March 18, 2021

Richard Huggins
Branch Chief, Energy Recovery and Waste Disposal, US EPA
One Potomac Yard
2777 S. Crystal Drive
Arlington, Virginia 22202-3553

RE: Waukegan Generating Station, Midwest Generation LLC
Alternate Closure Demonstration, 40 CFR Part 257.103

Chief Huggins,

The purpose of this correspondence is to provide supplemental information in regard to our Demonstration for a Site-Specific Alternative Deadline to Initiate Closure documentation submitted to the United States Environmental Protection Agency (USEPS) on November 30, 2020 on behalf of the Waukegan Generating Station, Midwest Generation LLC (MWG), located on 401 East Greenwood Avenue, Waukegan, Illinois 60087.

The station is subject to 40 CFR Part 257 Subpart D "The Federal CCR Rule" and pursuant to 40 CFR 257.103(f)(1)(iv)(A), MWG prepared and submitted it's demonstration and workplan detailing its proposed development of alternative disposal capacity and a timeline to replace East Ash Pond.

EPA has reviewed our demonstration and requested supplemental information (or clarification) regarding Well Log Boring and Construction information and Appendix IV monitoring data. Our submittal includes the following documentation which will be posted as supplemental information to our Website.

- **Original Demonstration** – For reference, an active link to the original November 30, 2020 submittal as the previous link was deactivated. The original Demonstrations can be found on our NRG Website as well.
- **Supplemental Information**
  - 2017 Annual Report (for Appendix IV Data)
  - Well Logs MW1-MW14

Appendix IV Data
Please note, the unit is in Detection monitoring and post background Appendix IV monitoring data is not available. To satisfy your request, the 2017 Annual Report (which is located on the NRG Website) to provide Appendix IV data collected during the initial eight rounds of background sampling.

Well Logs
As requested, we are providing all available boring logs/well construction summaries for Waukegan, please note the well construction information is on the right had side of the logs. However, as we have discussed, we do not have the boring and construction logs for Wells MW11 and MW14. These wells were installed by another entity that was conducting a site investigation for a neighboring tannery located to the west of our property and installed as part of an ELUC for site closure. While they were installed on our property, we do not have access to the boring logs or construction documents. In preparation of or Alternate Closure Demonstration and in regard to procuring supporting geologic/hydrogeologic information, we previously a FOIA request to IEPA for the tannery investigation files. As requested IEPA provided the information on microfiche but it was limited to the on-site investigation work and did not include those located on our property. We have submitted a second more specific FOIA for the ELUC files on January 11, 2021. As of this correspondence we have not received the requested information. We will provide them as they become available.

We look forward to working with the USEPA and proceeding with our project to establish alternative capacity. Please contact me at (302)-540-0327 or david.bacher@nrgenergy.com to address any questions or concerns regarding this submittal.

Sincerely,

David Bacher
Senior Regional Manager
Environmental Business, NRG Energy, Inc.

CC: Jessica Schumacher (USEPS Region 5)
Anthony Carroll (USEPA Region 5)
Kirsten Hillyer (US EPA)
Frank Behan (USEPA)
W. Stone (NRG), S. Shealey (MWG), W. Shander (MWG)

K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

CCR COMPLIANCE
ANNUAL GROUNDWATER MONITORING and CORRECTIVE ACTION REPORT - 2017

Midwest Generation, LLC
Waukegan Station
401 E. Greenwood Avenue
Waukegan, Illinois

Prepared By: KPRG and Associates, Inc.
14665 West Lisbon Road, Suite 2B
Brookfield, WI 53005

January 24 2018

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FIGURES

TABLES

1.0 INTRODUCTION

The Detection Monitoring requirements in accordance with the Federal Register, Environmental Protection Agency, 40 CFR Parts 257.94, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (CCR Rule) have been completed for the ash pond monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Waukegan Generating Station. The wells sampled were selected by Midwest Generation to meet the monitoring requirements of the CCR Rule for both the West and East Ash Ponds. The CCR monitoring well network around these ponds consists of eight monitoring wells (MW-01 though MW-04, MW-09, MW-11, MW-14 and MW-16). Wells MW-09, MW-11 and MW-14 are upgradient wells.

This annual report covers the work performed relative to CCR groundwater monitoring through the end of 2017. It is prepared in accordance with Section 257.90(e)(1-5) and summarizes the sampling procedures used, provides an evaluation of groundwater flow conditions, summarizes the analytical data generated and provides a discussion of the statistical evaluations in the process of being completed as a basis for determining the appropriate next phase of compliance activities.

2.0 FIELD PROCEDURES AND GROUNDWATER FLOW EVALUATION

2.1 Field Procedures

As previously noted, the CCR groundwater monitoring network around the ash ponds at this facility consists of eight wells (MW-01, MW-02, MW-03, MW-04, MW-09, MW-11, MW-14 and MW-16) as shown on Figure 1. As part of sampling procedures, the integrity of all monitoring wells was inspected and water levels obtained using an electronic water level meter (see summary of water level discussion below). All wells were found in good condition.

All groundwater samples were collected using the low-flow sampling technique from dedicated pumps. The samples were not filtered prior to analysis to provide for total metals concentrations as opposed to dissolved metals concentrations. One duplicate sample was collected from a randomly selected monitoring well per sampling event for quality assurance purposes. To fulfill initial detection monitoring requirements under Section 257.94(b), the first eight rounds of groundwater sampling included the analysis of all compounds listed in the CCR Rule, Part 257, Appendices III and IV to facilitate development of statistical background water quality. The ninth round of sampling was for Appendix III detection monitoring parameters.

2.2 Groundwater Flow Evaluation

Water level data measurements were obtained from each well during each round of groundwater monitoring. A complete round of water levels was collected prior to initiating sampling, and the water level data are summarized in Table 1. The water levels were used to generate a groundwater flow maps for each sampling event. These maps are provided as Figures 2 through 11. A review of the maps indicates a consistent southeasterly groundwater flow direction beneath the ash ponds. In accordance with general groundwater sampling requirements under Section 257.93(c), Table 2 provides a summary of the flow direction and an estimated rate of groundwater flow for each sampling event. The flow rate was calculated using the following equation:

$$V_s = \frac{K\,dh}{n_e\,dl}$$, where

V_s is seepage velocity (distance/time)
K is hydraulic conductivity (distance/time)
dh/dl is hydraulic gradient (unitless)
n_e is effective porosity (unitless)

The average hydraulic conductivity of 4.04 x 10^{-3} ft/sec used in Table 2 was obtained from the Hydrogeologic Assessment Report dated February 2011 and prepared by Patrick Engineering. The estimated effective porosity of the aquifer materials (0.35) was obtained from literature (Applied Hydrogeology, Fetter, 1980).

3.0 ANALYTICAL DATA AND STATUS OF EVALUATIONS

The analytical data from the detection monitoring groundwater sampling for Appendix III and IV parameters are provided in Tables 3 and 4, respectively. As previously noted, all of this initial data was collected as part of detection monitoring requirements under 257.94(b). Table 3 (Appendix III) also includes a ninth round and a resample event (dates in italics in table) which is the first formal round of detection monitoring after obtaining the required number of samples for development of statistical background. Both tables include the sample dates and whether the specific well is considered upgradient or downgradient relative to groundwater flow and the regulated unit(s).

The first eight rounds of Appendix III detection monitoring data from established upgradient wells are in the process of being statistically evaluated to establish background water quality in accordance with procedures defined in CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation Waukegan Generating Station dated October 10, 2017. This includes outlier testing, spatial/temporal variability testing, distributional testing, and the establishment of Prediction Limits for all Appendix III compounds to which the ninth round of groundwater detection monitoring data will be compared to determine whether there may be a statistically significant increase (SSI) for a specific compound at each well location. The evaluations are being performed with the assistance of the Sanitas™ statistical software package.

