH				SHALE, dark gray, hard, dense, non-calcareous		
	SH				SHALE, dark gray, non-calcareous particles		
140							

495 MW16 PS-1=1

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16

Sheet 5 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
145	SH				SHALE, dark gray, non-calcareous particles		
150	SH				SHALE, dark gray, solid, non-calcareous		
155	SH				SHALE, dark gray, non-calcareous		
160							
165							
170	SH				SHALE, dark gray, 1.5" limestone layer at 173.0'		
175							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 6 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, 1" limestone layer at 175.5'		
	SH				SHALE, dark gray, 1.5" limestone layer at 182.5'		
180							
185							
	SH				SHALE, dark gray		
190							
	SH				SHALE, dark gray, limestone layer at 201.0' ((Core not recovered at 193.0' to 198.0'))		
195							
200							
	SH				SHALE, dark gray, 6" limestone layer at 204.0', 1" limestone layer at 206.5', 1/4" limestone layer 207.5'		
205							
210							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16

Project no. 495.4.5

Sheet 7 of 8

Sampling methods: 4.5" Split Spoon | Completion date: 5/23/90 | Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 77.5

Groundwater elevation: 562.54 (msl) | Date: 7/16/90 | Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
215	SH				SHALE, dark gray, limestone layer at 214.0'		
220	SH				SHALE, dark gray, 1/2" limestone layer at 227.5' and 228.0'		
225							
230	SH				1/4" limestone layer at 237.0'		
235							
240	SH				SHALE, dark gray, 1/2" siltstone layer at 239.0', several siltstone layers at 240.0' and 241.0'		
245							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.MW16 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation Boring no. MW16
Project no. 495.4.5 GNB, Incorporated – Frisco, Texas Sheet 8 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray		
	SH				SHALE, dark gray, siltstone layers at 250.0' and 251.0'		
250	SH				SHALE, dark gray ((Core not recovered from 256.0' to 259.0'))		
255	SH				SHALE, dark gray, siltstone layers at 260.0' and 264.0' limestone layers at 264.0' and 268.0', EOB at 269.0'		
260							
265							
270							
275							
280							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16S

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/6/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 620.31 (msl) | Date: 7/16/90 | Surface elevation: 627.51 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, blocky, highly plastic, clacareous		
5	CH				CLAY, silty, dark brown, blocky, highly plastic, calcareous		
10	CH				CLAY, dark brown, blocky, calcareous pebbles at 11.5' and 12.5'		
15	GC				GRAVEL, clayey, sandy, well rounded, calcareous		
	CH				SHALEY CLAY		
	SH				SHALE, dark gray, weathered, fissile		
20							
25							
30							
35							

Log of Boring No. MW16S

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16S PS-1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW17

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/7/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 620.83 (msl) | Date: 7/16/90 | Surface elevation: 628.58 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, silty, dark brown, blocky		
5	CH				CLAY, dark brown to brown, sand size calcareous pebbles		
	CH				CLAY, very soft, blocky, moist		
10	CH				CLAY, brown mottled gray, with zones of calcareous pebbles varying in grain size from sand to gravel		
15	CH				SHALEY CLAY, dark gray, light yellow staining on parting surfaces		
	SH				SHALE, dark gray		
20							
25							
30							
35							

Log of Boring No. MW17

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW17 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW18

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/12/90 | Boring depth: 18.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 15.5

Groundwater elevation: 626.17 (msl) | Date: 7/16/90 | Surface elevation: 631.84 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark to light brown, with calcareous pebbles		
5	GC				GRAVEL, clayey, sandy, dense, calcareous		
	CH				CLAY, gray mottled orange, moist, very plastic, inter-bedded with light yellow slit laminae		
10	CH				SHALEY CLAY, gray mottled orange-brown, some interbedded light yellow silt and iron stained laminae		
15	SH				SHALE, dark gray, wet		
20							
25							
30							
35							

Log of Boring No. MW18

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW18 PS-1=1

Appendix 3

Monitoring Well Development and Purging Data

GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012-B4R	Starting Water Level (ft. BMP): 10.26
Sampling Location (well ID, etc.): B4R	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 11.80
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe): —

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	451556
pH Meter:	451556	Field Calibration:	7-4
Conductivity Meter:	451556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks	ORP	WL
0811											
0821		.1	16.1	7.68	482	tan	silty	1.06		-160	10.53
0826			16.3	7.71	~~5~~516	"	"	0.76		-172	10.82
	well is going dry, will purge well dry and return to sample.										

Water Level (ft. BMP) at End of Purge: Sample Intake Depth (ft. BMP):

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
0950	250 ml	P	1	N	None	TDS, Sulfate
~~0950~~	500ml	P	1	N	HNO^3	Total Cd, Total Pb
~~0950~~	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

11/18/12
WL-11.62
0950

Comments: TDS, SULFATE WAS COLLECTED. NOT ENOUGH WATER FOR METALS (DISS) ~~SAMPLED~~

Pastor, Behling & Wheeler, LLC
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Round Rock, Texas 78664
Phone: (512) 671-3434 Fax: (512) 671-3446

GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012 - BSN	Starting Water Level (ft. BMP): 9.89
Sampling Location (well ID, etc.): BSN	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 18.98
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.):

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

1548 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks ORP	WL
1558		.1	18.4	7.36	2130	H. orange	26	1.36	-74	10.12
1603		1	18.7	7.39	2170	1	27	1.31	-76	10.21
1608		1	18.6	7.39	2180	1	27	1.31	-76	10.20

Water Level (ft. BMP) at End of Purge: 10.20 Sample Intake Depth (ft. BMP): 1' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1620	250 ml	P	1	N	None	TDS, Sulfate
1620	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1620	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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Round Rock, Texas 78664
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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-16-12

Sample Number: 2012-MW-12	Starting Water Level (ft. BMP): 8.62
Sampling Location (well ID, etc.): MW-12	Casing Stickup (ft.): 1.05
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 19.51
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): –

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	451556
pH Meter:	451556	Field Calibration:	7-4
Conductivity Meter:	451556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

1619 Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks	ORP	WL
1629		.1	21.5	7.12	3770	neutral	16	0.27		-88	8.79
1634		1	21.6	7.16	3040	"	13	0.25		-86	8.81
1639		↓	21.7	7.17	3040	"	14	0.25		-86	8.82

Water Level (ft. BMP) at End of Purge: 8.82 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1650	250 ml	P	1	N	None	TDS, Sulfate
1650	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1650	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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Round Rock, Texas 78664
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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1732	Project Name: Exide Frisco Recycling Center		Date: 1-16-12
Sample Number: 2012 MW-13		Starting Water Level (ft. BMP):	15.83
Sampling Location (well ID, etc.): MW-13		Casing Stickup (ft.):	1.15
Sampled by: JTB		Starting Water Level (ft. BGL):	14.68
Measuring Point (MP) of Well: TOC/PVC		Total Depth (ft. ~~BGL~~): BMP	24.57
Screened Interval (ft. BGL):		Casing Diameter (In ID):	4.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7.4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

1433 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks ORP	WL
1443		.1	21.7	7.14	3110	neutral	27	0.45	-162	15.87
1448		↓	21.6	7.13	3120	neutral		0.43	-163	15.89
1453		↓	21.6	7.13	3120	neutral		0.44	-162	15.90

Water Level (ft. BMP) at End of Purge: 15.90 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration	Preservation	Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	(type)	(quality control sample, other)
1510	250 ml	P	1	N	None	TDS, Sulfate
1510	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1510	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-16-12

Sample Number: 2012-MW-14	Starting Water Level (ft. BMP): 5.94
Sampling Location (well ID, etc.): MW-14	Casing Stickup (ft.): 1.10
Sampled by: JTB	Starting Water Level (ft. BGL): 4.84
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 18.53
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	—

SAMPLING MEASUREMENTS

1527 Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO Remarks	ORP	WL
1537		.1	19.7	7.33	4520	neutral	17	0.38	-97	6.19
1542		1	19.9	7.31	4540	1	12	0.33	-96	6.23
1547		↓	20.1	3.31	4550	↓	13	0.34	-96	6.24

Water Level (ft. BMP) at End of Purge: 6.24 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1600	250 ml	P	1	N	None	TDS, Sulfate
1600	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1600	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-10-13

Sample Number: MW-15

Sampling Location (well ID, etc.): MW-15

Sampled by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL): 12-22

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 10.97

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 10.97

Total Depth (ft. BGL):

Casing Diameter (In ID): 4.0

Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: bailer

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: NRB

SAMPLING MEASUREMENTS

0822 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0832		.11	18.4	6.58	2130	0.31	109.9	8.1	11.32
0837		.11	18.6	6.54	2160	0.26	111.4	7.1	11.35
0842		.12	18.7	6.55	2170	0.25	112.4	6.7	11.36

Water Level (ft. BMP) at End of Purge: 11.36 Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
0855	250ML	P	1	N	HNO3	TOTAL METALS
0855	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
0855	250ML	P	1	—	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012-MW-16
Sampling Location (well ID, etc.): MW-16
Sampled by: JTB
Measuring Point (MP) of Well: TOC/PVC
Screened Interval (ft. BGL):
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 10.22
Casing Stickup (ft.):
Starting Water Level (ft. BGL):
Total Depth (ft. ~~BGL~~ BMP): 78.68
Casing Diameter (In ID): 4.0
Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: new equipment
Purging: peristaltic pump Sampling: none
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Keck Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 14/3
Filter / Filter Size: 10 micron Other:

SAMPLING MEASUREMENTS

1247 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks ORP	WL
1257		.1	19.2	7.74	1570	neutral	19	0.87	-90	10.39
1302		1	19.3	7.71	1590	1	26	0.85	-87	10.41
1307		↓	19.4	7.72	1580	↓	23	0.84	-88	10.41

Water Level (ft. BMP) at End of Purge: 10.41 Sample Intake Depth (ft. BMP): 1' off bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1320	250 ml	P	1	N	None	TDS, Sulfate
1320	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1320	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012-MW-16S	Starting Water Level (ft. BMP): 9.12
Sampling Location (well ID, etc.): MW-16S	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 18.77
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: Dome

Disposal of Discharged Water: 55-gallon

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

1354 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks	ORP	WL
1404		1	19.9	7.52	7350	neutral	22	0.62		-70	9.56
1409		1	19.7	7.57	7370	↓	16	0.57		-72	9.58
1414		↓	19.6	7.58	7380	↓	17	0.58		-71	9.59

Water Level (ft. BMP) at End of Purge: 9.59 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1430	250 ml	P	1	N	None	TDS, Sulfate
1430	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1430	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-18-12

Sample Number: 2012-MW-17	Starting Water Level (ft. BMP): 8.67
Sampling Location (well ID, etc.): MW-17	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~ BMP): 18.80
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

421 Time	Cum. Vol. (gal. or (L))	Purge Rate (gal. or (L / m))	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks ORP	WL
1431		1	18.4	7.57	3720	neutral	17	0.96	-67	8.92
1436		1	18.6	7.61	3740	1	12	0.89	-68	8.93
1441		1	18.7	7.62	3750	1	13	0.88	-68	8.92
						some dark specs in water				

Water Level (ft. BMP) at End of Purge: 8.92 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1500	250 ml	P	1	N	None	TDS, Sulfate
1500	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1500	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments: MS/MSD @ 4th well

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012-MW-18	Starting Water Level (ft. BMP): 1.96
Sampling Location (well ID, etc.): MW-18	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~ BMP): 17.02
Screened Interval (ft. BGL):	Casing Diameter (In ID): 4.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	0 micron	Other:	

SAMPLING MEASUREMENTS

1051 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks	ORP	WL
1101		.1	17.6	7.12	2120	neutral	8.7	0.86		-101	2.13
1106		1	17.7	7.13	2140	1	6.8	0.77		-102	2.14
1111		1	17.7	7.14	2150	1	9.1	0.76		-102	2.14

Water Level (ft. BMP) at End of Purge: 2.14 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1125	250 ml	P	1	N	None	TDS, Sulfate
1125	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1125	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments: field duplicate @ this well.
2012-MW-FD

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012-MW-19	Starting Water Level (ft. BMP): 18.59
Sampling Location (well ID, etc.): MW-19	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~): BMP 25.20
Screened Interval (ft. BGL):	Casing Diameter (In ID): 2.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: Dave

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	451 556
pH Meter:	451 556	Field Calibration:	7-4
Conductivity Meter:	451 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks	ORP	WL
0926											
0936		.1	17.8	7.37	2380	neutral	36	1.61		-77	18.73
0941			17.7	7.32	2410	"	16	1.52		-78	18.76
0946		↓	17.7	7.33	2400	"	18	1.51		-78	18.77

Water Level (ft. BMP) at End of Purge: 18.77 Sample Intake Depth (ft. BMP): 1' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1000	250 ml	P	1	N	None	TDS, Sulfate
1000	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1000	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012 - MW-20	Starting Water Level (ft. BMP): 24.43
Sampling Location (well ID, etc.): MW-20	Casing Stickup (ft.):
Sampled by: JTB	Starting Water Level (ft. BGL):
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. ~~BGL~~) BMP: 25.20
Screened Interval (ft. BGL):	Casing Diameter (In ID): 2.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: peristaltic pump Sampling: Same

Disposal of Discharged Water: 55- gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron	Other:	

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO Remarks ORP	
0852									WL 24.96
0902		.1	16.6	7.38	5680	dk. brown	silty	1.05 -96	
	well is going dry, will purge well dry and return to Dample.								

Water Level (ft. BMP) at End of Purge: Sample Intake Depth (ft. BMP):

SAMPLE INVENTORY

Bottles Collected				Filtration	Preservation	Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	(type)	(quality control sample, other)
1015	250 ml	P	1	N	None	TDS, Sulfate
1015	500ml	P	1	N	HNO^3	Total Cd, Total Pb
	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

11/18/02 WL - 24.36

Comments: TDS, SULFATE WAS COLLECTED, NOT ENOUGH WATER FOR METALS (DISS)

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GROUNDWATER SAMPLING RECORD

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Project Number: 1732 Project Name: Exide Frisco Recycling Center Date: 1-17-12

Sample Number: 2012 - LFNE
Sampling Location (well ID, etc.): LFNE
Sampled by: JTB
Measuring Point (MP) of Well: TOC/PVC
Screened Interval (ft. BGL):
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 16.67
Casing Stickup (ft.):
Starting Water Level (ft. BGL):
Total Depth (ft. ~~BGL~~ BMP): 20.20
Casing Diameter (In ID): 2.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: new equipment
Purging: peristaltic pump Sampling: same
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Keck Thermometer: 451556
pH Meter: 451556 Field Calibration: 7.4
Conductivity Meter: 451556 Field Calibration: 1413
Filter / Filter Size: 10 micron Other:

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L / m)	Temp. (oC)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	DO	Remarks ORP	WL
1029		1	18.6	7.42	3810	neutral	13	0.19	-75	17.06
1034			18.9	7.45	3830		17	0.16	-76	17.29
	well is going dry, return to sample				will purge		well dry, and			

Water Level (ft. BMP) at End of Purge: Sample Intake Depth (ft. BMP):

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation (type)	Remarks (quality control sample, other)
1040	250 ml	P	1	N	None	TDS, Sulfate
1040	500ml	P	1	N	HNO^3	Total Cd, Total Pb
1040	500ml	P	1	Y	HNO^3	Diss Cd, Diss Pb

1/18/12
WL-17.96

Comments: LMW-19 (WKV)

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: B1R

Sampling Location (well ID, etc.): B1R

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 49.5 - 59.5

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 4.64

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 4.64

Total Depth (ft. BGL): 59.5

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI ~~556~~ PROPLUS

pH Meter: YSI ~~556~~ PRO PLUS Field Calibration: 7-4

Conductivity Meter: YSI ~~556~~ PRO PLUS Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or (L))	Purge Rate (gal. or (L)/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1644									
1654		.13	18.9	6.81	616			2.8	5.20
1659		.13	18.7	6.79	598			1.9	5.74
1704		.12	18.7	6.80	597			2.2	6.11
1710		.11							6.55
1722		.12							7.54
	turned the pump off, will return tomorrow								
1006									7.18
1016		.11	16.7	7.25	234	5.51	97.6	6.1	8.57
1027		.11	16.9	7.29	232	5.43	96.1	2.4	8.92
1034		.12	16.9	7.29	231	5.42	96.7	2.7	9.36

Water Level (ft. BMP) at End of Purge: 9.36 Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

3/22/13

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1035	250ML	P	1	N	HNO3	TOTAL METALS
1035	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
1035	250ML	P	1	N	—	SULFATE

Comments:

TCEQ - SPLIT TOTAL METALS - UNFILTERED - PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755	Project Name: EXIDE-FRISCO-FOP	Date: 3-18-13	
Sample Number: B3R		Starting Water Level (ft. BMP):	15.22
Sampling Location (well ID, etc.): B3R		Casing Stickup (ft.):	—
Sampled by: JTB		Starting Water Level (ft. BGL):	15.22
Measuring Point (MP) of Well: TOC / PVC		Total Depth (ft. BGL): IN	15.52
Screened Interval (ft. BGL): 4-14		Casing Diameter (In ID):	4.0
Filter Pack Interval (ft. BGL): —		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TURB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1107									
1109		.11	DRY						
3/19/13 0932		well is dry							

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): Bottom

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
NO SAMPLES COLLECTED, WELL IS DRY						

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 155	Project Name: EXIDE-FRISCO-FOP	Date: 3-18-13	
Sample Number: B4R		Starting Water Level (ft. BMP):	9.04 ~~7.66~~ JB
Sampling Location (well ID, etc.): B4R		Casing Stickup (ft.):	-
Sampled by: JTB		Starting Water Level (ft. BGL):	9.04 ~~7.66~~ JB
Measuring Point (MP) of Well: TOC | PVC		Total Depth (ft. BGL):	9 11.90
Screened Interval (ft. BGL): 4-9		Casing Diameter (In ID):	4
Filter Pack Interval (ft. BGL): —		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0906									
0916		.19	15.4	6.98	883			10.7	9.67
0921		.12	15.4	6.99	877			7.3	10.12
0924 - turned pump to .39 LPM and the well went dry									
0936 - well is dry									
0834								191	11.56

3/19/13

TD 11.93

Water Level (ft. BMP) at End of Purge: DRY

Sample Intake Depth (ft. BMP): 6" OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
0850	250mL	P	1	Y-10	HNO_3	TOTAL METALS
0850	250mL	P	1	Y-45	HNO_3	DISSOLVED METALS
0850	250mL (100mL)	P	1	N	—	SULFATE

Comments:

NOT ENOUGH WATER FOR THE TCEQ TO SPLIT SAMPLES, or take readings.

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO-FDP Date: 3-22-13

Sample Number: B-SN

Sampling Location (well ID, etc.): B-SN

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 6.5-16.5

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 10.13

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 10.13

Total Depth (ft. BGL): 16.5

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI ~~556~~ PRO PLUS

pH Meter: YSI ~~556~~ PRO PLUS Field Calibration: 7-4

Conductivity Meter: YSI ~~556~~ PRO PLUS Field Calibration: 1413

Filter / Filter Size: 10 MICRON & .45 MICRON Other: TUBS

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1108		.116	17.5	6.71	2910	0.48	40.8	196	10.17
1113		.116	17.2	6.73	2790	0.44	27.2	173	10.17
1118		.116	17.3	6.74	2760	0.43	27.1	176	10.17

Water Level (ft. BMP) at End of Purge: 10.17 Sample Intake Depth (ft. BMP): 3' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1125	250ML	P	1	Y-10	HNO_3	TOTAL METALS
1125	250ML	P	1	Y-.45	HNO_3	DISSOLVED METALS
1125	250ML	P	1	N	—	SULFATE

Comments:

TCEQ - SPLIT TOTAL METALS

FILTERED - PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: B7N

Sampling Location (well ID, etc.): B7N

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 14-24

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 13.96

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 13.96

Total Depth (ft. BGL): 24 —

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1423		.12	19.7	7.62	3270			34	14.32
1428		.12	19.6	7.55	3277			37	14.37
1433		.11	19.4	7.56	3274			31	14.41

Water Level (ft. BMP) at End of Purge: 14.41 Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration	Preservation	Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)		(quality control sample, other)
1445	250 mL	P	1	Y-10	HNO3	TOTAL METALS
1445	250 mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1445	250 mL	P	1	N	—	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755	Project Name: EXIDE-FRISCO	Date: 4-8-13	
Sample Number: B9N		Starting Water Level (ft. BMP):	10 8.[illegible]76
Sampling Location (well ID, etc.): B9N		Casing Stickup (ft.):	-.28
Sampled by: JTB		Starting Water Level (ft. BGL):	8.[illegible]76
Measuring Point (MP) of Well: TOC / PVC		Total Depth (ft. BGL):	
Screened Interval (ft. BGL): 7-17		Casing Diameter (In ID):	@ 4.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413

Filter / Filter Size: 10 micron & .45 micron Other: TURB

SAMPLING MEASUREMENTS

0914

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0924		.12	16.7	5.57	2530	0.62	89.3		8.91
0929		.11	16.1	5.61	2560	0.59	87.4		8.94
0934		.11	16.2	5.62	2570	0.58	87.6		8.94

Water Level (ft. BMP) at End of Purge: 8.94 Sample Intake Depth (ft. BMP): 3' off Bottom

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1000	250mL	P	1	N	HNO3	TOTAL METALS
1000	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1000	250mL	P	1	—	—	SULFATE
- duplicate @ this well			-		DUP-2	

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: MW-10

Sampling Location (well ID, etc.): MW-10

Sampled by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL): 7-17

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 8.09

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 8.09

Total Depth (ft. BGL): 17

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1326 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1336		.12	19.4	7.34	2001			5.8	8.39
1341		.11	19.6	7.36	1994			3.9	8.51
1346		.11	19.6	7.38	1994			3.2	8.54

Water Level (ft. BMP) at End of Purge: 8.54 Sample Intake Depth (ft. BMP): 4.5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1400	250ML	P	1	N	HNO3	TOTAL METALS
1400	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
1400	250ML	P	1	N	—	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ - NON FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE - FRISCO Date: 4-9-13

Sample Number: MW-11
Sampling Location (well ID, etc.): MW-11
Sampled by: JTB
Measuring Point (MP) of Well: TOC | PVC
Screened Interval (ft. BGL): 7-17
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 7.64
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 7.64
Total Depth (ft. BGL):
Casing Diameter (In ID): 4.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: none
Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)
Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: NRB

SAMPLING MEASUREMENTS

1602 Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1612		.11	19.7	7.01	1060	2.16	87.1	6.7	7.76
1615		.12	19.8	7.03	1030	1.97	85.9	2.8	7.77
1622		.11	19.8	7.04	1040	1.99	86.4	3.4	7.77

Water Level (ft. BMP) at End of Purge: 7.77 Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1635	250ML	P	1		HNO_3	TOTAL METALS
1635	250ML	P	1	Y-.45	HNO_3	DISSOLVED METALS
1635	250ML	P	1	—	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

FDA PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-~~KANSAS CITY~~ Date: 3-13-13

Sample Number: MW-12

Sampling Location (well ID, etc.): MW-12

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 8-18.5

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 8.22

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 8.22

Total Depth (ft. BGL): 18.5 —

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1347									
1351		.12	20.0	6.75	3768			8.6	8.97
1401		.12	20.1	6.77	3781			10	8.99
1406		.11	20.2	6.78	3786			10	8.99

Water Level (ft. BMP) at End of Purge: 8.99 Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1410	250mL	P	1	N	HNO_3	TOTAL METALS
1410	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - NONFILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FDP Date: 3-13-13

Sample Number: MW-13

Sampling Location (well ID, etc.): MW-13

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 12-22

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 15.42

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 15.42

Total Depth (ft. BGL): 22 —

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TUBB

SAMPLING MEASUREMENTS

1220 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1229		.10	21.2	7.42	3104			56	15.73
1234		.10	21.2	7.40	3109			41	15.73
1241		.10	21.2	7.41	3110			39	15.73

Water Level (ft. BMP) at End of Purge: 15.73 Sample Intake Depth (ft. BMP): 3' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
1255	250mL	P	1	Y-.10	HNO3	TOTAL METALS
1255	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED / TOTAL METALS PRESERVED

TCEQ TOOK A MS | MSD

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GROUNDWATER SAMPLING RECORD

FOP PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-~~CARROLL~~ JB Date: 3-13-13

Sample Number: MW-14

Sampling Location (well ID, etc.): MW-14

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 7-17

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 5.81

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 5.81

Total Depth (ft. BGL): 17 —

Casing Diameter (In ID): 4.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1308 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1317		.10	17.9	7.07	4295			41	6.67
1321		.11	17.8	7.08	4296			24	6.69
1327		.10	17.8	7.08	4290			23	6.69

Water Level (ft. BMP) at End of Purge: 6.69 Sample Intake Depth (ft. BMP): 5.5' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration	Preservation	Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)		(quality control sample, other)
1335	250 mL	P	1	Y-10	HNO3	TOTAL METALS
1335	250 mL	P	1	Y-.45	HNO3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-9-13

Sample Number: MW-16

Sampling Location (well ID, etc.): MW-16

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 8.24

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 8.24

Total Depth (ft. BGL):

Casing Diameter (In ID): 4.0

Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1419									
1429		.12	21.4	7.26	1670	2.62	86.2	5.05	8.36
1434		.12	21.5	7.24	1660	2.16	84.9	5.7	8.36
1439		.11	21.5	7.24	1660	2.18	84.7	6.2	8.36

Water Level (ft. BMP) at End of Purge: 8.36 Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1450	250mL	P	1	N	HNO3	TOTAL METALS
1450	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1450	250mL	P	1	—	—	SULFATE

Comments:

TCEQ-SPLIT SAMPLES. TOTALS ONLY

DUPLICATE AT THIS WELL.

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-9-13

Sample Number: MW-165

Sampling Location (well ID, etc.): MW-165

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 8.79

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 8.79

Total Depth (ft. BGL):

Casing Diameter (In ID): 4.0

Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK

pH Meter: YSI 556

Conductivity Meter: YSI 556

Thermometer: YSI 556

Field Calibration: 7-4

Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1314									
1324		.12	20.9	6.04	8530	0.45	56.2	6.8	8.86
1329		.12	21.0	6.05	8530	0.32	61.1	6.3	8.86
1334		.12	20.8	6.05	8510	0.29	61.4	7.9	8.86

Water Level (ft. BMP) at End of Purge: 8.86

Sample Intake Depth (ft. BMP): 3' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1345	250ML	P	1	N	HNO3	TOTAL METALS
1345	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
1345	250ML	P	1	—	—	SULFATE

Comments:

TCEQ- SPLIT SAMPLES- TOTAL ONLY

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-22-13

Sample Number: MW-17

Sampling Location (well ID, etc.): MW-17

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 7-17

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 8.49

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 8.49

Total Depth (ft. BGL): 17

Casing Diameter (In ID): 4.0 JB

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1300 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1310		.13	18.8	6.74	4640	0.95	65.2	68	8.64
1316		.14	18.8	6.55	4050	0.91	29.3	30	8.64
1321		.14	18.8	6.57	4060	0.90	29.7	24	8.64

Water Level (ft. BMP) at End of Purge: 8.64 Sample Intake Depth (ft. BMP): 4' off bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1330	250mL	P	1	Y-10	HNO_3	TOTAL METALS
1330	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS
1330	250mL	P	1	N	—	SULFATE

Comments:

TCEQ-SPLIT SAMPLES FOR TOTAL METALS FILTERED, PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: MW-18
Sampling Location (well ID, etc.): MW-18
Sampled by: JTB
Measuring Point (MP) of Well: TOC / PVC
Screened Interval (ft. BGL): 5.5-15.5
Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 3.02
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 3.02
Total Depth (ft. BGL): 15.5 —
Casing Diameter (In ID): 4.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: bailer
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)
Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1503 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1513		.11	16.9	7.33	1465			4.8	3.44
1518		.11	16.7	7.34	1458			3.7	3.51
1523		.11	16.7	7.35	1460			2.7	3.53

Water Level (ft. BMP) at End of Purge: 3.53
Sample Intake Depth (ft. BMP): 6' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
1540	250ML	P	1	N	HNO3	TOTAL METALS
1540	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
1540	250ML	P	1	N	—	SULFATE

Comments:
SPLIT SAMPLES WITH TCEQ - NON FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: MW-21
Sampling Location (well ID, etc.): MW-21
Sampled by: JTB
Measuring Point (MP) of Well: TOC | PVC
Screened Interval (ft. BGL): 3-13
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 3.17
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 3.17
Total Depth (ft. BGL): 15.35
Casing Diameter (In ID): 2.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: None
Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1257 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1307		.11	18.1	6.41		1.06		113	5.96
1312		.11	18.2	6.43		0.81		47	6.43
1317		.12	18.1	6.44		0.82		44	6.91
1318			turn the pump up to evacuate the well						
1319		.70							
1325									8.21
1330		.70							9.69
1340									11.76
1350		.70							14.02
1358		DRY							
1030									5.61

4-9-13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1030	250mL	P	1	Y-.10	HNO3	TOTAL METALS
1030	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1030	250mL	P	1	—	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: MW-22

Sampling Location (well ID, etc.): MW-22

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 3-13

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 3.62

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 3.62

Total Depth (ft. BGL): 16.44

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron other: IVRB

SAMPLING MEASUREMENTS

1120 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1130		.14	17.4	5.94	3920	1.74	146.2	179	6.23
1135		.13	17.7	6.13	3940	1.61	147.1	61	6.84
1140		.13	17.7	6.15	3940	1.59	147.7	57	6.97
1145			turn the pump up						7.44
1146		.70							[redacted]
1150									8.36
1157		.70							10.06
1204									11.71
1210		.70							13.45
1220									15.72
1224		DRY							
1050			19.9	6.12	3870	1.62	139.4	8.6	6.22

4-9-13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	Remarks (quality control sample, other)
050	250mL	P	1		HNO3	TOTAL METALS
1050	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1050	250mL	P	1	—	—	SULFATE

Comments:

TCEQ-SPLIT SAMPLES - TOTAL ONLY

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: MW-23
Sampling Location (well ID, etc.): MW-23
Sampled by: JTB
Measuring Point (MP) of Well: TOC/PVC
Screened Interval (ft. BGL): 4.5-19.5
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 6.76
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 6.76
Total Depth (ft. BGL): 19.5
Casing Diameter (In ID): 2.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: none
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TURB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1133		.17	19.1	7.33	3339			49	7.67
1139		.10	18.8	7.30	3320			40	8.09
1143		.11	18.7	7.31	3323			31	8.41
1146	will turn the pump up and pump well dry								
	.42 gpm is the rate								
1224	well is dry							39	7.07

3/19/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 6' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
0945	250ML	P	1	Y-.10	HNO3	TOTAL METALS
0945	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
0945	250ML	P	1	N	—	SULFATE

Comments:
SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: MW-24

Sampling Location (well ID, etc.): MW-24

Sampled by: JTB

Measuring Point (MP) of Well: TOC / PVC

Screened Interval (ft. BGL): 14-29

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 22.07

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 22.07

Total Depth (ft. BGL): 29 —

Casing Diameter (In ID):

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1546 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1556		.12	21.0	7.80	4570			129	22.10
1601		.12	21.0	7.78	4588			89	22.11
1606		.12	21.1	7.77	4576			91	22.12

Water Level (ft. BMP) at End of Purge: 22.12 Sample Intake Depth (ft. BMP): 3.5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1615	250ML	P	1	Y-10	HNO3	TOTAL METALS
1615	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
1615	250ML	P	1	N	—	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS - PRESERVED

TCEQ IS DUPLICATING THIS WELL

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755	Project Name: EXIDE-FRISCO-FOP	Date: 3-18-13	
Sample Number: MW-25		Starting Water Level (ft. BMP):	11.92
Sampling Location (well ID, etc.): MW-25		Casing Stickup (ft.):	—
Sampled by: JTB		Starting Water Level (ft. BGL):	11.92
Measuring Point (MP) of Well: TOC / PVC		Total Depth (ft. BGL):	21.5 —
Screened Interval (ft. BGL): 7-22		Casing Diameter (In ID):	2.0
Filter Pack Interval (ft. BGL): —		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: None

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TVRB

SAMPLING MEASUREMENTS

1007 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1016		.11	19.2	7.61	4924			245	13.04
1021		.12	19.1	7.62	4943			189	13.36
1025-	will turn pump up to evacuate the well								
	pump is @ .4 L/m								
1049-	well is dry								
0906		.12	19.2	7.47	4872			87	12.68

3/19/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	Remarks (quality control sample, other)
0915	250ML	P	1	Y-.10	HNO3	TOTAL METALS
0915	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
0915	250ML	P	1	N	HNO3	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS PRESERVED

SULFATE - NOW FILTERED - NON PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: MW-26

Sampling Location (well ID, etc.): MW-26

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 5-15

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 9.52

Casing Stickup (ft.): -

Starting Water Level (ft. BGL): 9.52

Total Depth (ft. BGL):

Casing Diameter (In ID): 2.0

Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: IVRS

SAMPLING MEASUREMENTS

1013 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1023		.12	17.4	6.13	4210	1.36	121.6	147	11.07
1028		.12	17.6	6.14	4210	1.13	123.4	113	11.93
1033		.12	17.7	6.15	4220	1.12	124.1	116	12.37
1034			turn the pump up to evacuate the well						
1044		.70							15.16
1054		.70							17.09
1057		DRY							
4-9-13 1000			18.1	6.21	4100	0.96	117.4	72	10.39

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 3' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
4-9-13 1000	250mL	P	1	Y-.10	HNO3	TOTAL METALS
1000	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1000	250mL	P	1	-	-	SULFATE

Comments:

NO SAMPLES WERE COLLECTED BY TCEQ

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: MW-27

Sampling Location (well ID, etc.): MW-27

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 5-15

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 5.92

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 5.92

Total Depth (ft. BGL): 17.38

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI SSK PRO PLUS

pH Meter: YSI SSK PRO PLUS Field Calibration: 7-4

Conductivity Meter: YSI SSK PRO PLUS Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

0756 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0806		.12	16.8	5.81	3390	1.04	145.1	211	7.79
0811		.12	16.9	5.81	3390	0.83	147.4	175	8.04
0816		.12	16.6	5.82	3390	0.84	146.8	140	8.55
0824		.2							8.97
0825		.50	turn the pump up to purge the well						
0839									10.96
0840		.70	turn the pump up						
0852									16.69
0854		DRY							
0845			17.4	5.89	3410	.086	137.6	36	5.44

4/9/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	Remarks (quality control sample, other)
0845	250mL	P	1	Y-10	HNO3	TOTAL METALS
0845	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
0845	250mL	P	1	N	—	SULFATE
0845	40mL	G	3	N	HCL	TPH
0845	1L	G	2	N	—	PAHS

4-9-13 JB

Comments:

NO SAMPLES WERE COLLECTED BY TCEQ

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: EXIDE-FRISCO	Date: 3-20-13	
Sample Number: MW-28		Starting Water Level (ft. BMP):	14.58
Sampling Location (well ID, etc.): MW-28		Casing Stickup (ft.):	—
Sampled by: JTB		Starting Water Level (ft. BGL):	14.58
Measuring Point (MP) of Well: TOC/PVC		Total Depth (ft. BGL):	19.5
Screened Interval (ft. BGL):		Casing Diameter (In ID):	2.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: bailer

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	Keck	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TURB

SAMPLING MEASUREMENTS

Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0828									
0838		.11	17.7	7.31	1171			7.4	15.23
0843		.11	17.4	7.33	1165			7.2	15.43
0848		.11	17.4	7.34	1161			6.8	15.44
0853		.11	17.7	7.34	1165			6.9	15.82
0858		.11	17.6	7.35	1163			8.9	15.91
0903			17.5	7.36	1162				16.07
0905-	turned the pump up to evacuate the well, pump @ .45LPM								
0935		.45							18.75
	turned pump up all the way								
0945	well is dry								
0815	—	—	18.2	7.45	950	5.21	276	7.8	14.55

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 3' off BOTTOM

3/21/13

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
0830	250mL	P	1	N	HNO_3	TOTAL METALS
0830	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS

Comments:

TCEQ - NO SAMPLES

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: MW-28
Sampling Location (well ID, etc.): MW-28
Sampled by: JTB
Measuring Point (MP) of Well: TOC/PVC
Screened Interval (ft. BGL):
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 13.98
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 13.98
Total Depth (ft. BGL): 23.41
Casing Diameter (In ID): 2.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: same
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)
Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time 1956	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1104		.5	18.9	7.07	930	2.62	87.4	8.4	16.06
1114		.7	18.4	7.04	960	2.51	87.1	7.2	18.46
1126		.7	18.6	7.03	960	2.50	87.1	7.3	21.79
1135	DRY								
4-12-13 0930	—	—	18.4	7.09	930	2.96	88.4	6.9	—

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 3' off Bottom

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
0930	250mL	P	1	N	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: MW-29

Sampling Location (well ID, etc.): MW-29

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 4.5-14.5

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 6.96

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 6.96

Total Depth (ft. BGL): 17.51

Casing Diameter (in ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI ~~556~~ PRO PLUS

pH Meter: YSI ~~556~~ PRO PLUS Field Calibration: 7-4

Conductivity Meter: YSI ~~556~~ PRO PLUS Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0906									
0916		.13	17.0	5.89	7710	1.29	118.1	103	9.02
0922		.12	17.0	5.95	7830	1.03	108.2	137	9.81
0927		.12	17.1	6.01	7970	1.02	104.5	131	10.19
0928		.78	turn up the pump						
0938		.80							13.89
0948		.80							17.14
0951		DRY							
4-9-13 0930			17.4	6.03	7810	0.93	102.1	26	6.24

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
4-9-13 0930	250ML	P	1	Y-10	HNO3	TOTAL METALS
0930	250ML	P	1	Y-.45	HNO3	DISSOLVED METALS
0930	250ML	P	1	N	—	SULFATE

Comments:

NO SAMPLES WERE COLLECTED BY TCEQ

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE - FRISCO Date: 4-10-13

Sample Number: MW-30

Sampling Location (well ID, etc.): MW-30

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 11.62

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 11.62

Total Depth (ft. BGL):

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: IVRB

SAMPLING MEASUREMENTS

1014 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1024		.12	19.1	6.74	1860	0.45	-82.1	88.7	11.83
1029		.11	19.4	6.71	1840	0.41	-83.6	86.4	11.86
1034		.11	19.5	6.71	1840	0.40	-83.4	86.9	11.87

Water Level (ft. BMP) at End of Purge: 11.87 Sample Intake Depth (ft. BMP): 10' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
1045	250mL	P	1	Y-10	HNO_3	TOTAL METALS
1045	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS
1045	250mL	P	1	—	—	SULFATE

Comments:

TCEQ - SPLIT SAMPLES - TOTALS ONLY

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GROUNDWATER SAMPLING RECORD

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Project Number 1755 Project Name EXIDE - FRISCO Date 5/13/13

Sample Number MW-31

Sampling Location (well ID, etc.) MW-31

Sampled by JTB

Measuring Point (MP) of Well TOC | PVC

Screened Interval (ft. BGL)

Filter Pack Interval (ft. BGL)

Starting Water Level (ft. BMP) 10.58

Casing Stickup (ft.) —

Starting Water Level (ft. BGL) 10.58

Total Depth (ft. BGL) —

Casing Diameter (in. ID) 2.0

Casing Volume (gal.) —

QUALITY ASSURANCE

METHODS (describe)

Cleaning Equipment dedicated or new equipment

Purging peristaltic pump Sampling Direct

Disposal of Discharged Water 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level KELK

pH Meter YSI 556

Conductivity Meter YSI 556

Thermometer YSI 556

Field Calibration 7-4

Field Calibration 1413

Filter / Filter Size 10 micron & .45 micron Other NRB

SAMPLING MEASUREMENTS

Time	Cum Vol (gal or L)	Purge Rate (gal or L/m)	Temp (oC)	pH	Spec Cond (mmhos/cm)	DO	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0824	—	.1	20.9	6.64	1060	0.76	-37	14	10.74
0829		.1	21.0	6.67	1110	0.54	-36	16	10.96
0834		↓	21.1	6.60	1124	0.53	-36	16	10.97

Water Level (ft. BMP) at End of Purge 10.97 Sample Intake Depth (ft. BMP) 6' off Bottom

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No	Filtration (Y - N)	Preservation	Remarks (quality control sample, other)
0845	250mL	P	1	Y - 10	HNO_3	TOTAL METALS
0845	250mL	P	1	Y - 45	HNO_3	DISSOLVED METALS
0845	250mL	P	1	N	—	SULFATE

Comments

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-8-13

Sample Number: P-1

Sampling Location (well ID, etc.): P-1

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 10-20

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 13.91

Casing Stickup (ft.): -

Starting Water Level (ft. BGL): 13.91

Total Depth (ft. BGL):

Casing Diameter (In ID): 2.0

Casing Volume (gal.): -

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: NRB

SAMPLING MEASUREMENTS

1434 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1444		.11	18.1	6.41	3620	1.76	161.7	76	15.61
1449		.12	18.2	6.47	3670	1.52	151.7	57	16.07
1454		.12	18.2	6.48	3680	1.51	152.4	59	16.62
1455			turn the pump up to evacuate the well						
1456		.70							
1505									17.96
1515									20.37
			DRY						
4-9-13 1125			18.3	6.41	3590	1.02	139.2	19.9	14.62

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected: Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
1125	250mL	P	1	Y-10	HNO3	TOTAL METALS
1125	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
1125	250mL	P	1	—	—	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ

TOTAL ONLY

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO-FOP Date: 3-18-13

Sample Number: P-2

Sampling Location (well ID, etc.): P-2

Sampled by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL): 10-20

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 15.98 ~~16.34~~ JB

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 15.98 ~~16.34~~ JB

Total Depth (ft. BGL): 20 —

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

Time JB	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0831									
0899		.12	17.6	7.26	3227			421	17.46
0843		.12	17.4	7.24	3221			406	18.21
0854	well is dry, turned off		will return to sample to .37 L/m			sample,		pumped wat	
0900	well is dry								
3/19/13 0803		.14	17.4	7.21	3206			364	16.38

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 21' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	Remarks (quality control sample, other)
0815	250mL	P	1	Y-.10	HNO3	TOTAL METALS
0815	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
0815	250mL	P	1	N	—	SULFATE

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: ~~10227~~ 1856 Project Name: EXIDE-FRISCO-LANDFILL Date: 3/12/13

Sample Number: LMW-5

Sampling Location (well ID, etc.): LMW-5

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 7-21

Filter Pack Interval (ft. BGL): —

Starting Water Level (ft. BMP): 17.69

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 17.69

Total Depth (ft. BGL): 22 —

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 MICRON & .45 MICRON Other: TVRB

SAMPLING MEASUREMENTS

Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1204									
1213		.15	18.9	6.48	1271			22	18.32
1218		.14	18.8	6.52	1257			16	18.93
1220	TURNED UP THE PUMP TO EVACUATE THE WELL, WILL RETURN								
	TO SAMPLE								
1234	WELL IS DRY								
1040		.14	18.6	6.57	1281			64	17.66

3/13/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 21 OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1050	250mL	P	1	Y-.10	HNO3	TOTAL METALS
1050	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ- FILTERED TOTAL METALS PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: EXIDE-FRISCO	Date: 4-11-13	
Sample Number: LMW-5		Starting Water Level (ft. BMP):	16.94
Sampling Location (well ID, etc.): LMW-5		Casing Stickup (ft.):	—
Sampled by: JTB		Starting Water Level (ft. BGL):	16.96
Measuring Point (MP) of Well: TOC / PVC		Total Depth (ft. BGL):	25.25
Screened Interval (ft. BGL): 7-21.5		Casing Diameter (In ID):	4.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413

Filter / Filter Size: 10 micron & .45 micron Other: TURB

SAMPLING MEASUREMENTS

1018 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1027		.5	6.74	17.7	3460	1.74	134.7	16	19.61
1032		.8	6.72	17.8	3390	1.62	133.2	12	21.19
1039		.8	6.71	17.8	3380	1.61	133.6	11	23.74
1047	DRY		↓	↑					
4-12-13 0915	—		17.4	6.74	3360	1.61	128.7	12	—

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 3' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
0915	250mL	P	1	N	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: [redacted] 1BSL Project Name: EXIDE-FRISCO-LANDFILL Date: 3/12/13

Sample Number: LMW-8

Sampling Location (well ID, etc.): LMW-8

Sampled by: JTB

Measuring Point (MP) of Well: TOC / PVC

Screened Interval (ft. BGL): 7-21

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 14.93

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 14.93

Total Depth (ft. BGL): 22 —

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 MICRON & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

0916 Time	Cum. Vol (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0921		.15	16.2	6.85	912			37	15.31
0926		.15	16.7	6.67	857			26	15.63
0931		.15	16.7	6.61	806			27	16.08
0932 - WILL TURN THE PUMP UP AND EVACUATE THE WELL. WILL RETURN									
	TO SAMPLE								
0940 - WELL IS DRY									
0927		.14	16.4	6.67	816			86	15.04

3/13/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 3.5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected Time	Volume	Composition (G, P)	No.	Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
250mL	250mL	P	1	Y 10micron	HNO3	TOTAL METALS
250mL	250mL	P	1	Y .45micron	HNO3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS JB [redacted] PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: LMW-8

Sampling Location (well ID, etc.): LMW-8

Sampled by: JTB

Measuring Point (MP) of Well: TOC | PVC

Screened Interval (ft. BGL): 7-21.5

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 14.76

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 14.76

Total Depth (ft. BGL): 22.10

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: (0 micron & .45 micron Other: TURB

SAMPLING MEASUREMENTS

0916 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0922		.50	16.9	7.06	710	2.61	42.1	26	17.28
0933		.80	16.8	7.01	700	2.46	43.9	29	21.90
0937		DRY							
0820			17.1	7.06	720	2.52	44.3	17	—

4-12-13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 4' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
0820	250mL	P	1	Y-10	HNO3	TOTAL METALS
0820	250mL	P	1	Y-.45	HNO3	DISSOLVED METALS
0820	250mL	P	1	—		SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: [redacted] 1856 Project Name: EXIDE-FRISCO-LANDFILL Date: 3/12/13

Sample Number: LMW-9	Starting Water Level (ft. BMP): 16.24
Sampling Location (well ID, etc.): LMW-9	Casing Stickup (ft.): —
Sampled by: JTB	Starting Water Level (ft. BGL): 16.24
Measuring Point (MP) of Well: TOC / PVC	Total Depth (ft. BGL): 24 —
Screened Interval (ft. BGL): 9-23	Casing Diameter (In ID): 2.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: Same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

0807 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0817		.13	16.5	6.77	3289			3.9	16.59
0822		.14	16.6	6.74	3296			4.6	16.82
0827		.13	16.6	6.75	3299			4.4	17.04
0845		.13							17.81
	turn pump up to evacuate the well, will return to SAMPLE								
0912	well ready								
0830		.13	16.2	6.71	3276			6.9	20.54

3/13/13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration	Preservation	Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)		(quality control sample, other)
0910	250ML	P	1	N	HNO3	TOTAL METALS
0910	250ML	P	1	Y .45micron	HNO3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - NON FILTERED TOTAL METALS & [redacted] PRESERVED

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number:	LMW-9	Starting Water Level (ft. BMP):	20.17
Sampling Location (well ID, etc.):	LMW-9	Casing Stickup (ft.):	–
Sampled by:	JTB	Starting Water Level (ft. BGL):	20.17
Measuring Point (MP) of Well:	TOC/PVC	Total Depth (ft. BGL):	27.75
Screened Interval (ft. BGL):	9-23.5	Casing Diameter (In ID):	2.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	–

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TURB

SAMPLING MEASUREMENTS

0827 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0845		.5	19.5	6.99	3620	1.34	114.3	36	23.27
0853		.7	19.6	7.01	3630	1.27	114.7	29	25.47
0904-	DRY								
4-12-13 0755			19.2	7.04	3630	1.62	1024	28	–

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 5' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
0755	250mL	P	1	Y-.10	HNO3	TOTAL SELENIUM
0755	250mL	P	1	Y-.45	HNO3	DISSOLVED SELENIUM
0755	250mL	P	1	N	–	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: JB [redacted] 1856 Project Name: EXIDE-FRISCO-LANDFILL Date: 3/12/13

Sample Number: LMW-17		Starting Water Level (ft. BMP):	18.52
Sampling Location (well ID, etc.): LMW-17		Casing Stickup (ft.):	—
Sampled by: JTB		Starting Water Level (ft. BGL):	18.52
Measuring Point (MP) of Well: TOC / PVC		Total Depth (ft. BGL):	23 —
Screened Interval (ft. BGL):	10-20	Casing Diameter (In ID):	4.0
Filter Pack Interval (ft. BGL):		Casing Volume (gal.):	—

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1010 Time	Cum. Vol. (gal. or (L))	Purge Rate (gal. or (L/m))	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1020		.15	18.8	6.38	1092			9.8	18.55
1025		.14	19.0	6.35	1096			3.3	18.56
1030		.15	19.1	6.33	1091			2.8	18.56

Water Level (ft. BMP) at End of Purge: 18.56 Sample Intake Depth (ft. BMP): 2' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
1040	250mL	P	1	N	HNO3	TOTAL
1046	250mL	P	1	Y*	HNO3	DISSOLVED .45 micron

Comments: SPLIT SAMPLES WITH TCEQ
TOTAL METALS - NON FILTERED
JB [redacted] PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: LMW-17

Sampling Location (well ID, etc.): LMW-17

Sampled by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 18.34

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 18.34

Total Depth (ft. BGL): —

Casing Diameter (in ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TURB

SAMPLING MEASUREMENTS

1234 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1244		.11	17.6	7.07	960	2.12	100.9	6.7	18.42
1249		.12	17.7	7.08	950	2.06	101.6	7.4	18.43
1254		.12	17.7	7.08	950	2.05	101.6	7.7	18.43

Water Level (ft. BMP) at End of Purge: 18.43 Sample Intake Depth (ft. BMP): 3' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1300	250mL	P	1	N	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: [redacted]1856 Project Name: EXIDE-FRISCO-LANDFILL Date: 3/12/13

Sample Number: LMW-21

Sampling Location (well ID, etc.): LMW-21

Sampled by: JTB

Measuring Point (MP) of Well: TOC PVC

Screened Interval (ft. BGL): 10-25

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 20.11

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 20.11

Total Depth (ft. BGL): 25 —

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron other: TVRB

SAMPLING MEASUREMENTS

1404 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1411		.12	20.5	6.49	1823			29	20.10
1421		.13	20.5	6.43	1822			20	20.12
1429		.13	20.6	6.47	1828			11	20.12
1433		.13	20.6	6.48	1826			9	20.12
1435		.12	20.7	6.47	1832			8.8	20.12

Water Level (ft. BMP) at End of Purge: 20.12 Sample Intake Depth (ft. BMP): 2.5' VAB bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1445	250	P	1	N	HNO3	TOTAL [redacted] JB METALS
1445	250	P	1	Y .45	HNO3	DISSOLVED METALS

Comments: DUPLICATE @ this well DUP-1
SPLIT SAMPLES WITH TCEQ - NON FILTERED
TOTAL METALS JB [redacted] PRESERVED
TCEQ - TOOK A DUPLICATE

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO	Date: 4-11-13
Sample Number: LMW-21	Starting Water Level (ft. BMP): 19.29
Sampling Location (well ID, etc.): LMW-21	Casing Stickup (ft.): —
Sampled by: JTB	Starting Water Level (ft. BGL): 19.29
Measuring Point (MP) of Well: TOC/PVC	Total Depth (ft. BGL): [illegible]
Screened Interval (ft. BGL):	Casing Diameter (In ID): 2.0
Filter Pack Interval (ft. BGL):	Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level:	KECK	Thermometer:	YSI 556
pH Meter:	YSI 556	Field Calibration:	7-4
Conductivity Meter:	YSI 556	Field Calibration:	1413
Filter / Filter Size:	10 micron & .45 micron	Other:	TURB

SAMPLING MEASUREMENTS

1413 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1423		.10	19.4	6.79	1540	1.41	146.5	3.7	19.41
1428		.11	19.6	6.74	1550	1.36	147.1	4.6	19.41
1433		.11	19.7	6.75	1550	1.35	147.2	4.6	19.41

Water Level (ft. BMP) at End of Purge: 19.41 Sample Intake Depth (ft. BMP): 4' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1445	250mL	P	1	~~Y~~ N	HNO3	TOTAL METALS
1445	250mL	P	1	Y-145	HNO3	DISSOLVED METALS
1445	250mL	P	1	—	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

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Project Number: JB [redacted] 1854 Project Name: EXIDE - FRISCO - LANDFILL Date: 3/12/13

Sample Number: LMW-22

Sampling Location (well ID, etc.): LMW-22

Sampled by: JTB

Measuring Point (MP) of Well: TOC / PVC

Screened Interval (ft. BGL): 5-20

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 17.18

Casing Stickup (ft.): —

Starting Water Level (ft. BGL): 17.18

Total Depth (ft. BGL): 20 —

Casing Diameter (In ID): 2.0

Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: same

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1103 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /min)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1113		.15	17.9	6.45	1172			2.6	18.11
1118		.14	18.1	6.48	1184			3.9	18.56
1123		.14	18.2	6.48	1179			3.6	18.92
1126	TURNED PUMP RATE UP TO EVACUATE THE WELL, WILL RETURN TO SAMPLE								
1147 - WELL IS DRY									
3/13/13 1002		.13	18.1	6.52	1131			16.2	20.49

Water Level (ft. BMP) at End of Purge: JB [redacted] DRY Sample Intake Depth (ft. BMP): 1.5' BP = BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration		Remarks
Time	Volume	Composition (G, P)	No.	(Y / N)	Preservation	(quality control sample, other)
1010 250ML		P	1	Y-10	HNO_3	TOTAL METALS
1010 250ML		P	1	Y-.45	HNO_3	DISSOLVED METALS

Comments:

SPLIT SAMPLES WITH TCEQ - FILTERED TOTAL METALS JB [redacted] PRESERVED

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GROUNDWATER SAMPLING RECORD

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Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: LMW-22

Sampling Location (well ID, etc.): LMW-22

Sampled by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 21.21

Casing Stickup (ft.): –

Starting Water Level (ft. BGL): 21.21

Total Depth (ft. BGL): 25.40

Casing Diameter (In ID): 4.0

Casing Volume (gal.): –

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: dedicated or new equipment

Purging: peristaltic pump Sampling: none

Disposal of Discharged Water: 55 gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Filter / Filter Size: 10 micron & .45 micron Other: NRB

SAMPLING MEASUREMENTS

0943 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L /m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
0951		.50	17.6	6.71	2170	1.92	67.4	12	22.39
0959		.80	17.4	6.74	2120	1.74	66.4	9.6	23.67
1006		.80	17.4	6.75	2130	1.73	66.3	8.9	24.82
1012	DRY								
0845			17.6	6.76	2110	1.74	67.4	10	—

4-12-13

Water Level (ft. BMP) at End of Purge: DRY Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
0845	250mL	P	1	NF	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: PMW-20R
Sampling Location (well ID, etc.): PMW-20R
Sampled by: JTB
Measuring Point (MP) of Well: TOC | PVC
Screened Interval (ft. BGL):
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 19.06
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 19.06
Total Depth (ft. BGL): —
Casing Diameter (In ID): 2.0
Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: none
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)
Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1326 Time	Cum. Vol. (gal. or L)	Purge Rate (gal. or L/m)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1334		.10	20.1	7.07	1190	0.87	156.4	7.4	19.31
1341		.11	20.3	7.11	1210	0.81	157.4	8.1	19.32
1346		.11	20.2	7.12	1220	0.82	157.5	8.4	19.32

Water Level (ft. BMP) at End of Purge: 19.32 Sample Intake Depth (ft. BMP): 4' off Bottom

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1355	250mL	P	1	~~N~~	HNO_3	TOTAL METALS
1355	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS
1355	250mL	P	1	—	—	SULFATE

Comments:

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GROUNDWATER SAMPLING RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-11-13

Sample Number: PMW-20R
Sampling Location (well ID, etc.): PMW-20R
Sampled by: JTB
Measuring Point (MP) of Well: TOC | PVC
Screened Interval (ft. BGL):
Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 19.06
Casing Stickup (ft.): —
Starting Water Level (ft. BGL): 19.06
Total Depth (ft. BGL): —
Casing Diameter (In ID): 2.0
Casing Volume (gal.): —

QUALITY ASSURANCE

METHODS (describe):
Cleaning Equipment: dedicated or new equipment
Purging: peristaltic pump Sampling: same
Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI 556
pH Meter: YSI 556 Field Calibration: 7-4
Conductivity Meter: YSI 556 Field Calibration: 1413
Filter / Filter Size: 10 micron & .45 micron Other: TVRB

SAMPLING MEASUREMENTS

1326 Time	Cum. Vol. (gal. or (L))	Purge Rate (gal. or (L/m))	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	D.O.	Redox (mV)	Turbidity & Color	Water Depth (ft BMP)
1334		.10	20.1	7.07	1190	0.87	156.4	7.4	19.31
1341		.11	20.3	7.11	1210	0.81	157.4	8.1	19.32
1346		.11	20.2	7.12	1220	0.82	157.5	8.4	19.32

Water Level (ft. BMP) at End of Purge: 19.32 Sample Intake Depth (ft. BMP): 4' OFF BOTTOM

SAMPLE INVENTORY

Bottles Collected				Filtration (Y / N)	Preservation	Remarks (quality control sample, other)
Time	Volume	Composition (G, P)	No.			
1355	250mL	P	1	Y-.10	HNO_3	TOTAL METALS
1355	250mL	P	1	Y-.45	HNO_3	DISSOLVED METALS
1355	250mL	P	1	—	—	SULFATE

Comments:

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WELL DEVELOPMENT RECORD

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Project Number: 1732 Project Name: EXIDE - FRISCO Date: 1-16-12

Well Location (well ID, etc.): B4R

Developed by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 8.01

Casing Stickup (ft.):

Starting Water Level (ft. BGL):

Total Depth (ft. ~~BGL~~): BMP 11.80

Casing Diameter (In ID): 4.0

Casing Volume (gal.): 2.4

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: Waterra Surge Equipment: same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Keck Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Other: -

DEVELOPMENT MEASUREMENTS

Time	Flow: Cum. Vol. (gal. / L)	Flow: Purge Rate (gal. / L pm)	Water Quality: Temp. (°C)	Water Quality: pH	Water Quality: Spec. Cond. (µmhos/cm)	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1026	3 (dry)	hand pump	18.1	7.23	579	dk. brown	cloudy	

1654
11.52

1-17-12
0806-
10.26

Total Discharge (gallons):

Observations/Comments:

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WELL DEVELOPMENT RECORD

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Project Number: 1732 Project Name: EXIDE - FRISCO Date: 1/16/12

Well Location (well ID, etc.): MW-19

Developed by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 14.67

Casing Stickup (ft.):

Starting Water Level (ft. BGL):

Total Depth (ft. ~~BGL~~ BMP): 25.20

Casing Diameter (In ID): 2.0

Casing Volume (gal.): 1.6

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: Waterra Surge Equipment: Dawe

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Kech Thermometer: 451 556

pH Meter: 451 556 Field Calibration: 7-4

Conductivity Meter: 451556 Field Calibration: 1413

Other:

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal./ L)	Purge Rate (gal./ L pm)	Temp. (°C)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
0922	2	hand pump	20.9	6.72	3370	lt tan	cloudy	
0926	4		20.8	6.76	3360	lt tan	cloudy	
0932	6		20.7	6.78	3020	lt tan	slt. cloudy	
0935	7 (DRY)		20.8	6.79	3060	lt tan	slt. cloudy	
1047	8.5 (dry)		20.8	6.76	3070	lt tan	slt. cloudy	

1040-21.43

Total Discharge (gallons):

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1732 Project Name: EXIDE - FRISCO Date: 1-16-12

Well Location (well ID, etc.): MW-20	Starting Water Level (ft. BMP): 24.02
Developed by: JTB	Casing Stickup (ft.):
Measuring Point (MP) of Well: TOC / PVC	Starting Water Level (ft. BGL):
Screened Interval (ft. BGL):	Total Depth (ft. ~~BGL~~): BMP 25.20
Filter Pack Interval (ft. BGL):	Casing Diameter (In ID): 2.0
	Casing Volume (gal.): 0.2

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: Waterra Surge Equipment: Bailer

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Keck Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Other:

DEVELOPMENT MEASUREMENTS

Time	Flow: Cum. Vol. (gal. / L)	Flow: Purge Rate (gal. / L pm)	Water Quality: Temp. (°C)	Water Quality: pH	Water Quality: Spec. Cond. (mS/cm) (µmhos/cm)	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
0954		hand pump	20.1	6.98	4390	tan	cloudy	
		well went dry						

1657 - 24.71

1-17-12

0840 - 24.43 JB

Total Discharge (gallons):

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE-FRISCO Date: 4-5-13

Well Location (well ID, etc.): MW-30

Developed by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 11.52

Casing Stickup (ft.): AT GRADE

Starting Water Level (ft. BGL): 11.52

Total Depth (ft. BGL): 32.27 - SOFT

Casing Diameter (In ID): 2.0

Casing Volume (gal.): 3

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment used

Purging: Waterra pump Surge Equipment: none

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: Kerk Thermometer: YSI 556

pH Meter: YSI 556 Field Calibration: 7-4

Conductivity Meter: YSI 556 Field Calibration: 1413

Other: TURB

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (°C)	pH	Spec. Cond. (µmhos/cm)	Color	Turbidity & Sediment	
1227	5	hand pump	21.7	6.59	2620	brown	SAND4	
1236	10		21.9	6.54	2630	brown	SAND4	
1247	15		21.9	6.63	2620	lt.brn	SAND4	
1303	25		21.8	6.61	2690	lt.brn	461	
1319	35		22.3	6.64	2710	lt.brn	136	
1334	45		22.2	6.60	2720	neutral	31	
1347	55	↓	22.4	6.64	2720	neutral	24	

Total Discharge (gallons): 55

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE - FRISCO, TX Date: 5-10-13

Well Location (well ID, etc.): MW-31

Developed by: JTB

Measuring Point (MP) of Well: TOC/PVC

Screened Interval (ft. BGL):

Filter Pack Interval (ft. BGL):

Starting Water Level (ft. BMP): 10.46

Casing Stickup (ft.): AT GRADE

Starting Water Level (ft. BGL): 10.46

Total Depth (ft. BGL): 23.45

Casing Diameter (In ID): 2.0

Casing Volume (gal.): 2.0

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: new equipment

Purging: Waterra Surge Equipment: Same

Disposal of Discharged Water: 55-gallon drum

INSTRUMENTS (Indicate make, model, I.d.)

Water Level: KECK Thermometer: YSI PRO PLUS

pH Meter: YSI PRO PLUS Field Calibration: 7-4

Conductivity Meter: YSI PRO PLUS Field Calibration: 1413

Other: —

DEVELOPMENT MEASUREMENTS

Time	Flow: Cum. Vol. (gal. / L)	Flow: Purge Rate (gal. / L pm)	Water Quality: Temp. (°C)	Water Quality: pH	Water Quality: Spec. Cond. (µmhos/cm)	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
0940	0							
0947	5	Hand pump	20.6	6.56	1170	tan	silty	
0956	10		20.7	6.64	1190	tan	cloudy	
1006	15		20.6	6.61	1190	tan	cloudy	
1047	30		20.7	6.67	1230	lt. tan	cloudy	
1104	40	↓	20.9	6.69	1250	lt. tan	sl. cloudy	

Total Discharge (gallons): 40

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number:	1856	Project Name: Exide FRC Longpeak	Date: 3/5/13
Well Location (well ID, etc.):	PMW-20R	Starting Water Level (ft. BMP):	20.05
Developed by:	Kevin Dworsky	Casing Stickup (ft.):	~ 3.12
Measuring Point (MP) of Well:	TOC / PVC	Starting Water Level (ft. BGL):	16.93
Screened Interval (ft. BGL):	10.0' - 24.5'	Total Depth (ft. BGL):	28.25
Filter Pack Interval (ft. BGL):	9.0' - 25.0'	Casing Diameter (In ID):	2
		Casing Volume (gal.):	1.312 x 4

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment - DI Water & Liquid-Nox

Purging: Torpedo Type Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal / L)	Purge Rate (gal / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
821	—	1.22	—	—	—	Tan	—	Pump on
826	6		19.32	6.71	1240	Neutral	229	surged well
831	12		19.45	6.77	1280	Neutral	114	surged well
836	18		19.52	6.82	1290	Neutral	74	ORP: 176mV DO: 1.52mg/L
841	24		19.49	6.84	1290	Neutral	32	surged well ORP: 173mV DO: 1.44mg/L
846	30		19.49	6.84	1290	Neutral	90.2	ORP: 173mV DO: 1.36mg/L
851	37		19.54	6.85	1290	Neutral	20.4	ORP: 172mV DO: 1.32mg/L
~~856~~ 896	43		19.53	6.85	1290	Neutral	89.4	surged well
~~901~~ 901	49		19.52	6.85	1290	Neutral	20.6	ORP: 172mV DO: 1.20mg/L
906	55		19.56	6.85	1290	Neutral	18.5	ORP: 173mV
								DO: 1.20 mg/L
								TDS: 0.829 g/L

Total Discharge (gallons): 55

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1856	Project Name: EXIDE FRC LANDFILL	Date: 3/5/13	
Well Location (well ID, etc.): LMW-21		Starting Water Level (ft. BMP): 20.29	
Developed by: KEVIN DWORSKY		Casing Stickup (ft.): ~ 3.17	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL): 17.12	
Screened Interval (ft. BGL): 10.0' – 25.0'		Total Depth (ft. BGL): 28.06	
Filter Pack Interval (ft. BGL): 8.0' – 25.0'		Casing Diameter (In ID): 2"	
		Casing Volume (gal.): 1.243	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment ~ Di Water & Liquid-NOX

Purging: Mini-Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck	
pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal / L)	Purge Rate (gal / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
941	~	1.375	~	~	~	TAN	~	Pump On
946	7		19.50	6.75	1580	TAN	1000+	Surged Well
951	14		19.34	6.71	1590	TAN	1000+	Surged Well
956	21		19.51	6.69	1590	TAN	1000+	Surged Well
1001	28		19.59	6.67	1590	NEUTRAL	706	Surged well
1006	34		19.55	6.67	1590	NEUTRAL	215	Surged well
1011	41		19.60	6.67	1590	NEUTRAL	72.9	
1016	48		19.62	6.66	1590	NEUTRAL	42.3	Surged well
1021	55	↓	19.62	6.68	1590	NEUTRAL	101	ORP: 186 mV
								DO: 2.08 mg/L
								TDS: 1.02 g/L

Total Discharge (gallons): 55

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1856	Project Name: EXIDE FRC LANDFILL	Date: 3/5/13	
Well Location (well ID, etc.): LMW - 22		Starting Water Level (ft. BMP): 17.56	
Developed by: KEVIN DWORSKY		Casing Stickup (ft.): 3.40	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL): 14.16	
Screened Interval (ft. BGL): 5.0' – 19.5'		Total Depth (ft. BGL): 23.12	
Filter Pack Interval (ft. BGL): 2.5' – 20.0'		Casing Diameter (In ID): 2	
		Casing Volume (gal.): 0.890	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment – DI WATER & Liquid-Nox

Purging: Mini 5 – Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck	
pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal./L)	Purge Rate (gal/pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1114	–	0.25	–	–	–	TAN	–	Pump On
1119	1	↓	16.35	7.11	946	TAN	874	Well surging by
1124	2	↓	15.41	7.10	940	TAN	461	pump turning on
1129	3	↓	15.33	7.09	928	NEUTRAL	275	and off.
1134	5	↓	15.05	7.08	919	NEUTRAL	186	Pump Off
1144	–	0.1	–	–	–	NEUTRAL	–	Pump On
1149	5	↓	13.59	7.21	927	NEUTRAL	185	
1154	6	↓	13.56	7.15	931	NEUTRAL	171	
1159	6	↓	13.36	7.13	931	NEUTRAL	143	
1204	7	↓	13.10	7.13	924	NEUTRAL	127	ORP: 222 mV
								DO: 6.32 mg/L
								TDS: 0.591 g/L

Total Discharge (gallons): _____

Observations/Comments:
Pump ~~running~~ turned on and off due to well running dry.

