PATRICK
ENGINEERING

May 17, 2012

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Subject: Quarterly Groundwater Monitoring Results –First Quarter 2012
Powerton Generating Station – Bypass Cleaning Basin
Water Pollution Control Permit No. 2010-EB-0664

Reference: Patrick Project No. 21253.022

To Whom It May Concern:

Patrick Engineering Inc. (Patrick) has prepared this letter report, on behalf of Midwest Generation, LLC, to provide groundwater monitoring results associated with the Powerton Generating Facility located at 13082 East Manito Road in Pekin, Illinois. Groundwater is monitored quarterly in the vicinity of the bypass cleaning basin at this facility in three monitoring wells in accordance with requirements of Illinois Environmental Protection Agency (Illinois EPA) Water Pollution Control Permit No. 2010-EB-0664.

MONITORING WELL INSTALLATION

In accordance with the permit referenced above, three monitoring wells (MW-9, MW-11, and MW-12) have been installed in the vicinity of the bypass cleaning basin. The locations of these wells were selected so that at least one of the monitoring wells (MW-09) was installed downgradient of the basin, based upon available data regarding the expected groundwater flow direction. Figure 1 shows the location of the three monitoring wells. Drilling logs and well completion reports have been included as Attachment A.

GROUNDWATER SAMPLING

Prior to collecting groundwater samples from the three wells noted above, a number of field measurements were collected from each well location, including groundwater elevation, temperature, conductivity, and pH. Groundwater elevation data is summarized in Table 1. Other field parameter data is provided in Table 2.

On March 19, 2012, groundwater samples were collected from each of the three on-site monitoring wells, by the direct use of a peristaltic pump. Each well was purged until at least three well volumes had been extracted, or until the groundwater was observed to be clear. Groundwater was pumped or bailed into a decontaminated, stainless steel container and thereafter transferred to sample containers via peristaltic pump. All groundwater samples were filtered in the field using a disposable, 0.45µm, in-line filter to allow for the analytical testing of

COMP. Ex. 24E

dissolved compounds. The samples were immediately placed on ice in a cooler and kept at a temperature no higher than 4° F. The samples were transported to PDC Laboratories, an Illinois-EPA accredited analytical laboratory, in accordance with chain-of-custody procedures to maintain sample integrity.

ANALYTICAL RESULTS

The groundwater samples were analyzed for all of the inorganic compounds listed in 35 Illinois Administrative Code (IAC) 620.410(a) and 620.410(d), including radium 226/228. Analytical results (both current and historical) are summarized in Table 3. Laboratory analytical reports provided by PDC Laboratories are provided as Attachment B.

In accordance with Water Pollution Control Permit No. 2010-EB-0664, these three wells will continue to be sampled and reported on a quarterly basis for at least one year to establish a statistically valid representation of existing background conditions.

If you have any questions, please contact me at 630-795-7464.

Sincerely,

PATRICK ENGINEERING INC.

Richard M. Frendt, P.E
Senior Project Manager

RMF/DCM
Enclosures: Figure 1: Monitoring Well Location Map
Table 1: Groundwater Elevation Data
Table 2: Field Parameter Data
Table 3: Groundwater Analytical Results
Attachment A: Boring Logs/Well Completion Reports
Attachment B: Laboratory Analytical Results

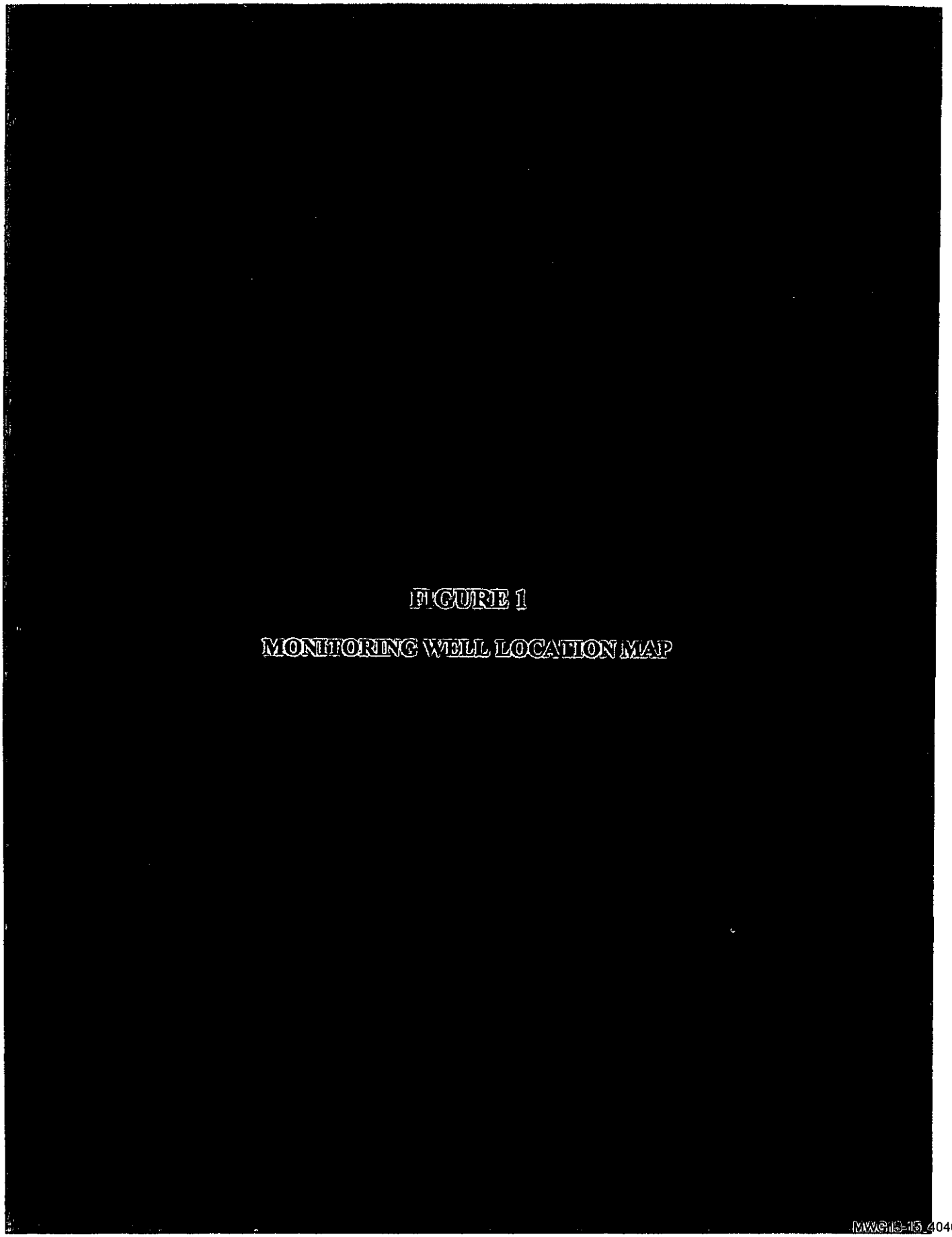
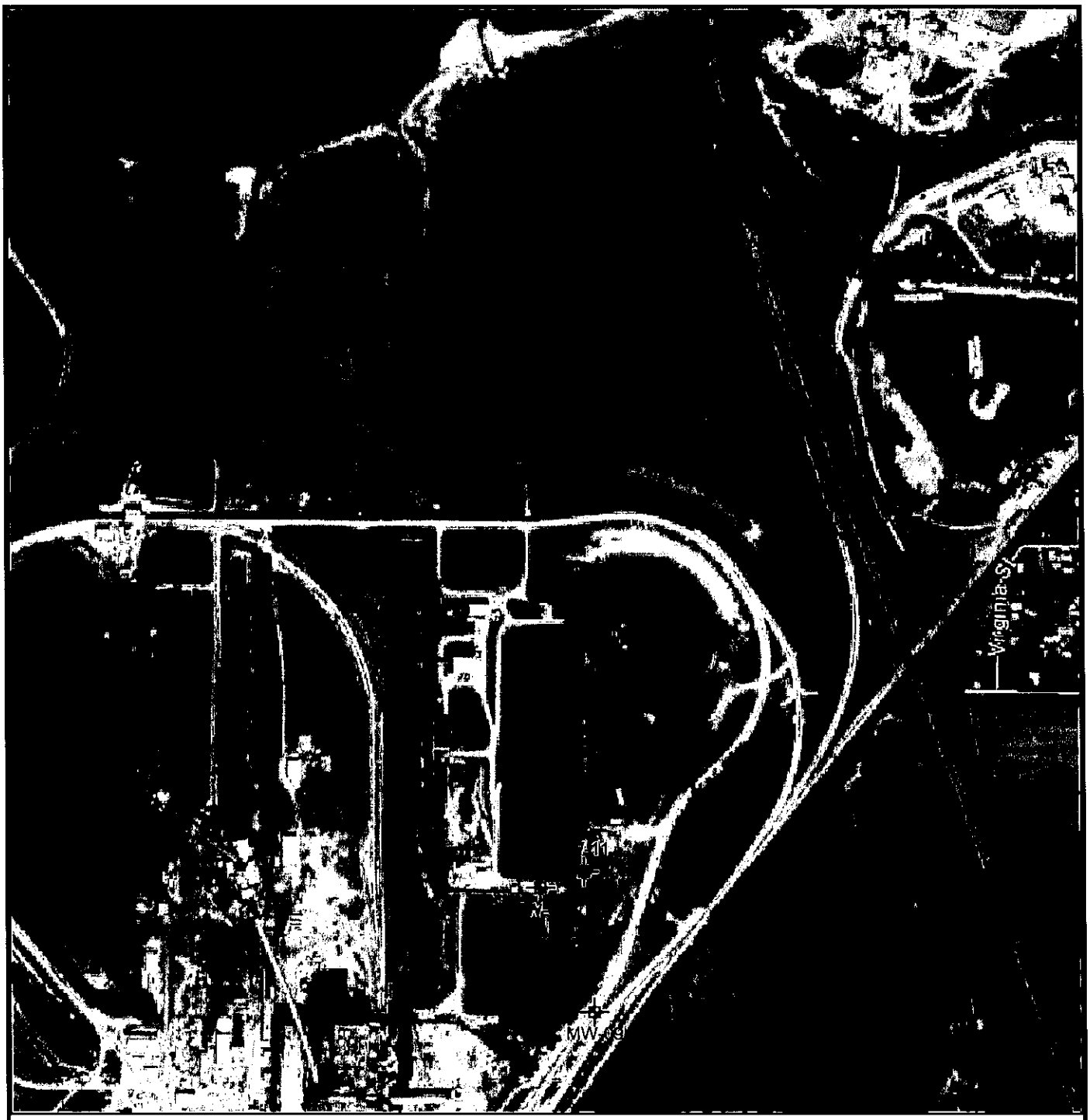