4.0 SUMMARY/CONCLUSIONS AND RECOMMENDATIONS

The Detection Monitoring requirements in accordance with the CCR Rule have been successfully met. Eight rounds of groundwater data have been generated for all upgradient and downgradient monitoring wells for Appendix III and Appendix IV parameters. In addition, a ninth round and resample event has also been collected for subsequent use in statistical comparisons.

Based on an evaluation of groundwater flow conditions over the reporting period shows that the flow system has been consistent over time between sampling events. The existing monitoring well network appears to be sufficient for the intended purposes of CCR Rule groundwater monitoring of the regulated units. No additional monitoring well installations are proposed at this time based on the groundwater flow evaluation.

Development of statistical background for upgradient wells is in the process of being completed. Once this evaluation is completed a determination will be made whether there may be SSIs in downgradient monitoring wells in accordance with procedures defined in CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation Waukegan Generating Station dated October 10, 2017. Appropriate recommendations will be made once the statistical evaluation is completed regarding whether the site should continue with routine detection monitoring, proceed with an alternate source demonstration or to transition to an assessment monitoring program.

5.0 REFERENCES

- Federal Register, Environmental Protection Agency, 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule. Vol. 80, No. 74, Friday April 17, 2015.

- Patrick Engineering, Inc., Hydrogeologic Assessment Report – Waukegan Generating Station, Waukegan, IL. February 2011.

- KPRG and Associates, Inc., CCR Compliance Monitoring, Sampling and Analysis Plan, Midwest Generation, LLC Waukegan Generating Station. October 10, 2017.

- KPRG and Associates, Inc., CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation, LLC Waukegan Generating Station. October 10, 2017.

- C.W. Fetter, Jr., Applied Hydrogeology. Charles E. Merrill Publishing Co., 1980.

FIGURES

ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

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414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

CCR MONITORING WELL SITE MAP

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 550' | Date: January 2, 2018

KPRG Project No. 12313.2 | FIGURE 1

W:\projects\midwest generation\attorney-client privilege\gw evaluations\waukegan map.dwg

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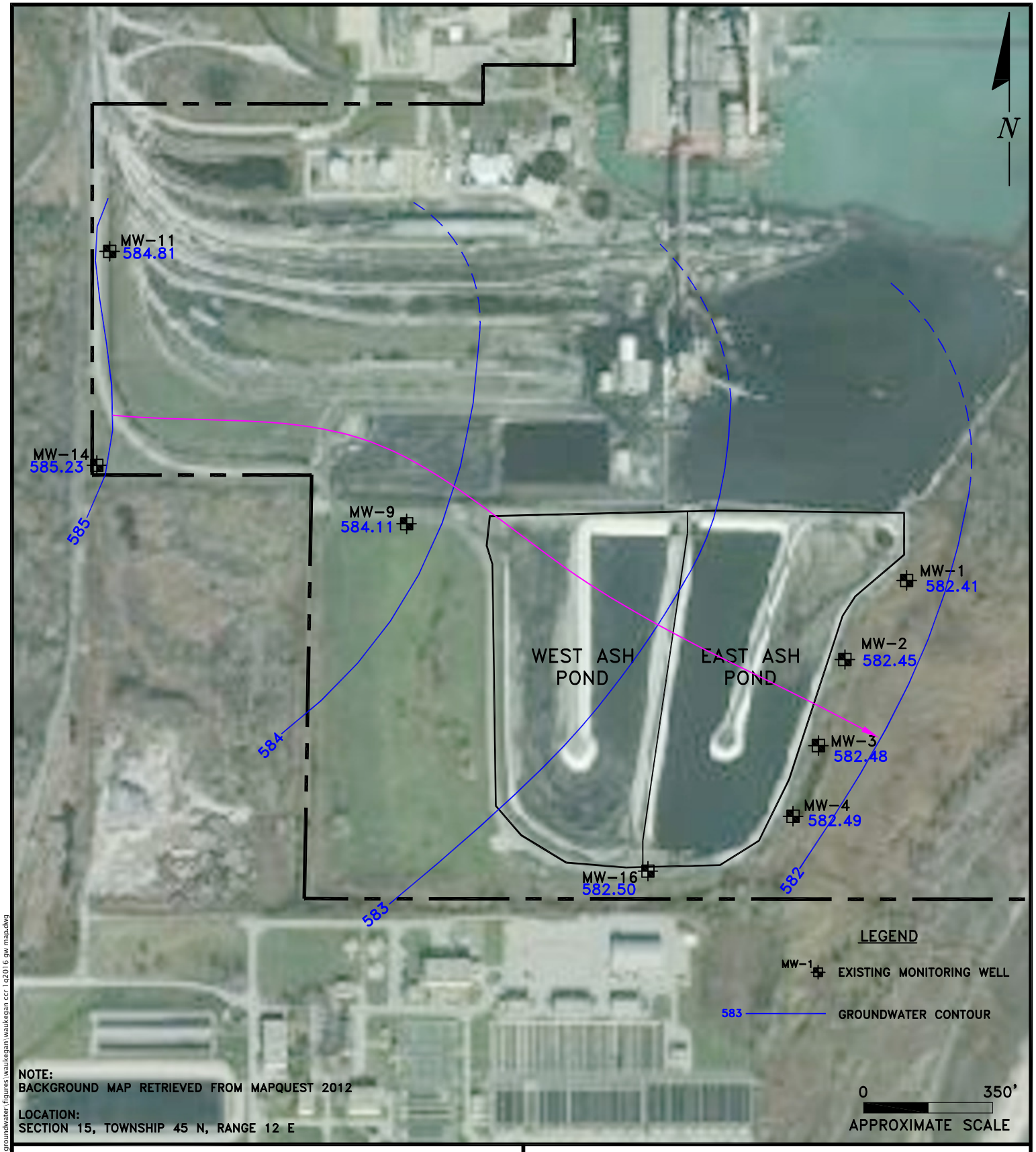
CCR GROUNDWATER CONTOUR-11/2015

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: February 11, 2016

KPRG Project No. 12313.2 | FIGURE 2



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CCR GROUNDWATER CONTOUR-3/2016

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: April 19, 2016

KPRG Project No. 12313.2 | FIGURE 3

W:\projects\midwest generation\12313 ash pond groundwater figures\waukegan\waukegan ccr 1q2016 gw map.dwg

