Mallard North Landfill Status Meeting
February 25, 2010

US EPA RECORDS CENTER REGION 5
469676

Completed Activities/Activities In-Progress

- Balancing and fine-tuning of LFGCS
- Balancing of leachate collection system
- Monthly gas monitoring performed on February 22 and 23
- Evaluation of options for energy recovery from LFG
  - Solar Flare!

Planned Activities

- O&M on the leachate extraction system and LFGCS, as necessary.
- Preparation of documentation report and record drawings
- Groundwater monitoring and subsequent data evaluation

Attached Data

- Table - Gas Probe Monitoring Results (2/22-23/2010)
- Figure – Methane Detections (February 2010 Monitoring Round)
- Table - Gas probes With Significant Methane Detections
- Table – Landfill Gas/Leachate Monitoring
- Table – Liquid Pumping Volumes and Rates
- Table – Southcentral/Blower Flare Summary
- Table – Northwest/Blower Flare Summary

Southcentral Blower/Flare Summary
Mallard North Landfill
Hanover Park, Illinois

Date	2/4/2010	2/8/2010	2/8/2010	2/10/2010	2/15/2010	2/17/2010	2/17/2010	2/23/2010	2/24/2010
Time		9:30	9:45	13:15	7:30	8:50	10:45	11:55	12:12
Blower Inlet Vacuum (in H_2O)	3.1	3	4	4.3	Frozen	2.9	NR	2.8	2.4
Inlet Valve (Turns) Open / 6	6/6	6/6	6/6	6/6	6/6	6/6	NR	6/6	6/6
Gas Inlet Temperature (°F)	32	38	NR	38	30	36	NR	48	45
Blower Outlet Pressure (in H_2O)	0.34	NR	NR	0.5	0.5	0.4	NR	0.65	0.5
Orifice Plate DP (in H_2O)	0.04	0.05	0.06	0.03	0.03	0.03	NR	0.03	0.04
Approximate Flow (scfm)	10	12	13	9	9	9	NR	9	11
% CH_4	49.7	59.1	NR	52.3	24	24.9	21.3	30.1	21.4
% CO_2	24.3	23.4	NR	24.7	15.1	14.5	11.1	15.9	11.4
% O_2	2.7	3.1	NR	2.7	6.3	7.9	10.4	6.6	9.7
% Balance Gas	23.3	14.4	NA	20.3	54.6	52.7	57.2	47.4	57.5
Combustion Temperature(°F)	491	826	NR	1045	804	946	1151	1104	1009
Blower SPD%	NR	30	35	35	30	30	NR	30	30
Blower Hours	134	156	NR	180	235	252	NR	58[1]	73
Blower Cycles	58	60	NR	61	78	86	NR	26	4
Air Compressor Pressure (psi)	NR	140	NR	155	150	160	NR	150	85 (flux.)
Well Field Air Pressure (psi)	NR	78	NR	80	80	75	NR	80	78
Approx. Leachate Tank Level	NR	NR	NR	NR	NR	NR	NR	84.75 in	28 in.
Comments					Blower outlet pressure fluctuating.				

Notes:
NA = not available
NR = not recorded
[1] Cycle counter was reset to zero on 2/19/2010 at 15:00.

Created by: E. Watruba, 2/24/10
Checked by: J. Schoephoester, 2/24/10

Northwest Blower/Flare Summary
Mallard North Landfill
Hanover Park, Illinois

Date	2/4/2010	2/5/2010	2/8/2010	2/8/2010	2/8/2010	2/10/2010	2/15/2010	2/16/2010	2/17/2010	2/23/2010	2/24/2010
Time		13:20	12:45	13:00	14:10	14:00	8:10	11:10	8:13	12:15	12:45
Blower Inlet Vacuum (in H_2O)	2.2	1.7	1.8	3	3.6	4	Frozen	3.8	NR	3.8	3.8
Inlet Valve (Turns) Open / 6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
Gas Inlet Temperature (°F)	82	84	85	NR	NR	72	81	84	84	88	88
Blower Outlet Pressure (in H_2O)	0.54	0.5	NR	NR	NR	1.1	1.3	1	NR	1.65	1.4
Orifice Plate DP (in H_2O)	0.04	0.02	0.09	NR	0.13	0.08	0.02	0.06	NR	0.13	0.1
Approximate Flow (scfm)	10	8	16	NR	19	15	8	13	NR	19	16
% CH_4	47.7	52.5	66.1	NR	NR	53.7	57.6	47.3	48.0	44.1	44.0
% CO_2	27.8	32.9	26.7	NR	NR	29.1	33.7	26.7	28.6	27.0	27.2
% O_2	2.5	2.5	3	NR	NR	1.6	0	1.2	0.6	2.8	2.4
% Balance Gas	22	12.1	4.2	NA	NA	15.6	8.7	24.8	22.8	26.1	26.4
Combustion Temperature(°F)	1124	1130	1070	NR	NR	1080	724	1128	980	945	1042
Blower SPD%	NR	30	30	40	45	45	45	45	45	45	45
Blower Hours	193	211	237.5	NR	NR	268	324	341	354	48[1]	62
Blower Cycles	14	14	15	NR	NR	15	17	17	17	3	3
Air Compressor Pressure (psi)	NR	140	NR	NR	NR	NR	150	NR	160	NR	NR
Well Field Air Pressure (psi)	NR	78	NR	NR	NR	NR	80	NR	75	NR	NR
Approx. Leachate Tank Level	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	28
Comments							Blower outlet pressure fluctuating.			Opened EWL-11 2 turns to support G-116; opened UAV-6 1 turn to support GP-37A; opened GEW-2 2 turns to support GP-4C.	

Notes:
NA = not available
NR = not recorded
[1] Cycle counter was reset to zero on 2/19/2010 at 15:00.