FIGURE 1

MONITORING WELL LOCATION MAP

MWG13-15_4046



LEGEND

MW-12 Monitoring Well Location

N

AERIAL IMAGE SOURCE:
2005 ORTHOPHOTO TAKEN FROM THE ILLINOIS NATURAL RESOURCES CLEARINGHOUSE

1" = 600'

Date: MARCH 2012	FIGURE 1 MONITORING WELL LOCATION MAP	PATRICK ENGINEERING INC.
Proj No.: 21153.022	POWERTON STATION PEKIN, ILLINOIS	4970 Varsity Drive Lisle, Illinois 60532-4101 TEL. (630) 795-7200 FAX (630) 724-1681
App. By: RMF		PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000409

MWG13-15_4047

TABLE 1

GROUNDWATER ELEVATION DATA

Table 1
BYPASS BASIN
GROUNDWATER ELEVATION DATA
Powerton Station, Pekin, Illinois
Midwest Generation
21153.018

PATRICK ENGINEERING	Groundwater Elevation Data							
Monitoring Well	Date	Water Elevation (Feet)	Depth to Water Pre-Sampling (Feet bmp)	Depth to Water Post Sampling (Feet bmp)	Water Elevation Post Sampling (bmp)	Depth to Bottom of Well (Feet)	Ground Elevation (Feet)	Top of Riser Elevation (Feet)
MW-09	2/15/2011	443.416	25.77	25.80	443.386	35.13	466.214	469.186
	6/16/2011	449.306	19.88	19.89	449.296	35.13	466.214	469.186
	9/19/2011	443.636	25.55	25.55	443.636	35.13	466.214	469.186
	12/12/2011	443.076	26.11	26.11	443.076	35.13	466.214	469.186
	3/19/2021	443.776	25.41	25.41	443.776	35.13	466.214	469.186
MW-11	2/15/2011	440.779	30.81	30.82	440.769	43.65	468.074	471.589
	6/16/2011	448.199	23.39	23.40	448.189	43.65	468.074	471.589
	9/19/2011	440.489	31.10	31.10	440.489	43.65	468.074	471.589
	12/12/2011	440.509	31.08	31.09	440.499	43.65	468.074	471.589
	3/19/2012	441.629	29.96	29.99	441.599	43.65	468.074	471.589
MW-12	2/15/2011	450.390	22.99	23.01	450.370	32.57	469.999	473.380
	6/16/2011	451.180	22.20	22.20	451.180	32.57	469.999	473.380
	9/19/2011	449.880	23.50	23.50	449.880	32.57	469.999	473.380
	12/12/2011	450.030	23.35	23.35	450.030	32.57	469.999	473.380
	3/19/2012	451.180	22.20	22.20	451.180	32.57	466.999	473.380

Notes: - Elevations are leveled from site control points per Drawing "Control Network, IL State Plane (West Zone) Powerton Station" revised 10/22/2010

-Elevations are shown in feet

bmp -below monitoring point

TABLE 2

FIELD PARAMETER DATA

Table 2
BYPASS BASIN
FIELD PARAMETER DATA
Powerton Station, Pekin, Illinois
Midwest Generation
21153.018

