

Attachment 6

Assessment Monitoring Report, Tables, Figures, and Boring Logs

Closed Collinsville Landfill, Collinsville, IL

Tetra Tech, January 2008

Figures

DRAWING: C:\Documents and Settings\HP_Administrator\My Documents\My Files\Collinsville Landfill\Figures\December 2007 Figures\FIGURE 1.DWG



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1634 Eastport Plaza Drive
Collinsville, IL 62234
PHONE: 618-343-2300 FAX: 618-345-1281

Drawing Description
SITE LOCATION MAP

Collinsville Landfill
Madison County, Illinois

Project No.: 17841

Date: December 2007

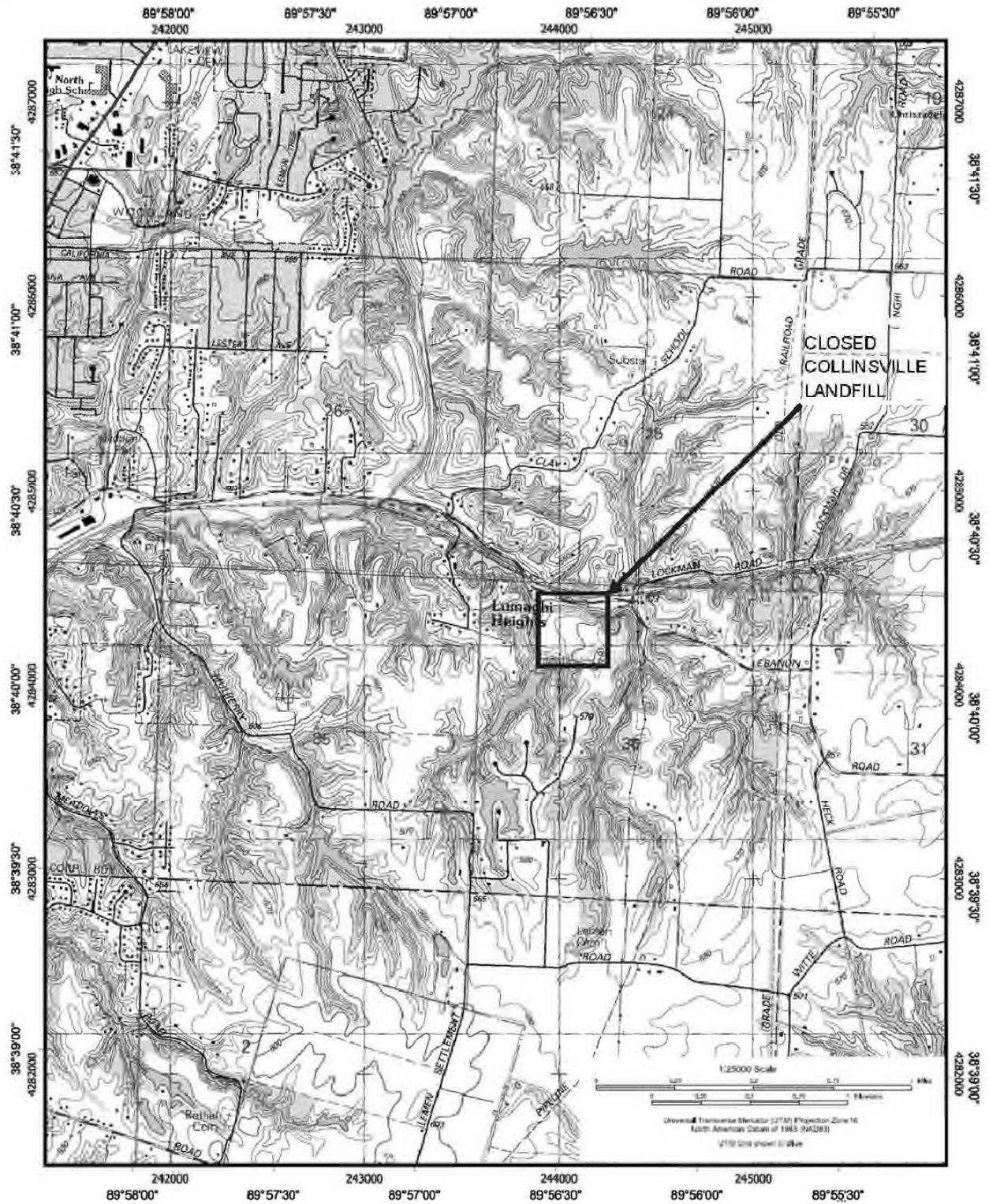
Drawn By: DWC

Figure Number

1

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Tuesday, December 18, 2007 1:58:54 PM DRAWING: C:\Documents and Settings\Dave.Collins\My Documents\My Files\Collinsville Landfill\Figures\December 2007 Figures\FIGURE 2.DWG



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Drawing Description

Topographic Map

Collinsville Landfill
Madison County, Illinois

Project No.: 17841

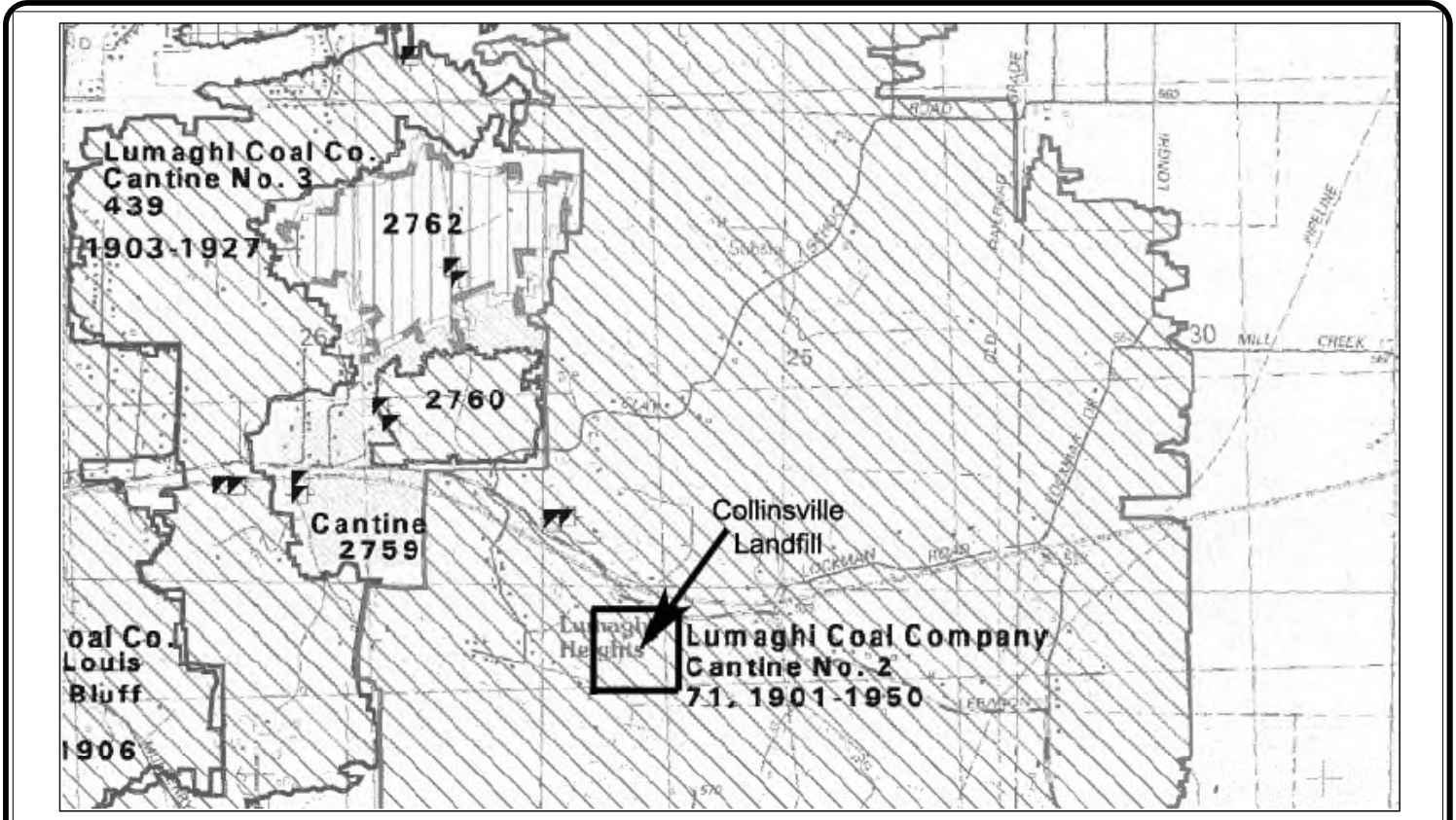
Date: December 2007

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Figure Number

2



DRAWING: C:\Documents and Settings\Dave.Collins\My Documents\My Files\Collinsville Landfill\Figures\December 2007 Figures\FIGURE 3.DWG



MINING METHOD

-  Room & pillar - basic (RPB)
-  Modified room & pillar (MRP)

TIPPLE, SHAFT, SLOPE, DRIFT LOCATIONS

-  Mine shaft; active - abandoned
-  Mine slope; active - abandoned



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Drawing Description
**Former Coal Mines in the Vicinity of
Collinsville Landfill**

**Collinsville Landfill
Madison County, Illinois**

Project No.: 17841

Date: December 2007

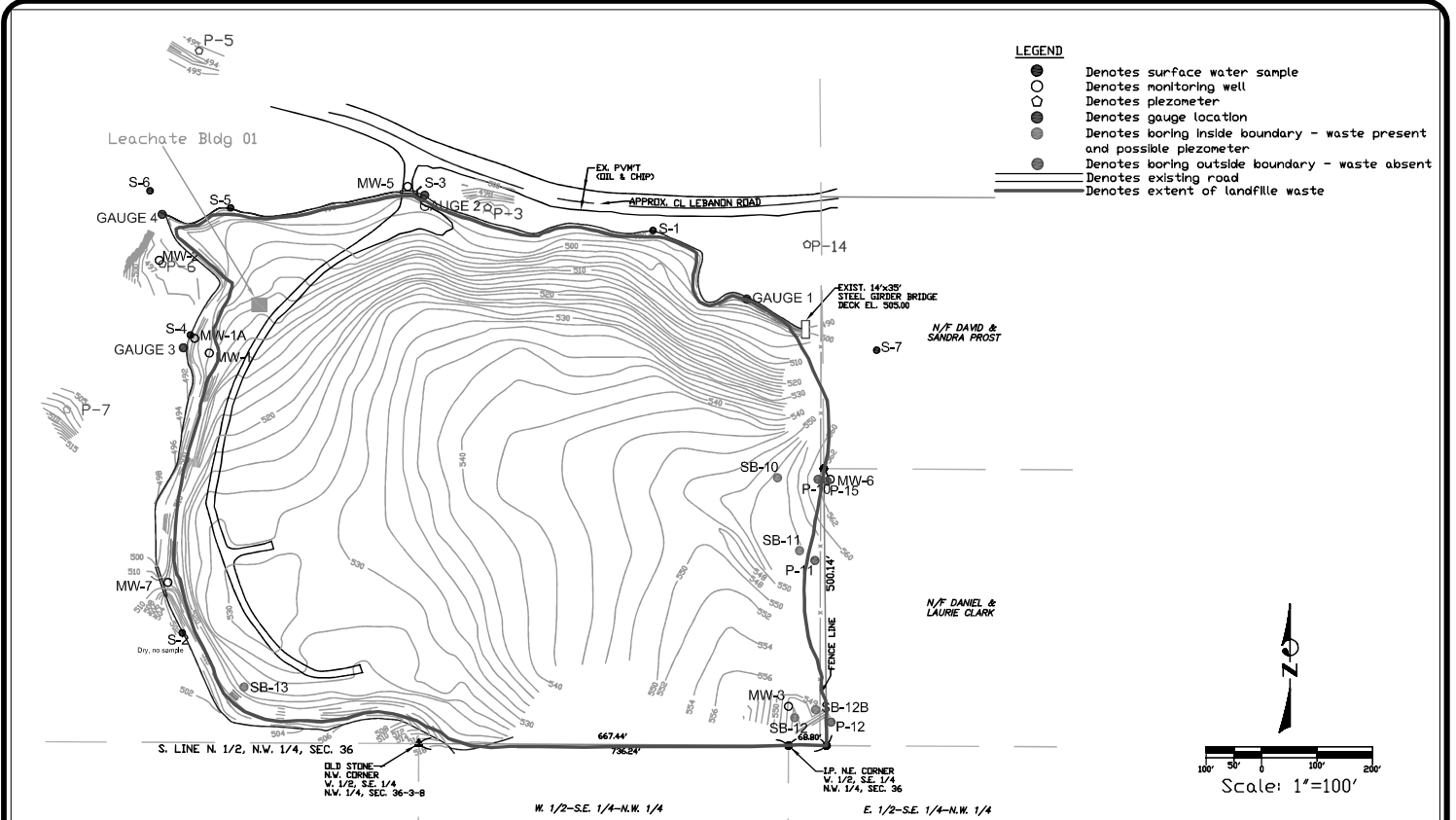
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DRAWING: C:\Documents and Settings\Dave.Collins\My Documents\My Files\Collinsville Landfill\Figures\December 2007 Figures\FIGURE 4.DWG



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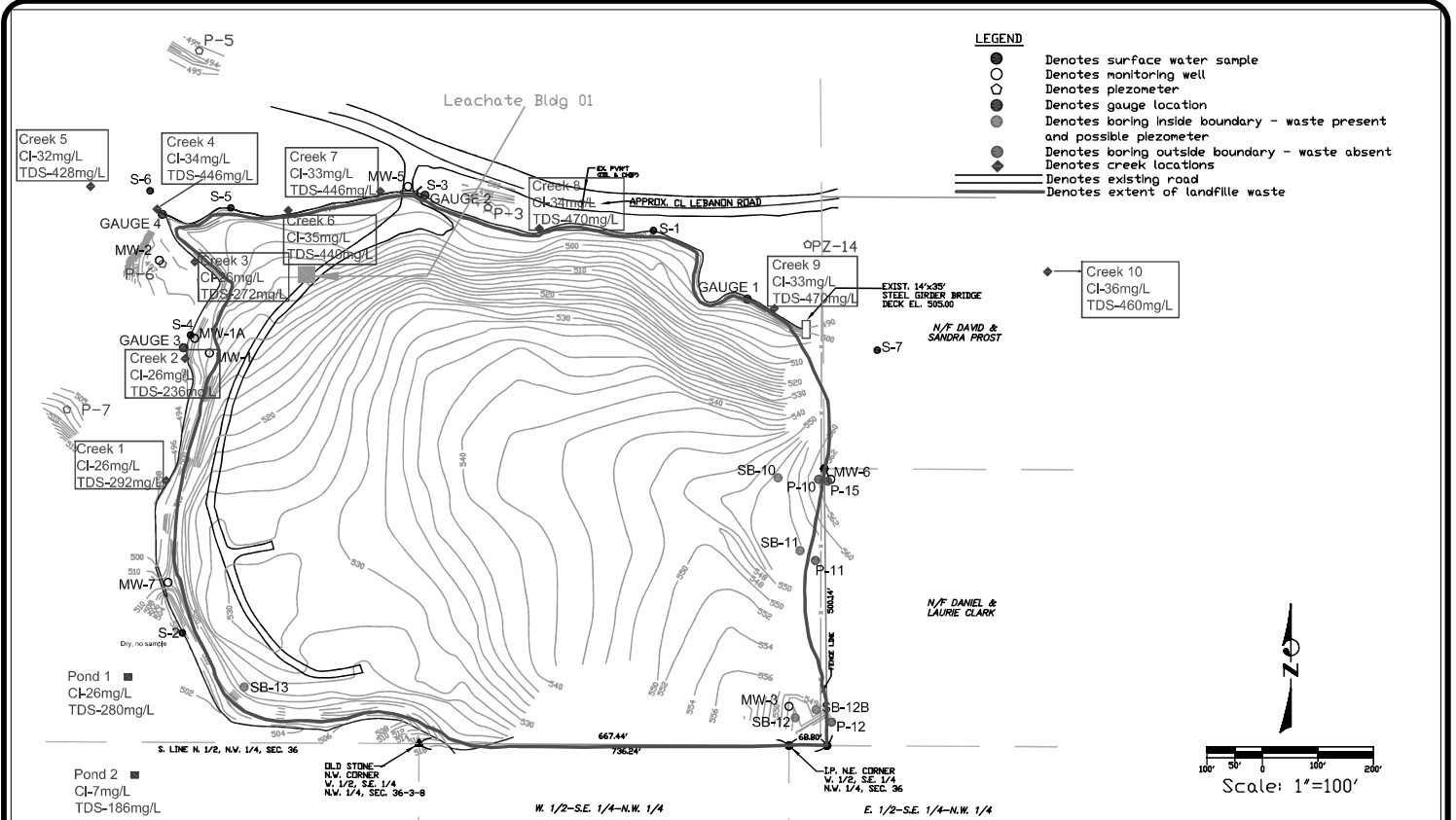
Drawing Description
 Boring, Well, Surface Water
 and Stream Gauge Locations