Created by: E. Watruba, 2/24/10
Checked by: J. Schoephoester, 2/24/10

Landfill Gas/Leachate Monitoring
Mallard North Landfill
Hanover Park, Illinois
Sheet 1 / 3

Date:	2/8/2010					
Person (s) sampling	Jason Schoephoester		Weather Conditions:	Partly Cloudy		
Ambient Temperature:	34	°F	Ground Conditions:	Some snow cover, soft		
Barometric Pressure:	30.2	in. Hg	Gas/O_2 Meter Model:	GEM 2000	Serial #:	GM08700
Trend in barometric pressure:	falling		Date Last Calibrated:	2/8/2010		

Notes: Both flares were restarted @ 8 am on 2/8/10. A full leachate tank had shut the flares down over the weekend.
EWL-2 had been frozen, so liquid was backed up in the drain from DL-1. The backed up liquid was blocking header vacuum to wells EWL-2, SV-12, DV-3, and DV-6. Vacuum has been restored to these eastern wells and a full round a well monitoring is being performed on 2/24/10.

	Blower/Flare Data					
	Southcentral	Southcentral		Northwest	Northwest	Northwest
Date / Time / Location	9:30 AM	9:45 AM		12:45 PM	1:00 PM	2:10 PM
Blower Inlet Vacuum (in H_2O)	3	4		1.8	3	3.6
Inlet Valve (Turns) Open / 6	6/6	6/6		6/6	6/6	6/6
Gas Inlet Temperature (°F)	NR	NR		85	NR	NR
Blower Outlet Pressure (in H_2O)	NR	NR		NR	NR	NR
Orifice Plate DP (in H_2O)	0.05	0.06		0.09	NR	0.13
Approximate Flow (scfm)	12	13		16	NR	19
% CH_4	59.1	NR		66.1	NR	NR
% CO_2	23.4	NR		26.7	NR	NR
% O_2	3.1	NR		3	NR	NR
% Balance Gas	14.4	NA		4.2	NA	NA
Combustion Temperature(°F)	826	NR		1070	NR	NR
Blower SPD%	30	35		30	40	45
Blower Hours	156	NR		237.5	NR	NR
Blower Cycles	60	NR		15	NR	NR
Air Compressor Pressure (psi)	140	NR		NR	NR	NR
Well Field Air Pressure (psi)	78	NR		NR	NR	NR
Approx. Leachate Tank Level						
Comments						

Landfill Gas/Leachate Monitoring
Mallard North Landfill
Hanover Park, Illinois Sheet 2/3

(Early Feb)

Date: 2/8/10

Location	Well Side Pressure[1]		Header Side Pressure [1]					Temperature (°F)	Orifice Plate DP[1]		Approx. Post-Adjustment Flow Rate (cfm)	Valve Turns Open		Liquid Level (ft BTOC)
	I	P	I	% CH_4	%CO_2	%O_2	%Balance		I	P		I	P	
NORTHWEST WELLS														
DV-1	-2.8	NR	-2.8	68.6	30.1	0	1 3	43	0.9	1	3	2.5	3.5	NR
DV-8	-2.5	NR	-2.6	72.5	26.8	0	0.7	40	1.3	1.45	3.5	2.5	3	NR
EWL-10	-2 7	-2.8	-2.8	46.2	20	4	29.8	40	0.1	0.15	1	2.75	3.5	NR
EWL-11	-2.4	-2.7	-2.8	53.2	24.5	1.2	21.1	38	0.25	0.4	2	0.75	1.5	NR
EWL-12	-0.35	NR	-2.8	24.8	12.4	11	51.8	38	0.1	0.05	1	0.75	0.5	NR
GEW-1	-2.6	NR	-2.6	74.1	23	0	2.9	45	1.5	1.65	3.5	3	3.5	NR
GEW-2	-2.6	NR	-2.8	71.1	28	0	0.9	40	0.1	0.15	1	2.75	3.5	NR
UAV-1	-2.8	NR	-2.8	63.5	30.9	0	5.6	40	1.8	2.1	4	3	3.5	NR
UAV-6	-1.2	NR	-2.6	43.5	17.9	6.8	31.8	44	1	0.15	1	1	0.5	NR
SOUTHCENTRAL WELLS														
DV-3[1]	NR	NR	0.35	70.1	28.2	0	1.7	NR	NR	NR	NR	NR	NR	NR
DV-6[1]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DV-12	-3.8	NR	-3.9	59.3	23.6	2.6	14.5	44	0.08	NC	1	2.5	NC	NR
DV-13	-4	NR	-4	63.4	17.6	4	15	36	0.02	NR	1	2.25	2.5	NR
EWL-2[1]	0	NR	-0.8	2.4	1.1	19.4	77.1	NR	0	NR	0	0	NC	NR
SV-12[1]	NR	NR	0.2	68.1	27.4	0	4.5	NR	NR	NR	NR	NR	NR	NR
UAV-2	0.1	-3	-4	68.4	28.1	0	3.5	38	0	0.02	1	0	0.25	NR

Notes:
I=initial reading; P= post adjustment; BTOC= below top of casing; NC= no change; FP=frozen port; NR=Not recorded
[1] Header vacuum was blocked to these well locations due to a condensate backup at EWL-2/DL-1. A complete round of well readings will be performed later in February when vacuum is restored to all well locations.

Landfill Gas/Leachate Monitoring
Mallard North Landfill
Hanover Park, Illinois
Sheet 3/3

Date:		2/8/2010							
Location	Time	Cumulative Cycles	Air Pressure (psi)	Exhaust Air Valve (% Open)	Air Valve (% Open)	Discharge Valve (% Open)	Depth to Liquid (ft. BTOC)	Liquid Level Elevation	Comments (Pump cleaned, inlet elev. change, etc.)
EWL-2 (1)	AM	693,075	60	25	NR	100	4.7	778.53	
MH-2 (2)	AM	251,841	60	50	NR	100	3.2	771.74	
SP-1 (3)	AM	381,457	60	50	NR	100	1.6	775.74	

Notes:

1 Top of ball valve elevation at EWL-2 = 783.23
2 Top of concrete at New MH-2 = 774.94, top of concrete old MH-2 = 772.58
3 Top of PVC at SP-1 is calculated to be 777.34, based on the known sump bottom elevation. The new top of casing elevation will be surveyed.