Groundwater Field Paramter Data - Powerton Station					
Monitoring Well	Date	Time	Conductance (S/cm)*	Temperature °C	pH
MW-09	2/15/2011	11:20	0.782	12.71	7.62
		11:22	0.777	12.82	7.42
		11:24	0.774	13.04	7.43
		11:26	0.771	13.21	7.36
		11:28	0.774	13.29	7.29
		11:30	0.776	13.47	7.24
MW-09	6/16/2011	13:30	0.85	16.28	7.63
		13:32	0.85	14.96	7.34
		13:34	0.84	14.78	7.24
		13:36	0.84	14.73	7.16
		13:38	0.84	14.61	7.11
		13:40	0.84	14.51	7.10
MW-09	9/19/2011	13:30	0.66	14.46	7.41
		13:32	0.66	14.38	7.35
		13:34	0.66	14.23	7.34
		13:36	0.66	14.12	7.33
		13:38	0.66	14.11	7.32
		13:40	0.66	14.08	7.32
MW-09	12/12/2011	13:14	0.66	14.11	6.53
		13:16	0.66	14.35	6.39
		13:18	0.66	14.46	6.33
		13:20	0.66	14.52	6.32
		13:22	0.66	14.52	6.3
		13:24	0.66	14.56	6.31
MW-09	3/19/2012	15:48	0.76	19.60	7.40
		15:50	0.75	18.94	7.32
		15:52	0.74	18.40	7.29
		15:54	0.73	18.16	7.32
		15:56	0.73	18.17	7.30
		15:58	0.73	18.14	7.28
MW-11	2/15/2011	9:42	1.14	13.66	7.13
MW-11	6/16/2011	14:32	1.46	17.97	7.32
		14:34	1.45	17.75	7.14
		14:36	1.45	17.67	7.08
		14:38	1.44	17.66	7.04
		14:40	1.44	17.48	7.03
		14:42	1.44	17.58	7.02
MW-11	9/19/2011	16:14	0.85	14.67	7.31
MW-11	12/12/2011	15:50	0.89	13.85	6.48
MW-11	3/19/2012	16:30	0.98	16.31	7.32
MW-12	2/15/2011	10:24	1.66	13.88	7.49
		10:26	1.66	16.33	7.51
		10:28	1.66	16.44	7.51
		10:30	1.67	16.70	7.51
		10:23	1.66	16.73	7.51
		10:34	1.66	16.77	7.51
MW-12	6/16/2011	15:14	1.65	19.33	7.41
		15:16	1.65	18.94	7.28
		15:18	1.63	18.70	7.04
		15:20	1.62	18.79	6.94
		15:22	1.63	18.66	6.95
		15:24	1.63	18.77	6.98
MW-12	9/19/2011	16:48	1.35	18.02	7.71
		16:50	1.34	17.87	7.67
		16:52	1.34	17.71	7.65
		16:54	1.34	17.73	7.65
		16:56	1.34	17.75	7.66
		16:58	1.34	17.75	7.66
MW-12	12/12/2011	16:20	1.37	17.04	7.50
		16:22	1.37	17.45	7.39
		16:24	1.37	17.59	7.37
		16:26	1.37	17.65	7.38
		16:28	1.37	17.71	7.38
		16:30	1.38	17.78	7.38
MW-12	3/19/2012	17:04	1.56	20.29	7.31
		17:06	1.56	19.87	7.24
		17:08	1.54	19.69	7.24
		17:10	1.54	19.67	7.22
		17:12	1.54	19.63	7.22
		17:14	1.54	19.62	7.22

Notes:
* (S/cm) - specific conductivity measured in Siemens/Centimeters
°C - degrees Celcius

TABLE 3

GROUNDWATER ANALYTICAL RESULTS

Table 3
BYPASS BASIN
GROUNDWATER ANALYTICAL RESULTS
Powerton Station, Illinois
Midwest Generation
21153.018

PATRICK ENGINEERING	Sample Analysis Method	Groundwater Quality Standard (mg/L)	MW-9 (mg/L)	MW-9 (mg/L)	MW-9 (mg/L)	MW-9 (mg/L)	MW-9 (mg/L)	MW-9 (mg/L)	MW-11 (mg/L)	MW-11 (mg/L)	MW-11 (mg/L)	MW-11 (mg/L)	MW-11 (mg/L)	MW-11 (mg/L)
		Class I*	12/15/10	2/15/11	9/19/11	6/16/11	12/12/11	3/19/12	12/16/10	2/15/11	9/19/11	6/16/11	12/12/11	3/19/12
Chemical Name														
Antimony	Metals 6020	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	Metals 6020	0.05	ND	ND	ND	0.0017	0.0012	ND	0.0021	0.0025	0.0016	0.0019	0.0019	0.0021
Barium	Metals 6020	2.0	0.038	0.042	0.03	0.038	0.038	0.035	0.17	0.11	0.11	0.18	0.11	0.13
Beryllium	Metals 6020	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	Metals 6020	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	Metals 6020	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	Metals 6020	1.0	ND	ND	ND	ND	ND	ND	0.0028	0.0041	ND	0.0024	ND	0.0024
Copper	Metals 6020	0.65	ND	ND	ND	ND	ND	ND	0.0032	0.0032	ND	0.0043	ND	ND
Cyanide	Dissolved 9014	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	Metals 6020	5.0	ND	0.19	ND	ND	ND	0.014	0.44	0.01	0.018	0.029	ND	ND
Lead	Metals 6020	0.0075	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese	Metals 6020	0.15	**0.19**	**0.43**	**0.14**	**0.48**	**0.28**	**0.22**	**3.2**	**3.6**	**2.2**	**2.9**	**2.5**	**2.9**
Mercury	Mercury 7470A	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	Metals 6020	0.1	0.001	0.011	0.0065	0.0063	0.0088	ND	0.019	0.016	0.011	0.013	0.013	0.011
Selenium	Metals 6020	0.05	0.005	ND	0.0043	0.0017	0.0041	0.0072	0.0026	0.0015	0.004	0.0018	0.0031	0.0039
Silver	Metals 6020	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	Metals 6020	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	Metals 6020	5.0	0.0082	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	ND
Boron	Metals 6020	2	**2.2**	1.9	**2.5**	1.9	**2.7**	2.6	1.6	1.8	1.5	1.6	1.8	2.3
Sulfate	Dissolved 9038	400	110	99	130	110	110	120	170	160	140	210	160	130
Chloride	Dissolved 9251	200	25	33	30	28	30	30	70	66	53	120	87	54
Nitrate as N	Nitrogen By calc	10	2.7	3.7	3.7	5.6	2.6	5	0.41	0.17	0.78	0.04	1.5	0.39
Total Dissolved Solids	Dissolved 2540C	1,200	510	470	500	540	520	530	740	710	620	930	730	740
Fluoride	Dissolved 4500 FC	4	ND	0.32	0.25	0.34	ND	ND	0.53	0.56	0.58	0.67	0.44	0.42
Radium 226 (pCi/L)	EPA 903.1	20	0.673	0.728	0.117	0.955	0.621	0.25	0.445	0.174	0.332	0.929	0.733	0.277
Radium 228 (pCi/L)	EPA 904.0	20	0.941	0.983	0.553	0.974	0.966	0.999	0.915	0.967	0.355	0.914	1.03	0.319

Notes:
*Class I Groundwater Standards from 35 IAC Part 620
Bold values show exceedences of 35 IAC Part 620
ND-non detect
mg/L- milligrams per Liter