Collinsville Landfill
 Madison County, Illinois

Project No.: 17841
 Date: January 2008
 Drawn By: DWC

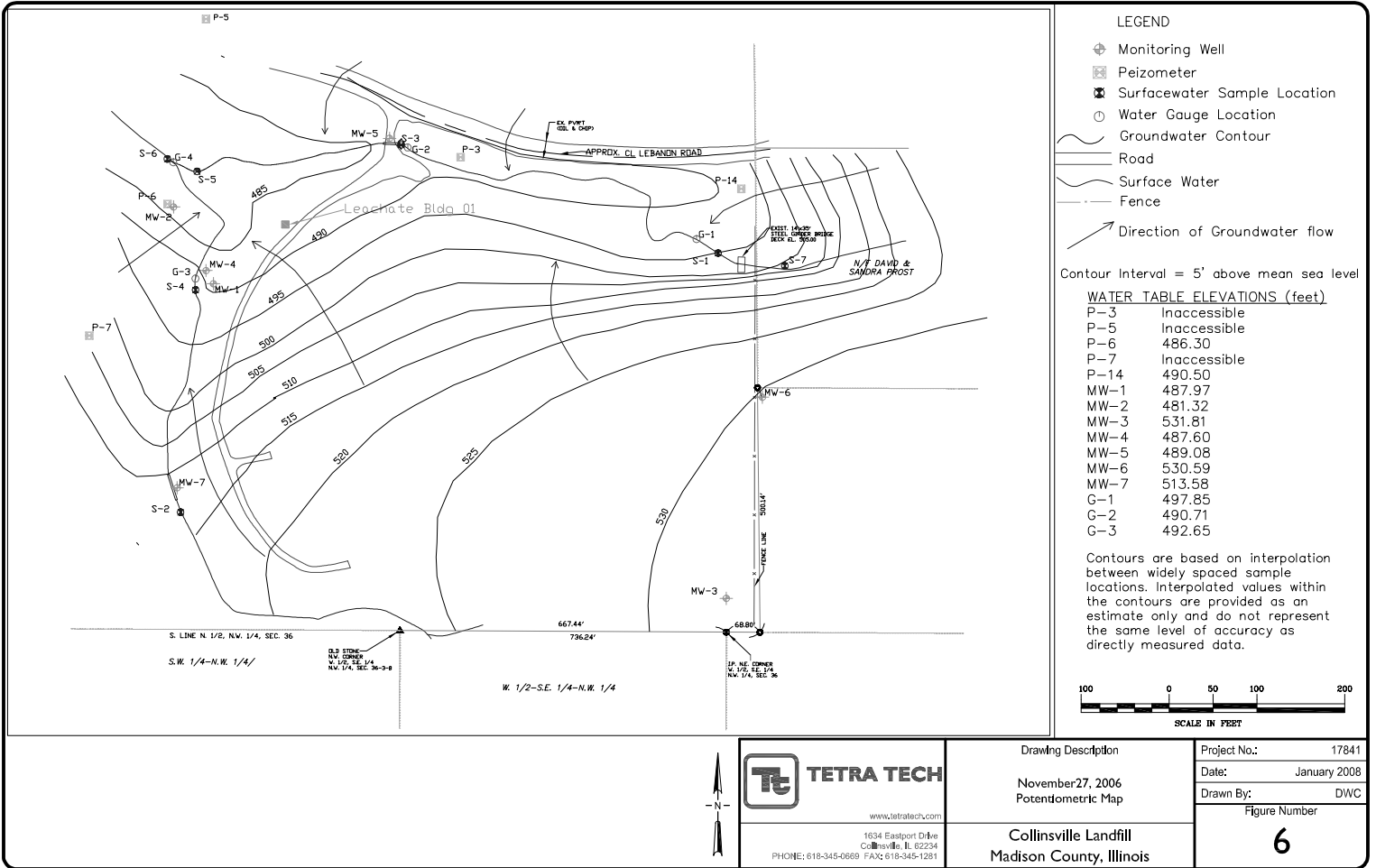
Figure Number
4

DRAWING: C:\Documents and Settings\Dave.Collins\My Documents\My Files\Collinsville Landfill\Figures\December 2007 Figures\Figure 5.DWG

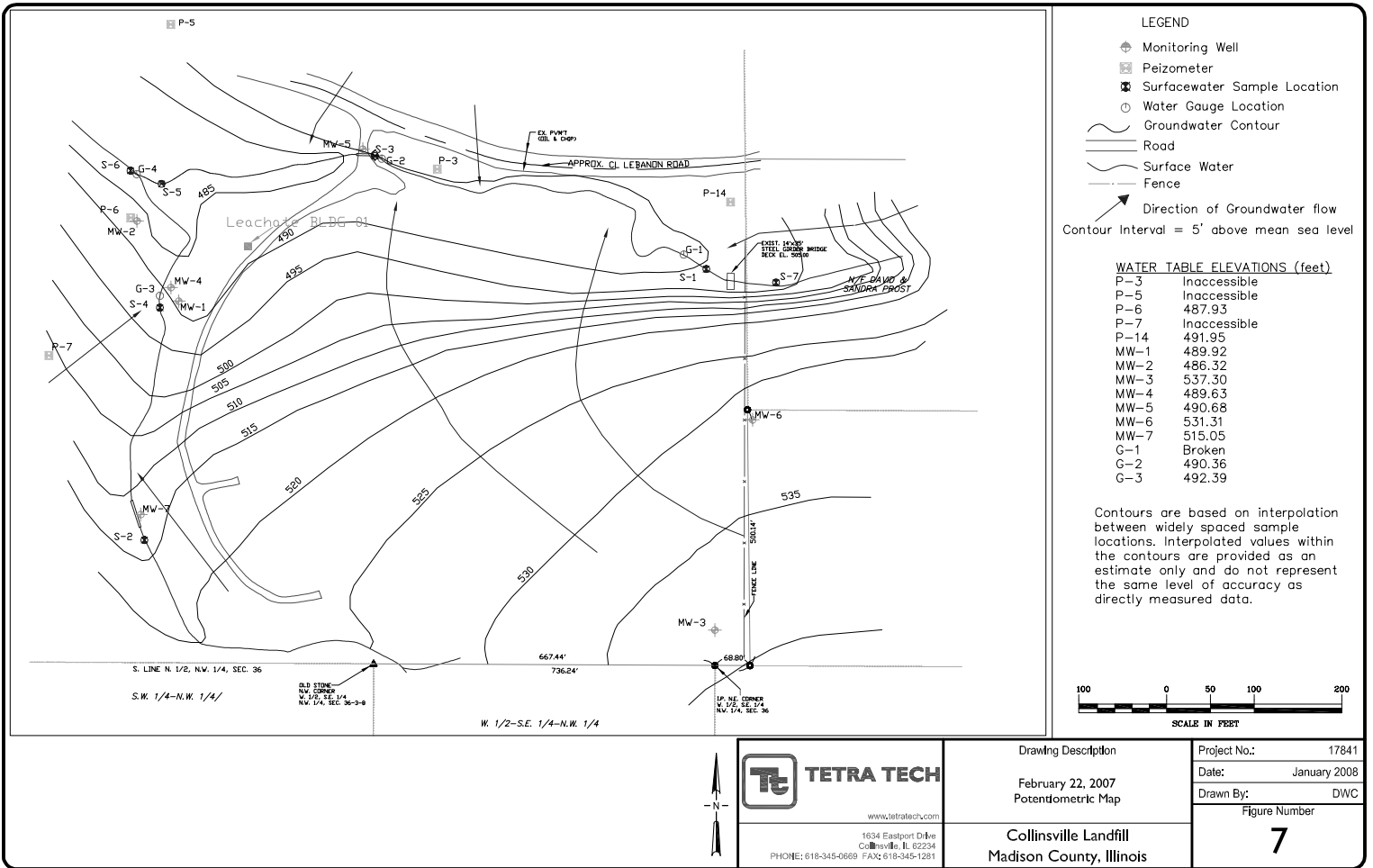


 TETRA TECH www.tetrattech.com 1634 Eastport Plaza Drive Collinsville, IL 62234 PHONE: 618-343-2300 FAX: 618-345-1281	Drawing Description 1999 Surface Water Sampling Results	Project No.: 17841 Date: January 2008 Drawn By: DWC
	Collinsville Landfill Madison County, Illinois	Figure Number <h1 style="text-align: center;">5</h1>

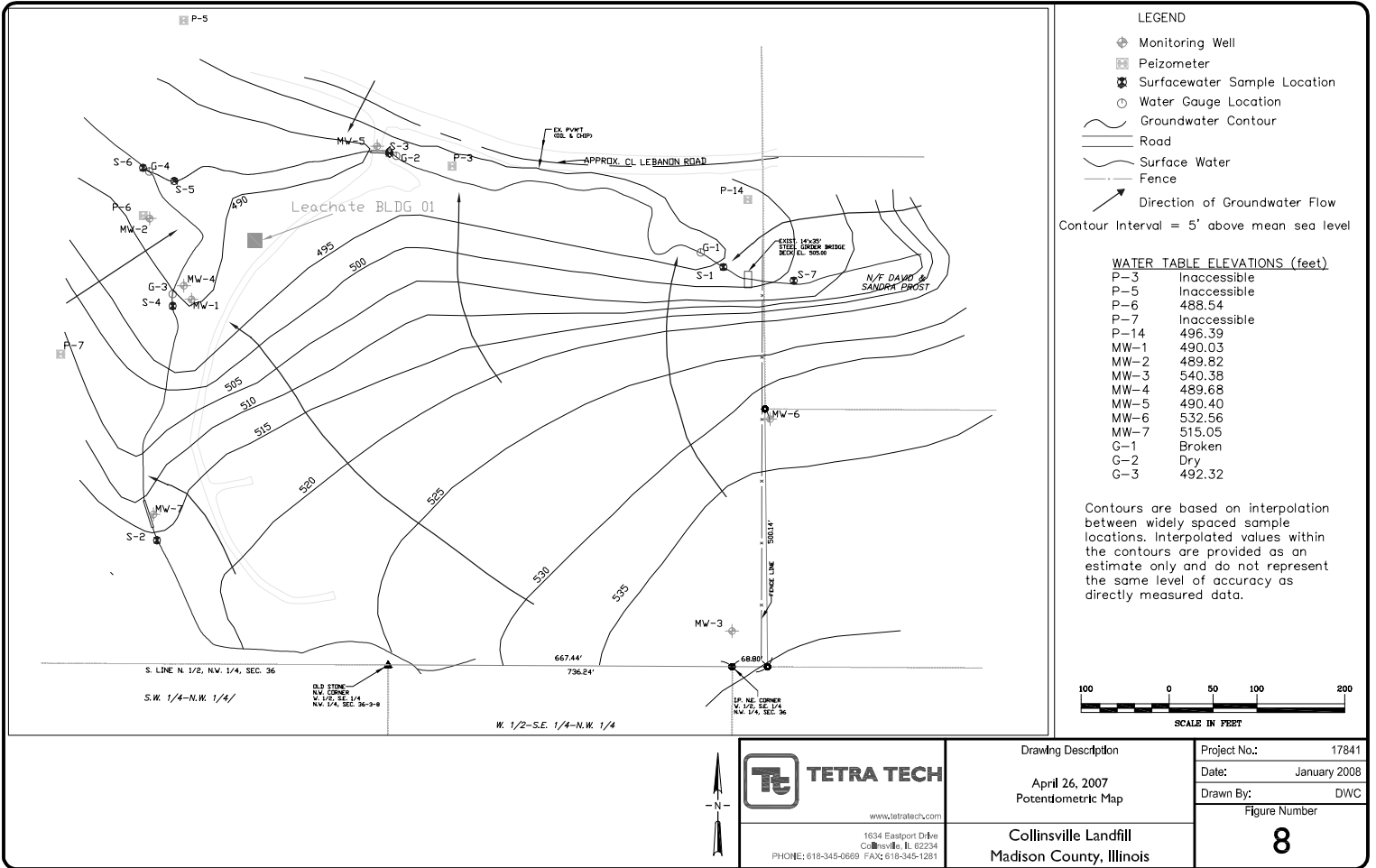
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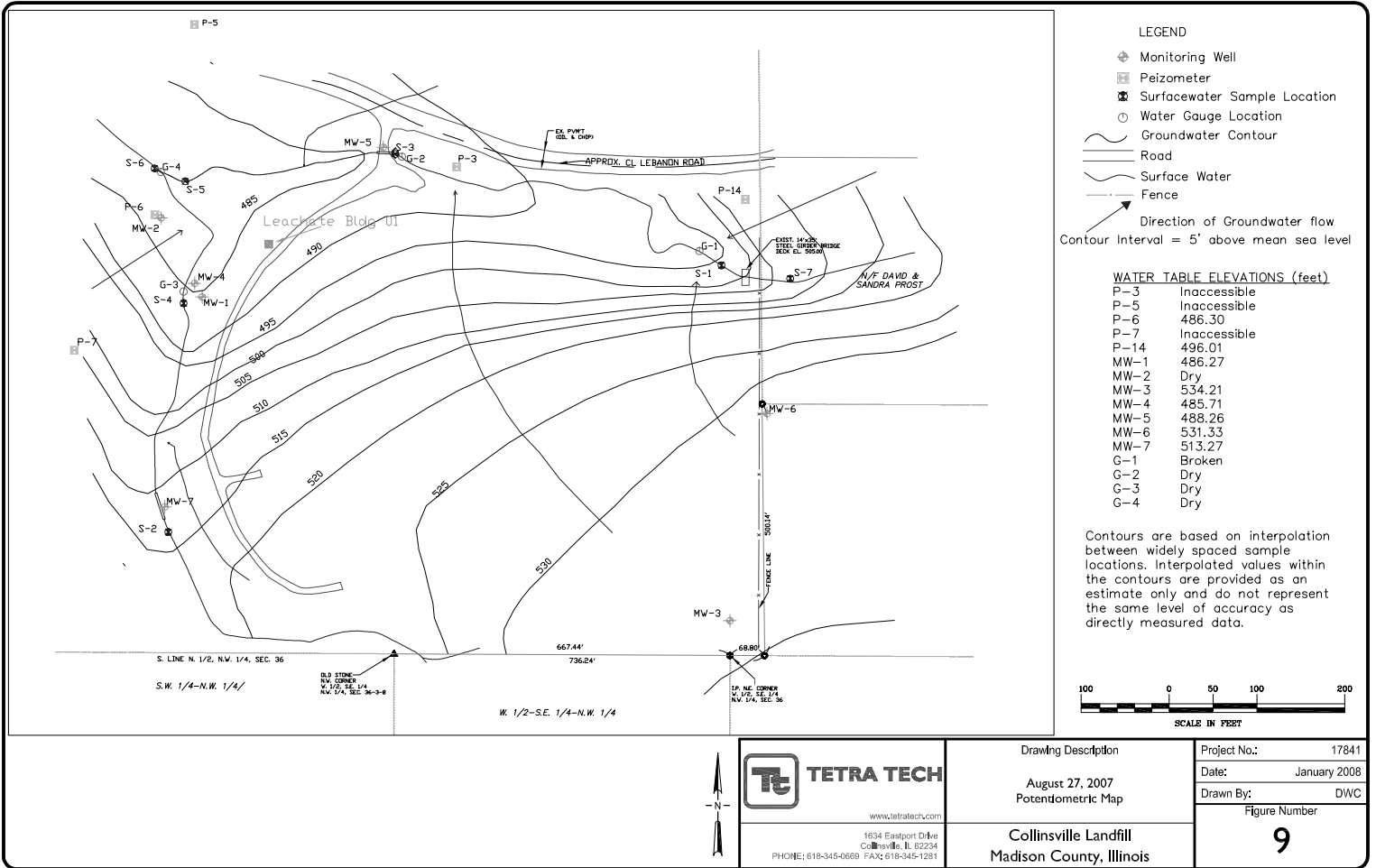
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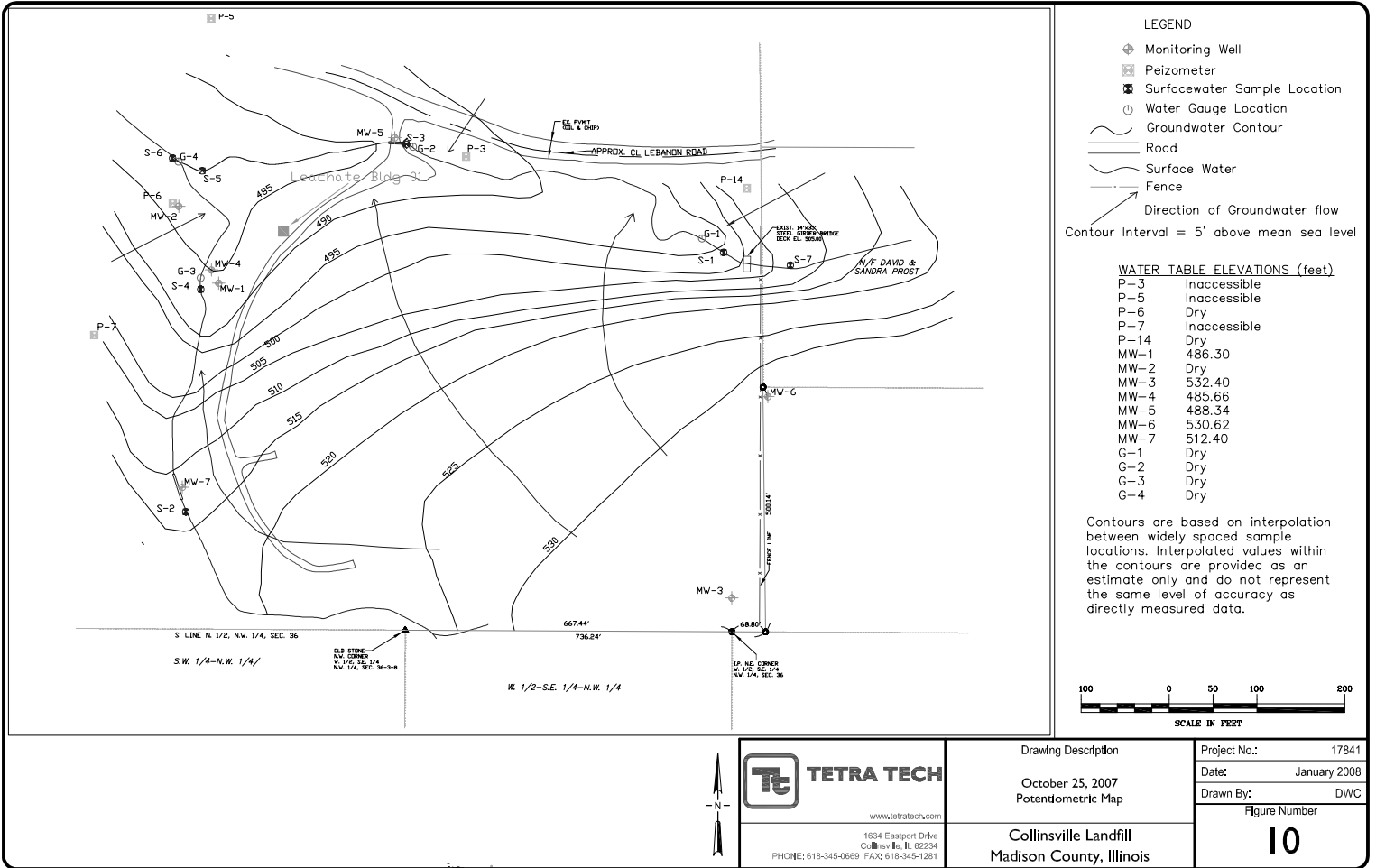
J:\07 DRAWINGS C:\Documents and Settings\DaveCo\My Documents\My Files\Collinsville Landfill\Drawings\December 2007 Figures\FIGURE 7.DWG