Gas Probes With Significant Methane Detections
Mallard North Landfill, Hanover Park, Illinois

ID	Date	CH4 (%)	Pressure ("H2O)	Depth to Water (ft B/TOC)	Depth to Top of Screen (ft/BTOC)	Comments
GP-2A	6/3/2009	**0.2**	NM	9.57	15.37	1st monitoring round
	6/17/2009	**0.6**	+0.10	13.00		
	7/22/2009	0.0	0.00	15.60		LCT pumps started 7/15
	7/29/2009	**3.0**	+0.10	14.53		
	8/4/2009	**2.9**	0.00	15.65		
	8/17/2009	**13.8**	+0.10	13.45		
	9/29/2009	**31.9**	0.00	16.91		
	10/19/2009	**31.1**	-0.20	14.36		
	11/17/2009	**13.5**	0.00	15.78		
	12/10/2009	**6.1**	0.00	14.23		
	1/27/2010	0.0	0.00	13.58		LFGCS started 1/22/10
	2/22/2010	0.0	0.00	13.47		
GP-2B	6/3/2009	**0.6**	NM	12.97	28.60	1st monitoring round
	6/17/2009	0.0	+0.20	6.90		
	7/22/2009	**0.2**	+0.10	11.00		LCT pumps started 7/15
	7/29/2009	0.0	+0.20	10.47		
	8/4/2009	0.0	0.00	11.06		
	8/17/2009	0.0	0.00	11.89		
	9/29/2009	0.0	0.00	12.25		
	10/19/2009	**0.3**	-0.40	11.83		
	11/17/2009	**1.6**	0.00	13.09		
	12/10/2009	**2.8**	+3.40	12.42		
	1/27/2010	**0.4**	-4.00	10.84		LFGCS started 1/22/10
	2/22/2010	**0.5**	+0.6	13.11		
GP-4C	6/3/2009	**0.5**	NM	dry	30.14	1st monitoring round
	6/17/2009	**2.7**	+0.90	18.40		
	7/22/2009	**12.8**	0.00	18.40		LCT pumps started 7/15
	7/29/2009	**24.2**	+0.20	18.24		
	8/4/2009	**19.7**	0.00	18.19		
	8/17/2009	**24.3**	0.00	18.30		
	9/29/2009	**31.5**	+0.10	18.68		
	10/19/2009	**22.0**	+0.60	18.92		
	11/17/2009	**25.4**	0.00	19.93		
	12/10/2009	**5.1**	0.00	19.96		
	1/27/2010	**7.7**	0.00	18.69		LFGCS started 1/22/10
	2/22/2010	**7.5**	+7.6	18.58		
GP-15A	1/27/2010	**2.4**	+10.00	3.21	10.40	LFGCS started 1/22/10
	2/22/2010	**0.3**	0.00	4.92		
GP-17	6/3/2009	**10.7**	NM	NM	13.25	1st monitoring round
	6/17/2009	**1.1**	+0.40	5.21		
	7/22/2009	0.0	+0.60	4.55		LCT pumps started 7/15
	7/29/2009	0.0	+0.20	4.15		
	8/4/2009	0.0	0.00	4.03		
	8/17/2009	0.0	0.00	3.87		
	9/29/2009	0.0	0.00	3.67		
	10/19/2009	0.0	+0.30	3.53		
	11/17/2009	0.0	0.00	4.43		
	12/10/2009	0.0	0.00	5.06		
	1/27/2010	0.0	0.00	4.36		LFGCS started 1/22/10
	2/22/2010	0.0	0.00	5.14		
GP-19	2/23/2010	**0.2**	+1.1	11.44	30.33	LFGCS started 1/22/10
GP-23B	2/23/2010	**0.3**	+1.8	12.26	20.75	LFGCS started 1/22/10
GP-26B	6/3/2009	**0.6**	NM	16.76	27.45	1st monitoring round
	6/17/2009	**0.1**	+0.10	16.67		
	7/22/2009	**1.8**	-3.00	18.54		LCT pumps started 7/15
	7/29/2009	**2.0**	-0.50	18.90		
	8/4/2009	**1.9**	-0.10	19.42		
	8/17/2009	**1.1**	0.00	20.32		
	9/29/2009	**3.4**	-2.50	20.28		
	10/19/2009	**6.4**	+3.60	20.65		
	11/17/2009	**4.6**	+0.10	18.56		
	12/10/2009	**3.9**	-4.00	17.31		
	1/27/2010	0.0	0.00	16.26		LFGCS started 1/22/10
	2/23/2010	0.0	+0.6	16.57		

Gas Probes With Significant Methane Detections
Mallard North Landfill, Hanover Park, Illinois