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1856	Project Name: Exide FRC LANDFILL	Date: 3/6/13	
Well Location (well ID, etc.): LMW-22		Starting Water Level (ft. BMP): 20.67	
Developed by: Kevin Dworsky		Casing Stickup (ft.): ~ 3.40	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL):	
Screened Interval (ft. BGL): 5.0' - 19.5'		Total Depth (ft. BGL): 23.12	
Filter Pack Interval (ft. BGL): 2.5' - 20.0'		Casing Diameter (In ID): 2	
		Casing Volume (gal.):	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment

Purging: Mini - Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
803	—	0.1	—	—	—	TAN	—	Pump On
813	1	↓	9.55	6.92	925	TAN	1000+	Well Dry
								ORP: 214 mV
								DO: 8.98 mg/L
								TDS: 0.595 g/L

Total Discharge (gallons): 1

Observations/Comments:

Well pumped dry. 8 gallons removed over 2 days

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1856	Project Name: Exide FRC Landfill	Date: 3/5/13	
Well Location (well ID, etc.): MW-28		Starting Water Level (ft. BMP): 14.96	
Developed by: Kevin Dworsky		Casing Stickup (ft.): 3.31	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL): 11.65	
Screened Interval (ft. BGL): ~~7.5 - 21.5~~	5.0 - 19.5	Total Depth (ft. BGL): 23.42	
Filter Pack Interval (ft. BGL): ~~4.0 - 22.0~~	2.5 - 20.0	Casing Diameter (In ID): 2	
		Casing Volume (gal.): 1.354	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment – DI WATER & Liquinox

Purging: Mini-Typhoon Pump Surge Equipment: Sami

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck	
pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1431	–	0.25	–	–	–	Tan	–	Pump On
1436	1	↓	18.86	7.07	980	Neutral	59.2	Pump off
1441	–	0.20	–	–	–	Tan	–	Pump On. Surged Well
1446	2	↓	18.13	7.10	951	Tan	558	Pump off
1456	–	0.15	–	–	–	Tan	–	Pump On. Surged Well.
~~1501~~ 1501	2	↓	16.91	7.16	948	Neutral	276	
1506	3	↓	16.62	7.13	946	Neutral	178	Pump off.
1516	–	–	–	–	–	–	–	Pump On.
1521								Dry
~~1524~~								

Total Discharge (gallons): 3

Observations/Comments:

Well kept running dry

~~gallons~~

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1856 Project Name: Exide FRL Landfill Date: 3/6/13

Well Location (well ID, etc.): MW-28 Starting Water Level (ft. BMP): 15.01

Developed by: Kevin Dwarsky Casing Stickup (ft.): ~ 3.31

Measuring Point (MP) of Well: TOC / PVC Starting Water Level (ft. BGL): 11.70

Screened Interval (ft. BGL): ~~20'-31.5'~~ 5.0' - 19.5' Total Depth (ft. BGL): 23.42

Filter Pack Interval (ft. BGL): ~~4.0'-22.0'~~ 2.5' - 20.0' Casing Diameter (In ID): 2

Casing Volume (gal.):

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment

Purging: ~~Peristaltic~~ Mini-Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

Conductivity Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

Thermometer: Horiba U-52

Turbidimeter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

ORP Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DO Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
940	—	0.4	—	—	—	TAN	—	Pump On
950	4	↓	17.14	7.01	946	NEUTRAL	83.6	Pump was turning on and off during interval
								ORP: 143 mV
								DO: 6.81 mg/L
								TDS: 0.607 g/L

Total Discharge (gallons): 4

Observations/Comments:

Well pumped dry

7 gallons removed over 2 days

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: Exide FRC Plant	Date: 3/5/13	
Well Location (well ID, etc.): MW-25		Starting Water Level (ft. BMP): 12.71	
Developed by: Kevin Dworsky		Casing Stickup (ft.): 2.76	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL): 9.95	
Screened Interval (ft. BGL): 5.0' ~~19.5'~~	7.0 - 21.5	Total Depth (ft. BGL): 25.42	
Filter Pack Interval (ft. BGL): 2.5' ~~22.0'~~	4.0 -22.0	Casing Diameter (In ID): 2	
		Casing Volume (gal.): 2.034	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment ~ DI WATER & Liquid NOX

Purging: Mini - Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1602	~	0.53	~	~	~	TAN	~	Pump On
1607	3	↓	20.32	5.86	5520	NEUTRAL	19.8	Surged well
1612	5	↓	20.19	4.91	5040	NEUTRAL	10.5	Well was starting to run dry
1617	7	↓	19.84	5.40	5050	NEUTRAL	5.5	Pump off. Dry
1627	~	0.2	~	~	~	NEUTRAL	~	Pump On. Surged well.
1632	8	↓	19.45	5.82	5210	NEUTRAL	18.0	Well was going dry.
1637	9	↓	19.34	5.84	5190	NEUTRAL	14.4	Pump off. Dry
1647	~	0.1	~	~	~	NEUTRAL	~	Pump ~~off~~ ON. Surged well
1652	9	↓	18.48	5.95	5280	NEUTRAL	39.8	Well was going dry
1657	10	↓	17.94	5.94	5230	NEUTRAL	21.1	ORP: 74 mV
								DO: 2.34 mg/L
								TDS: 3.29 g/L

Total Discharge (gallons): 10

Observations/Comments:
Pump was turning on & off due to well running dry

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: Exide FRC Plant	Date: 3/6/13	
Well Location (well ID, etc.): MW-25		Starting Water Level (ft. BMP): 15.73	
Developed by: Kevin Dworsky		Casing Stickup (ft.): ~2.76	
Measuring Point (MP) of Well: TOC / PVC		Starting Water Level (ft. BGL): 12.97	
Screened Interval (ft. BGL): ~~5.0'-19.5'~~ 7.0'-21.5'		Total Depth (ft. BGL): 25.42	
Filter Pack Interval (ft. BGL): ~~2.5'-20.0'~~ 4.0'-22.5'		Casing Diameter (In ID): 2	
		Casing Volume (gal.):	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment

Purging: Mini-Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1014	—	1.0	—	—	—	TAN	—	Pump On
1019	5	↓	19.59	5.25	5510	NEUTRAL	20.9	Well dry. Pump Off.
1024	—		—	—	—	NEUTRAL	—	Pump On.
1034			18.20	4.95	5230	NEUTRAL	6.2	Well dry. Pump Off
								ORP: 170 mV
								DO: 2.42 mg/L
								TDS: 3.29 g/L

Total Discharge (gallons): _____

Observations/Comments:

gallons removed over 2 days

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: Exide FRC Plant
Date: 3/6/13	
Well Location (well ID, etc.): MW-23	Starting Water Level (ft. BMP): 7.68
Developed by: Kevin Dwoesky	Casing Stickup (ft.): ~ 0.00 (At Grade)
Measuring Point (MP) of Well: TOC/PVC	Starting Water Level (ft. BGL): 7.68
Screened Interval (ft. BGL): 4.5' – 19.5'	Total Depth (ft. BGL): 19.35
Filter Pack Interval (ft. BGL): 3.5' – 19.5'	Casing Diameter (In ID): 2
	Casing Volume (gal.): 1.867

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment DI water & Liquinox

Purging: Mini - Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1134	–	1.0	–	–	–	TAN	–	Pump On. Well surged
1139	5	↓	20.52	6.21	3520	TAN	1000+	Well Dry. Pump Off
1149	–	0.2	–	–	–	TAN	–	Pump On. Well surged
1154	7	↓	20.81	6.25	3470	TAN	1000+	Well dry. Pump Off.
1204	–	0.2	–	–	–	TAN	–	Pump On. Well surged
1209	8	↓	20.67	6.27	3390	Neutral	489	Well turning on & off.
1214	9	↓	20.39	6.32	3430	Neutral	395	Well turning on & off.
1219	10	↓	20.88	6.30	3430	Neutral	204	Well turning on & off.
1224	11	↓	20.92	6.32	3440	Neutral	146	Pump Off, Well dry.
								ORP: 20 mV
								DO: 2.20 mg/L
								TDS 2.20 g/L

Total Discharge (gallons): 11

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: EXIDE FRC PLANT Date: 3/6/13	
Well Location (well ID, etc.): MW-21	Starting Water Level (ft. BMP): 4.03
Developed by: Kevin Dwoerser	Casing Stickup (ft.): ~ 2.21
Measuring Point (MP) of Well: TOC / PVC	Starting Water Level (ft. BGL): 1.82
Screened Interval (ft. BGL): 3.0' - 13.0'	Total Depth (ft. BGL): 15.33
Filter Pack Interval (ft. BGL): 2.5' - 16.0'	Casing Diameter (In ID): 2
	Casing Volume (gal.): 1.808

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment - DI WATER ; LiquiNox

Purging: Mini - Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1357	—	1.2	—	—	—	TAN	—	Pump On. Surged Well.
1402	6	↓	17.89	6.65	3470	NEUTRAL	81.2	Well dry. Pump Off
1407	—	0.4	—	—	—	TAN	—	Pump On. Surged Well
1412	~~8~~	↓	~~15.07~~	~~6.516~~	~~3460~~	NEUTRAL	20.16	Pump Off. Well dry
1417	—	0.2	—	—	—	NEUTRAL	—	Pump On. Surged Well
1422	9	↓	18.02	6.54	3450	NEUTRAL	120	Well dry. Pump Off
1432	—	0.2	—	—	—	NEUTRAL	—	Pump On.
1437	10	↓	18.38	6.58	3400	NEUTRAL	16.3	Pump Off. Well dry
1442	—	0.4	—	—	—	NEUTRAL	—	Pump On
1447	12	↓	18.06	6.56	3380	NEUTRAL	11.7	Pump Off. Well dry
								ORP:
								DO:
								TDS:

Total Discharge (gallons): 12

Observations/Comments:

Pump turning on and off during intervals.

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: Exide FRC Plant Date: 3/6/13	
Well Location (well ID, etc.): MW-22	Starting Water Level (ft. BMP): 11.93
Developed by: Kevin Dworsky	Casing Stickup (ft.): ~3.54
Measuring Point (MP) of Well: TOC/PVC	Starting Water Level (ft. BGL): 8.39
Screened Interval (ft. BGL): 3.0' - 13.0'	Total Depth (ft. BGL): 16.46
Filter Pack Interval (ft. BGL): 2.5' - 15.0'	Casing Diameter (In ID): 2
	Casing Volume (gal.): 0.725

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment – DI WATER & Liquid NOX

Purging: Mini Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck	
pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1526	–	0.3	–	–	–	TAN	–	Pump On. Surged Well
1531	2	↓	18.97	5.58	3980	NEUTRAL	115	Well Keeps going dry
1536	3	↓	19.18	5.43	4020	NEUTRAL	246	Well dry. Pump Off
1546	–	0.1	–	–	–	NEUTRAL	–	Pump On. Surged Well.
1551	3	↓	19.04	5.80	4100	NEUTRAL	477	Well Keeps going dry
1556	4	↓	18.46	5.82	4130	TAN	1060	Well dry. Pump off
1606	–	0.1	–	–	–	NEUTRAL	–	Pump On.
1616	5	↓	17.79	6.13	4110	NEUTRAL	395	Well dry. Pump off
								ORP: 97 mV
								DO: 5.53 mg/L
								TDS: 2.63 g/L

Total Discharge (gallons): _____

Observations/Comments:
Pump turned on and off during intervals due to well going dry.

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WELL DEVELOPMENT RECORD

PAGE_____of_____

Project Number: 1755	Project Name: Exide FRC Plant	Date: 3/6/13	
Well Location (well ID, etc.): MW-24		Starting Water Level (ft. BMP): 22.45	
Developed by: Kevin Dworsky		Casing Stickup (ft.): ~3.55	
Measuring Point (MP) of Well: TOC/PVC		Starting Water Level (ft. BGL): 18.90	
Screened Interval (ft. BGL): 14.0' - 29.0'		Total Depth (ft. BGL): 32.87	
Filter Pack Interval (ft. BGL): 12.0' - 29.0'		Casing Diameter (In ID): 2	
		Casing Volume (gal.): 1.667	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment - DI water ; Liquinox

Purging: Mini-Typhoon Pump Surge Equipment: Pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1638	—	1.1	~	-	—	TAN	—	Pump On. Well Surged
1643	4	↓	20.11	6.52	4030	TAN	1000+	
1648	10	↓	20.15	6.52	3950	TAN	1000+	Surged Well
1653	17	↓	20.19	6.52	3930	TAN	1000+	
1658	23	↓	20.14	6.52	3920	TAN	444	Pump Off
1711	—	1.4	~	—	—	TAN	—	Pump ON. Surged Well
1716	28	↓	20.11	6.55	3920	TAN	442	
1721	34	↓	20.08	6.52	3920	NEUTRAL	151	
1726	40	↓	20.05	6.55	3910	NEUTRAL	183	
1731	48	↓	20.02	6.52	3910	NEUTRAL	48.3	Pump Off
								ORP: 52 mV
								DO: 0.28 mg/L
								TDS: 2.50 g/L

Total Discharge (gallons): _____

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755	Project Name: Exide FRC Plant	Date: 3/8/13	
Well Location (well ID, etc.): MW-27		Starting Water Level (ft. BMP): 11.29	
Developed by: Kevin Dwoesky		Casing Stickup (ft.): ~3.13	
Measuring Point (MP) of Well: TOC/PVC		Starting Water Level (ft. BGL): 8.16	
Screened Interval (ft. BGL): 5.0' - 15.0'		Total Depth (ft. BGL): 17.38	
Filter Pack Interval (ft. BGL): 4.0' - 15.0'		Casing Diameter (In ID): 2	
		Casing Volume (gal.): 0.974	

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment ~ Di Water & Liquidnox

Purging: ~~Disposable bailer~~ / mini-typhoon Surge Equipment: ~~bailer~~ / pump

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1220	—	0.6	—	—	—	TAN	—	Surged Well. Pump On.
1225	3	↓	19.12	5.56	3440	TAN	1000+	Pump turned on & off due
								to well running dry.
								Pump off. Well dry
1230	—	0.2	—	—	—	TAN	—	Surged Well. Pump On.
1235	4	↓	19.44	5.53	3420	TAN	1000+	Well dry. Pump Off.
1240	—	0.1	—	—	—	TAN	—	Surged well. Pump On
1245	4.5	↓	19.06	5.60	3460	TAN	1000+	Well dry. Pump Off
1300	—	0.06	—	—	—	TAN	—	Pump On.
1305	4.8	↓	18.41	5.73	3620	TAN	1000+	Well Dry. Pump Off.
1331	—	0.05	—	—	—	TAN		Pump On.
1341	5.3	↓	18.04	5.68	3630	TAN	1000+	Well dry. Pump Off
1357	—	0.03	—	—	—	TAN	—	Pump On
1407	5.6	↓	16.45	6.02	3830	TAN	1000+	Well dry. Pump Off

otal Discharge (gallons): _____

Observations/Comments:

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WELL DEVELOPMENT RECORD

PAGE 1 of 1

Project Number: 1755 Project Name: Exide FRC Plant Date: 3/8/13	
Well Location (well ID, etc.): MW-29	Starting Water Level (ft. BMP): 16.79
Developed by: Kevin Dworsky	Casing Stickup (ft.): ~2.50
Measuring Point (MP) of Well: TOC/PVC	Starting Water Level (ft. BGL): 14.29
Screened Interval (ft. BGL): 4.5' - 14.5'	Total Depth (ft. BGL): 17.50
Filter Pack Interval (ft. BGL): 4.0' - 14.5'	Casing Diameter (In ID): 2
	Casing Volume (gal.): 0.114

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment

Purging: disposable bailer Surge Equipment: bailer

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Conductivity Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
Thermometer: Horiba U-52	
Turbidimeter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
ORP Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution
DO Meter: Horiba U-52	Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1200	0.1	—						Surged and bailed dry
1250	0.1	—	15.85	6.38	6070	TAN	1000+	Surged and bailed dry
1445	0.1	—				NEUTRAL	—	NOT ENOUGH WATER TO ~~go~~ get measurements from.

Total Discharge (gallons): _____

Observations/Comments: WELL WAS initially Surged for 15 min w/ a bailer by Tim J.

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/ELOPMENT RECORD

PAGE 1 of 1

er: 1755 Project Name: Exide PRC Date: 3/8/13

ion (well ID, etc.): MW-26 Starting Water Level (ft. BMP): 14.39

ped by: Kevin Dworsky Casing Stickup (ft.): ~ 2.78

suring Point (MP) of Well: TOC/PVC Starting Water Level (ft. BGL): 11.61

reened Interval (ft. BGL): 5.0' - 15.0' Total Depth (ft. BGL): 17.78

Filter Pack Interval (ft. BGL): 4.0' - 15.0' Casing Diameter (In ID): 2

Casing Volume (gal.): 0.5 & 2

QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Dedicated Equipment

Purging: Bailer Surge Equipment: Bailer

Disposal of Discharged Water: 55 Gallon Drums

INSTRUMENTS (indicate make, model, I.D.)

Water Level: Keck

pH Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

Conductivity Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

Thermometer: Horiba U-52

Turbidimeter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

ORP Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DO Meter: Horiba U-52 Field Calibration: Auto Calibration - 100-4 Horiba Calibration Solution

DEVELOPMENT MEASUREMENTS

Time	Flow		Water Quality			Appearance		Remarks
	Cum. Vol. (gal. / L)	Purge Rate (gal. / L pm)	Temp. (oC)	pH	Spec. Cond. (mmhos/cm)	Color	Turbidity & Sediment	
1145	2	—						Surged & bailed dry
1315	2.5	—	18.38	6.31	6470	TAN	10004	Surged & bailed dry
1355	2.7	—	17.84	6.33	6460	TAN	10004	bailed dry

Total Discharge (gallons): _____

Observations/Comments:

Initially surged for 15 min by Tim J. w/ bailer.

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Appendix 4

Registration and Institutional Controls

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

30516 EXIDE FRISCO BATTERY RECYCLING PLANT

Solid Waste Registration Number: 30516 **EPA Id:** TXD006451090

Company Name: GNB TECHNOLOGIES INC
Site Name: EXIDE FRISCO BATTERY RECYCLING PLANT
Site Location: 7471 S 5th St, Frisco, TX
Primary Contact: HARDY, EDWARD
Mailing Address: PO BOX 250
FRISCO, TX 75034-0005

Region: 4
County: 043 COLLIN
Land Type: Private
Title: ENVIRONMENTAL MANAGER
Site Street Address: 7471 5TH ST
FRISCO, TX 75034

Initial Registration Date: 04/20/1976
Last Amendment Date: 06/13/2013
Last Date NOR Computer update: 06/13/2013
Phone: 214-578-0686

Registration Status: Active
Registration Type: Generator Receiver Transporter
Generator Type: Industrial
Receiver Type: Commercial
Transporter Type: TRANSPORT OWN WASTE
Transport Wst Class: H

Reporting Method: STEERS
Hazardous Waste Generation Status: Large Quantity Generator

This registration has the following merged registrations: 50206 83335

Universal Waste Activity:
Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more):
Type(s) Managed:
Destination Facility for Universal Waste:

Business Description: Non-Ferrous Metal Secondary Smelting Lead acid battery recycling. Note: Filed for bankruptcy under Chapter 11 on 4/15/02.
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Tax Identification #: 13631828715
Handler Status:

Operator Information

Name: GNB TECHNOLOGIES INC
Phone: 972-335-2121
Address: PO BOX 250
FRISCO, TX 75034-0005

Owner Information:

Name: GNB TECHNOLOGIES INC
Phone: 972-335-2121
Address: PO BOX 250
FRISCO, TX 75034-0005

Billing Contact: **Title:** **Phone:**
Billing Address:
PO BOX 250
FRISCO, TX 75034-0005

Other Contact: Manager, Environmental **Role:** IHW: Owner Contact **Phone:** 972-335-2121
Mailing Address: PO BOX 250
FRISCO, TX 75034-0005

Other Contact: HARDY, EDWARD **Role:** IHW: Steers Contact **Phone:** 972-335-2121
Mailing Address: PO BOX 250
FRISCO, TX 75034-0005

As of 06/13/2013 - The next unassigned sequence number for WASTES is 0507 and
The next unassigned sequence number for UNITS is 018

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

30516 EXIDE FRISCO BATTERY RECYCLING PLANT

****** WASTE INFORMATION ******

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

0001103H H Active 06/13/2013 On-site No No

Description from Generator: Spent sulfuric acid from battery breaking operations.
Texas Form Code: 103 Spent acid with metals
EPA Form Code: W103 Spent concentrated acid
Origin Code: 5 Residual from on-site treatment, disposal or recycling of hazardous waste
Source Code: G08 Removal of spent process liquids or catalysts
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
Company's Internal Code(s): Acid
EPA Hazardous Waste Numbers: D002 D008
Current Management Units: Waste water treatment plant 009

00043042 2 Active 06/13/2013 On-site No No

Description from Generator: Blast Furnace Slag (Treated)
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Landfill 012
Miscellaneous storage containers 014

0005304H H Active 06/13/2013 Off-site No No

Description from Generator: Dust, Flue recycled back to furnace closed loop. recycling notification 7/7/99
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
EPA Form Code: W304 Slags, drosses, and other solid thermal residues
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G21 Air pollution control devices (baghouse dust, etc.)
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
EPA Hazardous Waste Numbers: K069
Current Management Units: None

0006304H H Active 06/13/2013 On-site No No

Description from Generator: Blast Furnace Slag (untreated)
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
EPA Form Code: W304 Slags, drosses, and other solid thermal residues
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G21 Air pollution control devices (baghouse dust, etc.)
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
EPA Hazardous Waste Numbers: D008
Current Management Units: Miscellaneous storage containers 014
Tank 008

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

30516 EXIDE FRISCO BATTERY RECYCLING PLANT

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

0008304H H Active 06/13/2013 Off-site No No

Description from Generator: Refractory brick from furnace rebuilds.
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
EPA Form Code: W304 Slags, drosses, and other solid thermal residues
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
EPA Hazardous Waste Numbers: D006 D008
Current Management Units: Tank 008

0009319H H Active 06/13/2013 Off-site No No

Description from Generator: Scrap PVC / pipe and parts
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Source Code: G15 Process equipment change-out or discontinuation of equipment use
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
Company's Internal Code(s): Scrap PVC
EPA Hazardous Waste Numbers: D004 D006 D008
Current Management Units: Miscellaneous storage containers 014

00121162 2 Active 06/13/2013 On-site No No

Description from Generator: Leachate, Landfill, Recycling notification 7/7/99
Texas Form Code: 116 Leachate
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Company's Internal Code(s): Landfill leachate
Current Management Units: Landfill 012
Waste water treatment plant 009

00133192 2 Active 06/13/2013 On-site No No

Description from Generator: Sodium Sulfate, from crystallization process. Excess product (not sold) sent off site for disposal.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Sodium Sulfate
Current Management Units: None

00141132 2 Active 06/13/2013 Off-site No No

Description from Generator: Purge water from the production of Sodium Sulfate. Dreived from Boil outs and purging.
Texas Form Code: 113 Other aqueous waste with high dissolved solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): PURGE WATER NA2SO4
Current Management Units: None

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30516 EXIDE FRISCO BATTERY RECYCLING PLANT

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

00183022 2 Active 06/13/2013 On & Off No No

Description from Generator: Misc soil and debris from pavement repair and equipment clean up.
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): MISC SOIL AND DEBRIS
Current Management Units: Miscellaneous storage containers 014

00193022 2 Active 06/13/2013 On & Off No No

Description from Generator: sediments from solar evaporation pond.
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): SOLAR POND SEDIMENTS
Current Management Units: Tank 008

0020406H H Active 06/13/2013 Off-site No No

Description from Generator: Scrubber packing material, plastic. Wet scrubbing of off gases from furnaces. Packing changed as structure degrades.
Texas Form Code: 406 Empty fiber or plastic containers
EPA Form Code: W403 Solid resins, plastics or polymerized organics
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Source Code: G21 Air pollution control devices (baghouse dust, etc.)
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): SCRUBBER PACKING
EPA Hazardous Waste Numbers: D006 D008 D009
Current Management Units: Miscellaneous storage containers 014

00229992 2 Active 06/13/2013 On & Off No No

Description from Generator: Shrink wrap and cardboard generated during receipt of batteries.
Texas Form Code: 999 Class 2 plant trash
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Packaging Material
Current Management Units: Miscellaneous storage containers 014

00233021 1 Active 06/13/2013 On & Off No No

Description from Generator: Misc soil and debris generated from rebuild activities
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Current Management Units: Miscellaneous storage containers 014

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

0024199H H Active 06/13/2013 On & Off No No

Description from Generator: Purge water from the crystallization process producing sodium sulfate derived from boil outs and purging that is routinely needed to maintain operational level in vapor body and determined based on solids content and chloride levels.
Texas Form Code: 199 Brine solution that could also bear the form code 113
EPA Form Code: W113 Other aqueous waste or wastewaters
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G07 Product and by-product processing
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): PURGE WATER
EPA Hazardous Waste Numbers: D006 D010
Current Management Units: Tank 015

00253902 2 Active 06/13/2013 Off-site No No

Description from Generator: Concrete debris
Texas Form Code: 390 Nonhazardous concrete/cement/construction debris
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): CONCRETE DEBRIS
Current Management Units: None

00263192 2 Active 06/13/2013 Off-site No No

Description from Generator: Raw soda ash from soda ash silo failure
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): RAW SODA ASH
Current Management Units: None

00273022 2 Active 06/13/2013 Off-site No No

Description from Generator: Soil from pavement and drain installation/repair
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): SOIL
Current Management Units: None

0028302H H Active 06/13/2013 Off-site No No

Description from Generator: Soil from pavement and drain installation/repair
Texas Form Code: 302 Soil contaminated with inorganics only
EPA Form Code: W301 Contaminated Soil
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): SOIL
EPA Hazardous Waste Numbers: D008
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

0029304H H Active 06/13/2013 On & Off No No

Description from Generator: Baghouse emission control dust
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
EPA Form Code: W304 Slags, drosses, and other solid thermal residues
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G21 Air pollution control devices (baghouse dust, etc.)
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): EMISSION CONTROL DUS
EPA Hazardous Waste Numbers: K069
Current Management Units: Miscellaneous storage containers 014 016

0030488H H Active 06/13/2013 On & Off No No

Description from Generator: Wood and metal debris generated during facility decon and demo
Texas Form Code: 488 Wood debris
EPA Form Code: W002 Contaminated debris: paper, clothing, rags, wood, empty fiber or plastic containers, glass, piping, other solids
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Source Code: G49 Other remediation
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): DEBRIS
EPA Hazardous Waste Numbers: D008
Current Management Units: Waste pile 017

00313021 1 Active 06/13/2013 On & Off No No

Description from Generator: Investigation derived soil
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): INVESTIGATION SOIL
Current Management Units: Miscellaneous storage containers 016

00323022 2 Active 06/13/2013 On & Off No No

Description from Generator: Investigation derived soils from north side of recycling facility
Texas Form Code: 302 Soil contaminated with inorganics only
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): INVESTIGATION SOIL
Current Management Units: Miscellaneous storage containers 016

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

******** Active Wastes ********

00331192 2 Active 06/13/2013 On & Off No No

Description from Generator: Investigation derived water from north side of the recycling facility
Texas Form Code: 119 Other inorganic liquids
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): INVESTIGATION WATER
Current Management Units: Miscellaneous storage containers 016

0034304H H Active 06/13/2013 On & Off Yes No

Description from Generator: Treated blast slag
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
EPA Form Code: W304 Slags, drosses, and other solid thermal residues
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G23 Wastewater treatment (sludge, filter cake, etc.)
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): TREATED SLAG
EPA Hazardous Waste Numbers: D006 D008
Current Management Units:

Container storage area	010 011
Containment building	005
Landfill	012 004 007 003
Miscellaneous storage containers	006 014
Surface impoundment	013
Tank	008
Waste pile	001 017
Waste water treatment plant	009

00353901 1 Active 06/13/2013 On & Off No No

Description from Generator: Demo debris
Texas Form Code: 390 Nonhazardous concrete/cement/construction debris
Origin Code: 2 Result of spill clean-up, equipment decommissioning or emergency removal
Company's Internal Code(s): DEMO DEBRIS
Current Management Units: Miscellaneous storage containers 014

0036001H H Active 06/13/2013 Off-site No No

Description from Generator: Maintenance and production chemicals no longer needed.
Texas Form Code: 001 Lab packs of old chemicals only
EPA Form Code: W001 Lab packs with no acute hazardous waste
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): LAB PACK HAZARDOUS
EPA Hazardous Waste Numbers: D001 D002 D003 D009 F003 F005 P106 U134 U159 U211 U228
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
00370031	1	Active	06/13/2013	Off-site	No	No

Description from Generator: Production and maintenance chemicals no longer needed due to facility closure
Texas Form Code: 003 Mixed lab packs
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): LAB PACK NONHAZ
Current Management Units: None

00382191	1	Active	06/13/2013	Off-site	No	No

Description from Generator: Off spec products (organic liquids) no longer needed due to plant closure
Texas Form Code: 219 Other organic liquids
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): OFF SPEC PRODUCTS
Current Management Units: None

0039701H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Gas cylinders no longer needed due to plant closure.
Texas Form Code: 701 Inorganic gases
EPA Form Code: W801 Compressed gases
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): HAZ INORGANIC CYL
EPA Hazardous Waste Numbers: D001
Current Management Units: None

0040801H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: compressed gas cylinders (organic / hazardous) no longer needed due to plant closure
Texas Form Code: 801 Organic gases
EPA Form Code: W801 Compressed gases
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): HAZ ORGANIC CYL
EPA Hazardous Waste Numbers: D001 D039
Current Management Units: None

00417011	1	Active	06/13/2013	Off-site	No	No

Description from Generator: Compressed gas cylinder, non hazardous, inorganic no longer needed due to plant closure.
Texas Form Code: 701 Inorganic gases
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): NHAZ INORGANIC CYL
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
00428011	1	Active	06/13/2013	Off-site	No	No

Description from Generator: Compressed Gas Cylinder (Non Hazardous, organic) no longer needed due to plant closure.
Texas Form Code: 801 Organic gases
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): NHAZ ORGANIC CYL
Current Management Units: None

0043219H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Various maintenance chemicals no longer needed due to plant closure.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): FLAMMABLE AEROSOLS
EPA Hazardous Waste Numbers: D001
Current Management Units: None

0044119H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Corrosive Liquid (off spec product, sulfuric acid) no longer needed due to plant closure.
Texas Form Code: 119 Other inorganic liquids
EPA Form Code: W119 Other inorganic liquid
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): INORGANIC CORROSIVES
EPA Hazardous Waste Numbers: D002
Current Management Units: None

00452191	1	Active	06/13/2013	Off-site	No	No

Description from Generator: non hazardous commodity pack containing lube, gear oil, non hazardous resins, non hazardous paints.
Texas Form Code: 219 Other organic liquids
Origin Code: 7 From a corrective action or closure
Company's Internal Code(s): N HAZ COMMODITY PACK
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
0046219H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Corrosion Inhibitor (sodium hydroxide) Formula 2010-Z no longer needed due to plant closure.
Texas Form Code: 219 Other organic liquids
EPA Form Code: W219 Other organic liquid
Origin Code: 7 From a corrective action or closure
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): ORG CORROSIVE LIQUID
EPA Hazardous Waste Numbers: D002
Current Management Units: None

0051203H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Off spec products (organic liquids) no longer needed due to plant closure
Texas Form Code: 203 Non-halogenated solvent
EPA Form Code: W203 Concentrated non-halogenated (e.g., non-chlorinated) solvent
Origin Code: 7 From a corrective action or closure
Source Code: G11 Discarding off-specification or out-of-date chemicals or products
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): OFF SPEC PRODUCTS
EPA Hazardous Waste Numbers: D001
Current Management Units: None

0052302H	H	Active	06/13/2013	Off-site	No	No

Description from Generator: Lead contaminated soil generated during the removal of soil berms from a former shooting range
Texas Form Code: 302 Soil contaminated with inorganics only
EPA Form Code: W301 Contaminated Soil
Origin Code: 7 From a corrective action or closure
Source Code: G44 State program or voluntary cleanup
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): LEAD IMPACTED SOIL
EPA Hazardous Waste Numbers: D006 D008
Current Management Units: None

05033112	2	Active	06/13/2013	Off-site	No	No

Description from Generator: Asbestos roofing and floor tile, Non-friable. One time shipment code.
Texas Form Code: 311 Asbestos solids and debris
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Asbestos Roofing
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
****** Active Wastes ******						
05043192	2	Active	06/13/2013	Off-site	No	No

Description from Generator: Spent Manganese Dioxide.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Manganese Dioxide
Current Management Units: Tank 008

05053192	2	Active	06/13/2013	Off-site	No	No

Description from Generator: Magnesium Oxide, spent, mixed with debris and tank cleaning sludge.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Magnesium Oxide
Current Management Units: Tank 008

As of 06/13/2013, The next unassigned sequence number for WASTES is 0507

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
0002403H	H	Inactive	06/13/2013	Off-site	No	No

Description from Generator: Rubber case chips containing lead. Produced from crushing and separating lead-acid batteries. This waste is no longer generated.
Texas Form Code: 403 Solids resins or polymerized organics
EPA Form Code: W403 Solid resins, plastics or polymerized organics
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G07 Product and by-product processing
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
Company's Internal Code(s): Rubber Chips
EPA Hazardous Waste Numbers: D008
Current Management Units: None

0003206H	H	Inactive	06/13/2013	On & Off	No	No

Description from Generator: Waste engine oil. Lead = 18.5 mg/l.OIl used as a reductant in reverbatory furnace instead of coke fines. recycling notification 7/7/99
Texas Form Code: 206 Waste oil
EPA Form Code: W206 Waste oil
Origin Code: 5 Residual from on-site treatment, disposal or recycling of hazardous waste
Source Code: G16 Oil changes and filter or battery replacement
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
EPA Hazardous Waste Numbers: D001 D008
Current Management Units: None

00079022	2	Inactive	06/13/2013	On & Off	No	No

Description from Generator: Housekeeping materials contaminated with lead from Lead Oxide Manufacturing operation.
Texas Form Code: 902 Class 2 supplemental plant production refuse
Origin Code: 1 Generated on-site from a product process or service activity
Current Management Units: Container storage area 010

0010319H	H	Inactive	06/13/2013	Off-site	No	No

Description from Generator: Strech Film From packaging of spent lead acid batteries.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 319 Other waste inorganic solids
EPA Form Code: W319 Other inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 331423 Secondary Smelting, Refining, and Alloying of Cop
Company's Internal Code(s): strech film
EPA Hazardous Waste Numbers: D008
Current Management Units: None

00119992	2	Inactive	06/13/2013	Off-site	No	No

Description from Generator: Office and Lunch Room trash.
Texas Form Code: 999 Class 2 plant trash
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Trash, Office, Lunch
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete

**** No Longer Generated Wastes ****

00153192 2 Inactive 06/13/2013 Off-site No No

Description from Generator: stretch wrap and cardboard from the packaging of spent lead acid batteries. Treated on-site with stabilization agents.; A new hazardous waste determination has been performed on this waste.
Texas Form Code: 319 Other waste inorganic solids
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): STRETCH WRAP AND CAR
Current Management Units: None

00163042 2 Inactive 06/13/2013 On-site No No

Description from Generator: Refractory brick from furnace rebuild, treated prior to disposal. Status isactive 2010
Texas Form Code: 304 Other "dry" ash, slag or thermal residue
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): REFRACTORY BRICK
Current Management Units: Landfill 012
Tank 008

0017113H H Inactive 06/13/2013 Off-site No No

Description from Generator: Hazardous purge water from boil outs and purging of the crystalization process.; One time shipment.
Texas Form Code: 113 Other aqueous waste with high dissolved solids
EPA Form Code: W113 Other aqueous waste or wastewaters
Origin Code: 3 Derived from on-site management of a nonhazardous waste
Source Code: G19 Other one-time or intermittent processes
NAICS Code: 331492 Secondary Smelting, Refining, and Alloying of Non
Company's Internal Code(s): HAZ PURGE WATER
EPA Hazardous Waste Numbers: D004 D006 D010
Current Management Units: None

00213162 2 Inactive 06/13/2013 On & Off No No

Description from Generator: solidified purge water from the crystallizer. Purge needed to maintain operational level in vapor body.; One time shipment.
Texas Form Code: 316 Other metal salts/chemicals
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): SOLIDIFIED PURGE H2O
Current Management Units: None

0501203H H Inactive 06/13/2013 Off-site No No

Description from Generator: Spent solvent from parts cleaning. recycling notification 7/7/1999
Texas Form Code: 203 Non-halogenated solvent
EPA Form Code: W203 Concentrated non-halogenated (e.g., non-chlorinated) solvent
Origin Code: 1 Generated on-site from a product process or service activity
Source Code: G09 Other production or service-related processes
NAICS Code: 325188 All Other Basic Inorganic Chemical Manufacturing
EPA Hazardous Waste Numbers: D001 D018 D039
Current Management Units: None

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Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
**** No Longer Generated Wastes ****						
05023072	2	Inactive	06/13/2013	Off-site	No	No

Description from Generator: Scrap metal / Debris, fiberglass, non-contact cooling tower demo. One timeshipment code.; One time shipment.
Texas Form Code: 307 Metal scale, filings or scrap
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Cooling Tower Demo
Current Management Units: None

05063902	2	Inactive	06/13/2013	Off-site	No	No

Description from Generator: Non-hazardous Class 2, Concrete and debris from paving and building repair and maintence. Tested each time generated. Intermittent events. Ongoing code use, dropping the use of one time codes.
Texas Form Code: 390 Nonhazardous concrete/cement/construction debris
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): CONCRETE AND DEBRIS
Current Management Units: None

As of 06/13/2013, The next unassigned sequence number for WASTES is 0507

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****** UNITS AT THIS SITE MANAGING WASTE ******

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
001	Waste pile	INACTIVE	11/20/1993	2H / NA	NA	NA	06	YES /

Description from Company:
System Types: 010 Metals recovery including retorting, smelting, chemical, etc.
Wastes Currently Managed at Unit: 0034304H Treated blast slag

003	Landfill	CLOSED	02/01/1974	2H / NA	NA	NA	10 RCRA Permit exempt - Other	YES /

Description from Company: North disposal area, pre RCRA
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 0034304H Treated blast slag

004	Landfill	CLOSED		2H / NA	NA	NA	10 RCRA Permit exempt - Other	YES /

Description from Company: South Disposal Area, pre RCRA
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 0034304H Treated blast slag

005	Containment building	ACTIVE		H / NA	001	NA	01 RCRA permitted unit	YES /

Description from Company: Raw material storage building. (capacity 4150 tons)
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0034304H Treated blast slag

006	Miscellaneous storage containers	INACTIVE	11/20/1993	H / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: 3-yard dump hoppers for storage of rubber chips. Unit is inactive.
System Types: 010 Metals recovery including retorting, smelting, chemical, etc.
Wastes Currently Managed at Unit: 0034304H Treated blast slag

007	Landfill	INACTIVE	04/14/1997	2H / NA	NA	NA	10 RCRA Permit exempt - Other	YES /

Description from Company: North Landfill, treated blast slag, inactive 1996, Non-Haz, class II, monof ill
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 0034304H Treated blast slag

008	Tank	ACTIVE	07/15/1993	2 / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Treatment tank for blast furnace slag located south of breaker building.
System Types: 111 Stabilization or chemical fixation prior to disposal at another site
Wastes Currently Managed at Unit: 0006304H Blast Furnace Slag 0008304H Refractory brick from 05043192 Spent Manganese Dioxide. 00193022 sediments from solar 05053192 Magnesium Oxide, spent, 0034304H Treated blast slag

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Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
009	Waste water treatment plant	ACTIVE	11/20/1993	2 / NA	NA	NA	08 RCRA Permit exempt-waste water treatment unit	YES /

Description from Company: Wastewater / Grey Treatment facility.
System Types: 077 Other chemical precipitation with or without pre-treatment
Wastes Currently Managed at Unit: 0001103H Spent sulfuric acid from 0034304H Treated blast slag 00121162 Leachate, Landfill,
Wastes Previously Managed at Unit: 00213162 solidified purge water from

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
010	Container storage area	INACTIVE	01/24/1996	2H / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Accumulation area for Storage prior to shipment.
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0034304H Treated blast slag

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
011	Container storage area	ACTIVE	04/10/1995	H / NA	002	NA	01 RCRA permitted unit	YES /

Description from Company: Battery Receiving / Storage building. Storage of batteries prior to processing.
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0034304H Treated blast slag

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
012	Landfill	ACTIVE	09/01/1996	2 / NA	NA	NA	10 RCRA Permit exempt - Other	YES /

Description from Company: Landfill, North Property, 1996
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 0034304H Treated blast slag 00043042 Blast Furnace Slag 00121162 Leachate, Landfill,

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
013	Surface impoundment	CLOSED	07/26/2002	H / NA	NA	NA	05 Non-Hazardous Regulated	YES /

Description from Company: Stewart creek dredged sediments pile. 4/89 Closed 8/89. Waste code 149620.
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Currently Managed at Unit: 0034304H Treated blast slag

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
014	Miscellaneous storage containers	ACTIVE	01/30/2009	1 / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: roll off container/box
System Types: 111 Stabilization or chemical fixation prior to disposal at another site 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0029304H Baghouse emission control 0009319H Scrap PVC / pipe and parts 00353901 Demo debris 0006304H Blast Furnace Slag
00043042 Blast Furnace Slag 00183022 Misc soil and debris from 0034304H Treated blast slag 00229992 Shrink wrap and cardboard
0020406H Scrubber packing material, 00233021 Misc soil and debris
Wastes Previously Managed at Unit: 0010319H Strech Film From 00213162 solidified purge water from

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
015	Tank	INACTIVE	09/10/2012	NA / H12	NA	NA	03 RCRA Permit Exempt<90 Day Storage	YES /

Description from Company: Frac tank used to store purge water
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0024199H Purge water from the

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

30516 EXIDE FRISCO BATTERY RECYCLING PLANT

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
016	Miscellaneous storage containers	ACTIVE		12 / NA	NA	NA	03 RCRA Permit Exempt<90 Day Storage	YES /

Description from Company: Drums containing solid materials
System Types: 010 Metals recovery including retorting, smelting, chemical, etc.
Wastes Currently Managed at Unit: 00323022 Investigation derived soils; 0029304H Baghouse emission control; 00313021 Investigation derived soil; 00331192 Investigation derived water

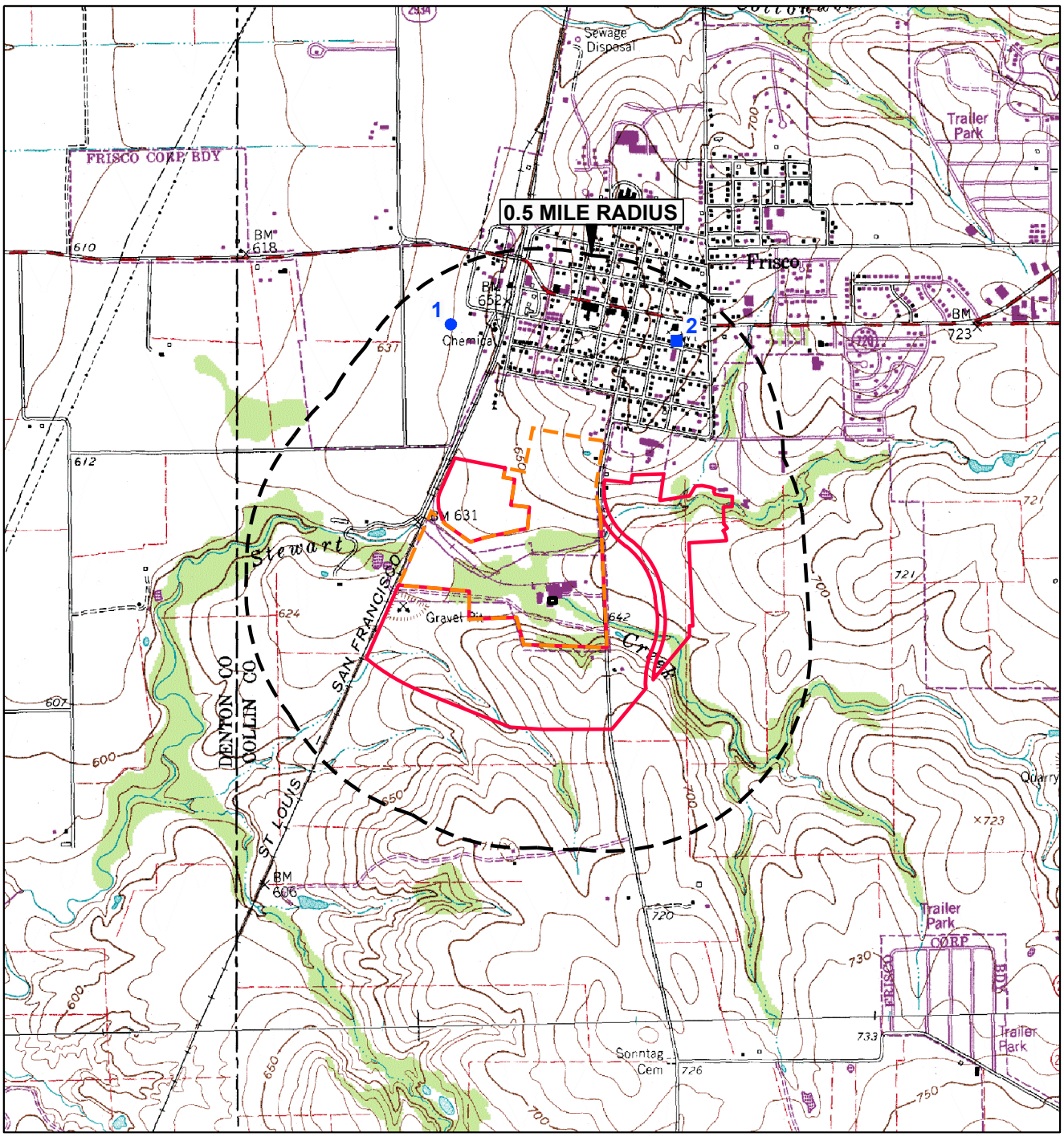
Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
017	Waste pile	ACTIVE		H / NA	NA	NA	03 RCRA Permit Exempt<90 Day Storage	YES /

Description from Company: Lined and covered stockpile in boneyard
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.
Wastes Currently Managed at Unit: 0030488H Wood and metal debris; 0034304H Treated blast slag

As of 06/13/2013, The next unassigned sequence number for UNITS is 018

Appendix 5

Water Well Records



EXPLANATION

- Water Well (Destroyed or Plugged and Abandoned)
- Water Well Cluster (Unused or Plugged and Abandoned)
- On-Site Property Boundary
- FRC Property Boundary

N

Scale in Feet

0 1000 2000

SOURCE:
Base map from www.tnris.org, Frisco, TX 7.5 min. USGS quadrangle dated 1995.

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

Figure 2C

WATER WELL MAP

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JUNE, 2013	CHECKED: EFP	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

Table 2A Water Well Summary

Well ID on Figure 2C	Source Well ID	Owner of Record	Approximate Distance from Site (miles)	Screened Interval (feet bgs)	Casing Interval (feet bgs)	Cemented Interval (feet bgs)	Surface Completion Type	Total Depth (feet bgs)	Completion Date	Producing Formation	Current Water Use	Current Status	Data Source
1	18-50-8C	Frisco Concrete	0.25	600-620	0-600	--	--	620	2/14/1980	Woodbine	NA	Destroyed	TWDB, field survey, and interviews
2	18-50-802	City of Frisco	0.25	1440-1632	0-1440	--	--	1632	1/1/1940	Paluxy	Unused	inactive (possibly plugged and abandoned)[1]	TWDB, interview with City employee
2	18-50-803	City of Frisco	0.25	1440-2796	0-1440	0-1440	--	2796	3/22/1950	Paluxy and Twin Mountains	Unused	inactive (possibly plugged and abandoned)[1]	TWDB, interview with City employee
2	18-50-804	City of Frisco	0.25	--	--	--	--	1680	1/1/1924	Paluxy	Unused	Plugged and abandoned	TWDB, interview with City employee
2	G0430005A	City of Frisco	0.25	--	--	--	--	2796	3/22/1950	Paluxy and/or Twin Mountains	Unused	inactive (possibly plugged and abandoned)[1]	TCEQ, interview with City employee

Notes:

1. [1] - Donny Mayfield, City of Frisco employee, indicated that two of the four City of Frisco-owned wells have been plugged and abandoned and that the remaining two wells are capped and unused (see Section 2.4 for additional details
2. "--" - information not available.
3. NA - not applicable.
4. bgs - below ground surface.
5. TWDB - Texas Water Development Board.

MEMORANDUM

TO: Matt Love
CC: Eric Pastor

FROM: Larry Eagan

DATE: December 18, 2012

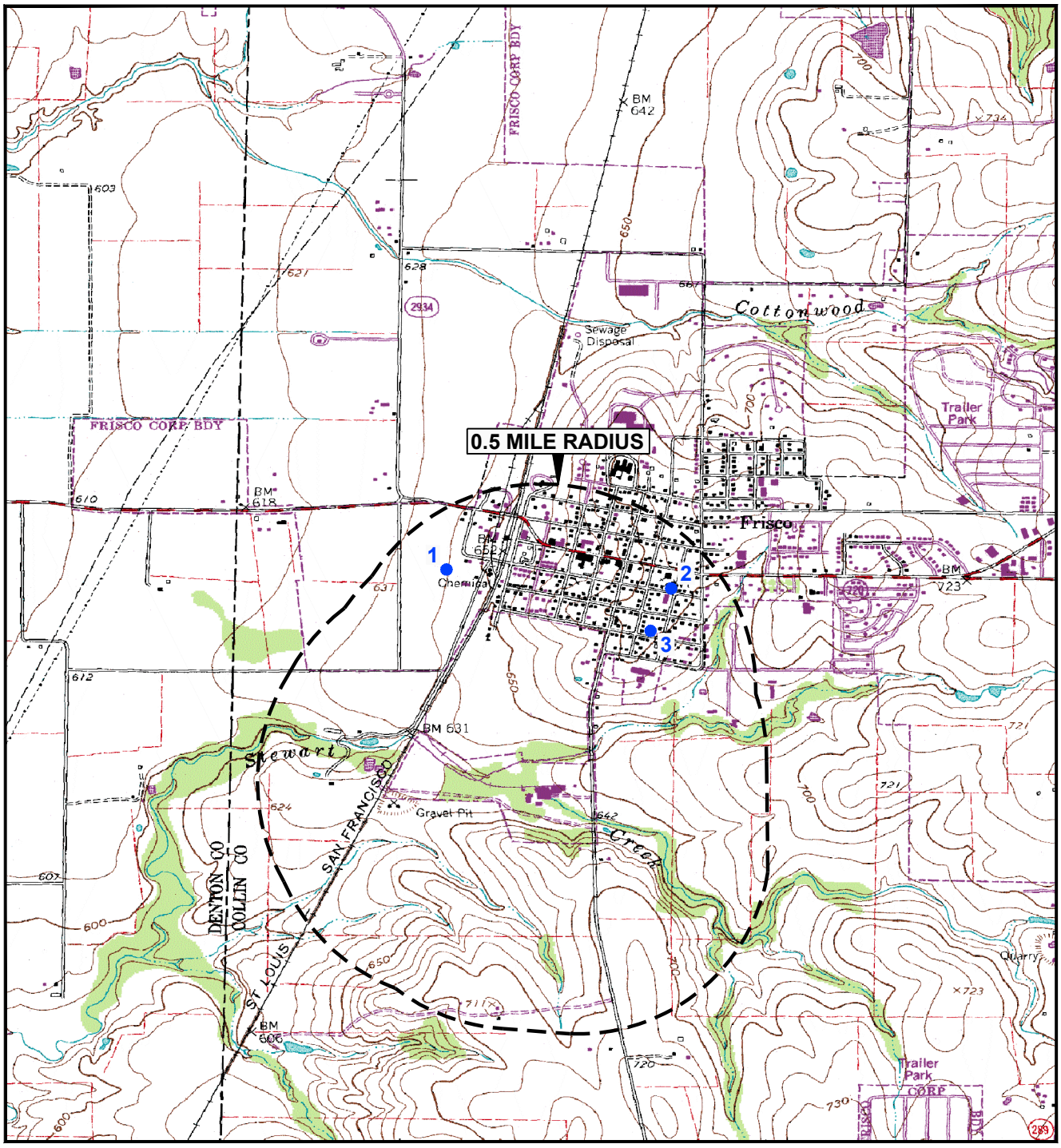
RE: Exide Frisco Recycling Center – Water Well Field Survey

A field water well survey and interviews were conducted by Larry Eagan during October and November 2012 to evaluate the status of wells located within a half-mile radius of the Exide Frisco Recycling Center in Frisco, Texas. The status of wells identified in a February 1, 2012 search of Texas state water well records was confirmed. In addition, a search for other wells not identified in Texas state well records was conducted by a drive-by survey and discussions with City of Frisco personnel and other persons. Well locations identified in the water well records search and field survey are presented on Figure 1.

Well location 1, located in the vicinity of the intersection at Pecan Street and John W. Elliot Dr., indicates a single well designated as owned by Frisco Concrete and as active in Texas state records. Donnie Mayfield, a current City of Frisco (the City) employee who oversaw the demolition of three home sites located in the vicinity of the well, was interviewed regarding the well on October 19, 2012. Mr. Mayfield indicated that the old Frisco Concrete cement plant was in the vicinity of the demolished home sites. Lynn Floyd, of Floyd Architectural Millwork at 8734 John W. Elliot Dr., the only current business owner and operator in the vicinity of the reported well, was interviewed on October 22, 2012. Mr. Floyd, who has operated a business at this address for 15 years, indicated that he was not aware of any active wells in the area. In addition, a walking survey performed on October 22, 2012, by Mr. Eagan did not indicate evidence of an active well in the area. As a result of this evaluation, the well is believed destroyed.

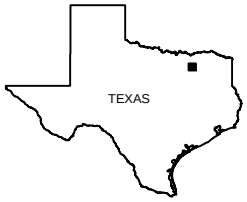
Well location number 2 is located in the vicinity of the corner of Elm and 7th Streets where the original fire station was located. Mr. Eagan met with Mr. Mayfield of the City on October 19, 2012, regarding these wells, which are all deep wells (1700-2200 ft.) and owned by the City of Frisco. Two of the wells are capped and not currently in use by the City, but could be utilized in an emergency. According to Mr. Mayfield, the other two wells have been plugged and abandoned.

Well location number 3, located at 8661 7th Street, was a suspected well location identified by a drive-by survey. A small concrete structure, possibly suggesting the presence of a well, was observed in the backyard at 8661 7th Street. The owner of the property, Janet Lovelady, was interviewed over the phone on November 7, 2012. She indicated that there is no active well currently on the property, but that there had been a well on the property in the distant past that was believed to have caved in. The water well records survey did not indicate a well at or near this location.



EXPLANATION

● 1 Approx. Potential Water Well Location



QUADRANGLE LOCATIONS

N

Scale in Feet

0 600 1200

SOURCE:
Base map from www.tnris.org, Frisco, TX 7.5 min. USGS quadrangle dated 1995.

FORMER STEWART CREEK WWTP
FRISCO, TEXAS

Figure 1

POTENTIAL WATER WELL LOCATION MAP

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

Wednesday, June 05, 2013

CLIENT
PASTOR, BEHLING and WHEELER, L.L.C.
2201 Double Creek Drive
Suite 4004
Round Rock, TX 78664

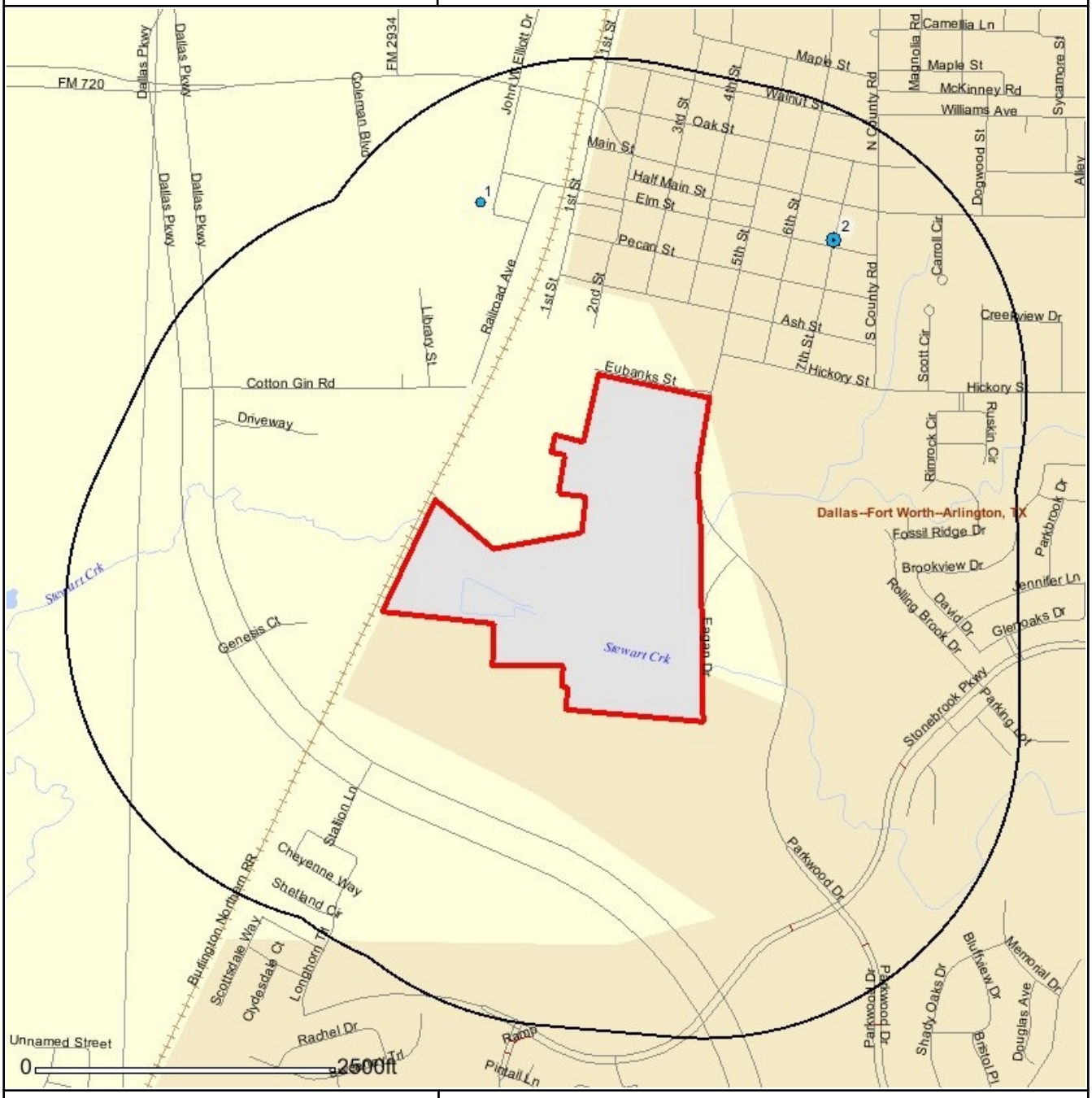
SITE
FRC
7471 5th Street
Frisco, TX
PO #: 1755
ES #: 105880
BISMap #: 060513-16060

1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512.478.0059 FAX 512.478.1433 E-mail banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

Map of Wells within 0.5 Mile(s)



- Site
- Well
- Cluster
- Limited Access Hwy
- Primary Highway
- Secondary Highway
- Roads
- Railroad
- County
- State
- Urban Area
- Water Bodies

One inch = 0.26 miles

N

FRC

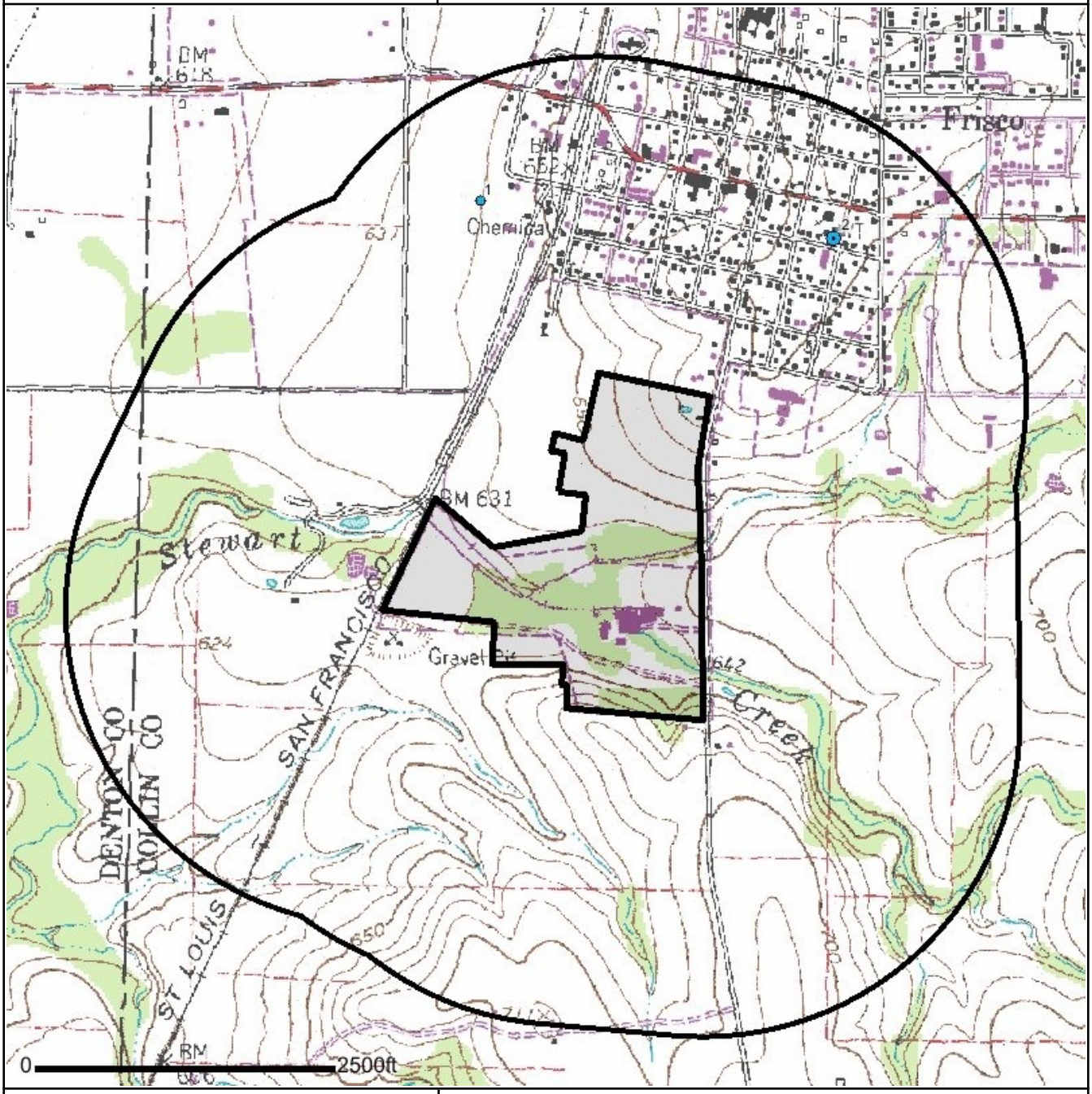
Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

on USGS Topo

Map of Wells within 0.5 Mile(s)



- ★ Subject Site
- Site
- Cluster
- Existing Road
- State Line
- County Line
- Unimproved Road

One inch = 0.26 miles

N

FRC

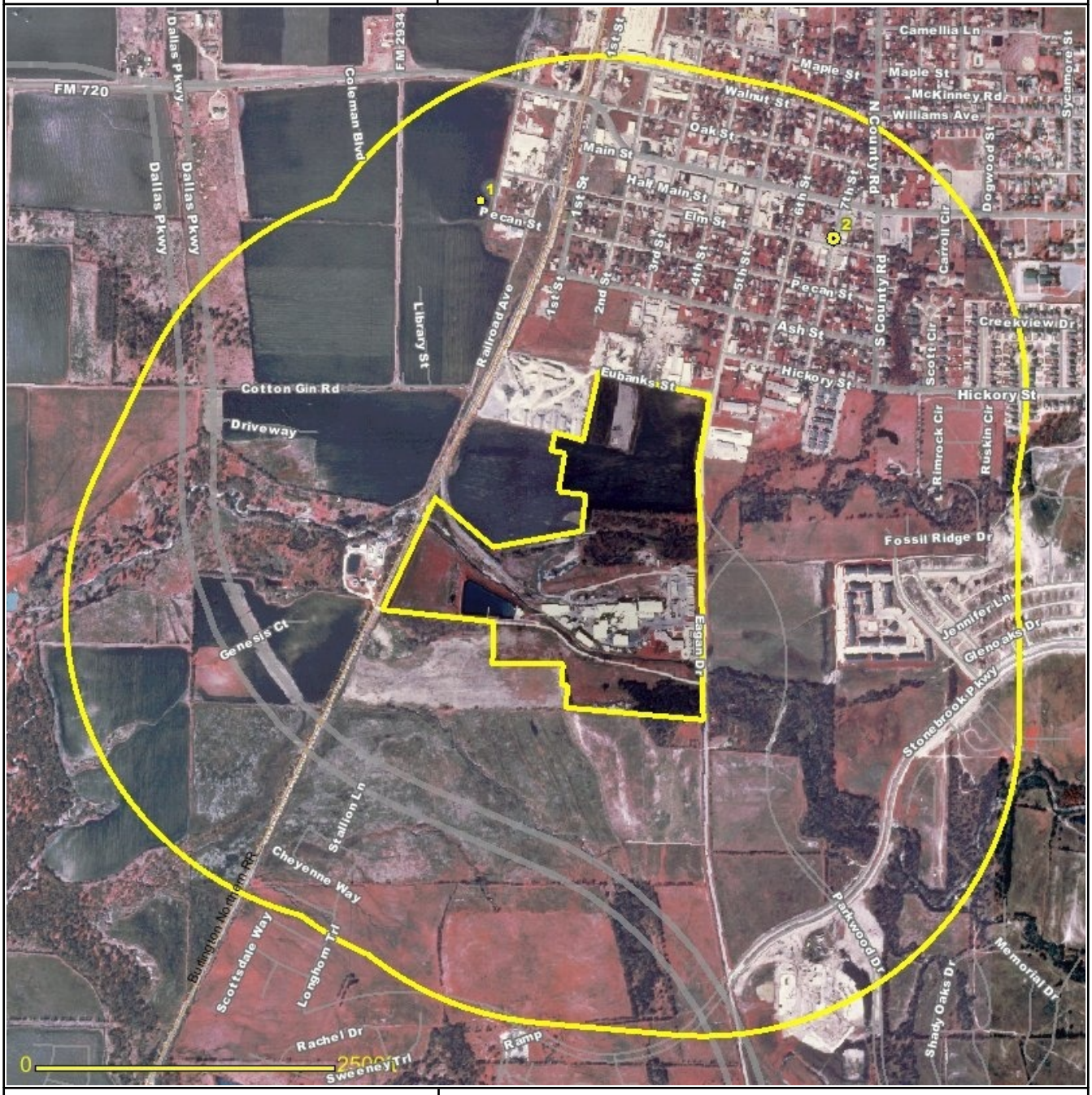
Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

on 1996 Aerial Photo

Map of Wells within 0.5 Mile(s)



- Subject Site
- Site
- Cluster
- Primary Highway
- State Line
- County Line
- Roads & Ramps
- Railroad
- Limited Access Hwy

One inch = 0.26 miles

N

FRC

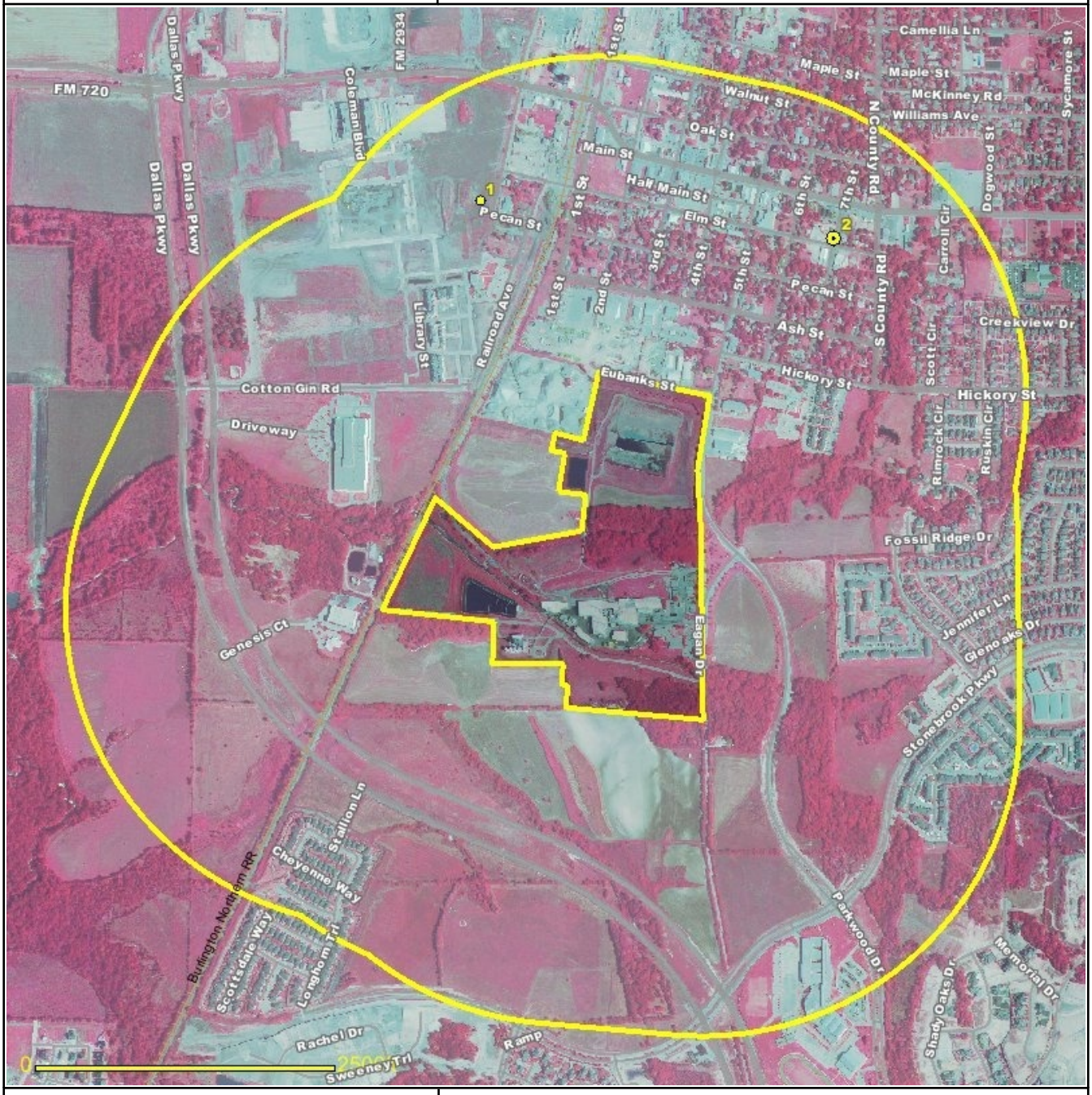
Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

on 2004 Aerial Photo

Map of Wells within 0.5 Mile(s)



Subject Site
Site
Cluster
Primary Highway
State Line
County Line
Roads & Ramps
Railroad
Limited Access Hwy

One inch = 0.26 miles

N

FRC

Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

DETAILS

Map #	Source ID	Owner of Well	Type of Well	Depth Drilled	Completion Date	Longitude	Latitude	Driller's Log
1	18-50-8C	Frisco Concrete	Domestic	620	2/14/1980	-96.83156	33.15007	View
2	18-50-803	City of Frisco Well #2	Plugged or Destroyed	2796	3/22/1950	-96.82194	33.14916	View
2	G0430005A	CITY OF FRISCO	Public Supply	2796	3/22/1950	-96.82194	33.14928	View
2	18-50-802	City of Frisco Well #1	Plugged or Destroyed	1632	1/1/1940	-96.82194	33.14944	View
2	18-50-804	City of Frisco Well No.1-A	Plugged or Destroyed	1680	1/1/1924	-96.82222	33.14944	View

1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512.478.0059 FAX 512.478.1433 E-mail banks@banksinfo.com

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

For TDWR use only
Well No. 18-50-8C
Located on map Yes
Received: C.F.S.