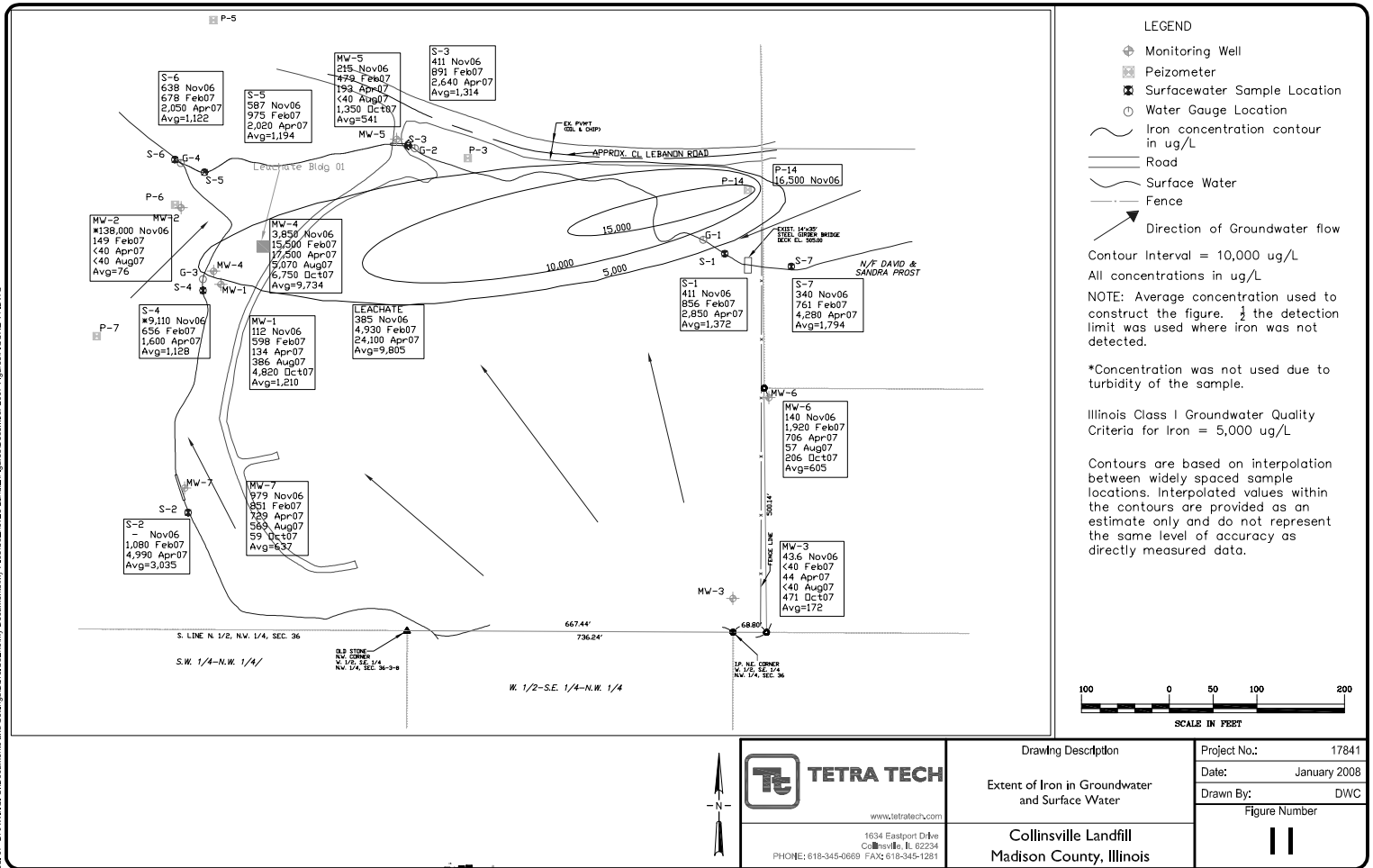
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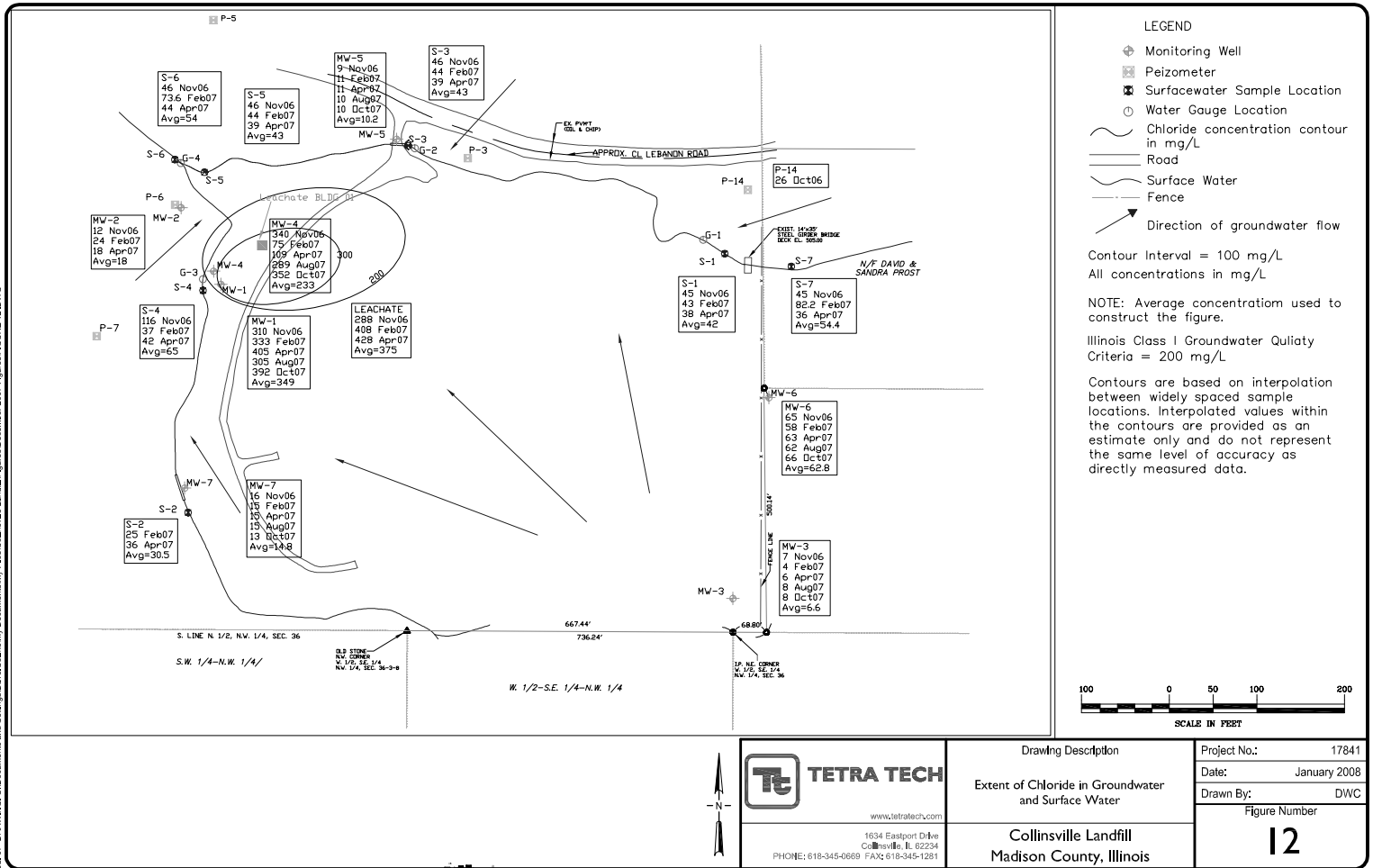
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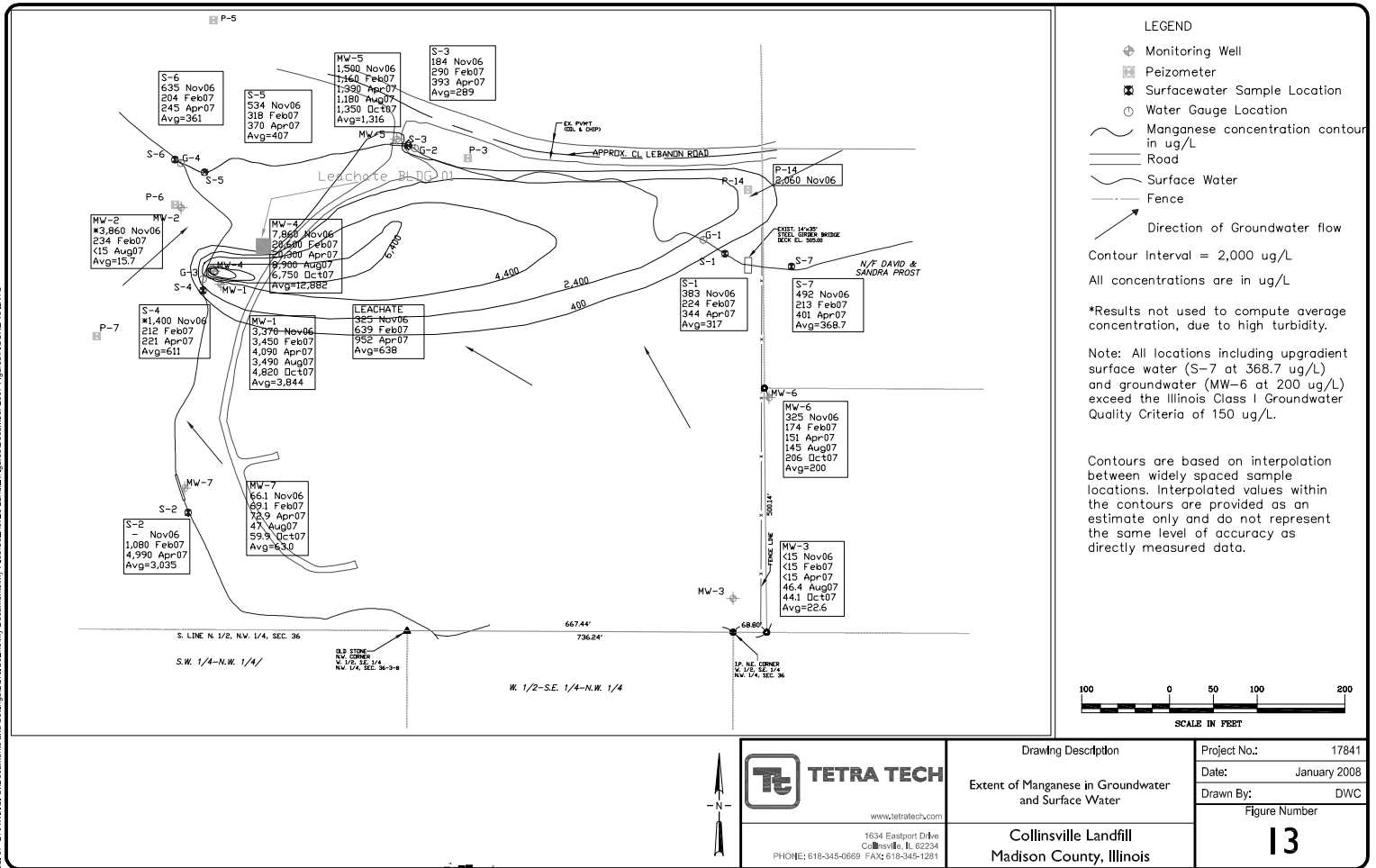
J:\07 DRAWINGS\Collinsville and Seaford\Drawings\Collinsville Landfill\Drawings\December 2007\Figure\FIGURE 10.DWG



J:\07 DRAWINGS C:\Documents and Settings\Dave\My Documents\My Files\Collinsville Landfill\07 Figures\December 2007 Figures\FIGURE 11.DWG



Jul07 DRAWINGS C:\Documents and Settings\jdw\My Documents\MF Files\Collinsville Landfill\Drawings\December 2007\Figure\Figure 12.DWG



J:\07 DRAWINGS C:\Documents and Settings\Dave\My Documents\Collinsville Landfill\Drawings\December 2007 Figures\Figure 13.DWG

LEGEND

- Monitoring Well
- Piezometer
- Surfacewater Sample Location
- Water Gauge Location
- Manganese concentration contour in ug/L
- Road
- Surface Water
- Fence
- Direction of Groundwater flow

Contour Interval = 2,000 ug/L
 All concentrations are in ug/L

*Results not used to compute average concentration, due to high turbidity.

Note: All locations including upgradient surface water (S-7 at 368.7 ug/L) and groundwater (MW-6 at 200 ug/L) exceed the Illinois Class I Groundwater Quality Criteria of 150 ug/L.

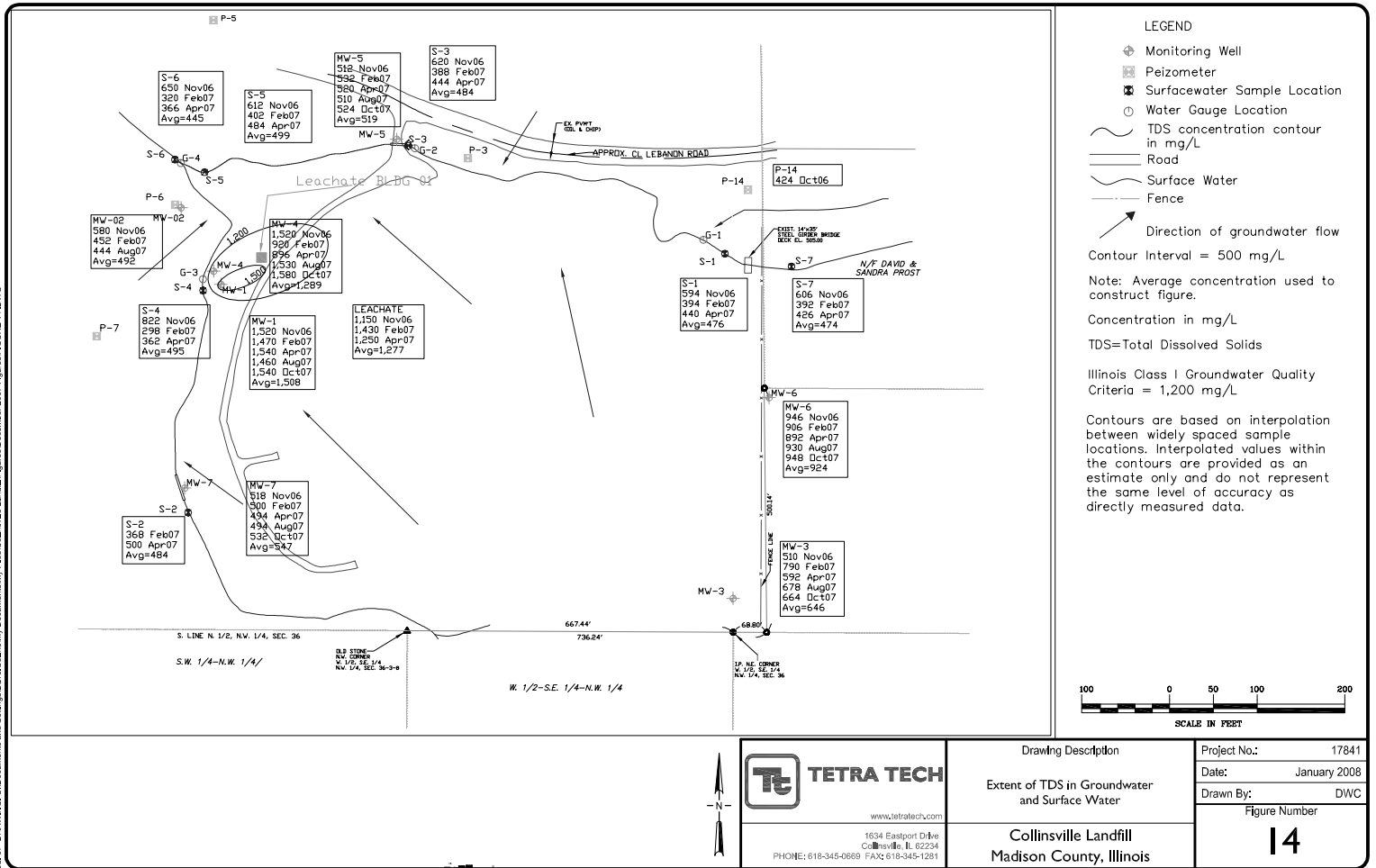
Contours are based on interpolation between widely spaced sample locations. Interpolated values within the contours are provided as an estimate only and do not represent the same level of accuracy as directly measured data.