ID	Date	CH4 (%)	Pressure ("H2O)	Depth to Water (ft B/TOC)	Depth to Top of Screen (ft/BTOC)	Comments
GP-30B	6/3/2009	0.0	NM	dry	18.06	1st monitoring round
	6/17/2009	**13.2**	+0.10	7.83		
	7/22/2009	**17.3**	+0.20	7.92		LCT pumps started 7/15
	7/29/2009	**11.8**	-0.10	8.15		
	8/4/2009	**13.8**	+0.10	7.46		
	8/17/2009	**11.2**	0.00	6.76		
	9/29/2009	**7.0**	+0.50	7.82		
	10/19/2009	**16.0**	+0.20	9.22		
	11/17/2009	**80.0**	+0.10	10.21		
	12/10/2009	**31.5**	0.00	9.98		
	1/27/2010	**13.6**	0.00	8.30		LFGCS started 1/22/10
	2/23/2010	**5.5**	0.00	8.14		
GP-31B	6/3/2009	0.0	NM	dry	18.09	1st monitoring round
	6/17/2009	**72.8**	+0.10	15.34		
	7/22/2009	**79.6**	+0.20	16.57		LCT pumps started 7/15
	7/29/2009	**41.7**	+0.10	16.72		
	8/4/2009	**86.6**	+0.10	17.39		
	8/17/2009	**87.9**	0.00	18.21		
	9/29/2009	**68.8**	+0.10	19.07		
	10/19/2009	**38.1**	0.00	11.82		
	11/17/2009	**90.1**	0.00	19.34		
	12/10/2009	**55.6**	0.00	17.98		
	1/27/2010	**1.1**	0.40	14.06		LFGCS started 1/22/10
	2/23/2010	**12.1**	+0.20	5.42		
GP-33A	6/17/2009	**62.7**	+0.40	13.84	16.13	
	7/22/2009	**7.5**	0.00	15.50		LCT pumps started 7/15
	7/29/2009	**4.1**	+0.20	15.47		
	8/4/2009	**1.8**	0.00	15.65		
	8/17/2009	**0.6**	0.00	15.92		
	9/29/2009	0.0	0.00	15.93		
	10/19/2009	**0.2**	+0.30	14.59		
	11/17/2009	0.0	0.00	15.42		
	12/10/2009	0.0	0.00	15.02		
	1/27/2010	0.0	-9.00	13.41		LFGCS started 1/22/10
	2/22/2010	0.0	+0.20	13.74		
GP-37A	6/17/2009	**0.2**	0.00	13.03	15.91	1st monitoring round
	7/22/2009	0.0	0.00	11.15		
	7/29/2009	**0.1**	0.00	11.40		LCT pumps started 7/15
	8/4/2009	0.0	+0.20	11.46		
	8/17/2009	0.0	0.00	11.69		
	9/29/2009	0.0	0.00	12.19		
	10/19/2009	0.0	0.00	12.42		
	11/17/2009	**2.7**	0.00	13.23		
	12/10/2009	**4.8**	0.00	13.35		
	1/27/2010	**9.1**	0.00	12.37		LFGCS started 1/22/10
	2/23/2010	**12.0**	0.00	12.42		
G-113	5/7/2009	0.0	0.00	11.43	17.86	
	6/3/2009	0.0	0.00	12.11		
	6/17/2009	0.0	0.00	12.00		
	7/22/2009	0.0	0.00	NR		LCT pumps started 7/15
	8/17/2009	**12.3**	-0.10	NR		
	10/14/2009	0.0	0.00	12.80		
	10/19/2009	**0.5**	+0.20	NR		
	11/17/2009	0.0	0.00	NR		
	12/10/2009	0.0	+0.20	NR		
	1/27/2010	0.0	0.40	NR		LFGCS started 1/22/10
	2/23/2010	0.0	+0.20	NR		

Gas Probes With Significant Methane Detections
Mallard North Landfill, Hanover Park, Illinois

ID	Date	CH4 (%)	Pressure (" H2O)	Depth to Water (ft B/TOC)	Depth to Top of Screen (ft/BTOC)	Comments
G-116	5/7/2009	**76.1**	+24.00	12.24	36.89	1st monitoring round
	6/3/2009	**80.0**	+9.50	12.26		casing likely cracked at
	6/17/2009	**65.1**	0.00	11.90		~12' B/TOC
	7/22/2009	**73.0**	+0.10	NM		LCT pumps started 7/15
	7/29/2009	**73.4**	+0.10	12.72		
	8/4/2009	**73.9**	NM	12.93		
	8/17/2009	**67.6**	0.00	13.28		
	9/29/2009	**75.3**	0.00	13.50		
	10/19/2009	**72.7**	+0.20	13.32		
	11/17/2009	**79.8**	0.00	14.31		
	12/10/2009	**70.1**	+0.50	13.88		
	1/27/2010	**75.6**	0.40	12.41		LFGCS started 1/22/10
	2/22/2010	**80.1**	0.00	12.55		
MW-204D East (Shallow)	2/9/2009	**30.3**	0.00	21.49	22.02	
	3/5/2009	**15.0**	0.00	21.09		
	3/11/2009	**8.6**	0.00	20.44		
	4/8/2009	**12.8**	0.00	20.07		
	5/7/2009	**23.3**	0.00	19.65		
	6/3/2009	**19.1**	0.00	18.20		
	6/17/2009	**0.4**	0.00	20.00		
	7/22/2009	**60.0**	0.00	20.65		LCT pumps started 7/15
	7/29/2009	**48.3**	0.00	20.72		
	8/4/2009	**37.8**	0.00	21.00		
	8/17/2009	**17.7**	0.00	21.91		
	9/29/2009	**10.7**	0.00	23.86		
	10/19/2009	**57.5**	+0.10	22.80		
	11/17/2009	**35.2**	0.00	18.26		
	12/10/2009	**52.8**	0.00	21.88		
	1/27/2010	**34.2**	0.00	NR		LFGCS started 1/22/10
	2/23/2010	**42.2**	0.00	19.42		

NM= not measured
NR = not recorded

By: B Zimmerman, 8/19/09
Checked by J. Schoephoester, 8/19/09
Updated By: J. Schoephoester, 1/27/10; E Watruba, 2/24/10
Updates Checked By: N. Braun, 2/3/10; J. Schoephoester, 2/24/10