Table 3
BYPASS BASIN
GROUNDWATER ANALYTICAL RESULTS
Powerton Station, Illinois
Midwest Generation
21153.018

PATRICK ENGINEERING	Sample Analysis Method	Groundwater Quality Standard (mg/L)	MW-12 (mg/L)	MW-12 (mg/L)	MW-12 (mg/L)	MW-12 (mg/L)	MW-12 (mg/L)	MW-12 (mg/L)
		Class I*	12/15/10	2/15/11	6/16/11	9/19/11	12/12/11	3/19/12
Chemical Name								
Antimony	Metals 6020	0.006	ND	ND	ND	ND	ND	ND
Arsenic	Metals 6020	0.05	0.0088	0.013	0.0064	0.0087	0.0089	0.0042
Barium	Metals 6020	2.0	0.089	0.11	0.091	0.085	0.09	0.071
Beryllium	Metals 6020	0.004	ND	ND	ND	ND	ND	ND
Cadmium	Metals 6020	0.005	ND	ND	ND	ND	ND	ND
Chromium	Metals 6020	0.1	ND	0.0056	0.0044	0.0071	0.0047	ND
Cobalt	Metals 6020	1.0	ND	ND	ND	ND	ND	ND
Copper	Metals 6020	0.65	ND	ND	0.0032	0.0036	0.0031	ND
Cyanide	Dissolved 9014	0.2	ND	ND	ND	ND	ND	ND
Iron	Metals 6020	5.0	**5.5**	**6.3**	**5.6**	**4**	3.1	4.8
Lead	Metals 6020	0.0075	ND	ND	ND	ND	ND	ND
Manganese	Metals 6020	0.15	**0.32**	**0.58**	**0.26**	**0.37**	**0.25**	0.13
Mercury	Mercury 7470A	0.002	0.0096	ND	ND	ND	ND	ND
Nickel	Metals 6020	0.1	0.0026	0.01	0.0072	0.0075	0.0091	0.0075
Selenium	Metals 6020	0.05	ND	0.0027	ND	0.0023	0.0034	0.0043
Silver	Metals 6020	0.05	ND	ND	ND	ND	ND	ND
Thallium	Metals 6020	0.002	ND	ND	ND	ND	ND	ND
Zinc	Metals 6020	5.0	ND	ND	ND	ND	ND	ND
Boron	Metals 6020	2	1.6	1.4	1.3	1.2	1.3	0.92
Sulfate	Dissolved 9038	400	290	270	350	360	300	310
Chloride	Dissolved 9251	200	170	180	180	190	210	170
Nitrate as N	Nitrogen By calc	10	ND	ND	0.14	ND	ND	0.04
Total Dissolved Solids	Dissolved 2540C	1,200	980	1,000	1,100	970	970	1,000
Fluoride	Dissolved 4500 FC	4	0.71	0.61	0.64	0.74	0.61	0.46
Radium 226 (pCi/L)	EPA 903.1	20	0.617	0.207	0.893	0.373	0.923	0.248
Radium 228 (pCi/L)	EPA 904.0	20	0.97	0.973	0.956	0.859	0.952	0.318

Notes:
*Class I Groundwater Standards from 35 IAC Part 620
Bold values show exceedences of 35 IAC Part 620
ND-non detect
mg/L- milligrams per Liter

ATTACHMENT A

BORING LOGS / WELL COMPLETION REPORTS

State of Illinois
Department of Public Health

WATER WELL CONSTRUCTION REPORT

Complete within 30 days of well completion and send to the appropriate Health Department

Print Form

1. Type of Well

a. **Driven Well**: Casing Diameter (in.) _____ Depth (ft.) _____

b. **Bored Well**: Casing Diameter (in.) _____ Buried Slab? _____

c. **Drilled Well**: PVC Casing Formation Packer Set at Depth of (ft.) 40

d. **Drilled Well**: Steel Casing Mechanically Driven _____

e. Hole Diameter (in.) 8.5 to (ft.) 40 ; (in.) ___ to (ft.) ___ ; (in.) ___ to (ft.) ___

f.

Type of Grout	# of bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite	10		3	28	

g. Well Finished within Unconsolidated Materials

h.

Kind of Gravel/Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Washed quartz sand	#5	28	40

2. Well Use: Monitoring Well Disinfected? No

3. Date Well Completed: Sep 29, 2010 Driller's Estimated Well Yield (gpm): _____

4. Date Permanent Pump Installed: _____ Set at Depth (ft.): _____

5. Pump Capacity (gpm): _____

6. Pitless Adapter Model and Manufacturer: _____ Attachment to Casing: _____

7. Well Cap Type & Manufacturer: _____

8. Pressure Tank Working Cycle (gals.): _____ Captive Air? _____ 9. Pump System Disinfected: _____

10. Name of Pump Company _____

11. Pump Installer: _____ License # _____

12. _____ Date _____
Licensed Pump Installation Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 West Jefferson Street
Springfield, IL 62761

IL 482-0126
Revised 6/09

IMPORTANCE NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is Mandatory. This form has been approved by the Forms Management Center.

13. Property Owner: Midwest Generation LLC Well # PEI-MW-13

14. Driller: _____ License # _____

15. Name of Drilling Company: Groff Testing Corporation 16. Permit Number: _____

Date Issued: _____ 17. Date Drilling Started Sep 29, 2010

18. Well Site Address: 13082 E. Manito Road, Pekin, IL 61554

19. Township Name: Cincinnati Land I.D. # _____

20. Subdivision Name: _____ Lot # _____

21. Location: a. County Tazewell b. Site Elevation 470 ft. (above msl)

c. Township: 24N Range: 5W Section: 9

d. SW Quarter of the NE Quarter of the SW Quarter

e. GPS: Lat: Degrees 40 Minutes 32 Seconds 35.6 N

Lon: Degrees 89 Minutes 40 Seconds 39.7 W

Survey use only

22. Casing and Liner Information

Diameter (in.)	Material, Joint Type	From (ft.)	To (ft.)
2	PVC, threaded	0	30

23. Is the well screened? Yes If yes

Diameter (in.)	Length (ft.)	Slot Size (in.)	From (ft.)	To (ft.)
2	10	0.01	30	40

24. Water from gravel at a depth of (ft.) 34 To (ft.) 40

a. Static water level (ft.) below top of casing 29.5 which is (in.) above ground 3

b. pumping level is (ft.) _____ pumping (gpm) _____ for (hours) _____

25.

Earth Materials Passed Through	From (ft.)	To (ft.)
cinders, gravel, clay	0	10
cinders and sand	10	17.5
organic silt	17.5	31.5
silty clay, sand	31.5	34
gravel	34	40

(Attach 2nd page, if necessary) (If DRY HOLE, fill out log & indicate how hole was sealed)

_____ License # _____
Licensed Water Well Contractor Signature

MWG13-15_4056

State of Illinois
Department of Public Health

WATER WELL CONSTRUCTION REPORT

Complete within 30 days of well completion and send to the appropriate Health Department

Print Form

1. Type of Well

a. **Driven Well:** Casing Diameter (in.) _____ Depth (ft.) _____

b. **Bored Well:** Casing Diameter (in.) _____ Buried Slab? _____

c. **Drilled Well:** PVC Casing Formation Packer Set at Depth of (ft.) 30

d. **Drilled Well:** Steel Casing Mechanically Driven _____

e. Hole Diameter (in.) 8.5 to (ft.) 30 ; (in.) ___ to (ft.) ___ ; (in.) ___ to (ft.) ___

f.