SCALE IN FEET

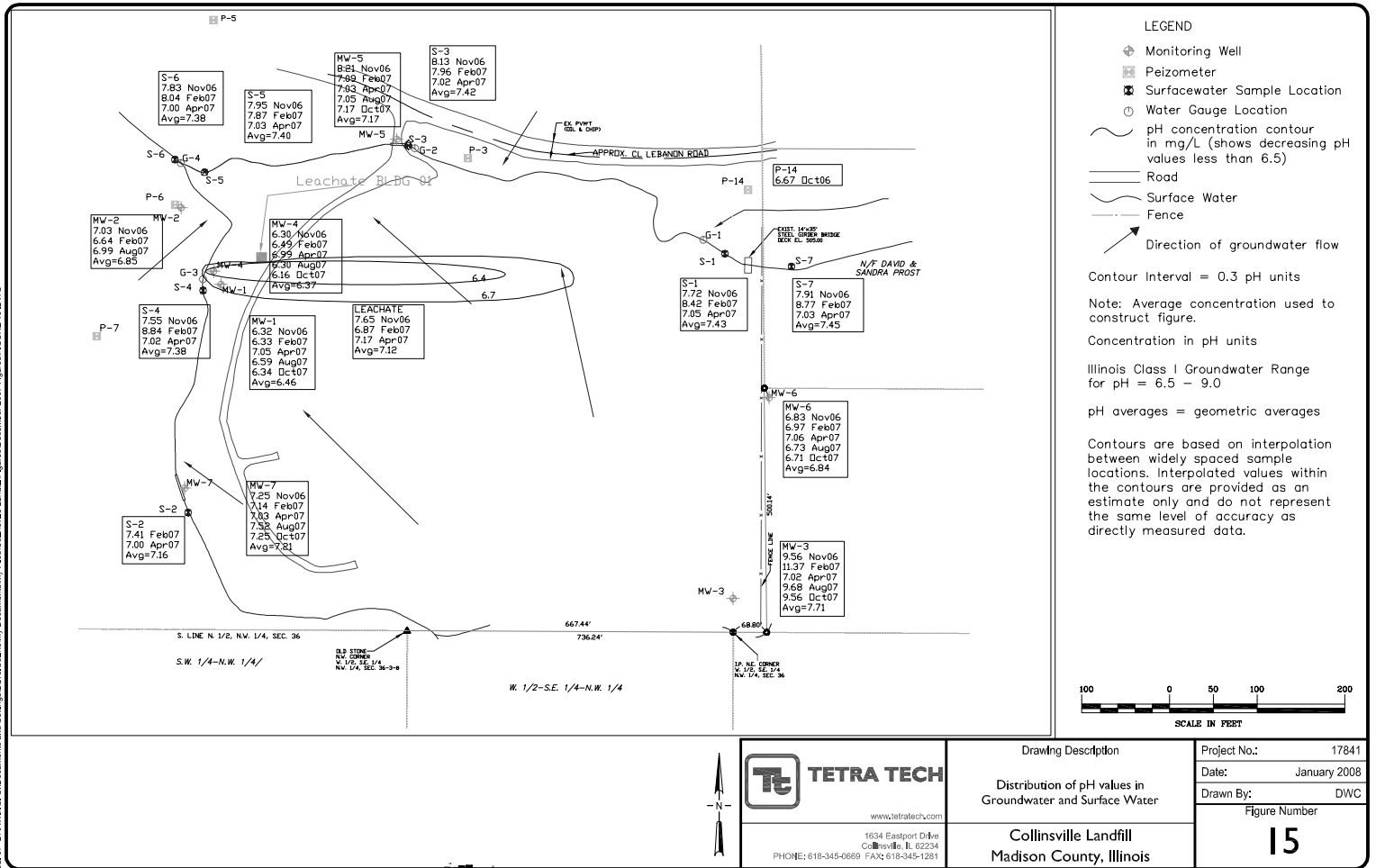
0 50 100 200

<p>TETRA TECH</p> <p>www.tetrattech.com</p> <p>1634 Eastport Drive Collinsville, IL 62234 PHONE: 618-345-0669 FAX: 618-345-1281</p>	Drawing Description Extent of Manganese in Groundwater and Surface Water	Project No.: 17841 Date: January 2008 Drawn By: DWC
	Collinsville Landfill Madison County, Illinois	Figure Number <h1 style="text-align: center;">13</h1>

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Jul07 DRAWINGS C:\Documents and Settings\jdw\My Documents\My Files\Collinsville Landfill\Drawings\December 2007\Figures\Figure 14.DWG



Jul07 DRAWINGS C:\Documents and Settings\DaveC\My Documents\Collinsville Landfill\Drawings\December 2007 Figures\Figure 15.DWG

Tables

Table 1
Summary Of Sample Locations, Analysis Parameters And
Frequency Of Sample Collection
Closed Collinsville Landfill

Sample Location	Sample Identification Number For IEPA Electronic Deliverables	Frequency of Collection*
Groundwater Monitoring Wells		
MW-1	G101-XXXXXX	Quarterly
MW-2	G102-XXXXXX	Quarterly
MW-3	G103-XXXXXX	Quarterly
MW-4	G104-XXXXXX	Quarterly
MW-5	G107-XXXXXX	Quarterly
MW-6	G108-XXXXXX	Quarterly
MW-7	G114-XXXXXX	Quarterly
Surface Water Samples		
Surface A/Surface 4	S105-XXXXXX	Quarterly
Surface B/Surface 3	S106-XXXXXX	Quarterly
Surface 1	S109-XXXXXX	Quarterly
Surface 2	S110-XXXXXX	Quarterly
Surface 4	S111-XXXXXX	Quarterly
Surface 5	S112-XXXXXX	Quarterly
Surface 6	S113-XXXXXX	Quarterly
Surface 7	S115-XXXXXX	Quarterly
Leachate Sample		
Leachate Extraction Building 01	NA	Quarterly
Seep Samples – No Seeps Identified		
Soil Samples		
P-14	CL-CR-SS01-062206	One-time basis**
Piezometers		
P-14	GW-G119-102406	One-time basis

* Samples analyzed for unfiltered chloride, total dissolved solids, phenols, sulfate, total organic carbon, arsenic, thallium, barium, iron, manganese, total organic halides, pichloram and field water quality parameters.

**Sample analyzed for SPLP metals, metals, PAHs, sulfide, pH

NA – Not applicable, permit did not require submission of this sample

XXXXXX – Date such as 051506 to represent May 15, 2006

PAH – Polynuclear Aromatic Hydrocarbons

SPLP – Synthetic Precipitation Leaching Procedure

Table 2 Soil Sample Results For P-14 Former Coal Storage Area Closed Collinsville Landfill				
Sample ID	CL-CR-SS01-062206			
Date Collected	6/22/06			
Boring Number	P-14			
Sample Depth (ft)	0 - 5			
Parameter	SPLP Result (mg/L)	Parameter	Illinois Background Concentration* (mg/kg)	Result (mg/kg)
SPLP		Metals and Miscellaneous Inorganics		
Aluminum	0.912	Aluminum	9,200	3,250
Antimony	<0.0500	Antimony	3.3	<5.00
Arsenic	<0.0250	Arsenic	11.3	7.76
Barium	0.0477	Barium	122	86.4
Beryllium	<0.0010	Beryllium	0.56	<0.10
Cadmium	<0.0020	Cadmium	0.5	<0.20
Calcium	42.9	Calcium	5,525	7,640
Chromium	<0.0100	Chromium	13.0	12.6
Cobalt	<0.0100	Cobalt	8.9	1.63
Copper	<0.0100	Copper	12.0	10.5
Iron	1.04	Iron	15,000	36,800
Lead	<0.0400	Lead	20.9	31.5
Magnesium	1.32	Magnesium	2,700	668
Manganese	0.0076	Manganese	630	56.1
Mercury	<0.00020	Mercury	0.05	0.329
Nickel	<0.0100	Nickel	13.0	9.82
Potassium	1.09	Potassium	1,100	2,180
Selenium	<0.0500	Selenium	0.37	<3.92
Silver	<0.0100	Silver	0.50	<0.98
Sodium	20.8 S	Sodium	130	1,340
Thallium	<0.0500	Thallium	0.42	<4.90
Vanadium	<0.0100	Vanadium	25	14.7
Zinc	0.0126	Zinc	60.6	23.6
TDS	266	PAHs		
		Acenaphthylene	0.04	0.26
		Acenaphthene	0.04	0.35
		Anthracene	0.14	<0.040
		Benzo(a)anthracene	0.72	<0.032
		Benzo(a)pyrene	0.98	0.057
		Benzo(b)fluoranthene	0.70	0.11
		Benzo(g,h,i)perylene	0.84	0.084
		Benzo(k)fluoranthene	0.63	<0.040
		Chrysene	1.1	0.14

Table 2 Soil Sample Results For P-14 Former Coal Storage Area Closed Collinsville Landfill				
Sample ID	CL-CR-SS01-062206			
Date Collected	6/22/06			
Boring Number	P-14			
Sample Depth (ft)	0 - 5			
Parameter	SPLP Result (mg/L)	Parameter	Illinois Background Concentration* (mg/kg)	Result (mg/kg)
SPLP		Metals and Miscellaneous Inorganics		
		PAHs (continued)		
		Dibenzo(a,h)anthracene	0.15	0.042
		Fluoranthene	1.8	0.47
		Fluorene	0.4	0.10
		Indeno(1,2,3-c,d)pyrene	0.51	<0.040
		Napthtahlene	0.17	0.50
		Phenanthrene	0.99	1.2
		Pyrene	1.2	0.41
		Sulfide	2.9	<40
		pH (pH units)		3.93

PAH = Polynuclear Aromatic Hydrocarbons

S = sample concentration was greater than 5 times the spike concentration; spike recoveries outside quality control limits.

TDS = Total Dissolved Solids

* From Title 35, Section 742, Appendix A, Table G for non-metropolitan areas. The landfill is located within a metropolitan county, but the area is entirely rural. The presence of PAHs in the sample does not indicate background PAHs, but reflects the presence of weathered coal observed in the sample.

Table 3
Summary Of Information Obtained From Direct Push Borings,
Assessment Monitoring
Closed Collinsville Landfill

Boring	Depth (ft)	Location	Depth Trash Found	Thickness of Trash (ft)	Depth to Water (ft bgs)
SB-10	12	East-central property boundary, 100 feet from tree line	5-12	7*	No water
P-10	6.8	75 feet east of SB-10, 25 feet west of tree line	3-6.8	3.8*	No water
P-15	20	100 feet east of SB-10, 5 feet east of tree line	None present	NA	No water
SB-11	20	150 feet south of SB-10 and 20 feet west of tree line	2-12	10	No water
P-11	20	25 feet east of SB-11 along the tree line (west side)	None present	NA	No water
SB-12	20	15 feet southeast of MW-3	4-20	16*	17
SB-12B	12	25 feet east of SB-12	4.5-12	7.5*	No water
P-12	20	65 feet east of SB12 and 10 feet west of pond	None present	NA	No water
SB-13	20	Edge of southwest corner, adjacent to steep south slope	6-14	8	12.2
P-14	16	Northeast of landfill, north of Canteen Creek and south of Lebanon Road, piezometer installed (16 feet deep)	Coal – 0-5	5	12.5

bgs = below ground surface

NA = Not applicable, no trash present

* = Trash present from the depth specified to the bottom of the borehole.

Table 4
Groundwater Assessment Monitoring Results,
November 2006
Closed Collinsville Landfill

Compound	P-14	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	DUP	Class I	99% CL	2xPQL
List 1												
Temperature of Water (Deg. F)	52.88	60.82	58.64	59.49	60.49	60.10	60.72	59.16	--	NA	62.46	NA
Spec Cond. (mS/cm)	0.589	1,813	0.873	0.401	1.819	0.811	1.420	0.780	--	NA	1.01	NA
pH (pH units)	6.67	6.32	7.03	9.56	6.30	8.21	6.83	7.30	--	6.5-9.0	14.22	NA
Elev of GW Surf (ft ref MSL)	490.5	487.97	481.32	531.81	487.60	489.08	532.48	513.58	--	NA	555.21	NA
Depth of Water (ft below LS)	6.62	8.21	13.76	12.64	7.83	7.42	31.22	1.52	--	NA	21.52	NA
BTM Well Elev (ft ref MSL)	485.13	472.20	480.30	521.60	472.00	469.32	520.75	481.21	--	NA	521.60	NA
Depth to Water Fr Mea Pt (ft)	10.80	10.93	14.98	15.79	10.80	7.42	33.11	1.52	--	NA	24.67	NA
Analytes												
List 2 Unfiltered												
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	78.00	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	15.0	30.0
Total Organic Carbon (TOC) (mg/L)	1.7	2.2	1.8	25.1	2.0	<1.0	3.4	<1.0	2.1	NA	17.48	NA
Total Organic Halogens (TOX) (ug/L)	<20.0	57.1	20.5	20.4	56.8	<20.0	65.7	<20.0	77.9	NA	103.0	NA
List 3 Inorganic Parameters Unfiltered												
Arsenic (ug/L)	<25.0	<5.0	22.30	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	50.0	5.0	NA
Barium (ug/L)	488.0	189.0	349.0	219,000.0	293.0	326.0	123.0	170.0	195.0	2,000.0	378,274.32	NA
Chloride (mg/L)	26.0	310.0	12.0	7.0	340.0	9.0	65.0	16.0	346.0	200.0	73.44	NA
Iron (ug/L)	16,500.0	112.0	138,000.0	43.6	3,850.0	215.0	140.0	979.0	145.0	5,000.0	52.0	NA
Manganese (ug/L)	2,060.0	3,370.0	3,860.0	<15.0	7,860.0	1,500.0	327.0	66.1	3,440.0	150.0	15.0	NA
Sulfate (mg/L)	33.00	117.00	159.0	<5.0	139.0	<5.0	113.0	<5.0	136.0	400.0	2.72	NA
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	1.0	NA
Total Dissolved Solids (mg/L)	424.0	1,520.0	580.0	510.0	1,520.0	512.0 B	946.0 B	518.0 B	1,340.0	1,200.0	1,238.0	NA
List 3 Organic Parameters Unfiltered												
Sulfide (mg/L)	0.12	<0.05	1.3 S	0.52	<0.05	<0.05	<0.05	<0.05 S	<0.05	NA	NA	NA
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.942	<0.20	<0.20	500.0	0.2	0.4

NOTES:

All units are as noted

P-14 was collected on 10/24/06 after installation of the piezometer

DUP represents duplicate collected from MW-1.

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL.

Italicized where exceeds 2xPQL.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

B: Analyte detected in the associated Method Blank.

S: Spike recovery outside the accepted recovery limits.

Q: QC criteria failed or noncompliant CCV.

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

PQL = Practical Quantitation Limit

CL = Confidence Limit - Background Confidence Limit is 99%.

Table 5
Groundwater Assessment Monitoring Results,
February 2007
Closed Collinsville Landfill

Compound	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	DUP	Class I	99% CL	2xPQL
List 1											
Temperature of Water (Deg. F)	55.80	50.52	49.15	54.52	55.80	55.80	55.80	--	NA	62.46	NA
Spec Cond. (mS/cm)	1.894	0.716	0.442	1.183	0.859	1.147	0.782	--	NA	1.01	NA
pH (pH units)	6.33	6.64	11.37	6.47	7.09	6.97	7.14	--	6.5-9.0	14.22	NA
Elev of GW Surf (ft ref MSL)	489.92	486.32	537.30	489.63	490.68	533.20	515.05	--	NA	555.21	NA
Depth of Water (ft below LS)	6.26	8.76	7.15	5.80	5.82	30.50	0.05	--	NA	21.52	NA
BTM Well Elev (ft ref MSL)	472.20	480.30	521.60	472.00	469.32	520.75	481.21	--	NA	521.60	NA
Depth to Water Fr Mea Pt (ft)	8.98	9.98	10.30	8.77	5.82	32.39	0.05	--	NA	24.67	NA
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	15.0	30.0
Total Organic Carbon (TOC) (mg/L)	1.2	2.0	2.5	4.8	1.6	3.6	1.4	1.4	NA	17.48	NA
Total Organic Halogens (TOX) (ug/L)	130.0	<20.0	<20.0	38.0	<20.0	63.4	<20.0	122.0	NA	103.0	NA
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<3.0	<3.0	<3.0	11.4	<3.0	<3.0	<3.0	<3.0	50.0	5.0	NA
Barium (ug/L)	202.0	78.2	243,000.0	376.0	394.0	159.0	202.0	202.0	2,000.0	378,274.32	NA
Chloride (mg/L)	333.0	24.0	4.0	75.0	11.0	58.0	15.0	284.0	200.0	73.44	NA
Iron (ug/L)	598.0	149.0	<40.0	15,500.0	479.0	1,920.0	851.0	603.0	5,000.0	52.0	NA
Manganese (ug/L)	3,450.0	23.4	<15.0	20,600.0	1,160.0	174.0	69.1	3,470.0	150.0	15.0	NA
Sulfate (mg/L)	104.0	150.0	<5.0	79.0	<5.0	96.0	<5.0	105.0	400.0	2.72	NA
Thallium (ug/L)	<1.0 S	<1.0	<1.0	<1.0	<1.0S	<1.0	<1.0	<1.0	2.0	1.0	NA
Total Dissolved Solids (mg/L)	1,470.0	542.0	790.0	920.0	532.0	906.0	500.0	1,430.0	1,200.0	1,238.0	NA
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05	<0.05	0.53 S	0.11 S	<0.05	<0.05	<0.05 S	<0.05	NA	NA	NA
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	0.2	0.4

NOTES:

All units are as noted

DUP represents duplicate collected from MW-1.

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL.

Italicized where exceeds 2xPQL.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Not tested

S: Spike recovery outside the accepted recovery limits.

PQL = Practical Quantitation Limit

CL = Confidence Limit - Background Confidence Limit is 99%.

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

Table 6
Groundwater Assessment Monitoring Results,
April 2007
Closed Collinsville Landfill

Compound	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	DUP	Class I	99% CL	2xPQL
List 1											
Temperature of Water (Deg. F)	57.68	55.09	57.62	56.00	59.1	69.17	55.98	--	NA	62.46	NA
Spec Cond. (mS/cm)	1.893	0.547	0.453	1.072	1.893	1.893	1.893	--	NA	1.01	NA
pH (pH units)	7.05	6.99	7.02	6.99	7.03	7.00	7.03	--	6.5-9.0	14.22	NA
Elev of GW Surf (ft ref MSL)	490.93	489.82	540.38	489.68	490.40	534.45	515.05	--	NA	555.21	NA
Depth of Water (ft below LS)	6.15	5.26	4.07	5.75	6.10	29.25	0.05	--	NA	21.52	NA
BTM Well Elev (ft ref MSL)	472.20	480.30	521.60	472.00	469.32	520.75	481.21	--	NA	521.60	NA
Depth to Water Fr Mea Pt (ft)	8.87	6.48	7.22	8.72	6.10	31.14	0.05	--	NA	24.67	NA
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	15.0	30.0
Total Organic Carbon (TOC) (mg/L)	1.6	1.2	2.0	4.6	<1.0	4.5	<1.0	1.7	NA	17.48	NA
Total Organic Halogens (TOX) (ug/L)	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	29.9	NA	103.0	NA
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<5.0	<5.0	<5.0	29.7 S	<3.0	<5.0	<3.0	<5.0	50.0	5.0	NA
Barium (ug/L)	208.0	71.1	261,000.0	342.0	377.0	95.4	196.0	211.0	2,000.0	378,274.32	NA
Chloride (mg/L)	405.0	18.0	6.0	109.0	11.0	63.0	15.0	399.0	200.0	73.44	NA
Iron (ug/L)	134.00	<40.0	<40.0	17,500.00	193.00	70.60	729.00	272.00	5,000.0	52.0	NA
Manganese (ug/L)	4,090.0	<15.0	<15.0	20,300.0	1,390.0	151.0	72.9	4,190.0	150.0	15.0	NA
Sulfate (mg/L)	140.0	133.0	<5.0	80.0	20.0	122.0	6.0	126.0	400.0	2.72	NA
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	2.0	1.0	NA
Total Dissolved Solids (mg/L)	1,540.0	444.0	592.0	896.0 H	520.0	892.0	494.0	1,460.0 H	1,200.0	1,238.0	NA
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05	<0.05	0.75	0.13	<0.05	<0.05	<0.05	<0.05 R	NA	NA	NA
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	0.2	0.4

NOTES:

All units are as noted

DUP represents duplicate collected from MW-1.

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL.

Italicized where exceeds 2xPQL.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Not tested

S: Spike recovery outside the accepted recovery limits.

H: Holding time exceeded.

R: RPD outside accepted recovery limits.

PQL = Practical Quantitation Limit

CL = Confidence Limit - Background Confidence Limit is 99%.