Liquid Pumping Volumes and Rates
Mallard North Landfill, Hanover Park, IL

ID	Date	Liquid Depth (ft, BTOC)	Liquid Elevation (ft, MSL)	Pump Cycle Counter Reading	Period Volume Pumped (gallons)(1)	Cumulative Volume Pumped (gallons)	Flowmeter Totalizer (Gallons)	Period Volume Pumped (gallons)(2)	Average Volume Pumped (gallons/day)	Comments
EWL-2	7/15/2009	15.35	770.91	12,604	NA	NA	NA	NA	NA	Pumps started 8:30
	7/15/2009	15.60	770.66	17,729	1,281	1,281	NA	NA	NA	
	7/29/2009	12.00	774.26	161,485	35,939	37,220	NA	NA	2,567	
	8/4/2009	14.55	771.71	217,980	14,124	51,344	10	NA	2,354	flowmeter installed
	8/17/2009	14.72	771.54	323,881	26,475	77,819	30,790	30,780	2,368	
	8/27/2009	NR	NR	419,307	23,857	101,676	58,472	27,682	2,768	
	9/11/2009	NR	NR	NR	NA	NA	98,802	40,330	2,689	
	9/14/2009	NR	NR	NR	NA	NA	105,214	6,412	2,137	
	9/29/2009	12.84	773.42	694,983	68,919	170,595	134,780	29,566	1,971	
	9/30/2009	13.09	773.17	701,168	1,546	172,141	136,420	1,640	1,640	
	10/20/2009	11.40	774.86	808,950	26,946	199,087	164,580	28,160	1,408	
	11/18/2009	12.85	773.41	1,134,398	81,362	280,449	254,880	90,300	3,114	
	12/10/2009	10.96	775.30	1,303,001	42,151	322,599	303,151	48,271	2,194	
	1/27/2010	NR	NR	1,653,759	87,690	410,289	NA	NA	1,827	flow totalizer removed, new TOC
	2/4/2010	4.91	777.90	1,656,020	565	410,854	NA	NA	71	pump frozen, thawed out
	2/5/2010	NR	NR	1,656,834	204	411,058	NA	NA	204	pump frozen, thawed out
	2/8/2010	4.69	778.12	1,693,075	9,060	420,118	NA	NA	3,020	
	2/10/2010	5.83	776.98	1,717,722	6,162	426,280	NA	NA	3,081	
	2/12/2010	NR	NR	1,731,779	3,514	429,794	NA	NA	1,757	
	2/19/2010	7.05	776.18	1,838,776	26,749	456,543	NA	NA	3,821	Pump raised,pumping rate lowered
	2/22/2010	5.50	777.73	1,847,751	2,244	458,787	NA	NA	748	
	2/24/2010	6.00	777.23	1,866,073	4,581	463,367	NA	NA	2,290	
G-115 Sump (SP-1)	7/15/2009	9.60	771.54	7,923	NA	NA	NA	NA	NA	Pumps started 8:30
	7/15/2009	9.85	771.29	10,483	640	640	NA	NA	NA	
	7/29/2009	8.70	772.44	114,354	25,968	26,608	NA	NA	1,855	
	7/30/2009	10.00	771.14	129,660	3,827	30,434	52,620	NA	3,827	flowmeter installed
	8/4/2009	9.85	771.29	165,240	8,895	39,329	61,590	8,970	1,794	
	8/17/2009	7.61	773.53	240,262	18,756	58,085	83,410	21,820	1,678	
	8/27/2009	NR	NR	300,884	15,156	73,240	99,410	16,000	1,600	
	9/11/2009	NR	NR	NR	NA	NA	123,444	24,034	1,602	
	9/14/2009	NR	NR	NR	NA	NA	127,467	4,023	1,341	
	9/29/2009	7.88	773.26	492,611	47,932	121,172	145,210	17,743	1,183	
	9/30/2009	7.65	773.49	494,466	464	121,636	145,680	470	470	
	10/20/2009	7.99	773.15	565,050	17,646	139,282	164,620	18,940	947	
	11/18/2009	9.39	771.75	790,447	56,349	195,631	221,320	56,700	1,955	
	12/10/2009	NR	NA	943,127	38,170	233,801	254,970	33,650	1,530	
	1/27/2010	1.61	775.73	1,262,285	79,790	313,591	NA	NA	1,662	totalizer removed, new TOC
	2/4/2010	4.58	772.76	1,362,850	25,141	338,732	NA	NA	3,143	
	2/5/2010	NR	NR	1,370,391	1,885	340,617	NA	NA	1,885	
	2/8/2010	1.62	775.72	1,381,453	2,766	343,383	NA	NA	922	
	2/10/2010	1.95	775.39	1,382,333	220	343,603	NA	NA	110	pump frozen, thawed out
	2/12/2010	NR	NR	1,386,697	1,091	344,694	NA	NA	546	pump frozen, thawed out
	2/19/2010	1.17	776.17	1,394,300	1,901	346,594	NA	NA	272	seep noticed, cleaned pump
	2/22/2010	2.10	775.24	1,416,771	5,618	352,212	NA	NA	1,873	

Liquid Pumping Volumes and Rates
Mallard North Landfill, Hanover Park, IL

ID	Date	Liquid Depth (ft, BTOC)	Liquid Elevation (ft, MSL)	Pump Cycle Counter Reading	Period Volume Pumped (gallons)[1]	Cumulative Volume Pumped (gallons)	Flowmeter Totalizer (Gallons)	Period Volume Pumped (gallons)[2]	Average Volume Pumped (gallons/day)	Comments
MH-2	7/15/2009	1.00	773.76	1,260	NA	NA	NA	NA	NA	Pumps started 8:30
	7/15/2009	1.30	773.46	7,005	1,436	1,436	NA	NA	NA	
	7/29/2009	3.00	771.76	NR	NR	NA	NA	NA	NA	
	7/30/2009	3.50	771.71	24,551	4,387	5,823	63,060	NA	4,387	flowmeter installed
	8/4/2009	3.60	771.61	24,856	76	5,899	63,060	0	15	
	8/17/2009	2.42	772.79	24,894	10	5,909	62,240	NA	NA	counter reset to current reading
	8/27/2009	NR	NR	24,906	3	5,912	62,240	0	0	pump off, check valve damaged
	9/8/2009	NR	NR	NR	NA	NA	63,058	818	68	
	9/14/2009	NR	NR	NR	NA	NA	63,419	361	60	
	9/29/2009	2.33	772.88	39,108	3,551	9,462	66,380	2,961	197	adjusted pump air pressure
	9/30/2009	2.74	772.47	49,539	2,608	12,070	69,010	2,630	2,630	
	10/20/2009	2.42	772.79	92,726	10,797	22,867	79,640	10,630	532	
	11/18/2009	4.15	771.06	123,722	7,749	30,616	87,280	7,640	263	
	12/10/2009	3.95	771.26	126,700	745	31,360	87,990	710	32	pump frozen, thawed out
	1/27/2010	3.44	771.50	199,716	18,254	49,614	NA	NA	380	totalizer removed, new TOC
	2/4/2010	3.32	771.62	235,688	8,993	58,607	NA	NA	1,124	seep noticed
	2/5/2010	NR	NR	247,728	3,010	61,617	NA	NA	3,010	
	2/8/2010	3.21	771.73	251,841	1,028	62,645	NA	NA	343	pump frozen
	2/10/2010	3.86	771.08	259,868	2,007	64,652	NA	NA	1,003	
	2/12/2010	NR	NR	281,358	5,373	70,025	NA	NA	2,686	
	2/19/2010	3.50	771.44	297,081	3,931	73,955	NA	NA	562	pump frozen, thawed,cleaned pump
	2/22/2010	3.46	771.48	344,840	11,940	85,895	NA	NA	3,980	
	2/24/2010	3.75	771.19	373,985	7,286	93,181	NA	NA	3,643	
					Total System Gallons Pumped	908,761			4,922	Average Daily Volume (gal/day Since Startup)

NA = not applicable
NR= not recorded
Notes:
1. Gallons pumped calculated from pump cycle counts. Based on manufacturer's information, each cycle pumps approximately 0.25 gallons of liquid
2. Gallons pumped based on the flowmeter totalizer reading.