1) OWNER Frisco Concrete (Name) Address (Street or RFD) Frisco (City) Texas (State) 75034 (Zip)

2) LOCATION OF WELL: County Collin City Limits miles in W (N.E., S.W., etc.) direction from Frisco (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other _____

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled 2-14-80

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6 1/4	Surface	620

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from 600 ft. to 620 ft.

From (ft.)	To (ft.)	Description and color of formation material
Surface	to 4'	= Black Soil
4'	to 14'	- Clay
14'	to 580'	- Shale blue
580'	to 620'	- Sand

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4 1/2	N	Steel	0	600	9 1/

CEMENTING DATA
Cemented from 0 ft. to 600 ft.
Method used Pressure
Cemented by Boyd Drilling Co. (Company or Individual)

RECEIVED
JUL 26 1982
CR/TD

9) WATER LEVEL:
Static level 300 ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

10) PACKERS: Type Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 530 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Boyd Drilling Co. (Type or Print) Water Well Drillers Registration No. 481

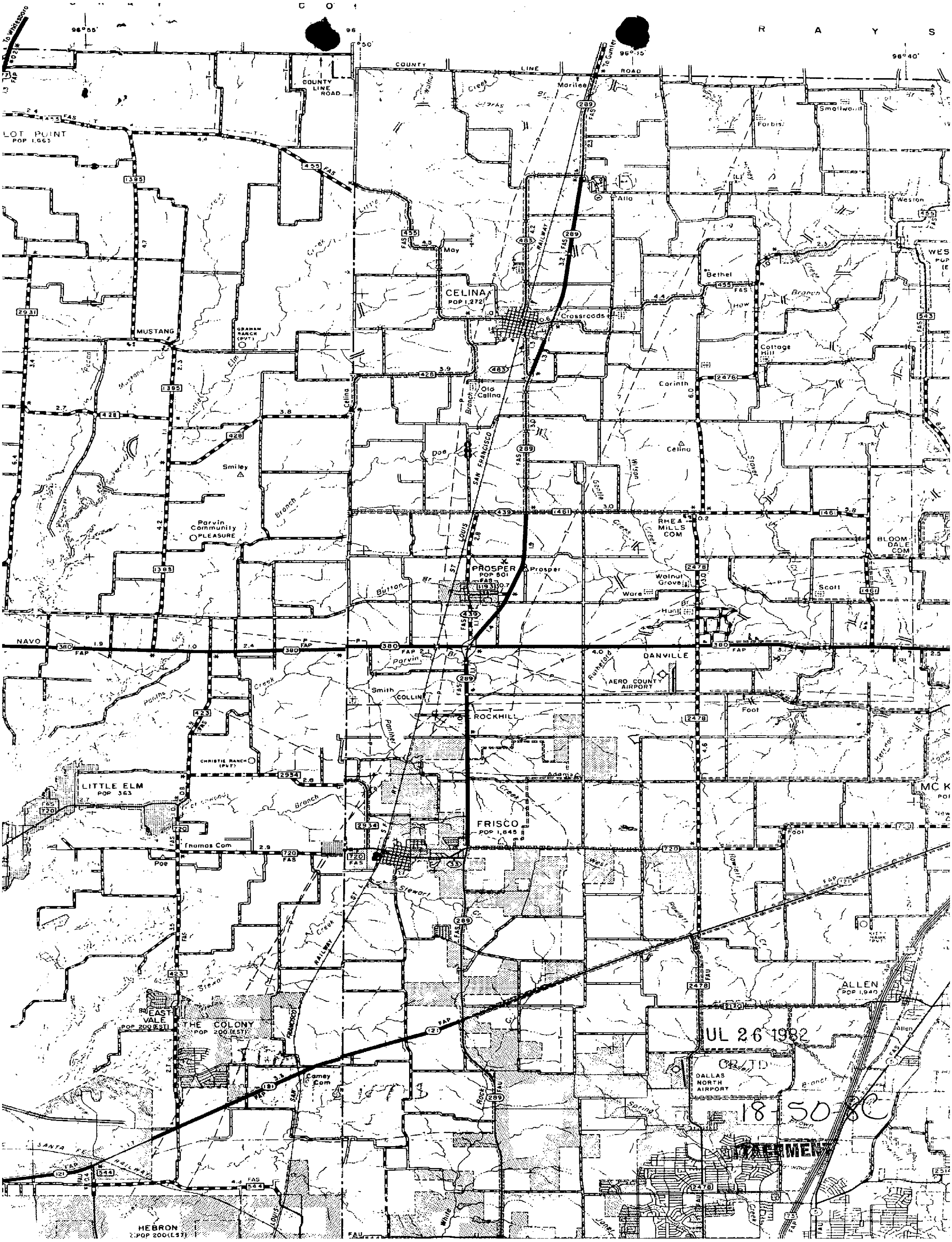
ADDRESS P. O. Box # 344 (Street or RFD) Frisco (City) Texas (State) 75034 (Zip)

(Signed) David Boyd (Water Well Driller) Boyd Drilling Co. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 1-12-79)

DEPARTMENT OF WATER RESOURCES COPY



COUNTY LINE ROAD
Marilee
Smallwood
Forbis
LOT POINT
POP 1,663
Aila
Weston
May
CELINA
POP 1,272
Crossroads
Bethel
Cottage Hill
MUSTANG
GRAHAM RANCH (PVT)
Old Celina
Corinth
Celina
Poe
SAN FRANCISCO
Smiley
Parvin Community
PLEASURE
RHEA MILLS COM
BLOOMDALE COM
PROSPER
POP 501
Prosper
Walnut Grove
Ware
Scott
NAVO
DANVILLE
AERO COUNTRY AIRPORT
Smith
COLLIN
ROCKHILL
Foot
CHRISTIE RANCH (PVT)
LITTLE ELM
POP 363
FRISCO
POP 1,845
Thomas Com
MC K
ALLEN
POP 1,940
EAST VALE
POP 200 (EST)
THE COLONY
POP 200 (EST)
Carney Com
DALLAS NORTH AIRPORT
HEBRON
POP 200 (EST)
JUL 26 1982
18-50-8C

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer PALUXY and TWIN MOUNTAINS

Field No. _____ State Well No. 18-50-803

Owner's Well No. 2 County COLLIN

1. Location: ___ 1/4, ___ 1/4 Sec. ____, Block _____ Survey _____

2. Owner: CITY OF FRISCO Address: _____

Tenant: _____ Address: _____

Driller: J.L. MYERS SONS Address: _____

3. Elevation of L.S is 705 ft. above msl, determined by TOPO

4. Drilled: 3-22 19 50; Dug, Cable Tool, (Rotary)

5. Depth: Rept. 2796 ft. Meas. _____ ft.

6. Completion: Open Hole, (Straight Wall), Underreamed, Gravel Packed _____

7. Pump: Mfgr. JOHNSTON Type TURBINE

No. Stages ____, Bowls Diam. ___ in., Setting 630 ft (8-13-74)

Column Diam. 5 in., Length Tailpipe _____ ft.

8. Motor: Fuel ELEC Make & Model U.S. MOTORS HP. 50

9. Yield: Flow ___ gpm, Pump 200 gpm, (Meas.) Rept., Est. 8-21-73

10. Performance Test: Date _____ Length of Test ____ Made by _____

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production _____ gpm Specific Capacity _____ gpm/ft.

11. Water Level (P.L.) 246 ft. (rept) meas. 3 19 50 above below which is ____ ft. above below surface.

_____ ft. rept. meas. _____ 19 __ above below which is ____ ft. above below surface.

_____ ft. rept. meas. _____ 19 __ above below which is ____ ft. above below surface.

_____ ft. rept. meas. _____ 19 __ above below which is ____ ft. above below surface.

12. Use: Dom., Stock, (Public Supply) Ind., Irr., Waterflooding, Observation, Not Used, _____

13. Quality: (Remarks on taste, odor, color, etc.) _____

K, Pum: Temp. — °F, Date sampled for analysis 4-51 Laboratory TSDH

Temp. 104 °F, Date sampled for analysis 3-18-76 Laboratory TSDH

Temp. ___ °F, Date sampled for analysis _____ Laboratory _____

14. Other data available as circled: (Driller's Log) Radioactivity Log, (Electric Log),

Formation Samples, Pumping Test, _____

15. Record by: RNORDSTROM Date 3-15 1976

Source of Data J.L. MYERS CO., CITY, OBS.

16. Remarks: _____

no gauge on airline

CASING & BLANK PIPE

Cemented From 0 ft. to 1440 ft.

Diam. (in.)	Type	Setting, ft. from	to
8	STEEL	0	696
7	"	696	1440
5	LINER	1360	2796

WELL SCREEN

Screen Openings _____

Diam. (in.)	Type	Setting, ft. from	to
5	Perf.	opposite all water bearing sands	

Pump set at: 630'

E-log

see-802

(Sketch)

TWDBE-WD-2

18-50-803

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer PALUXY and TWIN MOUNTAINS Field No. _____ State Well No. 18-50-803

Owner's Well No. 2 County COLLIN

1. Location: ___ 1/4, ___ 1/4 Sec. _____, Block _____ Survey _____

2. Owner: CITY OF FRISCO Address: _____

Tenant: _____ Address: _____

Driller: J.L. MYERS SONS Address: _____

3. Elevation of L.S. is 705 ft. above msl, determined by TOPO

4. Drilled: 3-22 19 50; Dug, Cable Tool, (Rotary)

5. Depth: Rept. 2796 ft. Meas. _____ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfgr. JOHNSTON Type TURBINE

No. Stages ___, Bowls Diam. ___ in., Setting 630 ft (8-13-74)

Column Diam. 5 in., Length Tailpipe _____ ft.

8. Motor: Fuel ELEC. Make & Model U.S. MOTORS HP. 50

9. Yield: Flow ___ gpm, Pump 200 gpm, (Meas.) Rept., Est. 8-21-73

10. Performance Test: Date _____ Length of Test ___ Made by _____

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production _____ gpm Specific Capacity _____ gpm/ft.

11. Water Level (P.L.) 246 ft. (rept.) meas. 3 19 50 above below _____ which is ___ ft. above below surface.

_____ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below surface.

_____ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below surface.

_____ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below surface.

12. Use: Dom., Stock, (Public Supply) Ind., Irr., Waterflooding, Observation, Not Used, _____

13. Quality: (Remarks on taste, odor, color, etc.) _____

K. Plus — Temp. — °F, Date sampled for analysis 4-51 Laboratory TSDH

Temp. 104 °F, Date sampled for analysis 3-18-76 Laboratory TSDH

Temp. ___ °F, Date sampled for analysis _____ Laboratory _____

14. Other data available as circled: (Driller's Log) Radioactivity Log, (Electric Log),

Formation Samples, Pumping Test, _____

15. Record by: R NORDSTROM Date 3-18 1976

Source of Data J.L. MYERS CO., CITY, ABS

16. Remarks: no gauge on airline

CASING & BLANK PIPE

Cemented From 0 ft. to 1440 ft.

Diam. (in.)	Type	Setting, ft. from	to
8	STEEL	0	696
7	"	696	1440
5	LINER	1360	2796

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
5	Perf.	opposite all water bearing sands	

E-log

see-802

(Sketch)

TWDBE-WD-2

18-50-803

Depth	Thickness	Formation
38	38	Austin chalk
525	487	Eagle Ford
880	355	Woodbine
1330	450	Shale and lime
1360	30	Kiamichi Shale
1420	60	Goodland lime
1430	10	Walnut shale
1632	202	Paluxy
1833	201	Lime and shale
1923	90	Glen Rose sand and lime
2378	455	Lime and shale
2388	10	Sand
2391	3	Rock
2420	29	Sand
2426	6	Shale
2470	44	Sand
2560	90	Sandy lime and shale
2637	77	Sand
2796	159	Lime

m GW-1

TEXAS BOARD OF WATER ENGINEERS

GROUND-WATER DIVISION

WELL SCHEDULE

Date 6-23, 1960 Field No. _____

Record by RWH Office No. DT1850803

Source of data Owner + Jeff Black & 1957 Travis Pk. Rept + Sand

1. Location: County Collin

Map By Fire Station

Survey (Black. south of water tower)

2. Owner: City of Frisco #2 Address _____

Tenant _____ Address _____

Driller J.L. Myers Sons Address _____

3. Topography: _____

4. Elevation: 695± ft. (above) below MSL

5. Type: Dug, (drilled), driven, bored, jetted ____ 1950

6. Depth: Rept. ~~2660~~ 2796 ft. Meas. _____ ft.

7. Casing: Diam. 7 in., to 5 in. Type ~~cemented~~

Depth _____ ft., Finish _____

8. Chief Aquifer: K Trinity (Ktp) From _____ ft. to _____ ft.

Others _____

9. Water level: 143 ft. (rept) meas. Spring 1961 above LSD

WTM AIRLINE MEASURE Thick is _____ ft. (above) below surface

10. Pump: Type T Capacity _____ gpm _____

Power: Kind E Horsepower 50

11. Yield: Flow _____ gpm, Pump 175 gpm, Meas., (Rept) Est. _____

PL

Drawdown 407 ft. after 3 hours pumping ? gpm 10/23/56

12. Use: Dom., Stock, (PS), RR., Ind., Obs. Irr. _____

Adequacy, permanence _____

13. Quality: _____

Temp. _____ °F _____ Sample (Yes) No 51

14. Log: (Yes) No J.L. Myers _____

15. Remarks: P.S. @ 550 gpm 1956

well #65 in Sands 1957 Travis Pk. Rep.

_____

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDBE-GW ONLY
Program No. 6072
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

Send report to:

Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County DT Collin
State Well No. 18-50-803
Well No. 2
Date Collected 03-18-76
By A L. NORDSTROM

Location at Fire Station
Source (type of well) Turb-Elec. 50 HP Owner City of Frisco, Box 177, Frisco 75034
Date Drilled 3-22-50 Depth 2796 ft. WBF KCPA - KCTM
Producing intervals 1440-2796 Water level _____ ft.
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature 104 °F ___ °C
Point of collection faucet on well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P.S. Remarks Send copy to owner

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. 308656
Date Received MAR 22 1976
Date Reported APR 12 1976

	MG/L	ME/L
Silica	18	
Calcium	3	0.15
Magnesium	<1	—
Sodium	302	13.14
Total		13.29
☐ Potassium		
☐ Manganese		
☐ Boron		
3/ ☐ Total Iron		
☐ (other) _____		

%Na _____
SAR _____
RSC _____

	MG/L	ME/L
Carbonate	7	0.24
Bicarbonate (186)	378	6.20
Sulfate	79	1.65
Chloride	192	5.40
Fluoride	0.5	
Nitrate	<0.4	
pH	8.6	
Total		13.49

Specific Conductance (micromhos/cm3)	1350
Diluted Conductance (micromhos/cm3)	11 x 135 = 1485
1/ Dissolved Solids (sum in MG/L)	790
Phenolphthalein Alkalinity as C aCO3	0.12 → 6
Total Alkalinity as C aCO3	6.44 → 322
Total Hardness as C aCO3	0.15 → 8

" ☐ " items will be analyzed if checked.

2/ Nitrogen Cycle

Ammonia - N	
Nitrite - N	
Nitrate - N	
Organic Nitrogen	

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

TWDBE-WD-1 (Rev. 1-25-72)

Analyst _____ Checked By _____

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TDWR ONLY
Program No. _____ Lab No. 03
Work No. _____

CHEMICAL WATER ANALYSIS REPORT

Send report to:
Ground Water Division
Texas Department of Water Resources
P.O. Box 13087
Austin, Texas 78711

County 043 Collin
State Well No. 18-50-803
Well No. _____
Date Collected 04-01-51

Location _____ Sample No. _____ By _____
Source (type of well) T, E SO MP Owner City of Frisco
Date Drilled 1950 Depth 2796 ft. WBF KCPA-KCTM
Producing intervals _____ Water level _____ ft. Sample depth _____ ft.
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature _____ °F _____ °C
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use QS, Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L	ME/L
Silica	20	
Calcium	6	
Magnesium	1	
Sodium	314	
Total		
☐ Potassium		
☐ Manganese		
☐ Boron		
3/ ☒ Total Iron	0.1	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm³)		
Diluted Conductance (micromhos/cm³)	_____ x	

%Na _____
SAR _____
RSC _____

" ☐ " items will be analyzed if checked.

	MG/L	ME/L
Carbonate		
Bicarbonate	415	
Sulfate	98	
Chloride	188	
Fluoride	2	
Nitrate	4	
pH	8.4	
Total		
1/ Dissolved Solids (sum in MG/L)	832	
Phenolphthalein Alkalinity as C aCO_3		
Total Alkalinity as C aCO_3	335	
Total Hardness as C aCO_3	19	
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

Analyst _____ Checked By _____

TDWR-0148

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TDWR ONLY
Program No. _____ Lab No. 03
Work No. _____

CHEMICAL WATER ANALYSIS REPORT

Send report to:
Ground Water Division
Texas Department of Water Resources
P.O. Box 13087
Austin, Texas 78711

County 043 Collin
State Well No. 18-50-803
Well No. _____
Date Collected 08-09-66

Location _____ Sample No. _____ By _____
Source (type of well) _____ Owner FRISCO
Date Drilled 3-50 Depth 2796 ft. WBF KCPA-KGTM
Producing intervals _____ Water level _____ ft. Sample depth _____ ft.
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature _____ °F _____ °C
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L	ME/L
Silica		
Calcium	3	
Magnesium	0	
Sodium	310	
Total		
☐ Potassium		
☐ Manganese		
☐ Boron		
3/ Total Iron	0.14	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm³)	1544	
Diluted Conductance (micromhos/cm³)	_____ x	

%Na _____
SAR _____
RSC _____

	MG/L	ME/L
Carbonate	7	
Bicarbonate	383	
Sulfate	87	
Chloride	200	
Fluoride	0.6	
Nitrate	< 0.4	
pH	8.5	
Total		
1/ Dissolved Solids (sum in MG/L)	796	
Phenolphthalein Alkalinity as C aCO_3	6	
Total Alkalinity as C aCO_3	326	
Total Hardness as C aCO_3	8	
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

" ☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires seperate sample.

Analyst _____ Checked By _____

TDWR-0148

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDB ONLY
Organization No. 422 Lab No. [redacted]
Work No. 6042 (IAC (86-87)-1585)

CHEMICAL WATER ANALYSIS REPORT

Send Reply To:
Water Availability Data and Studies Section
Texas Water Development Board
Stephen F. Austin Building
1700 Congress Ave.
Austin, Texas 78711
Attn: Robert R. Flores Rm. 304-G

County COLLIN
State Well No. 18-50-803
Well No.
Date Collected 07-28-87

Owner City of Frisco ☐ Send copy to owner Sample No. 1 By RRF
Address P.O. Box 177, Frisco, TX 75034 Well Location
Date Drilled Depth ft. WBF Source (type of well)
Producing intervals Water level ft. Sample depth ft.
Sampled after pumping hrs. Yield GPM mass. est. Temperature °F °C
Point of collection Appearance ☑ clear ☐ turbid ☐ colored ☐ other
Use Remarks

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

Laboratory No. [redacted] Date Received AUG 03 '87 Date Reported AUG 24 '87

WATER ANALYSIS
State Well No:18-50-8 Date:081987 Sample No:FB7-1956

	MG/L	ME/L		MG/L	ME/L
Silica:00955:	13		Carbonate:00445:	6	.20
Calcium:00915:	1	.07	Bicarbonate:00440:	555	9.10
Magnesium:00925:	<1	.05	Sulfate:00946:	189	3.94
Sodium:00930:	359	15.61	Chloride:00940:	78	2.20
Potassium:00935:	1	.03	Fluoride:00950:	2.4	.13
T.Cations		15.75	Nitrate as NO3:71851:	<0.04	0
Manganese:01055:		%Na	T. Anions		15.56
			pH:00403:	8.5	
Boron:01020:		SAR			
			TDS(Calc):70301:	923	
Total Iron:01045:		RSC	P. Alk.:00415:	5	
Other			T. Alk.:00410:	465	
(Specific Cond.:00025:		1200	T. Hardness:00900:	6	

Diluted Conductance (micromhos/cm3)
11 x151 =1661
__ items will be analyzed if checked.

Ammonia-N:00610:
Nitrite-N:00615:
Nitrate-N:00620:
OrganicNitrogen:00605:

TWDB-0811 (Rev.02-27-86)

TEXAS WATER DEVELOPMENT BOARD — WATER LEVEL MEASUREMENTS

AS OF

☐ Normal
☐ Publ.
☐ USGS

OLD WELL NUMBER

WELL LOCATION: LAT.
LONG.

YR. REC. BEGINS

LAST CHEMICAL ANALYSIS

STATE WELL NUMBER
DEPTH OF WELL

LAND SURFACE DATUM ELEVATION
COMPLETION INTERVAL

DATE OF CURRENT MEASUREMENT MO.	DAY	YR.	CURRENT DEPTH TO WATER FROM LAND SURFACE	CHANGE IN LEVEL SINCE LAST STATIC MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	ELEVATION OF DEPTH TO WATER FROM MEAN SEA LEVEL	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
10	12	93	-488.15					01	3		P	pump set at 630 ft.
2	8	95	-442					01	3		U	
11	07	96	444.8					01	1	43	U	
11	17	97	444.7			446.50		01	1	20	U	Very Spotty
11	10	98	451.0			452.80		01	1	20	U	FROM THE TOP VERY SPOTTY
11	9	99	452.5			454.3		01	1	20	U	
11	14	00	461.85					01	1	20	U	
12	14	01										
11	08	02	—		CH	—		01	1	40	U	

AQUIFER Trinity Travis Peak + Paluxy Sand

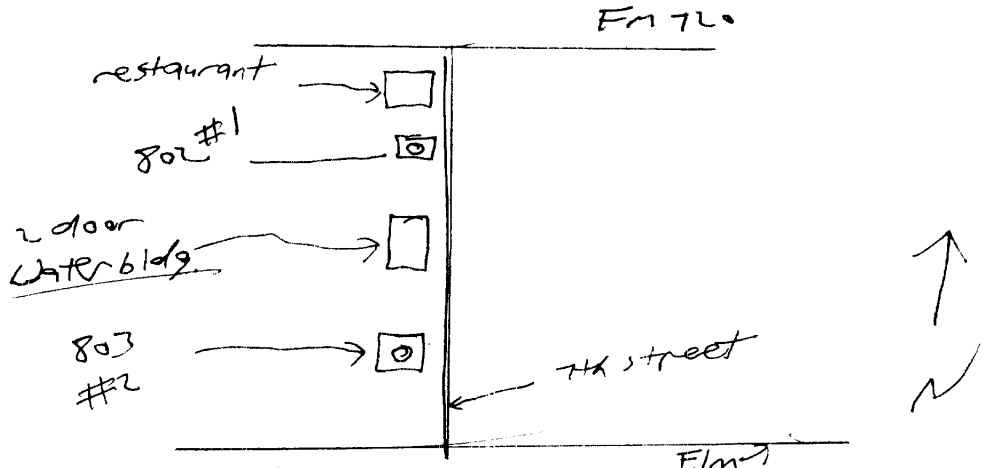
WATERSHED

COUNTY Collin

WELL CLASS AND NUMBER 18-50-803

MEASURING POINT (MP) 1.8

TWDB-0518



see 18-50-802
sketch ~~for location~~
~~to get key if locked~~

don't need to measure in ~~1993~~.
11/93 - 4/94. E.W.

18-50-803

06/05/2013 9:28:18AM

Texas Commission on Environmental Quality

Water System Data Sheet

WSDSR

PWS ID	PWS Name	Central Registry RN
0430005	**CITY OF FRISCO** Superior	**RN101420602**

Organization/Customer *	Central Registry CN
CITY OF FRISCO	**CN600245526**

* Regulatory mail will be addressed to this organization / person

Responsible Official **	Title
MAHER MASO	**MAYOR**

License Type	License Number

Mailing Address:

Street Address	C/O or Address Line 2
6101 FRISCO SQUARE BLVD	

City	State	Zip
FRISCO	**TX**	**75034 - 3253**

Business Phone	Other Phone	Other Phone Type	Email
(972) 292-5100 Ext.	**(972) 335-5505 Ext.** **(972) 292-5050 Ext.**	**CELLULAR**	**MMASO@FRISCOTEXAS.GOV**

** Regulatory mail will be addressed to this person

PWS Contact - If different than above ***	Title
GARY HARTWELL	**MICROBIAL CONTACT**

License Type	License Number

Mailing Address for PWS Primary Contact:

Street Address	C/O or Address Line 2
11300 RESEARCH RD	

City	State	Zip
FRISCO	**TX**	**75034 - 2047**

Business Phone	Other Phone	Other Phone Type	Email
(972) 292-5800 Ext.			**ghartwell@friscotexas.gov**

*** Copies of most regulatory mail will be addressed to this person

Emergency Contact Name ****	Emergency Phone	Emergency Email
KEVIN GRANT	**(469) 853-4659 Ext.**	**KGRANT@FRISCOTEXAS.GOV**

License Type	License Number

**** This contact information will be used only in the event of an emergency

Owner Type	Owner Type Options: AFFECTED COUNTIES, COUNTY, DISTRICT/AUTHORITY, EXEMPT, FEDERAL GOVERNMENT, INVESTOR, MUNICIPALITY, NATIVE AMERICAN, PRIVATE, SUBMETER \ ALLOCATION, STATE GOVERNMENT, NOT RETAIL PUBLIC UTILITIES, WATER SUPPLY CORPORATION, MISC/UNKNOWN
MUNICIPALITY	

System Type	System Type Options: SB 361, COMMUNITY, COMMUNITY (NON-GOVERNMENT OWNED), TRANSIENT/NON-COMMUNITY, NON-PUBLIC, NON-TRANSIENT/NON-COMMUNITY
COMMUNITY	

Customer Class	Customer Category	Population Served	# of Connect	# of Meters	# I/C w/other PWS
RESIDENTIAL	**RESIDENTIAL AREA**	**116,989**	**46,984**	**36,329**	**1**

Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux.Prod.Cap. Max.Pur.Cap.(MGD)	Pressure Tank Cap.(MG)
0.000	**20.316**	**36.250**	**10.250**	**64.152**	**60.531**	**0.00000**

Activity Status	Deactivation Date	Reason
ACTIVE		

Operator Grade	Number
WATER GRADE B DISTRIBUTION	**4**
WATER GRADE B SURFACE	**1**
WATER GRADE C DISTRIBUTION	**15**
WATER GRADE C GROUND	**1**
WATER GRADE D	**1**

Last Survey Date	Surveyor	Survey Type	Code	Region	County	Def.Score
04/28/2011	**IMRAN KHAWAJA**	**SURVEY**		**4**	**COLLIN**	**0**
02/28/2008	**IMRAN KHAWAJA**	**SURVEY**		**4**	**COLLIN**	**0**
11/30/2005	**IMRAN KHAWAJA**	**SURVEY**		**4**	**COLLIN**	**7**

(Entry Point)							
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	Chemical Mon Type	Chem Sample Point	Distribution Mon Type	Dist Sample Point
001	**SAMPLE TAP / LAKE LAVON(A)**	**EAST PS - 3 MASTER METERS(A)**	**20902**		**No**		**No**

(Active Sources)						
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
P0430005A	**SW FROM NTMWD(A)**	**O**	**S**	**0**	**0**	**0**

Water Body	Segment Number	Surface Water Intake Type
	()	

GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller
Not Available	**Not Available**	**Not Available**	**Not Available**	**Not Available**	**0430044**

(Inactive/Offline Sources)			
SourceNumber	Name	Status	Depth
G0430005B	**HWY 289 / LOOP 33**	**N**	**2742**
G0430005D	**LEBANON**	**N**	**1800**
G0430005A	**PS 1 - 7TH / ELM**	**N**	**2796**
G0430005C	**STONEBRIAR**	**N**	**2670**

Code Explanations
Monitoring Type Codes: (GW) GROUNDWATER , (GWP) GROUNDWATER - PURCHASED , (GUP) GROUNDWATER UNDER THE INFLUENCE - PURCHASED , (SWP) SURFACE WATER - PURCHASED , (GU) GROUNDWATER UNDER THE INFLUENCE OF SURFACE WATER , (N) NO SOURCES , (SW) SURFACE WATER
Activity Status Codes: (A) ACTIVE , (C) CCN CANCELLED , (D) DELETED/DISSOLVED , (G) SB 361 , (I) INACTIVE , (M) MERGED/ANNEXED , (N) NON-PUBLIC , (P) PROPOSED , (U) UNKNOWN-NO ACTIVITY OR NON-RESPONSIVE , (W) UTILITY WATER SYS XFER
Operational Status Codes: (C) CAPPED , (D) DEMAND , (E) EMERGENCY , (F) FORMER PWS SOURCE , (I) INACTIVE PWS SYSTEM , (N) NON-DRINKING WATER , (O) OPERATING , (P) PLUGGED , (T) TEST , (Y) PWS NOT ACTIVE AND NOT EXPECTED TO BE SO
Source Types: (G) GROUND WATER , (S) SURFACE WATER , (U) GROUND WATER UNDER THE INFLUENCE

- End of Report -

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Paluxy Field No. State Well No. 18-50-802

Owner's Well No. 1 County COLLIN

1. Location: 1/4, 1/4 Sec., Block, Survey
N of fire Sta. NE of water tank
2. Owner: CITY OF FRISCO Address: P.O. Box 177, FRISCO 75034
Tenant: Address:
Driller: MYERS Address:
3. Elevation of 65 is 705 ft. above msl, determined by TOPO
4. Drilled: ± 19 40; Dug, Cable Tool, Rotary,
5. Depth: Rept. 1632 ft. Meas. ft.
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed
7. Pump: Mfgr. Red Jacket Type Sub
No. Stages, Bowls Diam. in., Setting 605 ft.
Column Diam. in., Length Tailpipe ft.
8. Motor: Fuel ELEC Make & Model HP. 25
9. Yield: Flow gpm, Pump 121 gpm (Meas.) Rept., Est. 8-21-73
10. Performance Test: Date Length of Test Made by
Static Level ft. Pumping Level ft. Drawdown ft.
Production gpm Specific Capacity gpm/ft.
11. Water Level: 443 ft. (meas.) rept. 11-6 1973 (above) below airline which is ft. above below surface.
440 ft. meas. (rept.) 11-5 1974 above (below) " which is ft. above below surface.
402.0 ft. meas. (rept.) 3-18 1976 above (below) " which is ft. above below surface.
405 ft. meas. (rept.) 8-21 1973 above (below) " (Myers Co.) which is ft. above below surface.
12. Use: Dom., Stock, (Public Supply), Ind., Irr., Waterflooding, (Observation), Not Used,
13. Quality: (Remarks on taste, odor, color, etc.) 2-17-43
Temp. — °F, Date sampled for analysis 4-51 Laboratory TSDH
Temp. — °F, Date sampled for analysis 6-6-59 Laboratory "
Fe Temp. 84 °F, Date sampled for analysis 3-18-76 Laboratory "
14. Other data available as circled: (Driller's Log), Radioactivity Log, Electric Log, Austin 3-18-76
Formation Samples, Pumping Test,
15. Record by: John Derton PANOROSTON Date 11-6 1973
Source of Data CITY OBS
16. Remarks: airline set at 607 ft.

CASING & BLANK PIPE

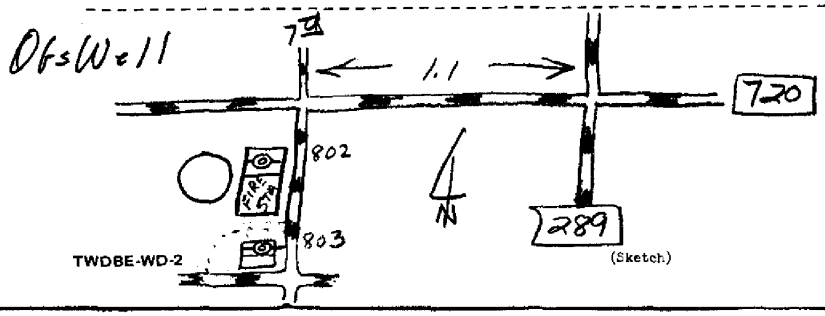
Cemented From ft. to ft.

Diam. (in.)	Type	Setting, ft. from	to
8 5/8	steel	0	696
7	"	696	1440
5	strainer	1428	1632

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to
5	perf	1440	1632



TWDBE-WD-2

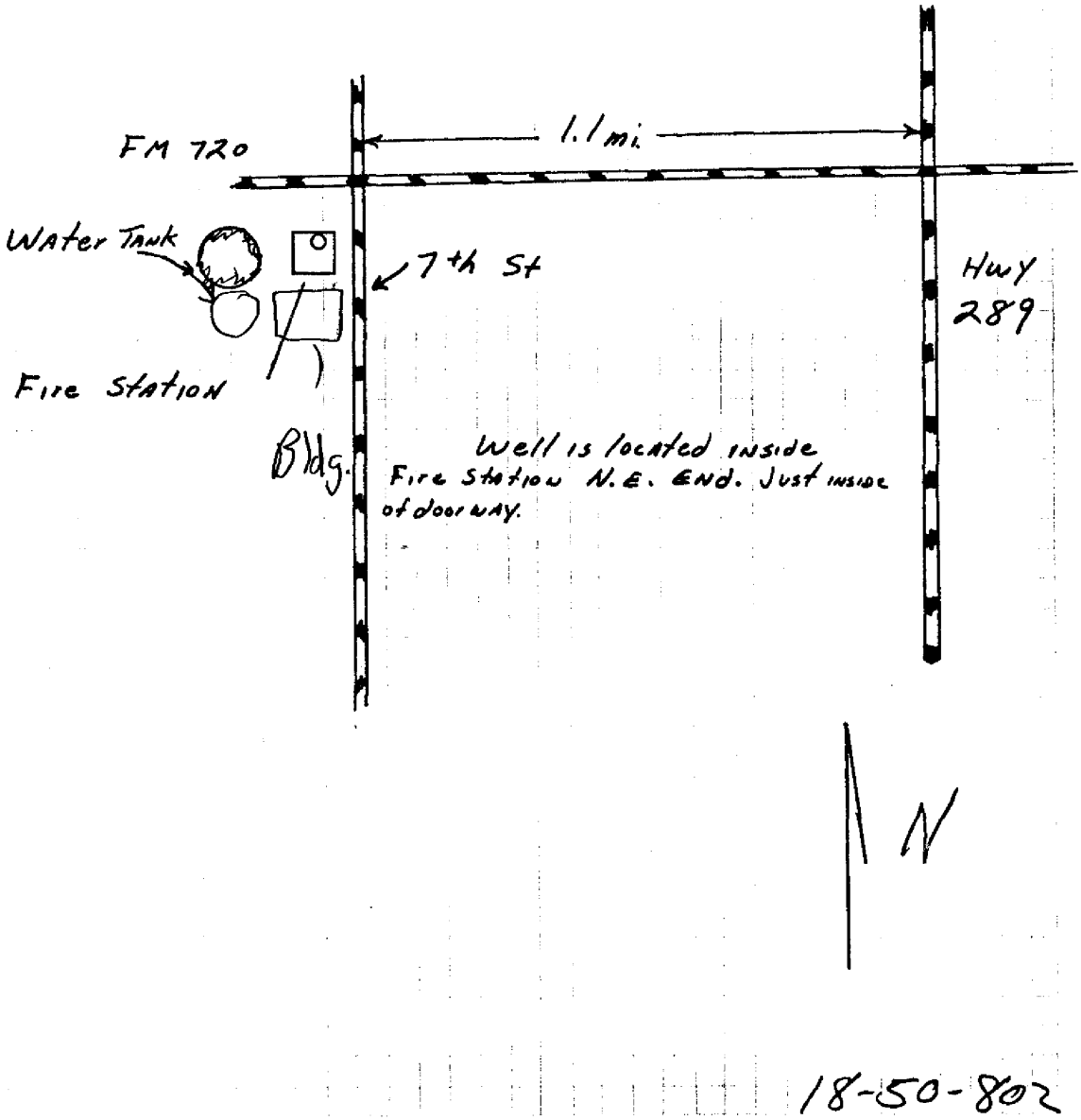
obs
18-50-802

TEXAS WATER DEVELOPMENT BOARD

BY_____ DATE_____ DIVISION _____ SHEET NO._____ OF____

CHKD_____ DATE_____ JOB NAME _____

18-50-802 JOB NO._____ PROG. CODE_____



18-50-802

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(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDBE-GW ONLY
Program No. 6072
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

County COLLIN
State Well No. 18-50-802
Well No. 1
Date Collected 03-18-76
By R.E. NORDSTROM

Send report to:
Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

Location at Firestation
Source (type of well) Sub Elec 25 HP Owner CITY OF FRISCO, P.O.BOX 177, FRISCO 75034
Date Drilled 1940 Depth 1632 ft. WBF PALUXY
Producing intervals UNKN Water level (205' on airline)
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature 084 °F °C
Point of collection hydrant off well pipe Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P.S. Remarks Send copy to Owner

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS MAR 29 1976 KEY PUNCHED

Laboratory No. 318648 Date Received _____ Date Reported APR 12 1976

	MG/L	ME/L
Silica	16	
Calcium	2	0.09
Magnesium	<1	—
Sodium	262	11.38
Total		11.47
☐ Potassium		
☐ Manganese		
☐ Boron		
3/ ☒ Total Iron	0.1	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm3)	1057	
Diluted Conductance (micromhos/cm3)	9 x 130 = 1170	

%Na _____
SAR _____
RSC _____

" ☐ " items will be analyzed if checked.

	MG/L	ME/L
Carbonate 261	17	0.56
Bicarbonate	530	8.70
Sulfate	90	1.87
Chloride	19	0.54
Fluoride	1.1	
Nitrate	<0.4	
pH	8.7	Total 11.73
1/ Dissolved Solids (sum in MG/L)		670
Phenolphthalein Alkalinity as C aCO3	0.28	14
Total Alkalinity as C aCO3	9.32	466
Total Hardness as C aCO3	0.09	5
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

TWDBE-WD-1 (Rev. 1-25-72)

Analyst _____ Checked By _____

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDB USE ONLY
Program No. _____
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

County Collin
State Well No. 18-50-802
Well No. 1
Date Collected 04-01-51
By CITY

Send report to:
Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

Location _____
Source (type of well) S, E 25 Owner FRISCO
Date Drilled ± 1940 Depth 1632 ft. WBF PALUXY
Producing intervals _____ Water level _____ ft.
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature _____ °F _____ °C
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P.S. Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L	ME/L
Silica	19	
Calcium	8	
Magnesium	2	
Sodium	290	
Total		
☐ Potassium		
☐ Manganese		
☐ Boron		
3/ ☒ Total Iron	1.4	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm3)		
Diluted Conductance (micromhos/cm3)	X	

%Na _____
SAR _____
RSC _____

	MG/L	ME/L
Carbonate	259	
Bicarbonate	527	
Sulfate	95	
Chloride	110	
Fluoride	.7	
Nitrate	<.4	
pH	8.4	
Total		
1/ Dissolved Solids (sum in MG/L)		775
Phenolphthalein Alkalinity as $CaCO_3$		
Total Alkalinity as $CaCO_3$		405
Total Hardness as $CaCO_3$		28
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

" ☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

TWDBS-SI-27

Analyst _____ Checked By _____

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

Texas State Department of Health Laboratories
1100 West 49th Street
Austin, Texas 78756

TWDB USE ONLY
Program No. _____
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

0143 DT County: Collin

Send report to:
Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

State Well No. 18-50-802
Well No. 1
Date Collected 06-06-59
By CITY

Location at Fire Sta
Source (type of well) _____ Owner FRISCO
Date Drilled ±'40 Depth 1632 ft. WBF Paluxy
Producing intervals _____ Water level _____ ft.
Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature _____ °F _____ °C
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P. S. Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L	ME/L
Silica		
Calcium	2	.10
Magnesium	1	.08
Sodium	263	11.44
Total		11.62
☐ Potassium	•	
☐ Manganese	•	
☐ Boron	•	
3/ ☒ Total Iron	0.1	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm3)	1260	
Diluted Conductance (micromhos/cm3)	x	

%Na _____
SAR _____
RSC _____

	MG/L	ME/L
Carbonate		•
Bicarbonate		•
Sulfate	104	2.17
Chloride	22	.62
Fluoride	1.1	.06
Nitrate	.4	/
pH	8.6	Total •
1/ Dissolved Solids (sum in MG/L)		756
Phenolphthalein Alkalinity as C aCO_3		
Total Alkalinity as C aCO_3		462
Total Hardness as C aCO_3		5

2/ Nitrogen Cycle

	ME/L
Ammonia - N	•
Nitrite - N	•
Nitrate - N	•
Organic Nitrogen	•

"☐" items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

TWDBS-SI-27

Analyst _____ Checked By _____

DT1850802

(July 1948) UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

ANALYTICAL STATEMENT

[Parts per million] Collin County 1943

Location Frisco, Texas
Source well 1,680 ft. deep;
pumping 6 to 8 hours at 75 GPM;
Well #1
send analysis to
Jeff Black
Box 132, Frisco
Paluxy

Use Public supply
Color
Suspended matter
Hardness (calc.) 8
Ignition loss 15
Total dissolved solids 690
K × 10³ at 25°C.
pH 8.2

Chemist J. H. Rowley 3/30/43
W. R. Lab. No. 3096
Collector P. F. Livingston

KEY PUNCHED

Date Feb. 17
SiO_2 13
Fe 0.03
Ca 2.3
Mg 0.6
Na 272 calc
K 3.2
CO_3 52
HCO_3 470 576
SO_4 96
Cl 19
F 0.9
NO_3 2.5

Sum 693

16-81877

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer PALUXY Field No. _____ State Well No. 18-50-802

Owner's Well No. _____ County COLLIN

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ___
NORTH of FIRE STATION N.E. of WATER TANK
2. Owner: City of FRISCO Address: ___
Tenant: ___ Address: ___
Driller: MEYERS Drlg Co. Address: DALLAS
3. Elevation of LSD is [redacted] ft. above msl, determined by ~~Map~~ TOPO
4. Drilled: ~~1946~~ 1940's Dug, Cable Tool, Rotary,
5. Depth: Rept. 1632 ft. Meas. ___ ft.
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed
7. Pump: Mfgr. Red Jacket Type Subm
No. Stages ___, Bowls Diam. ___ in., Setting 605 ~~655~~ ft.
Column Diam. ___ in., Length Tailpipe ___ ft.
8. Motor: Fuel ELEC Make & Model ___ HP 25
9. Yield: Flow ___ gpm, Pump 121 120 gpm, Meas., Rept., Est. 8-21-73
10. Performance Test: Date ___ Length of Test ___ Made by ___
Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.
Production ___ gpm Specific Capacity ___ gpm/ft.
11. Water Level: 443 ft. rept. meas. 11-6 1973 above below LSD-AIRLINE which is ___ ft. above below surface.
440.0 ft. rept. meas. 11-5- 1974 above below do which is ___ ft. above below surface.
402.0 ft. rept. meas. 3-18 1976 above below do which is ___ ft. above below surface.
___ ft. rept. meas. ___ 19 ___ above below which is ___ ft. above below surface.
12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used, ___
13. Quality: (Remarks on taste, odor, color, etc.) ___
Temp. ___ °F, Date sampled for analysis 4-51 Laboratory TSDH
Temp. ___ °F, Date sampled for analysis 6-6-59 Laboratory "
Fe Temp. 84 °F, Date sampled for analysis 3-18-76 Laboratory "
14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, Austin - 3-18-76
Formation Samples, Pumping Test, ___
15. Record by: JOHN DERTON - NORTHSTAR Date 11-6 1973
Source of Data WATER Swd. + DrLR
16. Remarks: AIRLINE SET @ [redacted] 607'
WSP Bill McLain @ 9620
collected from tank after running 20 min w/chlo. off

CASING & BLANK PIPE

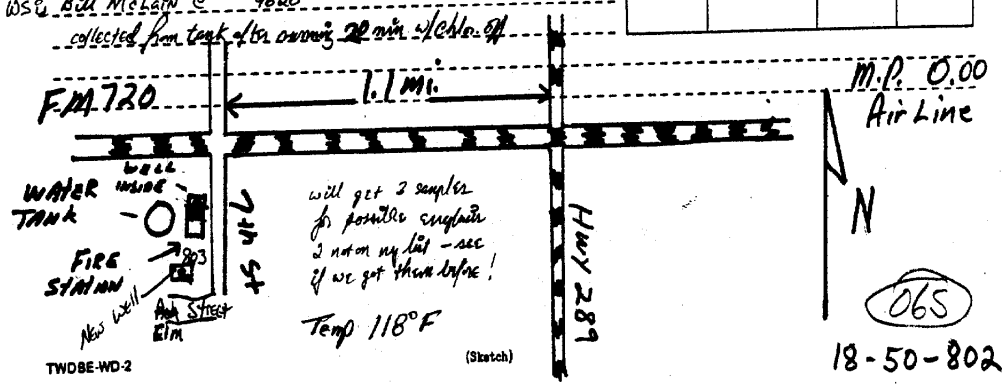
Cemented From ___ ft. to ___ ft.

Diam. (in.)	Type	Setting, ft. From	to
8 5/8	steel	0	696
7	"	696	1440
5	STRAINER last 100' slotted	1428	1632

WELL SCREEN

Screen Openings ___

Diam. (in.)	Type	Setting, ft. From	to
5	Perf	1440	1632



(Sketch)

TWDBE-WD-2

065

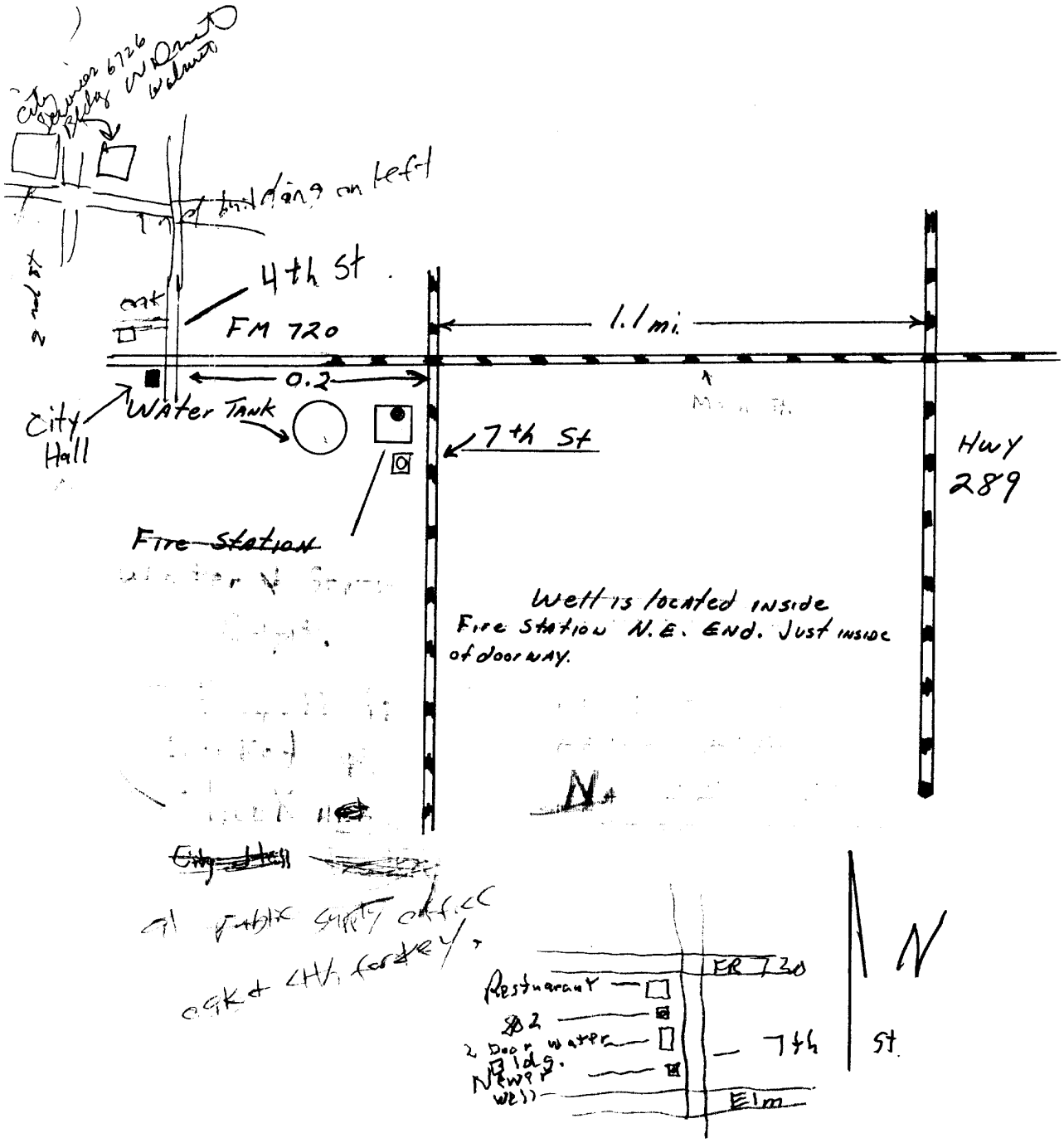
18-50-802

TEXAS WATER DEVELOPMENT BOAI

BY_____ DATE_____ DIVISION _____ SHEET NO._____ OF____

CHKD_____ DATE_____ JOB NAME _____

18-50-802 JOB NO._____ PROG. CODE _____



18-50-802

TEXAS DEPARTMENT OF WATER RESOURCES–WATER LEVEL MEASUREMENTS (IN FT.)

AS OF 05-01-84

☒ Normal ☐ Publ. ☐ USGS

OLD WELL NUMBER

COORDINATES 33-08-51N 096-49-16W

YR. REC. BEGINS 73

LAST CHEMICAL ANALYSIS 03-76

STATE WELL NUMBER DT-18-50-802

DEPTH OF WELL 1632

LAND SURFACE DATUM ELEVATION 705.00

COMPLETION INTERVAL 1440-1632

DATE OF CURRENT MEASUREMENT MO. DAY YR.	CURRENT DEPTH TO WATER FROM LSD	CHANGE IN LEVEL SINCE THE LAST MEASUREMENT	Measurement Number	DEPTH TO WATER FROM MP	MP	Measuring Agency	Measurement Method	REMARKS	WELL USE	FIELD OBSERVATIONS
08 21 73	415.00			415.00	+0.00	09	3		1	
11 06 73	443.00	-28.00		443.00	+0.00	01	3		1	
11 05 74	440.00	+3.00		440.00	+0.00	01	3		1	
11 26 75	435.00	+5.00		435.00	+0.00	01	3		1	
03 18 76	402.00	+33.00		402.00	+0.00	01	3		1	
11 22 76	437.00	-35.00		437.00	+0.00	01	3		1	
11 14 77	519.00	-82.00		519.00	+0.00	01	3	02	1	
10 03 78	522.00	-3.00		522.00	+0.00	01	3	02	1	
12 -- 79	470.00	+52.00		470.00	+0.00	09	3		1	
12 -- 79	520.00	-50.00	2	520.00	+0.00	09	3	02	1	
05 02 80					+0.00	01		42	1	
10 15 80	502.00			502.00	+0.00	01	3	02	1	
03 16 82	545.00	-43.00		545.00	+0.00	01	3	02	1	
03 17 83	522.00	+23.00		522.00	+0.00	01	3		1	
03 27 84	510.00	+12.00		510.00	+0.00	01	3		M	
3 15 85	530.00			530.00	0.00	1	3		M	
3 7 86	527.00			527.00	0.00	1	3		M	
1 14 88	532.00			532.00		1	3		M	

AQUIFER 138 - PALUXY FORMATION

WATERSHED 08 - TRINITY RIVER BASIN

COUNTY 043 - COLLIN

CURRENT 18-50-802

TDWR-0518

TEXAS WATER DEVELOPMENT BOARD
WATER LEVEL OBSERVATION WELL REPORT

STATE WELL NUMBER 18-50-802 ELEVATION OF LAND SURFACE
DEPTH OF WELL WATER USE

DATE OF CURRENT MEASUREMENT MO	DAY	YEAR	CURRENT DEPTH TO WATER FROM LAND SURFACE	CHANGE IN LEVEL SINCE LAST STATIC MEASUREMENT	MEASUREMENT NUMBER	ELEVATION OF WATER LEVEL	MEASURING AGENCY	MEASUREMENT METHOD	REMARKS	MEASURING POINT	FIELD OBSERVATIONS
1	10	91	514.0		01		01	3		+0.00	UNUSED
1	23	92							-1		measured wrong well measured well on southside
1	19	93	562.00		01		01	3		+0.00	
1	13	94	577.0				01	3			
2	8	95	-542		01		01	3			
11	07	96	Airline gave	unable to reach	water				43		
11	10	98	607.98				81	2			
11	9	99	628.00				01	2			
11	17	00									
12	4	01	677.90	mp=1.5	cm		01	2	52	U	REMOVE PVC Plug
11	08	02	—		<11	—			40	U	

18-50-802

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer Paluxy Field No. _____ State Well No. 18-50-804

Owner's Well No. 1-A County COLLIN

1. Location: ___ 1/4, ___ 1/4 Sec. ___, Block ___ Survey ___

2. Owner: CITY OF FRISCO Address: ___

Tenant: ___ Address: ___

Driller: J. L. MYERS & SON Address: ___

3. Elevation of LS is 705 ft. above msl, determined by TOPO

4. Drilled: ___ 19 24; Dug, (Cable Tool) Rotary, ___

5. Depth: Rept. 1680 ft. Meas. ___ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed ___

7. Pump: Mfgr. ___ Type AIR

No. Stages ___, Bowls Diam. ___ in., Setting ___ ft.

Column Diam. ___ in., Length Tailpipe ___ ft. none

8. Motor: Fuel ___ Make & Model ___ HP. ___

9. Yield: Flow ___ gpm, Pump 75 gpm, Meas., (Rept.), Est. 1943

10. Performance Test: Date ___ Length of Test ___ Made by ___

Static Level ___ ft. Pumping Level ___ ft. Drawdown ___ ft.

Production ___ gpm Specific Capacity ___ gpm/ft.

CASING & BLANK PIPE

Cemented From ___ ft. to ___ ft.

Diam. (in.)	Type	Setting, ft. from	to
10			

11. Water Level: 250 ft. (rept.) meas. 1924 above below which is ___ ft. above below surface.

UIM ft. rept. meas. 3-10 19 17 above below No place to Meas. which is ___ ft. above below surface.

___ ft. rept. meas. ___ 19 ___ above below which is ___ ft. above below surface.

___ ft. rept. meas. ___ 19 ___ above below which is ___ ft. above below surface.

12. Use: Dom., Stock, (Public Supply), Ind., Irr., Waterflooding, Observation, (Not Used) completely gone

13. Quality: (Remarks on taste, odor, color, etc.) ___

Temp. ___ °F, Date sampled for analysis 2-17-43 Laboratory USGS

Temp. ___ °F, Date sampled for analysis ___ Laboratory ___

Temp. ___ °F, Date sampled for analysis ___ Laboratory ___

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test, ___

15. Record by: RNORDSTROM Date 3-18 1976

Source of Data obs, city, U.S.G.S. records

16. Remarks: ~~No electric~~

WELL SCREEN

Screen Openings

Diam. (in.)	Type	Setting, ft. from	to

see 802

(Sketch)

TWDBE-WD-2

18-50-804

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

~~Texas State Department of Health Laboratories~~
~~1100 West 49th Street~~
~~Austin, Texas 78756~~
USGS

TWDBE-GW ONLY
Program No. _____
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

Send report to:
Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

County DT COLLIN
State Well No. 18-50-804
Well No. 1
Date Collected 02-17-43
By USGS

Location _____
Source (type of well) AIR PUMP Owner CITY OF FRISCO
Date Drilled 1924 Depth 1680 ft. WBF Paluxy
Producing intervals _____ Water level _____ ft.
Sampled after pumping _____ hrs. Yield 75 GPM meas./est. Temperature °F °C
Point of collection well Appearance ☐ clear ☐ turbid ☐ colored ☐ other
Use P.S. Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L	ME/L
Silica	13	
Calcium	2.3	
Magnesium	0.6	
Sodium	272	
Total		
Potassium	3.2	
☐ Manganese		
☐ Boron		
3/ Total Iron	.03	
☐ (other) _____	MG/L	
Specific Conductance (micromhos/cm3)		
Diluted Conductance (micromhos/cm3)	X	

%Na _____
SAR _____
RSC _____

	MG/L	ME/L
Carbonate		
Bicarbonate	470	
Sulfate	96	
Chloride	19	
Fluoride	.9	
Nitrate	2.5	
pH	8.2	
Total		
1/ Dissolved Solids (sum in MG/L)	690	
Phenolphthalein Alkalinity as C aCO_3		
Total Alkalinity as C aCO_3		
Total Hardness as C aCO_3	8	
2/ Nitrogen Cycle		
Ammonia - N		
Nitrite - N		
Nitrate - N		
Organic Nitrogen		

" ☐ " items will be analyzed if checked.

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.
2/ Nitrogen cycle requires separate sample.
3/ Total Iron requires separate sample.

TWDBE-WD-1 (Rev. 1-25-72)

Analyst _____ Checked By _____

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

DISCLAIMER/DETAILS

Banks Environmental Data, Inc. has performed a thorough and diligent search of all wells recorded with Texas state agencies. All mapped locations are based on information obtained from the originating agency. Although Banks performs quality assurance and quality control on all research projects, we recognize that any inaccuracies of the records and mapped well locations could be traced to the appropriate regulatory authority or driller. Many water well schedules may have never been submitted to the regulatory authority by the driller and, may explain the possible unaccountability of privately drilled wells. Therefore, Banks Environmental Data, Inc. cannot guarantee the accuracy of the data or well locations of those maps and records maintained by the Texas regulatory authorities. Banks Environmental Data, Inc. Water Well Report™ is prepared from existing state water well databases and additional file research conducted at Texas' regulatory authorities. Submission of driller's log records became mandatory in 1985. The state of Texas has processed these records in several different filing systems within two state regulatory authorities. The water well files, records and map locations are maintained by the Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB). Actual water well site locations of this report are geocoded and geoplotted directly from the drilling records, drilling schedules, and driller's logs and maps submitted by the water well driller and maintained at these two primary water well regulatory authorities. Below is a description of the filing systems accessed for well drilling records.

The Texas Water Development Board (TWDB) maintains two datasets of located water well records:

1) TWDB Groundwater Data GW - A registered water well driller is required by law to send in a report to the State for every well that is drilled. This requirement began in 1966. TWDB GW wells are assigned a State Identification Number unique to that well (ie: 65-03-4 01.) Where exact latitude/longitude data was not provided by the driller, latitude and longitude were assigned that locate the well in the center of a 2 ½-minute grid on a topographic map. Records may also include analytical data.

2) TWDB Submitted Drillers Reports WIID - The Submitted Driller's Report Database is populated from the online Texas Well Report Submission and Retrieval System which is a cooperative Texas Department of Licensing and Regulation (TDLR) and Texas Water Development Board (TWDB) application that registered water-well drillers use to submit their required reports. This system was started 2/5/01 and is optional for the drillers to use. Reports that drillers submit by mail are geoplotted/geocoded by a TWDB staff member. WIID wells are assigned a unique tracking number by the Texas Well Report Submission and Retrieval System. (ie: 972 63, 9416)

The Texas Commission on Environmental Quality (TCEQ) maintains two datasets of water well records. Where TCEQ's datasets are included in the Banks Environmental Data, Inc. Water Well Report, a description and example identifier are listed below.

1) Water Utility Database - This database contains a collection of data from Texas Water Districts, Public Drinking Water Systems and Water and Sewer Utilities who submit information to the TCEQ.

Public Water Systems Database PWS - The Public Water Systems records included in the WUD report are obtained digitally from TCEQ. The PWS database does not contain Drillers Reports or analytical data. The PWS Watersource name is the unique identifier in Banks Reports (StateID- S2200199A, G2200322A). Public water system IDs that begin with 'G' are groundwater wells. PWS IDs that begin with 'S' are surface intakes.

2) TCEQ Central Records - Several different types of Driller's Reports are filed with TCEQ Central Records.

A) Plotted Water Well Reports - Plotted Well logs are filed at TCEQ Central File Room based on county name, and grid number. Water well site locations are documented on the logs by the drillers. The accuracy and location of the Plotted wells are relative to the information provided on the drillers report. (ie: 65-59-1)

From 1991 to the 2001, Texas Well Reports contain a grid location box, where drillers mark an X to indicate where the well is located within the 2.5 minute quadrant. These locations have not been verified by the state.

B) Partially Numbered Well Completion Reports that were provided a State Identification Number by the TWDB that establishes the well location somewhere within a 2.5 minute quadrant of a 7.5 minute quadrangle map. This method was the standard procedure from 1986 through 1991.

Some of the historical well logs have a letter following the grid number. TWDB assigned letters to the correlating grid number to identify these wells (ie: 65-59-1A). In some instances, a single well number can represent more than one well location. This type of mapping and filing procedure ceased in June 1986.