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

**Table 7
Groundwater Assessment Monitoring Results,
August 2007
Closed Collinsville Landfill**

Compound	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	DUP	Class I	99% CL	2xPQL
List 1											
Temperature of Water (Deg. F)	61.97	--	61.63	61.23	63.0	67.0	61.09	--	NA	62.46	NA
Spec Cond. (mS/cm)	1.921	--	0.408	1.959	0.737	1.294	0.678	--	NA	1.01	NA
pH (pH units)	6.59	--	9.68	6.36	7.05	6.73	7.52	--	6.5-9.0	14.22	NA
Elev of GW Surf (ft ref MSL)	486.27	--	534.21	485.71	488.26	533.22	513.27	--	NA	555.21	NA
Depth of Water (ft below LS)	9.91	--	10.24	9.72	8.24	30.48	1.83	--	NA	21.52	NA
BTM Well Elev (ft ref MSL)	472.20	--	521.60	472.00	469.32	520.75	481.21	--	NA	521.60	NA
Depth to Water Fr Mea Pt (ft)	12.63	--	13.39	12.69	8.24	32.37	1.83	--	NA	24.67	NA
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	--	25.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	15.0	<i>30.0</i>
Total Organic Carbon (TOC) (mg/L)	2.1	--	12.5	2.1	<1.0	3.7	1.2	2.1	NA	17.48	NA
Total Organic Halogens (TOX) (ug/L)	91.5	--	20.8	70.6	<20.0	52.9	<20.0	92.0	NA	103.0	NA
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<3.0	--	<3.0	9.2	<3.0	<3.0	<3.0	<3.0	50.0	5.0	NA
Barium (ug/L)	202.0	--	248,000.0 S	309.0	356.0	107.0	199.0	200.0	2,000.0	378,274.32	NA
Chloride (mg/L)	305.0	--	8.0	289.0	10.0	62.0	15.0	300.0	200.0	73.44	NA
Iron (ug/L)	386.0	--	<40.0	5,070.0	<40.0	57.0	569.0	400.0	5,000.0	52.0	NA
Manganese (ug/L)	3,490.0	--	46.6	8,900.0	1,180.0	145.0	47.0	3,360.0	150.0	15.0	NA
Sulfate (mg/L)	119.0	--	<5.0	113.0	20.0	94.0	6.0	118.0	400.0	2.72	NA
Thallium (ug/L)	<1.0	--	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	2.0	1.0	NA
Total Dissolved Solids (mg/L)	1,460.0	--	678.0	1,530.0	510.0	930.0	494.0	1,470.0	1,200.0	1,238.0	NA
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05	--	1.6	<0.05	<0.05	<0.05	<0.05	<0.05	NA	NA	NA
Picloram (ug/L)	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	0.2	<i>0.4</i>

NOTES:

All units are as noted

DUP represents duplicate collected from MW-1.

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL...

Italicized where exceeds 2xPQL.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

-- : Sample not collected due to dry conditions.

S: Spike recovery outside the accepted recovery limits.

PQL = Practical Quantitation Limit

CL = Confidence Limit - Background Confidence Limit is 99%.

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

**Table 8
Groundwater Assessment Monitoring Results,
October 2007
Closed Collinsville Landfill**

Compound	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	DUP	Class I	99% CL	2xPQL
List 1											
Temperature of Water (Deg. F)	60.15	--	60.87	59.83	61.2	58.1	59.54	--	NA	62.46	NA
Spec Cond. (mS/cm)	1,960	--	0.649	1,930	0.875	1,348	0.810	--	NA	1.01	NA
pH (pH units)	6.34	--	9.56	6.16	7.17	6.71	7.25	--	6.5-9.0	14.22	NA
Elev of GW Surf (ft ref MSL)	486.30	--	532.20	485.66	488.34	530.62	512.40	--	NA	555.21	NA
Depth of Water (ft below LS)	9.88	--	12.05	9.77	8.16	31.19	2.70	--	NA	21.52	NA
BTM Well Elev (ft ref MSL)	472.20	--	521.60	472.00	469.32	520.75	481.21	--	NA	521.60	NA
Depth to Water Fr Mea Pt (ft)	12.60	--	15.20	12.74	8.16	33.08	2.70	--	NA	24.67	NA
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	--	39.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	15.0	30.0
Total Organic Carbon (TOC) (mg/L)	2.5	--	21.1	2.3	<1.0	1.3	<1.0	2.4	NA	17.48	NA
Total Organic Halogens (TOX) (ug/L)	182.0	--	<20.0	78.6	<20.0	50.2	<20.0	84.4	NA	103.0	NA
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<3.0	--	<3.0	7.6	<3.0	<3.0	<3.0	<3.0	50.0	5.0	NA
Barium (ug/L)	221.0	--	309,000.0	265.0	366.0	181.0	208.0	214.0	2,000.0	378,274.32	NA
Chloride (mg/L)	329.0	--	8.0	353.0	10.0	66.0	13.0	347.0	200.0	73.44	NA
Iron (ug/L)	2,840.00	--	471.00	3,940.00	55.0	309.0	691.0	2,720.0	5,000.0	52.0	NA
Manganese (ug/L)	4,820.0	--	44.1	6,750.0	1,350.0	206.0	59.9	4,660.0	150.0	15.0	NA
Sulfate (mg/L)	135.00	--	<5.0	140.0	14.0	103.0	<5.0	139.0	400.0	2.72	NA
Thallium (ug/L)	<1.0	--	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	2.0	1.0	NA
Total Dissolved Solids (mg/L)	1,540.0	--	664.0	1,580.0	524.0	948.0	532.0	1,580.0	1,200.0	1,238.0	NA
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05 S	--	1.2	<0.05 S	<0.05	<0.05	<0.05	<0.05 S	NA	NA	NA
Picloram (ug/L)	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	0.2	0.4

NOTES:

All units are as noted

DUP represents duplicate collected from MW-1.

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL.

Italicized where exceeds 2xPQL.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Sample not collected due to dry conditions.

S: Spike recovery outside the accepted recovery limits.

PQL = Practical Quantitation Limit

CL = Confidence Limit - Background Confidence Limit is 99%.

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

**Table 9
Surface Water Assessment Monitoring Results,
November 2006
Closed Collinsville Landfill**

Compound	S-1	S-2	S-3	S-4	S-5	S-5 DUP	S-6	S-7	Class I	1.5 Times Upstream, S-7	Illinois Surface Water Standards*
List 1											
Temperature of Water (Deg. F)	57.47	--	56.50	55.47	59.52	59.52	54.84	57.11	NA	NA	--
Spec Cond. (mS/cm)	0.887	--	0.875	0.890	0.926	0.926	0.856	0.891	NA	1.336	--
pH (pH units)	7.96	--	8.13	7.75	7.95	7.95	7.83	7.94	6.5-9.0	8.44	6.5-9.0
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	--	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	<15.0	300.0
Total Organic Carbon (TOC) (mg/L)	4.4	--	4.2	5.2	4.2	4.2	4.2	4.3	NA	6.5	--
Total Organic Halogens (TOX) (ug/L)	<20.0	--	<20.0	30.2	32.4	32.4	20.7	33.2	NA	50.0	--
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<5.0	--	<5.0	7.2	<5.0	<5.0	<5.0	<5.0	50.0	4.5	--
Barium (ug/L)	122.0	--	106.0	231.0	100.0	94.7	93.6	122.0	2,000.0	183.0	5,000.0
Chloride (mg/L)	45.0	--	46.0	116.0	46.0	47.0	46.0	45.0	200.0	68.0	--
Iron (ug/L)	411.0	--	411.0	9,110.0	587.0	558.0	638.0	340.0	5,000.0	510.0	2,000.0
Manganese (ug/L)	383.0	--	184.0	1,400.0	535.0	516.0	635.0	492.0	150.0	738.0	1,000.0
Sulfate (mg/L)	123.0	--	130.0	117.0	137.0	146.0	145.0	118.0	400.0	177.0	--
Thallium (ug/L)	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	1.5	1,500.0
Total Dissolved Solids (mg/L)	594.0	--	626.0 B	822.0 B	612.0	620.0	650.0 B	606.0	1,200.0	909.0	--
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	NA	--
Picloram (ug/L)	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	<0.20	--

NOTES:

All units are as noted

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds 1.5 times the upstream sample result.

Italicized where exceeds the Illinois Surface Water Quality Standards.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Not tested

B: Analyte detected in the associated Method Blank.

*Criteria for Secondary Contact and Indigenous Aquatic Life.

CL = Confidence Limit - Background Confidence Limit is 99%.

Table 10
Surface Water Assessment Monitoring Results,
February 2007
Closed Collinsville Landfill

Compound	S-1	S-2	S-3	S-4	S-5	S-5 DUP	S-6	S-7	Class I	1.5 Times Upstream, S-7	Illinois Surface Water Standards*
List 1											
Temperature of Water (Deg. F)	36.47	40.15	49.44	42.13	39.36	39.36	44.26	38.57	NA	NA	--
Spec Cond. (mS/cm)	0.498	0.471	0.550	0.410	0.469	0.469	0.418	0.498	NA	0.747	--
pH (pH units)	8.42	7.41	7.96	8.84	7.87	7.87	8.04	8.77	6.5-9.0	9.20	6.5-9.0
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	<15.0	300.0
Total Organic Carbon (TOC) (mg/L)	5.2	6.4	5.2	5.8	4.5 S	4.9	5.5	5.2	NA	7.8	--
Total Organic Halogens (TOX) (ug/L)	21.9	22.8	20.8	<20.0	21.3	21.1	<20.0	21.3	NA	32.0	--
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50.0	4.5	--
Barium (ug/L)	85.0	142.0	84.2	73.2	84.3	82.2	73.6	82.2	2,000.0	123.0	5,000.0
Chloride (mg/L)	43.0	25.0	44.0	37.0	44.0	43.0	36.0	42.0	200.0	63.0	--
Iron (ug/L)	856.0	1,080.0	891.0	656.0	975.0	1,090.0	678.0	761.0	5,000.0	1141.0	2,000.0
Manganese (ug/L)	224.0	1,060.0	290.0	212.0	318.0	307.0	204.0	213.0	150.0	320.0	1,000.0
Sulfate (mg/L)	76.0	53.0	56.0	76.0	73.0	75.0	60.0	58.0	400.0	87.0	--
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	1.5	1,500.0
Total Dissolved Solids (mg/L)	394.0	368.0	388.0	298.0	402.0	398.0	320.0	392.0	1,200.0	588.0	--
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	<0.05	<0.05	<0.05 S	<0.05	<0.05	<0.05	<0.05	<0.05	NA	NA	--
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	<0.20	--

NOTES:

All units are as noted

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds 1.5 times the upstream sample result.

Italicized where exceeds the Illinois Surface Water Quality Standards.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Not tested

S: Spike recovery outside the accepted recovery limits.

*Criteria for Secondary Contact and Indigenous Aquatic Life.

CL = Confidence Limit - Background Confidence Limit is 99%.

**Table 11
Surface Water Assessment Monitoring Results,
April 2007
Closed Collinsville Landfill**

Compound	S-1	S-2	S-3	S-4	S-5	S-5 DUP	S-6	S-7	Class I	1.5 Times Upstream, S 7	Illinois Surface Water Standards*
List 1											
Temperature of Water (Deg. F)	57.69	55.09	57.70	57.65	59.18	59.18	69.11	55.98	NA	NA	--
Spec Cond. (mS/cm)	1.893	5.466	0.453	1.072	0.711	0.711	1.353	0.643	NA	0.964	--
pH (pH units)	7.05	7.00	7.02	7.02	7.03	7.03	7.00	7.03	6.5-9.0	7.53	6.5-9.0
Analytes											
List 2 Unfiltered											
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	1.0	<15.0	300.0
Total Organic Carbon (TOC) (mg/L)	6.8	6.7	6.8	3.2	5.3	7.2	5.2	8.5	NA	12.8	--
Total Organic Halogens (TOX) (ug/L)	20.7	24.0	<20.0 R	33.5	<20.0	27.4	20.4	37.1	NA	56.7	--
List 3 Inorganic Parameters Unfiltered											
Arsenic (ug/L)	5.5	5.7	6.9	<5.0	<5.0	<5.0	5.1	<5.0	50.0	7.5	--
Barium (ug/L)	120.0	258.0	109.0	88.0	104.0	105.0	90.2	81.8	2,000.0	122.7	5,000.0
Chloride (mg/L)	38.0	36.0	39.0	42.0	39.0	39.0	44.0	36.0	200.0	54.0	--
Iron (ug/L)	2,850.0	4,990.0	2,640.0	1,600.0	2,020.0	2,110.0	2,050.0	4,280.0	5,000.0	6420.0	2,000.0
Manganese (ug/L)	344.0	2,020.0	393.0	221.0	370.0	360.0	245.0	401.0	150.0	601.5	1,000.0
Sulfate (mg/L)	84.0	66.0	90.0	45.0	79.0	80.0	56.0	70.0	400.0	105.0	--
Thallium (ug/L)	<1.0	<1.0	<1.0 S	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	1.5	1,500.0
Total Dissolved Solids (mg/L)	440.0	500.0	444.0	362.0	484.0	454.0	366.0	426.0	1,200.0	639.0	--
List 3 Organic Parameters Unfiltered											
Sulfide (mg/L)	0.07 SH	0.06 SH	0.07 H	<0.05 H	0.05 S	<0.05 S	<0.05 S	0.09 SH	NA	NA	--
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500.0	<0.20	--

NOTES:

All units are as noted

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds 1.5 times the upstream sample result.

Italicized where exceeds the Illinois Surface Water Quality Standards.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

--: Not tested

S: Spike recovery outside the accepted recovery limits.

H: Holding time exceeded.

*Criteria for Secondary Contact and Indigenous Aquatic Life.

CL = Confidence Limit - Background Confidence Limit is 99%.

Table 12
Leachate Assessment Monitoring Results
Closed Collinsville Landfill

Compound	Nov-06	Feb-07	Apr-07	Aug-07	Oct-07	Class I	99% CL	Illinois Surface Water Standards*
List 1								
Temperature of Water (Deg. F)	69.55	59.25	67.39	--	--	NA	62.46	--
Spec Cond. (mS/cm)	2.242	0.255	2.360	--	--	NA	1.010	--
pH (pH units)	7.65	6.87	7.17	--	--	6.5-9.0	14.22	6.5-9.0
Analytes								
List 2 Unfiltered								
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	--	--	1.0	15.0	300.0
Total Organic Carbon (TOC) (mg/L)	13.1	35.6	28.9	--	--	NA	17.48	--
Total Organic Halogens (TOX) (ug/L)	232.0	228.0	266.0	--	--	NA	103.0	--
List 3 Inorganic Parameters Unfiltered								
Arsenic (ug/L)	<5.0	<3.0	<5.0	--	--	50.0	5.0	--
Barium (ug/L)	353.0	278.0	532.0	--	--	2,000.0	378,274.32	5,000.0
Chloride (mg/L)	288.0	408.0	428.0	--	--	200.0	73.44	--
Iron (ug/L)	385.0	4,930.0	24,100.0	--	--	5,000.0	52.0	2,000.0
Manganese (ug/L)	325.0	639.0	952.0	--	--	150.0	15.0	1,000.0
Sulfate (mg/L)	202.0	20.0	312.0	--	--	400.0	2.72	--
Thallium (ug/L)	<1.0	<1.0	<1.0	--	--	2.0	1.0	1,500.0
Total Dissolved Solids (mg/L)	1,150.0	1,430.0	1,250.0	--	--	1,200.0	12.38	--
List 3 Organic Parameters Unfiltered								
Sulfide (mg/L)	<0.05 S	<0.05	<0.05	--	--	NA	NA	--
Picloram (ug/L)	<0.20	<0.20	<0.20	--	--	500.0	0.2	--

NOTES:

All units are as noted

Bolded where the concentration exceeds Class I groundwater quality standards.

Shaded where exceeds the 99% CL..

Italicized where exceeds the Illinois Surface Water Quality Standards.

<: Compound not detected at or above detection limit. Value shown is the detection limit of the compound for the analytical process.

-- : Not tested

CL = Confidence Limit - Background Confidence Limit is 99%.

NA = Not Applicable

*Criteria for secondary contact and Indigenous Standards.

CL = Confidence Limit - Background Confidence Limit is 99%.