Created by: J. Schoephoester, 2/1/10 Updated by: J. Schoephoester, 2/24/10
Checked by: N. Braun, 2/3/10 Updates checked by: N. Braun, 2/24/10

Gas Probe Monitoring
Mallard North Landfill, Hanover Park, Illinois

Monitored By: J. Roelke
Gas Meter: GEM 2000
Serial #: GM08330
Date Calibrated: 2/22 and 2/23/2010

Pressure Device: Magnehelic
Water Level Device: Water Level Indicator
Ground Conditions: Frozen, snow covered

Date: 2/22/10 and 2/23/2010
Weather: 2/22-32°F , 2/23-30°F
Barometric Pressure 2/22-29.79" Hg rising
2/23-29.88" Hg rising

ID	Date	Depth to Water (ft btoc)	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Pressure (" H_2O)	Notes/Conditions
GP 1	2/22/2010	19.41	0.0	0.1	19.2	80.7	0.0	
GP 33A	2/22/2010	13.74	0.0	0.9	19.0	80.1	0.2	
GP 33B	2/22/2010	13.11	0.0	2.5	18.7	78.8	0.0	
G 116	2/22/2010	12.55	80.1	19.9	0.0	0.0	0.0	
GP 2A	2/22/2010	13.47	0.0	0.5	19.1	80.4	0.0	
GP 2B	2/22/2010	13.11	0.5	1.1	18.7	79.7	0.6	
GP 34A	2/22/2010	7.34	0.0	0.3	18.6	81.1	0.2	
GP 34B	2/22/2010	15.14	0.0	0.2	19.0	80.8	0.6	
GP 3	2/22/2010	6.23	0.0	0.3	19.1	80.6	0.0	
GP 4A	2/22/2010	NM	0.0	1.1	18.8	80.1	0.0	
GP 4B	2/22/2010	11.24	0.0	2.6	18.2	79.2	10.2	
GP 4C	2/22/2010	18.58	7.5	3.5	16.8	72.2	7.6	
GP 5	2/22/2010	17.68	0.0	0.2	18.8	81.0	0.0	
P 1A	2/22/2010	19.94	0.0	0.0	19.3	80.7	0.0	
GP 6	2/22/2010	10.84	0.0	0.3	19.0	80.7	0.0	
GP 7A	2/22/2010	11.87	0.0	3.1	16.5	80.4	0.0	
GP 7B	2/22/2010	12.42	0.0	0.1	19.1	80.8	0.0	
GP 8A	2/22/2010	6.81	0.0	0.1	19.2	80.7	0.0	
GP 8B	2/22/2010	12.82	0.0	0.0	19.1	80.9	0.4	
P 3A	2/22/2010	4.77	0.0	1.9	18.2	79.9	0.0	
GP 9A	2/22/2010	6.56	0.0	1.2	18.3	80.5	-1.4	
GP 9B	2/22/2010	20.08	0.0	0.1	19.0	80.9	0.8	
P 4C	2/22/2010	6.34	0.0	2.1	16.2	81.7	0.0	
GP 10A	2/22/2010	9.20	0.0	3.9	13.4	82.7	0.0	
GP 10B	2/22/2010	10.05	0.0	2.7	18.0	79.3	-0.4	

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ID	Date	Depth to Water (ft btoc)	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Pressure (" H_2O)	Notes/Conditions
GP 10C	2/22/2010	11.46	0.0	1.0	18.7	80.3	-1.2	
P 5A	2/22/2010	8.67	0.0	0.0	19.3	80.7	0.0	
GP 11A	2/22/2010	8.76	0.0	0.0	19.3	80.7	0.0	
GP 11B	2/22/2010	9.41	0.0	0.0	19.2	80.8	0.6	
P 6C	2/22/2010	6.98	0.0	0.1	19.2	80.7	0.0	
GP 12	2/22/2010	4.41	0.0	2.7	18.1	79.2	0.8	
P 7A	2/22/2010	4.33	0.0	0.4	19.0	80.6	0.0	
P 7B	2/22/2010	4.45	0.0	0.7	18.8	80.5	0.0	
GP 13	2/22/2010	5.68	0.0	0.1	19.3	80.6	0.2	
GP 14	2/22/2010	6.56	0.0	0.1	19.2	80.7	0.0	
G 109	2/22/2010	6.05	0.0	1.1	18.2	80.7	0.0	
GP 15A	2/22/2010	4.92	0.3	6.2	17.7	75.8	0.0	
GP 15B	2/22/2010	NM	0.0	5.6	18.1	76.3	0.0	could not remove cap
GP 28A	2/22/2010	8.49	0.0	0.6	18.8	80.6	0.0	
GP 28B	2/22/2010	4.18	0.0	0.1	19.3	80.6	0.2	
GP 28C	2/22/2010	4.32	0.0	2.1	18.4	79.5	0.2	
GP 16A	2/22/2010	5.71	0.0	0.2	19.1	80.7	-0.8	
GP 16B	2/22/2010	3.91	0.0	0.0	19.3	80.7	-0.6	
GP 16C	2/22/2010	6.46	0.0	0.0	19.3	80.7	0.0	
GP 29A	2/22/2010	5.54	0.0	0.4	18.9	80.7	-0.4	
GP 29B	2/22/2010	9.91	0.0	0.2	19.0	80.8	0.0	
G110	2/22/2010	8.92	0.0	1.4	17.5	81.1	0.0	
GP 17	2/22/2010	5.14	0.0	0.1	19.2	80.7	0.0	
GP 18	2/22/2010	8.37	0.0	0.3	19.0	80.7	0.0	
GP 19	2/23/2010	11.44	0.2	0.8	18.6	80.4	1.1	
GP 20	2/23/2010	5.02	0.0	0.2	19.8	80.0	1.0	
GP 21A	2/23/2010	7.07	0.0	0.1	19.9	80.0	0.0	
GP 21B	2/23/2010	10.72	0.0	0.1	20.0	79.9	0.2	
GP 22A	2/23/2010	NM	0.0	0.0	20.2	79.8	0.2	Probe pulls up
GP 22B	2/23/2010	19.59	0.0	0.1	20.0	79.9	0.6	
GP 30A	2/23/2010	3.67	0.0	0.3	20.0	79.7	-1.6	
GP 30B	2/23/2010	8.14	5.5	1.9	18.2	74.4	0.0	