Type of Grout	# of bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite	8		3	18	

g. Well Finished within Unconsolidated Materials

h.

Kind of Gravel/Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Washed quartz sand	#5	18	30

2. Well Use: Monitoring Well Disinfected? No

3. Date Well Completed: Sep 30, 2010 Driller's Estimated Well Yield (gpm): _____

4. Date Permanent Pump Installed: _____ Set at Depth (ft.): _____

5. Pump Capacity (gpm): _____

6. Pitless Adapter Model and Manufacturer: _____ Attachment to Casing: _____

7. Well Cap Type & Manufacturer: _____

8. Pressure Tank Working Cycle (gals.): _____ Captive Air? _____ 9. Pump System Disinfected: _____

10. Name of Pump Company _____

11. Pump Installer: _____ License # _____

12. _____ Date _____
Licensed Pump Installation Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 West Jefferson Street
Springfield, IL 62761

IL 482-0126
Revised 6/09

IMPORTANCE NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is Mandatory. This form has been approved by the Forms Management Center.

13. Property Owner: Midwest Generation LLC Well # PEI-MW-14

14. Driller: _____ License # _____

15. Name of Drilling Company : Groff Testing Corporation 16. Permit Number: _____

Date Issued: _____ 17. Date Drilling Started Sep 30, 2010

18. Well Site Address: 13082 E. Manito Road, Pekin, IL 61554

19. Township Name: Cincinnati Land I.D. # _____

20. Subdivision Name: _____ Lot # _____

21. Location: a. County Tazewell b. Site Elevation 470 ft. (above msl)

c. Township: 24N Range: 5W Section: 9

d. NW Quarter of the NE Quarter of the SW Quarter

e. GPS: Lat: Degrees 40 Minutes 32 Seconds 39.7 N

Lon: Degrees 89 Minutes 40 Seconds 41.2 W

Survey use only

22. Casing and Liner Information

Diameter (in.)	Material, Joint Type	From (ft.)	To (ft.)
2	PVC, threaded	0	20

23. Is the well screened? Yes If yes

Diameter (in.)	Length (ft.)	Slot Size (in.)	From (ft.)	To (ft.)
2	10	0.01	20	30

24. Water from organic silt and sand at a depth of (ft.) 19.5 To (ft.) 25

a. Static water level (ft.) below top of casing 20.5 which is (in.) above ground 3

b. pumping level is (ft.) _____ pumping (gpm) _____ for (hours) _____

25.

Earth Materials Passed Through	From (ft.)	To (ft.)
cinders, gravel, clay	0	10
gravel and clay	10	19.5
organic silt	19.5	30

(Attach 2nd page, if necessary) (If DRY HOLE, fill out log & indicate how hole was sealed)

_____ License # _____
Licensed Water Well Contractor Signature

MWG13-15_4057

State of Illinois
Department of Public Health

WATER WELL CONSTRUCTION REPORT

Complete within 30 days of well completion and send to the appropriate Health Department

Print Form

1. Type of Well

a. **Driven Well:** Casing Diameter (in.) _____ Depth (ft.) _____

b. **Bored Well:** Casing Diameter (in.) _____ Buried Slab? _____

c. **Drilled Well:** PVC Casing Formation Packer Set at Depth of (ft.) 30

d. **Drilled Well:** Steel Casing Mechanically Driven _____

e. Hole Diameter (in.) 8.5 to (ft.) 30 ; (in.) ___ to (ft.) ___ ; (in.) ___ to (ft.) ___

f.

Type of Grout	# of bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite	9		3	18	

g. Well Finished within Unconsolidated Materials

h.

Kind of Gravel/Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Washed quartz sand	#5	18	30

2. Well Use: Monitoring Well Disinfected? No

3. Date Well Completed: Sep 30, 2010 Driller's Estimated Well Yield (gpm): _____

4. Date Permanent Pump Installed: _____ Set at Depth (ft.): _____

5. Pump Capacity (gpm): _____

6. Pitless Adapter Model and Manufacturer: _____ Attachment to Casing: _____

7. Well Cap Type & Manufacturer: _____

8. Pressure Tank Working Cycle (gals.): _____ Captive Air? _____ 9. Pump System Disinfected: _____

10. Name of Pump Company _____

11. Pump Installer: _____ License # _____

12. _____ Date _____
Licensed Pump Installation Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 West Jefferson Street
Springfield, IL 62761

IL 482-0126
Revised 6/09

IMPORTANCE NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is Mandatory. This form has been approved by the Forms Management Center.

13. Property Owner: Midwest Generation LLC Well # PEI-MW-15

14. Driller: _____ License # _____

15. Name of Drilling Company: Groff Testing Corporation 16. Permit Number: _____

Date Issued: _____ 17. Date Drilling Started Sep 30, 2010

18. Well Site Address: 13082 E. Manito Road, Pekin, IL 61554

19. Township Name: Cincinnati Land I.D. # _____

20. Subdivision Name: _____ Lot # _____

21. Location: a. County Tazewell b. Site Elevation 470 ft. (above msl)

c. Township: 24N Range: 5W Section: 9

d. NW Quarter of the NE Quarter of the SW Quarter

e. GPS: Lat: Degrees 40 Minutes 32 Seconds 40.6 N

Lon: Degrees 89 Minutes 40 Seconds 38.7 W

Survey use only

22. Casing and Liner Information

Diameter (in.)	Material, Joint Type	From (ft.)	To (ft.)
2	PVC, threaded	0	20

23. Is the well screened? Yes If yes

Diameter (in.)	Length (ft.)	Slot Size (in.)	From (ft.)	To (ft.)
2	10	0.01	20	30

24. Water from fine sand at a depth of (ft.) 19.5 To (ft.) 23.5

a. Static water level (ft.) below top of casing 19.5 which is (in.) above ground 3

b. pumping level is (ft.) _____ pumping (gpm) _____ for (hours) _____

25.

Earth Materials Passed Through	From (ft.)	To (ft.)
cinders, gravel, clay	0	10
cinders, gravel, sand	10	19.5
fine sand	19.5	23.5
silt	23.5	28
silty clay	28	30

(Attach 2nd page, if necessary) (If DRY HOLE, fill out log & indicate how hole was sealed)

_____ License # _____
Licensed Water Well Contractor Signature

MWG13-15_4058

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-13-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **467.7**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
467.7	0.0		Black cinders, sand, rock, dry FILL				
				SS-1 1.0-2.5			
				SS-2 2.5-4.0			Bentonite seal 3.0'-28.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
457.7	10.0		Black cinders, medium sand FILL				
				SS-5 11.0-12.5 14"R	5 9 7		qu=NT
				SS-6 13.5-15.0 15"R	3 3 2		qu=NT
			Some organic silt, moist	SS-7 16.0-17.5 18"R	WOH 1 1		qu=NT
450.2	17.5		Gray/olive gray organic silt, very soft OL				
				SS-8 18.5-20.0 18"R	1 0 0		qu=0.0**tsf
447.7	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/29/10** ENDED **9/29/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **31.5**
▼ **29.5**
▼