Local Groundwater Conservation Districts/Subsidence Districts maintain separate databases from state agencies. Duplicates groundwater wells are likely between local GCDs/GSDs and TWDB and TCEQ databases.

Where reasonably ascertainable, local GCD/SD data are included in the water well report. For example, in the Harris/Galvest on area the Harris Galveston Subsidence District dataset is included in the report. (ie: HGSD1234) HGSD does not maintain well completion logs.

U.S. Geological Survey (USGS) maintains The National Water Information System (NWIS)Inventory. Banks water well report includes NWIS inventory (ie: USGS1234).

1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512.478.0059 FAX 512.478.1433 E-mail banks@banksinfo.com

Appendix 6

Monitoring Well Records

STATE OF TEXAS WELL REPORT for Tracking #317602

Owner:	**Exide**	Owner Well #:	**PMW19**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 20 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 20 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#317602**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**brown clay**
6	**20**	**tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-20ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317603

Owner:	**Exide**	Owner Well #:	**PMW20R**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 25 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 8 ft with 4 bentonite (#sacks and material)** 3rd Interval: **From 8 ft to 25 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#317603**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**25**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-10ft s40**
2in	**new**	**pvc screen**	**10-25ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317599

Owner:	**Exide**	Owner Well #:	**LMW21**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 25 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 8 ft with 4 bentonite (#sacks and material)** 3rd Interval: **From 8 ft to 25 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**25**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-10ft s40**
2in	**new**	**pvc screen**	**10-25ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317601

Owner:	**Exide**	Owner Well #:	**LMW22**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 20 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 20 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**20**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-20ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317586

Owner:	**Exide**	Owner Well #:	**MW21,MW22**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 15 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 1 ft with 1 cement (#sacks and material)** 2nd Interval: **From 1 ft to 2 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 2 ft to 15 ft with 6 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**15**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-2.5ft s40**
2in	**new**	**pvc screen**	**2.5-15ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317588

Owner:	**Exide**	Owner Well #:	**MW23**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 20 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 20 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Texas Department of Licensing & Regulation
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Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**20**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-20ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317589

Owner:	**Exide**	Owner Well #:	**MW24**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 30 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 12 ft with 6 bentonite (#sacks and material)** 3rd Interval: **From 12 ft to 30 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**30**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-15ft s40**
2in	**new**	**pvc screen**	**15-30ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317590

Owner:	**Exide**	Owner Well #:	**MW25**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 22 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 22 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**22**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-7ft s40**
2in	**new**	**pvc screen**	**7-22ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317591

Owner:	**Exide**	Owner Well #:	**MW26,MW27**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 15 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 15 ft with 8 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**15**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-15ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317593

Owner:	**Exide**	Owner Well #:	**MW28**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 20 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 20 ft with 10 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#317593**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**ft brown clay**
6	**20**	**ft tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-20ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #317598

Owner:	**Exide**	Owner Well #:	**MW29**
Address:	**7471 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**SAME** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **2/26/2013** Completed: **3/28/2013**
Diameter of Hole:	Diameter: **8.25 in From Surface To 15 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 Sand**
Annular Seal Data:	1st Interval: **From 0 ft to 2 ft with 1 cement (#sacks and material)** 2nd Interval: **From 2 ft to 4 ft with 1 bentonite (#sacks and material)** 3rd Interval: **From 4 ft to 15 ft with 8 sand (#sacks and material)** Method Used: **by hand** Cemented By: **SCI** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**No Data**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**SCI** **5070 Brush Creek Rd** **Fort Worth , TX 76119**
Driller License Number:	**3038**

Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**6**	**brown clay**
6	**15**	**tan clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2in	**new**	**pvc riser**	**0-5ft s40**
2in	**new**	**pvc screen**	**5-15ft 0.010**

STATE OF TEXAS WELL REPORT for Tracking #322302

Owner:	**Exide**	Owner Well #:	**MW 30**
Address:	**7471 5th Avenue** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**Same** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **3/28/2013**
Completed: **3/28/2013**

Diameter of Hole: Diameter: **7.75 in From Surface To 32.5 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 Sand**

Annular Seal Data:
1st Interval: **From 32.5 ft to 10.5 ft with 8 Sand (#sacks and material)**
2nd Interval: **From 10.5 ft to 2 ft with 5 Bentonite (#sacks and material)**
3rd Interval: **From 2 ft to 0 ft with 4 Cement (#sacks and material)**
Method Used: **Mix**
Cemented By: **Drill Crew**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality:
Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Strata Core Services, LLC**
5070 Brush Creek Road

	Fort Worth , TX 76119
Driller License Number:	**3038**
Licensed Well Driller Signature:	**Dan Spaust**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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Please include the report's Tracking number (Tracking **#322302**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0 to 5' Sandy Gravelly Clay
5' to 20' Brown Silty Clay
20' to 26.5' Gravelly Light Brown Clay
26.5' to 30.5' Gray Shale
30.5' to 32.5' Hard Gray Shale

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
2" New PVC Screen 32.5' to 12.5' .010
2" New PVC Riser 12.5' to 0 s40

STATE OF TEXAS WELL REPORT for Tracking #318675

Owner:	**Exide**	Owner Well #:	**MW 31**
Address:	**7451 5th Ave** **Frisco , TX**	Grid #:	**18-50-8**
Well Location:	**Same** **TX**	Latitude:	**33° 08' 37" N**
Well County:	**Collin**	Longitude:	**096° 49' 42" W**
Elevation:	**No Data**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **5/9/2013**
Completed: **5/9/2013**

Diameter of Hole: Diameter: **7 in From Surface To 23 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 Sand**

Annular Seal Data:
1st Interval: **From 23 ft to 6 ft with 8 Sand (#sacks and material)**
2nd Interval: **From 6 ft to 2 ft with 3 Bentonite (#sacks and material)**
3rd Interval: **From 2 ft to 0 ft with 2 Cement (#sacks and material)**
Method Used: **Mix**
Cemented By: **Drill Crew**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality:
Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:
Strata Core Services, LLC
5070 Brush Creek Road

	Fort Worth , TX 76119
Driller License Number:	**58164**
Licensed Well Driller Signature:	**Brad Eskue**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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Please include the report's Tracking number (Tracking **#318675**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0 to 6' Brown Clay
6' to 23' Tan Clay

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
2" New PVC Screen 23' to 8' .010
2" New PVC Riser 8' to 0 s40

STATE OF TEXAS WELL REPORT for Tracking #277616

Owner:	**Exide Technologies**	Owner Well #:	**SL# 3**
Address:	**7471 South 5th St. Frisco , TX 75034**	Grid #:	**18-50-8**
Well Location:	**7471 South 5th St. Frisco , TX 75034**	Latitude:	**33° 08' 28" N**
Well County:	**Collin**	Longitude:	**096° 49' 39" W**
Elevation:	**638 ft.**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **1/10/2012**
Completed: **1/10/2012**

Diameter of Hole: Diameter: **2 in From Surface To 12 ft**

Drilling Method: Other: **Direct Push**

Borehole Completion: Other: **(No Data)**

Annular Seal Data: 1st Interval: **No Data**
2nd Interval: **No Data**
3rd Interval: **No Data**

Surface Completion: **No Data**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: The well **was** plugged within 48 hours.
Casing left in well: Cement/Bentonite left in well:
From (ft) To (ft) From (ft) To (ft) Cem/Bent Sacks Used
0 - 0 12 - 0 1 Hole Plug

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Strata Core Services**
5070 Brush Creek Rd
Fort Worth , TX 76119

Driller License Number: **52694**

Licensed Well Driller Signature:	**Mario Robles**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Amended 2/9/12 Ref.# 10138**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#277616**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**4'**	**Dk Gray Clay**
4	**12'**	**Lt. Clay Clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
1"	**N**	**PVC Screen**	**12 - 7 .010**
1"	**N**	**PVC Riser**	**7 - 0 Sch 40**

STATE OF TEXAS WELL REPORT for Tracking #277402

Owner:	**Exide Technologies**	Owner Well #:	**NDA- 1**
Address:	**7471 South 5th St. Frisco , TX 75034**	Grid #:	**18-50-8**
Well Location:	**7471 South 5th St. Frisco , TX 75034**	Latitude:	**33° 08' 28" N**
Well County:	**Collin**	Longitude:	**096° 49' 39" W**
Elevation:	**638 ft.**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **1/10/2012**
Completed: **1/10/2012**

Diameter of Hole: Diameter: **2 in From Surface To 8 ft**

Drilling Method: Other: **Direct Push**

Borehole Completion: **No Data**

Annular Seal Data: 1st Interval: **No Data**
2nd Interval: **No Data**
3rd Interval: **No Data**

Surface Completion: **No Data**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing left in well: Cement/Bentonite left in well:
From (ft) To (ft) From (ft) To (ft) Cem/Bent Sacks Used
0 - 0 8 - 0 1 Hole Plug

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Strata Core Services**
5070 Brush Creek Rd
Fort Worth , TX 76119

Driller License Number: **52694**

Licensed Well Driller Signature:	**Mario Robles**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#277402**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0 - 8' Dk Gray Clay

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
1" N PVC Screen 8 - 3 .010
1" N PVC Riser 3 - 0 Sch 40

STATE OF TEXAS WELL REPORT for Tracking #277399

Owner:	**Exide Technologies**	Owner Well #:	**SL# 2**
Address:	**7471 South 5th St. Frisco , TX 75034**	Grid #:	**18-50-8**
Well Location:	**7471 South 5th St. Frisco , TX 75034**	Latitude:	**33° 08' 28" N**
Well County:	**Collin**	Longitude:	**096° 49' 39" W**
Elevation:	**638 ft.**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **1/10/2012**
Completed: **1/10/2012**

Diameter of Hole: Diameter: **2 in From Surface To 8 ft**

Drilling Method: Other: **Direct Push**

Borehole Completion: Other: **(No Data)**

Annular Seal Data: 1st Interval: **No Data**
2nd Interval: **No Data**
3rd Interval: **No Data**

Surface Completion: **No Data**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: The well **was** plugged within 48 hours.
Casing left in well: Cement/Bentonite left in well:
From (ft) To (ft) From (ft) To (ft) Cem/Bent Sacks Used
0 - 0 8 - 0 1 Hole Plug

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Strata Core Services**
5070 Brush Creek Rd
Fort Worth , TX 76119

Driller License Number: **52694**

Licensed Well Driller Signature:	**Mario Robles**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Amended 2/9/12 Ref.# 10139**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**1'**	**Dk Gray Clay**
1	**8'**	**Lt. Clay Clay**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
1"	**N**	**PVC Screen**	**8 - 3 .010**
1"	**N**	**PVC Riser**	**3 - 0 Sch 40**

STATE OF TEXAS WELL REPORT for Tracking #277393

Owner:	**Exide Technologies**	Owner Well #:	**MW# 19,20**
Address:	**7471 South 5th St. Frisco , TX 75034**	Grid #:	**18-50-8**
Well Location:	**7471 South 5th St. Frisco , TX 75034**	Latitude:	**33° 08' 28" N**
Well County:	**Collin**	Longitude:	**096° 49' 39" W**
Elevation:	**638 ft.**	GPS Brand Used:	**Google Earth**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **1/12/2012**
Completed: **1/12/2012**

Diameter of Hole: Diameter: **8 1/4 in From Surface To 22 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **Sand Packed**

Annular Seal Data:
1st Interval: **From 22 ft to 5 ft with 12 Sand (#sacks and material)**
2nd Interval: **From 5 ft to 3 ft with 1 Bentonite (#sacks and material)**
3rd Interval: **From 3 ft to 0 ft with 1 Cement (#sacks and material)**
Method Used: **TCEQ Standards**
Cemented By: **Strata Core**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level:
Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality:
Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:
Strata Core Services
5070 Brush Creek Rd

	Fort Worth , TX 76119
Driller License Number:	**52694**
Licensed Well Driller Signature:	**Mario Robles**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

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P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0 - 2' Brown Clay w/ concrete rubble
2 - 12' Dk Brown Clay
12 - 19' Gray Weathered Clay
19 - 22' Gray Shale

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
2" N PVC Screen 22 - 7 .010
2" N PVC Riser 7 - 0 Sch 40

Appendix 7

Updated Groundwater Resource Classification Evaluation

UPDATED GROUNDWATER RESOURCE CLASSIFICATION EVALUATION
EXIDE FRISCO RECYCLING CENTER
FRISCO, TEXAS

JULY 9, 2013

Prepared by:

PASTOR, BEHLING & WHEELER, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, Texas 78664

PBW Project No. 1755

1.0 Introduction

This evaluation provides an update of Pastor, Behling & Wheeler's (PBW's) previous evaluation (dated November 29, 2012) of groundwater classification at the Exide Frisco Recycling Center. That evaluation was discussed with and approved by the TCEQ in a meeting on December 7, 2012 (documented by a TCEQ Interoffice Memorandum prepared by Gary Beyer dated February 7, 2013). This update incorporates information obtained subsequent to November 29, 2012 at the former Exide Frisco Recycling Center. For the purposes of this evaluation, the Former Operating Plant and the Undeveloped Buffer Properties are collectively referred to as "the Site".

Under Texas Risk Reduction Program (TRRP) rule §350.4(a)(40), *a groundwater-bearing unit is defined as a saturated geologic formation, group of formations, or part of a formation that has a hydraulic conductivity equal to or greater than 1 x 10^{-5} cm/sec.* Saturated zones with hydraulic conductivity values less than 1 x 10^{-5} cm/sec are considered to be non-groundwater bearing zones (or "saturated soils"). One of the differences between a Class 2 and Class 3 groundwater-bearing zone is that a Class 3 zone is incapable of sustaining a yield 150 gallons per day (gpd) from a properly completed well. The TCEQ has developed Guidance Document TRRP-8 (*Groundwater Classification*) (TCEQ, 2010) that provides detailed procedures for collecting and interpreting data needed to distinguish between Class 2, Class 3, and non-groundwater bearing zones. The TRRP-8 guidance document provided the basis for determining the groundwater classification at the Site, as described below.

2.0 Site Geology and Topography

According to the Geologic Atlas of Texas, Sherman Sheet (Barnes, 1991) surficial deposits at the Site consist primarily of Quaternary surficial deposits undivided (map unit "Qu" on Figure 1), described in Texas as mostly colluvium and minor alluvium (Barnes, 1991).

Colluvium is a general term used to define the soil material and rock debris that accumulates at the base of hillsides due to erosional forces. Colluvium typically includes unsorted material of all particle sizes, from angular rock fragments to clay. The geologic map also indicates that alluvial deposits (map unit "Qal") near the Site are limited to the area immediately adjacent to Stewart Creek, downstream to the southwest.

The surficial colluvium (and alluvium) deposits at the Site are underlain by the Eagle Ford Formation, and surrounded on three sides by a thin veneer of Eagle Ford outcrop, as shown on Figure 2. The Austin Chalk surrounds the Eagle Ford outcrop and forms steep hillsides to the north, east, and south. The topographic highs surrounding the Site can be seen on Figure 3, where elevations range from greater than 720 feet on the hillsides to less than 630 feet near Stewart Creek. Material eroded from these hillsides is the likely source of the colluvial fan that has formed at the base of the steep slopes. West of the Site, the topography is relatively flat. Coarser-grained sediments, such as gravels and rock fragments would most likely be deposited closer to the base of the hillsides, as erosional forces would not be capable of transporting the larger materials too far from their parent rock.

3.0 Description of Geologic Units and Distribution in the Subsurface

The colluvium/alluvium encountered at the site has been subdivided into the following three primary geologic units, based on a review of Site boring logs (Attachment A). Generally, PBW only evaluated borings logs that extended to, or near, the top of the Eagle Ford Shale (approximately 95 borings). Shallower borings, which typically did not encounter saturated colluvium, were not included in this evaluation.

Clay (or non-gravel containing unit) – The predominant lithology at the site is clay (USCS soil classification CH and CL). The clay is a stiff, high plasticity clay, occasionally with minor amounts of calcareous or gravel nodules within the clay matrix. Borings shaded in green on Figure 4 did not encounter clayey gravels, gravels, or sands. As shown on Figure 4, most of the Site borings fall into this category. The area beneath, south, and east of the former operating plant, is almost exclusively clay.

Clayey Gravel – Lenses of clayey gravel (USCS soil classification GC) consist of gravel embedded within a dense, consolidated clay matrix. The thickness of the clayey gravel lenses range from 0.5 to 5 feet, with an average thickness of about 2 feet. Borings shaded brown on Figure 4 encountered a clayey gravel lens. Unit SC (clayey sand) was included in this designation unless it was described in the field as "loose". These lenses were encountered more frequently in the western and northwestern part of the Site. The clayey gravel or clayey sand lenses are typically surrounded by non gravel-containing deposits (Figure 4).

Gravels and Sands – Gravels and sands (USCS soil classification SP, SW, SM, GM and GW). These gravels and sands are relatively "clean" (i.e., not embedded within a clay matrix), and generally unconsolidated. Clayey gravels or sands (Unit GC or SC) described in the field as "loose" were included in this geologic unit. Gravels and sands encountered in Site borings ranged in thickness from 0.5 to 5.2 feet, with an average thickness of about 2 feet. The gravels and sands occur in four isolated pockets at the Site, as shown on Figure 4. In a couple of borings, both gravels/sands and clayey gravels were encountered in the same boring; in these instances, only the thickness of the gravel/sand unit is shown on Figure 4.

Fill material was also encountered in several of the borings drilled in the former paths of Stewart Creek and the North Tributary (MW-24 and MW-30) as discussed in Section 1.3.3 of the APAR. The fill material was typically described as silty, sandy, or gravelly clays, and thus appears most similar to the clay unit described above. As discussed in Sections 4 and 5 of the APAR, no affected groundwater has been found in the vicinity of the former creek channels.

PBW has prepared a number of geologic cross sections for the Site (Attachment B). These cross sections illustrate the laterally discontinuous (and thin) nature of the clayey gravels, gravels, and sands within the predominantly clay stratum. They also show the steep dip of the top of the Eagle Ford Shale toward the topographically lower portion of the Site, which was likely eroded away by Stewart Creek, resulting in a structural bowl where colluvium from the surrounding hillsides subsequently accumulated. The structure of the top of the Eagle Ford Shale is contoured on Figure 6. The lateral extent of the colluvium/alluvium is limited to the interior portion of this structural bowl.

4.0 Hydraulic Conductivities and Calculated Well Yields

Slug tests were performed by PBW in ten monitoring wells at the Site to characterize the spatial variability in hydraulic conductivity across the Site. In addition, four slug tests and one pumping test were performed in 1995 as part of the Class II landfill investigation (J&N, 1995). PBW slug test graphs and information are provided in Attachment C. J&N slug test data are provided in Attachment D. Representative test results are provided in Table 1. Tests were performed in each of the three geologic units described in the previous section.

For wells completed in lithology where no clayey gravel, gravels, or sands were encountered (non gravel-containing unit), hydraulic conductivity (K) values ranged from 6.1×10^{-4} to 2.8×10^{-8} cm/sec, with a geometric mean of 3.3×10^{-6} cm/sec.

For wells completed in lithology where clayey gravels were encountered, K values ranged from 3.4×10^{-2} to 2×10^{-4} cm/sec, with a geometric mean of 1.7×10^{-3} cm/sec.

For wells completed in lithology where gravels or sands were encountered, K values ranged from 1.2×10^{-1} to 5.7×10^{-3} cm/sec, with a geometric mean of 2×10^{-2} cm/sec.

The slug tests were analyzed using the Bouwer and Rice (1976) solution for unconfined aquifers. The groundwater-bearing units (GWBUs) at the Site appear to exist under unconfined (or possibly semi-confined) conditions. The Bouwer and Rice solution is also applicable for semi-confined and confined systems (Bouwer, 1989).

For slug tests completed in clays (non-gravel containing unit), the saturated thickness of the GWBU was calculated as the vertical distance from the static water level elevation to the base of the saturated unit (i.e., contact between clay and Eagle Ford Shale).

For slug tests completed in clayey gravels, gravels or sands (gravel-containing unit), the saturated thickness was calculated as the saturated thickness of the more permeable gravel-containing unit ("the effective aquifer thickness"). The saturated clays above or below the gravel-containing unit have hydraulic conductivity values on average three to four orders of magnitude lower than the gravel-containing unit. In such heterogeneous settings, it would be inaccurate to include the saturated thickness of the significantly lower conductivity clays with the higher conductivity clayey gravels, gravels or sands where groundwater flow occurs.

Using procedures described in TRRP-8 (Section 2.7.1, Method 1), groundwater yields were also calculated at wells where aquifer tests were performed. As shown in Table 1, the wells with the highest calculated yields were LMW-17 and LMW-5. These calculated well yields appear to be biased high, as explained below.

Aquifer Test at LMW-17

PBW reviewed the aquifer test data provided in the J&N 1995 report; J&N's test calculations and data are provided in Attachment D of this appendix. As shown on J&N's chart plotting drawdown versus time, about 300 minutes after the test was started, the rate of drawdown in the pumping well increased substantially. This indicates that the expanding cone of depression created by pumping LMW-17 encountered a lower permeability boundary condition. Had the aquifer test continued longer, the test pumping rate of 8 gpm would not likely have been sustainable due to the nearby boundary condition, and the calculated conductivity/transmissivity values would have been lower.

While sampling groundwater in 2013, PBW observed that the three monitoring wells closest to LMW-17: (LMW-8 located 300 feet to east; LMW-22 located 150 feet to the south; and LMW-5 located 300 feet to west) each went dry at a purge rate of less than 0.2 gpm with a peristaltic pump (sampling records for these three wells are provided in Attachment E). These observations support the conclusion that the highly conductive sediments encountered at LMW-17 have a very limited lateral extent.

LMW-5 Calculated versus Field Well Yield

As mentioned above, well LMW-5 purged dry during sampling with a peristaltic pump at a rate less than 0.2 gpm (equivalent to less than 300 gpd). Based on the slug test result for LMW-5, a theoretical well yield of 5,000 gpd was calculated, assuming that the relatively high hydraulic conductivity (K) value obtained during the slug test represents the entire thickness of clayey gravel at LWM-5 (4 feet). The significant discrepancy between field and calculated well yields indicates that only thin lenses of gravelly material embedded within the clay matrix (Unit GC) are capable of transmitting groundwater at the calculated rate. If we had assumed a saturated aquifer thickness of 0.5 feet, instead of 4 feet, the calculated yield would have correlated closely with the field yield (less than 300 gpd).

5.0 Characterization of Groundwater-Bearing Units

As shown on Figure 1, the area where clayey gravels, gravels or sands were encountered (i.e., gravel-containing units) is generally limited to the northwestern and western parts of the Site. This area is generally surrounded by the non gravel-containing unit. The area where the gravel-containing units occur is geologically and hydraulically distinct from the surrounding part of the Site where the gravel-containing unit has not been encountered, although some non gravel-containing units are interspersed within the gravel-containing unit.

For the purposes of discussing groundwater classification in the following section, the gravel-containing unit has been subdivided into areas where unconsolidated gravels/sands occur versus those areas where consolidated clayey gravels occur. This distinction is important because these two types of sediments have different geologic and hydraulic properties. The approximate boundaries of the limited areas containing unconsolidated gravels and sands are shown on Figure 4.

6.0 Groundwater Classification Discussion

6.1 Non Gravel-Containing Unit

The non gravel-containing unit meets the TRRP definition of a non groundwater-bearing zone classification (or "saturated soils") because the average hydraulic conductivity of wells not containing gravel is well below 1 x 10^{-5} cm/sec [§350.4(a)(40)], as shown on Table 1. The slug test results in the non gravel-containing wells, however, are highly variable. This variability is likely due to the presence of calcareous pebbles and nodules observed within the clay matrix in some of the wells and borings at the Site. Nonetheless, the existing data support classifying the non-gravel-containing unit as "saturated soils".

6.2 Gravel-Containing Units

6.2.1 Clayey Gravels

The calculated well yields for wells completed in clayey gravels are listed in Table 1. It is instructive to review Figure 9 from TRRP-8 (included as Attachment F of this appendix) when evaluating the groundwater yield of the clayey gravels. Figure 9 graphically illustrates the relationship between saturated thickness (b), hydraulic conductivity (K) values, and well yields (Q). According to TRPP

Section 2.7.1 (Method 1), direct measurement of well yield is not required unless the calculated yield of the groundwater-bearing unit is within 20 percent of the Class 2/3 boundary (the area shaded gray on Figure 9). At the Site, the average thickness of the clayey gravels is about 2 feet, with an average K value of 1.7×10^{-3} cm/sec. When these values are plotted on Figure 9 (Attachment F), the chart shows that the clayey gravel is "Low Yield" only capable of yielding about 80 gpd, well below the Class 2/3 boundary; thus, according to Note 2 on Figure 9, direct well yield tests are not required to confirm proper groundwater classification. The areas at the Site where clayey gravels occur meet the TRRP definition as a Class 3 groundwater resource.

6.2.2 Gravels and Sands

According to TRRP -8…"an important aspect of discriminating between Class 2 and Class 3 groundwater resources is the ability for that resource to produce useable water at a *sustainable rate of 150 gallons per day* … [§350.52(3)]"

The average K value of the gravels and sands is 2×10^{-2} cm/sec with an average thickness of about 2 feet and maximum thickness of 5.2 feet. In this case, Figure 9 does not definitively indicate whether the gravels and sands are Low Yield (Class 3) or Moderate Yield (Class 2). Short-term tests on most of the wells completed in gravels or sands will likely exceed the Class 3 yield criterion of 150 gpd. For example, well B5N maintained a pumping rate of 0.1 gpm during a 48-hour test in March 2012. Given the surrounding boundary conditions, the well would likely have gone dry had it been pumped at a higher rate or for a longer period.

Per TRRP-8, a Class 2 groundwater-bearing unit (GWBU) can be downgraded to a Class 3 designation if it can be demonstrated that the GWBU does not meet the sustainable qualification. TRRP-8 (Section 2.8.2) recognizes that certain GWBUs may be unable to meet the sustainability qualification based on their "limited hydrogeologic extent". According to Section 2.8.2, *examples of qualifying hydrostratigraphic units include lobes of alluvial fans isolated by intercalated impermeable units….and other isolated zones of saturation that are not used as groundwater resources.*

The approximate boundaries of the unconsolidated gravel/sand lenses at the Site are shown on Figure 4. It is unlikely that these thin and isolated gravel and sand lenses at the Site could sustain a production rate of 150 gpd for extended periods of time. This assertion is supported by the following observations.

- Regionally, the lobe of colluvial/alluvial material containing gravels and sands is surrounded on three sides (north, east, and south) by the extremely low permeability Eagle Ford Shale (Figures 1 2, and 6).

- To the east, the gravel/sand lenses at the Site are bounded by low permeability saturated soils (Figure 4).

- To the west, the gravel/sand lenses are bounded by an area that has been demonstrated to be Class 3 groundwater (Figure 2) (note: see Stewart Creek Wastewater Treatment Plant Affected Property Assessment Report).

- To the south, the Eagle Ford Shale crops out within a few hundred feet of the gravel/sand lenses.

- To the north, the colluvium thins and the Eagle Ford Formation crops out.

- At the Site, Stewart Creek has eroded through the colluvial/alluvial material to the contact with the underlying Eagle Ford Formation. Shale outcrop is exposed along the Stewart Creek channel within the Site boundary. Consequently, Stewart Creek represents a hydrogeologic boundary (i.e., groundwater divide). The potentiometric map for the Site (Figure 5) indicates that groundwater moves from the alluvium toward Stewart Creek, further illustrating the presence of the groundwater divide.

- The gravel/sand lenses are overlain by low permeability clays, which will impede recharge to the underlying gravels and sands from precipitation.

- Several monitoring wells surrounding the gravels and sands were purged dry with a peristaltic pump at a rate of less than 0.2 gpm (e.g., LMW-5, LMW-8, LMW-22).

- There is no current beneficial use of the groundwater in the shallow gravel and sand deposits near the Site. As discussed in 2.0 of the APAR, there are no active water wells in this unit within 0.5 miles of the Site.

6.3 Summary

The Site consists of a 1) non gravel-containing unit (saturated soils); 2) clayey gravels that meet the definition of a Class 3 resource based on calculated yield values; and, 3) gravels and sands that have a limited hydrogeologic extent and appear incapable of sustaining a long-term daily withdrawal rate that would satisfy the Class 2 criteria; therefore, it is appropriate to downgrade the gravels and sands to a Class 3 designation in accordance with TRRP-8. These colluvial and alluvial deposits occur within a structural bowl bound by the Eagle Ford Shale and Austin Chalk bedrock that limit their lateral extent.

As a practical matter in developing Protective Concentration Levels (PCLs) in the Affected Property Assessment Report, we have conservatively assumed that the non gravel containing unit (saturated soils) is a Class 3 groundwater resource, resulting in a single groundwater classification for the entire site.

7.0 References

Barnes, V.E., 1991. *Geologic Atlas of Texas, Sherman Sheet*. University of Texas Bureau of Economic Geology.

Bouwer, H. and R. C. Rice, 1976. *A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells.* Water Resources Research, vol. 12, no. 3, pp. 423-428.

Bouwer, H. 1989. *The Bouwer and Rice slug test – an update*. Groundwater, vol. 27, no. 3, pp. 304-309.

Jones & Neuse (J&N), 1995. *Notification of an On-Site Class II Industrial Waste Landfill*. Report prepared for GNB Technologies, Inc. August.

Pastor, Behling &Wheeler, LLC. (PBW). 2012. *Groundwater Classification Evaluation Discussion.* Memorandum prepared for Exide: November 29.

TCEQ, RG-366/TRRP-8, 2010. *Groundwater Classification Guidance Document*, M arch.

TCEQ *Groundwater Classification Interoffice Memorandum* from Gary Beyer: February 7, 2013.

TABLE 1
AQUIFER TEST RESULTS AND CALCULATED WELL YIELDS

Boring/ Well Number	Type of Test	Hydraulic Conductivity K (cm/sec)	Saturated Thickness b (ft)	Calculated Well Yield * Q (gpd)
Clay				
B7N	Slug	1.0E-05	10.0	18
MW-14	Slug	4.2E-05	12.0	90
MW-17	Slug	7.6E-04	8.0	565
MW-19	Slug	4.5E-08	10.0	0.3
MW-20	Slug	2.5E-08	9.0	0.2
LMW-9	Slug	2.2E-06	6.0	2.0
Clayey Gravel (Unit GC encountered in boring)				
B5N	Slug	3.8E-03	4.0	654
MW-16S	Slug	1.3E-03	2.0	65
B9N	Slug	1.8E-03	2.0	88
LMW-5	Slug	3.4E-02	4.0	4,975
LMW-7	Slug	2.0E-04	2.0	12
LMW-8	Slug	4.5E-04	2.0	25
Gravels and Sands (Unit SP/SW/SM/GM/GW encountered in boring)**				
MW-15	Slug	5.7E-03	4.5	1,192
MW-13	Slug	1.3E-02	2.0	536
LMW-17	Pump	1.2E-01	4.5	19,669
		Geomean K		
Avg for Clay		***3.0E-06***		
Avg for Clayey Gravel		***1.7E-03***		
Avg for Gravels or Sands		***2.0E-02***		

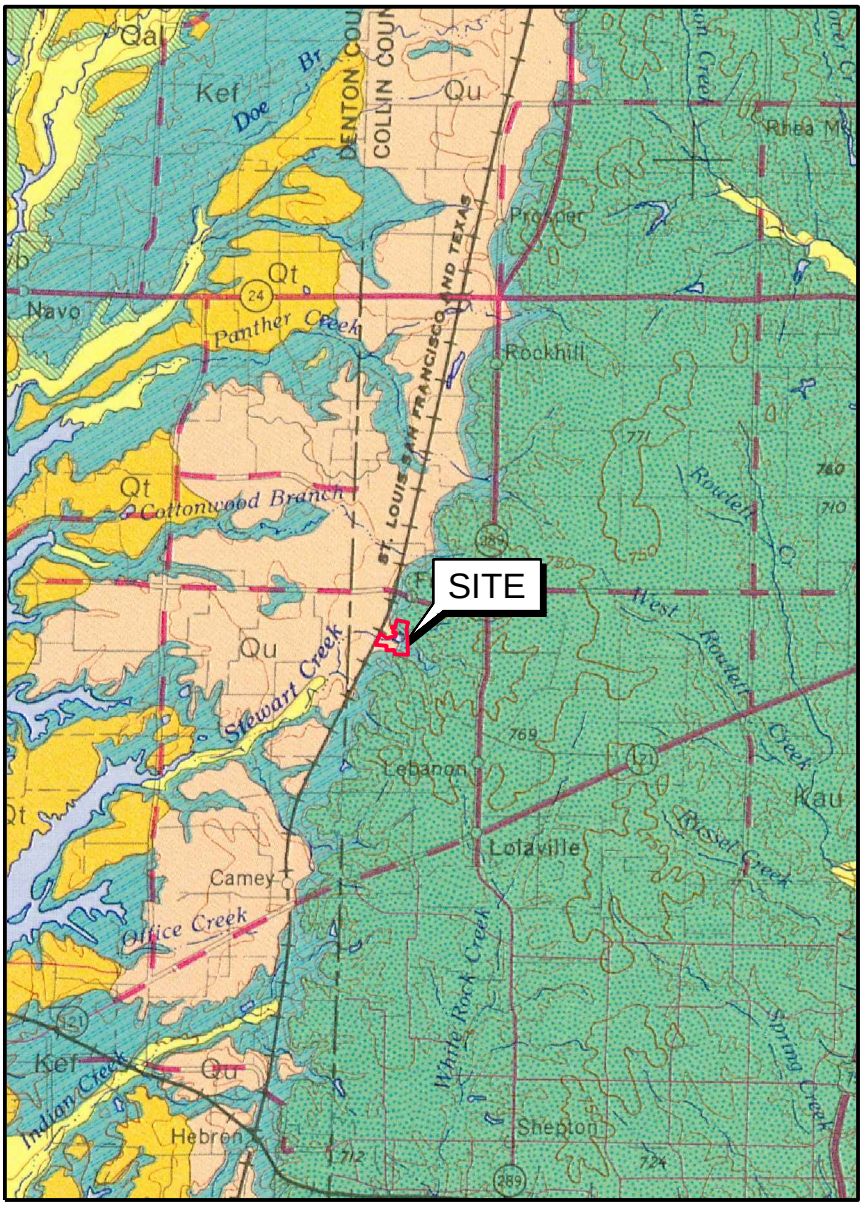
Notes:

K = hydraulic conductivity

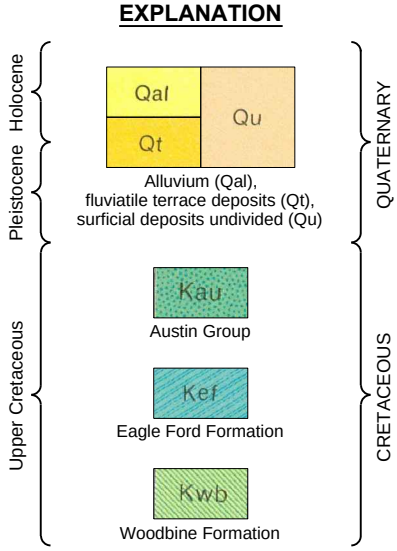
* Well Yield formula from TCEQ TRRP-8 Section 2.7.1, Method 1

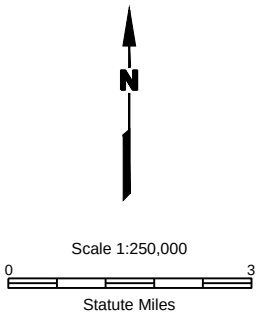
$$Q = \frac{57{,}923 * K * b^2}{7.2 + \log(K * b)}$$

** Includes clayey or sandy gravels described as "loose" on boring logs.



EXPLANATION





Source: Geologic Atlas of Texas, Sherman Sheet (McGowen et al., 1991).

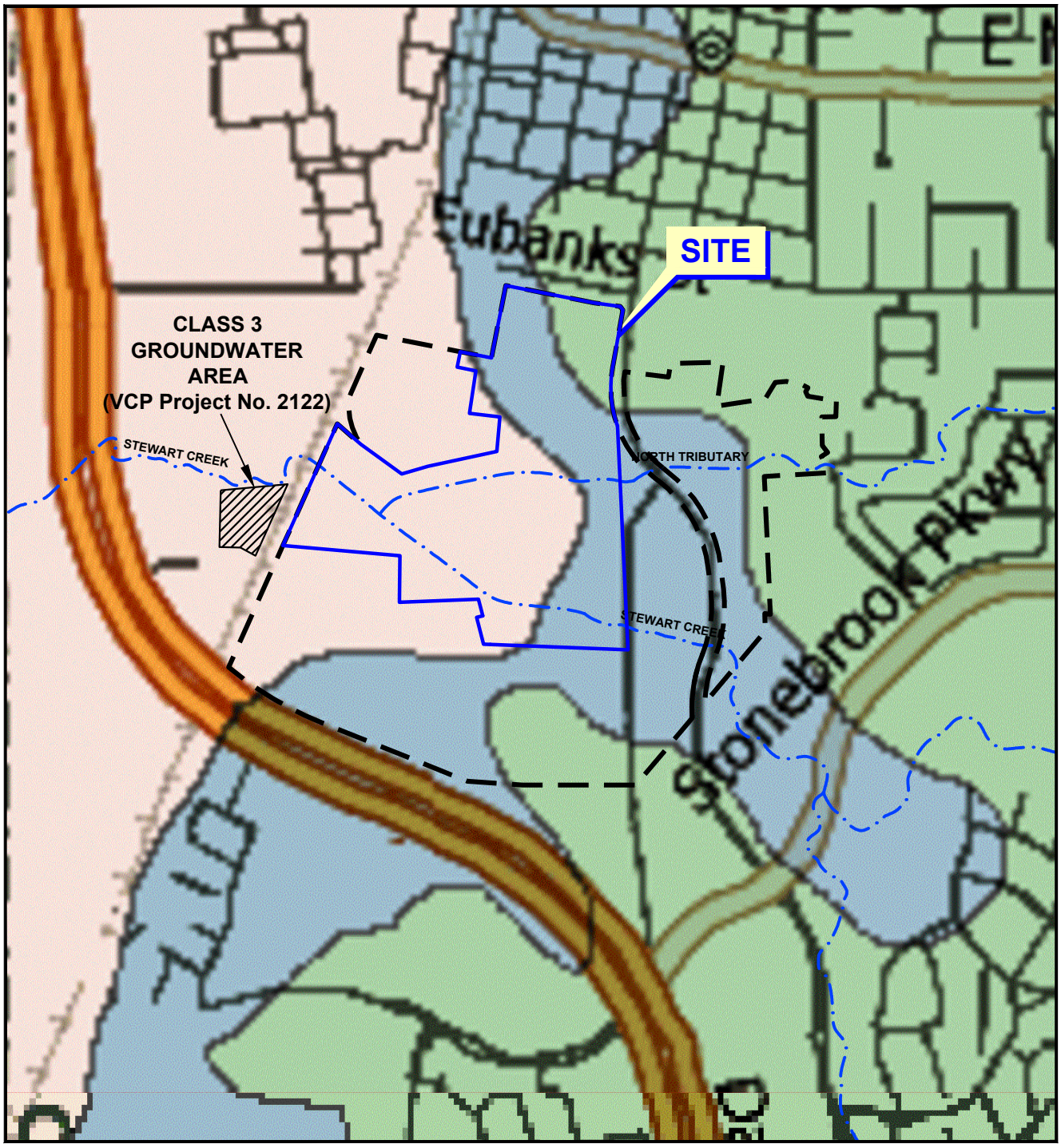
EXIDE RECYCLING CENTER
FRISCO, TEXAS

Figure 1

REGIONAL GEOLOGIC MAP

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JUNE, 2013	CHECKED: KAW	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- Former Operating Plant Boundary
- Undeveloped Buffer Property Boundary
- Quaternary Alluvium
- Eagle Ford Formation
- Austin Chalk Formation

N

Scale in Feet

0 600 1200

SOURCE:
Base map from www.northtexasfossils.com/geologycollin

EXIDE RECYCLING CENTER
FRISCO, TEXAS

Figure 2

GEOLOGIC MAP

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JUNE, 2013	CHECKED: KAW	

PASTOR, BEHLING & WHEELER, LLC
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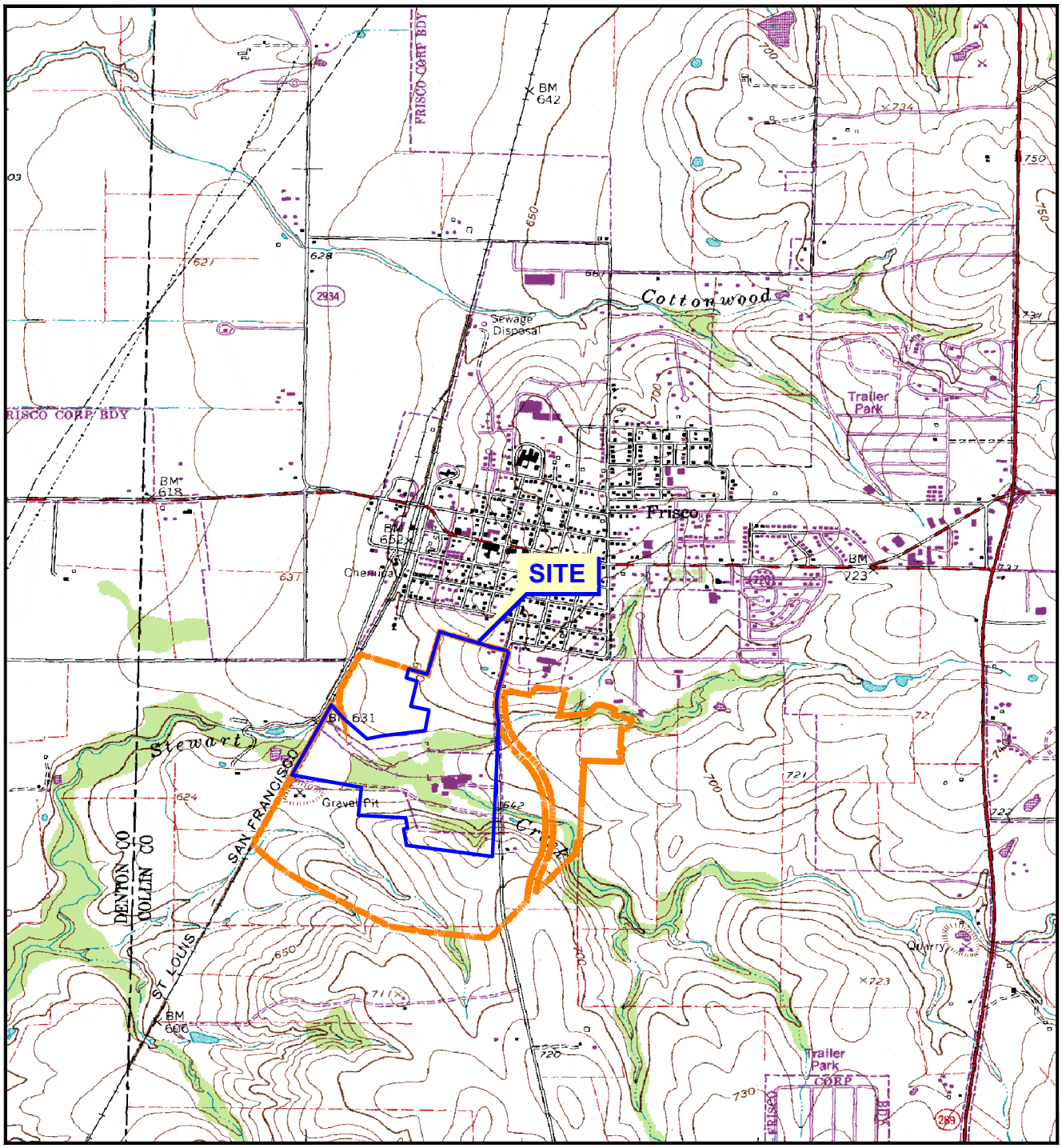
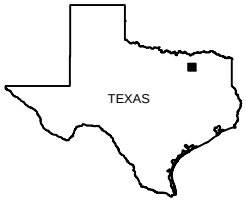


Former Operating Plant Boundary

Undeveloped Buffer Property Boundary



QUADRANGLE LOCATIONS

N

Scale in Feet

0 600 1200

SOURCE:
Base map from www.tnris.org, Frisco, TX 7.5 min. USGS quadrangle dated 1995.

EXIDE RECYCLING CENTER
FRISCO, TEXAS

Figure 3

SITE LOCATION MAP

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JUNE, 2013	CHECKED: KAW	

PASTOR, BEHLING & WHEELER, LLC
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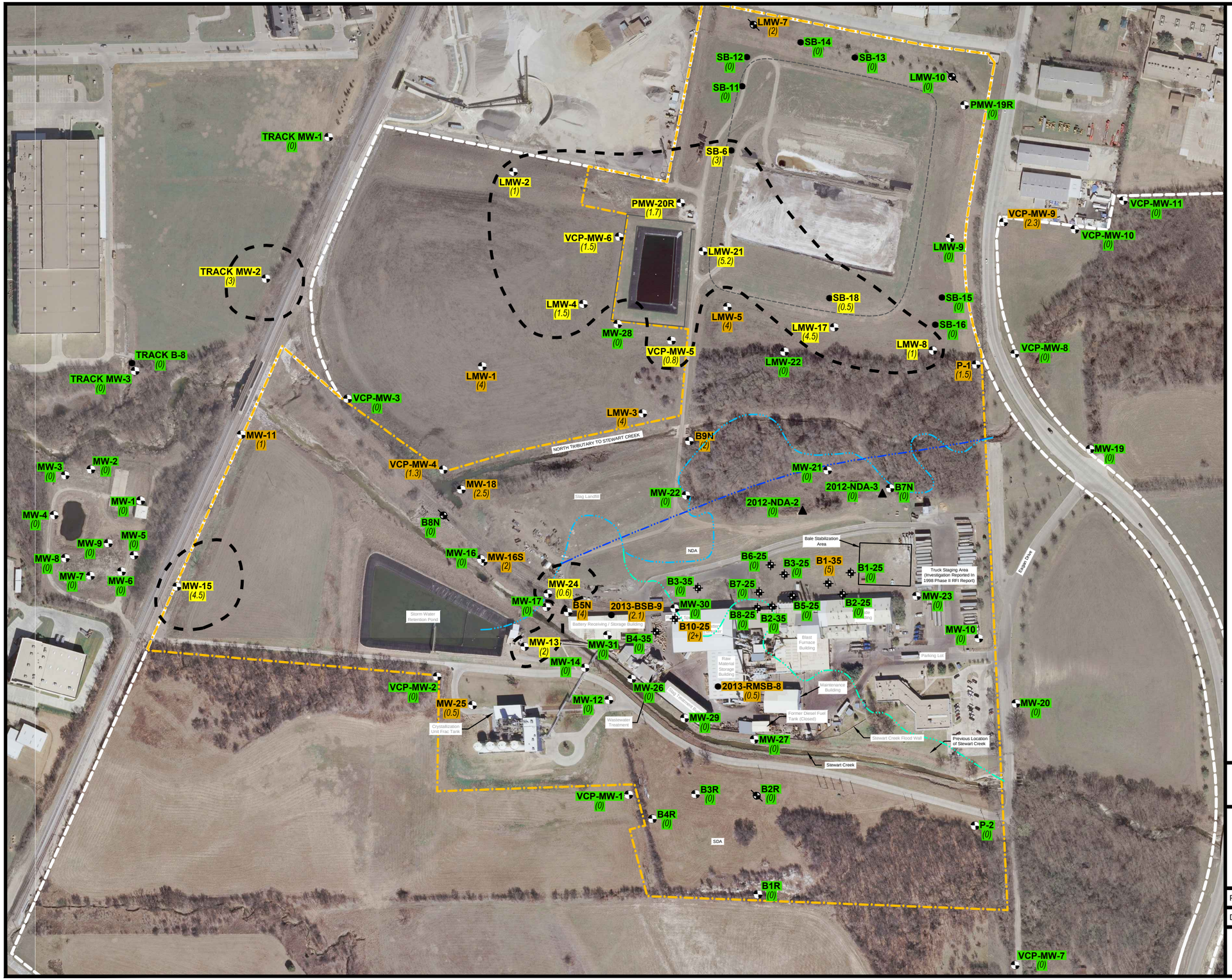

EXPLANATION

- Former Operating Plant Boundary
- Undeveloped Buffer Property Boundary
- Former Path of North Tributary (1951 Aerial Photo)
- Former Path of North Tributary (1972 Aerial Photo)
- Former Path of Stewart Creek (1951 Aerial Photo)
- Existing Monitoring Well
- Well Plugged and Abandoned or Destroyed
- Soil Boring
- Investigation Boring
- Geotech Boring
- (2) Clayey Gravel/Gravel/Sand Lens Thickness (Ft.)
- No Gravel/Sand Lens Present
- Clayey Gravel Present
- Gravel/Sand Lens present
- Approximate Boundary of Gravel/Sand Lens

N

Scale in Feet

0 150 300

Source of photo:
Imagery from NCTCOG, 2009 photography.

EXIDE RECYCLING CENTER
FRISCO, TEXAS

Figure 4

DISTRIBUTION OF GEOLOGIC UNITS IN COLLUVIUM/ALLUVIUM

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JUNE, 2013	CHECKED: KAW	

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EXPLANATION

- On-Site Property Boundary
- FRC Property Boundary
- Existing Monitoring Well Location
- Well Plugged and Abandoned, Destroyed, or Not Found
- Staff Gauge
- (620.60) Groundwater/Surface Water Elevation Measured 4/29/13 (Ft MSL)
- 645 Potentiometric Contour (Ft MSL) C.I.=5 Ft
- Inferred Potentiometric Contour

Notes:
1. Wells MW-16 and B1R are screened entirely in Eagle Ford Shale, and were not used to construct potentiometric contours.
2. At the time of this water measurement event, monitoring well MW-31 had not yet been installed.

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST

7-9-13

N

Scale in Feet
0 75 150

Source of photo:
Imagery from NCTCOG, 2009 photography.

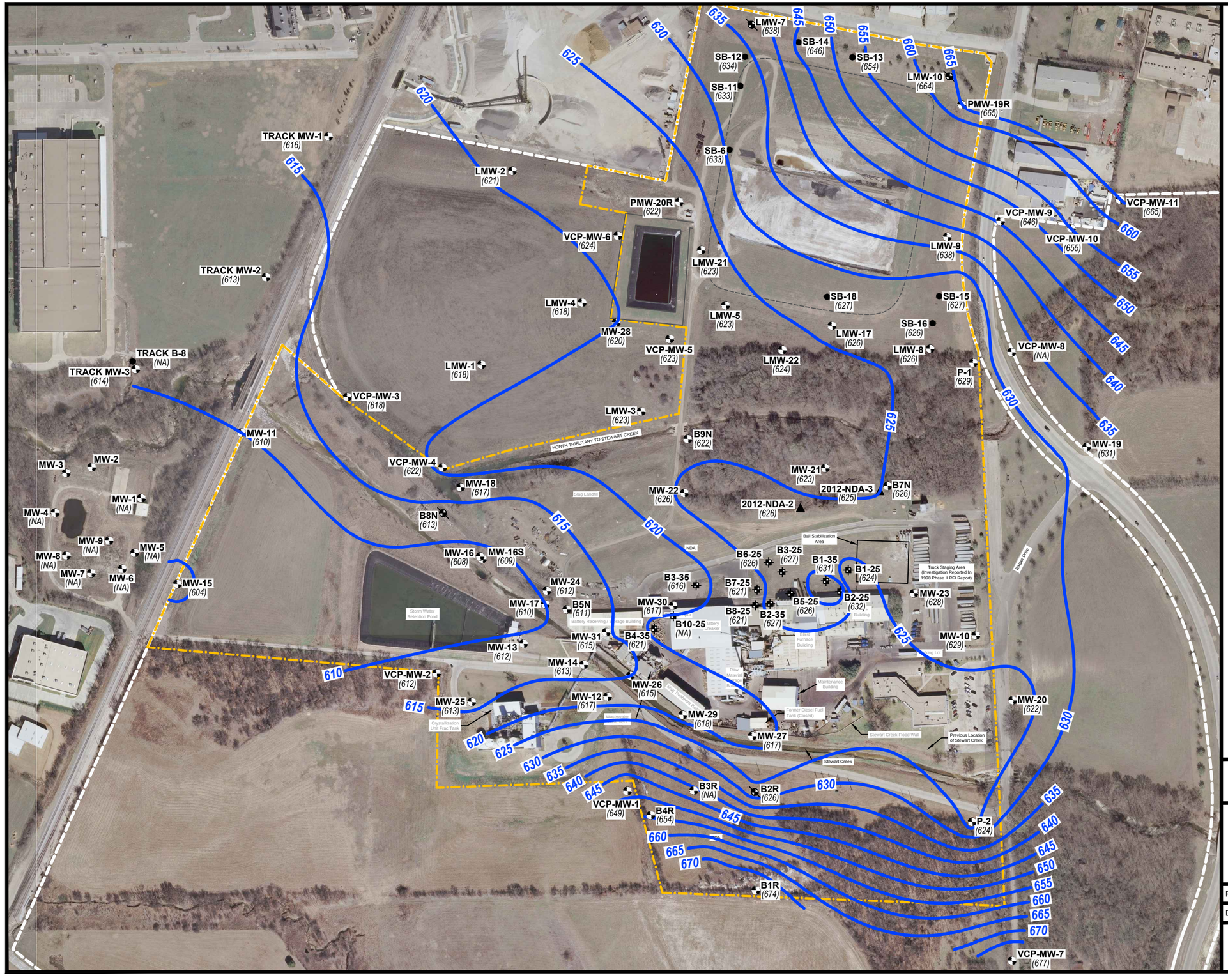
FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

Figure 5

GROUNDWATER POTENTIOMETRIC SURFACE MAP APRIL 29, 2013

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS



EXPLANATION

- Former Operating Plant Boundary
- Undeveloped Buffer Property Boundary
- Existing Monitoring Well
- Well Plugged and Abandoned or Destroyed
- Soil Boring
- Investigation Boring
- Geotech Boring
- (629) Top of Shale Elevation (Ft. MSL)
- (NA) Data not available
- 630 Top of Shale Contour C.I. = 5 ft.

STATE OF TEXAS
KEITH A. WHEELER
GEOLOGY
LIC. # 1052
LICENSED PROFESSIONAL GEOSCIENTIST

The seal appearing on this document was authorized by Keith A. Wheeler on 7/9/13.

N

Scale in Feet
0 150 300

Source of photo:
Imagery from NCTCOG, 2009 photography.

EXIDE RECYCLING CENTER
FRISCO, TEXAS

Figure 6

TOP OF EAGLE FORD FORMATION ELEVATION

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: KAW	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

ATTACHMENT A

BORING LOGS

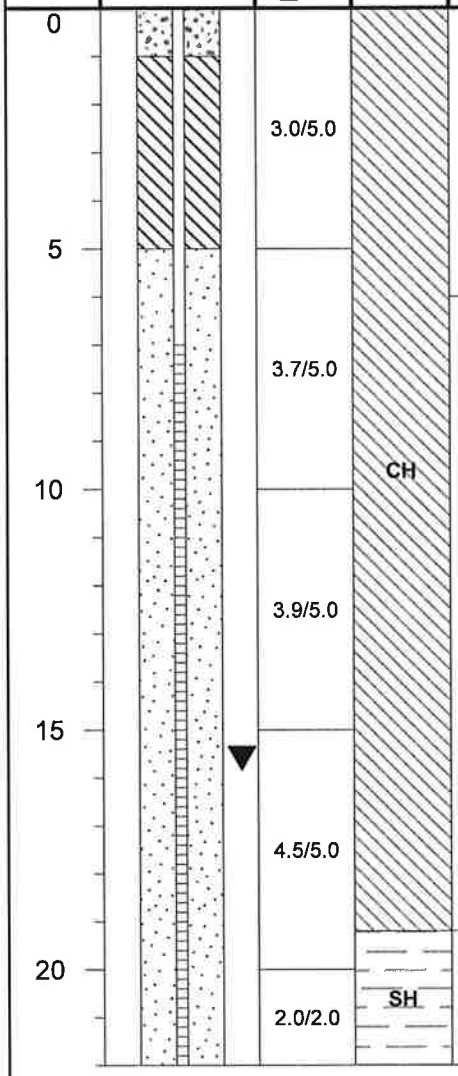
Exide Technologies

Log of Boring: MW-19

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/12/2012	Drilling Method:	HSA
Drilling Company:	StrataCore	Borehole Diameter (in.):	8.25
Driller:	Mario Robles	Total Depth (ft):	22
Driller's License:	52694	Northing:	7102589.0425
Logged By:	Christopher Moore, P.G.	Easting:	2481314.6445
Sampling Method:	3"x 5' Barrel	Ground Elev. (ft AMSL):	650.33



Lithologic Description

(0 - 6.0) CLAY, CH, dark grayish brown, moist, firm, medium to high plasticity, trace gravel, no odor or staining observed.

2.0-3.5: with limestone gravel.

(6.0 - 19.2) CLAY, CH, gray and yellowish brown, moist, firm, high plasticity.

9.5: wire fragment, possible fill/reworked material above.

Below 10.0: fractured, orange staining along fracture planes.

11.5-12.0: gravelly, moist to wet.

13.0-13.2: silty/gravelly, moist to wet.

13.9-14.2: gravelly, moist to wet.

(19.2 - 22.0) SHALE, dark gray, moist, hard, laminated, fissle.

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Boring location hand probed to 5 feet to check for utilities.

Initial Fluid Level (1/16/12)
▼ Depth to water: 15.58 ft BGS

This Log of Boring should not be used seperately from the report to which it is attached.

Annular Materials	Well Materials	TOC Elevation (ft AMSL)
(0.0 - 1.0) Concrete (1.0 - 5.0) Bentonite Hole Plug (5.0 - 22.0) 20/40 Silica Sand	(+2.6 - 7.0) Casing, 2" Sch 40 FJT PVC (7.0 - 22.0) Screen, 2" Sch 40 FJT PVC, 0.01 slot	653.34

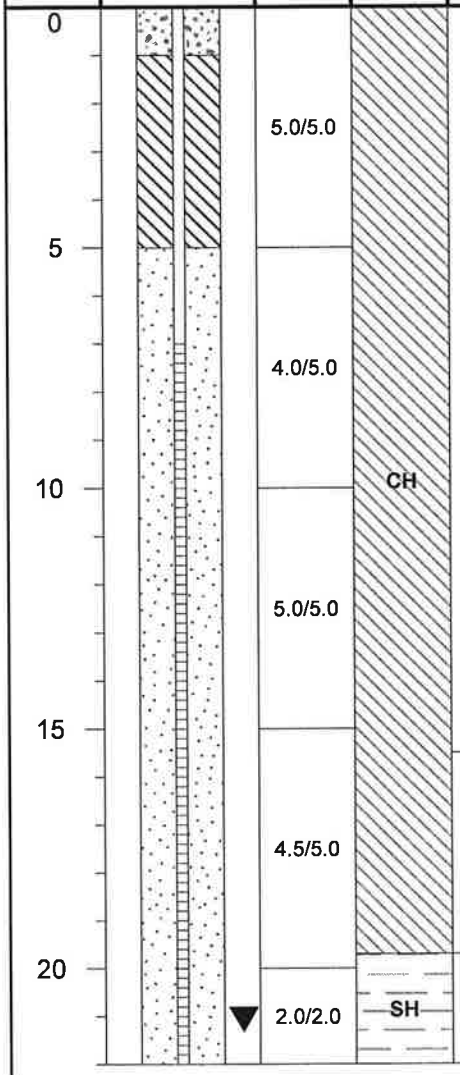
Exide Technologies

Log of Boring: MW-20

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	1/12/2012	Drilling Method:	HSA
Drilling Company:	StrataCore	Borehole Diameter (in.):	8.25
Driller:	Mario Robles	Total Depth (ft):	22
Driller's License:	52694	Northing:	7101791.617
Logged By:	Christopher Moore, P.G.	Easting:	2481082.2078
Sampling Method:	3"x 5' Barrel	Ground Elev. (ft AMSL):	641.73



(0 - 15.5) CLAY, CH, dark grayish brown, moist, firm, medium to high plasticity, trace sand size carbonate nodules, no odor, no staining or foreign material observed.

3.0-.3.9: some gravel size carbonate nodules.

(15.5 - 19.7) CLAY, CH, gray and yellowish brown, moist, firm, high plasticity, fractured, orange staining along fracture planes.

(19.7 - 22) SHALE, dark gray, moist, hard, laminated, fissle.

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
Boring location hand probed to 5 feet to check for utilities.

Initial Fluid Level (1/16/12)
▼ Depth to water: 21.05 ft BGS

This Log of Boring should not be used seperately from the report to which it is attached.

Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 5.0) Bentonite Hole Plug
(5.0 - 22.0) 20/40 Silica Sand

Well Materials
(+2.6 - 7.0) Casing, 2" Sch 40 FJT PVC
(7.0 - 22.0) Screen, 2" Sch 40 FJT PVC, 0.01 slot

TOC Elevation (ft AMSL)
644.7

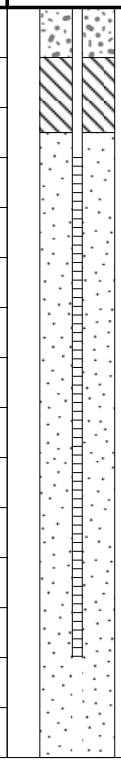
Exide Technologies

Log of Boring: MW-21

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	15
Driller's License:	3038M	Northing:	7102518.8983
Logged By:	Tim Jennings, P.G.	Easting:	2480490.8249
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	633.66
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	635.99

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		3.8/5.0	CL	0-0.5	(0 - 1.0) Silty CLAY, light grayish brown, abundant orange staining (iron oxide), moist, soft, low to medium plasticity.
				0.5-2	(1.0 - 4.0) Gravelly CLAY, light brownish orange, very moist, soft to firm, low plasticity, ~20% medium gravel in clay matrix.
				2-4	
			CH	4-5	(4.0 - 5.0) CLAY, light grayish brown, abundant orange staining (iron oxide), moist, hard, medium to high plasticity.
5		2.5/2.5	CL		(5.0 - 5.5) Gravelly CLAY, light brown and orange, moist, firm, medium plasticity, 10-30% fine to medium gravel in clay matrix.
					(5.5 - 10.5) Silty CLAY, light brown, orange and gray laminations, moist, hard, medium plasticity, heavily weathered shale.
		2.5/2.5			
10		2.5/2.5			
			SH		(10.5 - 15.0) SHALE, gray, moist, hard, weathered shale.
		2.5/2.5			
15					

PBW
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Notes:
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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 2.5) Bentonite Hole Plug
(2.5 - 15.0) 20/40 Silica Sand

Well Materials
(+2.33 - 3.0) Casing, 2" Sch 40 FJT PVC
(3.0 - 13.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

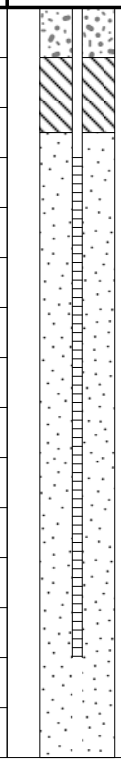
Exide Technologies

Log of Boring: MW-22

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	15
Driller's License:	3038M	Northing:	7102440.5654
Logged By:	Tim Jennings, P.G.	Easting:	2480046.6732
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	633.29
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	636.89

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		3.5/5.0	CL	0-0.5	(0 - 1.5) Gravelly CLAY, light grayish brown, abundant orange staining (iron oxide), moist, soft, low plasticity.
				0.5-2	
				2-4	(1.5 - 3.0) Silty CLAY, light grayish brown, abundant orange staining (iron oxide), moist, soft, low plasticity.
				4-5	(3.0 - 5.0) Gravelly CLAY, light grayish brown, abundant orange staining (iron oxide), moist, soft, low plasticity.
5		1.0/2.5			(5.0 - 7.7) Silty CLAY, light brown, orange and gray, moist, firm, medium plasticity.
		2.5/2.5	SH		(7.7 - 12.3) SHALE, gray, brown and orange; moist, firm, weathered.
10		2.5/2.5			
		2.5/2.5			(12.3 - 15.0) SHALE, gray, dry, hard.
15					

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Notes:
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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 2.5) Bentonite Hole Plug
(2.5 - 15.0) 20/40 Silica Sand

Well Materials
(+3.6 - 3.0) Casing, 2" Sch 40 FJT PVC
(3.0 - 13.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

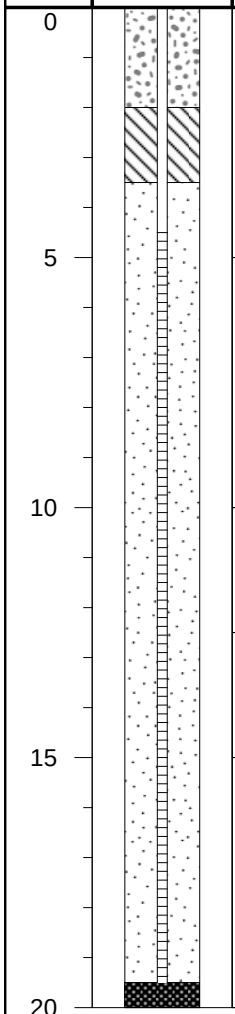
Exide Technologies

Log of Boring: MW-23

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	19.5
Driller's License:	3038M	Northing:	7102124.8425
Logged By:	Tim Jennings, P.G.	Easting:	2480769.4386
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	644.32
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	644.15



Depth (ft)	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0			0-0.5	(0 - 0.3) FILL, surficial fill not associated with NDA, no foreign objects (e.g. slag, battery chips or trash) observed, sand with clay, reddish brown, moist, soft.
		FILL	0.5-2	(0.3 - 2.6) FILL, surficial fill not associated with NDA, no foreign objects (e.g. slag, battery chips or trash) observed, silty clay/clayey silt, trace gravel, dark reddish brown, moist, firm, low plasticity.
	5.0/5.0		2-4	(2.6 - 5.5) Clayey SILT, dark reddish brown, dry, hard, low plasticity, ~15% calcareous nodules.
		ML	4-5	
5				(5.5 - 10) Silty CLAY, light brown, moist, soft to firm, high plasticity, ~10-15% carbonate nodules in clay matrix (based on cuttings).
	0.5/5.0	CH		
10				(10 - 12.2) Gravelly, sandy CLAY; light brown, moist to wet, ~20-30% fine to medium gravel and ~10-20% fine to medium sand in clay matrix.
	2.5/2.5			
				(12.2 - 16.2) Silty CLAY, light brown, orange and gray, moist, firm to hard, laminated, possibly heavily weathered shale.
	2.5/2.5	CL/CH		
15				(16.2 - 17.7) SHALE, light brown, orange and gray, moist, firm, friable and weathered.
	4.5/5.0	SH		(17.7 - 20.0) SHALE, gray, moist, hard.
20				

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Notes:
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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 3.5) Bentonite Hole Plug
(3.5 - 19.5) 20/40 Silica Sand
(19.5 - 20.0) Sloughed Material

Well Materials
(-.17 - 4.5) Casing, 2" Sch 40 FJT PVC
(4.5 - 19.5) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: MW-24

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/5/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	29
Driller's License:	3038M	Northing:	7102133.0317
Logged By:	Tim Jennings, P.G.	Easting:	2479613.4306
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	639.62
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	642.96

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		5.0/5.0	FILL	0-0.5 0.5-2 2-4 4-5	(0 - 5.0) Silty clay/clayey silt FILL, moist, firm, low plasticity, dry and very hard 3-5'.
5		1.5/2.5	FILL		(5.0 - 12.8) Gravelly clay FILL, dark brown and dark grayish brown, light brown 7.5-9.5, moist, firm to hard, medium to high plasticity, ~5-10% fine to coarse gravel fill, large carbonate cobbles at 11'.
		2.5/2.5	FILL		
10		1.5/2.5	FILL		
		2.5/2.5	FILL		(12.8 - 15.9) Sandy clay FILL; dark reddish brown, moist, hard, low plasticity clay, iron oxide staining, very stiff.
15		1.5/2.5	CL		(15.9 - 18.5) Silty, sandy CLAY; dark reddish brown, trace iron oxide staining, moist, firm, medium plasticity, increasing moisture downward.
		2.5/2.5	MH		(18.5 - 20.2) Clayey SILT, dark brown, wet, soft, high plasticity.
20		3.0/3.0	CH		(20.2 - 23.1) Silty CLAY, grayish brown, moist to wet, firm, <5% fine calcareous nodules, wet sand interbedded at 22.5-22.6'.
		1.0/2.0	SW		(23.1 - 23.7) Clayey SAND, brown, wet, soft, sub-rounded sand, ~10-20% clay in fine to coarse sand.
25		1.0/2.5	CL		(23.7 - 27.5) Gravelly CLAY, light brown to brown, wet, firm, sub-rounded gravel, medium plasticity clay, ~30-40% fine gravel in clay matrix, sandy gravel 27.3-27.5'.
		1.5/1.5	SH		(27.5 - 28.4) SHALE, light brown, orange and gray, abundant iron oxide staining, weathered.
					(28.4 - 29.0) SHALE, gray, dry, very hard.