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-5/2016

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: July 12, 2016

KPRG Project No. 12313.2 | FIGURE 4

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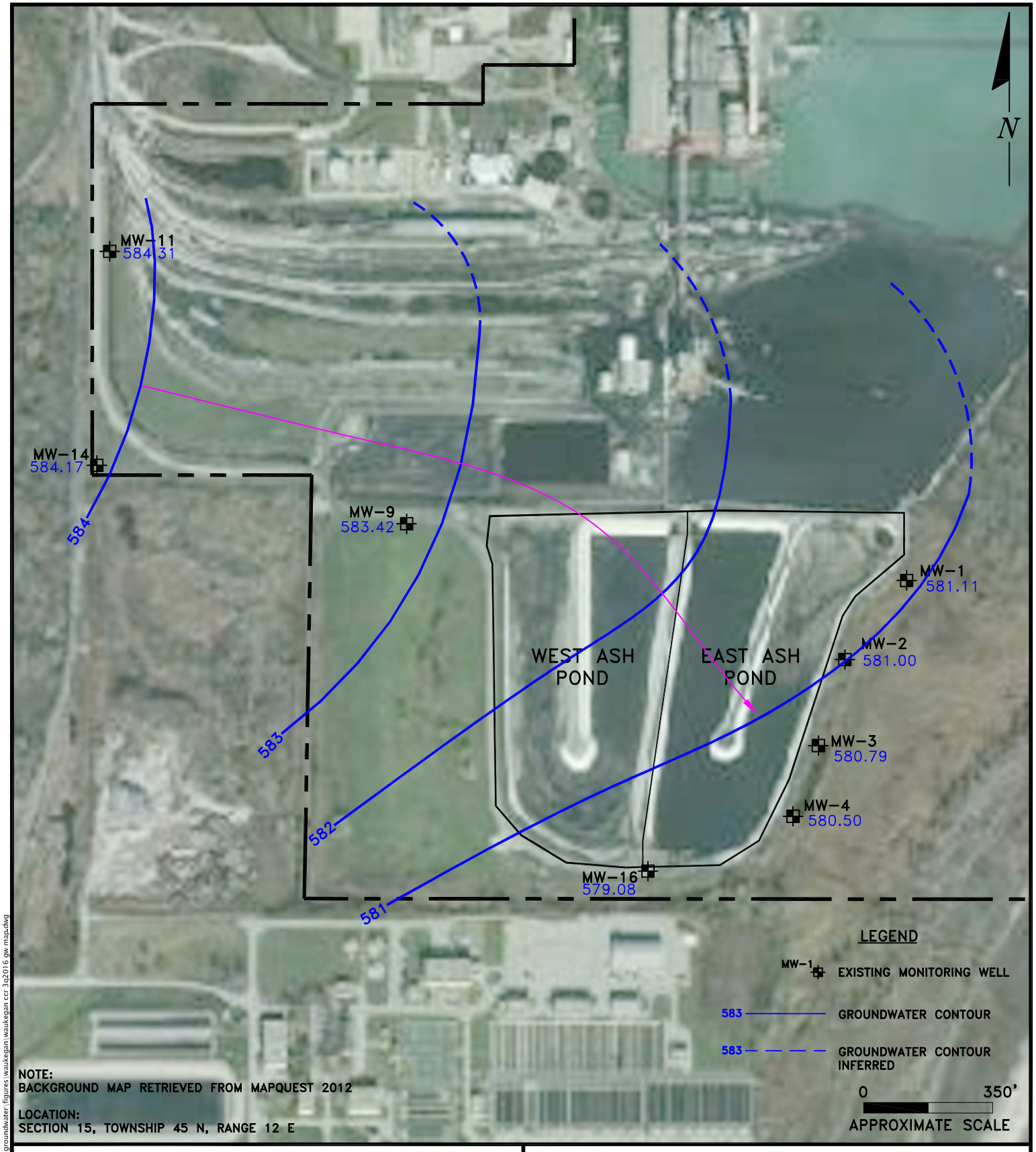

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-08/2016

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: October 10, 2016

KPRG Project No. 12313.2 | FIGURE 5

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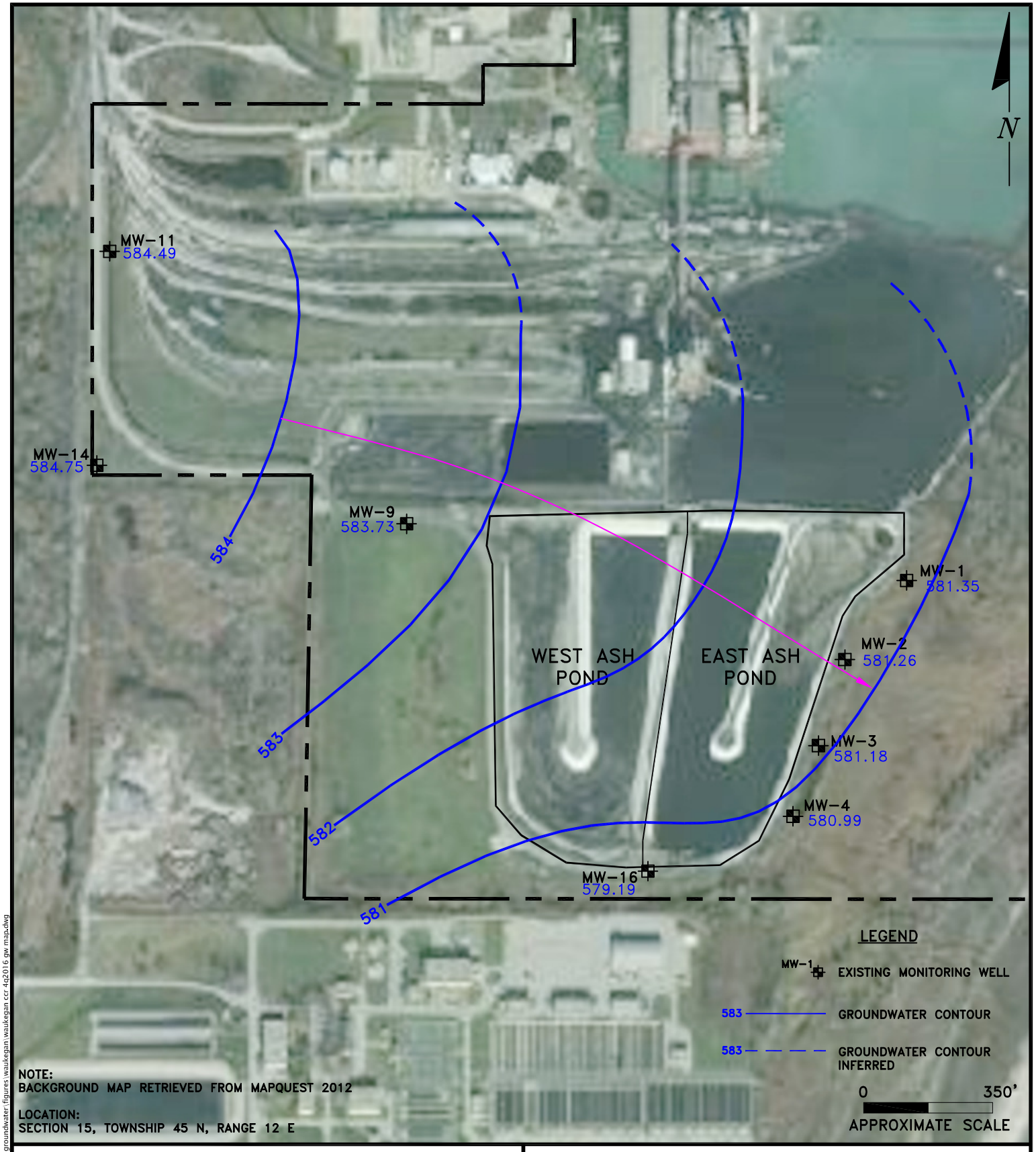