Table 13
Groundwater Levels and Elevations
Closed Collinsville Landfill

Depth to Groundwater Levels

Well ID	27-Nov-06	22-Feb-07	26-Apr-07	27-Aug-07	25-Oct-07
MW-1	10.93	8.98	8.87	12.63	12.60
MW-2	14.98	9.98	6.48	--	--
MW-3	15.79	10.30	7.22	13.39	15.20
MW-4	10.80	8.77	8.72	12.69	12.74
MW-5	7.42	5.82	6.10	8.24	8.16
MW-6	33.11	32.39	31.14	32.37	33.08
MW-7	1.52	0.05	0.05	1.83	2.70
P-6	10.00	8.37	7.76	10.00	--
P-14	10.80	9.35	4.91	5.29	--
Stream Gauges**	27-Nov-06	22-Feb-07	26-Apr-07	27-Aug-07	25-Oct-07
G-1	0.20	--	--	--	--
G-2	0.15	0.50	0.50	--	--
G-3	0.20	0.46	0.54	--	--
G-4	0.15	0.46	0.52	--	--

NOTES: Depth to Groundwater Levels are measured in Feet (ft)

Measurements represent level below top of casing (TOC)

** Gauges in Creek - Represents the depth to water in the creek.

Groundwater Elevations

Well ID	Surface Elevation	27-Nov-06	22-Feb-07	26-Apr-07	27-Aug-07	7-Oct-07	Average
MW-1	498.90	487.97	489.92	490.03	486.27	486.30	488.10
MW-2	496.30	481.32	486.32	489.82	--	--	485.82
MW-3	547.60	531.81	537.30	540.38	534.21	532.40	535.22
MW-4	498.40	487.60	489.63	489.68	485.71	485.66	488.16
MW-5	496.50	489.08	490.68	490.40	488.26	488.34	489.61
MW-6	563.70	530.59	531.31	532.56	531.33	530.62	531.45
MW-7	515.10	513.58	515.05	515.05	513.27	512.40	514.24
P-6	496.30	486.30	487.93	488.54	486.30	--	487.27
P-14	501.30	490.50	491.95	496.39	496.01	--	493.71

Overall Average 501.51

Table 14
Summary of Calculated Background Concentrations
at the 99% Confidence Limit, MW-6
Collinsville Landfill

Compound	Nov-07	Feb-07	Apr-07	Aug-07	Oct-07	Minimum	Maximum	Average	Variance	Std Dev	99% CL**	95% CL
List 1												
Temperature of Water (unfiltered F)	60.72	55.8	57.68	67	58.06	55.8	67	59.85	19.05	4.36	77.77	70.05
Spec Cond. (Unfiltered)	1.42	1.14	1.893	1.294	1.348	1.14	1.893	1.42	0.08	0.28	2.59	2.08
pH (Unfiltered units)	6.83	6.97	7.05	6.73	6.71	6.71	7.05	6.84	0.02	0.15	7.45	7.19
Elev of GW Surf (ft ref MSL)	532.48	533.2	534.45	533.22	530.62	530.62	534.45	532.79	1.98	1.41	538.57	536.08
Depth of Water (ft below LS)	31.22	30.5	29.25	30.48	31.19	29.25	31.22	30.53	0.64	0.80	33.81	32.39
BTM Well Elev (ft ref MSL)	520.75	520.75	520.75	520.75	520.75	520.75	520.75	520.75	0.00	0.00	520.75	520.75
Depth to Water Fr Mea Pt (ft)	33.11	32.39	31.14	32.37	33.08	31.14	33.11	32.42	0.64	0.80	35.70	34.28
Analytes												
List 2 Unfiltered												
Phenols* (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	NA	NA	15.00	15.00
Total Organic Carbon (TOC) (mg/L)	3.4	3.6	4.5	3.7	1.3	1.3	4.5	3.30	1.43	1.19	8.20	6.09
Total Organic Halogens* (TOX) (ug/L)	65.7	63.4	<20.0	52.9	50.2	<20.0	65.7	48.44	505.58	22.49	79.82	66.29
List 3 Inorganic Parameters Unfiltered												
Arsenic* (ug/L)	<5.0	<3.0	<5.0	<3.0	<3.0	<3.0	<5.0	<3.0	NA	NA	5.00	5.00
Barium (ug/L)	123	159	95.4	107	181	95.4	181	133.08	1292.43	35.95	280.64	217.04
Chloride (mg/L)	65	58	63	62	66	58	66	62.80	9.70	3.11	75.58	70.07
Iron (ug/L)	140	1920	70.6	57	309	57	1920	499.32	640778.01	800.49	3785.02	2368.85
Manganese (ug/L)	327	174	151	145	206	145	327	200.60	5566.30	74.61	506.84	374.85
Sulfate (mg/L)	113	96	122	94	103	94	122	105.60	139.30	11.80	154.05	133.16
Thallium* (ug/L)	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	1.2	0.64	0.10	0.31	1.92	1.37
Total Dissolved Solids (mg/L)	946	906	892	930	948	892	948	924.40	610.80	24.71	1025.84	982.12
List 3 Organic Parameters Unfiltered												
Sulfide (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	NA	NA	NA
Picloram* (ug/L)	0.942	<0.20	<0.20	<0.20	<0.20	<0.20	0.942	0.27	0.14	0.38	1.81	1.15

* When a parameter was not detected, one half the detection limit was used if the parameter was detected one or more times in the same sample. If the parameter was not detected during any of the sampling events for a given well, the detection limit was used as the 99% CL.

** Lower CL calculated, the upper CL for pH is 6.23

CL = Upper Confidence Limit
Std Dev = Standard Deviation

ref: reference

MSL: Mean Sea Level

LS: Land Surface

Fr Meas Pt: From Measuring Point

Table 15

**Calculated Average Concentrations for Groundwater
Collinsville Landfill**

Compound	MW-1			MW-2			MW-3		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
List 1									
Temperature of Water (unfiltered F)	55.8	61.97	59.28	50.52	58.64	54.75	49.15	61.63	57.752
Spec Cond. (Unfiltered)	1.813	1.96	1.90	0.547	0.873	0.71	0.401	0.649	0.4706
pH (Unfiltered units)	6.32	7.05	6.46	6.99	7.03	6.85	7.02	11.37	7.72
Elev of GW Surf (ft ref MSL)	486.27	490.93	488.28	481.32	489.82	485.57	531.81	540.38	535.18
Depth of Water (ft below LS)	6.15	9.91	8.082	5.26	13.76	9.51	4.07	12.64	9.23
BTM Well Elev (ft ref MSL)	472.2	472.2	472.2	480.3	480.3	480.3	521.6	521.6	521.6
Depth to Water Fr Mea Pt (ft)	8.87	12.63	10.802	6.48	14.98	10.73	7.22	15.79	12.38
List 2 Unfiltered									
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	78	28.9
Total Organic Carbon (TOC) (mg/L)	1.2	2.5	1.92	1.2	2	1.67	2	25.1	12.64
Total Organic Halogens (TOX) (ug/L)	<20.0	182	94.12	<20.0	20.5	13.5	<20.0	20.8	14.24
List 3 Inorganic Parameters Unfiltered									
Arsenic (ug/L)	<3.0	<5.0	<3.0	<3.0	<5.0	<3.0	<3.0	<5.0	<3.0
Barium (ug/L)	202	221	208.25	71.1	78.2	74.65	243000	309000	265250
Chloride (mg/L)	305	405	343	18	59	38.5	4	8	6.5
Iron (ug/L)	134	2840	989.5	<40.0	149	84.5	<40.0	<40.0	<40.0
Manganese (ug/L)	3450	4820	3962.5	<15.0	23.4	15.45	<15.0	<15.0	<15.0
Sulfate (mg/L)	<0.05	140	94.76	133	150	141.5	<5.0	<5.0	<5.0
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	1460	1540	1500	444	542	493	592	790	681
List 3 Organic Parameters Unfiltered									
Sulfide (mg/L)	-	-	-	-	-	-	-	-	-
Picloram (ug/L)	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

Compound	MW-4			MW-5			MW-7		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
List 1									
Temperature of Water (unfiltered F)	54.52	61.23	58.77	55.8	63	59.548	55.8	61.09	58.654
Spec Cond. (Unfiltered)	1.072	1.959	1.62	0.737	1.894	1.242	0.678	1.894	1.211
pH (Unfiltered units)	6.16	6.99	6.34	6.33	8.21	6.841783	6.33	7.52	6.86
Elev of GW Surf (ft ref MSL)	485.66	489.68	487.38	488.26	490.68	489.35	512.4	515.05	513.87
Depth of Water (ft below LS)	5.753	9.77	8.05	5.82	8.24	7.148	0.05	2.7	1.23
BTM Well Elev (ft ref MSL)	472	472	472	469.32	469.32	469.32	481.21	481.21	481.21
Depth to Water Fr Mea Pt (ft)	8.72	12.74	11.02	5.82	8.24	7.148	0.05	2.7	1.23
List 2 Unfiltered									
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Total Organic Carbon (TOC) (mg/L)	2	4.8	3.07	<1.0	<1.0	<1.0	<1.0	1.4	0.82
Total Organic Halogens (TOX) (ug/L)	<20.0	100	59	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
List 3 Inorganic Parameters Unfiltered									
Arsenic (ug/L)	11.4	29.7	20.55	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0
Barium (ug/L)	265	376	323	107	394	236.4	170	208	195
Chloride (mg/L)	75	353	206.5	9	11	10.2	13	16	14.8
Iron (ug/L)	3940	17500	10502.5	55	479	235.5	569	979	763.8
Manganese (ug/L)	6790	20600	14147.5	1160	1500	1316	47	72.9	63
Sulfate (mg/L)	79	140	103	<5.0	20	11.8	<5.0	6	3.9
Thallium (ug/L)	<1.0	1.7	0.8	<1.0	1.1	0.62	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	920	1580	1343.33	510	532	521.5	494	532	505
List 3 Organic Parameters Unfiltered									
Sulfide (mg/L)	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Picloram (ug/L)	<0.200	<0.200	<0.200	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table 46
 Calculated Average Concentrations for
 Surface Water and Leachate
 Collinsville Landfill

Compound	Surface Sample 1			Surface Sample 2			Surface Sample 3		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
List 1									
Temperature of Water (unfiltered F)	36.47	57.69	50.54	40.15	55.09	47.62	49.44	57.7	54.55
Spec Cond. (Unfiltered)	0.498	1.893	1.09	0.471	5.466	2.97	0.453	0.875	0.626
pH (Unfiltered units)	7.05	8.42	7.46	7	7.41	7.16	7.02	8.13	7.42
List 2 Unfiltered									
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Total Organic Carbon (TOC) (mg/L)	4.4	6.8	5.47	6.4	6.7	6.55	4.2	6.8	5.4
Total Organic Halogens (TOX) (ug/L)	<20.0	21.9	17.53	22.8	24	23.4	<20.0	20.8	13.6
List 3 Inorganic Parameters Unfiltered									
Arsenic (ug/L)	<3.0	5.5	3.17	<3.0	5.7	3.6	<3.0	6.9	3.63
Barium (ug/L)	85	122	109	142	258	200	84.2	109	99.73
Chloride (mg/L)	38	45	42	25	36	30.5	39	46	43
Iron (ug/L)	411	2850	1372.33	1080	4990	3035	411	2640	1314
Manganese (ug/L)	224	383	317	1060	2020	1540	184	393	289
Sulfate (mg/L)	76	123	94.33	53	66	59.5	56	130	92
Thallium (ug/L)	<1.0	<1.0	<1.0				<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	394	594	476	368	500	434	388	444	416
List 3 Organic Parameters Unfiltered									
Sulfide (mg/L)	<0.05	0.07	0.04	<0.05	0.06	0.0425	<0.05	0.07	2.35
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Compound	Surface Sample 4			Surface Sample 5			Surface Sample 5 (Dup)		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
List 1									
Temperature of Water (unfiltered F)	42.13	57.65	51.75	39.36	59.52	52.69	39.36	59.52	52.69
Spec Cond. (Unfiltered)	0.41	1.072	0.79	0.469	0.926	0.702	0.469	0.926	0.702
pH (Unfiltered units)	7.02	8.84	7.42	7.03	7.95	7.41	7.03	7.95	7.41
List 2 Unfiltered									
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Total Organic Carbon (TOC) (mg/L)	3.2	5.8	4.73	4.2	5.3	4.75	4.2	7.2	5.43
Total Organic Halogens (TOX) (ug/L)	<20.0	33.5	24.57	<20.0	32.4	21.23	21.1	32.4	26.97
List 3 Inorganic Parameters Unfiltered									
Arsenic (ug/L)	<3.0	7.2	3.73	<3.0	<5.0	<4.0	<3.0	<5.0	<4.0
Barium (ug/L)	73.2	231	130.73	84.3	104	96.1	82.2	105	93.97
Chloride (mg/L)	37	116	65	39	46	43	39	47	43
Iron (ug/L)	656	9110	3788.67	587	2020	1194	558	2110	1252.67
Manganese (ug/L)	212	1400	611	318	535	407.67	307	516	394.33
Sulfate (mg/L)	45	117	79.33	73	137	96.33	75	146	100.33
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	298	362	330	402	612	499	398	620	491
List 3 Organic Parameters Unfiltered									
Sulfide (mg/L)	<0.05	<0.05	<0.05	<0.05	0.05	0.033	<0.05	<0.05	<0.05
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Compound	Surface Sample 6			Surface Sample 7			Leachate		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
List 1									
Temperature of Water (unfiltered F)	44.26	69.11	56.07	38.57	57.11	50.55	59.25	69.55	65.40
Spec Cond. (Unfiltered)	0.418	1.353	0.88	0.498	0.891	0.68	0.255	2.36	1.619
pH (Unfiltered units)	7	8.04	7.38	7.03	8.77	7.45	6.87	7.65	7.13
List 2 Unfiltered									
Phenols (Total Recoverable) (ug/L)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Total Organic Carbon (TOC) (mg/L)	4.2	5.5	4.97	4.3	8.5	6	13.1	35.6	25.87
Total Organic Halogens (TOX) (ug/L)	<20.0	20.7	17.03	21.3	37.1	30.53	228	266	242
List 3 Inorganic Parameters Unfiltered									
Arsenic (ug/L)	<3.0	5.1	3.03	<3.0	<5.0	<4.0	<3.0	<5.0	<4.0
Barium (ug/L)	73.6	93.6	85.8	81.8	122	95.33	278	532	387.67
Chloride (mg/L)	36	46	42	36	45	41.00	288	428	374.67
Iron (ug/L)	638	2050	1122	340	4280	1793.67	385	24100	9805
Manganese (ug/L)	204	635	361.33	213	492	368.67	325	952	638.67
Sulfate (mg/L)	56	145	87	58	118	82	20	312	178
Thallium (ug/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Dissolved Solids (mg/L)	320	366	343	392	606	474.67	1150	1430	1276.67
List 3 Organic Parameters Unfiltered									
Sulfide (mg/L)	<0.05	<0.05	<0.05	<0.05	0.09	0.05	<0.05	<0.05	<0.05
Picloram (ug/L)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table 17
Summary Of Parameters Exceeding Groundwater Criteria
Closed Collinsville Landfill

Parameter	Location	Above Class 1 Groundwater Criteria	Above 99% CL, MW-3	Above 99% CL, MW-6	Source
Iron	P-14	X	X	X	Coal/AMD
	MW-1		X		Coal/AMD
	MW-2	X	X	X	Turbidity
	MW-4	X	X	X	GOB/AMD
	MW-5		X		MW-3 not Bkg
	MW-6		X		MW-3 not Bkg
	MW-7		X		MW-3 not Bkg
Chloride	MW-1	X	X	X	GOB/AMD
	MW-4	X	X	X	GOB/AMD
Manganese	P-14	X	X	X	Coal/AMD
	MW-1	X	X	X	GOB/AMD
	MW-2	X	X	X	Turbidity
	MW-4	X	X	X	GOB/AMD
	MW-5	X	X	X	Coal/AMD/Mining
	MW-6	X	X		MW-3 not Bkg
	MW-7		X		MW-3 not Bkg
TDS	MW-1	X	X	X	GOB/AMD
	MW-4	X	X	X	GOB/AMD
pH	MW-1	X			GOB/AMD
	MW-3	X		X	MW-3 not Bkg
	MW-4	X		X	GOB/AMD
Phenol**	MW-3	X	X	X	MW-3 not Bkg
Pichloram**	MW-6		X	X	Anomalous reading /past use herbicide/ MW-3 not Bkg
Conductivity	MW-1		X		MW-3 not Bkg
	MW-4		X		MW-3 not Bkg
	MW-6		X		MW-3 not Bkg
	MW-7		X		MW-3 not Bkg
TOC	MW-3		X	X	MW-3 not Bkg
TOX	MW-1		X	X	Coal degradation
	MW-4		X		MW-3 not Bkg
Arsenic	MW-2		X	X	Turbidity
	MW-4		X	X	GOB/AMD
Thallium	MW-4		X		MW-3 not Bkg
	MW-5		X		MW-3 not Bkg
	MW-6		X		MW-3 not Bkg
Sulfate	P-14		X		MW-3 not Bkg
	MW-1		X		MW-3 not Bkg
	MW-2		X	X	Turbidity
	MW-4		X		MW-3 not Bkg
	MW-5		X		MW-3 not Bkg
	MW-6		X		MW-3 not Bkg
	MW-7		X		MW-3 not Bkg

Table 17
Summary Of Parameters Exceeding Groundwater Criteria
Closed Collinsville Landfill

Parameter	Location	Above Class 1 Groundwater Criteria	Above 99% CL, MW-3	Above 99% CL, MW-6	Source
Barium	P-14			X	Coal/AMD
	MW-2			X	Turbidity
	MW-3	X		X	MW-3 not Bkg
	MW-4			X	GOB/AMD
	MW-5			X	GOB/AMD/Mining

AMD = acid mine drainage

BKG = background

GOB = Coal refuse high in sulfur and metals

TDS = Total Dissolved Solids

TOC = Total Organic Carbon

TOX = Total Organic Halides

X = Exceeds criteria

** Also exceeds two times the Practical Quantitation Limit

Table 18
Summary Of Surface Water Parameters Exceeding Surface Water Criteria
Closed Collinsville Landfill

Parameter	Location	Above Surface Water Criteria for Secondary Contact and Indigenous Aquatic Life	More than 1.5x Upgradient Location S-7	Source
Iron	S-1	X		Turbidity and metal debris
	S-2	X	X	Turbidity and metal debris
	S-3	X		Turbidity and metal debris
	S-4	X	X	Turbidity and metal debris
	S-5	X	X	Turbidity and metal debris
	S-6	X	X	Turbidity and metal debris
	S-7	X		Turbidity and metal debris
Manganese	S-2	X	X	Turbidity
	S-4	X	X	Turbidity
Arsenic	S-4		X	Turbidity
Barium	S-2		X	Turbidity
	S-4		X	Turbidity
Chloride	S-2		X	Turbidity
	S-4		X	Turbidity
Conductivity	S-6		X	Turbidity

APPENDIX E

IEPA Boring Logs and Well Completion Reports



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 726618 E. (Y) 2361187

Latitude: _____ Longitude: _____

Boring Location: Eastern Portion of landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. SB10 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 12'

Auger Depth: 12' Rotary Depth: 12'

Date: Start: 10/23/06 Finish: 10/23/06
0740 0800

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS	
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings		G - Nancy Dickens D - Jim Harriss H - Danielle Schmieg
557											
556			1								
555			2				745				
554	Light brown clayey silt, st. mottled, hard, dry (ML) 7.5 YR 4/2		3								
553			4								
552	Mixture of clay & trash, dark gray to brown, stiff (CL) 7.5 YR 5/2		5								
551			6				3.0				
550			7								
549			8								
548	Soft, moist		9								
547			10								



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729614 E. (Y) 2361278

Latitude: _____ Longitude: _____

Boring Location: Eastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. P-15 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
0814 0845

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
504.10	Light Brown Clayey silt, hard, Dry (ML) 7.5 YR 5/2 Stiff ↓	[Vertical line]	1			3.2 / 4.0				Dry to Moist ↓
503						74.5				
502										
501										
500										
559										
558										
557										
556										
555										
			9			4.0 / 4.0				
			10			3.0				



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. P-15 Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 20'

UTM (or State Plane) Coord. N. (X) 729614 E. (Y) 2361278

Auger Depth: 20' Rotary Depth: 20'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
0814 0845

Boring Location: Eastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

SAMPLES							Personnel
Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or FNU Readings	REMARKS	
						G - N. Dickens D - J. Harris H - D. Schmieg DRY to MOIST	
			1.5				
		40/40					
			1.0				
		40/40					
			2.0				

Elev.	Description of Material	Graphic Log	Depth In Feet
554	Light Brown Clayey Silt, Dry, Med. Stiff (ML) 7.5YR 4/2	[Vertical line with tick marks]	11
553			12
552			13
551			14
550			15
549			16
548			17
547			18
546			19
545			20