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Notes:
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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 12.0) Bentonite Hole Plug
(12.0 - 29.0) 20/40 Silica Sand

Well Materials
(+3.34 - 14.0) Casing, 2" Sch 40 FJT PVC
(14.0 - 29.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: MW-25

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	22
Driller's License:	56033	Northing:	7101782.1994
Logged By:	Roberta Russell	Easting:	2479376.8891
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	633.36
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	635.85

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		5.0/5.0	CL/ML		(0 - 20.0) Silty CLAY/Clayey SILT, dark reddish brown, moist, soft to firm, low plasticity, very moist at 13.5 to 15.0', gravelly clay lenses in very moist calcareous clay at 15.5-15.6', 16.5-16.7', 17.5-17.9'.
5		5.0/5.0			
10		5.0/5.0			
15		5.0/5.0			
20		1.0/1.0	GC		(20.0 - 20.5) GRAVEL with clay; wet, soft, low plasticity clay (~20% clay).
			SH		(20.5 - 21.0) SHALE, dry, hard.
		0.0/1.0	NR		(21.0 - 22.0) No recovery

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Notes:
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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 2.0) Bentonite Grout
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 22.0) 20/40 Silica Sand

Well Materials
(+2.49 - 7.0) Casing, 2" Sch 40 FJT PVC
(7.0 - 22.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

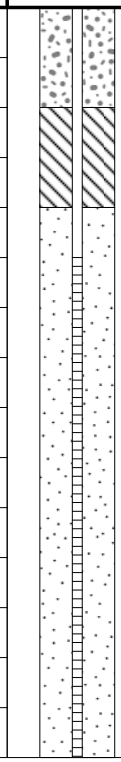
Exide Technologies

Log of Boring: MW-26

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/6/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	15
Driller's License:	3038M	Northing:	7101865.0034
Logged By:	Tim Jennings, P.G.	Easting:	2479876.33
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	628.34
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	631.93

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		4.0/5.0	CL		(0 - 1.0) Sandy CLAY, light reddish brown, moist, firm, low plasticity.
					(1.0 - 5.0) Silty CLAY, dark reddish brown, trace iron oxide orange staining, moist, wet at 3', soft to firm, low plasticity.
5		1.5/2.5	CH		(5.0 - 9.4) Silty CLAY, brown, moist to wet, firm, high plasticity.
		2.5/2.5			
10		1.5/2.5	CL		(9.4 - 10.8) Gravelly CLAY, brown, moist to wet, firm, medium plasticity clay, ~20-40% fine to medium gravel.
					(10.8 - 13.0) Silty CLAY, light brown and orange, laminated with trace iron oxide staining, moist to wet, firm, medium plasticity.
		1.5/2.5	SH		(13.0 - 15.0) SHALE, gray, orange and light brown, trace iron oxide above 14', dry, hard, very hard at 14.5 to 15', low plasticity, weathered.
15					

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Notes:
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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 15.0) 20/40 Silica Sand

Well Materials
(+3.59 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 15.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: MW-27

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/6/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	15
Driller's License:	3038M	Northing:	7101675.2344
Logged By:	Tim Jennings, P.G.	Easting:	2480260.288
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	629.89
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	633.42

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	PID (ppm)	Lithologic Description
0		4.5/5.0	CL	0-0.5	0.1	(0 - 2.5) Silty CLAY, dark reddish brown, moist, soft, low to medium plasticity, moderate hydrocarbon odor below 1'.
				0.5-2	-	
				2-4	0.3	(2.5 - 5.0) Silty CLAY, yellowish brown, wet, very soft, low to medium plasticity, trace sand, some black staining, moderate hydrocarbon odor.
				4-5	125.4	
5		2.5/2.5	MH		65	(5.0 - 7.0) Sandy, clayey SILT; gray, moist to wet, soft, high plasticity clay, <5% fine gravel, moderate hydrocarbon odor.
		2.5/2.5	CH		13	(7.0 - 8.0) Silty CLAY, gray, moist to wet, soft, high plasticity, trace calcareous nodules, moderate hydrocarbon odor.
					0.5	(8.0 - 11.5) Sandy, gravelly CLAY; gray, moist to wet, locally wet, firm, high plasticity clay, ~10-20% fine to medium sand, ~5-10% fine gravel.
10		2.5/2.5	CL		0.5	(11.5 - 13.4) Gravelly CLAY, gray, moist, firm, medium plasticity clay, ~20-40% fine to medium gravel in clay matrix.
		2.5/2.5	SH		1.8	(13.4 - 14.6) SHALE, gray and orange, moist, hard, low plasticity, weathered.
15						(14.6 - 15.0) SHALE, gray, dry, hard.

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Notes:

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 15.0) 20/40 Silica Sand

Well Materials
(+3.53 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 15.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: MW-28

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	20
Driller's License:	56033	Northing:	7102977.6985
Logged By:	Roberta Russell	Easting:	2479831.956
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	639.47
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	642.91

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		5.0/5.0	CL/ML		(0 - 10.8) Silty CLAY/Clayey SILT, dark reddish brown, soft to firm, low to medium plasticity, calcareous nodules starting at 7.5'.
5		5.0/5.0			
10		4.2/5.0	CL		(10.8 - 13.5) Gravelly CLAY, yellowish brown, moist, wet at 12.8', soft to firm, low to medium plasticity clay, calcareous nodules, ~10% gravel in clay matrix.
15		5.0/5.0	CL/ML		(13.5 - 16.5) Sandy CLAY, yellowish brown, wet, soft to firm, low plasticty clay, calcareous nodules.
20			SH		(16.5 - 19.5) Silty CLAY/Clayey SILT, yellowish brown, moist, soft to firm, low to medium plasticity.
					(19.5 - 20.0) SHALE, dry, hard.

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Notes:
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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 1.0) Bentonite Grout
(1.0 - 2.5) Bentonite Hole Plug
(2.5 - 20.0) 20/40 Silica Sand

Well Materials
(+3.44 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 20.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

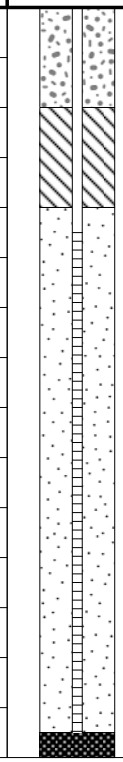
Exide Technologies

Log of Boring: MW-29

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/6/2013	Drilling Method:	HSA/DPT
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	15
Driller's License:	3038M	Northing:	7101741.6829
Logged By:	Tim Jennings, P.G.	Easting:	2480041.8696
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	629.39
Sampling Method:	5' Split Spoon/5' Samp Tube	TOC Elev. (ft AMSL):	633.51

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		5.0/5.0	CL/ML	0-0.5 0.5-2 2-4 4-5	(0 - 5.0) Silty CLAY/Clayey SILT, dark reddish brown, orange iron oxide staining from 0-0.5', moist, wet at 4', firm to hard, low plasticity, clayey gravel lens from 2.6-2.7'.
5		2.5/2.5	CH		(5.0 - 8.0) Silty CLAY, dark grayish brown, moist to wet, firm, high plasticity, fine to medium gravel in silty clay matrix at 5-5.8'.
		1.5/2.5			(8.0 - 11.4) Silty CLAY, light brown, moist, firm, high plasticity, <5% fine gravel.
10		1.5/2.5			
		2.5/2.5	SH		(11.4 - 14.0) SHALE, gray and orange, trace iron oxide, moist, firm to hard, medium plasticity, weathered.
15					(14.0 - 15.0) SHALE, gray, dry, hard.

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Notes:
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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 14.5) 20/40 Silica Sand
(14.5 - 15.0) Sloughed Material

Well Materials
(+4.12 - 4.5) Casing, 2" Sch 40 FJT PVC
(4.5 - 14.5) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: MW-30

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/28/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	32.5
Driller's License:	3038M	Northing:	7102086.1889
Logged By:	Tim Jennings, P.G.	Easting:	2480011.0566
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	645.483805
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	645.148475

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		0.5/5	CL	0-0.5	(0 - 0.5) Sandy Gravelly CLAY, dark grayish brown, moist, firm, medium plasticity, ~10-20% fine to coarse sand, ~20-30% fine to coarse gravel and cobbles (railroad balast).
			NR	0.5-2	(0.5 - 5.0) No Recovery
				2-4	
				4-5	
5		1.3/5	FILL		(5.0 - 20.9) FILL, silty clay, dark grayish brown, moist to wet, soft, medium to high plasticity, trace of fine gravel,
10		1/2.5			
		2.5/2.5			
15		2/5			
20		2.5/2.5			(20.9 - 26.5) FILL, gravelly clay, light brown, wet, soft, high plasticity, ~30-40% fine gravel in clay matrix, wood fragments locally to 25'.
		2.5/2.5			
25		2.5/2.5			(26.5 - 28.5) FILL, gravelly clay, wet, firm to hard, medium plasticity, ~40-50% fine to medium gravel in clay matrix, pieces of slag/lead at 28', shell fragments at 28-28.5'.
		2.5/2.5			(28.5 - 30.5) SHALE, gray and orange, abundant fe ox staining, wet, hard, medium plasticity.
30		2.5/2.5	SH		(30.5 - 32.5) SHALE, gray, moist, no cementation, very hard.

PBW
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Notes:
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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 10.0) Bentonite Hole Plug
(10.0 - 32.5) 20/40 Silica Sand

Well Materials
(0 - 12.0) Casing, 2" Sch 40 FJT PVC
(12.0 - 32.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

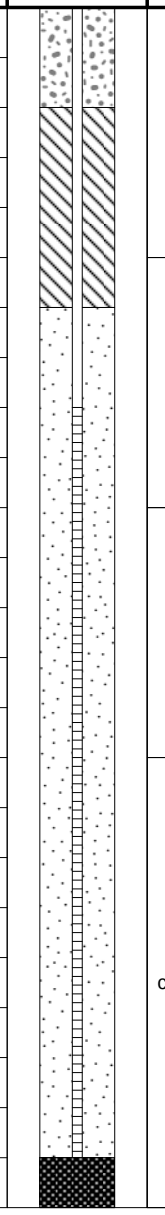
Exide Technologies

Log of Boring: MW-31

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	5/9/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Margarito Estrada	Total Depth (ft):	24
Driller's License:	58164	Northing:	7102001.9818
Logged By:	Tim Jennings, P.G.	Easting:	2479800.4009
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	637.17
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	636.71



Depth (ft)	Sample	Lithologic Description
0		(0 - 0.9) CONCRETE SLAB
	0.9-2	(0.9 - 5.8) FILL, clayey sand and sandy clay, orange, trace iron oxide nodules.
5	5.8-8	(5.8 - 8) FILL, silty clay, trace fine gravel, moist to wet, dark brown, trace battery chips at 5.8-8', wet at 9.5', slag observed.
	9.5	(8 - 16) Silty clay, dark brown.
10		
15		(16 - 21) Silty CLAY and clayey SILT, trace gravel and sand, greater sand content with depth, yellowish brown.
20		(21 - 22) Gravelly CLAY, ~20% fine to medium gravel in clay matrix.
		(22 - 24) SHALE potentially, drilling more difficult.

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 6.0) Bentonite Hole Plug
(6.0 - 23.0) 20/40 Silica Sand

Well Materials
(0 - 8.0) Casing, 2" Sch 40 FJT PVC
(8.0 - 23.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

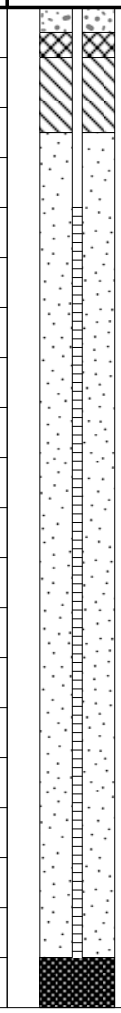
Exide Technologies

Log of Boring: PMW-19R

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/26/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	20
Driller's License:	3038M	Northing:	7103664.081
Logged By:	Roberta Russell	Easting:	2480920.3742
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	678.45
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	681.79

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		3.6/5.0	CL	0-0.5	(0 - 3.0) CLAY with trace gravel, dark reddish brown, moist, soft to firm, low to medium plasticity, abundant calcareous nodules.
				0.5-2	
				2-4	
				4-5	
5		3.1/5.0	CL/ML		(3.0 - 13.0) Clayey SILT/Silty CLAY, dark reddish brown, yellowish brown from 7-10', slightly moist, very hard, low plasticity, friable from 5-6.5'.
10		3.4/5.0			
			SC/CL		(13.0 - 14.0) Clayey SAND/Sandy CLAY, light yellowish brown with orange staining (iron oxide), moist, soft, low plasticity.
15		4.5/5.0	SH		(14.0 - 19.0) SHALE, dark gray with orange staining (iron oxide along fractures and bedding planes), dry to slightly moist, soft to firm, high plasticity, weathered.
20					(19.0 - 20.0) SHALE, dark gray, dry, very hard.

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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 1.0) Bentonite Grout
(1.0 - 2.5) Bentonite Hole Plug
(2.5 -19.0) 20/40 Silica Sand
(19.0 - 20.0) Sloughed Material

Well Materials
(+3.34 - 4.0) Casing, 2" Sch 40 FJT PVC
(4.0 - 19.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

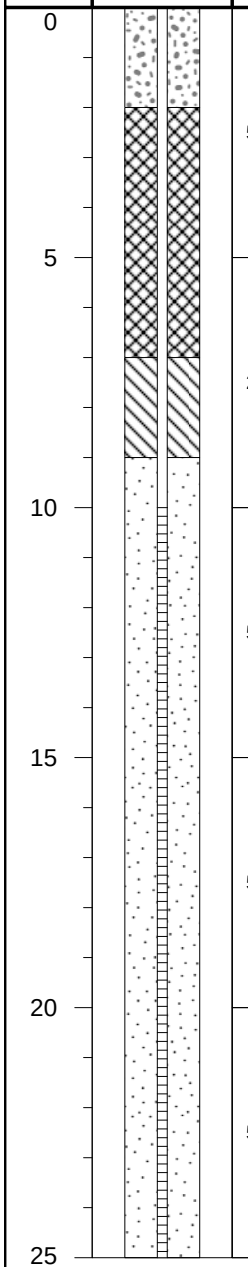
Exide Technologies

Log of Boring: PMW-20R

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/26/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	25
Driller's License:	56033	Northing:	7103357.9244
Logged By:	Roberta Russell	Easting:	2480030.2079
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	645.2
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	648.09



Lithologic Description
(0 - 2.6) CLAY, dark reddish brown, moist, soft, high plasticity.
(2.6 - 7.5) Clayey SILT, dark reddish brown, dry to moist, very hard, low plasticity, trace to moderate calcareous nodules.
(7.5 - 11.0) Sandy CLAY/Clayey SAND, moist, soft to firm, low plasticity, more clay with depth, abundant calcareous nodules.
(11.0 - 19.5) CLAY, reddish yellow, with trace to moderate gravel, moist, firm, low to medium plasticity, very fine to medium gravel (5-20%) in clay matrix.
(19.5 - 20.0) GRAVEL with clay; reddish yellow, wet, very soft, ~20-30% clay matrix.
(20.0 - 21.8) CLAY with gravel; reddish yellow, wet, soft to firm, low to medium plasticity clay, <5% carbonate gravel in clay.
(21.8 - 23.0) GRAVEL with clay; reddish yellow, wet, soft, 30-40% low to medium plasticity clay matrix in fine to medium gravel.
(23.0 - 23.5) CLAY with gravel; reddish yellow, very moist, hard, low to medium plasticity clay, 30-40% fine to medium gravel.
(23.5 - 25.0) SHALE, dark gray, dry, very hard, low to medium plasticity, fissile, slightly weathered.

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 7.0) Bentonite Grout
(7.0 - 9.0) Bentonite Hole Plug
(9.0 - 25.0) 20/40 Silica Sand

Well Materials
(+2.89 - 10.0) Casing, 2" Sch 40 FJT PVC
(10.0 - 25.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

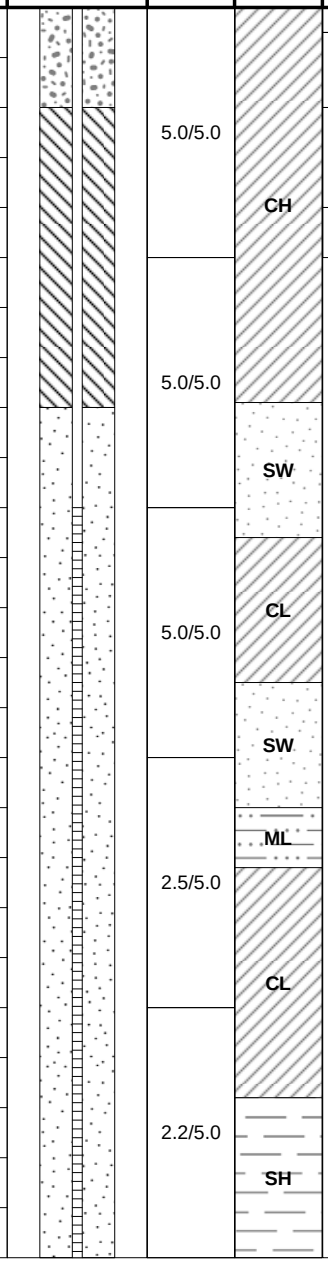
Exide Technologies

Log of Boring: LMW-21

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	25
Driller's License:	56033	Northing:	7103205.9759
Logged By:	Tim Jennings, P.G.	Easting:	2480099.7956
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	645.12
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	648.28



Depth (ft)	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0	5.0/5.0	CH	0-0.5	(0 - 1.1) Sandy, gravelly CLAY; wet, very soft, slow dilatancy, high plasticity clay, ~20-30% fine sand and fine gravel.
			0.5-2	(1.1 - 7.9) Silty CLAY, dark gray, moist, firm to hard, no dilatancy, medium to high plasticity, trace carbonate gravel below 5'.
			2-4	
5			4-5	
	5.0/5.0	SW		(7.9 - 10.6) Clayey, gravelly SAND; light brown, fine to coarse sand, moist, soft to firm, medium plasticity clay, ~10-20% clay and ~10-20% fine to medium gravel.
10	5.0/5.0	CL		(10.6 - 13.5) Clayey SILT, light brown, moist, soft to firm, slow dilatancy, medium plasticity.
		SW		(13.5 - 16.0) Gravelly, clayey SAND; light brown, fine to coarse sand, moist to wet, wet at 15.8-16', firm to soft, ~40-50% fine to medium gravel, ~5-10% clay above 15'.
15		ML		(16.0 - 17.2) Sandy SILT, light brown, wet, soft, medium plasticity.
	2.5/5.0	CL		(17.2 - 21.8) Sandy, gravelly CLAY; wet to dry, firm to hard, medium plasticity clay, fine to medium gravel (~5-10%) and fine to coarse sand (~10-20%) in clay matrix.
20				
	2.2/5.0	SH		(21.8 - 25.0) SHALE, brownish gray, dry, very hard.
25				

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 8.0) Bentonite Hole Plug
(8.0 - 25.0) 20/40 Silica Sand

Well Materials
(+3.16 - 10.0) Casing, 2" Sch 40 FJT PVC
(10.0 - 25.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

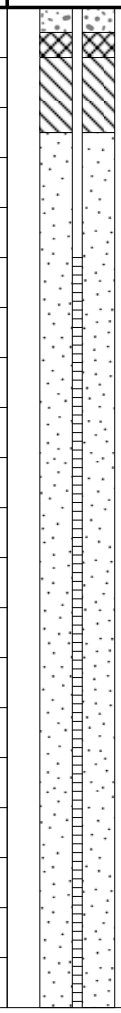
Exide Technologies

Log of Boring: LMW-22

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Dan Spaust	Total Depth (ft):	20
Driller's License:	3038M	Northing:	7102891.2829
Logged By:	Roberta Russell	Easting:	2480355.4657
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	643.32
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	646.71

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Sample	Lithologic Description
0		4.5/5.0	CL	0-0.5	(0 - 12.5) CLAY/Silty CLAY, dark reddish brown, yellowish brown from 9-12.5', moist, soft to firm, low to medium plasticity, ~10% calcareous nodules from 9-12.5'.
				0.5-2	
				2-4	
5		4.4/5.0		4-5	
10		4.0/5.0			(12.5 - 13.0) CLAY with gravel; yellowish brown, moist, soft, low plasticity, ~30-40% gravel in clay matrix. (13.0 - 16.0) Sandy CLAY, yellowish brown, moist, soft, low plasticity.
15		4.3/5.0			(16.0 - 17.0) Gravelly CLAY, yellowish brown, ~30-40% gravel in clay matrix. (17.0 - 19.5) Silty CLAY, grayish brown with orange staining, very moist, soft to firm, low plasticity.
20			SH		(19.5 - 20.0) SHALE, gray, dry, hard, low to medium plasticity.

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Notes:
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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 1.0) Bentonite Grout
(1.0 - 2.5) Bentonite Hole Plug
(2.5 - 20.0) 20/40 Silica Sand

Well Materials
(+3.67 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 20.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

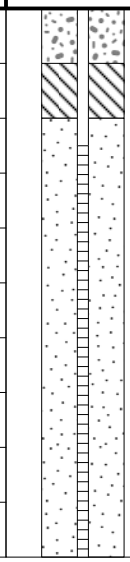
Exide Technologies

Log of Boring: VCP-MW-1

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/28/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	10
Driller's License:	56033	Northing:	7101501.9575
Logged By:	Tim Jennings, P.G.	Easting:	2479866.9837
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	652.99
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	655.88

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		5.0/5.0	MH	0.9	(0 - 3.6) Clayey SILT, grayish brown, moist to wet, soft to firm, high plasticity.
				1.2	
				1.2	
				0.7	
5				0.5	(3.6 - 7.5) SHALE, light brown, orange and gray, moist, firm to hard, medium plasticity, weathered.
		5.0/5.0	SH	1.3	
				1.1	
				1.3	
				0.9	(7.5 - 10.0) SHALE, dark gray, dry, hard.
10				0.8	

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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 2.0) Bentonite Hole Plug
(2.0 - 10.0) 20/40 Silica Sand

Well Materials
(+2.89 - 2.5) Casing, 2" Sch 40 FJT PVC
(2.5 - 10.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: VCP-MW-2

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	3/1/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	20
Driller's License:	56033	Northing:	7101872.3093
Logged By:	Tim Jennings, P.G.	Easting:	2479265.8773
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	627.74
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	631.16

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		5.0/5.0	MH	6.2	(0 - 4.0) Clayey SILT, dark grayish brown, moist, soft to firm, high plasticity, abundant roots to 4'.
				7.0	
				9.3	
				8.7	
5		5.0/5.0	CL	7.2	(4.0 - 9.0) Silty CLAY, dark grayish brown, moist soft, medium plasticity, rust colored mottling locally, friable, abundant roots, iron oxide mottling below 6'.
				8.8	
				7.2	
				8.1	
				8.1	
10		5.0/5.0	CL/CH	9.3	(9.0 - 11.1) Silty CLAY, dark grayish brown, moist firm, medium to high plasticity, light gray laminae.
				8.5	
			CH	7.0	(11.1 - 13.6) Gravelly CLAY, light brown and orange, moist to wet, firm, high plasticity clay, ~20-30% fine to medium gravel in clay matrix, increasing moisture with depth.
				6.6	
				3.2	(13.6 - 15.6) Silty CLAY, light brown to orange, wet, soft, high plasticity, <5% fine to coarse sand.
15				7.2	
		3.5/5.0		8.1	(15.6 - 18.2) SHALE, gray to light brown, moist, hard, abundant iron oxide along bedding planes, weathered.
			SH	5.4	
				5.2	
				12.0	(18.2 - 20.0) SHALE, dark gray, dry, hard.
20				25.1	

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 20.0) 20/40 Silica Sand

Well Materials
(+3.42 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 20.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

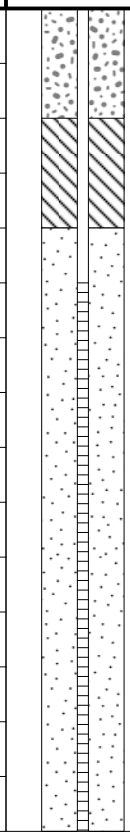
Exide Technologies

Log of Boring: VCP-MW-3

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/28/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	15
Driller's License:	56033	Northing:	7102743.5737
Logged By:	Tim Jennings, P.G.	Easting:	2478984.5144
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	631.34
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	634.06

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		4.3/5.0	CH/MH	0..8	(0 - 3.4) Silty CLAY/Clayey SILT, dark grayish brown, moist, soft to firm, high plasticity, abundant roots at 0-0.5'.
				0.1	
				0.5	
				0.3	(3.4 - 7.3) Silty gravelly CLAY; light brown, moist, firm to hard, medium plasticity clay, ~10-30% fine calcareous gravel.
				1.1	
5		2.4/5.0	CL	0.6	
				0.6	
				0.1	
				-	(7.3 - 7.6) Silty CLAY, light brown, moist firm to hard, medium plasticity, orange and green laminated.
			NR		(7.6 - 10.0) No Recovery
				-	
10		5.0/5.0	CH	0.4	(10.0 - 13.0) Silty CLAY, light brown, wet, soft, high plasticity.
				0.5	
				0.4	
			SH	1.1	(13.0 - 15.0) SHALE, gray, moist, firm to hard, medium plasticity, abundant iron oxide partings, weathered.
				0.4	
15					

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 15.0) 20/40 Silica Sand

Well Materials
(+2.72 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 15.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

Exide Technologies

Log of Boring: VCP-MW-4

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/28/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	15
Driller's License:	56033	Northing:	7102521.1042
Logged By:	Tim Jennings, P.G.	Easting:	2479285.0237
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	632.18
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	635.43

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		2.5/5.0	MH	0	(0 - 1.8) Clayey SILT, dark grayish brown, moist soft, high plasticity, trace calcareous nodules.
				0	
			CL/CH	0.4	(1.8 - 5.3) Silty CLAY, brown to light brown, moist, soft to firm, medium to high plasticity, trace to 5% calcareous nodules.
				-	
5				-	
		3.0/5.0	CL/GC	0.1	(5.3 - 6.6) Gravelly CLAY/Clayey GRAVEL, sub-rounded gravel, moist, soft to firm, medium plasticity clay, ~40-60% fine to medium gravel in clay matrix.
				0	
			CL/CH	0.1	(6.6 - 10.7) Silty CLAY, orange, brown and gray mottled, moist, firm, medium to high plasticity.
				-	
10				-	
		5.0/5.0		1	
			SH	0	(10.7 - 15.0) SHALE, orangish brown to gray, moist to dry, firm to hard, medium plasticity, abundant iron oxide along bedding planes.
				0.1	
				0.3	
15				0.1	

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Notes:

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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 3.0) Bentonite Hole Plug
(3.0 - 15.0) 20/40 Silica Sand

Well Materials
(+3.25 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 15.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

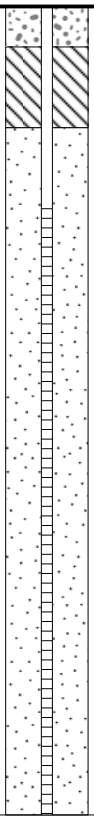
Exide Technologies

Log of Boring: VCP-MW-5

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	20
Driller's License:	56033	Northing:	7102925.8587
Logged By:	Tim Jennings, P.G.	Easting:	2480000.584
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	640.8
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	643.97

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	Lithologic Description
0		5.0/5.0	CH	(0 - 6.6) Silty CLAY, dark grayish brown, moist to dry, firm to hard, high plasticity, few (<5%) small calcareous nodules below 3.3', dry below 3.5'.
5		2.5/5.0	CL/CH	(6.6 - 11.5) Sandy, silty CLAY; light brown, light gray and orange laminated, moist, very hard, medium to high plasticity, ~10-20% fine to coarse sand in clay matrix.
10		3.2/5.0	CH	(11.5 - 12.0) Sandy, gravelly CLAY; brown orange, moist, firm, high plasticity clay.
			SW	(12.0 - 12.8) Clayey, gravelly SAND; wet, soft, ~20-30% clay, ~10-20% fine to medium gravel.
			CH	(12.8 - 15.9) Sandy, gravelly CLAY; brown orange, moist, firm, high plasticity clay, ~10-20% fine sand and fine gravel, possibly calcareous nodules.
15		2.5/5.0	CL	(15.9 - 17.5) CLAY, orange and gray mottled, moist, firm, medium plasticity, <5% fine to medium gravel and calcareous nodules, possible reworked shale.
			SH	(17.5 - 17.7) SHALE, gray, moist, firm, high plasticity.
20				(17.7 - 20.0) SHALE, gray, very hard, poor recovery.

PBW
Pastor, Behling & Wheeler, LLC
2201 Double Creek Dr., Suite 4004
Round Rock, TX 78664
Tel (512) 671-3434 Fax (512) 671-3446

Notes:
This log should not to be used separately from the report to which it is attached.

Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 3.0) Bentonite Hole Plug
(3.0 - 20.0) 20/40 Silica Sand

Well Materials
(+3.17 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 20.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

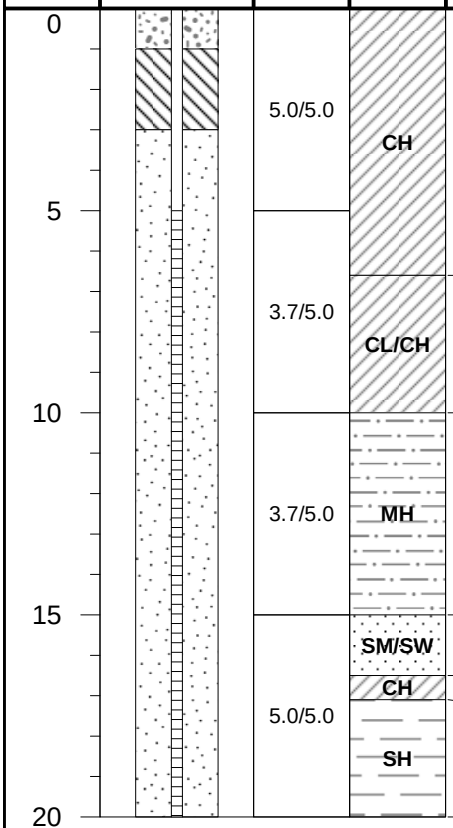
Exide Technologies

Log of Boring: VCP-MW-6

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	2/27/2013	Drilling Method:	HSA
Drilling Company:	Strata Core Services, LLC	Borehole Diameter (in.):	7.75
Driller:	Chris Combs	Total Depth (ft):	20
Driller's License:	56033	Northing:	7103251.5523
Logged By:	Tim Jennings, P.G.	Easting:	2479837.0804
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	641.1
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	644.71



Depth (ft)	Recovery (ft/ft)	USCS	Lithologic Description
0	5.0/5.0	CH	(0 - 6.6) Silty CLAY, dark grayish brown, moist to dry, soft to hard, high plasticity, <5% calcareous nodules, hard and dry below 3.7', brown, ~5-10% calcareous nodules at 5-6.6', very stiff 6-6.6'.
5	3.7/5.0	CL/CH	(6.6 - 10.0) Silty, gravelly CLAY; brown orange, moist, hard to very hard, medium to high plasticity clay, well laminated, ~10-20% fine to medium gravel and calcareous nodules.
10	3.7/5.0	MH	(10.0 - 15.0) Clayey SILT, moist to wet, soft, high plasticity, ~20-30% fine to medium gravel and fine to coarse sand from 12.3-12.8', wet below 12.3'.
15	5.0/5.0	SM/SW	(15.0 - 16.5) Silty, gravelly SAND; brown, wet, soft, ~10% fines, ~20-30% fine to medium sub-rounded gravel in fine to coarse sand.
		CH	(16.5 - 17.1) Silty CLAY, brown, wet, soft, high plasticity, trace fine gravel in clay matrix.
		SH	(17.1 - 20.0) SHALE, gray and brown, moist, firm to hard, iron oxide staining along bedding planes, weathered.
20			

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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 3.0) Bentonite Hole Plug
(3.0 - 20.0) 20/40 Silica Sand

Well Materials
(+3.61 - 5.0) Casing, 2" Sch 40 FJT PVC
(5.0 - 20.0) Screen, 2" Sch 40 FJT PVC, 0.010 slot

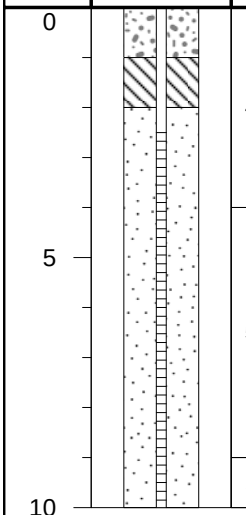
Exide Technologies

Log of Boring: VCP-MW-7

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	4/18/2013	Drilling Method:	HSA
Drilling Company:	Sunbelt Environmental	Borehole Diameter (in.):	8.25
Driller:	Joe Garcia	Total Depth (ft):	10
Driller's License:	58780	Northing:	7100967.0459
Logged By:	Carolyn Sexton	Easting:	2481078.6125
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	683.116976
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	685.176513



Lithologic Description

(0 - 0.8) Silty CLAY, dark gray brown, moist, soft, low plasticity, trace med. size gravel in top 0.5', gradational contact.

(0.8 - 1.1) Chalky, silty LIMESTONE, weathered, orange iron oxide staining.

(1.1 - 6.2) Chalky, silty LIMESTONE, light tan, brittle, dry, hard, <5% dark brown and orange ironstone nodules from 4.0-4.2'.

(6.2 - 10) Chalky, silty SHALE, dark gray, fissile, blocky at base, dry, hard.

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Notes:

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Annular Materials
(0.0 - 1.0) Concrete
(1.0 - 2.0) Bentonite Hole Plug
(2.0 - 10.0) Industrial Quartz Sand

Well Materials
(+2.06 - 2.5) Casing, 2" Sch 40 PVC
(2.5 - 10.0) Screen, 2" Sch 40 PVC, 0.010 slot

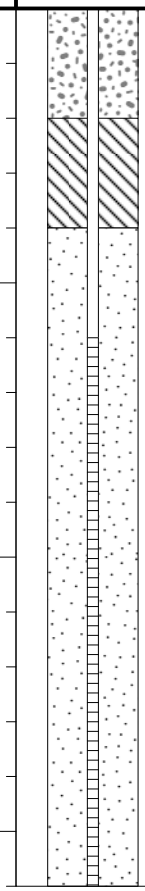
Exide Technologies

Log of Boring: VCP-MW-8

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	4/17/2013	Drilling Method:	HSA
Drilling Company:	Sunbelt Environmental	Borehole Diameter (in.):	8.25
Driller:	Joe Garcia	Total Depth (ft):	16
Driller's License:	58781	Northing:	7102884.3737
Logged By:	Carolyn Sexton	Easting:	2481077.5726
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	648.101225
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	651.023133

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		3.0/5.0	FILL	0	(0 - 3.6) FILL, gray brown, dry, with silty clay, coarse sand to large gravel, asphalt-like nodules, calcareous nodules.
				0	
				0	
				0	
5				0	(3.6 - 7.4) Silty CLAY, dark brown, moist, low plasticity, ~10% graded angular fine to med. sand and calcareous nodules.
		2.5/5.0		0	
				0	
				0	
				0	(7.4 - 11.1) Silty CLAY, medium-brown to gray, moist to wet, low to med. plasticity, ~10-20% coarse sand to medium gravel.
				0	
10			CL	0	
				0	
		3.2/5.0		0	(11.1 - 15.9) Slightly silty CLAY, gray brown, moist to wet, low to med. plasticity, ~30-40% gravel from 11.1-11.3'.
				0	
				0	
				0	
15		1.0/1.0		0	
			LS		(15.9 - 16) LIMESTONE, grayish tan, competent, microcrystaline to very fine grained, contains veins of secondary crystals.

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Annular Materials
(0.0 - 2.0) Concrete
(2.0 - 4.0) Bentonite Hole Plug
(4.0 - 16.0) Industrial Quartz Sand

Well Materials
(+2.92 - 6.0) Casing, 2" Sch 40 PVC
(6.0 - 16.0) Screen, 2" Sch 40 PVC, 0.010 slot

Exide Technologies

Log of Boring: VCP-MW-9

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	4/17/2013	Drilling Method:	HSA
Drilling Company:	Sunbelt Environmental	Borehole Diameter (in.):	8.25
Driller:	Joe Garcia	Total Depth (ft):	20
Driller's License:	58782	Northing:	7103297.5194
Logged By:	Carolyn Sexton	Easting:	2481042.4147
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	664.314339
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	666.957891

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0				0	(0 - 0.7) Silty CLAY, dark brown, slighly moist, firm, low plasticity, with root fragments and angular coarse sand to med. gravel.
			CL	0	(0.7 - 2.7) Silty CLAY, dark brown to black, slightly moist, firm to hard, low plasticity, with calcareous nodules and 10-20% angular coarse sand to fine gravel.
		4.0/5.0		0	
			GC	0	(2.7 - 5) Clayey GRAVEL, yellow-brown, moist to wet, firm, low plasticity, ~40-50% fine to med. carbonate gravel in clay matrix.
5				0	
				0	(5 - 6.1) Silty CLAY, gray with orange iron oxide staining, moist, soft to firm, low to medium plasticity, calcareous nodule lense from 5.5-5.6', laminated fine sand from 5.9-6.05'.
		5.0/5.0		0	(6.1 - 18.8) Silty CLAY, gray with orange iron oxide staining, moist, firm, low plasticity, moderately weathered throughout, contains horizontal carbonate and inron oxide staining and vertical iron oxide filled fractures.
				0	
				0	
10				0	
			CL	0	
		5.0/5.0		0	
				0	
				0	
				0	
15				0	
		5.0/5.0		0	
				0	
				0	
				0	
			SH	0	(18.8 - 20) SHALE, dark gray, moist, firm, low plasticity, unweathered.
20					

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Notes:

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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 2.0) Bentonite Hole Plug
(2.0 - 20.0) Industrial Quartz Sand

Well Materials
(+2.64 - 2.5) Casing, 2" Sch 40 PVC
(2.5 - 20.0) Screen, 2" Sch 40 PVC, 0.010 slot

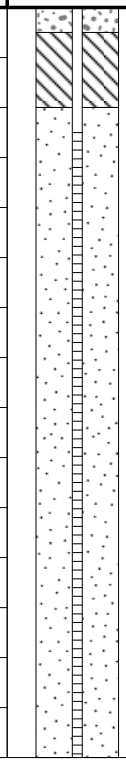
Exide Technologies

Log of Boring: VCP-MW-10

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	4/17/2013	Drilling Method:	HSA
Drilling Company:	Sunbelt Environmental	Borehole Diameter (in.):	8.25
Driller:	Joe Garcia	Total Depth (ft):	15
Driller's License:	58783	Northing:	7103274.8564
Logged By:	Carolyn Sexton	Easting:	2481265.9907
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	667.108585
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	669.744622

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		5.0/5.0	CL	0	(0 - 0.4) Silty CLAY, dark brown, with roots and 5-10% fine gravel and calcareous nodules.
				0	(0.4 - 1.2) Sandy CLAY, light gray, interlayered soft clay and iron oxide stained sand, slightly moist, low to medium plasticity.
				0	(1.2 - 5.6) Silty CLAY, dark brown-gray, moist, low to medium plasticity, carbonate coarse sand to fine gravel within clay matrix throughout, coarse gravel from 1.6-2.8'.
				0	
5				0	
		5.0/5.0		0	(5.6 - 12.4) Silty CLAY, light to medium gray, moist, soft, friable and fissile, massive below 7.7', limonite and orange iron oxide staining throughout.
				0	
				0	
				0	
10				0	
		5.0/5.0		0	
			SH	0	(12.4 - 15) SHALE, dark gray, slightly moist, low plasticity, slightly weathered.
				0	
15				0	

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Notes:

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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 2.0) Bentonite Hole Plug
(2.0 - 15.0) Industrial Quartz Sand

Well Materials
(+2.64 - 2.5) Casing, 2" Sch 40 PVC
(2.5 - 15.0) Screen, 2" Sch 40 PVC, 0.010 slot

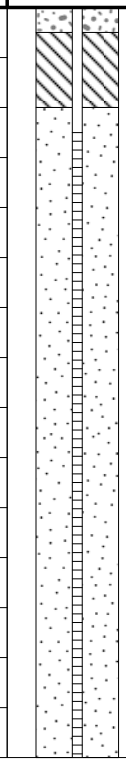
Exide Technologies

Log of Boring: VCP-MW-11

Frisco Recycling Center
Frisco, TX

PBW Project No. 1755

Completion Date:	4/17/2013	Drilling Method:	HSA
Drilling Company:	Sunbelt Environmental	Borehole Diameter (in.):	8.25
Driller:	Joe Garcia	Total Depth (ft):	15
Driller's License:	58784	Northing:	7103365.2704
Logged By:	Carolyn Sexton	Easting:	2481418.2146
Field Supervisor:	Tim Jennings, P.G.	Ground Elev. (ft AMSL):	670.152153
Sampling Method:	5' Split Spoon	TOC Elev. (ft AMSL):	672.734085

Depth (ft)	Well Materials	Recovery (ft/ft)	USCS	PID (ppm)	Lithologic Description
0		3.6/5.0	CL	0	(0 - 0.8) Silty CLAY, deep brown, slightly moist, low plasticity, soft to firm, contains roots.
				0	(0.8 - 5) Slightly silty CLAY, yellow-gray, slightly dry, firm to hard, low plasticity, 10-30% coarse sand to fine gravel dispersed within clay matrix, roots to 3.2', calcareous laminae and iron oxide staining throughout.
				0	
				0	
5		3.4/5.0		0	(5 - 10) Weathered SHALE, gray, slightly dry, firm to hard, low plasticity, iron oxide staining and carbonate filled laminae throughout.
				0	
				0	
				0	
10		5.0/5.0	SH	0	(10 - 12.8) SHALE, dark gray, friable, iron oxide staining, weathered.
				0	
				0	(12.8 - 15) SHALE, dark gray, dry, very hard, fissile, unweathered.
				0	
15				0	

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Annular Materials
(0.0 - 0.5) Concrete
(0.5 - 2.0) Bentonite Hole Plug
(2.0 - 15.0) Industrial Quartz Sand

Well Materials
(+2.58 - 2.5) Casing, 2" Sch 40 PVC
(2.5 - 15.0) Screen, 2" Sch 40 PVC, 0.010 slot

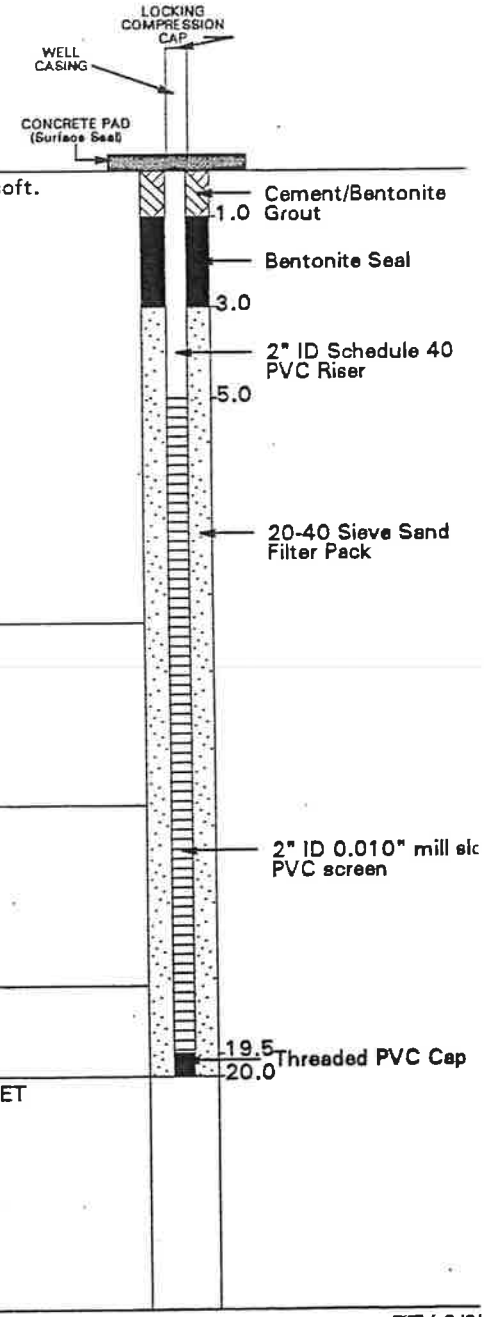
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B1/LMW-1

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: E.D.S.I./R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 inches
Site Coordinates: N: 1130.5500 E: 3406.1100	Total Depth: 20.00	Surface Elevation (ft.): 635.90	TOC Elevation (ft.): 638.74	PAD Elevation (ft.): 635.90
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.10	Date: 7/26/95	Time: 0832

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–7		CLAY (CH) - dark brown, organic material, moist, soft.
	60	▼		7–10		CLAY (CH) - light brown to gray clay, firm. tan, plastic, moist with 10% angular chalk clasts.
	60			10–14		CLAYEY GRAVEL (GC) - tan clay, moist.
	60			14–18		CLAY (CH) - tan to gray, chalk clasts, saturated.
				18–20		SHALE - gray, massive, hard. (Eagle Ford Shale)
				20		BORING TERMINATED AT 20 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/9

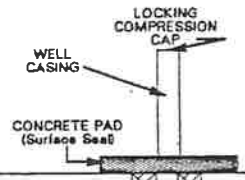
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B2/LMW-2

Client: GNB TECHNOLOGIES	Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS	Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GELLISPIE / Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6183.6400 E: 3546.9700 / Total Depth: 30.00	Surface Elevation (ft.): 638.72	TOC Elevation (ft.): 641.01	PAD Elevation (ft.): 638.72
Datum Description: Site Datum - Elevations ref. from MSL / Datum Elevation: NA	Water Level Depth (ft.): 6.18	Date: 7/26/95	Time: 1045

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) - dark brown, organic material, moist, firm.
	60	▼		5–9		light brown and gray. plastic
	60			9–13		CLAY (CH) - light brown and gray, chalk pebble layers, saturated.
				13–15		CLAYEY GRAVEL (GC) -saturated, 20% angular gravel sized clasts.
	60			15–17		CLAY (CH) - tan with chalk clasts, grades down to harder gray clay.
				17–18		SAND (SP) - red, medium grained, saturated.
	12			18–21		SHALE - gray, massive, hard. (Eagle Ford Shale)
				21–24		BORING TERMINATED AT 21 FEET



Cement/Bentonite Grout — 2.0
Bentonite Seal — 4.0
2" ID Schedule 40 PVC Riser — 6.0
20-40 Sieve Sand Filter Pack
2" ID 0.010" mill slot PVC screen
20.5 Threaded PVC Cap
21.0

WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

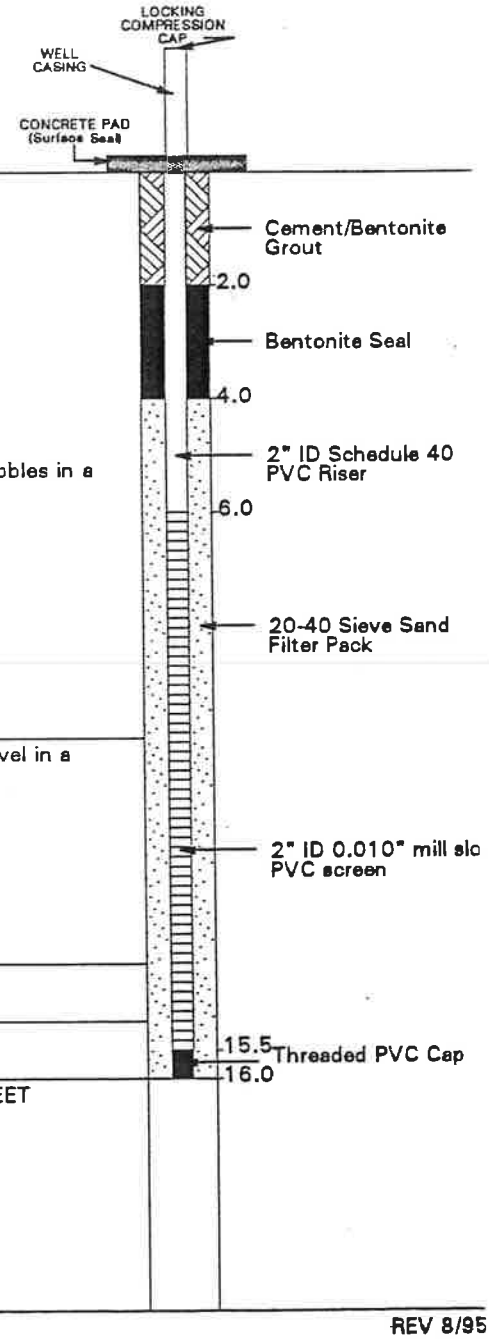
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B3/LMW-3

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGERS		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5364.7800 E: 3928.4200	Total Depth: 16.00	Surface Elevation (ft.): 637.76	TOC Elevation (ft.): 639.78	PAD Elevation (ft.): 637.76
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.18	Date: 7/26/95	Time: 0828

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) -dark brown, organic, moist, soft.
	60	▼		5–10		CLAY (CH) - tan, plastic, hard, with 10% chalk pebbles in a clay matrix.
				9		gravelly clay, tan, plastic, moist.
	60			10–14		CLAYEY GRAVEL (GC) - saturated, suspended gravel in a tan clay matrix.
				14		CLAY (CH) - gray, iron stained.
	12			15		SHALE - gray, massive, hard. (Eagle Ford Shale)
				16		BORING TERMINATED AT 16 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

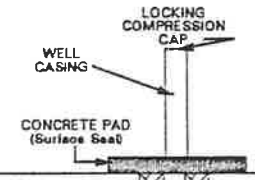
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B4/LMW-4

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5735.6900 E: 3757.2000	Total Depth: 22.00	Surface Elevation (ft.): 639.15	TOC Elevation (ft.): 641.42	PAD Elevation (ft.): 638.15
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 6.76	Date: 7/26/95	Time: 1030hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–9		CLAY (CH) - dark brown, organic material, moist, soft.
	60			9–13		light brown to gray, grades into a laminated brown clay.
	60			9–10		CLAY (CH) - tan, moderate plasticity, moist, angular chalk clasts.
	60			13–15		chalk clasts, saturated.
	24			15–20		tan, plastic, moist.
				20–21		SAND (SP) - 1.5 feet thick, red, soft, moist.
				21–22		SHALE - gray, massive, hard. (Eagle Ford Shale)
				22–24		BORING TERMINATED AT 22 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

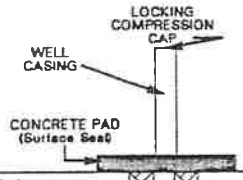
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B5/LMW-5

Client: GNB TECHNOLOGIES		Start Date: 2-3-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5706.3200 E: 4174.7100	Total Depth: 22.00	Surface Elevation (ft.): 643.27	TOC Elevation (ft.): 646.61	PAD Elevation (ft.): 643.27
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 10.25	Date: 7/25/95	Time: 0647hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) - dark brown, moist, soft, organic material near surface.
	48			5–8		CLAY (CH) - dark tan to brown, hard, 10% chalk clasts.
	24			8–10		GRAVELLY CLAY (CL) - tan, moist.
	48			10–14		CLAY (CH) - tan, hard.
	24			14–18		CLAYEY GRAVEL (GC) - tan.
	24			17–18		
	24			18–20		CLAY (CH) - tan, massive soft.
	24			20–22		SHALE - gray, hard, iron stained fractures. (Eagle Ford Shale, weathered)
				22		SHALE - gray, massive, hard. (Eagle Ford Shale)
						BORING TERMINATED AT 22 FEET



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-6

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6171.1200 E: 4239.9600	Total Depth: 21.00	Surface Elevation (ft.): 652.79	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - brown , moderately organic, moist, firm.
	24			2		
				3		
	24			4		
				5		light brown and gray.
	24			6		
				7		tan to brown, very firm, massive.
	24			8		
				9		CLAY (CH) - tan, firm with horizontal jointing, 1-3" width, jointing coated with red and yellow staining.
	48			10		
				11		
				12		
				13		
				14		
	24			15		
				16		
	48			17		
				18		SILTY SAND (SM) - red, medium grained, friable, clay coating on graines.
				19		
				20		
	12			21		SHALE - gray, massive, hard. (Eagle Ford Shale)
				22		BORING TERMINATED AT 21 FEET
				23		
				24		

SOIL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

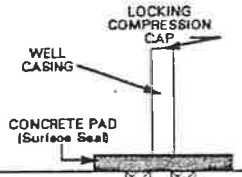
LOG OF TEST BORING

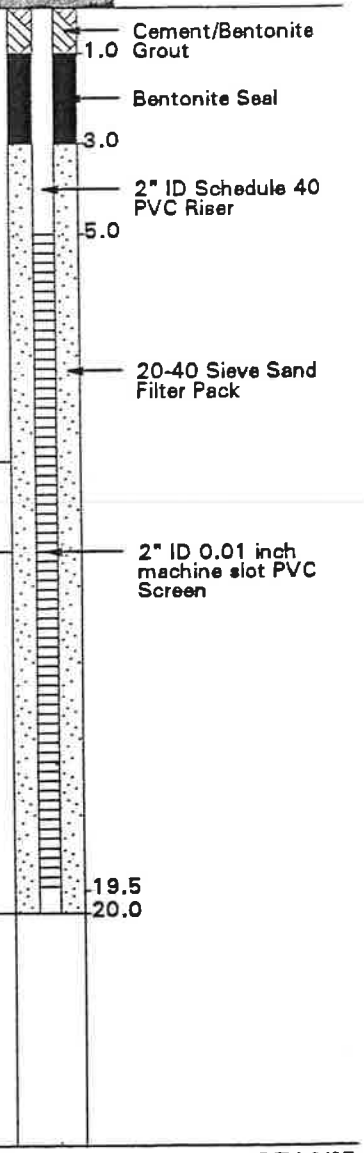
RMT, INC. JONES & NEUSE

BORING NO. B7/LMW-7

Client: GNB TECHNOLOGIES		Start Date: 2-2-95	End Date: 2-3-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6574.6800 E: 4322.6900	Total Depth: 20.00	Surface Elevation (ft.): 657.45	TOC Elevation (ft.): 659.07	PAD Elevation (ft.): 657.45
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 8.06	Date: 7/26/95	Time: 1050hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - dark brown, soft, moist, organic material near surface.
	60			10–11		light brown to gray, grades to laminated brown clay.
	48			11–12		tan, moist with 10% angular chalk clasts.
	36			12–20		CLAYEY GRAVEL (GC) - tan, decreasing grain size with depth, saturated.
	36			20		CLAY (CH) - tan to gray, <5% chalk pebbles.
				20–24		weathered shale, fissile with horizontal jointing, iron staining.
				24		SHALE - gray, massive, hard. (Eagle Ford Shale) BORING TERMINATED AT 20 FEET





WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

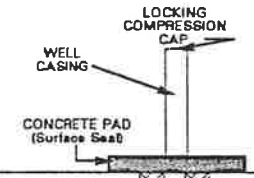
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B8/LMW-8

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5539.0400 E: 4812.0100	Total Depth: 22.00	Surface Elevation (ft.): 645.57	TOC Elevation (ft.): 648.68	PAD Elevation (ft.): 645.57
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 11.13	Date: 7/26/95	Time: 0630hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1-6		CLAY (CH) - dark brown, organic material, moist, firm.
	24					
	60					
	12	▼		7-11		SANDY CLAY (CL) - tan, firm, 10-20% course sand and pebbles size chalk clasts.
	48			12-13		CLAYEY GRAVEL (GC) - saturated.
	24			14-17		CLAY (CH) - brown, massive, very hard.
	24			18		no recovery
	24			19		SAND (SP) - gray and red, medium grained, moist.
				20-21		SHALE - gray, hard, massive. (Eagle Ford Shale)
				22-24		BORING TERMINATED AT 22 FEET



WELL 1584E 8/29/95

F-204B Austin (8-95)

REV 8/95

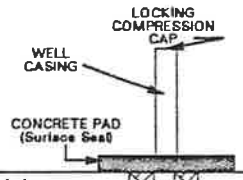
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. B9/LMW-9

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/R. BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5888.8400 E: 4833.3600	Total Depth: 24.00	Surface Elevation (ft.): 660.48	TOC Elevation (ft.): 663.72	PAD Elevation (ft.): 660.48
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 18.74ft.	Date: 4/24/95	Time:

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
				1		CLAY (CH) - dark brown, soft, friable, organic material near surface, moist, moderately soft.
	12			2		
	12			3		
	24			4		
				5		gray, massive, hard, grading into jointed clay with red and yellow staining.
				6		
				7		
	24			8		
				9		
	24			10		
				11		
	24			12		
				13		
	24			14		tan to brown, jointed.
				15		
				16		
	24			17		gray, massive, jointed, dry.
				18		
				19		
				20		
	24			21		
				22		
	24			23		SHALE - gray, massive, hard. waxy texture, weathered. (Eagle Ford Shale)
				24		BORING TERMINATED AT 24 FEET



Cement/Bentonite Grout

5.0

Bentonite Seal

7.0

2" ID Schedule 40 PVC Riser

9.0

20-40 Sieve Sand Filter Pack

2" ID 0.01 inch machine slot PVC Screen

23.5

24.0 Threaded PVC Cap

WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

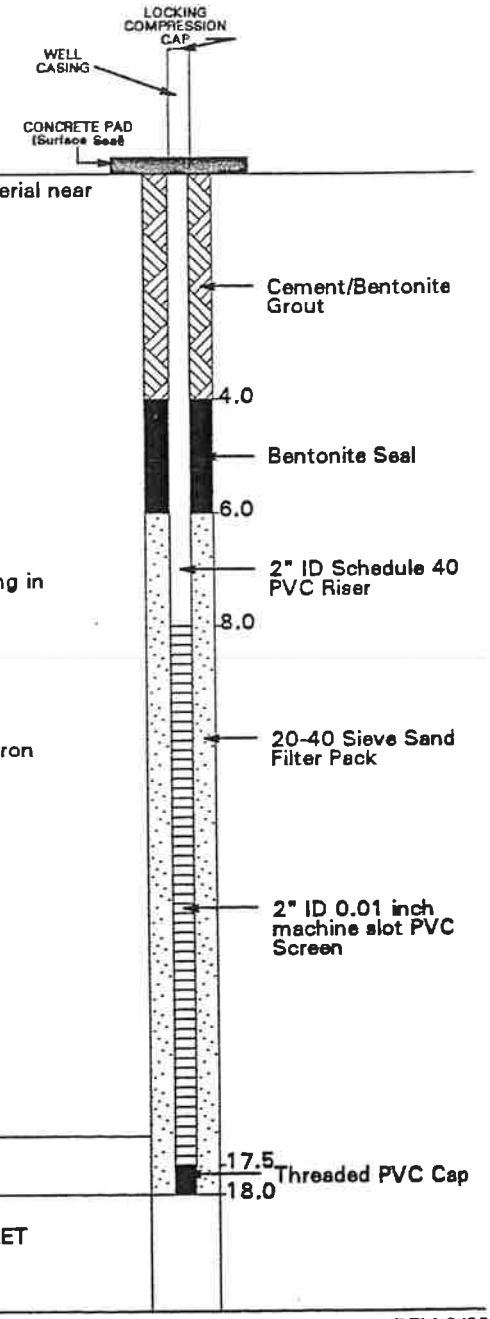
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. LMW-10

Client: GNB TECHNOLOGIES		Start Date: 2-4-95	End Date: 2-4-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: BLAKE GILLESPIE	Driller: RMT-JN/ R.BROTHERS	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6390.7500 E: 4954.0700	Total Depth: 18.00	Surface Elevation (ft.): 681.03	TOC Elevation (ft.): 683.05	PAD Elevation (ft.): 681.03
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 11.26	Date: 7/26/95	Time: 1053hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	12			1		CLAY (CH) - dark brown, soft, friable, organic material near surface.
	12			2		
	24			3		
				4		
	24			5		tan, firm, massive clay, moist.
				6		
	36			7		fractures 1-3" width, moist, yellow and red staining in fractures
				8		
				9		
	24	▼		10		gray, two 2" fractures observed filled with sand, iron stained.
				11		
	36			12		
				13		
				14		
	24			15		
				16		
	12			17		SHALE - massive, very hard. (Eagle Ford Shale)
				18		BORING TERMINATED AT 18 FEET
				19		



WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

JONES & NEUSE

BORING NO. SB-11

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME 750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6380.1701 E: 4279.5396	Total Depth: 23.00	Surface Elevation (ft.): 655.15	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–4		CLAY (CH) - silty; stiff; plastic; olive with gray mottling; moist; color change from 1 ft to 3 ft to dark brown; some sand, fine grained, poorly graded, chalk matrix.
	60			5–9		CLAY (CH) - silty; very stiff; slightly plastic; olive with gray, rust, and yellow mottling; changing to gray with rust and yellow mottling; slightly moist, laminated.
	60			10–14		
	60			15–19		trace weathered shale silty sand seam, very fine grained; some laminated layers of soft, very plastic clay; tan.
	36			20–22		CLAY (CH) - sandy, very fine grained; plastic; stiff; yellowish brown with rust mottling; moist; some seams of weathered shale, gray, dense, hard.
				23		SHALE - gray; dense; hard. (Eagle Ford Shale)
				24		BORING TERMINATED AT 23 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-12

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME 750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6472.1875 E: 4300.0402	Total Depth: 25.00	Surface Elevation (ft.): 656.40	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–5		CLAY (CH) - some sand, fine to medium grained, subrounded, poorly graded, sand is chalk matrix; slightly plastic; hard; dark brown change to brown at 3 ft.; moist.
	60			6–10		CLAY (CH) - silty; stiff; plastic; gray with rust and yellow mottling; laminated; moist.
	60			11–15		some weathered shale lenses.
	60			16–20		
				21–23		SHALE - gray; dense; hard. (Eagle Ford Shale)
				24–25		BORING TERMINATED AT 25 FEET
				26–29		

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-13

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6459.5969 E: 4644.7713	Total Depth: 20.00	Surface Elevation (ft.): 669.41	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - sandy, fine grained, poorly graded, subangular, sand is chalk matrix; silty; plastic; stiff; dark brown; moist.
				3–8		CLAY (CH) - silty; plastic; stiff; gray with rust and yellow mottling; laminated; slightly moist.
	60			5–8		very fine grained sand seam.
				10–15		some weathered shale, becoming more dense.
	60			15–20		SHALE - gray; dense; hard. (Eagle Ford Shale)
				20		BORING TERMINATED AT 20 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95) REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-14

Client: GNB TECHNOLOGIES		Start Date: 7-19-95	End Date: 7-19-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 6414.7340 E: 4474.3169	Total Depth: 14.00	Surface Elevation (ft.): 656.75	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	60			1–10		CLAY (CH) - silty; slightly plastic; stiff; gray with rust and yellow mottling; laminated; slightly moist.
	60					
	48			11–13		SHALE - gray; dense; hard. (Eagle Ford Shale)
				14		BORING TERMINATED AT 14 FEET
				15–19		

SOIL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. SB-15

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-21-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5712.6367 E: 4852.8441	Total Depth: 26.00	Surface Elevation (ft.): 650.92	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - sandy, fine to medium grained, poorly graded, sand is chalk matrix; slightly plastic; stiff; brown; moist.
	24			2		
	24			3		
	36			4		
	24			5		
	36			6		
	24			7		
	36			8		
	24			9		
	36			10		
	24			11		
	36			12		
	24			13		
				14		CLAY (CH) - trace silt; some chalk fragments, subangular; plastic; hard; brown with yellowish brown mottling; moist at 7.5 feet; change color to gray with rust and yellow mottling; laminated.
				15		
				16		
				17		
				18		
				19		
				20		
				21		CLAY (CH) - silty; some sand seams, very fine grained; plastic; stiff; brown with gray mottling; increase sand content with depth.
				22		
				23		
				24		CLAY (CH) - silty; plastic; stiff; some weathered shale; brown with dark gray mottling; moist; laminated.
				25		
				26		SHALE - dark gray; dense; hard. (Eagle Ford Shale)
				27		BORING TERMINATED AT 26 FEET
				28		
				29		

SOIL 1584E 8/23/95

LOG OF TEST BORING

JONES & NEUSE

BORING NO. SB-16

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-21-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5625.1147 E: 4828.9834	Total Depth: 24.00	Surface Elevation (ft.): 647.94	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	48			1–4		CLAY (CH) - silty; some sand, medium grained, subangular, poorly graded, sand is chalk matrix; plastic; hard; dark brown; moist; roots.
						CLAY (CH) - sandy, medium grained, subangular; slightly plastic; stiff; light brown; moist.
	60			4–9		CLAY (CH) - sandy, medium to coarse grained, poorly graded, sand is chalk matrix; trace gravel size grains; plastic; stiff; light brown; moist.
	60			9–13		CLAY (CH) - silty; trace sand, fine grained; very plastic; stiff; light brown with rust and gray mottling; moist; increase fine grained sand content with depth.
	60			13–14		SANDY CLAY with gravel (CH) - fine to medium grained, subrounded, poorly graded; plastic; stiff; tan with rust mottling; wet.
				14–18		CLAY (CH) - silty; some very fine grained sand; plastic; stiff; brown with rust and gray mottling; laminated; moist.
	60			18–21		CLAY (CH) - trace silt, laminated; slightly plastic; hard; gray with rust and yellow mottling; very fine grained sand seam at 19 feet, gray, wet.
						fine grained sand seam from 20.5 to 20.7 ft., wet.
				22–24		SHALE - dark; dense; hard.
						BORING TERMINATED AT 24 FEET

SOIL 1684E 8/23/95

F-204B Austin (8-95) REV 8/95

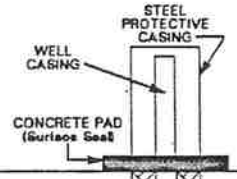
LOG OF TEST BORING

RMT, INC. JONES & NEUSE

BORING NO. LMW-17

Client: GNB TECHNOLOGIES		Start Date: 7-21-95	End Date: 7-24-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 8 Inches
Site Coordinates: N: 5626.1663 E: 4507.0130	Total Depth: 23.00	Surface Elevation (ft.): 646.34	TOC Elevation (ft.): 648.84	PAD Elevation (ft.): 646.34
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): 13.52	Date: 7/26/95	Time: 0643hrs.