MWG13-15_4059

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-13-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **467.7**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	NOTES & TEST RESULTS
447.7	20.0		Dark gray and black organic clay, very soft, moist OH			
				SS-9 21.0-22.5 18"R	WOH WOH 2	qu=0.25**tsf
445.2	22.5		Dark gray and black organic silt, very soft, moist OL			
				SS-10 23.5-25.0 18"R	WOH 1 1	qu=0.25**tsf
441.7	26.0		Dark gray and black organic clay, soft, dry OH	SS-11 26.0-27.5 18"R	WOH 1 2	qu=1.0**tsf
			Medium stiff			Sand pack 28.0'-40.0'
				SS-12 28.5-30.0 18"R	0 2 3	qu=1.5**tsf
438.2	29.5	▽				
437.2	30.5					Set screen (slot 0.010") 30.0'-40.0'
436.2	31.5	▽	Gray silty clay, some coarse to fine sand, trace fine gravel, wet CL	SS-13 31.0-32.5 18"R	2 4 5	qu=2.0**tsf
433.7	34.0		Stiff	SS-14 33.5-35.0 6"R	2 3 2	qu=2.0**tsf
			Brown coarse to fine gravel, trace coarse to medium sand, silt, medium dense, saturated GP			
				SS-15 36.0-37.5 8"R	4 6 6	qu=NT
				SS-16 38.5-40.0 8"R	5 8 8	qu=NT
427.7	40.0		End of Boring at 40.0'			

Water Content: PL ○ LL (10 20 30 40 50)
Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/29/10** ENDED **9/29/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **31.5**
▽ **29.5**
▽

MWG13-15_4060

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-14-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **467.7**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 50 LL / Unconfined Compressive Strength (TSF) * 1 2 3 4 5	NOTES & TEST RESULTS
467.7	0.0		Cinders, gravel, sand, silt, dry FILL				
				SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-18.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
457.7	10.0		Brown fine gravel, some silty clay and coarse sand, dry FILL				
				SS-5 11.0-12.5 18"R	4 4 4		
				SS-6 13.5-15.0 16"R	4 3 4		
				SS-7 16.0-17.5 16"R	2 3 3		
			Black cinders				
							Sand pack 18.0'-30.0'
				SS-8 18.5-20.0 18"R	3 3 1		
448.2	19.5	▽	Gray organic silt, some fine sand,				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **19.5**
▼ **20.5**
▼

MWG13-15_4061

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-14-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **467.7**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL 10 20 30 40 LL 50 / Unconfined Compressive Strength (TSF) 1 2 3 4 5	NOTES & TEST RESULTS
447.7	20.0						Set screen (slot 0.010") 20.0'-30.0'
447.2	20.5		▽ very loose, low plasticity, saturated OL				
				SS-9 21.0-22.5 18"R	1 0 0		qu=NT
				SS-10 23.5-25.0 18"R	1 1 2		qu=0.25**tsf
442.7	25.0		Gray and mottled black organic silt, trace fine sand, soft, low plasticity, moist OL				
				SS-11 26.0-27.5 18"R	0 0 1		qu=0.25**tsf
438.7	29.0			SS-12 28.5-30.0 18"R	2 3 4		qu=1.25**tsf
437.7	30.0		Gray and black organic clay, medium stiff, moist OH				
			End of Boring at 30.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **19.5**
▽ **20.5**
▼

MWG13-15_4062

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-15-Po** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.3**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL □---○---△ LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
468.3	0.0		Black cinders, fine gravel, sand, silt, dry FILL	SS-1 1.0-2.5			
				SS-2 3.5-5.0			Bentonite seal 3.0'-17.0'. Stickup protective cover installed.
				SS-3 6.0-7.5			
				SS-4 8.5-10.0			
458.3	10.0		Black cinders, fine gravel, coarse sand, silt, dry FILL	SS-5 11.0-12.5 14"R	6 13 12		
				SS-6 13.5-15.0 0"R	50/1'		
				SS-7 16.0-17.5 14"R	7 7 5		Sand pack 17.0'-30.0'
				SS-8 18.5-20.0 18"R	2 1 1		
448.8	19.5		▽				
448.3	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.0'**
▽ **19.5**
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-15-Po** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Powerton**

LOGGED BY **MPG**
GROUND ELEVATION **468.3**

ELEV.	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL–LL (10 20 30 40 50) / Unconfined Compressive Strength (TSF) ✳ (1 2 3 4 5)	NOTES & TEST RESULTS
448.3	20.0		Gray fine sand, trace medium sand, loose, saturated SM				Set screen (slot 0.010") 20.0'-30.0'
				SS-9 21.0-22.5 18"R	1 1 1		qu=NT
444.8	23.5		Gray silt, mottled black, some organics, soft, moist to wet OL	SS-10 23.5-25.0 18"R	1 2 2		qu=0.75**tsf
				SS-11 26.0-27.5 18"R	1 2 2		qu=1.0**tsf
440.3	28.0		Gray silty clay, some organics, soft, medium stiff, dry CL	SS-12 28.5-30.0 18"R	1 3 2		qu=1.0**tsf
438.3	30.0		End of Boring at 30.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **9/30/10** ENDED **9/30/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **20.0'**
▽ **19.5**
▼

MWG13-15_4064

ATTACHMENT B

LABORATORY ANALYTICAL RESULTS

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Midwest Generation - Powerton Facility
13082 E Manito Rd
Pekin, IL 61554
Attn: Mark Kelly

Date Received: 03/20/12 8:00
Report Date: 04/10/12
Customer #: 233203
PO#: 4500092946

Laboratory Results

Sample No: **2032097-09**
Sample Description: MW #9

Collect Date: **03/19/12 16:00**
Matrix: **Ground Water**

Parameters	Result	Qual	Prep Date	Analysis Date	Analyst	Method
General Chemistry - PIA						
Cyanide	< 0.0050 mg/L		03/21/12 10:47	03/22/12 16:46	lgtth	335.4
Solids - total dissolved solids (TDS)	530 mg/L		03/23/12 09:35	03/23/12 10:48	BNS	SM 2540C 18Ed
Miscellaneous - PACE Analytical - Greensburg						
Radium 226 - subcontracted	0.00+-.250 pCi/L			04/06/12 12:27	Sub	904.0 903.1
Radium 228 - subcontracted	0.396+-.999 pCi/L			04/05/12 11:25	Sub	904.0 903.1
Soluble Anions - PIA						
Chloride	30 mg/L		03/20/12 16:20	03/20/12 16:20	PLI	EPA 300.0 R2.1
Fluoride	< 0.25 mg/L		03/20/12 16:05	03/20/12 16:05	PLI	EPA 300.0 R2.1
Nitrate-N	5.0 mg/L		03/20/12 16:20	03/20/12 16:20	PLI	EPA 300.0 R2.1
Sulfate	120 mg/L		03/21/12 16:12	03/21/12 16:12	PLI	EPA 300.0 R2.1
Soluble Metals - PIA						
Antimony	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Arsenic	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Barium	35 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Beryllium	< 1.0 ug/L		03/27/12 10:34	03/28/12 14:29	JMW	SW 6020
Boron	2600 ug/L		03/27/12 10:34	03/29/12 09:12	JMW	SW 6020
Cadmium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Chromium	< 4.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Cobalt	< 2.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Copper	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Iron	0.014 mg/L		03/29/12 10:03	03/29/12 12:56	KJP	SW 6010B
Lead	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Manganese	220 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Mercury	< 0.20 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Nickel	< 5.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Selenium	7.2 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Silver	< 5.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Thallium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020
Zinc	< 6.0 ug/L		03/27/12 10:34	03/28/12 11:32	JMW	SW 6020