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ID	Date	Depth to Water (ft btoc)	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Pressure (" H_2O)	Notes/Conditions
MW 204 East	2/23/2010	19.42	42.2	6.3	4.2	47.3	0.0	
MW 204 West	2/23/2010	25.08	0.0	0.0	19.6	80.4	0.0	
GP 23A	2/23/2010	4.51	0.0	0.4	19.8	79.8	0.2	
GP 23B	2/23/2010	12.26	0.3	1.3	19.1	79.3	1.8	
GP 24A	2/23/2010	6.52	0.0	0.1	20.1	79.8	-0.2	
GP 24B	2/23/2010	14.86	0.0	0.4	19.9	79.7	0.0	
GP 25A	2/23/2010	5.02	0.0	0.4	18.7	80.9	2.4	
GP 25B	2/23/2010	19.50	0.0	0.2	19.1	80.7	-1.2	
GP 31A	2/23/2010	6.68	0.0	0.1	19.4	80.5	0.0	
GP 31B	2/23/2010	5.42	12.1	0.9	16.7	70.3	0.2	
GP 26A	2/23/2010	7.21	0.0	1.2	19.0	79.8	2.8	
GP 26B	2/23/2010	16.57	0.0	0.1	19.5	80.4	0.6	
GP 27A	2/23/2010	5.38	0.0	0.0	19.7	80.3	1.0	
GP 27B	2/23/2010	20.02	0.0	0.1	19.2	80.7	1.0	
GP 35A	2/23/2010	4.98	0.0	0.0	19.6	80.4	5.6	
GP 35B	2/23/2010	8.68	0.0	0.0	19.6	80.4	0.0	
G 113	2/23/2010	NM	0.0	4.6	17.9	77.5	0.2	could not remove cap
G 121	2/23/2010	NM	0.0	0.6	18.5	80.9	0.0	could not remove cap
GP 32A	2/22/2010	11.58	0.0	0.2	19.0	80.8	0.0	
GP 32B	2/22/2010	12.77	0.0	0.6	19.0	80.4	0.4	
GP 37A	2/22/2010	12.42	12.0	3.8	16.2	68.0	0.0	
GP 37B	2/22/2010	12.93	0.0	0.6	18.2	81.2	0.0	

NR = Not recorded.
NA=Not applicable.

Updated By: E. Watruba, 2/24/10
Checked by: J. Schoephoester, 2/24/10

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HAWK HOLLOW PRESERVE

LDE-5 (TERMINATE OPERATION)

DISCOVERY PARK

LDE-7 24.0 CP47 27.6

LDE-10 3.6

LDE-11 1.4

LDE-4 78.7

LDE-3 1.0 21.1

LDE-8 3.7

LDE-9 8.1

LDE-12 15.3

LDE-2 8.2

LDE-1 1.2

CP26 60.1

CP20D 42.7

CP18 10.8

CP16 18.5

CP32 12.9

CP2 19.8

CP30S 4.2

CP33S 1.8

CP5 5.2

CP1 ND

P2A-F 29.9

VC-3 34.3

VC-1 16.0

W. E. 799.8

LEGEND

- G52S — G52S GROUNDWATER MONITORING WELL
- B# — EXISTING BOREHOLE LOCATIONS
- GP-X GMP-# — EXISTING LANDFILL GAS MONITORING PROGRAM PROBE
- G# — EXISTING GROUNDWATER MONITORING WELL
- CP25 ND — EXISTING CONE PENETROMETER; % METHANE, FEBRUARY 21&22, 2010; ND = NON-DETECT NM = NOT MEASURED
- CP12-D — 2" MONITORING PROBE
- GAS EXTRACTION WELLS
- MAXIMUM POSSIBLE EXTENT OF METHANE DETECTION
- CP18 12.0 — METHANE CONCENTRATIONS, %
- ND — NO METHANE DETECTED
- [ND] — DATA FROM QUARTERLY READINGS
- NM — NOT MEASURED
- APPROXIMATE AREA OF METHANE FROM ND TO 2.5% = 531,413 SQ. FT. (12.2 ACRES)
- APPROXIMATE AREA OF METHANE FROM 2.5% TO 50% = 1,052,896 FT. (24.2 ACRES)
- APPROXIMATE AREA OF METHANE FROM 50% AND ABOVE = 12,807 SQ. FT. (0.29 ACRES)
- CP1 — CURRENT HOSE EXTRACTION LOCATION, EXTRACTION VALUE FOR METHANE SHOWN
- * — MOBILE ENGINE CONNECTION LOCATION
- CP38 ND — ONE-WAY VALVE FOR AIR INTAKE LOCATION

NOTES:

1. PROPOSED LARGE DIAMETER EXTRACTION WELL RADIUS OF INFLUENCE APPROXIMATELY 450 FT.
2. GAS MONITORING RESULTS BASED ON FEBRUARY 21&22, 2010 READINGS TAKEN BY AECOM.