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	24			1		CLAY (CH) - trace sand, fine grained, poorly graded, subangular, sand is chalk matrix; plastic; hard; very dark brown; moist.
	24			2		
	24			3		
	36			4		
				5		
				6		
				7		
	60			8		
				9		
				10		increase sand content, fine to coarse grained; wet.
				11		
				12		
				13		
				14		silty sand seam. fine grained
	24			15		CLAYEY SAND (SC) - fine to coarse grained, subangular, poorly graded; no plasticity; loose; tan; wet.
	36			16		CLAYEY GRAVEL with sand (GC) - fine grained, rounded, poorly graded; loose; tan; wet.
				17		
				18		
				19		
	24			20		CLAY (CH) - silty; hard; plastic; gray with rust and yellow mottling; moist. sand seam, very fine grained.
	24			21		SHALE - gray; dense; hard. (Eagle Ford Shale)
				22		
				23		BORING TERMINATED AT 23 FEET
				24		



Cement/Bentonite Grout

4" ID Schedule 40 PVC Riser

6.0

Bentonite Seal

8.0

10.0

Filter Pack

4" ID, 0.01 inch slot, PVC screen

20.0

Sump

23.0

WELL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LOG OF TEST BORING

RMT JONES & NEUSE

BORING NO. SB-18

Client: GNB TECHNOLOGIES		Start Date: 7-25-95	End Date: 7-25-95	Page 1 of 1
Site: FRISCO, TEXAS		Drilling Method: HOLLOW STEM AUGER		Project Number: 50-01584.13
Geologist: DAVID McQUADE	Driller: E.D.S.I./MIKE McNITT	Drill Rig Type: CME-750		Borehole Diameter: 6 Inches
Site Coordinates: N: 5721.6077 E: 4494.9856	Total Depth: 24.00	Surface Elevation (ft.): 647.30	TOC Elevation (ft.): NA	PAD Elevation (ft.): NA
Datum Description: Site Datum - Elevations ref. from MSL	Datum Elevation: NA	Water Level Depth (ft.): NA	Date: NA	Time: NA

Sample Type	Recovery (Inches)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
	48			1–5		CLAY (CH) - silty; plastic; stiff; dark brown; some sand at depth, fine grained, poorly graded, sand is chalk matrix; trace roots from 0-2 feet.
	60			6–9		CLAY (CH) - trace silt; trace sand, fine grained, subangular, poorly graded, sand is chalk matrix; plastic; stiff; brown; moist; increase sand content with depth, grain size fine to medium; tan.
	60			10–13		CLAY (CH) - silty; sandy, very fine grained; plastic; soft; tan; wet.
	60			14		CLAYEY GRAVEL with sand (GC) - fine grained; poorly graded; rounded; loose; tan; wet.
				15–20		CLAY (CH) - silty; plastic; stiff; brown with gray and yellow mottling; laminated; increase silt with depth changing to gray with rust and yellow mottling.
	60			21–23		SHALE - gray; dense; hard. (Eagle Ford Shale)
				24		BORING TERMINATED AT 24 FEET

SOIL 1584E 8/23/95

F-204B Austin (8-95)

REV 8/95

LAKE ENGINEERING, INC. Project Remedial Investigation Boring no. P-1
Project no. 495.4.5 GNB, Incorporated – Frisco, Texas Sheet 1 of 1

Sampling methods: 4.5" Split Spoon Completion date: 5/8/90 Boring depth: 25.0
Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 20.0
Groundwater elevation: 636.14 (msl) Date: 7/16/90 Surface elevation: 645.95 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, stiff, with calcerous pebbles, root zone to 5'		
5							
	GC				GRAVEL, clayey, calcerous, wet		
	CH				CLAY, silty, tan		
10	CH				CLAY, silty, tan, with calcerous pebbles, moist		
	CH				CLAY, silty, calcareous, with gravel		
	CH				CLAY, tan, very stiff, with pebbles		
15	CH				SHALEY CLAY, gray, orange staining on parting surfaces		
	SH				SHALE, dark gray, fissile, brittle, yellow staining on parting surfaces, moist, pyrite nodule at 18.5'		
20	SH				SHALE, dark gray, fissile, brittle		
25							
30							
35							

Log of Boring No. P-1

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 P-1 PSS 1a1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. P-2

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/9/90 | Boring depth: 22.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 20.0

Groundwater elevation: 633.35 (msl) | Date: 7/16/90 | Surface elevation: 642.82 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing
0	CH				CLAY, dark brown, highly plastic, with small calcareous pebbles		
5	CH				CLAY, brown mottled orange, with calcareous pebbles		
10	CH				CLAY, silty, brownish gray, with calcareous pebbles		
15	CH				SHALEY CLAY, plastic, moderately fissile, less weathered at depth, selenite crystals found on parting surfaces		
20	SH				SHALE, dark gray, fissile, very brittle		
22	SH				LIMESTONE, layer, refusal at 22'		
25							
30							
35							

Log of Boring No. P-2

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 P-2 PS 1of1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-1N

Project no. 495.4.5

Sheet 1 of 2

Sampling methods: 4.5" Split Spoon | Completion date: 6/22/90 | Boring depth: 62.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 59.5

Groundwater elevation: 622.01 (msl) | Date: 7/16/90 | Surface elevation: 679.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	LS				LIMESTONE, (Austin Chalk Group), light brown		
	CH				CLAY, light brown, moderately dry		
5	CH				SHALEY CLAY, light brown, calcareous, fissile		
	CH				SHALEY CLAY, dark gray, calcareous, fissile		
	SH				SHALE, dark gray, sand lense at 10.0'		
10	SH				SHALE, dark gray, hard, fissile, (refusal at 16', needed drilling method change from auger to mud rotary)		
	SH				SHALE, dark gray		
15							
20					<<< RIG CHANGE TO MOBILE B-53 >>>		
	SH				SHALE, dark gray		
25							
30							
	SH				SHALE, dark gray		
35							

Log of Boring No. B-1N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-1N PS1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B1-N

Project no. 495.4.5

Sheet 2 of 2

Sampling methods: 4.5" Split Spoon | Completion date: 6/22/90 | Boring depth: 62.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: MOBILE-53 | Well depth: 59.5

Groundwater elevation: 622.01 (msl) | Date: 7/16/90 | Surface elevation: 679.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
40	SH				SHALE, dark gray		
	SH				SHALE, dark gray		
	SH				SHALE, dark gray		
45							
50							
	LS				LIMESTONE, partially fractured, crystal growth		
	SH				SHALE, dark gray, pyrite nodules at 55', sand layer at 56', shell fragments at 57–58', silt layer at 59'		
55							
60							
65							
70							

Log of Boring No. B1-N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B1-N PS.1wl

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-2R

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/11/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 633.76 (msl) | Date: 7/16/90 | Surface elevation: 642.79 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CL				CLAY, dry, calcareous pebbles		
5	CL				CLAY, shaley		
10							
15							
	SH				SHALE		
20							
25							
30							
35							

Log of Boring No. B-2R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-2R PS-1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-3R

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/21/90 | Boring depth: 14.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 14.0

Groundwater elevation: 638.51 (msl) | Date: 7/16/90 | Surface elevation: 649.23 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, gray		
	CH				CLAY, gray		
5	CH				CLAY, gray, sandstone layers		
10	CH				SHALEY CLAY		
15							
20							
25							
30							
35							

Log of Boring No. B-3R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-3R PS.1e1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-4R

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 7/11/90 | Boring depth: 9.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 9.0

Groundwater elevation: 654.44 (msl) | Date: 7/16/90 | Surface elevation: 661.40 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CL				CLAY, dry		
5	CL				SHALEY CLAY		
	SH				SHALE, dark gray		
10							
15							
20							
25							
30							
35							

Log of Boring No. B-4R

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-4R PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-5N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/7/90 | Boring depth: 19.5

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 16.5

Groundwater elevation: 621.05 (msl) | Date: 7/16/90 | Surface elevation: 629.97 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, silty, dark brown, calcareous, with sand size calcareous particles		
5							
	CH				CLAY, silty, very soft, moist, blocky		
10	MH				SILT, clayey, sand size calcareous particles		
	GC				GRAVEL, dense clay interfill, calcareous, wood fiber and sand size calcareous particles at 12.0–13.0'		
15	CH				SHALEY CLAY, yellow staining on parting surfaces, 3" seam of clayey gravel at 19.0'		
20	CH				SHALE, dark gray, fissile, brittle 19.25–19.50'		
25							
30							
35							

Log of Boring No. B-5N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-5N PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-7N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/10/90 | Boring depth: 25.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 24.0

Groundwater elevation: 634.66 (msl) | Date: 7/16/90 | Surface elevation: 644.08 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark brown to brown, calcareous, increase in amount and size of calcareous particles at depth		
5	CH				CLAY, gray mottled tan, slightly moist, blocky, with calcareous pebbles		
10	CH				CLAY, gray mottled tan, calcareous, fewer and smaller calcareous particles pebbles than above		
15	CH				SHALEY CLAY, gray, yellow and tan weathering, selenite crystals on parting surfaces		
20	SH				SHALE, dark gray, clayey, moist, very brittle,less brittle and more fissile at depth, shell fragments 23–25'		
25							
30							
35							

Log of Boring No. B-7N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.B-7N PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-8N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 5/15/90 | Boring depth: 20.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 14.0

Groundwater elevation: 618.89 (msl) | Date: 7/16/90 | Surface elevation: 626.93 (msl)

Depth (ft.)	USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH	CLAY, dark brown, highly plastic, calcareous, shell fragment at 3'		
5	CH	CLAY, dark brown, highly plastic, with calcareous pebbles		
	CH	SHALEY CLAY, gray, highly plastic, calcareous, light yellow and orange weathering on parting surfaces		
10	CH	SHALEY CLAY, gray, yellow weathering on parting surfaces		
	CH	SHALEY CLAY, dark gray, light yellow staining on parting surfaces		
	SH	SHALE, dark gray, fissile, thin sand lenses		
15	SH	SHALE, dark gray, brittle, fissile, very dry		
	SH	SHALE, dark gray, moderately fissile		
20				
25				
30				
35				

USC SYMBOLS | CONSTRUCTION SYMBOLS | Samples

Log of Boring No. B-8N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495.B-8N PS.1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. B-9N

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/12/90 | Boring depth: 18.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 628.45 (msl) | Date: 7/16/90 | Surface elevation: 637.02 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, dark to medium brown, calcareous, sand to gravel size calcareous pebbles		
5	GC				SAND, silty, clayey, calcareous, with gravel size pebbles		
10	CH				SHALEY CLAY, gray, orange staining on parting surfaces		
15	SH				SHALE, dark gray, fissile, very brittle, interbedded with sand layers 17.5–18.0'		
20							
25							
30							
35							

Log of Boring No. B-9N

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 B-9N PG 1 of 1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW10

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/13/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 637.95 (msl) | Date: 7/16/90 | Surface elevation: 645.12 (msl)

Depth (ft.)	USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH	CLAY, dark to medium brown, with calcareous pebbles		
5	CH	CLAY, sandy, brown to brown mottled orange, with calcareous pebbles		
10	CH	CLAY, gray mottled orange–brown, dense, highly plastic		
15	CH	SHALEY CLAY, gray, moist, yellow and orange staining on parting surfaces		
20	SH	SHALE, dark gray, fissile, brittle, selenite crystals on parting surfaces		
25				
30				
35				

USC SYMBOLS | CONSTRUCTION SYMBOLS | Samples

Log of Boring No. MW10

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW10 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW11

Project no. 495.4.5 Sheet 1 of 1

Sampling methods: 4.5" Split Spoon Completion date: 6/11/90 Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 17.0

Groundwater elevation: 615.76 (msl) Date: 7/16/90 Surface elevation: 625.58 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, dense, highly plastic, calcareous, blocky with calcareous pebbles, shell fragment at 18.0"		
5	CH				CLAY, dark to medium brown, highly plastic, calcareous, moist, larger calcareous pebbles at depth		
	GC				GRAVEL, sandy, clayey, calcareous		
10	CH				CLAY, light brown to gray, moist, highly plastic		
	SH				SHALE, dark gray, brittle, fissile		
15							
20							
25							
30							
35							

Log of Boring No. MW11

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495_MW11 PS.1e1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW12

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/19/90 | Boring depth: 18.5

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 18.5

Groundwater elevation: 624.43 (msl) | Date: 7/16/90 | Surface elevation: 633.94 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, medium brown, firm, calcareous pebbles		
5	CH				CLAY, medium brown, firm, calcareous pebbles		
10	CH				CLAY, medium brown, firm, calcareous pebbles		
	CH				SHALEY CLAY, brown to gray, yellow and orange weathering on parting surfaces LIMESTONE, very hard, 1" layer–12'		
15	SH				SHALE, dark gray, fissile		
	SH				COMPOSITE LOG, 0–12.0' 1st, 12.0–18.5' 2nd, 6' offset NW		
20							
25							
30							
35							

Log of Boring No. MW12

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 LW12 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW13

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/18/90 | Boring depth: 25.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 22.0

Groundwater elevation: 620.94 (msl) | Date: 7/16/90 | Surface elevation: 636.17 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, fill		
5	CH				CLAY, dark brown, dense, stiff		
	CL				CLAY, moist, loose, blocky		
	CH				CLAY, dark brown, dense, stiff		
	CL				CLAY, silty, dark brown, loose, moist, sand layers 8.0' and 9.0', shell fragments 11.0' and 12.0'		
10							
	CH				CLAY, dark brown, calcareous, stiff, no recovery 13.5–15.0'		
15	CL				CLAY, silty, dark brown, calcareous		
	SC				SILT, clayey, brown, calcareous		
20	GM				GRAVEL, silty, sandy, wet		
	CH				SHALEY CLAY, gray, yellow staining on parting surfaces		
	SH				SHALE, dark gray		
25							
30							
35							

Log of Boring No. MW13

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW13 PS1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW14

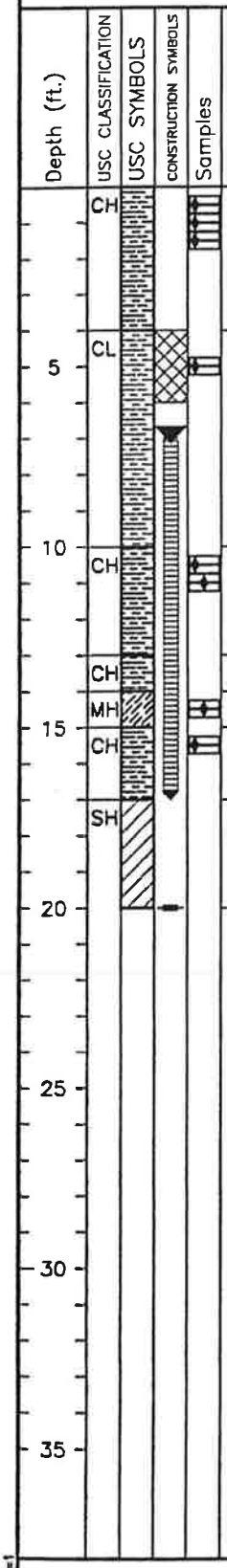
Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/18/90 | Boring depth: 20.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 622.77 (msl) | Date: 7/16/90 | Surface elevation: 629.89 (msl)



USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
CH	CLAY, dark brown, blocky, calcareous, with calcareous pebbles		
CL	CLAY, sandy, gravelly, brown, slightly moist, dense, stiff		
CH	CLAY, slightly silty, light brown mottled gray, calcareous pebbles, weathered limestone layers 13' and 13.5'		
CH	CLAY, gray mottled brown		
MH	SILT, clayey, moist		
CH	SHALEY CLAY, dark gray, dry, brittle, yellow staining on parting surfaces		
SH	SHALE, dark gray, brittle, fissile		

Log of Boring No. MW14

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW14 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW15

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/11/90 | Boring depth: 22.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 22.0

Groundwater elevation: 617.05 (msl) | Date: 7/16/90 | Surface elevation: 624.99 (msl)

Depth (ft.)	USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH	CLAY, dark brown, moist, calcareous, blocky		
5	CH	CLAY, dark brown, blocky, moist, highly plastic, loose, shell fragments		
10	CH	CLAY, silty, sandy, dark gray, loose, very moist		
	CL	CLAY, stiff, sand size calcareous pebbles		
15	CH	CLAY, silty, dark brown mottled gray, calcareous, calcareous pebbles		
	GW	GRAVEL, sandy, well graded, well rounded, calcareous, wet, clayey at 17.5–18.5'		
20	SH	SHALE, dark gray, weathered		
25				
30				
35				

USC SYMBOLS | CONSTRUCTION SYMBOLS | Samples

Log of Boring No. MW15

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW15 PS.1of1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 1 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME–55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark brown, blocky, calcareous, calcareous pebbles		
5	CH				CLAY, dark brown, moist, blocky		
10	CH				CLAY, brown, blocky, calcareous pebbles		
15	CH				CLAY, sandy, silty, gravelly, wet		
	CH				SHALEY CLAY, gray with yellow and orange staining on parting surface		
20	SH				SHALE, dark gray, brittle, fissle, grading to less brittle, yellow weathering on parting surface		
25	SH				SHALE, dark gray, shell fragments at 28.0' ((Rig change to Mobile B–53 for rock coring))		
30							
35							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495_MW16 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation Boring no. MW16
Project no. 495.4.5 GNB, Incorporated – Frisco, Texas Sheet 2 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, 1/4" clay layer at 36.0' and 37.0'		
	SH				SHALE, dark gray, calcareous particles on parting surface from 42.0' to 136.0'		
40							
45	SH				SHALE, dark gray, pyrite found at 48.5', 4" limestone layer at 53.0'		
50							
55	SH				SHALE, dark gray, sandstone layers at 59.5' and 61.5' clay lense at 62.0', sandstone layers at 64.0' and 64.5'		
60							
65	SH				SHALE, dark gray, limestone layers at 66.0', 66.5', and 68.0'		
70							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS 1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16

Project no. 495.4.5

Sheet 3 of 8

Sampling methods: 4.5" Split Spoon | Completion date: 5/23/90 | Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 77.5

Groundwater elevation: 562.54 (msl) | Date: 7/16/90 | Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, limestone layers at 73.0' and 73.5'		
75	SH				SHALE, dark gray, limestone layers at 76.5', 79.0', and 84.5', sand layers at 82.0' and 84.0'		
80							
85	SH				SHALE, dark gray, limestone layer at 86.0'		
90							
95	SH				SHALE, dark gray, limestone layers at 96.0', 97.0', 103.0', and 104.0'		
100							
105							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 WM6 PS1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 4 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, limestone layer at 107.0' and 108.0' sandstone layer at 108.75' and 110.0'		
110	SH				SHALE, dark gray, limestone layer		
115	SH				SHALE, dark gray, limestone layers		
120	SH				SHALE, dark gray, thin limestone layers throughout fossil fragments found in limestone layers		
125							
130	SH				SHALE, dark gray, limestone layers, fractures at 60 at 136.0' and 136.5'		
135	SH				SHALE, dark gray, hard, dense, non-calcareous		
	SH				SHALE, dark gray, non-calcareous particles		
140							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS.1a1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 5 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
145	SH				SHALE, dark gray, non-calcareous particles		
150	SH				SHALE, dark gray, solid, non-calcareous		
155	SH				SHALE, dark gray, non-calcareous		
160							
165							
170	SH				SHALE, dark gray, 1.5" limestone layer at 173.0'		
175							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1of1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 6 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray, 1" limestone layer at 175.5'		
	SH				SHALE, dark gray, 1.5" limestone layer at 182.5'		
180							
185							
	SH				SHALE, dark gray		
190							
	SH				SHALE, dark gray, limestone layer at 201.0' ((Core not recovered at 193.0' to 198.0'))		
195							
200							
	SH				SHALE, dark gray, 6" limestone layer at 204.0', 1" limestone layer at 206.5', 1/4" limestone layer 207.5'		
205							
210							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16

Project no. 495.4.5

Sheet 7 of 8

Sampling methods: 4.5" Split Spoon | Completion date: 5/23/90 | Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 77.5

Groundwater elevation: 562.54 (msl) | Date: 7/16/90 | Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
215	SH				SHALE, dark gray, limestone layer at 214.0'		
220	SH				SHALE, dark gray, 1/2" limestone layer at 227.5' and 228.0'		
225							
230	SH				1/4" limestone layer at 237.0'		
235							
240	SH				SHALE, dark gray, 1/2" siltstone layer at 239.0', several siltstone layers at 240.0' and 241.0'		
245							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC. Project Remedial Investigation GNB, Incorporated – Frisco, Texas Boring no. MW16

Project no. 495.4.5 Sheet 8 of 8

Sampling methods: 4.5" Split Spoon Completion date: 5/23/90 Boring depth: 269.0

Drilling methods: 8.0" Hollow Stem Auger Drill rig: CME-55 Well depth: 77.5

Groundwater elevation: 562.54 (msl) Date: 7/16/90 Surface elevation: 627.93 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	SH				SHALE, dark gray		
	SH				SHALE, dark gray, siltstone layers at 250.0' and 251.0'		
250	SH				SHALE, dark gray ((Core not recovered from 256.0' to 259.0'))		
255	SH				SHALE, dark gray, siltstone layers at 260.0' and 264.0' limestone layers at 264.0' and 268.0', EOB at 269.0'		
260							
265							
270							
275							
280							

Log of Boring No. MW16

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16 PS:1=1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW16S

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/6/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 620.31 (msl) | Date: 7/16/90 | Surface elevation: 627.51 (msl)

Depth (ft.)	USC CLASSIFICATION	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH	CLAY, dark brown, blocky, highly plastic, clacareous		
5	CH	CLAY, silty, dark brown, blocky, highly plastic, calcareous		
10	CH	CLAY, dark brown, blocky, calcareous pebbles at 11.5' and 12.5'		
15	GC	GRAVEL, clayey, sandy, well rounded, calcareous		
	CH	SHALEY CLAY		
	SH	SHALE, dark gray, weathered, fissile		
20				
25				
30				
35				

USC SYMBOLS | CONSTRUCTION SYMBOLS | Samples

Log of Boring No. MW16S

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW16S PS1-1

LAKE ENGINEERING, INC.

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW17

Project no. 495.4.5

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/7/90 | Boring depth: 19.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 17.0

Groundwater elevation: 620.83 (msl) | Date: 7/16/90 | Surface elevation: 628.58 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
0	CH				CLAY, silty, dark brown, blocky		
5	CH				CLAY, dark brown to brown, sand size calcareous pebbles		
	CH				CLAY, very soft, blocky, moist		
10	CH				CLAY, brown mottled gray, with zones of calcareous pebbles varying in grain size from sand to gravel		
15	CH				SHALEY CLAY, dark gray, light yellow staining on parting surfaces		
	SH				SHALE, dark gray		
20							
25							
30							
35							

Log of Boring No. MW17

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW17 PS 1=1

LAKE ENGINEERING, INC.

Project no. 495.4.5

Project Remedial Investigation
GNB, Incorporated – Frisco, Texas

Boring no. MW18

Sheet 1 of 1

Sampling methods: 4.5" Split Spoon | Completion date: 6/12/90 | Boring depth: 18.0

Drilling methods: 8.0" Hollow Stem Auger | Drill rig: CME-55 | Well depth: 15.5

Groundwater elevation: 626.17 (msl) | Date: 7/16/90 | Surface elevation: 631.84 (msl)

Depth (ft.)	USC CLASSIFICATION	USC SYMBOLS	CONSTRUCTION SYMBOLS	Samples	STRATUM DESCRIPTION	Recovery	% Passing No. 200 Sieve
	CH				CLAY, dark to light brown, with calcareous pebbles		
5	GC				GRAVEL, clayey, sandy, dense, calcareous		
	CH				CLAY, gray mottled orange, moist, very plastic, inter-bedded with light yellow slit laminae		
10	CH				SHALEY CLAY, gray mottled orange-brown, some interbedded light yellow silt and iron stained laminae		
15	SH				SHALE, dark gray, wet		
20							
25							
30							
35							

Log of Boring No. MW18

= CHEMICAL ANALYSIS
= SIEVE ANALYSIS
= PERMEABILITY SAMPLE

PLATE

495 MW18 PS-1=1

Client: City of Frisco
Project Name: Museum of the American Railroad
Project Location: Frisco, TX
Project Manager: L. Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 9/29/2011
Date Completed: 9/30/2011
Drilling Company: Biomar
Driller: D. Stark
Geologist: J. Minter
Boring Method: GP/HSA
Bore Hole Dia: 8.25"

Monitoring Well Number: Track MW-1
Project #: 0111231T
Drawn By: RDH
Approved By: RLS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 10'
Casing Length: 12'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▽ AT WELL STABILIZATION

Monitoring Well Detail	SOIL CLASSIFICATION SURFACE ELEVATION:	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SILTY CLAY FILL, Dark Grayish Brown, Yellowish Brown & Pale Yellowish Brown with <0.25" Rounded/Subrounded Gravel, Occasional Weathered Limestone Fragments, Moist, No Odor							3.9 4.7 4.7 4.7 3.9	
	SILTY CLAY, Dark Grayish Brown & Light Olive Brown with Occasional <0.5" Subangular Gravel, Very Moist @ 7 ft bgs to Wet, No Odor,		5					3.1 3.1 3.1 3.1 3.1 3.1 3.9 3.1	
	WEATHERED SHALE, Dark Gray with Dark Reddish Brown Lamnations, Blocky, Moist, No Odor		10				▽	3.1 2.9 5.5 5.5 4.7 4.7 3.9	
	Bottom of Boring @ 22 ft bgs		15	14-15					
			20	21-22				7.1	
			25						
			30						

NOTE: This log is not to be used outside of the original report.

Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Museum of the American Railroad
Project Location: Frisco, TX
Project Manager: L. Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 9/29/2011
Date Completed: 9/30/2011
Drilling Company: Riomar
Driller: D. Stark
Geologist: J. Minter
Boring Method: GP/HAS/HA
Bore Hole Dia: 8.25"

Monitoring Well Number: Track MW-2
Project #: 0111231T
Drawn By: BDH
Approved By: RLS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 10'
Casing Length: 10'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Abandon Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PID/FID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	CLAY FILL, Dark Grayish Brown & Yellowish Brown with < 0.25" Rounded Gravel & Weathered Limestone Fragments, Slightly Moist to Moist, No Odor			2-3				3.9	-Hand Auger from 0 - 3 ft bgs
	SILTY CLAY, Dark Grayish Brown & Yellowish Brown with <0.5" Rounded Calcareous Gravel @ 6 - 10 ft bgs, Very Moist @ 10.5 ft bgs to Wet, No Odor		5	4-5				3.9	
								3.9	
								3.9	
								3.9	
								3.9	
								3.9	
			10	9-10				4.7	
								3.1	
								4.7	
								3.9	
								3.9	
			15	14-15				3.9	
								4.7	
	SAND & GRAVEL, Yellowish Brown with Up to <0.75" Angular Gravel, Wet, No Odor						▼	3.9	
								4.7	
								3.9	
	SHALE, Dark Gray, Hard, Moist, No Odor			19-20				2.3	-Sample Collected from Cuttings
	Bottom of Boring @ 20 ft bgs		20						
			25						
			30						

NOTE: This log is not to be used outside of the original report.

Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Museum of the American Railroad
Project Location: Frisco, TX
Project Manager: L. Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 9/29/2011
Date Completed: 9/30/2011
Drilling Company: Riomar
Driller: D. Stark
Geologist: J. Minter
Boring Method: GP/HSA
Bore Hole Dia: 8.25"

Monitoring Well Number: Track MW-3
Project #: 0111231T
Drawn By: RDH
Approved By: RLS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 10'
Casing Length: 6'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Stratum Depth	SOIL CLASSIFICATION (SURFACE ELEVATION:)
	SILTY CLAY FILL, Grayish Brown Slightly Moist, No Odor
	SILTY CLAY, Dark Grayish Brown, Slightly Moist, No Odor
	CALCAREOUS CLAY, Pale Yellow & White with Calcareous Nodules & Precipitate, Becoming Blocky with Depth, Slightly Moist, No Odor
	WEATHERED SHALE, Dark Gray, Slightly Moist, No Odor
	SHALE, Dark Gray, Slightly Moist, No Odor
	Bottom of Boring @ 16 ft bgs

Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PID/FID Readings (ppm)
5	5-6				0.7
					2.3
					3.1
					3.1
					3.1
	7-8				1.5
					1.5
					1.5
10	9-10				1.5
					0
					0
					0
					0
					6.7
15					0.7
					0.7
20					
25					
30					

BORING AND SAMPLING NOTES

NOTE: This log is not to be used outside of the original report.

Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Museum of the American Railroad
Project Location: Frisco, TX
Project Manager: L. Scaggs

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 8/25/2011
Date Completed: 8/25/2011
Drilling Company: ETTL
Driller: Billy Ragon
Geologist: T. Zoch/R. Simpson
Boring Method: GP
Bore Hole Dia: 2"

Well Diam: NA
Screen Size: NA
Screen Length: NA
Casing Length: NA

Soil Boring Number: Track B-8
Project #: 0111231T
Drawn By: RDH
Approved By: RLS

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▼ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	FILL, Clay with Silt, Grayish Brown with Concretions, Dry, No Odor		0-1					1.6	
								0.0	
								4.6	
								0.7	
								0.0	
	CLAY, With Sand and Silt, Light Gray, Limestone Gravel @ 5 - 8 ft bgs, Slightly Moist, No Odor		5						
				5-6				0.0	
				6-7				1.5	
								0.4	
								0.5	
								0.0	
	CLAY, With Silt, Yellowish Brown & Gray with Mottling, Sand @ 13 ft bgs, Moist, No Odor		10	10-11				1.9	
								0.2	
								0.0	
								1.6	
	WEATHERED SHALE, Gray, Moist, No Odor			14-15				0.6	
	Bottom of Boring @ 15 ft bgs		15						

NOTE: This log is not to be used outside of the original report.

Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/16/2008
Date Completed: 10/16/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-1
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 15'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	Gravel Surface Cover							0	
	CLAYEY SAND AND SAND, Moderate Yellowish and Reddish Brown, Fine Grained, Moist, No Odor					100%		0	
								0	
								0	
			5					0	
						100%		0	
								0	
								0	
								0	
	GRAVELY CLAY, Moderate Brownish Gray, Very Moist to Wet @ 11', No Odor		10				▼	0	
						100%		0	
								0	
								0	
	SHALEY CLAY, Dark Brownish Gray, Very Moist to Wet, Slight Hydrocarbon Odor @ 14-15'		15					4.3	
								0.5	
	SHALE, Dark Gray, Wet @ 16-18', Slightly Moist and More Competent @ 18-20', No Odor					100%		1.4	
								0.3	
								0.3	
			20					0.3	
	Bottom of Boring @ 20'								
			25						
			30						

STATE OF TEXAS
3-27-13
JASON T. MINTER
GEOLOGY
10576
LICENSED PROFESSIONAL GEOSCIENTIST

Southwest GEOSCIENCES

Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/16/2008
Date Completed: 10/16/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-2
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 17.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Marker Well Detail	SOIL CLASSIFICATION SURFACE ELEVATION:	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	HD/PID Readings (ppm)	BORING AND SAMPLING NOTES
	FILL, Sandy Clay and Gravel, Moist, No Odor					100%		0	
	SANDY CLAY, Moderate Grayish Brown, Increasing Gravel Content With Depth (Up to 1" Rounded), Moist, Wet @ 11'		5			100%		0	
								0	
								0	
								0	
								0	
								0	
								0	
			10			100%	▽	0	
								0	
								0	
								0	
	SHALE, Dark Gray, Slightly Moist, Slight Hydrocarbon Odor		15			100%		0.3	
								0.3	
								2.1	
								4.1	
			20			100%	▼	2.3	
								2.7	
								0.4	
								1.1	
	Bottom of Boring @ 22.5'							0.3	
			25						
			30						

STATE OF TEXAS
3-27-13
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Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

Monitoring Well Number: MW-3
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

DRILLING & SAMPLING INFORMATION

Date Started: 10/16/2008
Date Completed: 10/16/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 17.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION SURFACE ELEVATION:	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	FILL, Sandy Clay and Gravel, Moist, No Odor					100%		0	
	SANDY CLAY, Dark Grayish Brown, Slightly Moist, No Odor		5			100%		0	
	SANDY CLAY AND GRAVEL, Moderate Grayish Brown, Very Moist, Up to 1" Subangular Gravel, No Odor		10			100%		0	
	SHALE, Dark Gray, Slightly Moist, Slight Hydrocarbon Odor @ 19-20'		15			100%		0	
	Bottom of Boring @ 22.5'		20			100%	▼	0.2 2.1 3.0 1.6 7.0 1.1 0.9 2.8	
			25						
			30						

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Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/16/2008
Date Completed: 10/16/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-4
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 17.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▽ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	SANDY CLAY, Moderate Grayish Brown, Increasing Gravel Content With Depth, Moist to Wet @ 7', No Odor		5			100%	▽	0	
			10			100%	▽	0	
						100%		0	
	SHALE, Dark Gray, Slightly Moist, Slight Hydrocarbon Odor @ 16-17'		15			100%		0.7	
								7.4	
								1.0	
								1.2	
			20			100%		3.2	
								0.9	
								0.7	
	Bottom of Boring @ 22.5'							3.2	
			25						
			30						

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Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

Monitoring Well Number: MW-5
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

DRILLING & SAMPLING INFORMATION

Date Started: 10/17/2008
Date Completed: 10/17/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"
Well Diam: 2"
Screen Size: 0.010"
Screen Length: 17.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION SURFACE ELEVATION:	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	FILL, Clay with up to 1" Gravel, Moist, No Odor					100%		0	
	CLAY, Moderate Brown with Trace Gravel <0.25", Moist, No Odor		5			100%		0	
	SHALEY CLAY, Moderate Grayish Brown, Moist, No Odor		10			100%		0	
	WEATHERED SHALE, Moderate Yellowish Brown and Moderate Reddish Brown, Moist, No Odor		15			100%		0	
	SHALE, Dark Gray, Slightly Moist, Slight Hydrocarbon Odor @ 17-18'		20			100%		0.4 2.2 1.6 4.3 3.5 0.1 1.0 2.2	
	Bottom of Boring @ 22.5'		25						
			30						

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Southwest GEOSCIENCE

Client: City of Frisco
Project Name: Stewart Creek WWTP
'ect Location: Frisco, TX
ect Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/17/2008
Date Completed: 10/17/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-6
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 12.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▽ AT WELL STABILIZATION

BORING AND SAMPLING NOTES

Stratum Depth	SOIL CLASSIFICATION	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PID/FID Readings (ppm)
	SURFACE ELEVATION:						
	SHALEY CLAY and Weathered Shale, Dark Grayish Brown and Dark Reddish Brown, Moist, No Odor				100%		0 0 0 0 0
	SHALE, Dark Gray, Slightly Moist, No Odor	5			40%		0.8 0.9 · ·
		10			100%		· 2.5 1.4 1.6 2.0
		15			100%		2.0 0.7 1.6 1.1
	Bottom of Boring @ 17.5'	20					
		25					
		30					

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Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/17/2008
Date Completed: 10/17/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-7
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 10'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	FILL, Moderate to Dark Grayish Brown With Up to 2" Rock, Moist, No Odor							0	
	WEATHERED SHALE, Moderate Yellowish Brown and Dark Gray with Fine Grained Sand Lamination, Moist, No Odor							0	
	SHALE, Dark Grayish Brown, Slightly Moist, No Odor							0	
								0	
			5			100%		0.7	
								0	
								0	
			10			100%		0	
								0	
								0	
			15			100%		0	
	Bottom of Boring @ 15'							0	
			20						
			25						
			30						

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Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

Monitoring Well Number: MW-8
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

DRILLING & SAMPLING INFORMATION

Date Started: 10/17/2008
Date Completed: 10/17/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 15'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Install	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	SHALEY CLAY, Moderate Grayish Brown and Dark Yellowish Brown, Moist, No Odor		5			100%		0 0 0 0 0	
	WEATHERED SHALE and Shaley Clay, Moderate to Dark Brownish Gray and Dark Yellowish Brown with Intermittent Sand, Moist, No Odor		10			100%		0 0 0 0 0 0 0 0	
	SHALE, Dark Grayish Brown, Slightly Moist, Slight Hydrocarbon Odor		15			100%	▼	0 0 0 0 1.1 0.9 2.6 2.0 1.3 1.0	
	Bottom of Boring @20'		20						
			25						
			30						

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Client: City of Frisco
Project Name: Stewart Creek WWTP
Project Location: Frisco, TX
Project Manager: Liz Scaggs

MONITORING WELL LOG

DRILLING & SAMPLING INFORMATION

Date Started: 10/17/2008
Date Completed: 10/17/2008
Drilling Company: WEST
Driller: J. Spaniel
Geologist: J. Minter
Boring Method: HSA
Bore Hole Dia: 7.25"

Monitoring Well Number: MW-9
Project #: 0105035
Drawn By: RDH
Aprroved By: LS

Well Diam: 2"
Screen Size: 0.010"
Screen Length: 17.5'
Casing Length: 5'

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
GP - GEOPROBE
AR - AIR ROTARY

SAMPLER TYPE
CB - FIVE FOOT CORE BARREL
SS - DRIVEN SPLIT SPOON
ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
▽ AT COMPLETION
▼ AT WELL STABILIZATION

Monitor Well Detail	SOIL CLASSIFICATION	Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	FID/PID Readings (ppm)	BORING AND SAMPLING NOTES
	SURFACE ELEVATION:								
	CLAY FILL, Dark Grayish Brown with 10% Subangular Gravel (≤ 0.25"), Moist, Stiff, No Odor					100%		13.2	
	SHALEY CLAY, Moderate Grayish Brown with Gravel Grading to Moderate Brownish Gray, Wet @ 7', Slight Hydrocarbon Odor		5			100%	▽	0	
	WEATHERED SHALE, Moderate Yellowish Brown and Moderate Reddish Brown, Very Moist, No Odor		10			100%		0	
	SHALE, Dark Gray, Moist, No Odor		15			100%	▼	0	
	Bottom of Boring @ 22.5'		20			100%		2.1	
								9.2	
								1.2	
								1.4	
								3.6	
								1.6	
								9.8	
								0.7	
								1.5	
			25					1.5	
			30						

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Southwest GEOSCIENCE

Project No.	Boring No.		Rone Engineering
11-16996	B 1-25	Exide Technologies Frisco, Texas	
Location		Water Observations Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 25.0'	Completion Date 8-23-11		
Surface Elevation		Type CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY (CH) - very hard, dark brown and gray, with limestone fragments, calcareous nodules, roots and trash (pieces of glass, nails, plastic)		4.5+						14		
					4.5+		87	65	22	43	20	106	24230
5			SANDY CLAY (CL) - very hard to hard, light yellowish brown, with calcareous nodules		4.5+						16		
					2.5		64	49	17	32	17		
					3.75						21		
10			- layer of calcareous material										
					4.5+						17		
			- dark brown, with sand seams										
15			FAT CLAY (CH) - dark gray										
			▽		NR								
20			SHALEY CLAY - gray										
25			Boring Terminated at 25 Feet										

RONE ...NEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 1-25** **Plate A.3**

Project No.	Boring No.		
11-16996	B 1-35	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 39.0'	Completion Date 8-23-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - dark brown and gray, with limestone fragments, possible fill								9		
5			FAT CLAY (CH) - very hard to hard, light yellowish brown and gray, with calcareous nodules		4.5+						8		
					3.25		99	70	25	45	28		
10			SHALEY CLAY (CH) - very hard, gray		4.5+						23		
15			▽		4.5+						20		
20					4.5+		99	67	23	44	19	109	16280
25			CLAYEY SAND (SC) - gray		3.5						17		
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 1-35 *Continued Next Page* **Plate A.4a**

Project No.	Boring No.	Exide Technologies Frisco, Texas	Rone Engineering
11-16996	B 1-35		
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 39.0'	Completion Date 8-23-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			SHALEY CLAY (CH) - very hard, gray		4.5+		99	56	20	36	16		
35			SHALE - gray										
						100/3.5"							
			Boring Terminated at 39 Feet										

Project No. 11-16996	Boring No. B 2-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was observed at a depth of about 11' while drilling.	
Completion Depth 25.0'	Completion Date 8-23-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - dark brown to brown and gray, with calcareous nodules		4.5+						19		
					4.5+						18		
5			SANDY LEAN CLAY (CL) - light yellowish brown and gray, calcareous		4.5+		65	38	14	24	16		
					4.5						15		
					3.5						29		
10			- with limestone layers 10'-12' ▽										
			SHALEY CLAY (CH) - very hard, dark gray		4.5+						22		
15													
					4.5+		99	63	23	40	19	109	17170
			- slickensided										
20													
					4.5+						20	107	9250
25			- slickensided										
			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/25/11

LOG OF BORING NO. B 2-25

Plate A.6

Project No.	Boring No.		
11-16996	B 2-35	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was observed at a depth of about 25' while drilling.	
Completion Depth 35.0'	Completion Date 8-25-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FAT CLAY (CH) - hard, dark brown, with calcareous nodules and limestone fragments, possible fill								16		
					2.5		89	60	22	38	26	97	4820
5			- dark brown and gray		2.5/4.5						29		
			- dark gray and olive, with calcareous nodules		2.25						28		
					2.25		89	69	24	45	27		
10			FAT CLAY (CH) - dark gray										
					1.75		57	54	18	36	19		
15			- with gravel size calcareous nodules 14'-15'										
			SHALEY CLAY (CH) - hard to very hard, light gray and yellowish brown										
					3.0						30	91	4720
20			- slickensided										
					4.5+		99	62	22	40	21	107	15310
25			- dark gray, slickensided ▽										
					4.5+						15		
30													

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/25/11

LOG OF BORING NO. **B 2-35**

Continued Next Page

Plate A.7a

Project No. 11-16996	Boring No. B 2-35	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was observed at a depth of about 25' while drilling.	
Completion Depth 35.0'	Completion Date 8-25-11		
Surface Elevation		Type CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			- slickensided		4.5+						16	118	23710
35			SHALE -gray										
						100/3.0"							
			Boring Terminated at 38 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 2-35

Plate A.7b

Project No. 11-16996	Boring No. B 3-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations: Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 21.0'	Completion Date 8-26-11		
Surface Elevation		Type HSA/CFA	

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAY - dark grayish brown, limestone fragments and roots, with plastic, slag, gravel and paper								12		
							54	58	20	38	9		
5											26		
											43		
			FILL: FAT CLAY - firm, dark gray and yellowish brown		1.25		73	60	20	40	32		
10			FILL: FAT CLAY - very soft, gray, with calcareous nodules and wood, wet										
					0.25						24		
			- calcareous nodules 14' to 14.5'										
15			SHALEY CLAY (CH) - gray, with iron oxides stains										
					3.0		99	80	28	52	27		
20						46/12"							
			Boring Terminated at 21 Feet										

Project No.	Boring No.	
11-16996	B 3-35	Exide Technologies Frisco, Texas

Rone Engineering

Location

Water Observations
Groundwater seepage was observed at a depth of about 18' while drilling.

Completion Depth	Completion Date
35.0'	8-29-11

Surface Elevation

Type: HSA/CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAY - brown, with gravel, wood, and slag				69	50	19	31	8		
			FILL: SLAG - gray, slag, rock fragments, gravel size										
5													
			CLAY (CH) - dark brown, with slag, gravel and rock fragments, possible fill			N=50/5.0"					23		
10													
			FAT CLAY (CH) - soft to firm, dark grayish brown and yellowish brown, with weathered limestone		1.0		96	65	24	41	36		
15													
					0.5			68	23	45	35		
20													
			- dark grayish brown and yellowish brown, with weathered limestone		1.25						36		
25													
			SHALEY CLAY (CH) - gray			N=64		55	18	37	19		
30													

RONE Engineering LOGS 11-16996.GPJ RONE.GDT 9/28/11

LOG OF BORING NO. **B 3-35**

Continued Next Page

Plate A.10a

Project No. 11-16996	Boring No. B 3-35	Exide Technologies Frisco, Texas	Rone Engineering [redacted]
Location		Water Observations: Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 35.0'	Completion Date 8-29-11		
Surface Elevation	Type HSA/CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
						N=94/11.5"					18		
35			Boring Terminated at 35 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 3-35

Plate A.10b

Project No.	Boring No.		
11-16996	B 4-35	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was observed at a depth of about 13' while drilling.	
Completion Depth 38.0'	Completion Date 8-25-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: CLAYEY SAND - loose, brown, with limestone fragments and calcareous nodules								10		
			- light gray and yellowish brown		0.5		34	58	20	38	19		
			FILL: SANDY FAT CLAY - firm, dark brown		2.25						35		
5					1.25						47		
					1.25		69	62	23	39	36		
10													
			FAT CLAY (CH) - hard, brown, with sand ▽		3.75						20		
15													
			- light yellowish brown and light gray		2.25						26		
20													
			SHALEY CLAY (CH) - dark gray, slickensided		4.5+		98	56	21	35	17	115	9500
25													
					4.5+						18	113	13770
30													

RONE ÆERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B 4-35** *Continued Next Page* **Plate A.12a**

Project No.	Boring No.	
11-16996	B 4-35	Exide Technologies Frisco, Texas

Rone Engineering

Location

Water Observations
Groundwater seepage was observed at a depth of about 13' while drilling.

Completion Depth 38.0'

Completion Date 8-25-11

Surface Elevation

Type CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
					4.5+						21		
35			SHALE - dark gray			100/4.0"							
			Boring Terminated at 38 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 4-35

Plate A.12b

Project No.	Boring No.		
11-16996	B 5-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was observed at a depth of about 18' while drilling.	
Completion Depth 28.0'	Completion Date 8-26-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: LIMESTONE BASE - light brown								2		
											7		
5			FILL: FAT CLAY - very hard, dark brown, with limestone fragments		4.5+			67	23	44	29		
											6		
					2.25			71	24	47	33		
10			FAT CLAY (CH) - light gray and yellowish brown, with sand seams										
					4.5+						20		
15													
			SHALEY CLAY (CH) - very hard, gray, with ferrous stains		4.5+		97	65	23	42	25		
20													
			- slickensided								20	111	
25			SHALE - dark gray										
						100/4.0"							
			Boring Terminated at 28 Feet										

LOG OF BORING NO. B 5-25

Plate A.14

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

Project No.	Boring No.		Rone Engineering
11-16996	B 6-25	Exide Technologies Frisco, Texas	
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 28.0'	Completion Date 8-26-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: SANDY FAT CLAY - brown to dark brown, with limestone fragments			100/5.25"							
											12		
			FILL: CLAY - light gray, with ground concrete, concrete fragments, fine to medium				70	58	21	37	11		
								40	23	17	7		
						24/12"					11		
5			FILL: FAT CLAY - dark brown, with plastic, glass, slag, wood fragments, concrete fragments					61	30	31	25		
					2.0						35		
											34		
						12/12"							
10			FAT CLAY (CH) - hard, dark brown										
					2.25		85	64	22	42	29		
15													
			SHALEY CLAY (CH) - hard to very hard, light brown and gray, with iron stains		4.5						28		
20													
			- slickensided		3.0		66	46	15	31	16	119	20310
25			SHALE - gray										
						100/2.75"							
			Boring Terminated at 28 Feet										

Project No.	Boring No.		Rone Engineering
11-16996	B 7-25	Exide Technologies Frisco, Texas	
Location		Water Observations Groundwater seepage was observed at a depth of about 13' while drilling.	
Completion Depth 29.0'	Completion Date 8-29-11		
Surface Elevation	Type HSA/CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: FAT CLAY - dark brown and dark gray, with gravel sized slag fragments								11		
						3/12"							
			FILL: SLAG - gray, slag fragments, gravel size								7		
						7/12"							
5			- slag and plastic				34	50	19	31	14		
						5/12"							
			- slag fragments, plastic, piece of shoe, cloth and wood								27		
10													
			FAT CLAY (CH) - firm, dark gray and brown		1.0						37		
15													
			- with sand seams		2.0		82	66	24	42	18	107	3850
20													
			SHALEY CLAY (CH) - very hard, dark gray, with iron staining		4.5+						27		
25													
			SHALE - dark gray			100/4.75"							
			Boring Terminated at 29 Feet										

RONE E...NEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 7-25

Plate A.18

Project No.	Boring No.		
11-16996	B 8-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast, broken rock								6		
			SANDY FAT CLAY (CH) - very hard, dark brown and olive, with limestone fragments		4.5+		52	55	18	37	9		
5					4.5+						10		
					4.5+						12		
			FAT CLAY (CH) - firm, dark gray and brown, with calcareous nodules		1.5		87	66	22	44	29		
10													
			- with sand		1.75						33		
15													
			- with gravel at 18'-20'								15		
20													
			SHALEY CLAY (CH) - very hard, gray		4.5+		90	79	27	52	26		
25			Boring Terminated at 25 Feet										

RONE ...NEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. B 8-25

Plate A.20

Project No.	Boring No.		
11-16996	B 9-25	Exide Technologies Frisco, Texas	Rone Engineering
Location		Water Observations Groundwater seepage was not observed while drilling, and the borehole appeared dry at completion.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast, broken rock								5		
			SANDY FAT CLAY (CH) - firm, dark brown to brown, with gravel		2.0						25		
5					2.0		61	59	20	39	19		
					3.0						29		
			- brown and gray		1.5						34		
10													
			FAT CLAY (CH) - hard, dark gray and brown, with sand		2.5		82	63	23	40	25		
15													
			FAT CLAY (CH) - firm, brown, with sand, wet		1.25						30	96	3070
20													
					1.25						24	101	2760
25			Boring Terminated at 25 Feet										

Project No.	Boring No.		Rone Engineering
11-16996	B10-25	Exide Technologies Frisco, Texas	
Location		Water Observations Groundwater seepage was observed at a depth of about 13' while drilling.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - gray, railroad ballast								8		
			SANDY FAT CLAY (CH) - very hard to firm, dark brown and gray, with limestone fragments		4.5+		64	54	18	36	18		
5					2.0						24		
					1.5						27		
					2.75						33		
10													
			FAT CLAY (CH) - firm to very soft, dark gray and brown, wet		2.0						35		
15													
					<0.25						42		
20													
			CLAYEY SAND (SC) - light brown, with gravel				23	42	17	25	18		
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B10-25** **Plate A.23**

Project No.	Boring No.	
11-16996	B11-25	Exide Technologies Frisco, Texas

Rone Engineering

Location

Water Observations
Groundwater seepage was observed at a depth of about 18' while drilling.

Completion Depth	Completion Date
25.0'	8-29-11

Surface Elevation

Type: CFA

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: - gravel fragments, concrete, dark brown clay and slag								13		
							36	36	17	19	12		
			FILL: - gravel slag, plastic, concrete and brown clay										
5			FILL: - slag and concrete fragments										
10													
15			FAT CLAY (CH) - soft to firm, dark brown and gray, with trace gravel, wet										
			▽		0.5						32		
20													
			- dark gray and yellowish brown, with calcareous nodules		1.5						25	101	3640
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/26/11

LOG OF BORING NO. **B11-25**

Plate A.24

Project No. 11-16996	Boring No. B12-25	Exide Technologies Frisco, Texas	Rone Engineering [redacted]
Location		Water Observations: Groundwater seepage was not observed at a depth of about 12' while drilling.	
Completion Depth 25.0'	Completion Date 8-24-11		
Surface Elevation	Type CFA		

Depth, Ft.	Symbol	Samples	Stratum Description	REC %	Penetrometer Reading, TSF	SPT - Blows/Foot TCP - Blows/Inch	Passing No. 200 Sieve, %	Liquid Limit, %	Plastic Limit, %	Plasticity Index	Moisture Content, %	Dry Unit Weight pcf	Unconfined Compression psf
			FILL: GRAVEL - railroad ballast and limestone gravel										
			FILL: FAT CLAY - very hard to hard, dark gray and brown		4.5+						18	108	15620
5					4.5+						30		
					2.75		88	62	23	39	24		
			- firm, gray, dark brown and olive		1.25						30		
10													
			- organics and wood fragments at 13'-15'								247		
15													
			FAT CLAY (CH) - firm to hard, dark gray and brown, with sand		1.0		77	58	21	37	30	94	3060
20													
					3.0						26		
25			Boring Terminated at 25 Feet										

RONE ENGINEERING LOGS 11-16996.GPJ RONE.GDT 9/25/11

LOG OF BORING NO. **B12-25**

Plate A.25

ATTACHMENT B

PBW GEOLOGIC CROSS SECTIONS AND CROSS SECTION LOCATION MAP

EXPLANATION

- On-Site Property Boundary
- FRC Property Boundary
- Former Path of North Tributary (1951 Aerial Photo)
- Former Path of North Tributary (1972 Aerial Photo)
- Former Path of Stewart Creek (1951 Aerial Photo)
- Monitoring Well Location
- Well Plugged and Abandoned, Destroyed or Not Found
- Staff Gauge
- Soil Sample Location (2012-2013)
- Sediment and Surface Water Sample Location (2012-2013)
- Phase II RFI Soil Sample Location (1998)
- Phase I RFI Soil Sample Location (1991)
- Disposal Area Delineation Boring Location (1993)
- Dredged Sediment Stockpile Sample Location (1986)
- Dredged Sediment Stockpile Sample Location (1987)
- Old Drum Storage Area Sample Location (1987)
- Geotech Boring Location (2011)
- Class 2 Landfill Notification Boring (1995)
- A___A' Geologic Cross Section Location Lines

N

Scale in Feet

0 75 150

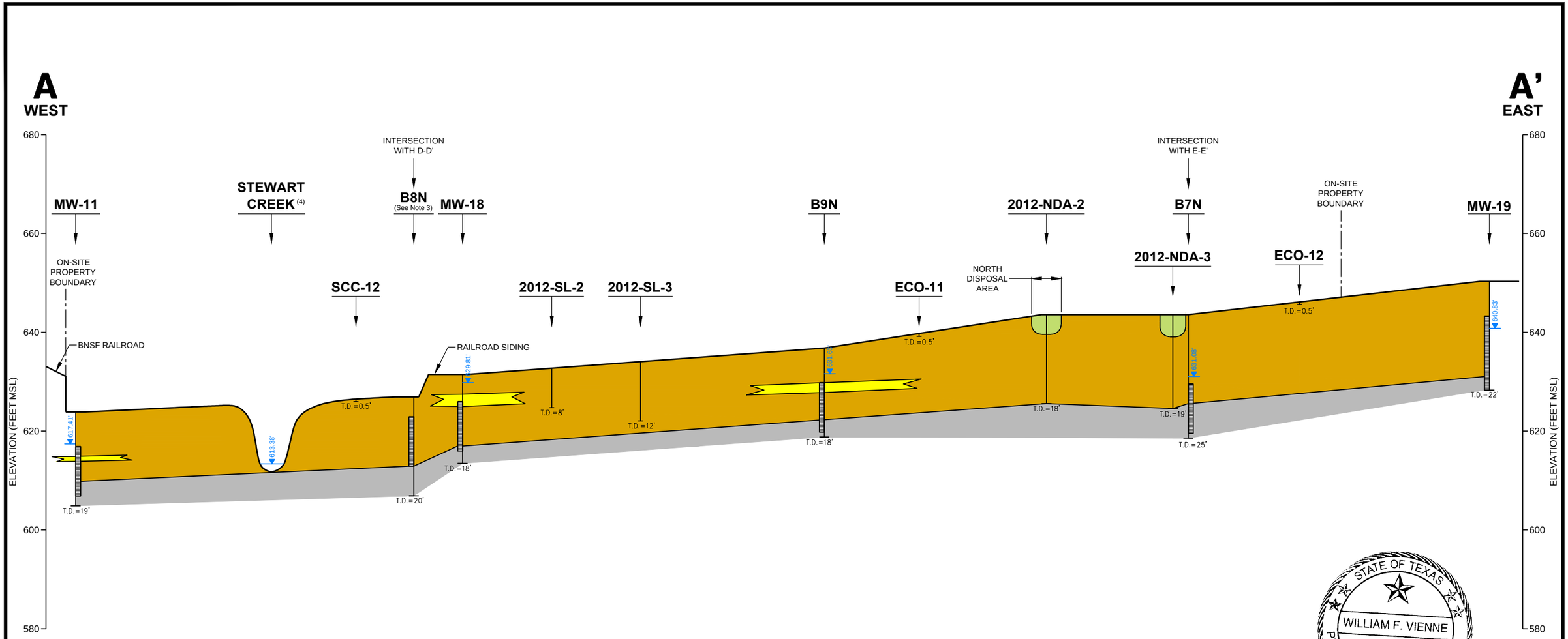
Source of photo:
Imagery from NCTCOG, 2009 photography.

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

CROSS SECTION LOCATION MAP

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

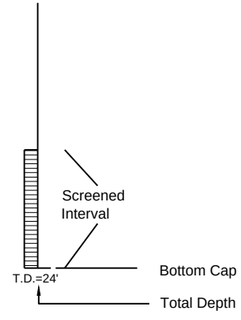


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Eagle Ford Shale

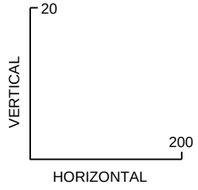
MONITORING WELL CONSTRUCTION



Water Level (Ft MSL) Measured 4/29/13

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. B8N destroyed.
4. Stewart Creek water elevation inferred from Staff Gauge 2.
5. Depths given in feet below ground surface.
6. MSL = above mean sea level.

SCALE IN FEET



10x Vertical Exaggeration

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST

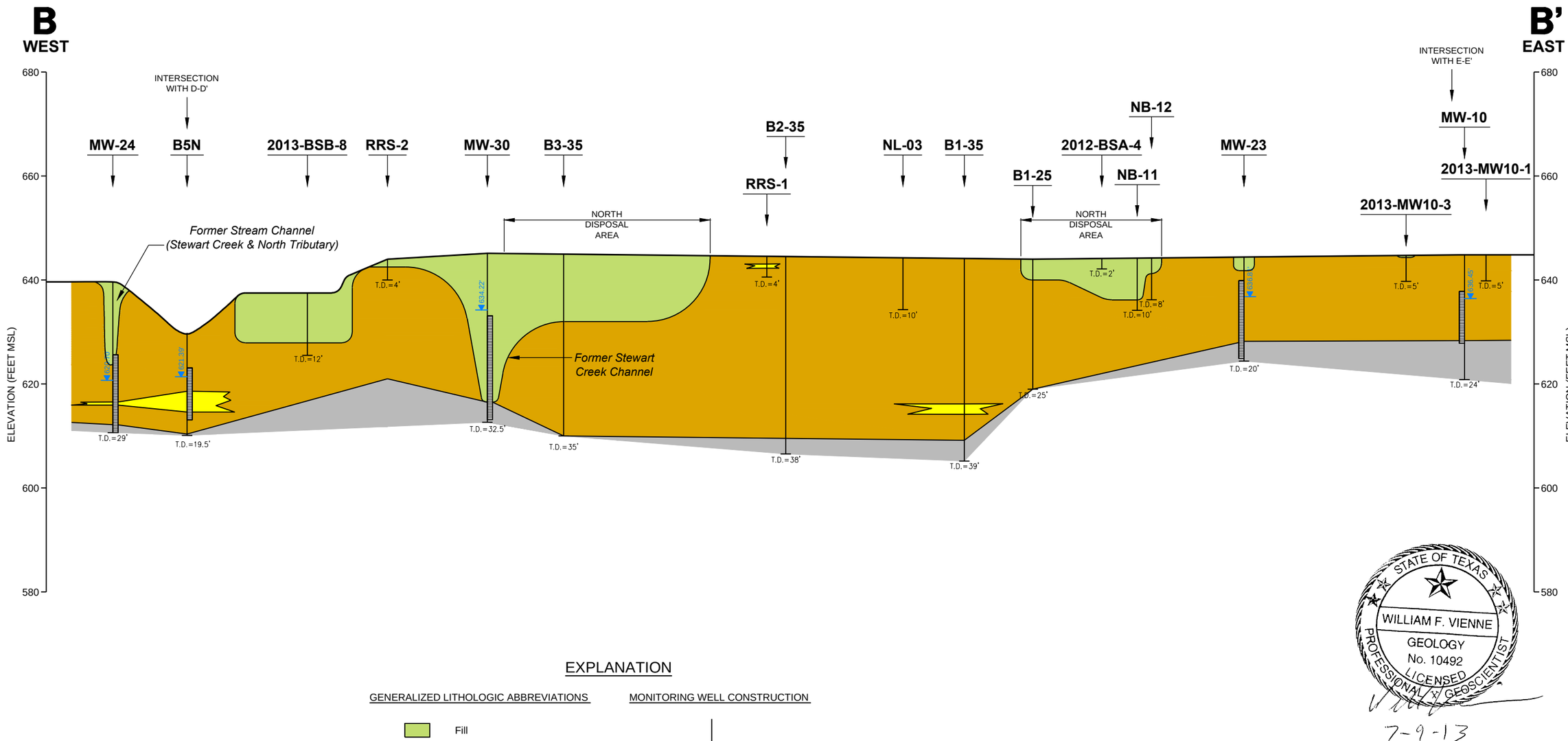
7-9-13

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION A-A'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

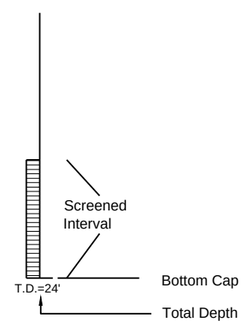


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Eagle Ford Shale

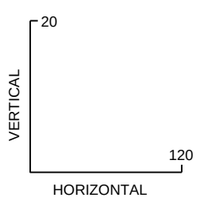
MONITORING WELL CONSTRUCTION



Water Level (Ft MSL) Measured 4/29/13

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. Depths given in feet below ground surface.
4. MSL = above mean sea level.

SCALE IN FEET



6x Vertical Exaggeration

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST

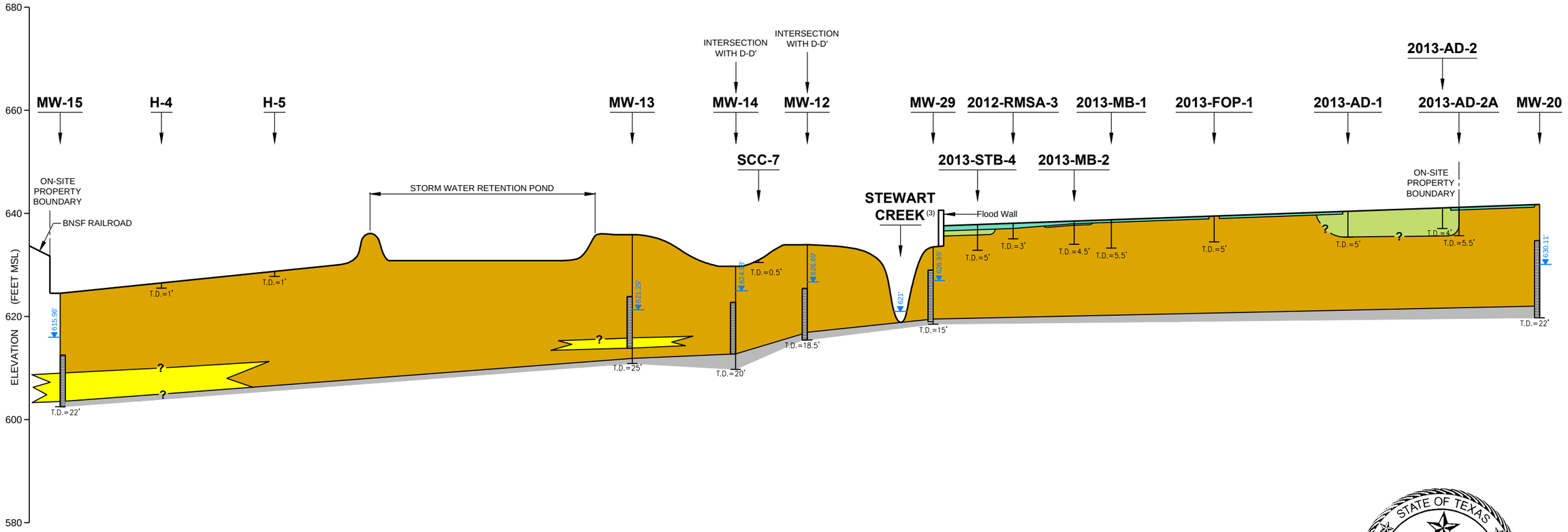
7-9-13

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION B-B'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

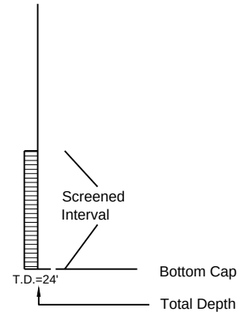


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

- Concrete
- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Eagle Ford Shale

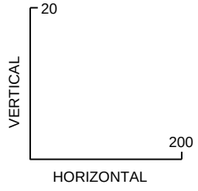
MONITORING WELL CONSTRUCTION



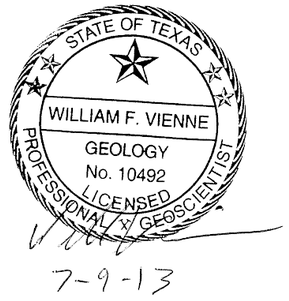
Water Level (Ft MSL) Measured 4/29/13

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. Stewart Creek water elevation inferred from Staff Gauge 1 and Staff Gauge 2 measurements.
4. Depths given in feet below ground surface.
5. MSL = above mean sea level.
6. ? - Boundary uncertain.