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-12/2016

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: January 3, 2017

KPRG Project No. 12313.2 | FIGURE 6

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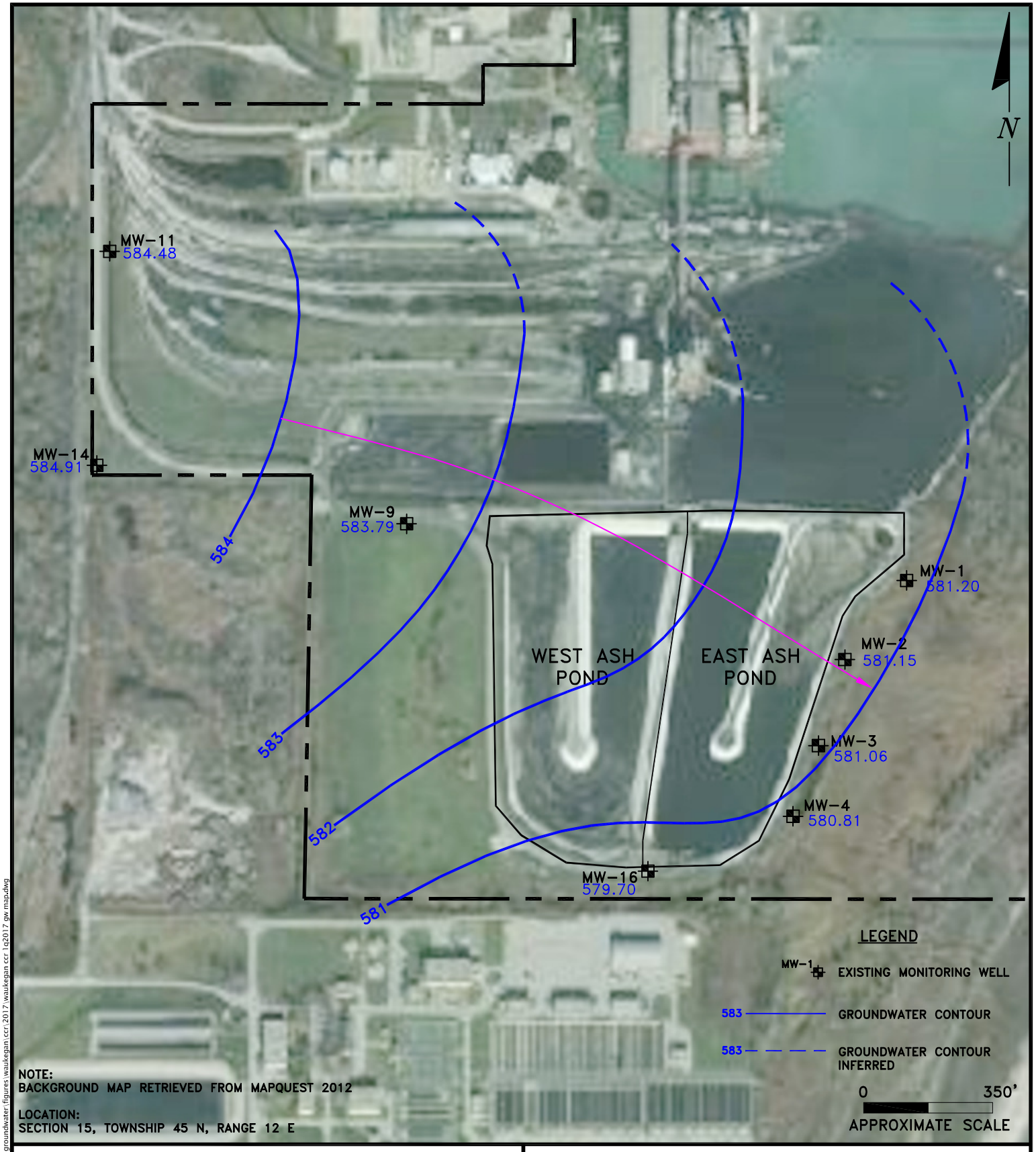

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-02/2017

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: April 5, 2017

KPRG Project No. 12313.2 | FIGURE 7

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NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-05/2017

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: June 22, 2017

KPRG Project No. 12313.2 | FIGURE 8

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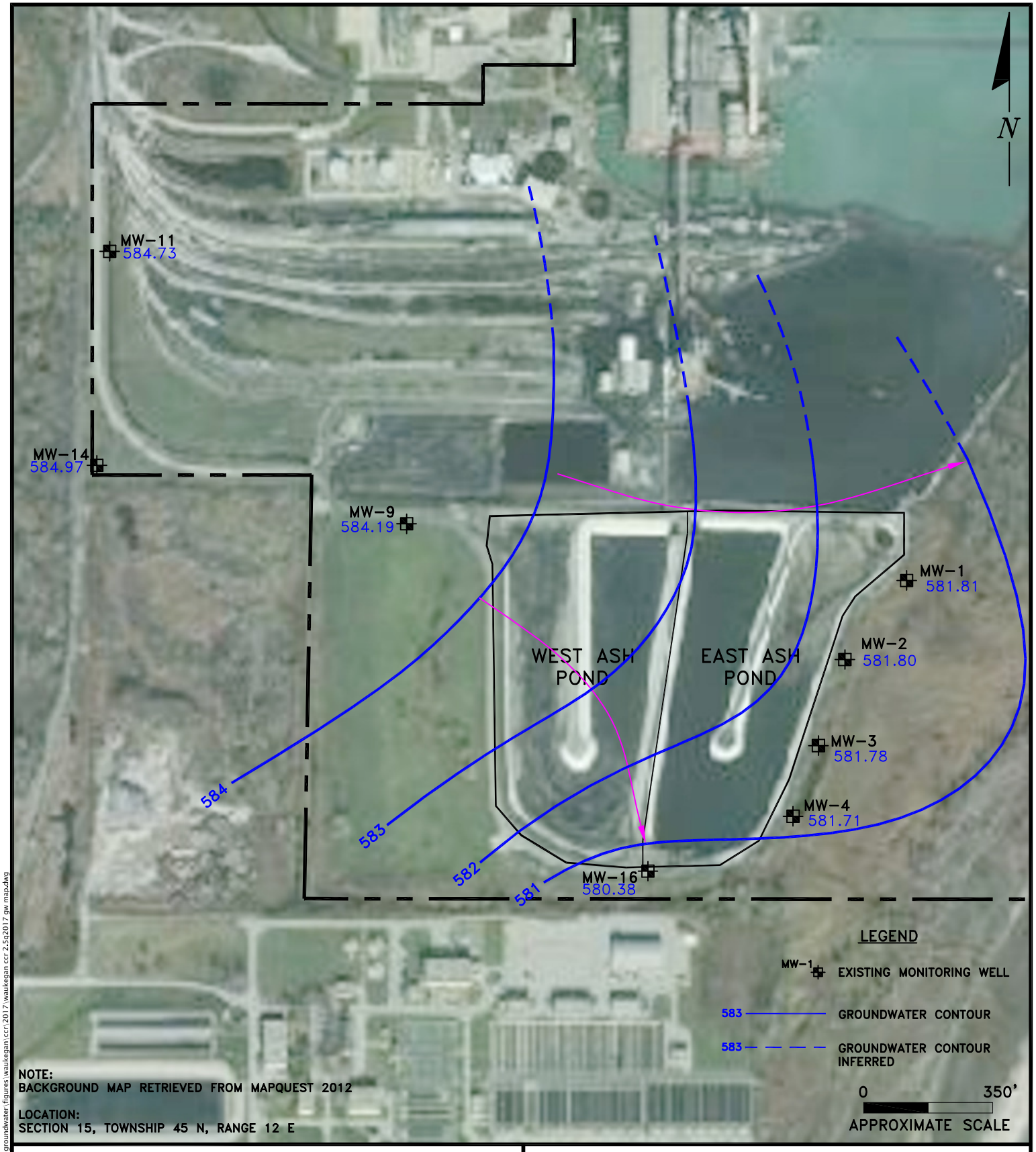