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Midwest Generation - Powerton Facility
13082 E Manito Rd
Pekin, IL 61554
Attn: Mark Kelly

Date Received: 03/20/12 8:00
Report Date: 04/10/12
Customer #: 233203
PO#: 4500092946

Laboratory Results

Sample No: **2032097-11**
Sample Description: MW-11

Collect Date: **03/19/12 16:30**
Matrix: **Ground Water**

Parameters	Result	Qual	Prep Date	Analysis Date	Analyst	Method
General Chemistry - PIA						
Cyanide	< 0.0050 mg/L		03/21/12 10:47	03/22/12 16:20	lgtth	335.4
Solids - total dissolved solids (TDS)	740 mg/L		03/23/12 09:35	03/23/12 10:48	BNS	SM 2540C 18Ed
Miscellaneous - PACE Analytical - Greensburg						
Radium 226 - subcontracted	0.00+-.277 pCi/L			04/06/12 12:40	Sub	904.0 903.1
Radium 228 - subcontracted	0.288+-.319 pCi/L			04/05/12 11:23	Sub	904.0 903.1
Soluble Anions - PIA						
Chloride	54 mg/L		03/20/12 19:10	03/20/12 19:10	PLI	EPA 300.0 R2.1
Fluoride	0.42 mg/L		03/20/12 18:54	03/20/12 18:54	PLI	EPA 300.0 R2.1
Nitrate-N	0.39 mg/L		03/20/12 18:54	03/20/12 18:54	PLI	EPA 300.0 R2.1
Sulfate	130 mg/L		03/26/12 20:16	03/26/12 20:16	n.a.	EPA 300.0 R2.1
Soluble Metals - PIA						
Antimony	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Arsenic	2.1 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Barium	130 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Beryllium	< 1.0 ug/L		03/27/12 10:34	03/28/12 14:34	JMW	SW 6020
Boron	2300 ug/L		03/27/12 10:34	03/29/12 09:18	JMW	SW 6020
Cadmium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Chromium	< 4.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Cobalt	2.4 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Copper	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Iron	< 0.010 mg/L		03/29/12 10:03	03/29/12 13:02	KJP	SW 6010B
Lead	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Manganese	2900 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Mercury	< 0.20 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Nickel	11 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Selenium	3.9 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Silver	< 5.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Thallium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020
Zinc	< 6.0 ug/L		03/27/12 10:34	03/28/12 11:44	JMW	SW 6020

2032097

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Midwest Generation - Powerton Facility
13082 E Manito Rd
Pekin, IL 61554
Attn: Mark Kelly

Date Received: 03/20/12 8:00
Report Date: 04/10/12
Customer #: 233203
PO#: 4500092946

Laboratory Results

Sample No: **2032097-12**
Sample Description: MW-12

Collect Date: **03/19/12 17:15**
Matrix: **Ground Water**

Parameters	Result	Qual	Prep Date	Analysis Date	Analyst	Method
General Chemistry - PIA						
Cyanide	< 0.0050 mg/L		03/21/12 10:47	03/22/12 16:21	lgtth	335.4
Solids - total dissolved solids (TDS)	1000 mg/L		03/23/12 09:35	03/23/12 10:48	BNS	SM 2540C 18Ed
Miscellaneous - PACE Analytical - Greensburg						
Radium 226 - subcontracted	0.144+-.248 pCi/L			04/06/12 12:27	Sub	904.0 903.1
Radium 228 - subcontracted	0.768+-.318 pCi/L			04/05/12 11:20	Sub	904.0 903.1
Soluble Anions - PIA						
Chloride	170 mg/L		03/22/12 08:37	03/22/12 08:37	SJW	EPA 300.0 R2.1
Fluoride	0.46 mg/L		03/20/12 19:25	03/20/12 19:25	PLI	EPA 300.0 R2.1
Nitrate-N	0.04 mg/L		03/20/12 19:25	03/20/12 19:25	PLI	EPA 300.0 R2.1
Sulfate	310 mg/L		03/22/12 08:37	03/22/12 08:37	SJW	EPA 300.0 R2.1
Soluble Metals - PIA						
Antimony	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Arsenic	4.2 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Barium	71 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Beryllium	< 1.0 ug/L		03/27/12 10:34	03/28/12 14:37	JMW	SW 6020
Boron	920 ug/L		03/27/12 10:34	03/29/12 09:20	JMW	SW 6020
Cadmium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Chromium	< 4.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Cobalt	< 2.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Copper	< 3.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Iron	4.8 mg/L		03/29/12 10:03	03/29/12 13:04	KJP	SW 6010B
Lead	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Manganese	130 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Mercury	< 0.20 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Nickel	7.5 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Selenium	4.3 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Silver	< 5.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Thallium	< 1.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020
Zinc	< 6.0 ug/L		03/27/12 10:34	03/28/12 11:50	JMW	SW 6020

2032097

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Midwest Generation - Powerton Facility
13082 E Manito Rd
Pekin, IL 61554
Attn: Mark Kelly

Date Received: 03/20/12 8:00
Report Date: 04/10/12
Customer #: 233203
PO#: 4500092946

Laboratory Results

Notes

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations. Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL
NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Indiana (C-IL-040); Iowa (240)
Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
Hazardous/Solid Waste Certifications; Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)
UST Certification; Iowa (240)
SPM PDC Laboratories - Springfield, MO
EPA DMR-QA Program
STL PDC Laboratories - St. Louis, MO
NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS EPA Lab No. E-10389

Subcontract report attached for Rad 226/228

Janet L. Clutters

Certified by: Janet L. Clutters, Project Manager

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615

PHONE # 800-752-6651
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

State where samples collected IL

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT) - (SAMPLE ACCEPTANCE POLICY ON REVERSE)

(1) CLIENT: Patrick Engineering
ADDRESS: 4985 Varsity Dr.
CITY STATE ZIP: Lisle, IL 60532
CONTACT PERSON: Dave McCoy

PROJECT NUMBER:
P.O. NUMBER:
MEANS SHIPPED:
PHONE NUMBER:
FAX NUMBER:
DATE SHIPPED:

SAMPLER (PLEASE PRINT): Justin Jersogna
SAMPLER'S SIGNATURE: [signature]

MATRIX TYPES:
WW-WASTEWATER
DW-DRINKING WATER
GW-GROUND WATER
WWSL-SLUDGE
NAS-SOLID
LCHT-LEACHATE
OTHER:

(3) ANALYSIS REQUESTED: Dissolved Metals; Cyanide; Cl, F, NO3, SO4 Diss.; Total Diss. solids; Radium 226/228