Bottom of Borehole = 20' BGL



Illinois Environmental Protection Agency

Field Boring Log

Page 1 of 2

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. P-11 Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 20'

UTM (or State Plane) Coord. N. (X) 729475 E. (Y) 2361256

Auger Depth: 20' Rotary Depth: 20'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
0848 0924

Boring Location: Eastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS		
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings		G - Nancy Dickens D - Jim Harris H - Danielle Schmaieg H -	
556												
555	Light Brown Clayey Silt, Dry, Some gravel, hard, mottled (ML) 7.5 YR 5/2		1			35/40					Dry to Moist	↓
554			2				>45					
553	Some Organic Staining		3									
552			4									
551	Light gray-brown, little iron, some Organic staining, Stiff 7.5 YR 5/1		5			40/40	25					
550			6									
549	Med. Stiff		7									
548	Light gray, Soft 2.5 Y 7/1		8				1.5					
547			9			40/40						
546			10				1.0					



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729483 E. (Y) 2361227

Latitude: _____ Longitude: _____

Boring Location: Eastern Portion Of Landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. SB-11 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
0933 1003

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
544	Loose Debris - concrete, glass, plastic, aluminum foil mixed w/ silty clay, black (CL) 3/5 PB	[Vertical line]	11							Dry to Moist
543			12							
542	Light Gray - Brown silty clay w/ iron nodules, very stiff, dry (CL) 7.5 YR 6/1	[Vertical line]	13		4.0 / 4.0		2.5			No trash present
541	14									
540	[Vertical line]	15								
539		16				3.0				
538	SOFT, MOIST	[Vertical line]	17		4.0 / 4.0		1.0			[Vertical line]
537	18					1.0				
536	[Vertical line]	19								
535		20				0.5				

Bottom of Borehole = 20' BGL



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. SB-12 Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 20'

UTM (or State Plane) Coord. N. (X) 729185 E. (Y) 2361219

Auger Depth: 20' Rotary Depth: 20'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
1012 1035

Boring Location: Southeastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
547.1	Light Brown Clayey Silt, trace gravel, stiff, sl. mottled (ML)	[Vertical line]	1			37/40				
546			2			4.0				
545			3			3.0				
544			4			1.5				
543	Sl. Sandy, Stiff	[Vertical line]	4							
542	Dark Brown - Black Clay & Silty fill material, some limestone, stiff (CL) 75 YR 2.5/1	[Vertical line]	5			40/40				
541			6							
540			7							
539			8					0.5		
538			9					4.0/4.0		
			10					1.0		



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729185 E. (Y) 2361219

Latitude: _____ Longitude: _____

Boring Location: Southwestern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. SB-12 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
1012 1035

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES						Personnel
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	G - N. Dickens D - J. Harris H - D. Schmitz
537	Dark Brown - Black Silty Clay, Wood present, stiff, dry (CL) 7.54R 2.511 Greenish-Gray Clay w/ some glass (CL) 6/10G Lots of wood, very soft (CL) Wet, very soft Very soft, moist								Dry to Wet ↓	
536					3.5					
535										
534						4.0 4.0	0.5			
533										
532										
531							0.5			
530						3.0 4.0				
529							0.5			
528										
							0.5			

Bottom of Borehole = 20' BGL



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. SB-12B Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 12'

UTM (or State Plane) Coord. N. (X) 729203 E. (Y) 2361259

Auger Depth: 12' Rotary Depth: 12'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
1047 1100

Boring Location: Southeastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
549.3	Light Brown Clayey Silt w/ Iron & Carbon nodules, trace gravel, stiff, dry (ML) 7.5 YR 5/2	[Vertical scale]	1			4.0/4.0	4.0			Dry to Moist
548			2				3.5			
547			3							
546			4				3.0			
545	Dark Brown - Black fill material, loose 7.5 YR 2.5/1	[Vertical scale]	5			4.0/4.0			No Odor No trash	
544			6							
543			7							
542			8							
541			9				4.0/4.0			
540			10							



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729203 E. (Y) 2361259

Latitude: _____ Longitude: _____

Boring Location: Southeastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC


County: Madison

Boring No. SB-12B Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 12'

Auger Depth: 12' Rotary Depth: 12'

Date: Start: 10/23/06 Finish: 10/23/06
1047 1100

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
539	Dark Brown Clay, Hard, Wood present (CL) 7.54/2.311		11				7.5			Dry to, moist Trash Odor
538	 Bottom of Borehole = 12' BGL		12							
537										
536										
535										
534										



Illinois Environmental Protection Agency

Field Boring Log

Page 1 of 2

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729180 E. (Y) 2361287

Latitude: _____ Longitude: _____

Boring Location: Southeastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. P-12 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
1110 1134

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS		
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings		G - Nancy Dickens D - Tim Harris H - Danielle Schaefer H -	
548.70	Light Brown Clayey Silt, Few Carbon Nodules, Very hard, dry (ML) 7.5 YR 4/2 Very Stiff Stiff	[Vertical scale]	1			37/40	75			Dry to Moist		
548												
547												
546												
545									75			
544									40/40		45	
543												
542									35			
541									25			
540									40/40		20	
539												



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____
 Site Name: Closed Collinsville Landfill
 Quadrangle: Collinsville Sec. 36 T. 3N R. 8W
 UTM (or State Plane) Coord. N. (X) 729180 E. (Y) 2361287
 Latitude: _____ Longitude: _____
 Boring Location: Southeastern Portion of Landfill
 Drilling Equipment: Power Probe 9600 DC

County: Madison
 Boring No. P-12 Monitoring Well No. _____
 Surface Elevation: _____ Completion Depth: 20'
 Auger Depth: 20' Rotary Depth: 20'
 Date: Start: 10/23/06 Finish: 10/23/06
1110 1134

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
538	Light Brown Silty Clay, mottled carbon & iron nodules, stiff, moist (CL) 7.5 YR 4/2	[Vertical scale]	11							Dry to moist
537										
536	Med. Stiff	[Vertical scale]	12							
535										
534	Brown-gray Clay, med. stiff, moist (CL) 7.5 YR 6/1	[Vertical scale]	13							
533										
532	trace gravel, gravel increases with depth, med. stiff	[Vertical scale]	14							
531										
530		[Vertical scale]	15							
529										
			16							
			17							
			18							
			19							
			20							

Bottom of Borehole = 20' BCL



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729241 E. (Y) 2360227

Latitude: _____ Longitude: _____

Boring Location: Southwestern Portion of Landfill

Drilling Equipment: Power Probe 9100 DC

County: Madison

Boring No. SB-13 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
1203 1226

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
523.80										
523	Light Brown Clayey silt, mottled, very hard, dry (ML) 7.5 YR 5/2	[Vertical line with tick marks]	1			2/40	75			Dry to Moist
522			2							
521			3			75				
520			4			75				
519			5			20/40				
518	Gray-Brown Silty Clay mixed w/trash - plastic wood, med. stiff (CL) 7.5 YR 5/1	[Vertical line with tick marks]	6				20			
517			7							
516			8			15				
515			9			0.5/40				
514			10							



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729241 E. (Y) 2360227

Latitude: _____ Longitude: _____

Boring Location: Southwestern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

County: Madison

Boring No. SB-13 Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: 20'

Auger Depth: 20' Rotary Depth: 20'

Date: Start: 10/23/06 Finish: 10/23/06
1203 1226

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES						Personnel
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS
513			11							G. N. Dickens D. T. Harris H. B. Schmies H.
512	Small decomposed - hard plastic & soft plastic, dark brown - gray clay, wet (CL)		12							
511	Brown-gray clay w/ trash - plastic & metal, very soft, moist (CL) 7.5 YR 6/1		13		40	40	0.5			
510	Brown-gray silty clay, med. stiff, moist (CL) 7.5 YR 5/1		14				20			
509			15				20			
508			16							
507	Wet, very soft gray-brown silty clay (CL) 7.5 YR 6/1		17		37	40	0.5		No trash	
506			18							
505			19				10.5			
504	stiff		20				2.5			

Bottom of Borehole = 20' BGL



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. P-14 Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 16'

UTM (or State Plane) Coord. N. (X) 130045 E. (Y) 2361239

Auger Depth: 16' Rotary Depth: 16'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
1237 1310

Boring Location: Northeastern Portion of Landfill

Drilling Equipment: Power Probe 9600 DC

Personnel
G - Nancy Dickens
D - Tim Harris
H - Danielle Schaefer

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					REMARKS	
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)		OVA or HNU Readings
501.3										
500	Coal, loose		1			3/40				Dry to wet
499	Dark Brown-gray silt w/ coal residual, soft, moist (ML) 7.5/2.5/11		2							
498	↓		3				1.0			
497	Med. stiff		4				1.5			
496	↓		5			40/40	1.0			
495	Dark Gray Silty Clay w/ Iron & Carbon nodules, med. stiff, moist (CL) 5/N		6							
494	↓		7							
493	Sl. wet, very soft		8							
492	↓		9			30/40				
			10				0.5			



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. P-14 Monitoring Well No. _____

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: _____ Completion Depth: 16'

UTM (or State Plane) Coord. N. (X) 730045 E. (Y) 2361239

Auger Depth: 16' Rotary Depth: 16'

Latitude: _____ Longitude: _____

Date: Start: 10/23/06 Finish: 10/23/06
1237 1310

Boring Location: Northwestern Portion of Landfill

Drilling Equipment: Power Probe 91000 DC

SAMPLES							Personnel
Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS	
						G. N. Dickens D. J. Harris H. D. Schmick	
			0.5			Wet to Moist ↓	
		4.0 4.0					
			0.5				
						Piezometer @ 16' 16'-5' Screen 11-16' BGL	

Elev.	Description of Material	Graphic Log	Depth In Feet
491	St. Wet Gray Silty Clay, Very soft, some iron (CL) 5N		11
490			12
489	Saturated		13
488	Saturated Brown Silty Clay, Very soft (CL) 7.5R 311		14
487			15
486	Moist		16
485	BOTTOM OF BURETALE = 10' BGL		17
484			18
483			19
482			20



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____
 Site Name: Closed Collinsville Landfill
 Quadrangle: Collinsville Sec. 36 T. 3N R. 8W
 UTM (or State Plane) Coord. N. (X) 730148 E. (Y) 2360520
 Latitude: _____ Longitude: _____
 Boring Location: Northern Landfill
 Drilling Equipment: CME 45

County: Madison
 Boring No. MW5 Monitoring Well No. MW5
 Surface Elevation: 496.49 ^{AMS L} Completion Depth: 27.5'
 Auger Depth 27.5' BGL Rotary Depth: NA
 Date: Start: 11-3-06 Finish: 11-3-06
0745 1030

PERSONNEL
 G - D. Schmitz
 D - Cecil Harris
 H - Mark Bacht
 H - Emily Williams

Elev.	Description of Material	Graphic Log	Depth In Feet	Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS
496.49	Asphalt		1							DRY TO MOIST
496										
495			2							
494					1.3					
493	Dark brown clayey silt with gravel/concrete, some iron, medium stiff, dry (ML) 7.5 YR 3/1		3		2.0	70%				
492.25			4				1.5			
491	Light brown clayey silt, moist, soft, more clay with depth, some iron, little mottling (ML) 7.5 YR 4/2		5		1.2		0.5			
490			6		2.0		0.5			
489	Light brown sandy clay, mottling, fine sand, moist, soft 7.5 YR 4/2 (CL)		7		1.5		0.5			
488	Light brown-gray clay, moist, mottled (CL), soft, iron, carbon nodules (CL), trace med. gravel 7.5 YR 5/2		8		2.0		0.5			
487			9		1.7		1.0			
			10		2.0		70%			
							70%			

AMS L = Above Mean Sea Level
 BGL = Below Ground Level



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. MW5 Monitoring Well No. MW5

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: 496.50 AMSL Completion Depth: 27.5'

UTM (or State Plane) Coord. N. (X) 730148 E. (Y) 2360520

Auger Depth: 27.5' Rotary Depth: NA

Latitude: _____ Longitude: _____

Date: Start: 11-3-06 Finish: 11-3-06
0745 1030

Boring Location: Northern Landfill

Drilling Equipment: CME 45

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
486	Light brown clay w/sand & gravel, mottled, iron & carbon nodules, moist, very soft (CL) 7.5YR 4/2		11			2/2	70F			Approx Depth of Creek Bed (Creek Bed Nearly Dry)
485	↓ Light brown-gray clay, gravelly, mottled with iron & carbon nodules, soft moist (CL)		12				1.0			Pulled up Augers several feet let set 15 min. - NO WATER
484	gravel ~ 1/2" diameter stiff 7.5YR 5/2		13			1.8/2.0	1.0			
483			14				2.5			
482			15			2.9/2.0	2.0			
481	Med. stiff		16				2.5			
480			17			1.7/2.0	2.0			* little splintered pieces of wood
479	Stiff-harder		18				1.75			
478	MOIST - NO gravel		19			2.0/2.0	2.5			* little splintered pieces of wood
477	Med. stiff		20				3.5			



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 730148 E. (Y) 2360520

Latitude: _____ Longitude: _____

Boring Location: Northern Landfill

Drilling Equipment: CME 45

County: Madison

Boring No. MW5 Monitoring Well No. MW5

Surface Elevation: 496.50 AMSL Completion Depth: 27.5'

Auger Depth: 27.5' Rotary Depth: NA

Date: Start: 11-3-06 Finish: 11-3-06
0745 1030

SAMPLES						Personnel
Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS
		2.0	3.0			↓
		2.0				
			2.5			
			2.5			
		2.0	3.5			
		2.0	3.5			
			2.5			
		1.6	1.5			
		2.0				
			6.5			
			1.5	7100		let sit & reworked w @ 23.6'
		0.5	10.5			Spoon taken @ 27.5'
		1.0				Set Well @ 27'
						5' Screen

G. D. Schmieg
D. C. Harris
H. M. Bactse
H. E. Williams

Elev.	Description of Material	Graphic Log	Depth In Feet
476	Light brown-gray silty-clay mottled with iron carbonate nodules stiff, moist (CL) 7.5 VR 5/2		21
475			22
474	More gray silt throughout, sl. moist, stiff		23
473			24
472	Wet brown-gray silty-clay (Weathered bedrock) harder & drier (CL) 7.5 VR 5/2		25
471			26
470			27
469	Light Brown Wet Very Fine silt Very soft 7.5 VR 4/2		28
468	BOTTOM OF HOLE = 27.5' BGL		29
	AMSL = Above Mean Sea Level BGL = Below Ground Level TD = Total Depth		30



Illinois Environmental Protection Agency

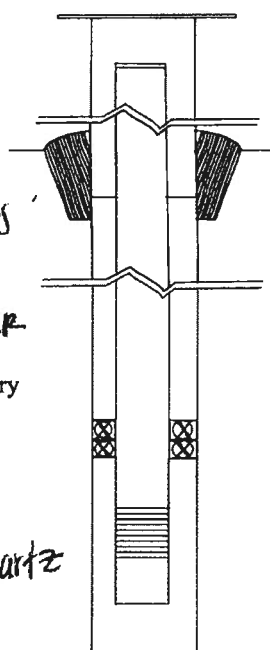
Well Completion Report

Site Number: 119428002 County: Madison
 Site Name: Closed Collinsville Landfill Well #: MW5
 State: _____ Borehole #: MW5
 Plane Coordinate: X 730148 Y 2360520 (or) Latitude: _____ Longitude: _____

Surveyed by: Sherbut-Carson-Claxton, LLC IL Registration #: N. Dickens IL LP6 196-000573
 Drilling Contractor: Harriss Drilling Driller: Cecil Harriss
 Consulting Firm: Tetra Tech Geologist: Danielle Schmieg
 Drilling Method: Hollow Stem Auger Drilling Fluid (Type): None
 Logged By: Danielle Schmieg/Nancy Dickens Date Started: 11/3/06 Date Finished: 11/3/06
 Report Form Completed By: Danielle Schmieg/Nancy Dickens, LP6 Date: 11/3/06
 Screen = 5'

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete
 Type of Annular Sealant: Bentonite Chips
 Installation Method: Slow Pouring
 Setting Time: Hydrated w/ 10 gal water
 Type of Bentonite Seal - Granular Pellet, Slurry
 (Choose One)
 Installation Method: Slow Pouring
 Setting Time: Overnight
 Type of Sand Pack: Unimin Industrial Quartz
 Grain Size: 1 (Sieve Size)
 Installation Method: Slow Pouring
 Type of Backfill Material: _____
 (if applicable)
 Installation Method: _____



Elevations (MSL)*	Depths (BGS)	(.01ft.)
496.49'	0.00	Top of Protective Casing FLUSH-MOUNT
496.02'	-0.47	Top of Riser Pipe
496.50'	0.00	Ground Surface
495.50'	1.00'	Top of Annular Sealant
477.72'	18.3' TOC 18.78' BGL	Static Water Level (After Completion)
495.49'	1.00'	Top of Seal
477.49'	19'	Top of Sand Pack
474.27'	21.75' TOC 22.23' BGL	Top of Screen
469.27'	26.75' TOC 27.23' BGL	Bottom of Screen
469.02'	27' TOC 27.48' BGL	Bottom of Well
4109.00'	27.5' BGL	Bottom of Borehole

* Referenced to a National Geodetic Datum

CASING MEASUREMENTS

Diameter of Borehole (inches)	<u>2</u>
ID of Riser Pipe (inches)	<u>2</u>
Protective Casing Length (feet)	<u>1' x 0.75" diameter</u>
Riser Pipe Length (feet)	<u>21.3'</u>
Bottom of Screen to End Cap (feet)	<u>0.25</u>
Screen Length (1" slot to last slot) (feet)	<u>5</u>
Total Length of Casing (feet)	<u>26.3'</u>
Screen Slot Size **	<u>0.010</u>

**Hand-Slotted Well Screens are Unacceptable

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729619 E. (Y) 23161282

Latitude: _____ Longitude: _____

Boring Location: East of Landfill

Drilling Equipment: CME 750

County: Madison

Boring No. MN10 Monitoring Well No. MN10

Surface Elevation: 503.70' AMSL Completion Depth: 50' BGL

Auger Depth: 56' BGL Rotary Depth: NA

Date: Start: 10/26/06 0937 Finish: 10/26/06 1400

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
503.70	Dry, Light brown silt (ML) 7.5YR 6/3 ↓ Very light br. silty clay, mottled with iron nodules (CL) 7.5YR 6/3 ↓ Very stiff, less mottling (CL) ↓								Dry to Moist	
503										
502										
501										
500										
559										
558										
557										
556										
555										
554										