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-07/2017

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: August 9, 2017

KPRG Project No. 12313.2 | FIGURE 9

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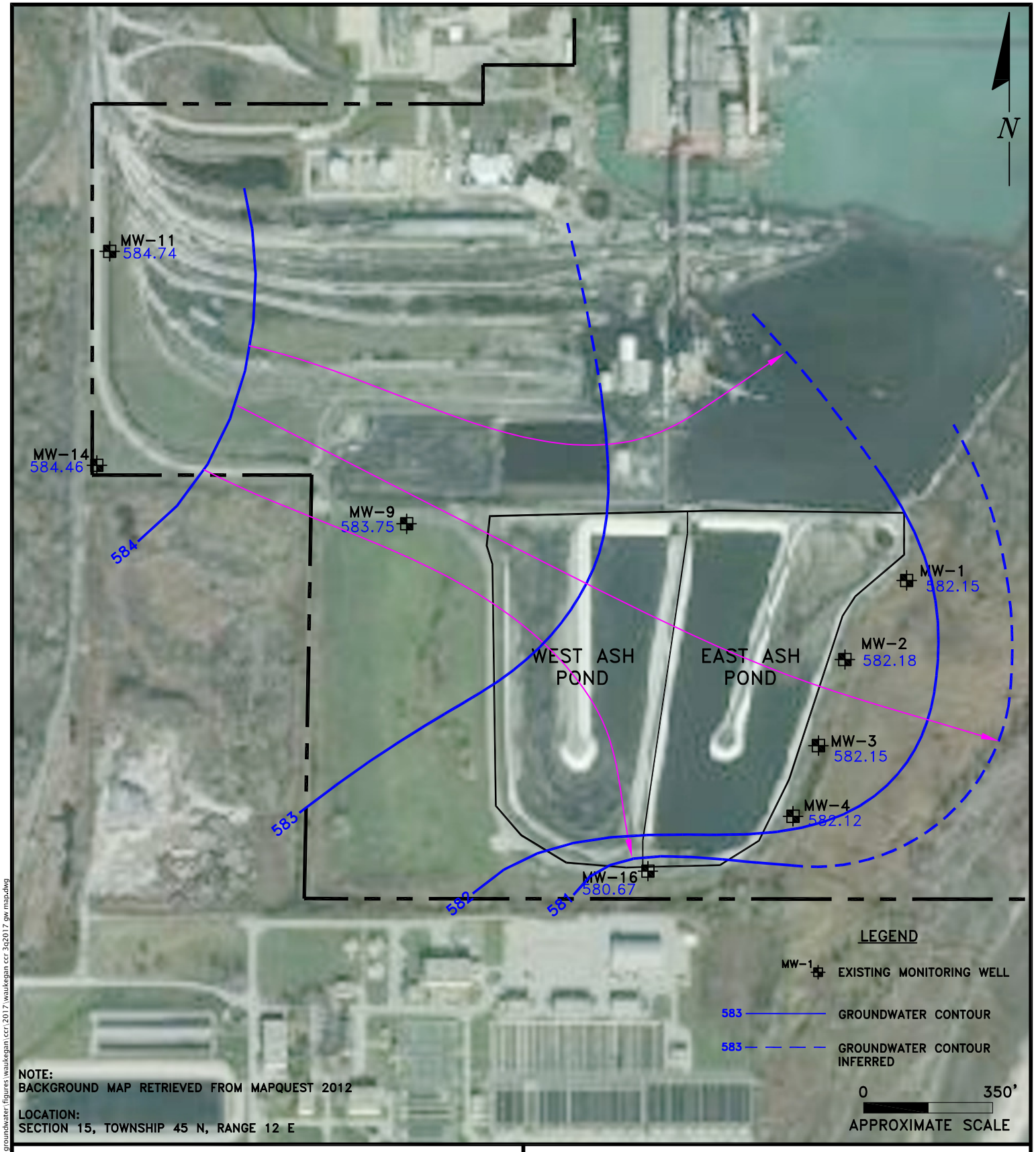

NOTE:
BACKGROUND MAP RETRIEVED FROM MAPQUEST 2012

LOCATION:
SECTION 15, TOWNSHIP 45 N, RANGE 12 E

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CCR GROUNDWATER CONTOUR-09/2017

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 350' | Date: October 18, 2017

KPRG Project No. 12313.2 | FIGURE 10

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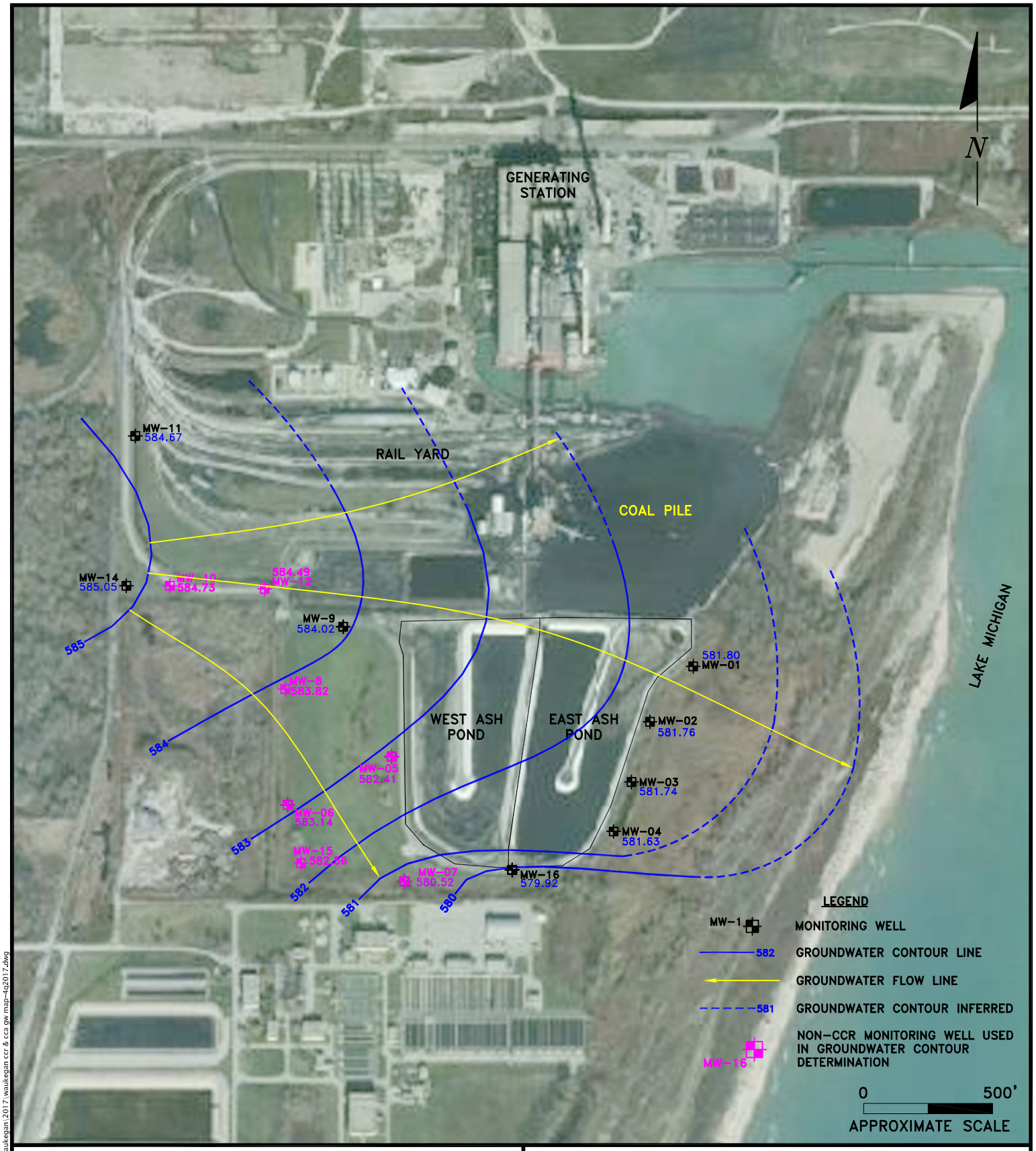

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GROUNDWATER CONTOUR MAP 11/2017

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500' | Date: December 20, 2017

KPRG Project No. 12313.2 | FIGURE 11

W:\projects\midwest generation\12313\figures\waukegan\2017 waukegan ccr & cca gw map-4q2017.dwg