(4) (FOR LAB USE ONLY)
LOGIN: 2032097-12
LOGGED BY: MJ
LAB PROJ. #:
TEMPLATE:
PROJ. MGR.:
Midwest Gen - Powerton Facility

(2)

SAMPLE DESCRIPTION AS YOU WANT ON REPORT	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	Dissolved Metals	Cyanide	Cl, F, NO3, SO4 Diss.	Total Diss. solids	Radium 226/228		REMARKS
MW-1	3/19/12	0920			GW	4	X	X	X	X			
MW-2	↓	1005			↓	4	↓	↓	↓	↓			
MW-3		1105				4							
MW-4		1150				4							
MW-5		1240				4							
MW-6		1410				4							
MW-7		1325				4							
MW-8		1810				4							
MW-9		1600				5					X		
MW-10		1520				4							
MW-11		1630				5					X		
MW-12	↓	1715			↓	5	↓	↓	↓	↓	X		

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
DATE RESULTS NEEDED
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE E-MAIL
FAX # PHONE # EMAIL ADDRESS

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

(7)

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
[signature]	DATE 3/20/12 TIME 0610		DATE TIME
RELINQUISHED BY: (SIGNATURE) [signature]	DATE 3/20/12 TIME 06 11	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE) [signature]	DATE 3/20/12 TIME 9:00

(8) COMMENTS: (FOR LAB USE ONLY)
SAMPLE TEMPERATURE UPON RECEIPT 6 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
PROPER BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N
(EXCLUDES TYPICAL FIELD PARAMETERS)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE

PAGE 1 OF 1

Copies: white should accompany samples to PDC Labs. Yellow copy to be retained by the client.

Pace Analytical®
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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

April 09, 2012

Ms. Janet Clutters
PDC Laboratories
2231 W. Altorfer Drive
Peoria, IL 61615

RE: Project: 2032097
Pace Project No.: 3065785

Dear Ms. Clutters:
Enclosed are the analytical results for sample(s) received by the laboratory on March 23, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris

carin.ferris@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 2032097
Pace Project No.: 3065785

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH 0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia VELAP (Cert # 460198)
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 2032097
Pace Project No.: 3065785

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3065785001	2032097-09	Drinking Water	03/19/12 16:00	03/23/12 08:50
3065785002	2032097-11	Drinking Water	03/19/12 16:30	03/23/12 08:50
3065785003	2032097-12	Drinking Water	03/19/12 17:15	03/23/12 08:50

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SAMPLE ANALYTE COUNT

Project: 2032097
Pace Project No.: 3065785

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3065785001	2032097-09	EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	WRR	1	PASI-PA
3065785002	2032097-11	EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	WRR	1	PASI-PA
3065785003	2032097-12	EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	WRR	1	PASI-PA

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 2032097
Pace Project No.: 3065785

Method: EPA 903.1
Description: 903.1 Radium 226
Client: PDC Laboratories, Inc.
Date: April 09, 2012

General Information:
3 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 2032097
Pace Project No.: 3065785

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: PDC Laboratories, Inc.
Date: April 09, 2012

General Information:
3 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 2032097
Pace Project No.: 3065785

Sample: 2032097-09 **Lab ID: 3065785001** Collected: 03/19/12 16:00 Received: 03/23/12 08:50 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.250 (0.592)**	pCi/L	04/06/12 12:27	13982-63-3	
Radium-228	EPA 904.0	**0.396 ± 0.399 (0.831)**	pCi/L	04/05/12 11:23	15262-20-1	

Sample: 2032097-11 **Lab ID: 3065785002** Collected: 03/19/12 16:30 Received: 03/23/12 08:50 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.277 (0.621)**	pCi/L	04/06/12 12:40	13982-63-3	
Radium-228	EPA 904.0	**0.228 ± 0.319 (0.683)**	pCi/L	04/05/12 11:23	15262-20-1	

Sample: 2032097-12 **Lab ID: 3065785003** Collected: 03/19/12 17:15 Received: 03/23/12 08:50 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.144 ± 0.248 (0.445)**	pCi/L	04/06/12 12:27	13982-63-3	
Radium-228	EPA 904.0	**0.0768 ± 0.318 (0.713)**	pCi/L	04/05/12 11:22	15262-20-1	

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 2032097
Pace Project No.: 3065785

QC Batch: RADC/11495 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 3065785001, 3065785002, 3065785003

METHOD BLANK: 421621 Matrix: Water
Associated Lab Samples: 3065785001, 3065785002, 3065785003

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	0.102 ± 0.375 (0.721)	pCi/L	04/06/12 10:54	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 2032097
Pace Project No.: 3065785

QC Batch: RADC/11517 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 3065785001, 3065785002, 3065785003

METHOD BLANK: 422365 Matrix: Water
Associated Lab Samples: 3065785001, 3065785002, 3065785003

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.821 ± 0.440 (0.808)	pCi/L	04/05/12 11:21	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 2032097
Pace Project No.: 3065785

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty

(MDC) - Minimum Detectable Concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

SUBCONTRACT ORDER

PDC Laboratories, Inc.

2032097

SENDING LABORATORY:

✓ PDC Laboratories, Inc, 2231 W Altorfer Peoria, IL 61615

___ PDC Laboratories, Inc, 1805 W Sunset, Springfield, MO 65807

___ PDC Laboratories, Inc, 3278 N Highway 67, Florissant, MO 63033

Project Manager: Janet L. Clutters jclutters@pdclab.com Phone: 309-683-1743

Date Shipped 3-21-12

RECEIVING LABORATORY:

PACE Analytical - Greensburg
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
Phone :(724) 850-5600

Sample Origin (State) IL

PO# L40790

Total # of Containers 3

30105785

Analysis	Due	Expires	Comments
Sample ID: 2032097-09	**Water**	**Sampled:03/19/12 16:00**	
01-Radium 226/228	03/30/12 16:00	09/15/12 16:00	001
Sample ID: 2032097-11	**Water**	**Sampled:03/19/12 16:30**	002
01-Radium 226/228	03/30/12 16:00	09/15/12 16:30	
Sample ID: 2032097-12	**Water**	**Sampled:03/19/12 17:15**	003
01-Radium 226/228	03/30/12 16:00	09/15/12 17:15	

Turn-Around Time Requested (circle one): (NORMAL) RUSH Date Results Needed: _____

Relinquished By	Date/Time	Received By	Date/Time
Alan J. Hogan	3-21-12 10:15	[signature]	3-23-12 0850
Relinquished By	Date/Time	Received By	Date/Time

Sample Temperature Upon Receipt	___ C
Sample(s) Received on Ice	Y or N
Proper Bottles Received in Good Condition	Y or N
Bottles Filled with Adequate Volume	Y or N
Samples Received Within Hold Time	Y or N
Date/Time Taken From Sample Bottle	Y or N

Sample Condition Upon Receipt

Pace Analytical

Client Name: MDC Project # 30057885

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 231794215600822

Optional:	
Proj. Due Date:	
Proj. Name:	

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 3 5 6 Type of Ice: Wet Blue (None) ☐ Samples on ice, cooling process has begun

Cooler Temperature NA Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3-23-12

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13. pH<2
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	Initial when completed: Lot # of added preservative:
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Camp Dorris **Date:** 3/23/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-ALLC003-4 23Feb2010