SCALE IN FEET



10x Vertical Exaggeration

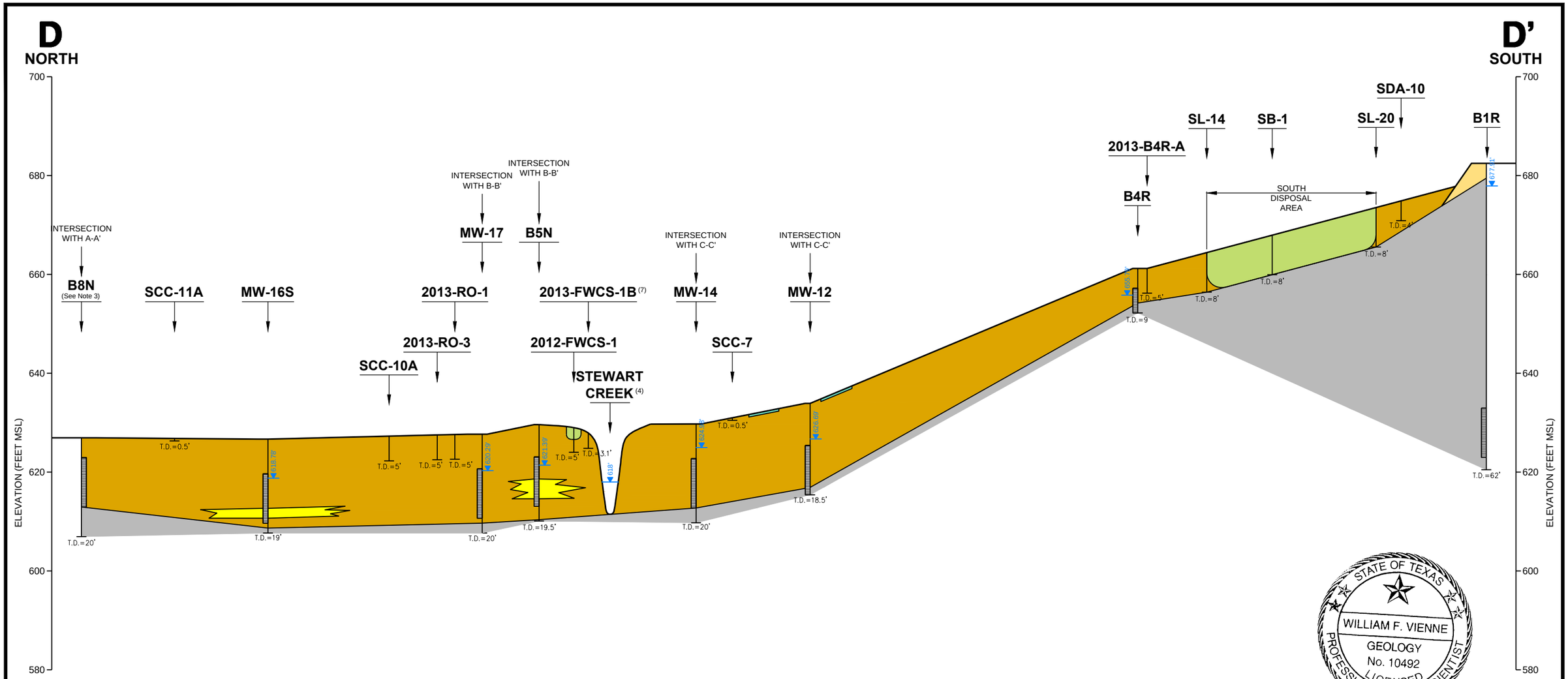


FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION C-C'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

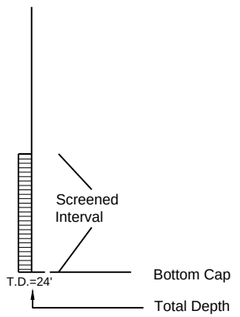


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

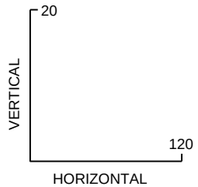
- Concrete
- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Austin Chalk Limestone
- Eagle Ford Shale

MONITORING WELL CONSTRUCTION



Water Level (Ft MSL) Measured 4/29/13

SCALE IN FEET



6x Vertical Exaggeration

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. B8N destroyed.
4. Stewart Creek water elevation inferred from Staff Gauge 1 and Staff Gauge 2 measurements.
5. Depths given in feet below ground surface.
6. MSL = above mean sea level.
7. Gabion basket present at 0 to 1.1 feet below ground surface.

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST

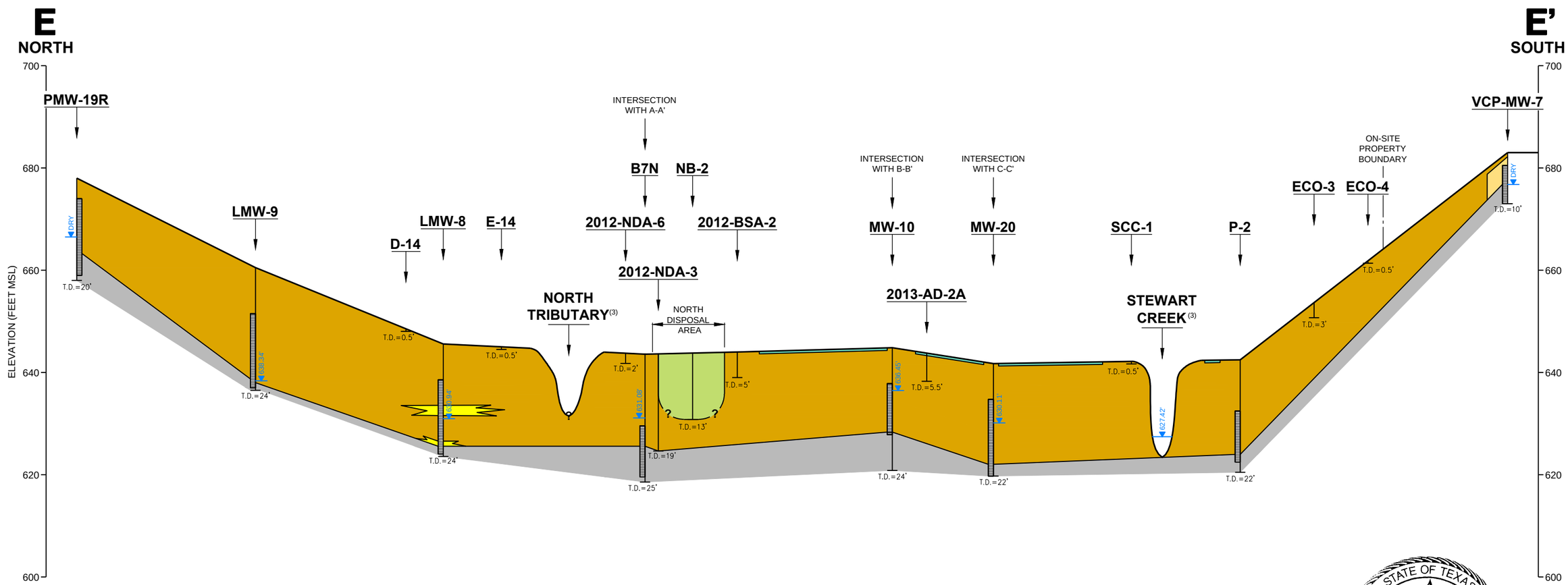
7-9-13

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION D-D'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

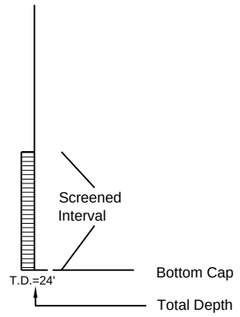


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

- Concrete
- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Austin Chalk Limestone
- Eagle Ford Shale

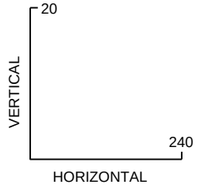
MONITORING WELL CONSTRUCTION



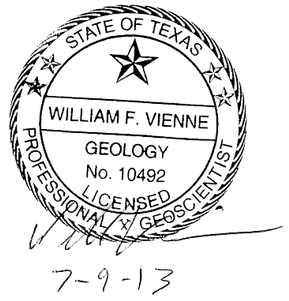
Water Level (Ft MSL) Measured 4/29/13

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. Stewart Creek water elevation inferred from Staff Gauge 1. Water present in North Tributary, but water elevation not available.
4. Depths given in feet below ground surface.
5. MSL = above mean sea level.
6. ? - Boundary uncertain.

SCALE IN FEET



12x Vertical Exaggeration

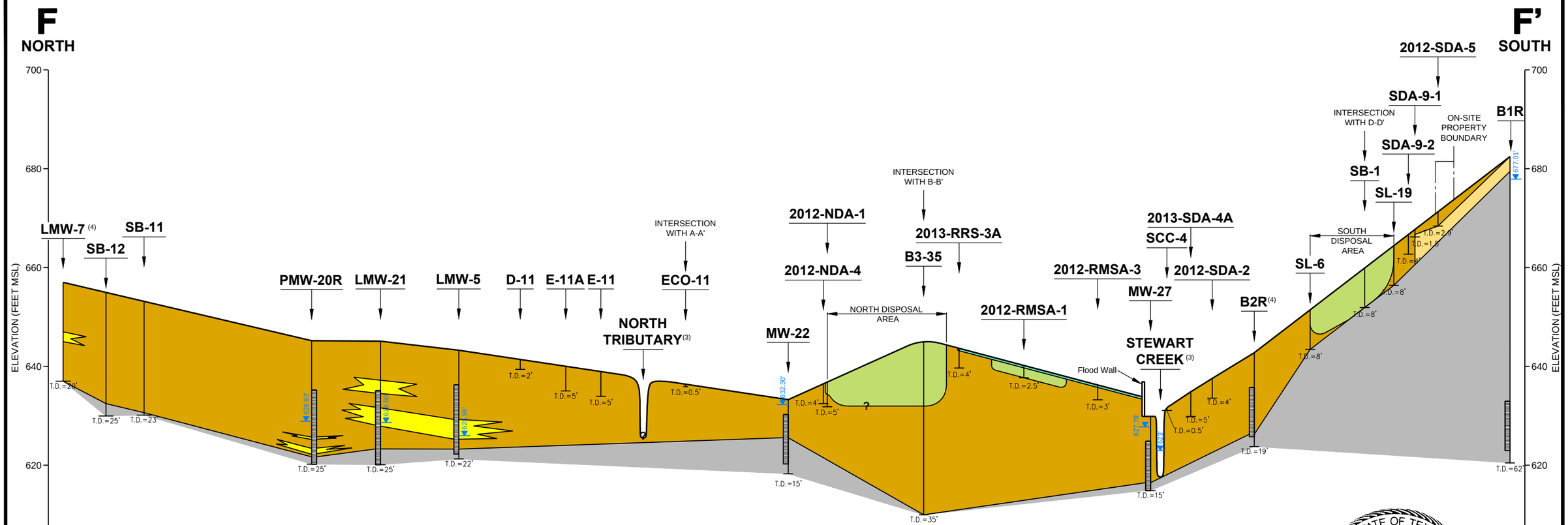


FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION E-E'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

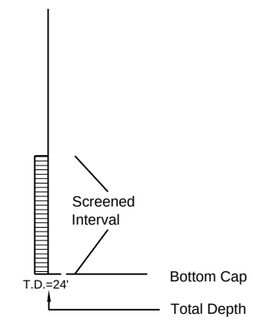


EXPLANATION

GENERALIZED LITHOLOGIC ABBREVIATIONS

- Concrete
- Fill
- Clay or Silty Clay with Minor Occurrences of Silt and Gravelly Clay (Gravel Suspended in Clay Matrix)
- Gravel or Sand (Typically Clayey)
- Austin Chalk Limestone
- Eagle Ford Shale

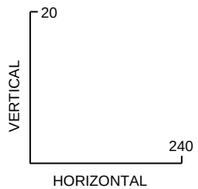
MONITORING WELL CONSTRUCTION



Water Level (Ft MSL) Measured 4/29/13

Notes:
1. Ground surface and creek bed topography are estimated. Monitoring well ground surface elevations were surveyed by a licensed surveyor.
2. See Figure 4C.1 for cross section location.
3. Stewart Creek water elevation inferred from Staff Gauge 1 and Staff Gauge 2 measurements.
4. Plugged and abandoned.
5. Depths given in feet below ground surface.
6. MSL = above mean sea level.
7. ? - Boundary uncertain.

SCALE IN FEET



12x Vertical Exaggeration

STATE OF TEXAS
WILLIAM F. VIENNE
GEOLOGY
No. 10492
LICENSED
PROFESSIONAL GEOSCIENTIST

7-9-13

FORMER OPERATING PLANT
FRISCO RECYCLING CENTER
FRISCO, TEXAS

GEOLOGIC CROSS SECTION F-F'

PROJECT: 1755	BY: AJD	REVISIONS
DATE: JULY, 2013	CHECKED: WFV	

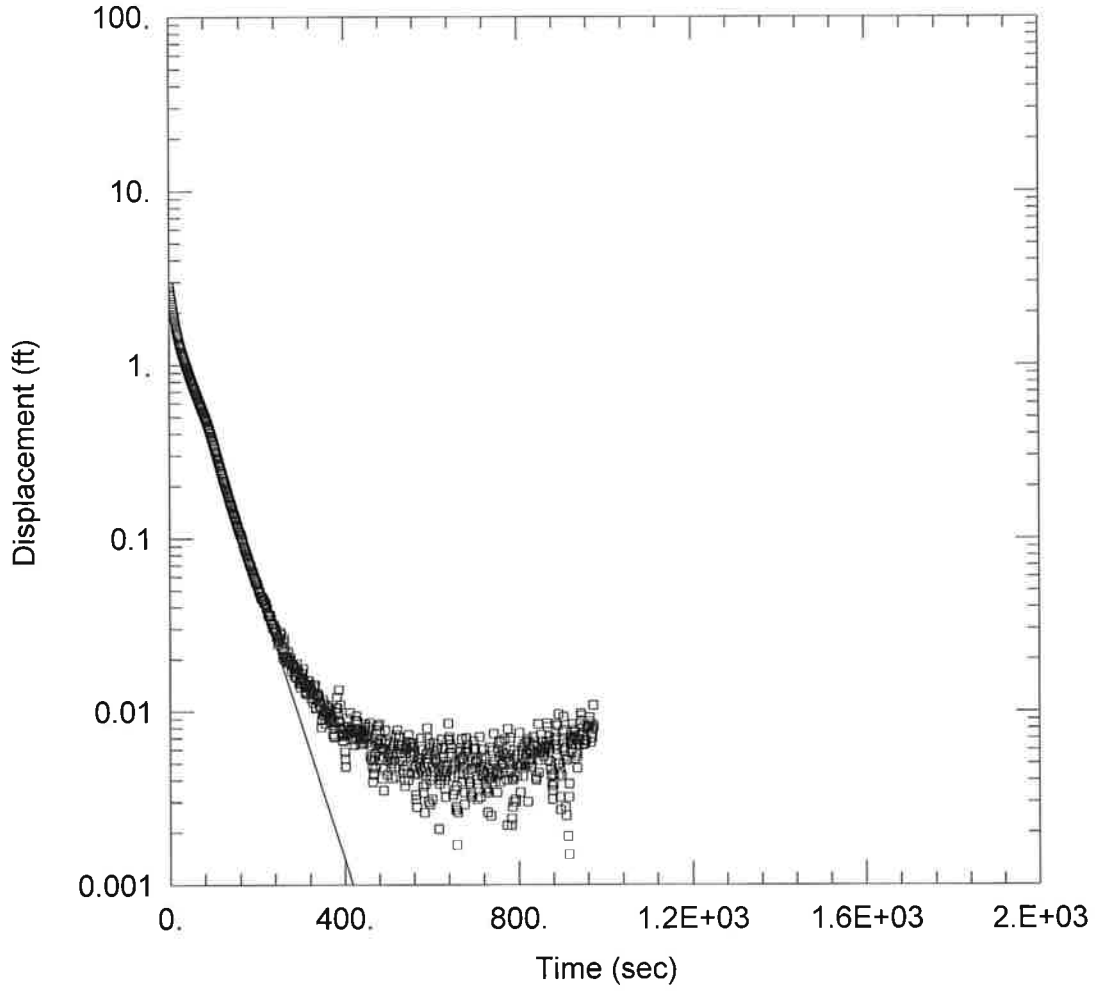
PASTOR, BEHLING & WHEELER, LLC
CONSULTING ENGINEERS AND SCIENTISTS

ATTACHMENT C

PBW SLUG TEST GRAPHS AND INFORMATION

SUMMARY OF PBW SLUG TEST RESULTS

Well Number	Test Type	Test Hydraulic Conductivity (cm/sec)	Average Hydraulic Conductivity (cm/sec)
B5N	Slug Out 1	3.6E-03	3.8E-03
	Slug Out 2	3.8E-03	
	Slug Out 3	3.8E-03	
	Slug Out 4	3.9E-03	
B7N	Slug Out 1	1.0E-05	1.0E-05
	Slug Out 2	8.7E-06	
	Slug Out 3	1.1E-05	
B9N	Slug Out 1	1.8E-03	1.8E-03
	Slug Out 2	1.8E-03	
	Slug Out 3	1.8E-03	
MW-13	Slug Out 1	9.1E-03	1.3E-02
	Slug Out 2	1.9E-02	
	Slug Out 3	9.6E-03	
MW-14	Slug Out 1	3.9E-05	4.1E-05
	Slug Out 2	4.1E-05	
	Slug Out 3	4.2E-05	
MW-15	Slug Out 1	3.8E-03	5.7E-03
	Slug Out 2	5.5E-03	
	Slug Out 3	7.9E-03	
	Slug Out 4	7.7E-03	
	Slug In 1	3.6E-03	
MW-16S	Slug Out 1	1.5E-03	1.3E-03
	Slug Out 2	1.3E-03	
	Slug Out 3	1.0E-03	
MW-17	Slug Out 1	7.0E-04	7.6E-04
	Slug Out 2	7.7E-04	
	Slug Out 3	8.0E-04	
MW-19	Slug Out 1	2.2E-08	4.5E-08
	Slug Out 2	6.8E-08	
MW-20	Slug Out 1	7.8E-09	2.5E-08
	Slug Out 2	4.2E-08	



B5N SLUG OUT 1 UNCONFINED

Data Set: J:\...\B5N_SlugOut1_unconfined.aqt
Date: 05/17/13 Time: 16:10:38

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/22/12

AQUIFER DATA

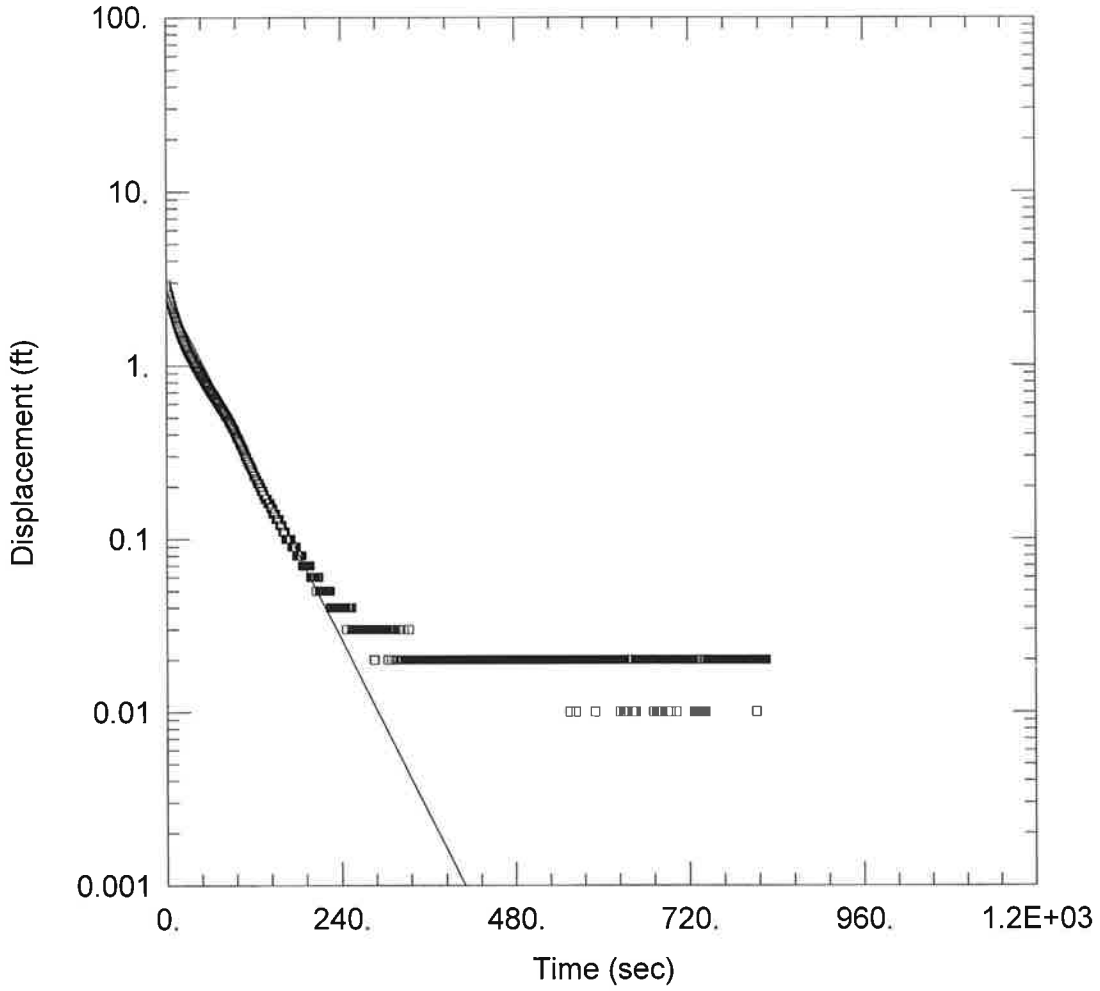
Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B5N)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4. ft

SOLUTION

Aquifer Model: Unconfined
K = 0.003583 cm/sec
Solution Method: Bouwer-Rice
y0 = 1.924 ft



B5N SLUG OUT 2 UNCONFINED

Data Set: J:\...\B5N_SlugOut2_unconfined.aqt
Date: 05/17/13 Time: 16:12:05

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/22/12

AQUIFER DATA

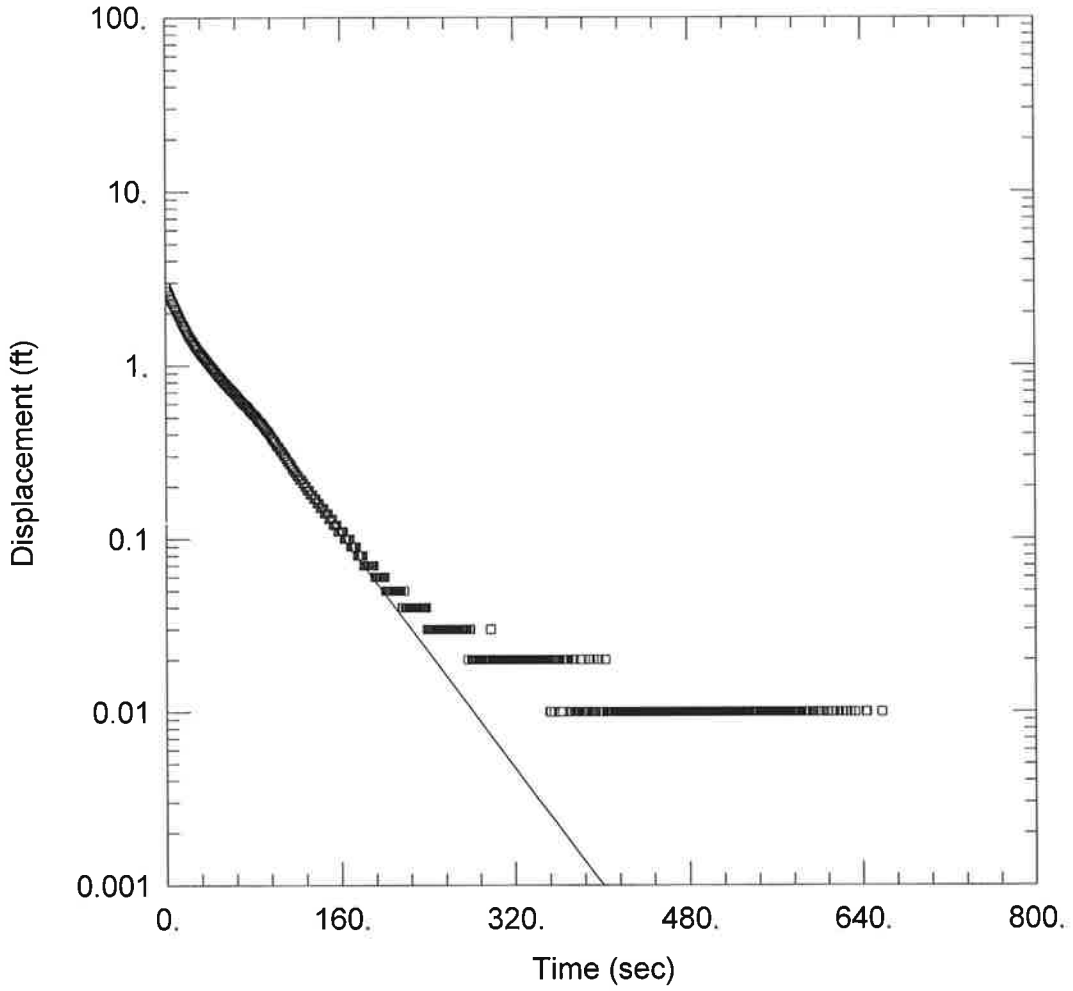
Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B5N)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00382 cm/sec
y0 = 2.677 ft



B5N SLUG OUT 3 UNCONFINED

Data Set: J:\...\B5N_SlugOut3_unconfined.aqt
Date: 05/17/13 Time: 16:12:31

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/22/12

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

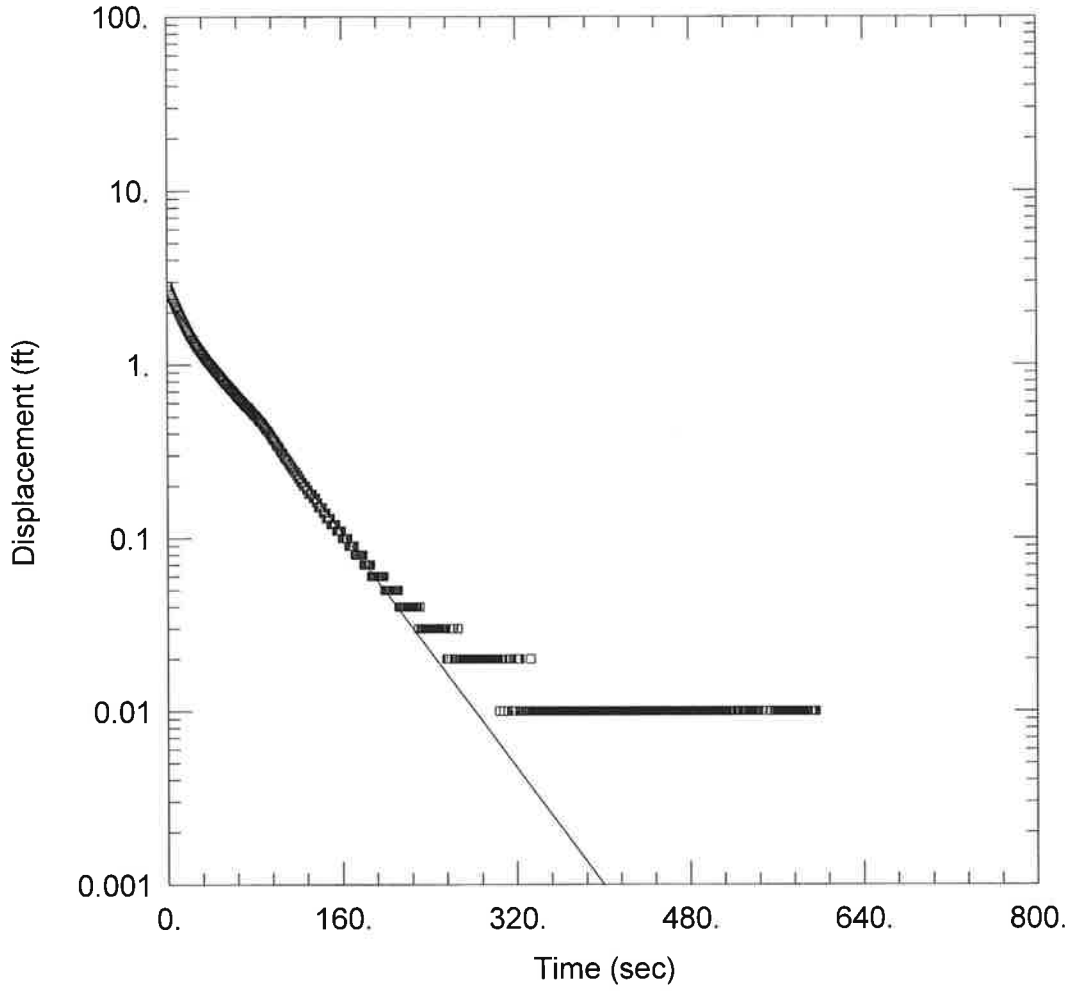
WELL DATA (B5N)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003834 cm/sec y0 = 2.305 ft



B5N SLUG OUT 4 UNCONFINED

Data Set: J:\...\B5N_SlugOut4_unconfined.aqt
Date: 05/17/13 Time: 16:12:55

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/22/12

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B5N)

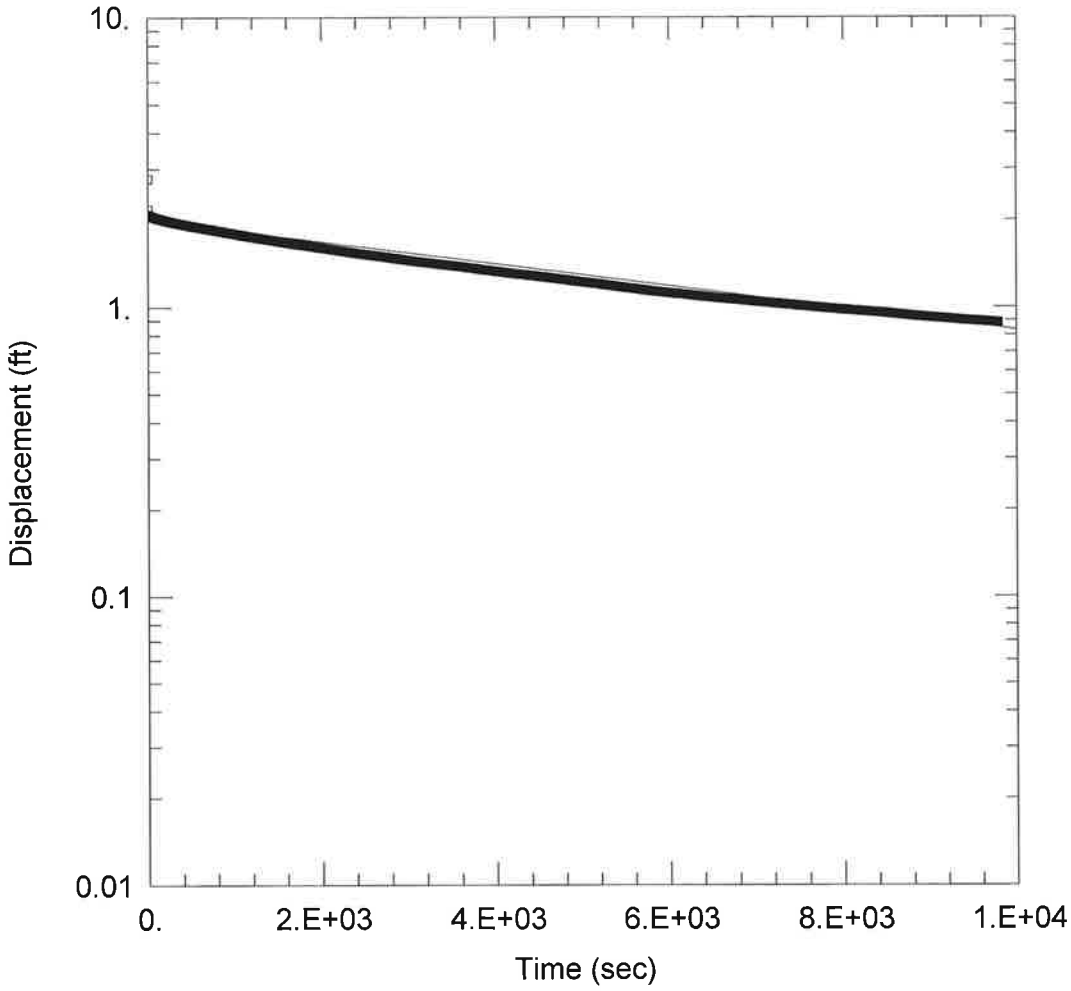
Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003861 cm/sec y0 = 2.401 ft



B-7N SLUG OUT 1

Data Set: J:\...\B7N_SlugOut1.aqt
Date: 05/17/13 Time: 16:13:10

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-7N
Test Date: 5/14/2012

AQUIFER DATA

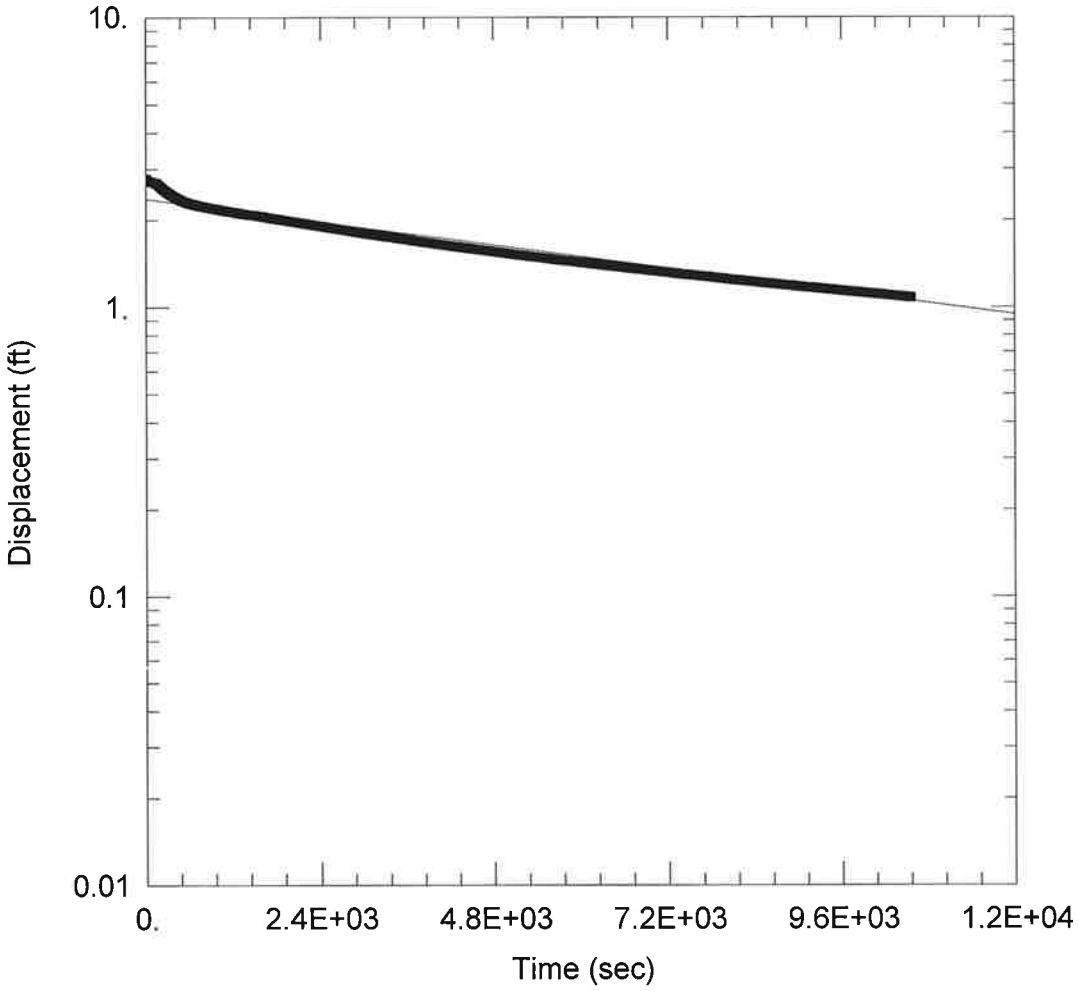
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B-7N)

Initial Displacement: 2.78 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 9.972E-06 cm/sec
y0 = 2.006 ft



B-7N SLUG OUT 2

Data Set: J:\...\B7N_SlugOut2.aqt
Date: 05/17/13 Time: 16:13:20

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-7N
Test Date: 5/15/2012

AQUIFER DATA

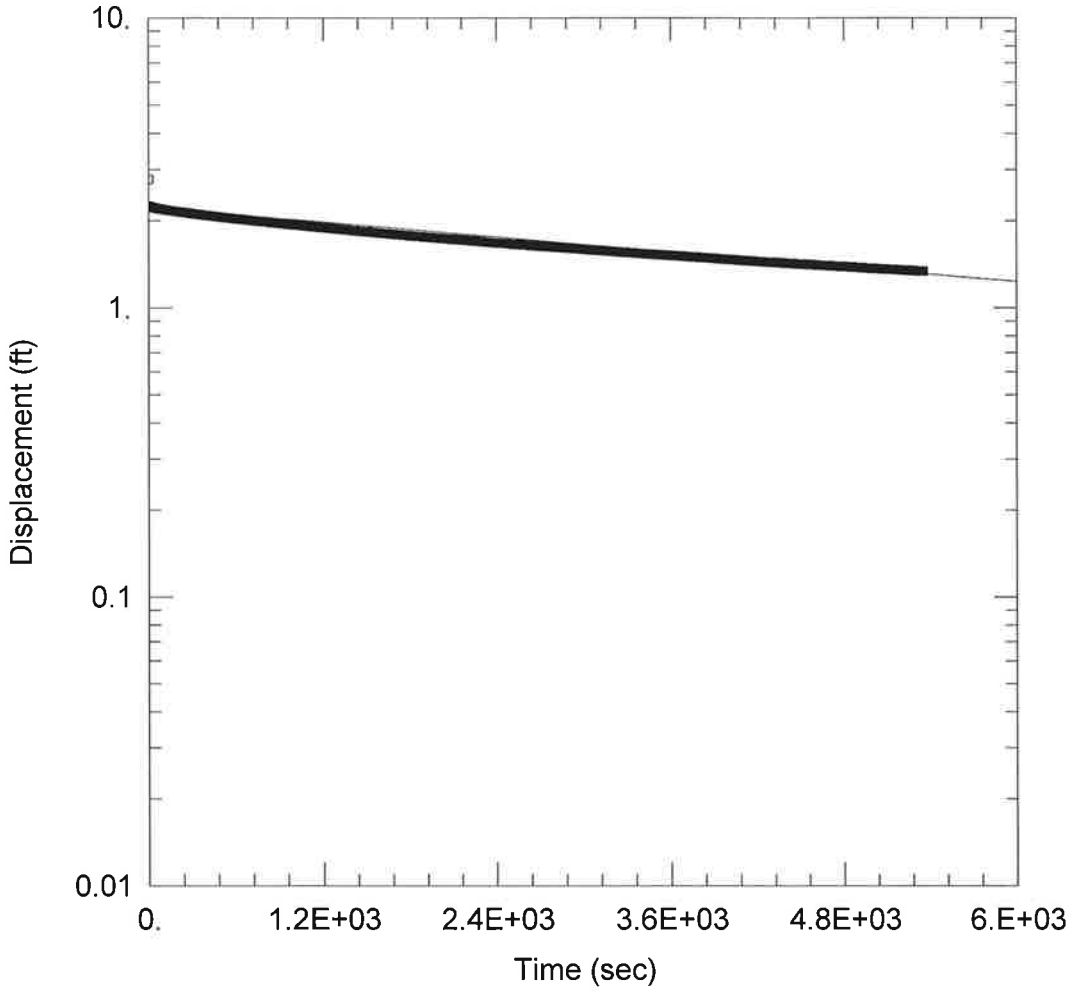
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B-7N)

Initial Displacement: 2.78 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 8.708E-06 cm/sec y0 = 2.368 ft



B-7N SLUG OUT 3

Data Set: J:\...\B7N_SlugOut3.aqt
Date: 05/17/13 Time: 16:13:28

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-7N
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

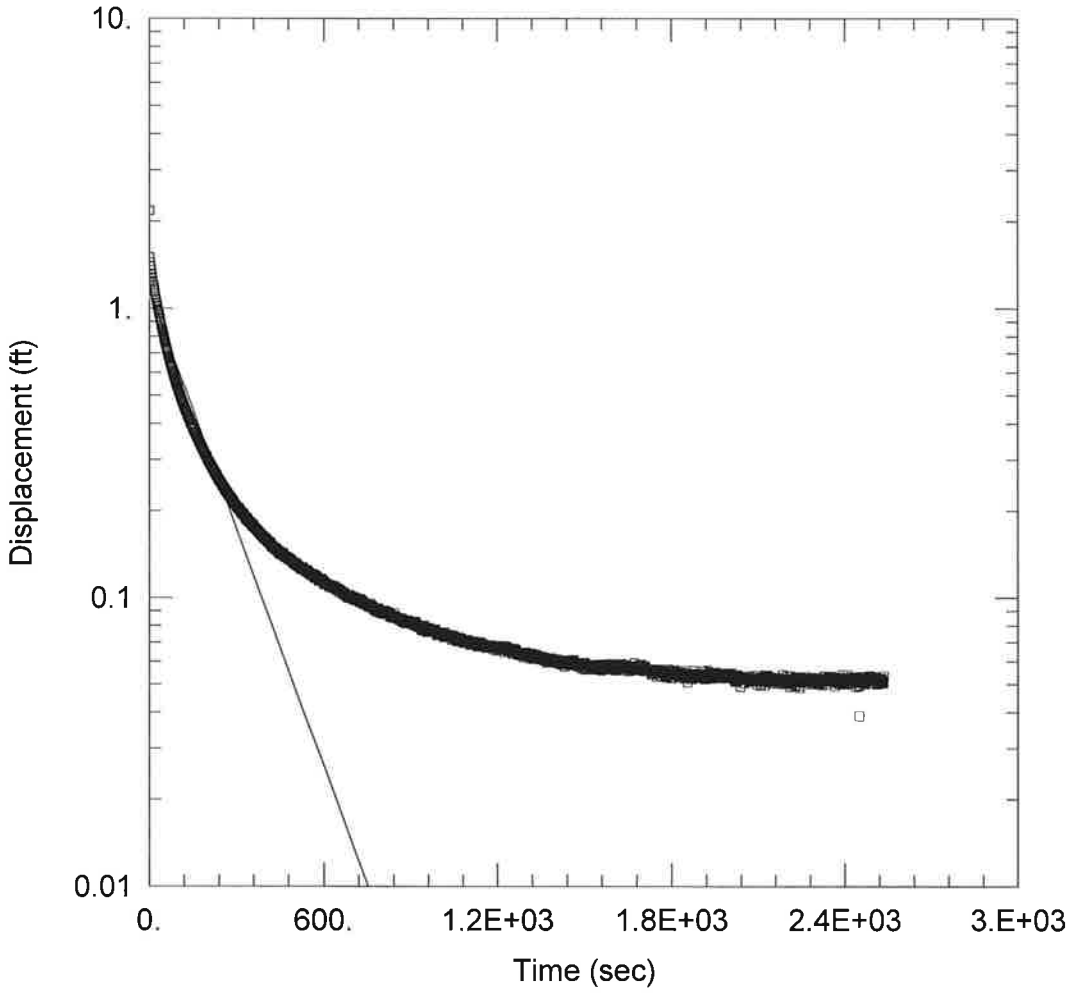
WELL DATA (B-7N)

Initial Displacement: 2.78 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.121E-05 cm/sec y0 = 2.226 ft



B-9N SLUG OUT 1

Data Set: J:\...\B9N_SlugOut1.aqt
Date: 05/17/13 Time: 16:13:37

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-9N
Test Date: 5/14/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B-9N)

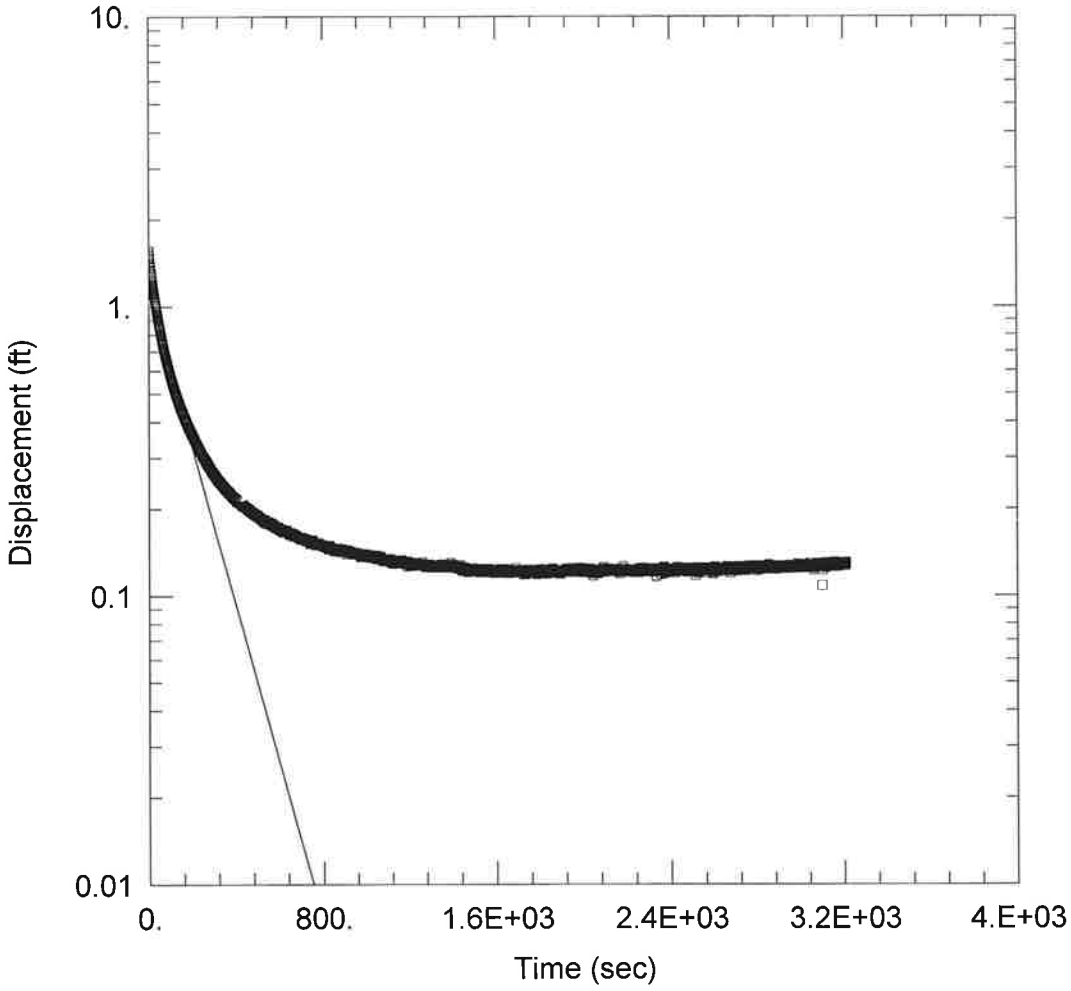
Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0018 cm/sec y0 = 1.159 ft



B-9N SLUG OUT 2

Data Set: J:\...\B9N_SlugOut2.aqt
Date: 05/17/13 Time: 16:13:46

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-9N
Test Date: 5/14/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B-9N)

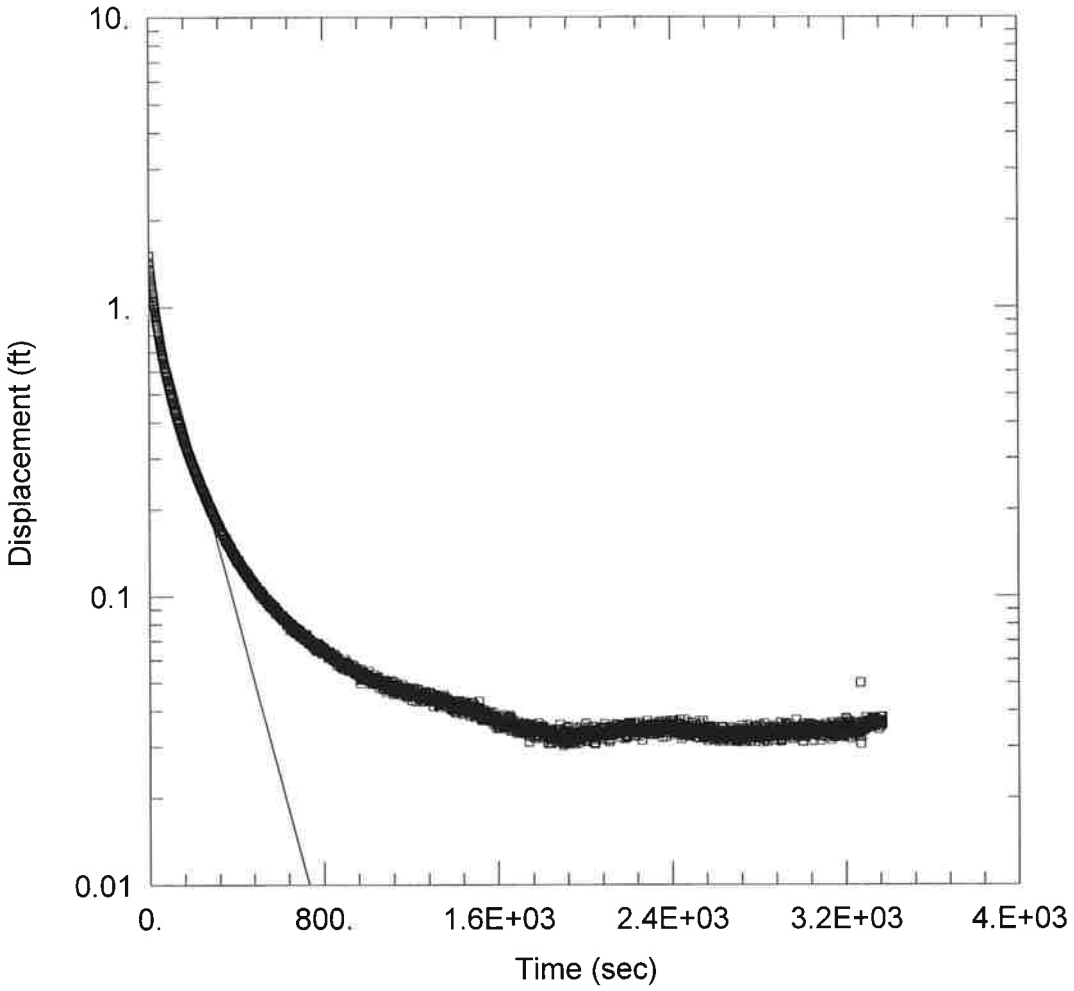
Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00179 cm/sec y0 = 1.143 ft



B-9N SLUG OUT 3

Data Set: J:\...\B9N_SlugOut3.aqt
Date: 05/17/13 Time: 16:13:55

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: B-9N
Test Date: 5/14/2012

AQUIFER DATA

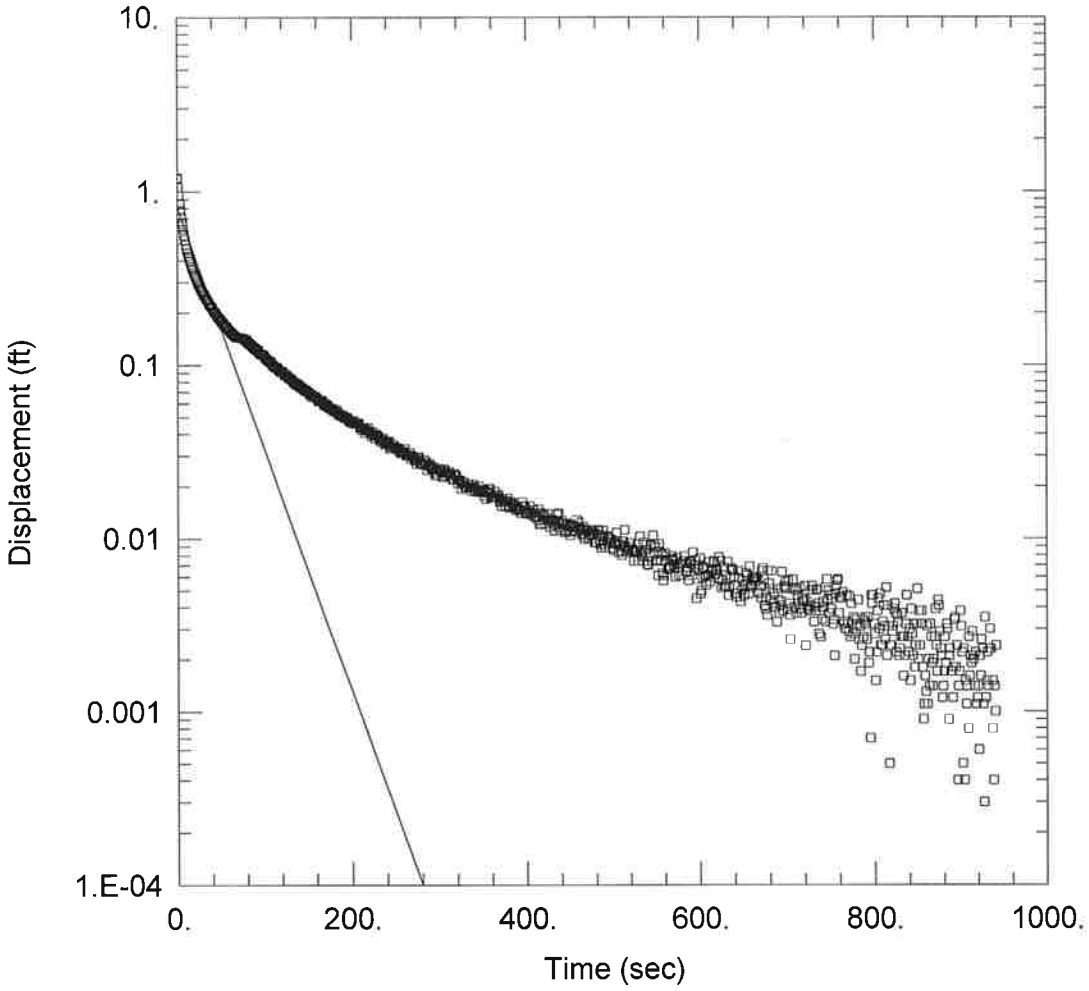
Saturated Thickness: 2. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (B-9N)

Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001847 cm/sec
y0 = 1.164 ft



MW-13 SLUG OUT 1

Data Set: J:\...\MW13_SlugOut1.aqt
Date: 05/17/13 Time: 16:14:01

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

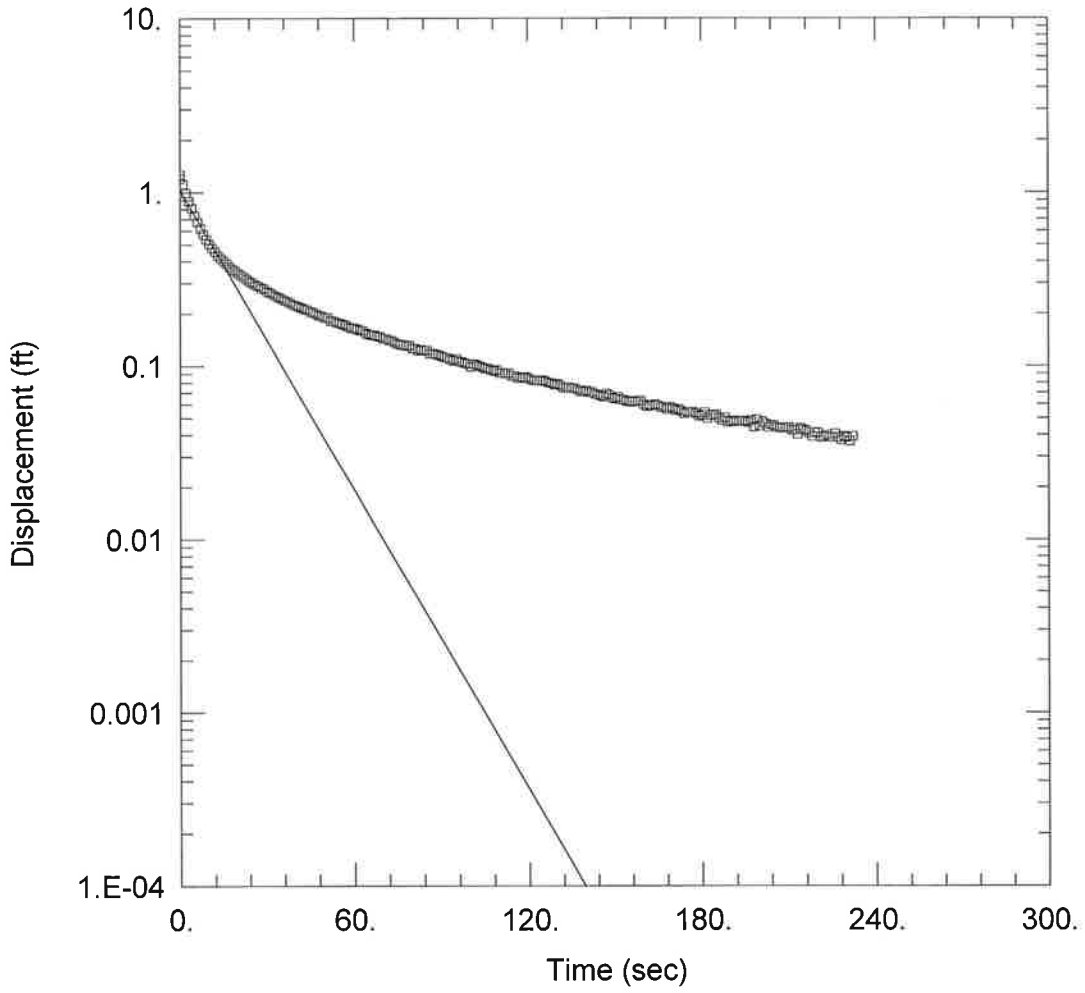
Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-13)

Initial Displacement: 1.2 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.009152 cm/sec y0 = 0.8143 ft



MW-13 SLUG OUT 2

Data Set: J:\...\MW13_SlugOut2.aqt
Date: 05/17/13 Time: 16:14:13

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

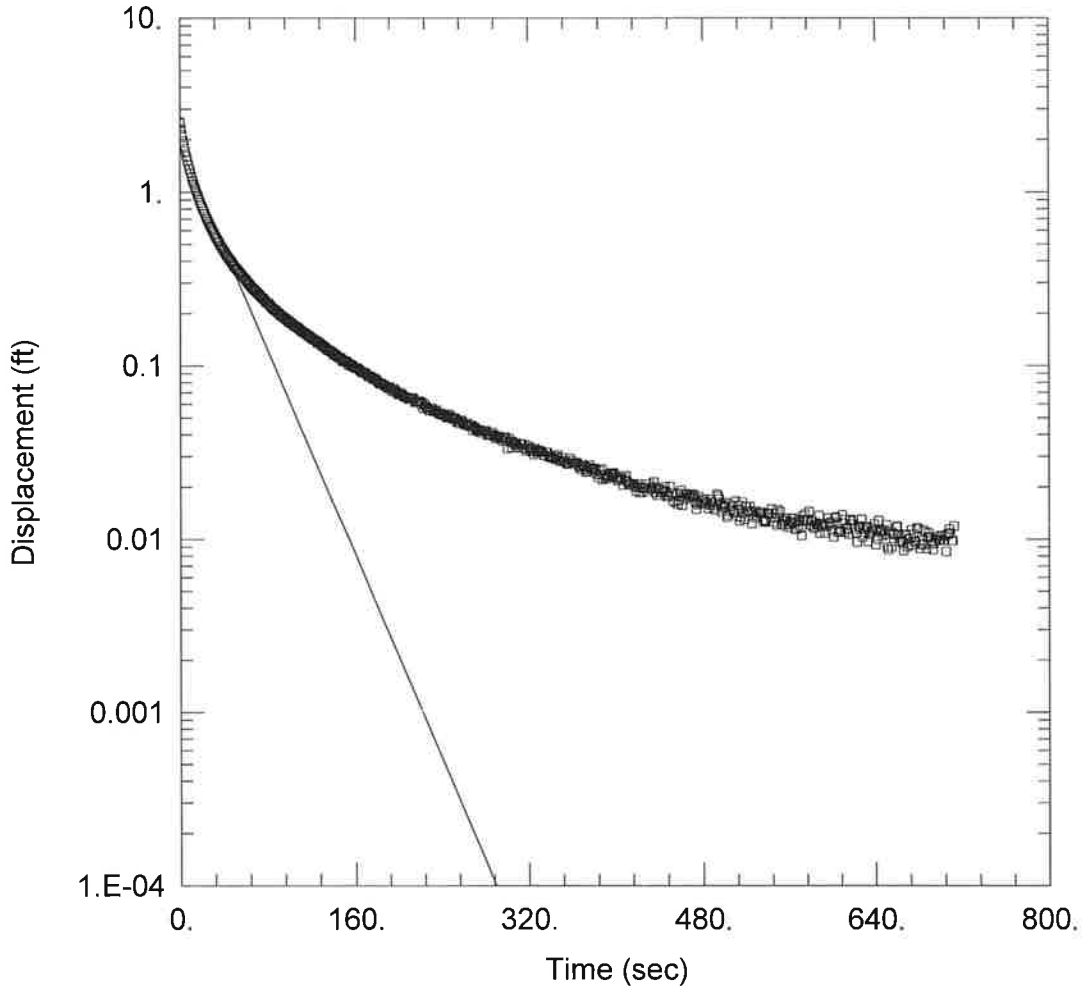
WELL DATA (MW-13)

Initial Displacement: 1.2 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01887 cm/sec y0 = 1.03 ft



MW-13 SLUG OUT 3

Data Set: J:\...\MW13_SlugOut3.aqt
Date: 05/17/13 Time: 16:14:20

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-13)

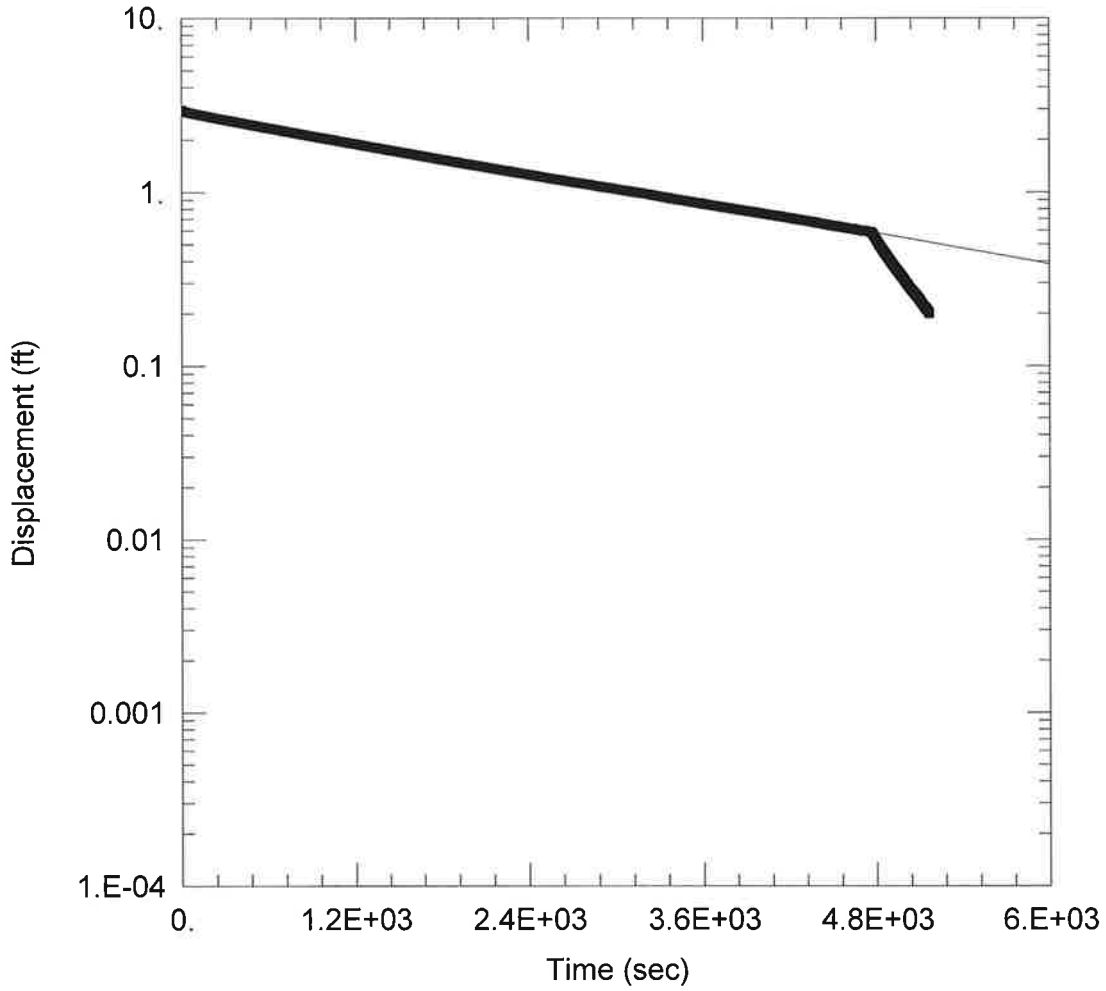
Initial Displacement: 2.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.009659 cm/sec y0 = 1.856 ft



MW-14 SLUG OUT 1

Data Set: J:\...\MW-14_SlugOut1.aqt
Date: 05/17/13 Time: 16:15:51

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

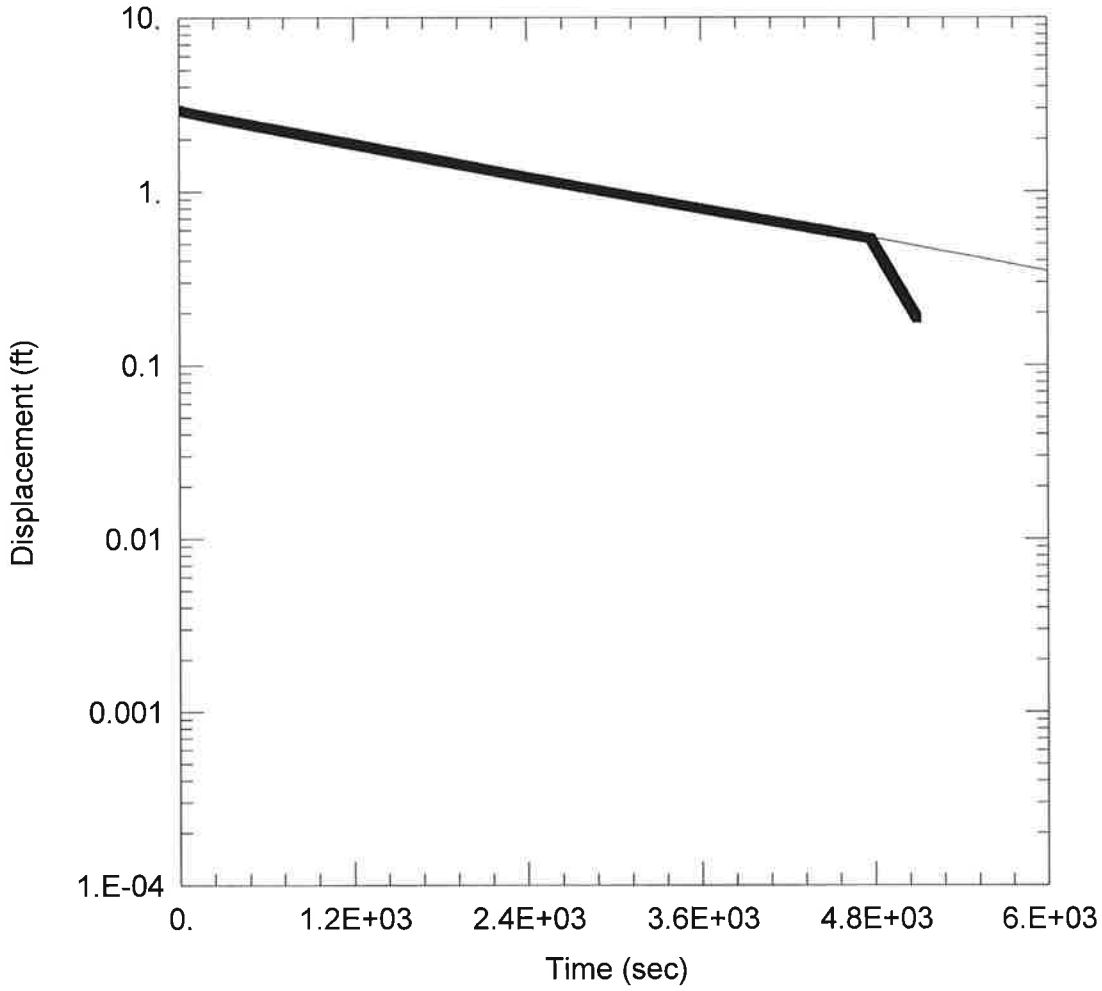
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-14)