TABLES

Table 1. Groundwater Elevations - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-01	11/2/2015	603.12	20.75	582.37
	2/29/2016	603.12	20.71	582.41
	5/2/2016	603.12	20.89	582.23
	8/23/2016	603.12	22.01	581.11
	12/2/2016	603.62	22.27	581.35
	2/21/2017	603.62	22.42	581.20
	5/15/2017	603.62	20.52	583.10
	7/5/2017	603.62	21.81	581.81
	9/11/2017	603.62	21.47	582.15
	11/27/2017	603.62	21.82	581.80
MW-02	11/2/2015	603.04	20.71	582.33
	2/29/2016	603.04	20.59	582.45
	5/2/2016	603.04	20.82	582.22
	8/23/2016	603.04	22.04	581.00
	12/2/2016	603.39	22.13	581.26
	2/21/2017	603.39	22.24	581.15
	5/15/2017	603.39	20.25	583.14
	7/5/2017	603.39	21.59	581.80
	9/11/2017	603.39	21.21	582.18
	11/27/2017	603.39	21.63	581.76
MW-03	11/2/2015	602.91	20.37	582.54
	2/29/2016	602.91	20.43	582.48
	5/2/2016	602.91	20.66	582.25
	8/23/2016	602.91	22.12	580.79
	12/2/2016	603.70	22.52	581.18
	2/21/2017	603.70	22.64	581.06
	5/15/2017	603.70	20.55	583.15
	7/5/2017	603.70	21.92	581.78
	9/11/2017	603.70	21.55	582.15
	11/28/2017	603.70	21.96	581.74
MW-04	11/2/2015	603.19	20.83	582.36
	2/29/2016	603.19	20.70	582.49
	5/2/2016	603.19	20.94	582.25
	8/23/2016	603.19	22.69	580.50
	12/2/2016	603.17	22.18	580.99
	2/21/2017	603.17	22.36	580.81
	5/15/2017	603.17	20.04	583.13
	7/5/2017	603.17	21.46	581.71
	9/11/2017	603.17	21.05	582.12
	11/28/2017	603.17	21.54	581.63
MW-09	11/2/2015	594.00	9.78	584.22
	2/29/2016	594.00	9.89	584.11
	5/2/2016	594.00	9.59	584.41
	8/23/2016	594.00	10.58	583.42
	12/2/2016	594.00	10.27	583.73
	2/21/2017	594.00	10.21	583.79
	5/15/2017	594.00	9.57	584.43
	7/6/2017	594.00	9.81	584.19
	9/11/2017	594.00	10.25	583.75
	11/29/2017	594.00	9.98	584.02
MW-11	11/2/2015	590.35	5.27	585.08
	2/29/2016	590.35	5.54	584.81
	5/2/2016	590.35	5.17	585.18
	8/23/2016	590.35	6.04	584.31
	12/2/2016	590.35	5.86	584.49
	2/21/2017	590.35	5.87	584.48
	5/15/2017	590.35	5.33	585.02
	7/6/2017	590.35	5.62	584.73
	9/11/2017	590.35	5.61	584.74
	11/30/2017	590.35	5.68	584.67
MW-14	11/2/2015	590.24	5.17	585.07
	2/29/2016	590.24	5.01	585.23
	5/2/2016	590.24	4.49	585.75
	8/23/2016	590.24	6.07	584.17
	12/2/2016	590.24	5.49	584.75
	2/21/2017	590.24	5.33	584.91
	5/15/2017	590.24	4.67	585.57
	7/6/2017	590.24	5.27	584.97
	9/11/2017	590.24	5.78	584.46
	11/30/2017	590.24	5.19	585.05
MW-16	11/2/2015	607.41	25.13	582.28
	2/29/2016	607.41	24.91	582.50
	5/2/2016	607.41	25.23	582.18
	8/23/2016	607.41	28.33	579.08
	12/2/2016	607.41	28.22	579.19
	2/21/2017	607.41	27.71	579.70
	5/15/2017	607.41	23.99	583.42
	7/6/2017	607.41	27.03	580.38
	9/11/2017	607.41	26.74	580.67
	11/27/2017	607.41	27.49	579.92

MSL - Mean Sea Level
TOC - Top of Casing

Table 2. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Waukegan Generation Station.

DATE	Groundwater Flow Direction	K_{avg} (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
11/2/2015	Southeast	4.040E-03	0.0018	0.35	1.75
2/29/2016	Southeast	4.040E-03	0.0013	0.35	1.30
5/2/2016	Southeast	4.040E-03	0.0015	0.35	1.45
8/23/2016	East-Southeast	4.040E-03	0.0017	0.35	1.65
12/2/2016	East-Southeast	4.040E-03	0.0021	0.35	2.09
2/21/2017	East-Southeast	4.040E-03	0.0022	0.35	2.14
5/15/2017	East-Southeast	4.040E-03	0.0008	0.35	0.80
7/5/2017	East-Southeast	4.040E-03	0.0049	0.35	4.84
9/11/2017	East-Southeast	4.040E-03	0.0018	0.35	1.75
11/27/2017	East-Southeast	4.040E-03	0.0024	0.35	2.39

* K_{avg} - Average hydraulic conductivity (feet/second) from Hydrogeologic Assessment Report, Patrick Engineering, February 2011.

** - Porosity estimate from Applied Hydrogeology, Fetter, 1980.

Table 3. Detection Monitoring - Appendix III Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-09 up-gradient	11/4/2015	13	210	450	0.14	6.60	370	1700
	3/2/2016	35	380	720	0.11	7.02	970	2800
	5/3/2016	16	310	620	0.12	7.02	740	2500
	8/25/2016	4.5	130	270	0.21	7.13	190	1100
	12/8/2016	15	200	330	0.18	7.01	270	1300
	2/23/2017	14	190	290	0.12	7.68	320	1300
	5/16/2017	27	160	67	0.29	8.15	420	970
	7/6/2017	21	220	430	0.13	7.18	610	1800
	9/13/2017	21	250	420	0.14	7.17	520	1800
	11/29/2017	26	200	390	0.13	7.05	390	1600
MW-11 up-gradient	11/5/2015	5.2	140	240	0.13	6.51	190	1100
	3/2/2016	4.0	170	240	0.1	7.16	210	1200
	5/5/2016	5.0	140	280	0.11	7.17	160	1000
	8/26/2016	3.5	180	240	0.13	6.97	110	1100
	12/7/2016	3.0	170	270	0.12	7.06	110	1200
	2/24/2017	2.4	180	220	4.9	6.61	170	1200
	5/18/2017	1.8	160	170	0.12	7.42	120	1000
	7/6/2017	2.4	160	190	0.14	7.33	130	1100
	9/13/2017	1.9	140	150	0.26	7.16	96	870
	11/30/2017	2.2	170	200	0.14	6.99	93	1100
MW-14 up-gradient	11/5/2015	1.4	150	190	0.19	6.78	140	1000
	3/2/2016	0.93	150	110	0.17	7.24	150	870
	5/5/2016	1.2	170	120	0.18	7.17	190	980
	8/26/2016	1.5	200	210	0.12	7.00	190	1300
	12/7/2016	0.95	240	340	0.25	6.81	120	1100
	2/23/2017	0.73	150	99	0.19	6.88	110	730
	5/18/2017	0.81	120	130	0.3	7.62	70	590
	7/6/2017	1.2	190	180	0.13	7.29	190	1300
	9/13/2017	2.3	180	190	0.15	7.20	270	1200
	11/30/2017	0.85	170	130	0.19	7.33	99	940
MW-01 down-gradient	11/2/2015	1.8	64	71	0.46	10.93	310	560
	3/1/2016	V 1.9	58	63	0.26	11.13	270	570
	5/4/2016	2.0	45	60	0.3	11.09	210	490
	8/23/2016	2.0	42	60	0.26	10.49	240	550
	12/5/2016	2.2	55	65	0.34	10.46	180	560
	2/21/2017	2.2	50	61	0.29	11.30	250	540
	5/15/2017	2.1	52	59	0.37	10.69	330	570
	7/5/2017	2.3	44	51	0.34	10.83	320	570
	9/14/2017	2.4	71	47	0.24	10.45	430	770
	11/27/2017	2.7	84	43	0.11	7.85	330	840

Notes:
All units are in mg/l except pH is in standard units.
V - Serial Dilution exceeds the control limits
Italics Dates - Data that will be compared against establsihed statistical background.