AMSL = Above Mean Sea Level
BGL = Below Ground Level



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. MNW6 Monitoring Well No. MNW6

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: 503.70' AMSL Completion Depth: 56' bbl

UTM (or State Plane) Coord. N. (X) 729619 E. (Y) 2361282

Auger Depth: 50' bbl Rotary Depth: NA

Latitude: _____ Longitude: _____

Date: Start: 10/26/06 Finish: 10/26/06
0937 1400

Boring Location: East of Landfill

Drilling Equipment: CME 750

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS	
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings		G - N. Dickens D - C. Dutton H - M. Baetje H - D. Schmieg
553	Light Brown silty clay, mottled (CL) 7.5 YR 4/2 soft light brown silt, mottling decreases with depth (ML) 7.5 YR 4/2 medium stiff very stiff, little mottling (ML)								DRY to MOIST ↓		
552											
551											
550											
549											
548											
547											
546											
545											
544											



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729619 E. (Y) 2361282

Latitude: _____ Longitude: _____

Boring Location: East of Landfill

Drilling Equipment: CME 750

County: Madison

Boring No. MW6 Monitoring Well No. MW10

Surface Elevation: 523.70' AMSL Completion Depth: 50' BGL

Auger Depth: 50' BGL Rotary Depth: NA

Date: Start: 10/26/06 Finish: 10/26/06
0937 1400

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
543	Sl. moist, Light Brown Silt, Stiff (ML) 7.5 YR 4/2	[Vertical Scale]	21			1.8'		2		Dry to Moist
				2'	2.0	3				
542				3.0	6					
				2.0	7					
541	[Arrow pointing down]	[Vertical Scale]	23			2'		3		
				2'	2.0	5				
540	[Arrow pointing down]	[Vertical Scale]	24					6		
				2.0	7					
539	Light brown clayey silt, soft, sl. moist (ML) 7.5 YR 4/2	[Vertical Scale]	25			2'		1		
				2'	1.0	3				
538	[Arrow pointing down]	[Vertical Scale]	26					6		
				1.0	7					
537	Increasing clay content with depth, med. stiff, moist (ML)	[Vertical Scale]	27			2'		1		
				2'	1.5	2				
536	Light brown silty clay, moist, med. stiff, little mottling, few iron (CL) 7.5 YR 4/2	[Vertical Scale]	28					4		
				1.0	5					
535	Soft, mottling, Carbon nodules, large iron nodules (CL)	[Vertical Scale]	29			2'		1		
				0.5	2					
534	[Arrow pointing down]	[Vertical Scale]	30					3		
						0.5		3		



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____
 Site Name: Closed Collinsville Landfill
 Quadrangle: Collinsville Sec. 36 T. 3N R. 8W
 UTM (or State Plane) Coord. N. (X) 729619 E. (Y) 2361282
 Latitude: _____ Longitude: _____
 Boring Location: East of Landfill
 Drilling Equipment: CME 750

County: Madison
 Boring No. MWL6 Monitoring Well No. MWL6
 Surface Elevation: 528.70' AMSL Completion Depth: 56' BGL
 Auger Depth: 56' BGL Rotary Depth: NA
 Date: Start: 10/26/06 Finish: 10/26/06
0937 1400

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
533	Light brown Gravelly Silty Clay, silty, sandy, mottled, carbon nodules. Moist, med stiff (CL) 7.5 YR 4/2		31		2' / 2'	1.5	1			Wet
532	stiff					3.0	3			
531	st. sandy, wet, plastic, very soft (CL)		32		2' / 2'	1.0	4			
530	Moist (CL)		33				2			
529			34				3			
528	Very soft, no gravel, plastic silty (CL) st. sandy, wet		35		2' / 2'	1.0	1			
	Soft silty clay, moist (CL)					2.0	3			
527			36			7.5	4			
526	Sandy gravelly clay, gravel increases with depth, soft (CL) wet		37			0.5	5			
525	Very soft		38		2' / 2'	1.0	1			
	stiff, large diameter gravel					0.5	6			
			39			2.0	13			
					2' / 2'	2.5	4			
			40			2.5	6			
							8			
						2.0	10			



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. MW6 Monitoring Well No. MW6

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: 503.70' AMSL Completion Depth: 50' BGL

UTM (or State Plan) Coord. N. (X) 729619 E. (Y) 2361282

Auger Depth: 50' BGL Rotary Depth: NA

Latitude: _____ Longitude: _____

Date: Start: 10/26/06 Finish: 10/26/06
0937 1400

Boring Location: East of Landfill

Drilling Equipment: CME 750

Personnel
G - N. Dickens
D - C. Dutton
H - M. Bactje
H - D. Schmiegel

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					REMARKS
				Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	
523	Sandy silty clay with trace gravel, wet very mottled, carbon & iron nodules, stiff (CL) less gravel, moist	[Vertical line]	41		2'	1.0	1	DRY TO MOIST	
				2'	3.5	4			
522	Very small diameter gravel, stiff, r.s. sand	[Vertical line]	42		2.5	10			
				2'	2.0	3			
521		[Vertical line]	43		2'	5			
				2.0	8				
520		[Vertical line]	44		2.0	10			
				2'	3.0	1			
519		[Vertical line]	45		2.5	4			
				6					
518		[Vertical line]	46		3.0	7			
				2'	3.0	4			
517		[Vertical line]	47		6				
				3.5	7				
516		[Vertical line]	48		3.5	10			
				2'	3.0	2			
515		[Vertical line]	49		6				
				3.0	8				
514		[Vertical line]	50		3.5	10			



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____
 Site Name: Closed Collinsville Landfill
 Quadrangle: Collinsville Sec. 36 T. 3N R. 8W
 UTM (or State Plane) Coord. N. (X) 729619 E. (Y) 2361282
 Latitude: _____ Longitude: _____
 Boring Location: East Of Landfill
 Drilling Equipment: CME 750

County: Madison
 Boring No. MW6 Monitoring Well No. MW6
 Surface Elevation: 503.70' AMSL Completion Depth: 56' BGL
 Auger Depth: 56' BGL Rotary Depth: NA
 Date: Start: 10/26/06 Finish: 10/26/06
0937 1400

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS	
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings		G - N. Dickens D - C. Dutton H - M. Baetje H - D. Schrieg
513	Light brown silty clay, mottled shale, moist, some gravel (CL) 7.5YR4/2 moist, shale, little gravel BOTTOM OF HOLE = 56' BGL AMSL = Above Mean Sea Level BGL = Below Ground Level TD = Total Depth		51				3.5	2		Dry to moist TD = 56' FILLED BOREHOLE WITH SAND UP TO 42' & installed well Dry from 42-56'	
							3.5	7			
512							3.5	9			
				52				3.0	12		
511							2 1/2	3.0	1		
				53				3.0	6		
510								3.0	7		
509				54				2.5	10		
				55				3.0	2		
508								3.5	6		
			56				2.5	8			
507								12			
506			57								
			58								
			59								
			60								



Illinois Environmental Protection Agency

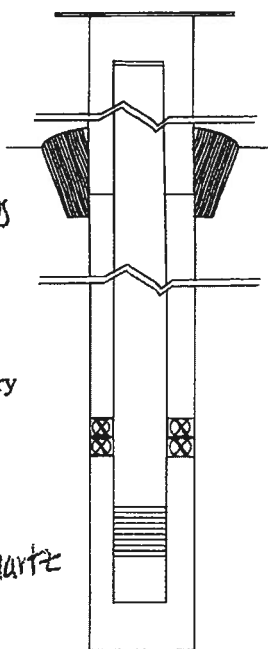
Well Completion Report

Site Number: 1194280002 County: Madison
 Site Name: Closect Collinsville Landfill Well #: MWL6
 State: _____ Borehole #: MWL6
 Plane Coordinate: X 729619 Y 236128 (or) Latitude: _____ Longitude: _____

Surveyed by: Sherbut-Carson-Claxton, LLC IL Registration #: N. Dickens / L LPG 196-000573
 Drilling Contractor: Harriss Drilling Driller: Chad Dutton
 Consulting Firm: Tetra Tech Geologist: Nancy Dickens
 Drilling Method: Hollow Stem Auger Drilling Fluid (Type): NONE
 Logged By: Danielle Schmieg / Nancy Dickens Date Started: 10/26/06 Date Finished: 10/26/06
 Report Form Completed By: Danielle Schmieg / Nancy Dickens, LPG Date: 10/26/06

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete
 Type of Annular Sealant: Bentonite Chips
 Installation Method: Slow Pouring
 Setting Time: Overnight - Hydrated w/ 10 Gal Water
 Type of Bentonite Seal - Granular Pellet, Slurry (Choose One)
 Installation Method: Slow Pouring
 Setting Time: Overnight
 Type of Sand Pack: Unimin Industrial Quartz
 Grain Size: 1 (Sieve Size)
 Installation Method: Slow Pouring
 Type of Backfill Material: Sand (if applicable)
 Installation Method: Slow Pouring



Elevations (MSL)*	Depths (BGS)	(.01ft.)
<u>505.91'</u>	<u>+2.21'</u>	Top of Protective Casing
<u>505.59'</u>	<u>+1.89'</u>	Top of Riser Pipe
<u>563.70'</u>	<u>0.00'</u>	Ground Surface
<u>562.70'</u>	<u>1.00'</u>	Top of Annular Sealant
<u>532.62'</u>	<u>32.97' TDC</u> <u>31.08' BGL</u>	Static Water Level (After Completion)
<u>562.70'</u>	<u>1.00'</u>	Top of Seal
<u>534.70'</u>	<u>29'</u>	Top of Sand Pack
<u>534.01'</u>	<u>31.58' TDC</u>	Top of Screen <u>33.47' BGL</u>
<u>524.01'</u>	<u>41.58' TDC</u>	Bottom of Screen <u>43.47' BGL</u>
<u>523.76'</u>	<u>41.83' TDC</u>	Bottom of Well <u>43.72' BGL</u>
<u>507.70'</u>	<u>56' BGL</u>	Bottom of Borehole

* Referenced to a National Geodetic Datum

CASING MEASUREMENTS

Diameter of Borehole (inches)	<u>2</u>
ID of Riser Pipe (inches)	<u>2</u>
Protective Casing Length (feet)	<u>5</u>
Riser Pipe Length (feet)	<u>33.58</u>
Bottom of Screen to End Cap (feet)	<u>0.25</u>
Screen Length (1" slot to last slot) (feet)	<u>10</u>
Total Length of Casing (feet)	<u>43.83</u>
Screen Slot Size **	<u>0.010</u>

**Hand-Slotted Well Screens are Unacceptable

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____
 Site Name: Closed Collinsville Landfill
 Quadrangle: Collinsville Sec. 36 T. 3N R. 8W
 UTM (or State Plane) Coord. N. (X) 729434 E. (Y) 2360086
 Latitude: _____ Longitude: _____
 Boring Location: SW Portion of Landfill
 Drilling Equipment: CME 750

County: Madison
 Boring No. MW7 Monitoring Well No. MW7
 Surface Elevation: 515.10' AMSL Completion Depth: 34.1' BGL
 Auger Depth: 34.1' BGL Rotary Depth: NA
 Date: Start: 10/30/06 Finish: 10/30/06
0830 1040

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
515.10										DRY TO MOIST
514			1							
513	Light brown silty-clay with some gravel. Very stiff (CL) gravel = 1/4" 7.5 YR 4/2		2							
512			3			1.5/2.0	75			
511			4				75			
510	more gray, iron & carbon nodules, mottled, gravel decreases with depth, stiff (CL)		5			1.8/2.0	45			
509			6				35			
508	Greenish-gray silty clay, mottled with iron & carbon, softer (CL) 5/10Y		7			1.8/2.0	40			*piece of plastic found
507			8				3.0			
506			9			1.4/2.0	2.0			
			10				2.5			
							2.0			

AMSL = Above Mean Sea Level
 BGL = Below Ground Level



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

Site Name: Closed Collinsville Landfill

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

UTM (or State Plane) Coord. N. (X) 729434 E. (Y) 2360086

Latitude: _____ Longitude: _____

Boring Location: SW Portion of Landfill

Drilling Equipment: CME 750

County: Madison

Boring No. MW7 Monitoring Well No. MW7

Surface Elevation: 515.10' AMSL Completion Depth: 34.1' BGL

Auger Depth: 34.1' BGL Rotary Depth: NA

Date: Start: 10/30/06 0830 Finish: 10/30/06 1040

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
505	Green-gray silty clay with iron nodules, trace large gravel, stiff mottled (CL) 6/10Y Medium stiff	[Graphic Log]	11			2.0	2.5			Dry to Moist
504					1.75					
503	Carbon nodules, trace small gravel, Medium stiff (CL)	[Graphic Log]	12			1.8	2.0			
502					2.0					
501		[Graphic Log]	13			2.0	2.0			
500					2.0					
499	Light brown-gray silty clay, trace gravel, iron nodules, Carbon nodules, Very stiff, Mottled (CL) 7.5YR 5/1-	[Graphic Log]	14			1.8	2.0			* Piece of coal found
498					2.0					
497		[Graphic Log]	15			1.8	4.0			
496					4.0					
		[Graphic Log]	16			1.9	4.0			
					7.5					
		[Graphic Log]	17			1.9	7.5			
					7.5					
		[Graphic Log]	18			1.9	7.5			
					7.5					
		[Graphic Log]	19			1.9	2.5			
					2.5					



Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 1194280002 Federal ID No. _____

County: Madison

Site Name: Closed Collinsville Landfill

Boring No. MW7 Monitoring Well No. MW7

Quadrangle: Collinsville Sec. 36 T. 3N R. 8W

Surface Elevation: 515.10' AMSL Completion Depth: 34.1' BGL

UTM (or State Plane) Coord. N. (X) 729434 E. (Y) 2360086

Auger Depth: 34.1' BGL Rotary Depth: N/A

Latitude: _____ Longitude: _____

Date: Start: 10/30/06 Finish: 10/30/06
0830 1040

Boring Location: SW Portion of Landfill

Drilling Equipment: CME 750

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES					Personnel	REMARKS
				Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	
495	Light Brown & gray silty clay, mottled, iron & carbon nodules medium stiff (CL) 7.5YR 4/2	[Vertical line]	21			2.0 / 2.0	1.0			Approx. Depth of Dry Creek Bed * Gravelly zone @ ~ 0.5'
494						1.5				
493					22			1.0		
492	Very stiff light br. silty-clay with little gray, mottled, iron & carbon nodules (CL) 7.5YR 4/2	[Vertical line]	23			1.6 / 2.0	4.0			Dry to Moist
491						4.0				
490	Gray silty clay, some mottling with iron nodules, few small gravel, stiff (CL) 7.5YR 6/1	[Vertical line]	24				7.5			
489						2.5				
488	Clay & carbon nodules, moist (CL)	[Vertical line]	25				2.5			
487						2.0				
486	Very stiff (CL)	[Vertical line]	26			1.9 / 2.0	2.5			
485							2.5			
484					27				7.5	
483	Very little nodules, trace gravel, stiff (CL)	[Vertical line]	28			1.7 / 2.0	2.0			
482							4.0			
481	Very hard gray clay (CL) 7.5 YR 6/1	[Vertical line]	29				2.5			
480							7.5			
479			30							Weathered bedrock / bedrock residual



Illinois Environmental Protection Agency

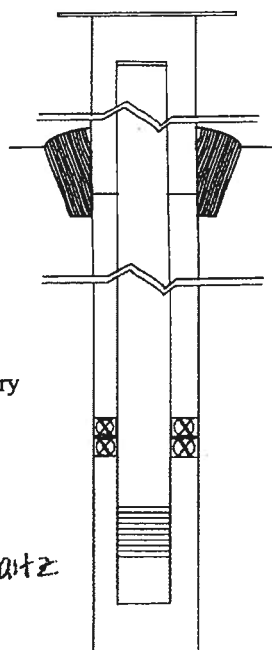
Well Completion Report

Site Number: 1194280002 County: Madison
 Site Name: Closed Collinsville Landfill Well #: MW7
 State: _____ Borehole #: MW7
 Plane Coordinate: X 729434 Y 2360086 (or) Latitude: _____ Longitude: _____

Surveyed by: Sherbut-Carson-Claxton, LLC IL Registration #: Nancy Dickens
IL LPA # 196-000573
 Drilling Contractor: Harriss Drilling Driller: Chad Dutton
 Consulting Firm: Tetra Tech Geologist: Nancy Dickens
 Drilling Method: Hollow Stem Auger Drilling Fluid (Type): None
 Logged By: Danielle Schmieg/Nancy Dickens Date Started: 10/30/06 Date Finished: 10/30/06
 Report Form Completed By: Danielle Schmieg/Nancy Dickens, LAG Date: 10/30/06

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete
 Type of Annular Sealant: Bentonite Chips
 Installation Method: Slow Pouring
 Setting Time: Hydrated Overnight - No Water Added
 Type of Bentonite Seal - (Granular) Pellet, Slurry
 (Choose One)
 Installation Method: Slow Pouring
 Setting Time: Hydrated Overnight - No Water Added
 Type of Sand Pack: Unimin Industrial Quartz
 Grain Size: 1 (Sieve Size)
 Installation Method: Slow Pouring
 Type of Backfill Material: _____
 (if applicable)
 Installation Method: _____



Elevations (MSL)*	Depths (BGS)	(.01ft.)
515.10'	0.00	Top of Protective Casing
514.86'	-0.24'	Top of Riser Pipe
515.10'	0.00	Ground Surface
514.10'	1.00'	Top of Annular Sealant
513.40'	1.40' TOC 1.04' BGL	Static Water Level <u>Artesian</u> (After Completion)
514.10'	1.00'	Top of Seal
494.10'	21'	Top of Sand Pack
491.11'	23.75' TOC 23.99' BGL	Top of Screen
481.11'	33.75' TOC 33.99' BGL	Bottom of Screen
480.86'	34' TOC 34.24' BGL	Bottom of Well
481.10'	34' BGL	Bottom of Borehole

* Referenced to a National Geodetic Datum

CASING MEASUREMENTS

Diameter of Borehole (inches)	<u>2</u>
ID of Riser Pipe (inches)	<u>2</u>
Protective Casing Length (feet)	<u>1' x 0.75' diameter</u>
Riser Pipe Length (feet)	<u>23.33</u>
Bottom of Screen to End Cap (feet)	<u>0.25</u>
Screen Length (1" slot to last slot) (feet)	<u>10</u>
Total Length of Casing (feet)	<u>33.33</u>
Screen Slot Size **	<u>0.010</u>

**Hand-Slotted Well Screens are Unacceptable

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other