Initial Displacement: 2.95 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.897E-05 cm/sec
y0 = 3.027 ft



MW-14 SLUG OUT 2

Data Set: J:\...\MW-14_SlugOut2.aqt
Date: 05/17/13 Time: 16:15:59

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

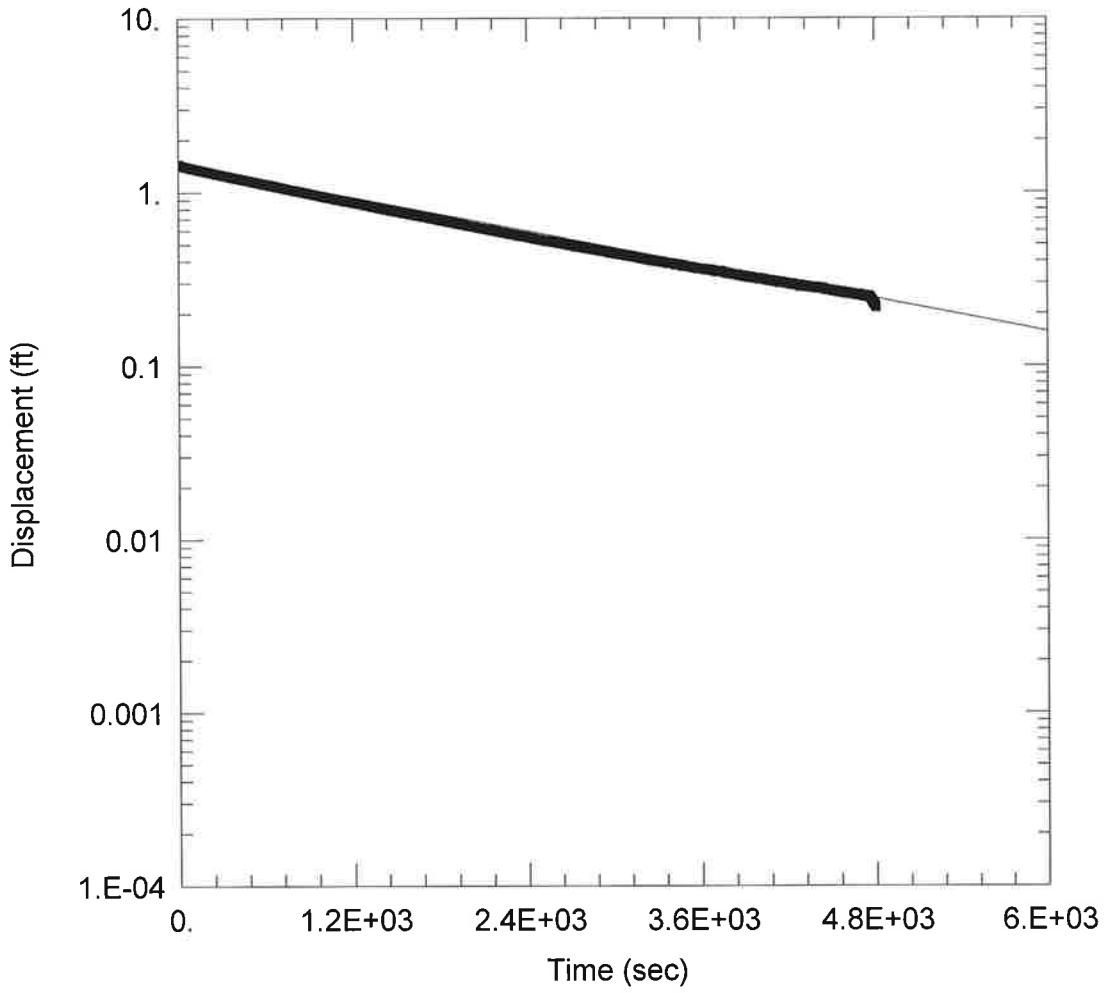
WELL DATA (MW-14)

Initial Displacement: 2.95 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 4.147E-05 cm/sec y0 = 3.114 ft



MW-14 SLUG OUT 3

Data Set: J:\...\MW-14_SlugOut3.aqt
Date: 05/17/13 Time: 16:16:06

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-14)

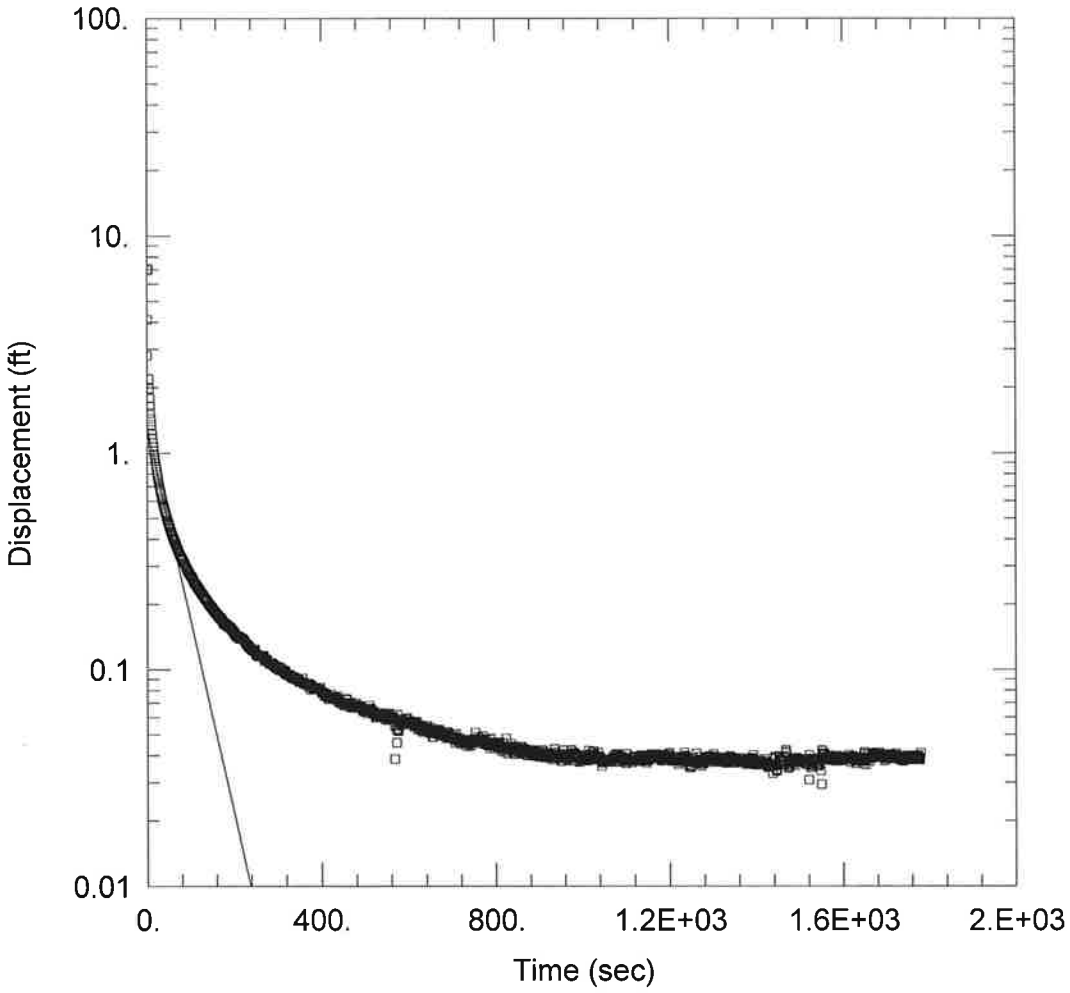
Initial Displacement: 1.45 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 4.219E-05 cm/sec y0 = 1.463 ft



MW-15 SLUG OUT 1 UNCONFINED

Data Set: J:\...\MW-15_SlugOut1_unconfined.aqt
Date: 05/17/13 Time: 16:16:22

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/21/12

AQUIFER DATA

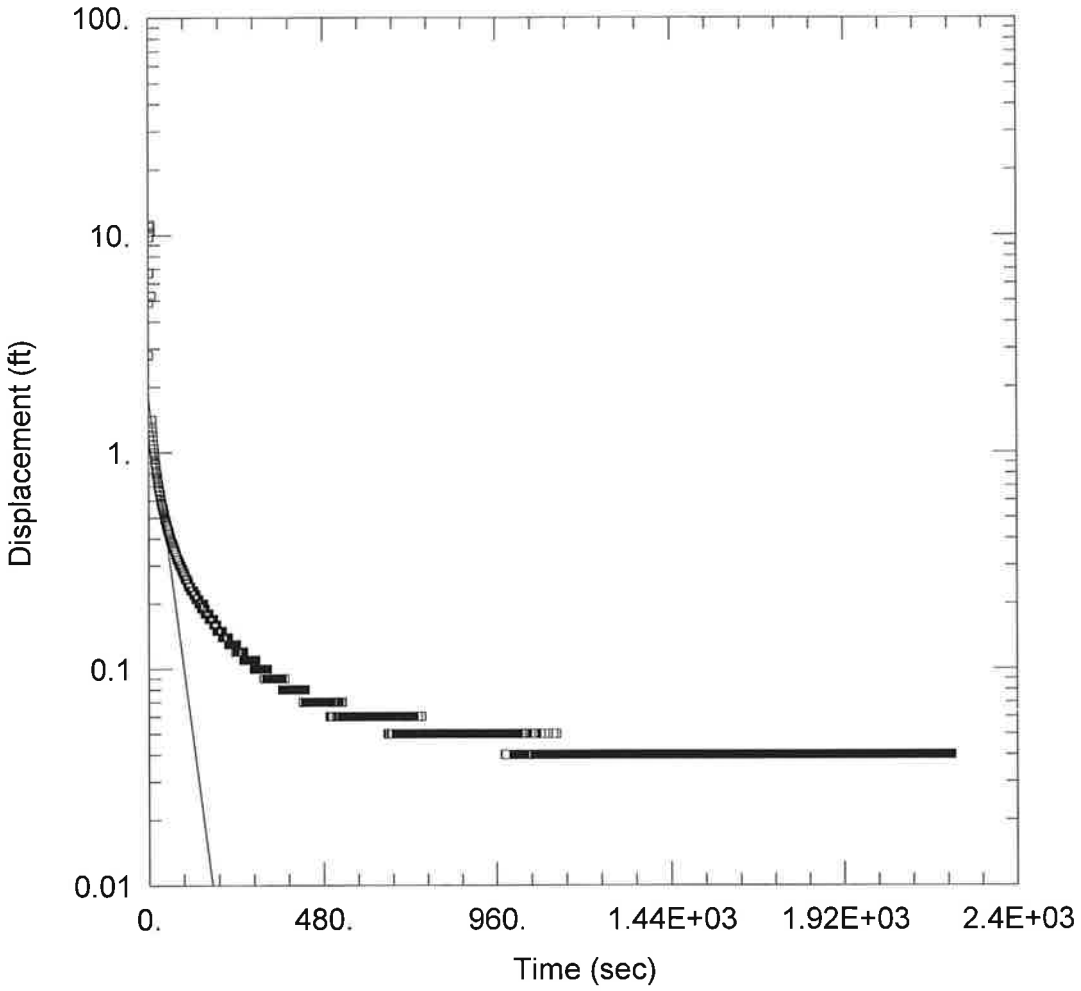
Saturated Thickness: 4.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-15)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4.5 ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.003794 cm/sec y0 = 1.309 ft



MW-15 SLUG OUT 2 UNCONFINED

Data Set: J:\...\MW-15_SlugOut2_unconfined.aqt
Date: 05/17/13 Time: 16:16:39

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 4.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-15)

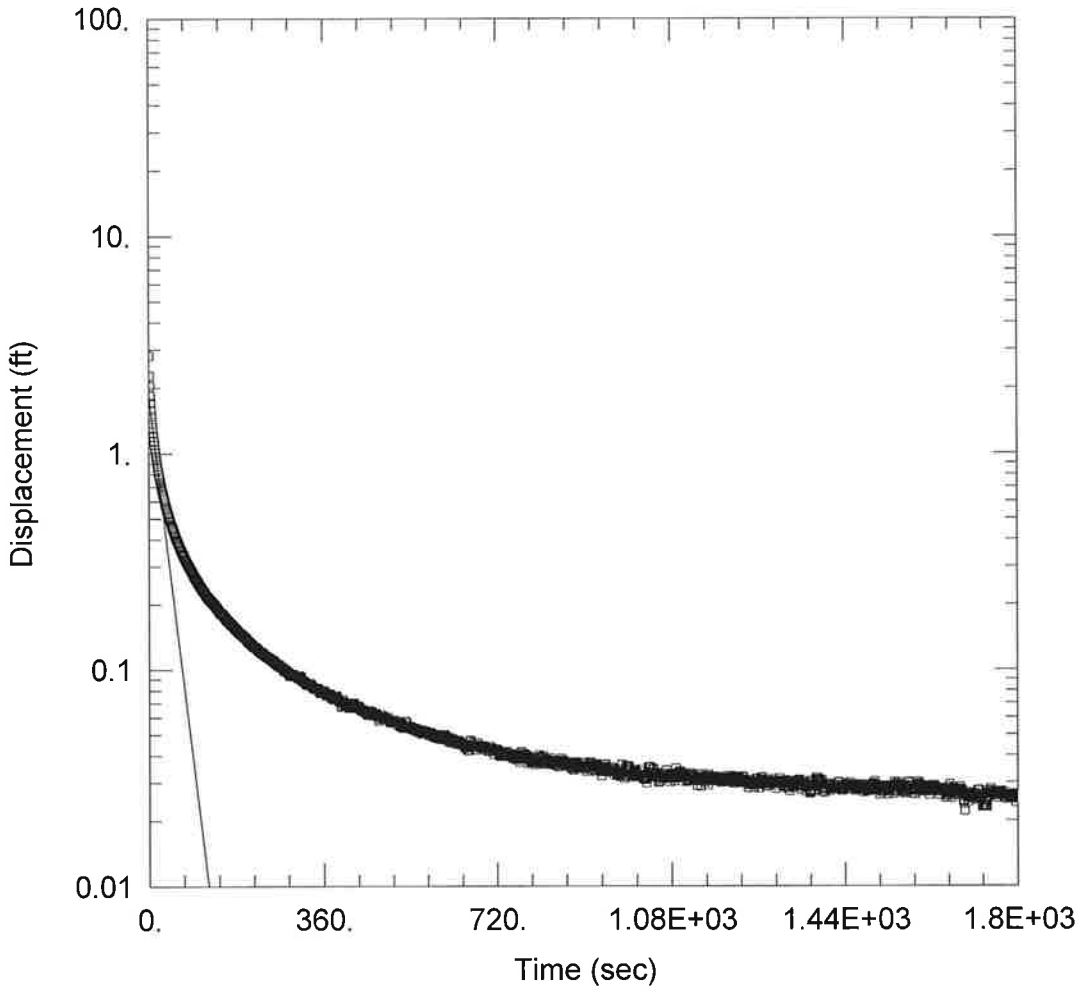
Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4.5 ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005536 cm/sec y0 = 1.779 ft



MW-15 SLUG OUT 3 UNCONFINED

Data Set: J:\...\MW-15_SlugOut3_unconfined.aqt
Date: 05/17/13 Time: 16:16:47

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 4.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-15)

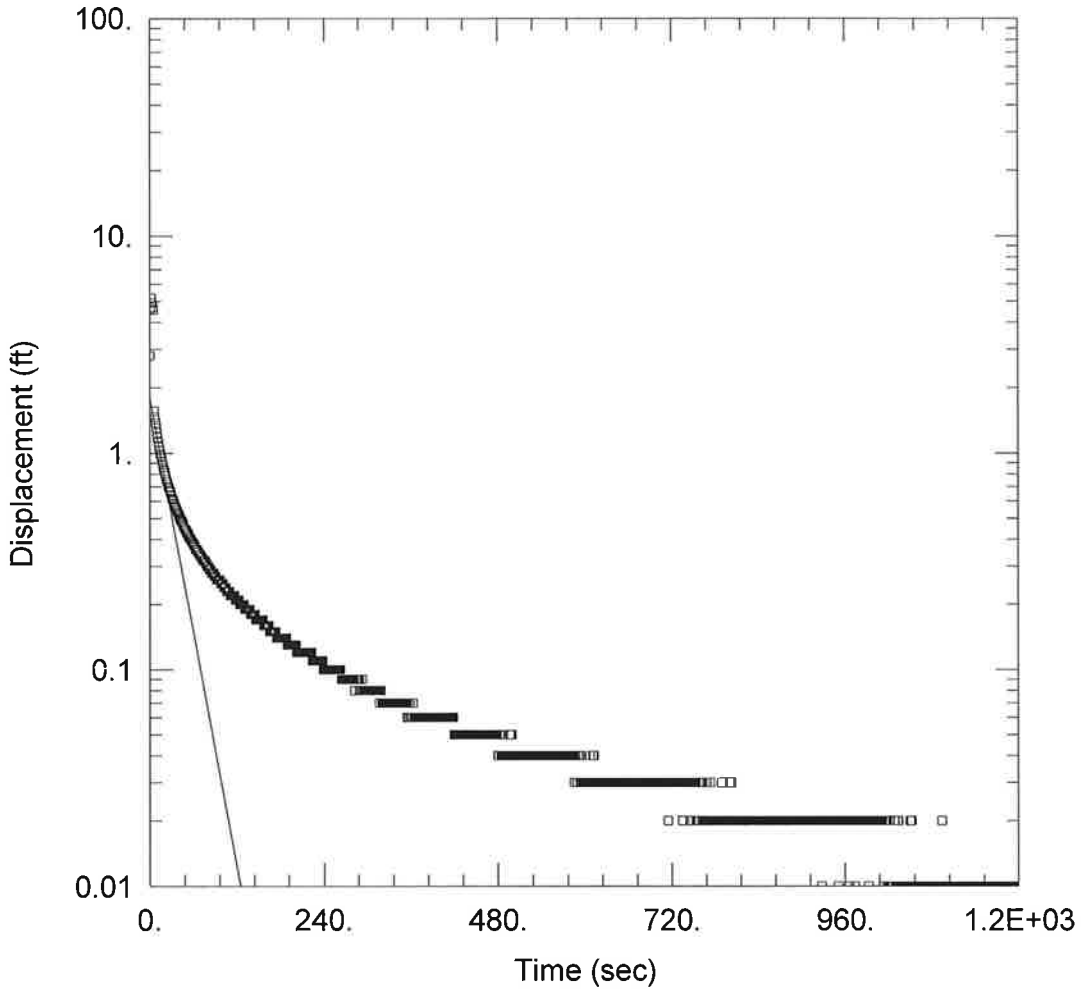
Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4.5 ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.007917 cm/sec

Solution Method: Bouwer-Rice
y0 = 1.848 ft



SLUG OUT 4 UNFCONFINED

Data Set: J:\...\MW-15_SlugOut4_unfonfined.aqt
Date: 05/17/13 Time: 16:16:55

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 4.5 ft Anisotropy Ratio (Kz/Kr): 1.

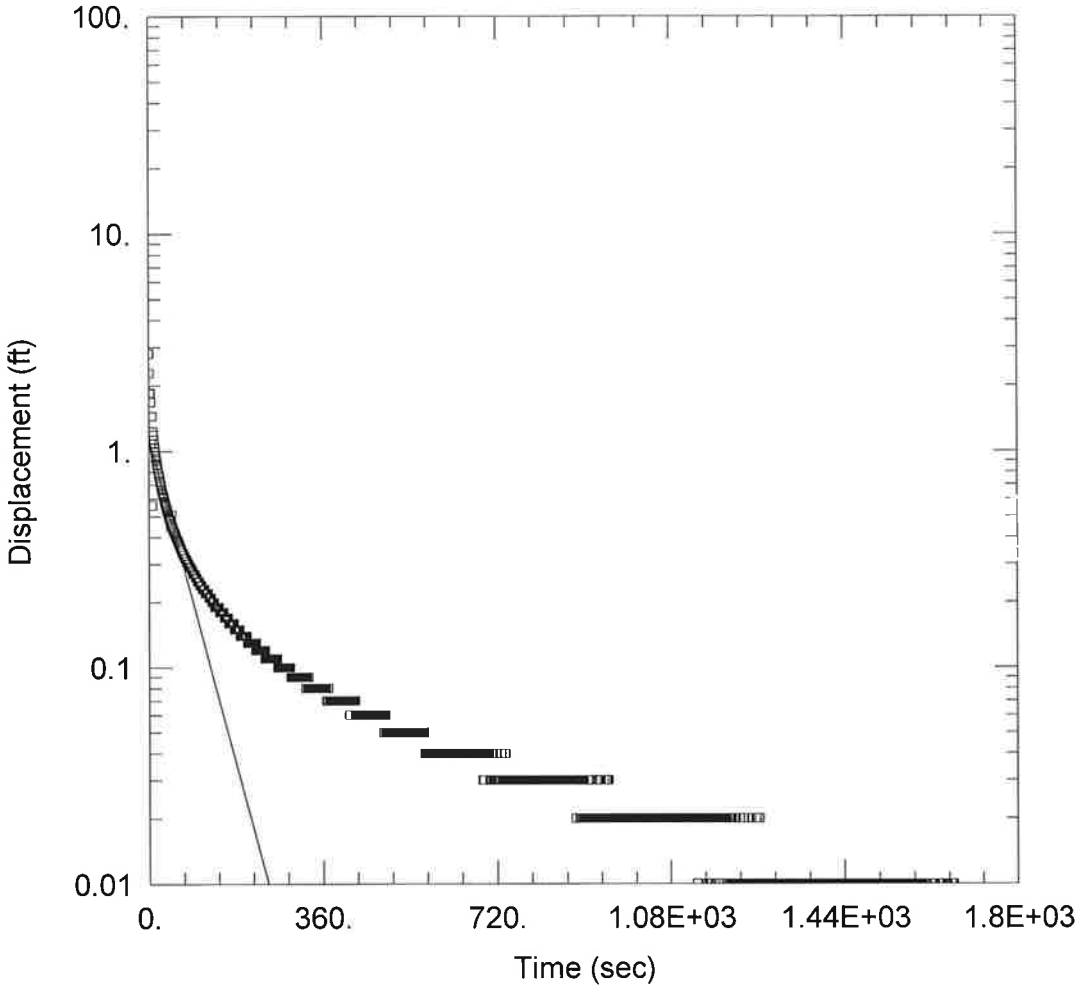
WELL DATA (MW-15)

Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4.5 ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.007719 cm/sec y0 = 1.802 ft



SLUG IN 1 UNFCONFINED

Data Set: J:\...\MW-15_SlugIn1_unconfined.aqt
Date: 05/17/13 Time: 16:16:14

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-15
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 4.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-15)

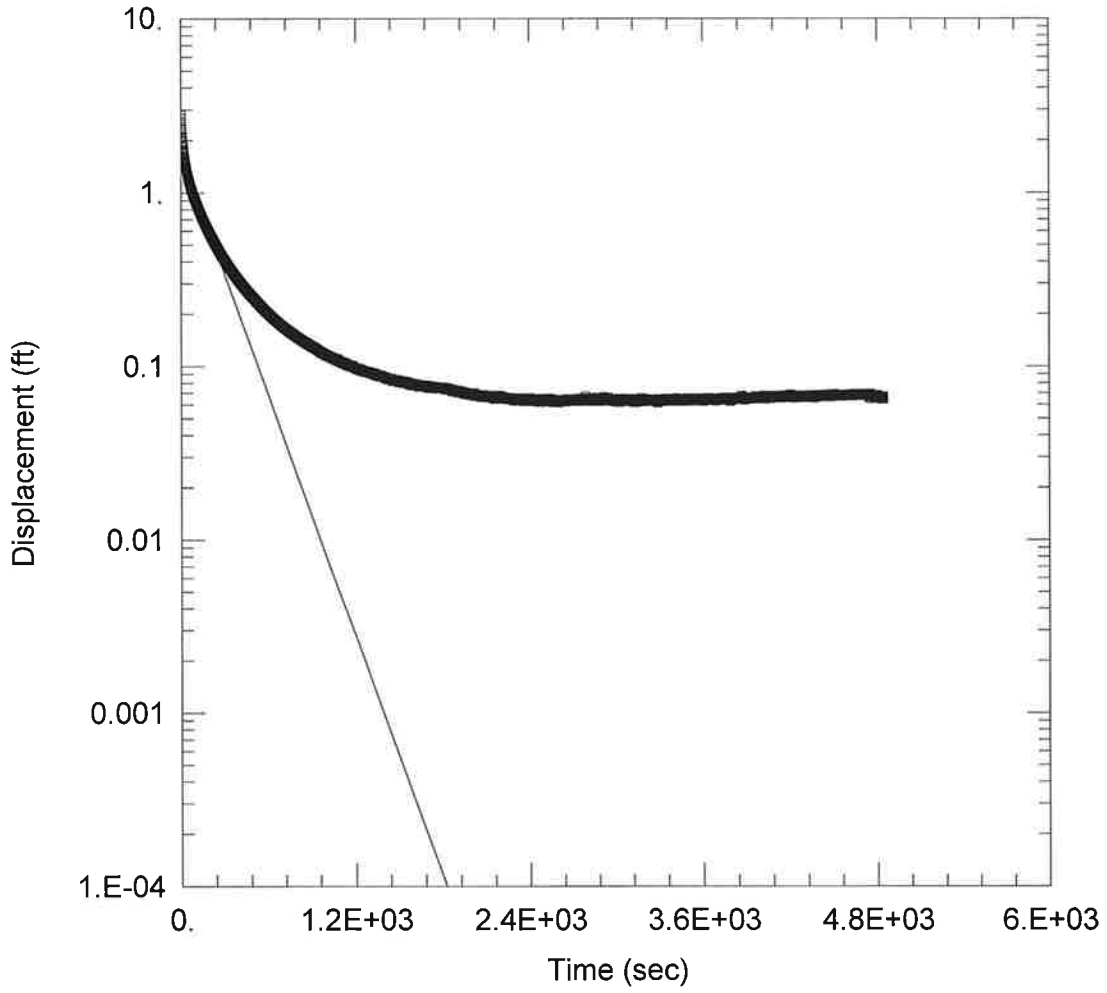
Initial Displacement: 2.82 ft
Wellbore Radius: 0.33 ft
Screen Length: 4.5 ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 4.5 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003563 cm/sec y0 = 1.145 ft



MW-16S SLUG OUT 1

Data Set: J:\...\MW16S_SlugOut1.aqt
Date: 05/17/13 Time: 16:14:31

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

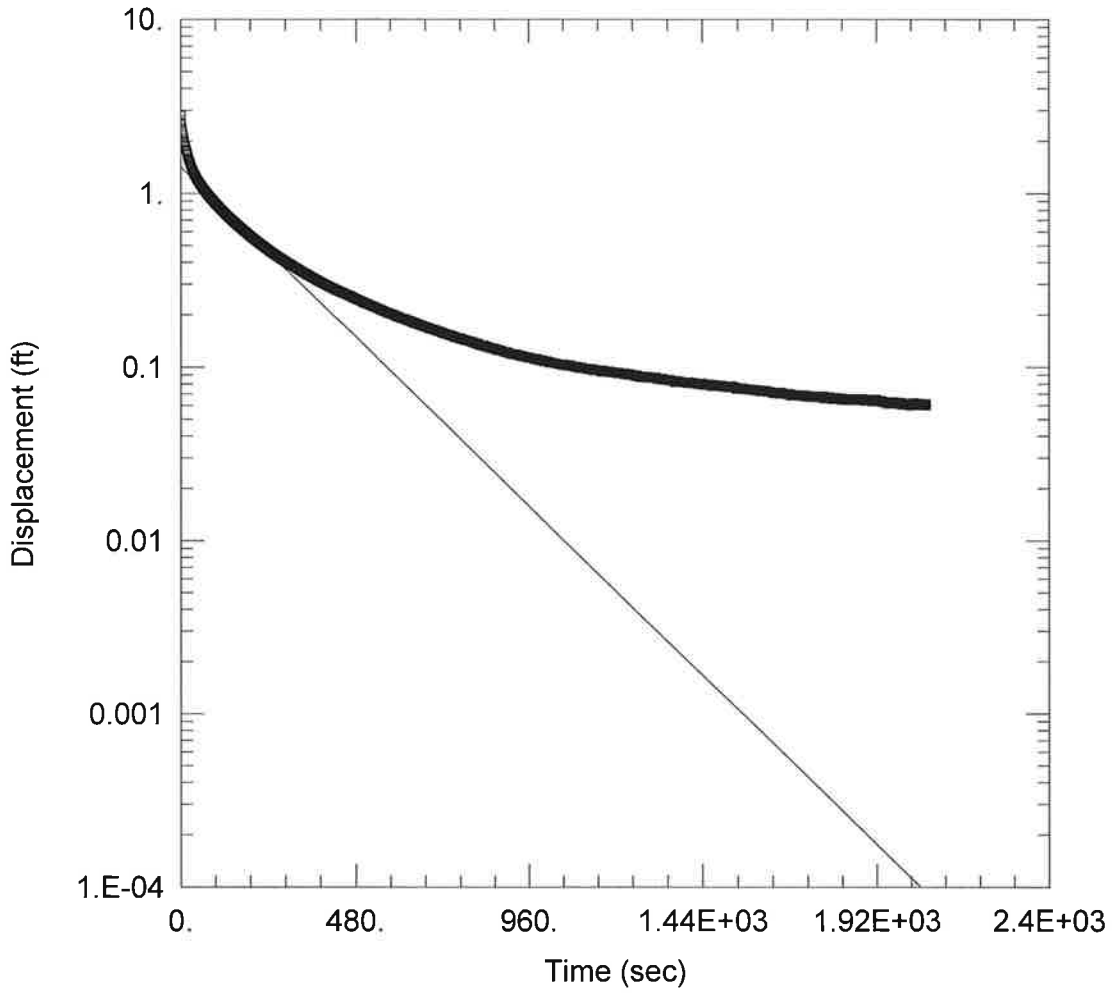
WELL DATA (MW-16S)

Initial Displacement: 2.8 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00152 cm/sec y0 = 1.682 ft



MW-16S SLUG OUT 2

Data Set: J:\...\MW16S_SlugOut2.aqt
Date: 05/17/13 Time: 16:14:59

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

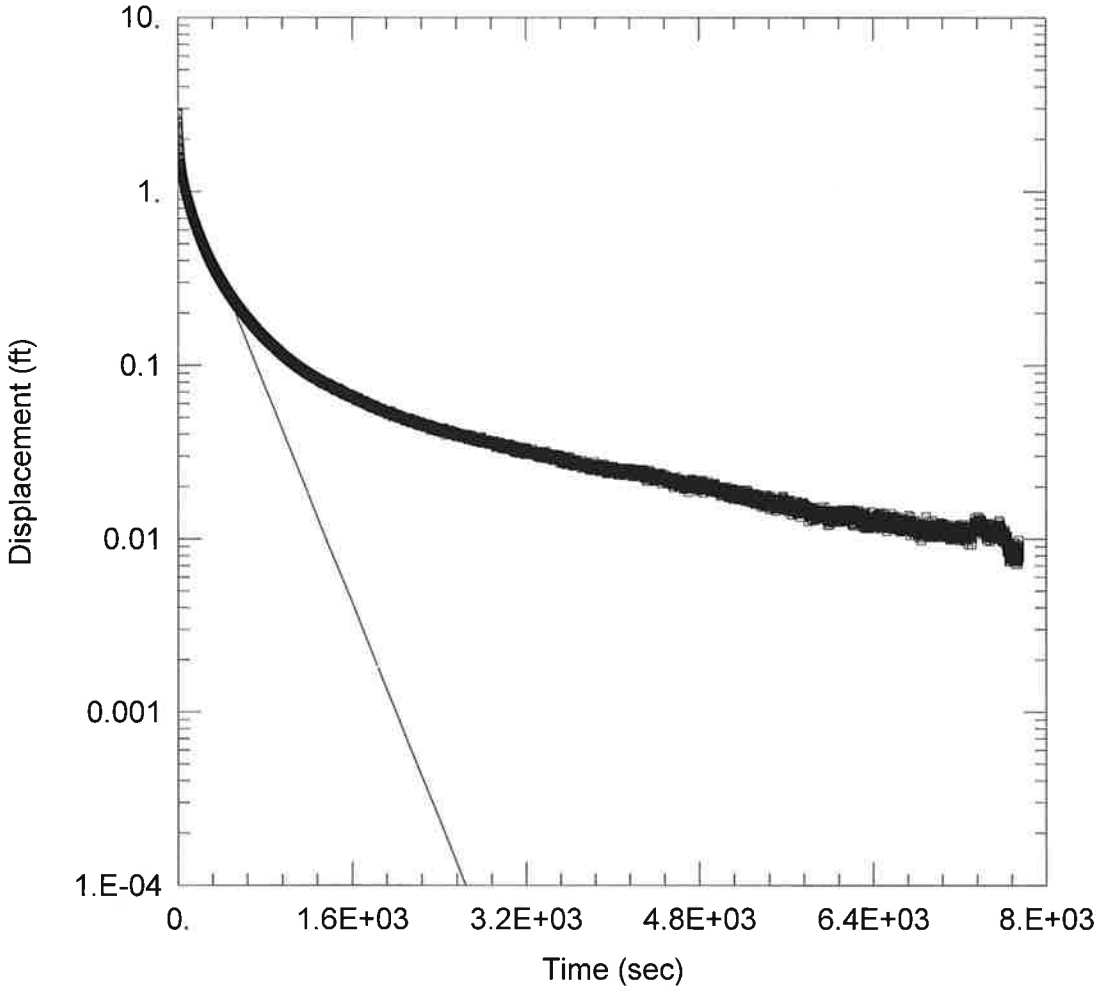
WELL DATA (MW-16S)

Initial Displacement: 2.8 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001333 cm/sec y0 = 1.415 ft



MW-16S SLUG OUT 3

Data Set: J:\...\MW16S_SlugOut3.aqt
Date: 05/17/13 Time: 16:15:09

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 2. ft Anisotropy Ratio (Kz/Kr): 1.

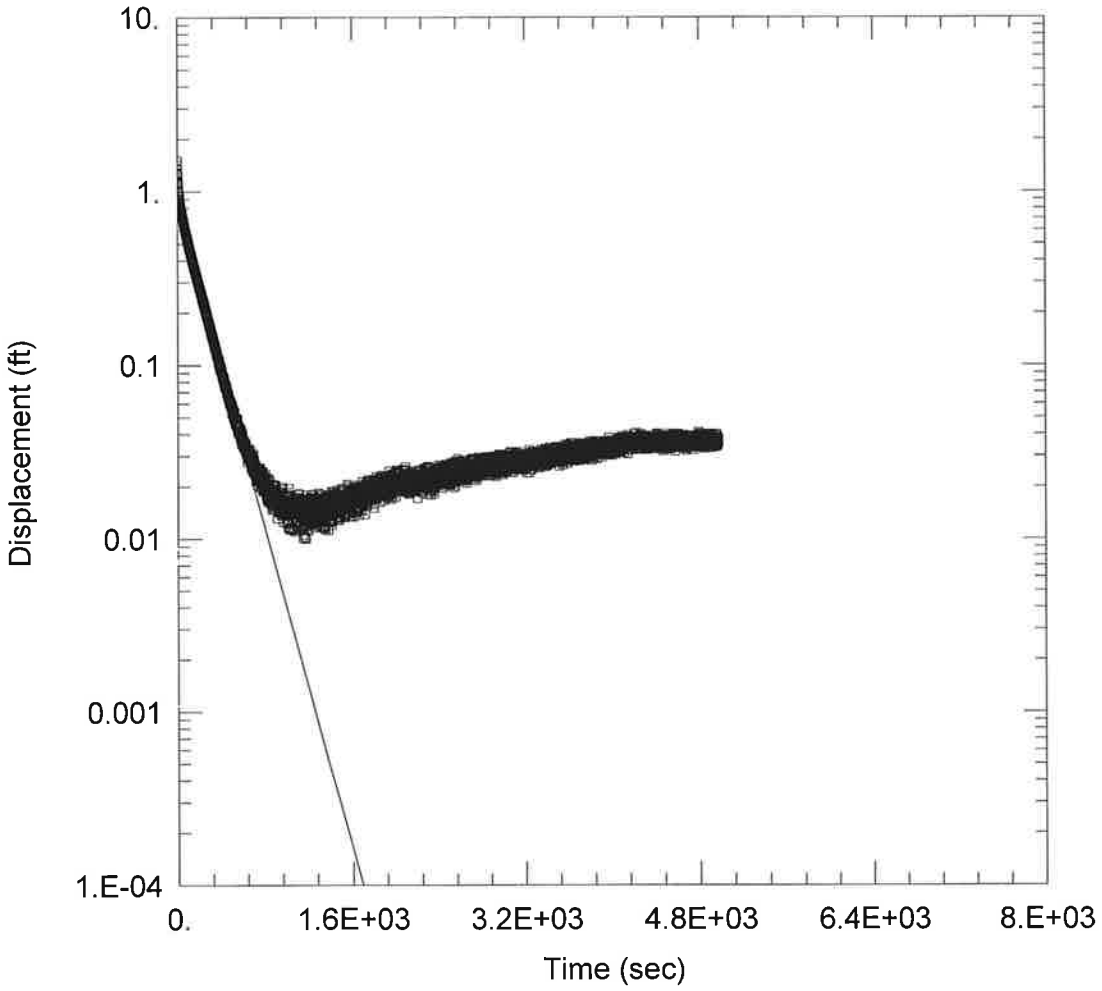
WELL DATA (MW-16S)

Initial Displacement: 2.8 ft
Wellbore Radius: 0.33 ft
Screen Length: 2. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 2. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001024 cm/sec y0 = 1.35 ft



MW-17 SLUG OUT 1

Data Set: J:\...\MW17_SlugOut1.aqt
Date: 05/17/13 Time: 16:15:17

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

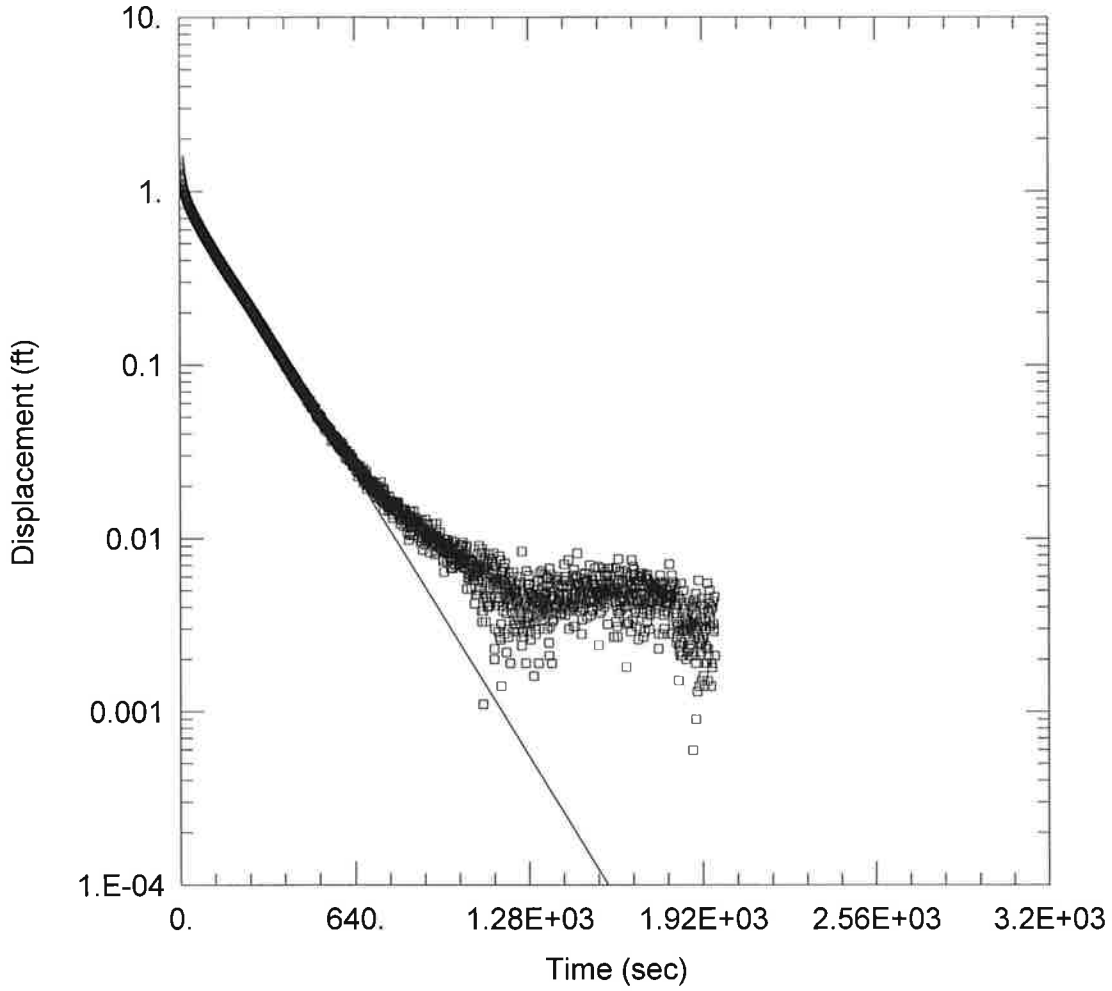
Saturated Thickness: 8. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-17)

Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 8. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 8. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0007008 cm/sec y0 = 0.8185 ft



MW-17 SLUG OUT 2

Data Set: J:\...\MW17_SlugOut2.aqt
Date: 05/17/13 Time: 16:15:32

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/14/2012

AQUIFER DATA

Saturated Thickness: 8. ft Anisotropy Ratio (Kz/Kr): 1.

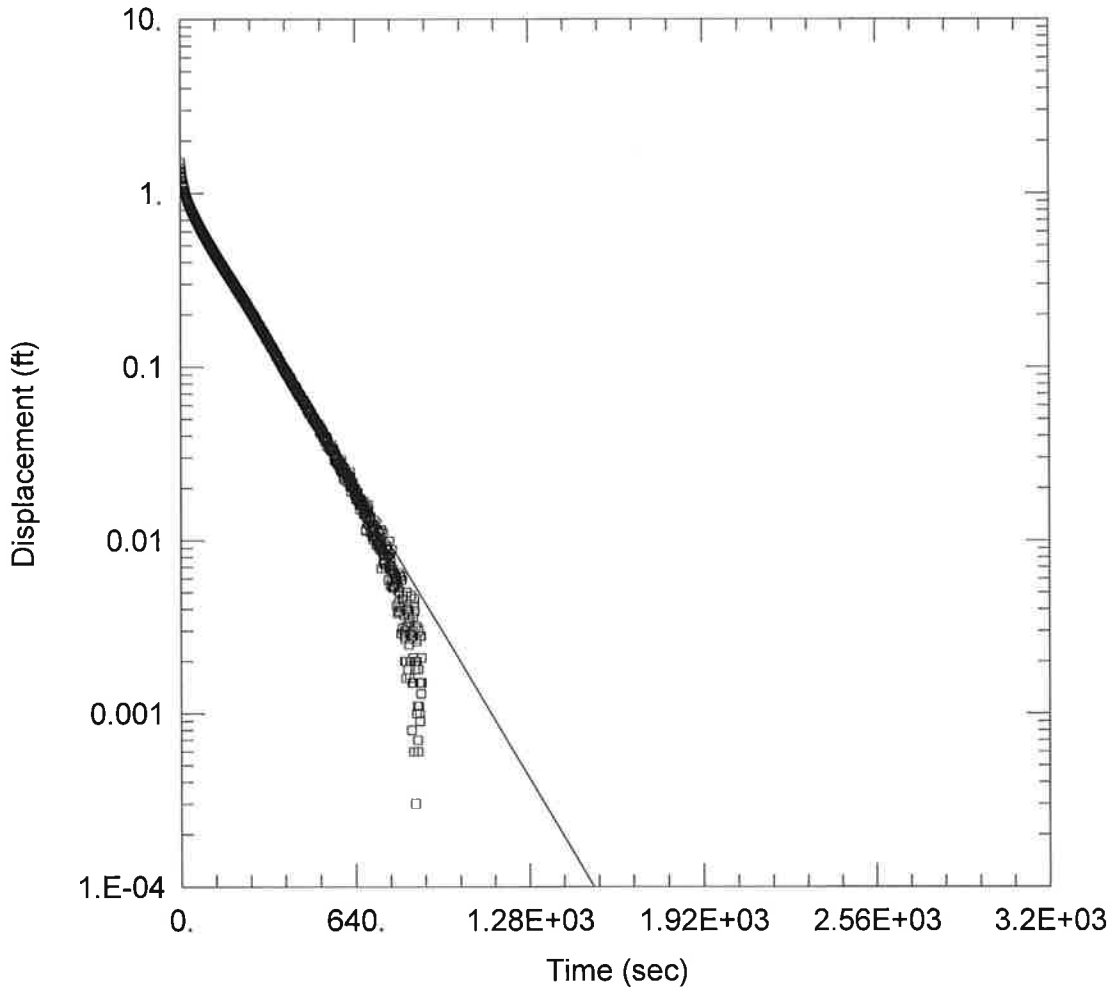
WELL DATA (MW-17)

Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 8. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 8. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007729 cm/sec y0 = 1.03 ft



MW-17 SLUG OUT 3

Data Set: J:\...\MW17_SlugOut3.aqt
Date: 05/17/13 Time: 16:15:42

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-13
Test Date: 5/15/2012

AQUIFER DATA

Saturated Thickness: 8. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-17)

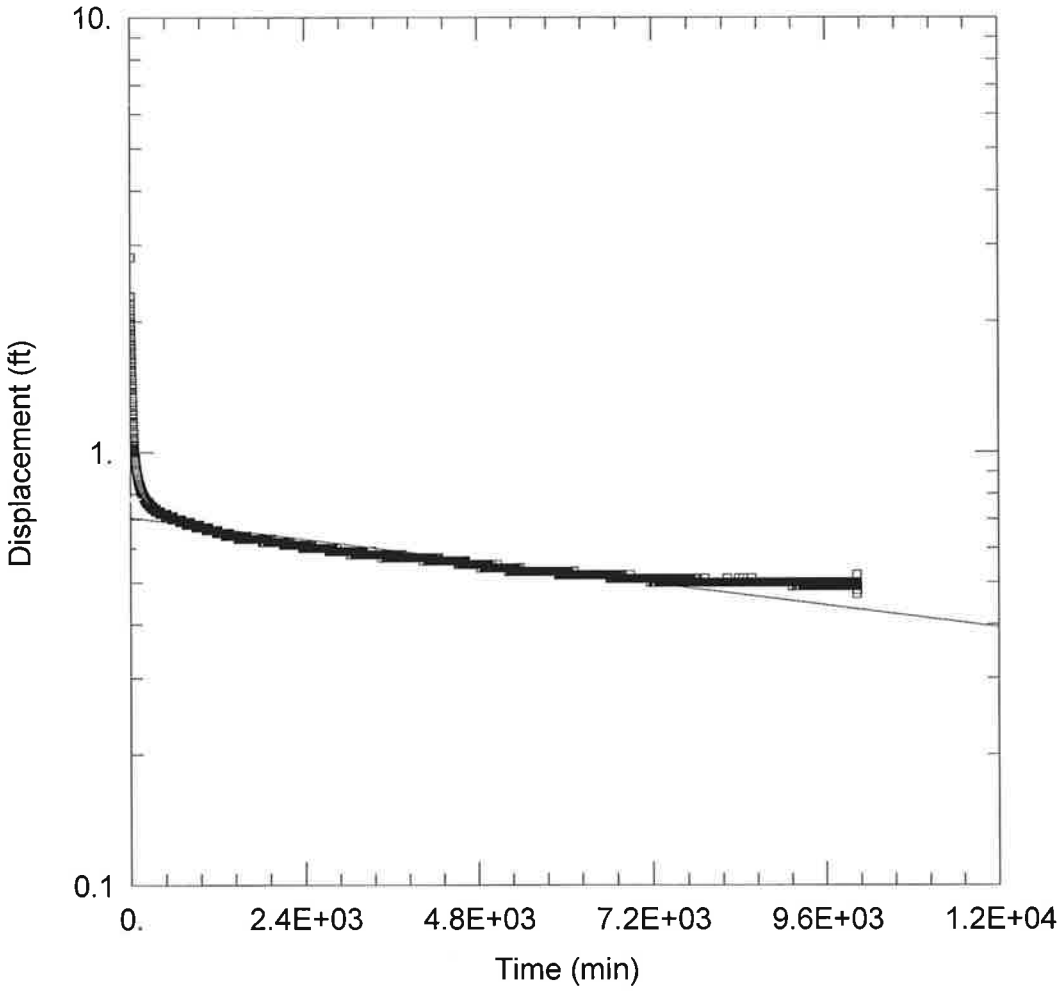
Initial Displacement: 1.5 ft
Wellbore Radius: 0.33 ft
Screen Length: 8. ft
Gravel Pack Porosity: 0.2

Casing Radius: 0.17 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 8. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007977 cm/sec y0 = 1.003 ft



MW-19 SLUG OUT 1

Data Set: J:\...\MW-19_SlugOut1.aqt
Date: 05/17/13 Time: 16:17:17

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-19
Test Date: 2/21/12

AQUIFER DATA

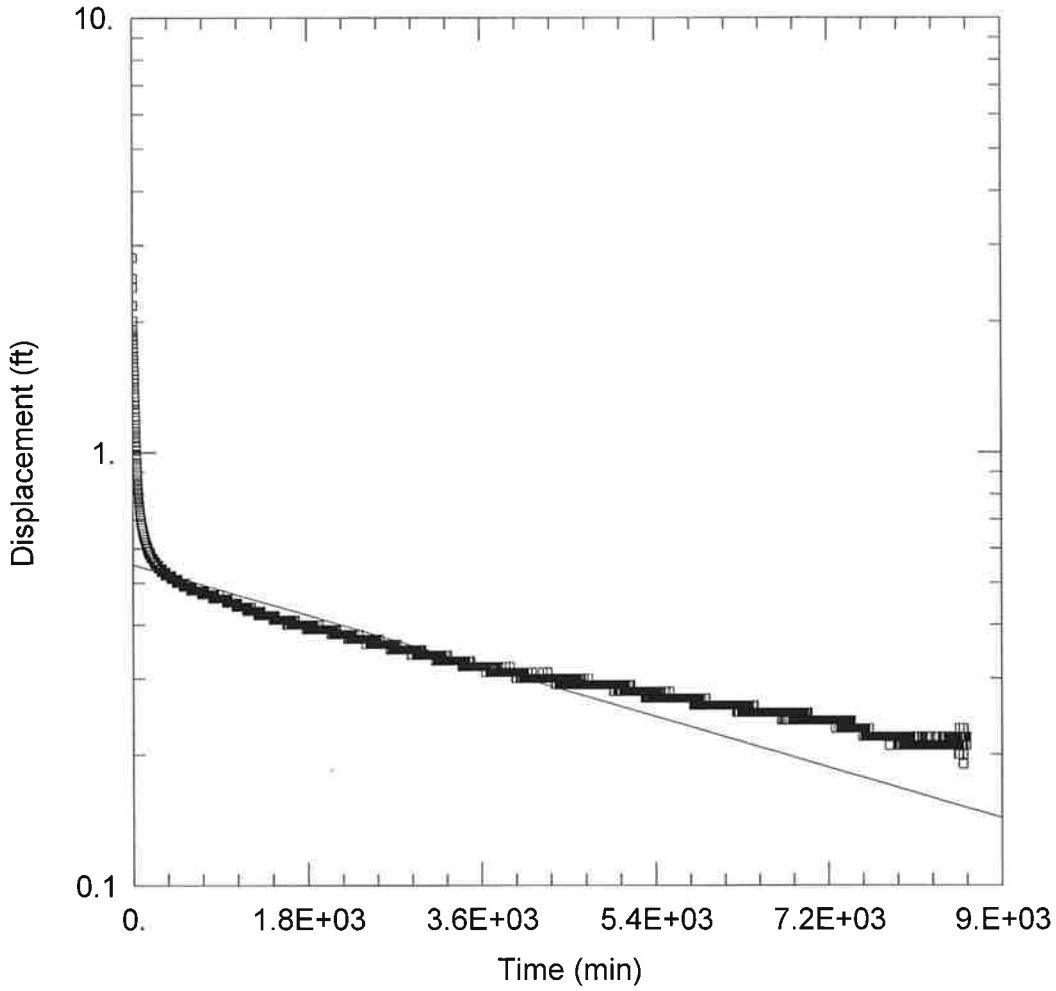
Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-19)

Initial Displacement: 2.81 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 2.196E-08 cm/sec y0 = 0.7066 ft



MW-19 SLUG OUT 2

Data Set: J:\...\MW-19_SlugOut2.aqt
Date: 05/17/13 Time: 16:17:34

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-19
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

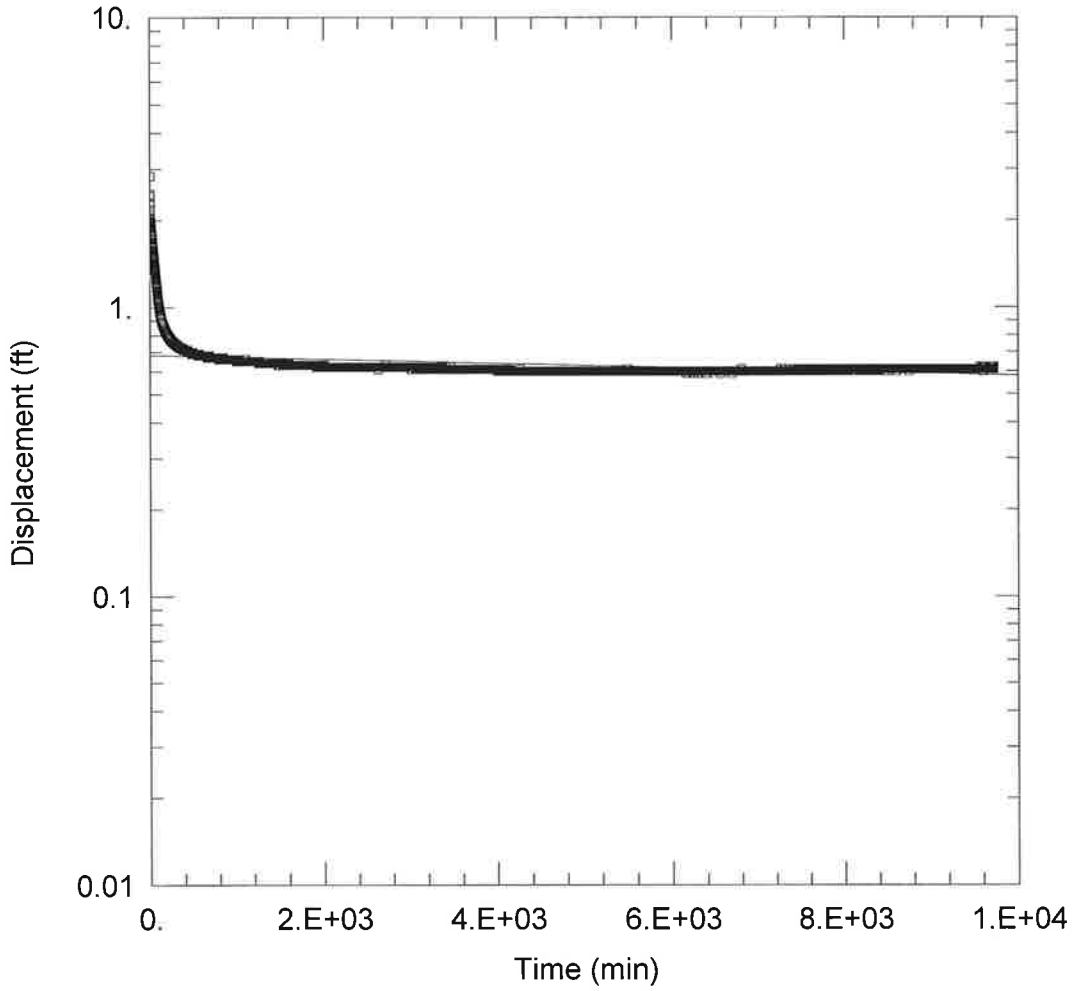
WELL DATA (MW-19)

Initial Displacement: 2.81 ft
Wellbore Radius: 0.33 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 6.765E-08 cm/sec y0 = 0.5509 ft



MW-20 SLUG OUT 1

Data Set: J:\...\MW-20_Out1.aqt
Date: 05/17/13 Time: 16:17:43

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-20
Test Date: 2/21/12

AQUIFER DATA

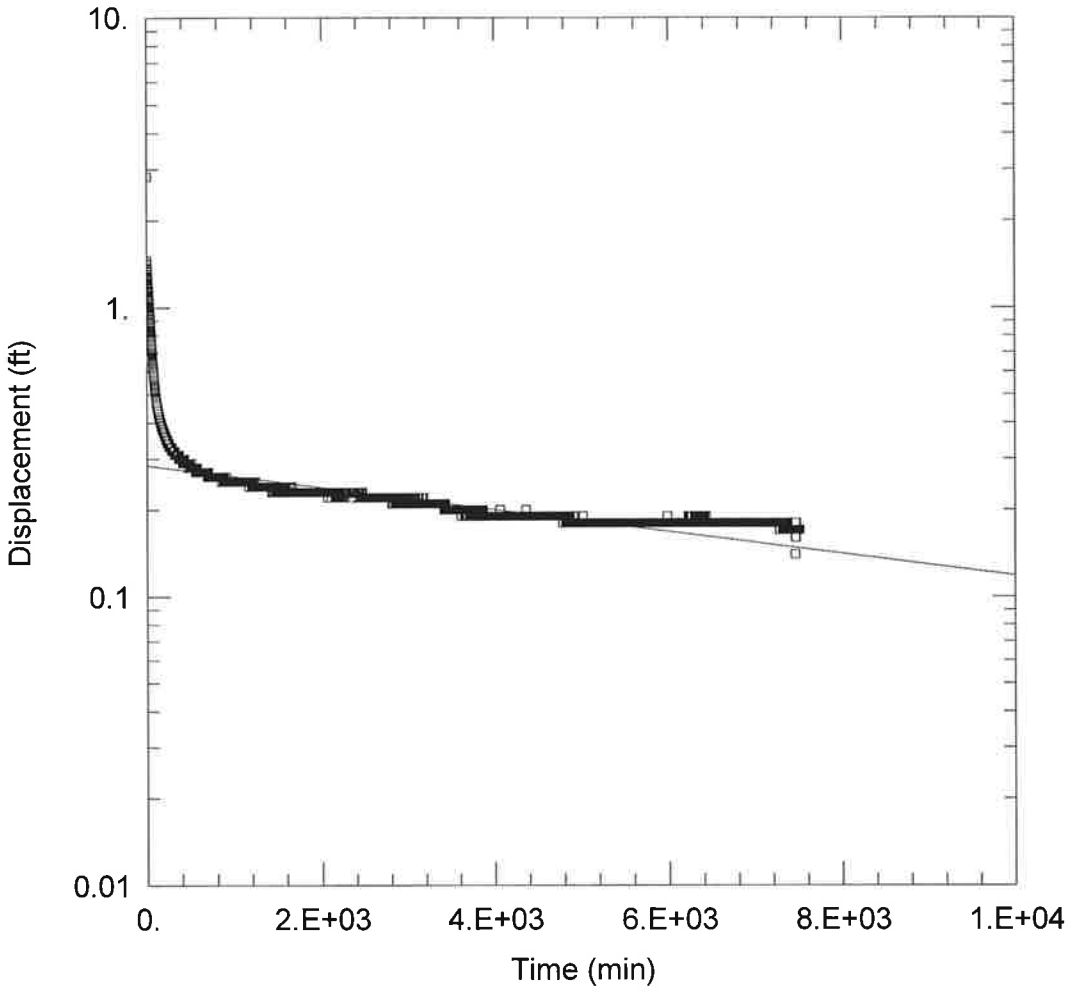
Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-20)

Initial Displacement: 2.84 ft
Wellbore Radius: 0.33 ft
Screen Length: 9. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 9. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 7.836E-09 cm/sec y0 = 0.6824 ft



MW-20 SLUG OUT 2

Data Set: J:\...\MW-20_Out2.aqt
Date: 05/17/13 Time: 16:17:50

PROJECT INFORMATION

Company: PBW, LLC
Client: Exide
Test Location: Frisco Plant
Test Well: MW-20
Test Date: 2/21/12

AQUIFER DATA

Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-20)

Initial Displacement: 2.84 ft
Wellbore Radius: 0.33 ft
Screen Length: 9. ft
Gravel Pack Porosity: 0.2
Casing Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Total Well Penetration Depth: 9. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.245E-08 cm/sec
y0 = 0.2844 ft

ATTACHMENT D

J&N 1995 REPORT
PUMPING TEST CALCULATIONS, TIME-DRAWDOWN GRAPH, AND SUMMARY OF SLUG TEST RESULTS

GNB TECHNOLOGIES

Frisco, Texas

Pumping Test Calculations LMW-17

July 25 & 26, 1995

Transmissivity = T = 264 (Q) / delta s

where:

Q = Flow rate = 8 GPM

delta s = drawdown per log cycle = 0.19 foot

therefore:

T = 264 (8)/0.19

T = 11,116 gpd/ft

T = Km

where:

T= transmissivity = 11,116 gpd/ft

K = the hydraulic conductivity

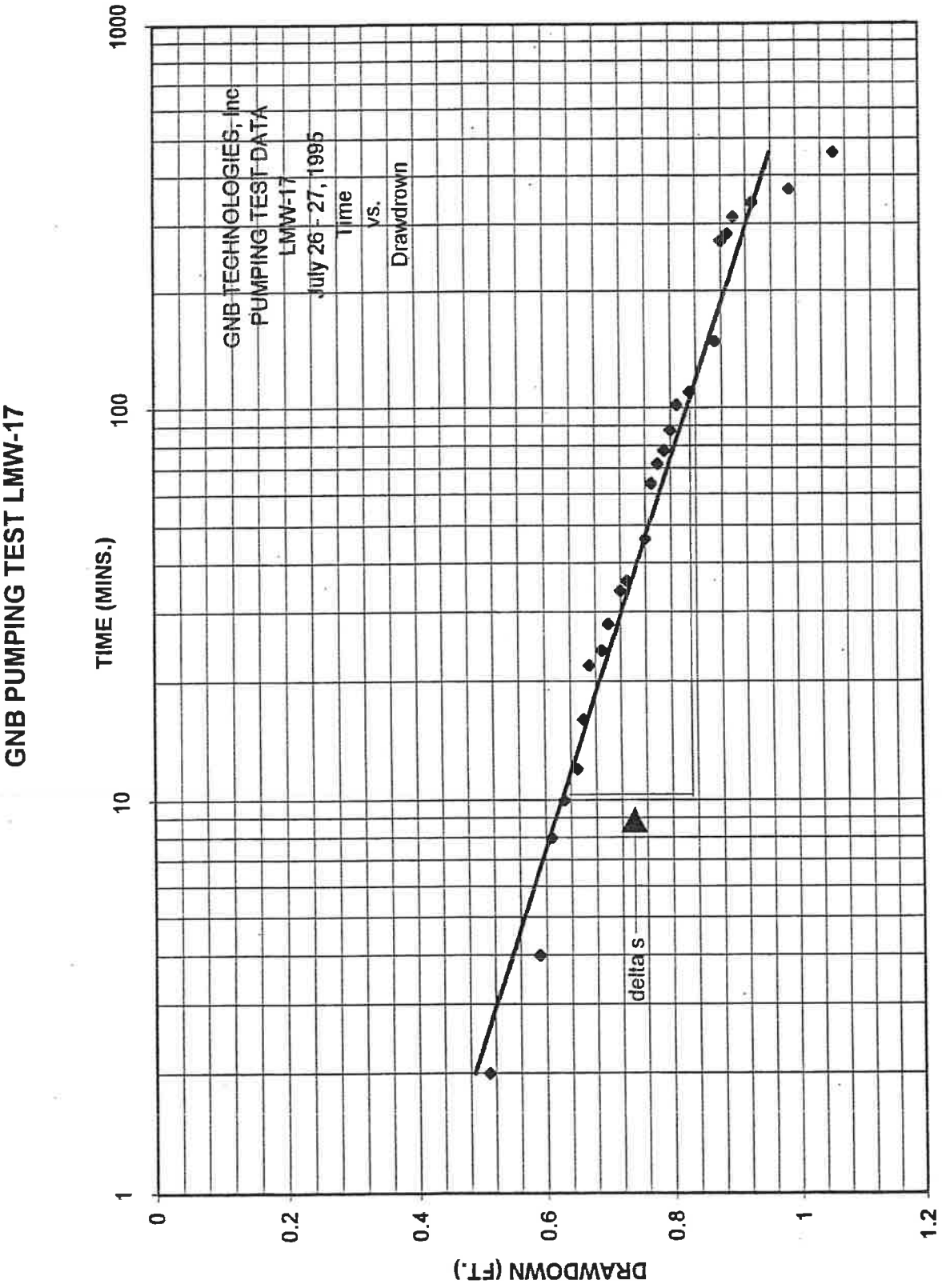
m = the aquifer thickness = 4.5 feet

therefore:

K = T/m

K = 11,116/ 4.5

K = 2,470 gpd/ft = 0.1165 cm/sec


GNB PUMPING TEST LMW-17
GNB TECHNOLOGIES, Inc
PUMPING TEST DATA
LMW-17
July 26 - 27, 1995
Time
vs.
Drawdrown
TIME (MINS.)
1000
100
10
1
0
0.2
0.4
0.6
0.8
1
1.2
DRAWDOWN (FT.)
delta s