Table 3. Detection Monitoring - Appendix III Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-02 down-gradient	11/2/2015	3.0	32	47	0.78	8.27	230	460
	3/1/2016	4.1	39	47	1.3	8.57	220	510
	5/4/2016	3.3	34	51	1.5	8.19	180	440
	8/23/2016	3.1	42	59	1.3	7.52	250	500
	12/5/2016	3.1	28	56	1.0	8.62	160	430
	2/21/2017	3.3	31	52	0.8	8.75	190	420
	5/15/2017	3.6	85	48	0.6	8.33	320	640
	7/5/2017	4.2	100	52	0.4	7.92	300	710
	9/14/2017	2.5	87	54	0.4	8.19	340	780
	11/27/2017	3.4	69	57	0.6	7.34	200	570
MW-03 down-gradient	11/2/2015	2.3	72	87	0.51	9.26	270	570
	3/1/2016	2.9	61	70	0.33	7.33	220	530
	5/4/2016	2.4	42	74	0.56	7.25	170	470
	8/24/2016	2.0	70	59	0.3	9.13	200	430
	12/5/2016	2.4	57	60	0.41	7.62	120	440
	2/21/2017	2.2	56	65	0.33	7.56	180	460
	5/16/2017	3.9	110	61	0.27	7.9	320	820
	7/5/2017	3	60	60	0.28	7.46	200	470
	9/14/2017	2.1	86	57	0.26	7.53	260	680
	11/28/2017	2.6	69	63	0.56	6.96	120	500
MW-04 down-gradient	11/3/2015	1.8	66	62	0.51	6.68	240	480
	3/1/2016	2.0	58	51	0.5	7.17	170	450
	5/4/2016	1.6	44	49	0.61	6.92	140	340
	8/24/2016	2.0	46	58	0.56	7.01	120	370
	12/5/2016	3.4	200	60	0.21	7.40	300	1000
	2/22/2017	2.4	150	41	0.17	7.44	290	850
	5/16/2017	2.5	170	29	0.32	7.94	400	970
	7/5/2017	3.6	200	51	0.29	7.09	520	1100
	9/14/2017	2.5	180	45	0.28	7.04	480	1100
	11/28/2017	2.3	110	32	0.28	7.04	130	560
MW-16 down-gradient	11/3/2015	4.1	230	87	0.43	6.24	610	1400
	3/2/2016	3.1	360	130	0.35	6.76	990	1700
	5/2/2016	4.9	250	150	0.49	6.99	620	1600
	8/24/2016	3.6	130	53	0.71	7.00	330	830
	12/5/2016	3.8	160	52	0.51	7.03	280	920
	2/24/2017	6.5	200	67	0.2	5.76	570	1100
	5/16/2017	2.6	340	130	0.15	7.57	760	1700
	7/6/2017	9.5	190	70	0.57	7.35	480	1100
	9/13/2017	2.8	190	55	0.61	7.33	460	970
	11/27/2017	4.2	140	58	0.71	7.16	270	760

Notes:
All units are in mg/l except pH is in standard units.
V - Serial Dilution exceeds the control limits
Italics Dates - Data that will be compared against establsihed statistical background.

Table 4. Detection Monitoring - Appendix IV Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-09 up-gradient	11/4/2015	< 0.003	< 0.001	0.015	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.14	< 0.0005	0.081	< 0.0002	0.260	0.1818	< 0.0025	< 0.002
	3/2/2016	< 0.003	0.06	0.05	< 0.001	< 0.0005	0.043	< 0.001	0.11	0.00061	0.094	< 0.0002	0.51	< 0.36	0.025	< 0.002
	5/3/2016	< 0.003	0.0014	0.025	< 0.001	< 0.0005	< 0.005	< 0.001	0.12	< 0.0005	0.083	< 0.0002	0.63	< 0.512	0.024	< 0.002
	8/25/2016	0.0041	0.042	0.024	< 0.001	0.0011	0.056	0.0027	0.21	0.0012	0.049	< 0.0002	0.063	0.482	0.039	< 0.002
	12/8/2016	< 0.003	0.004	0.016	< 0.001	0.00052	< 0.005	< 0.001	0.18	< 0.0005	0.077	< 0.0002	0.24	< 0.72	0.038	< 0.002
	2/23/2017	< 0.003	0.0027	0.014	< 0.001	< 0.0005	0.059	0.0018	0.12	< 0.0005	0.068	< 0.0002	0.26	< 0.461	0.016	< 0.002
	5/16/2017	< 0.003	< 0.001	0.0094	^< 0.001	< 0.0005	< 0.005	< 0.001	0.29	< 0.0005	0.045	< 0.0002	0.51	< 0.342	0.0085	< 0.002
	7/6/2017	< 0.003	0.002	0.018	< 0.001	< 0.0005	< 0.005	< 0.001	0.13	< 0.0005	0.089	< 0.0002	0.31	< 0.316	0.021	< 0.002
	9/13/2017	< 0.003	0.0067	0.019	< 0.001	< 0.0005	0.0052	0.0017	0.14	< 0.0005	0.069	< 0.0002	0.33	0.944	0.0041	< 0.002
	11/29/2017	< 0.003	0.0017	0.015	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.13	< 0.0005	0.086	< 0.0002	0.47	0.475	0.042	< 0.002
MW-11 up-gradient	11/5/2015	< 0.003	0.77	0.039	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.13	0.001	0.055	< 0.0002	< 0.0050	0.656	< 0.0025	< 0.002
	3/2/2016	< 0.003	0.55	0.048	< 0.001	< 0.0005	0.0058	< 0.001	0.1	0.0011	0.049	< 0.0002	< 0.0050	1.09	< 0.0025	< 0.002
	5/5/2016	< 0.003	0.51	0.038	< 0.001	< 0.0005	< 0.005	< 0.001	0.11	< 0.0005	0.057	< 0.0002	< 0.005	1.24	< 0.0025	< 0.002
	8/26/2016	< 0.003	1.1	0.05	< 0.001	< 0.0005	0.0055	< 0.001	0.13	0.0005	0.055	< 0.0002	< 0.005	1.04	< 0.0025	< 0.002
	12/7/2016	< 0.003	0.87	0.049	< 0.001	< 0.0005	< 0.005	< 0.001	0.12	< 0.0005	0.038	< 0.0002	< 0.005	1.87	< 0.0025	< 0.002
	2/24/2017	< 0.003	0.58	0.047	< 0.001	< 0.0005	< 0.005	< 0.001	H 0.13	< 0.0005	0.039	< 0.0002	< 0.005	0.982	< 0.0025	< 0.002
	5/18/2017	< 0.003	0.5	0.047	^< 0.001	< 0.0005	0.0056	< 0.001	0.12	< 0.0005	0.036	< 0.0002	< 0.005	1.31	< 0.0025	< 0.002
	7/6/2017	< 0.003	0.69	0.056	< 0.001	< 0.0005	0.0057	< 0.001	0.14	< 0.0005	0.041	< 0.0002	< 0.005	0.889	< 0.0025	< 0.002
	9/13/2017	< 0.003	0.86	0.036	< 0.001	< 0.0005	0.008	< 0.001	0.26	0.00071	0.037	< 0.0002	0.0054	0.718	< 0.0025	< 0.002
	11/30/2017	< 0.003	0.59	0.05	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.14	< 0.0005	0.041	< 0.0002	< 0.005	1.21	< 0.0025	< 0.002
MW-14 up-gradient	11/5/2015	< 0.003	0.19	0.052	^ < 0.001	< 0.0005	0.01	0.0012	0.19	< 0.0005	0.025	< 0.0002	< 0.005	0.7087	< 0.0025	< 0.002
	3/2/2016	0.015	4.3	0.12	< 0.001	< 0.0005	1.1	0.0036	0.17	0.00068	0.019	< 0.0002	< 0.005	1.36	< 0.0025	< 0.002
	5/5/2016	< 0.003	0.35	0.054	< 0.001	< 0.0005	0.017	0.0014	0.18	< 0.0005	0.021	< 0.0002	< 0.005	< 0.488	< 0.0025	< 0.002
	8/26/2016	< 0.003	1.0	0.058	< 0.001	< 0.0005	0.021	< 0.001	0.12	< 0.0005	0.026	< 0.0002	< 0.005	0.75	< 0.0025	< 0.002
	12/7/2016	0.0096	19	0.42	< 0.001	0.00089	4.6	0.0025	0.25	0.00084	0.022	< 0.0002	0.0094	< 0.866	0.014	< 0.002
	2/23/2017	0.0061	9.3	0.36	< 0.001	0.001	4.6	0.0070	0.19	0.00095	0.017	< 0.0002	< 0.005	< 0.514	0.0031	< 0.002
	5/18/2017	0.0035	3.3	0.44	^< 0.001	0.002	4.8	0.0041	0.3	0.00054	0.013	0.00043	< 0.005	0.779	< 0.0025	< 0.002
	7/6/2017	< 0.003	0.4	0.071	< 0.001	< 0.0005	0.026	0.0013	0.13	< 0.0005	0.034	< 0.0002	< 0.005	0.549	< 0.0025	< 0.002
	9/13/2017	< 0.003	0.52	0.065	< 0.001	< 0.0005	0.0078	< 0.0010	0.15	< 0.0005	0.025	< 0.0002	< 0.005	< 0.359	< 0.0025	< 0.002
	11/30/2017	0.0093	21	0.27	< ^ 0.001	0.00068	3.2	0.0021	0.19	< 0.0005	0.023	< 0.0002	0.0055	1.01	0.0072	< 0.002
MW-01 down-gradient	11/2/2015	< 0.003	0.074	0.025	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.46	< 0.0005	< 0.01	< 0.0002	0.04	0.0683	0.0047	< 0.002
	3/1/2016	< 0.003	0.1	0.026	< 0.001	< 0.0005	< 0.005	< 0.001	0.26	< 0.0005	< 0.01	< 0.0002	0.059	< 0.317	< 0.0025	< 0.002
	5/4/2016	< 0.003	0.11	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	0.3	< 0.0005	< 0.01	< 0.0002	0.069	< 0.40	< 0.0025	< 0.002
	8/23/2016	< 0.003	0.074	0.012	< 0.001	< 0.0005	< 0.005	< 0.001	0.26	< 0.0005	< 0.01	< 0.0002	0.065	< 0.478	0.0042	< 0.002
	12/5/2016	< 0.003	0.13	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	< 0.01	< 0.0002	0.07	< 0.465	0.0025	< 0.002
	2/21/2017	< 0.003	0.15	0.016	< 0.001	< 0.0005	< 0.005	< 0.001	0.29	< 0.0005	< 0.01	< 0.0002	0.069	0.516	< 0.0025	< 0.002
	5/15/2017	< 0.003	0.14	0.017	^< 0.001	< 0.0005	< 0.005	< 0.001	0.37	< 0.0005	< 0.01	< 0.0002	0.062	< 0.424	0.0036	< 0.002
	7/5/2017	< 0.003	0.066	0.014	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	< 0.01	< 0.0002	0.059	< 0.289	0.0095	< 0.002
	9/14/2017	< 0.003	0.04	0.033	< 0.001	< 0.0005	< 0.005	< 0.001	0.24	< 0.0005	< 0.01	< 0.0002	0.047	< 0.383	0.0096	< 0.002
	11/27/2017	< 0.003	0.021	0.055	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.11	< 0.0005	< 0.01	< 0.0002	0.034	0.568	0.023	< 0.002