WEATHER CONDITIONS AT DuPAGE COUNTY AIRPORT:

FEBRUARY 21, 2010: (7 A.M. – 5 P.M.) TEMPERATURES RANGED FROM 32° TO 37°F; BAROMETRIC PRESSURE RANGED FROM 30.08 TO 29.92; SKIES WERE CLOUDY WITH LIGHT SNOW IN P.M. WITH N–NE WINDS FROM 5–13 MPH

FEBRUARY 22, 2010: (7 A.M. – 5 P.M.) TEMPERATURES RANGED FROM 32° TO 34°F; BAROMETRIC PRESSURE RANGED FROM 29.73 TO 29.79; SKIES WERE CLOUDY WITH N–NW WINDS FROM 10–16 MPH

N

0 300

1" = 300'

AECOM

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Green Bay, WI 54311

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MALLARD LAKE LANDFILL
OFF SITE GAS COLLECTION SYSTEM UPDATE - FEBRUARY 21&22, 2010
DuPAGE COUNTY
HANOVER PARK, ILLINOIS
CURRENT METHANE LEVELS AND GAS EXTRACTION PLAN

Issued

Rev	Date	Description

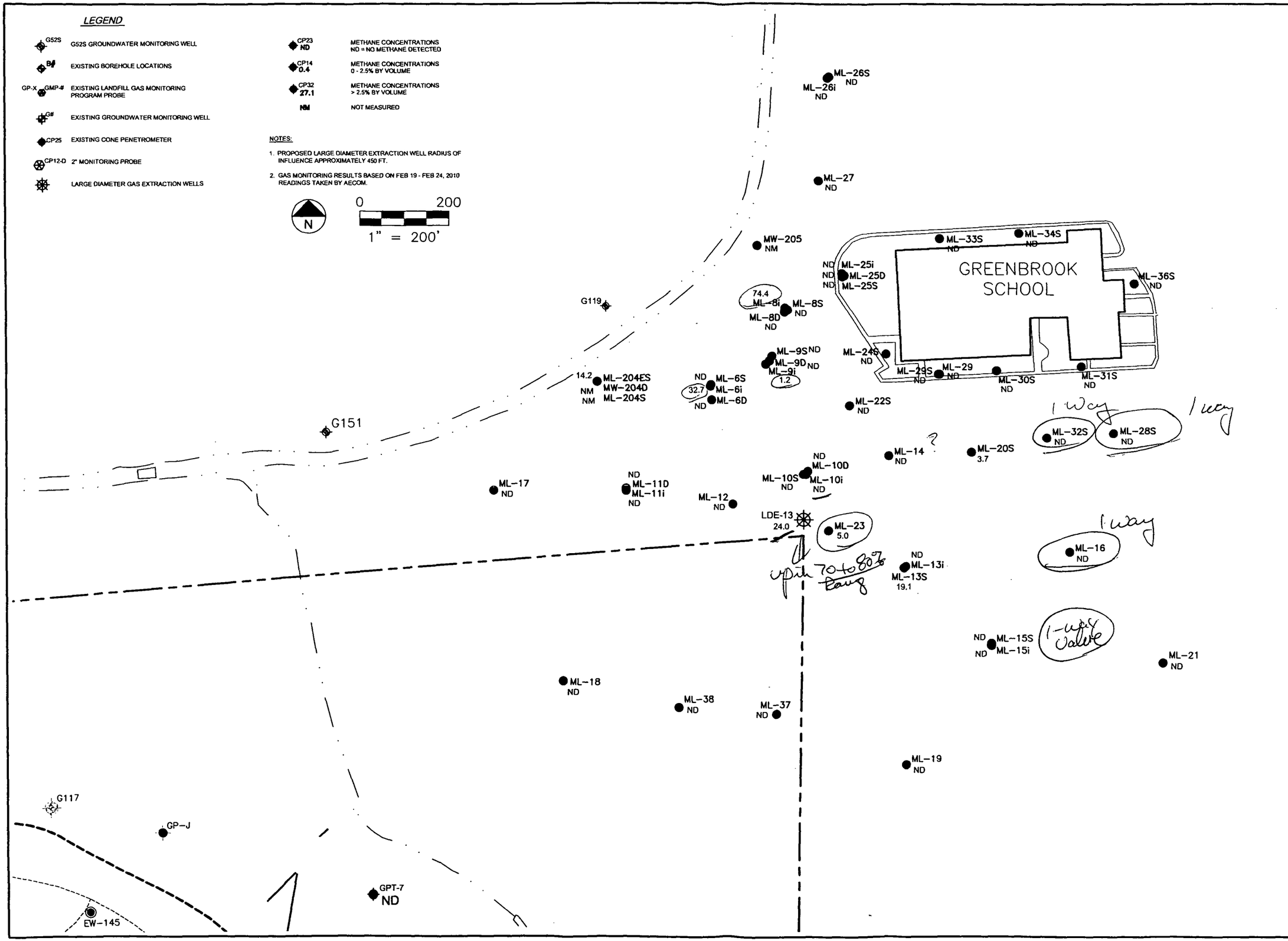
Designed:
Drawn: KJC 2/24/10
Checked: KJC 2/24/10
Approved: MGR 2/24/10

PROJECT NUMBER
60139758

SHEET REFERENCE NUMBER

February 21&22, 2010

X:\PROJECTS\200704805\Methane\dwg\21_Methane Monitoring_Feb_21-22_2010.dwg; 2/24/2010 4:42:01 PM; CURTIN, KEVIN J.; STS.stb



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920.468.1978
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QUARTERLY METHANE CONCENTRATIONS
SCHOOL AREA INVESTIGATION, FEB 19 - FEB 24, 2010

MALLARD LAKE LANDFILL
DuPAGE COUNTY
HANOVER PARK, ILLINOIS

Drawn:	RLD	2/24/2010
Checked:	KJC	2/24/2010
Approved:	MGR	2/24/2010
PROJECT NUMBER	60139758	
FIGURE NUMBER	4	

X:\PROJECTS\200704805\Methane\dwg\Quarterly_Methane_Feb-19_Feb-24_2010.dwg: 2/24/2010 6:14:10 PM; DUCKART, RYAN; STS.stb