Notes:
All units are in mg/l except pH is in standard units.

^ - Denotes instrument related QC exceeds the control limits
NS - No Standard

H - Sample preped or analyzed beyond specific holding time.

Table 4. Detection Monitoring - Appendix IV Groundwater Analytical Results through 2017 - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-02 down-gradient	11/2/2015	< 0.003	0.014	0.016	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.78	< 0.0005	< 0.01	< 0.0002	0.0630	0.4628	< 0.0025	< 0.002
	3/1/2016	< 0.003	0.011	0.02	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	< 0.01	< 0.0002	0.078	0.529	< 0.0025	< 0.002
	5/4/2016	< 0.003	0.0081	0.018	< 0.001	< 0.0005	< 0.005	< 0.001	1.5	< 0.0005	< 0.01	< 0.0002	0.069	< 0.425	< 0.0025	< 0.002
	8/23/2016	< 0.003	0.0082	0.016	< 0.001	< 0.0005	< 0.005	< 0.001	1.3	< 0.0005	< 0.010	< 0.0002	0.056	< 0.439	< 0.0025	< 0.002
	12/5/2016	< 0.003	0.018	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	1.0	< 0.0005	< 0.01	< 0.0002	0.071	0.509	< 0.0025	< 0.002
	2/21/2017	< 0.003	0.028	0.012	< 0.001	< 0.0005	< 0.005	< 0.001	0.8	< 0.0005	< 0.01	< 0.0002	0.051	< 0.416	0.0038	< 0.002
	5/15/2017	< 0.003	0.02	0.029	^< 0.001	< 0.0005	< 0.005	< 0.001	0.6	< 0.0005	< 0.01	< 0.0002	0.047	0.425	0.023	< 0.002
	7/5/2017	< 0.003	0.0094	0.031	< 0.001	< 0.0005	< 0.005	< 0.001	0.4	< 0.0005	< 0.01	< 0.0002	0.047	< 0.295	0.017	< 0.002
	9/14/2017	< 0.003	0.012	0.035	< 0.001	< 0.0005	< 0.005	< 0.001	0.4	< 0.0005	< 0.01	< 0.0002	0.049	0.769	0.0052	< 0.002
	11/27/2017	< 0.003	0.011	0.022	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.6	< 0.0005	< 0.01	< 0.0002	0.048	< 0.442	< 0.0025	< 0.002
MW-03 down-gradient	11/2/2015	< 0.003	0.0068	0.011	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.51	< 0.0005	< 0.01	< 0.0002	0.0370	0.071	< 0.0025	< 0.002
	3/1/2016	< 0.003	0.0069	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	< 0.01	< 0.0002	0.0560	< 0.332	0.0043	< 0.002
	5/4/2016	< 0.003	0.007	0.011	< 0.001	< 0.0005	< 0.005	< 0.001	0.56	< 0.0005	< 0.01	< 0.0002	0.058	< 0.48	< 0.0025	< 0.002
	8/24/2016	< 0.003	0.010	0.0069	< 0.001	< 0.0005	< 0.005	< 0.001	0.3	< 0.0005	< 0.01	< 0.0002	0.042	< 0.428	< 0.0025	< 0.002
	12/5/2016	< 0.003	0.0065	0.0094	< 0.001	< 0.0005	< 0.005	< 0.001	0.41	< 0.0005	< 0.010	< 0.0002	0.044	< 0.526	< 0.0025	< 0.002
	2/21/2017	< 0.003	0.011	0.0067	< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	< 0.010	< 0.0002	0.043	0.437	< 0.0025	< 0.002
	5/16/2017	< 0.003	0.0087	0.039	^< 0.001	< 0.0005	< 0.005	< 0.001	0.27	< 0.0005	< 0.010	< 0.0002	0.041	< 0.461	0.014	< 0.002
	7/5/2017	< 0.003	0.0029	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	0.28	< 0.0005	< 0.010	< 0.0002	0.058	< 0.304	0.0045	< 0.002
	9/14/2017	< 0.003	0.0024	0.026	< 0.001	< 0.0005	< 0.005	< 0.001	0.26	< 0.0005	< 0.010	< 0.0002	0.056	0.462	0.0081	< 0.002
	11/28/2017	< 0.003	0.0025	0.016	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.56	< 0.0005	< 0.010	< 0.0002	0.057	1.17	< 0.0025	< 0.002
MW-04 down-gradient	11/3/2015	< 0.003	0.0066	0.032	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.51	< 0.0005	< 0.01	< 0.0002	0.031	0.2732	< 0.0025	< 0.002
	3/1/2016	< 0.003	0.0083	0.033	< 0.001	< 0.0005	< 0.005	< 0.001	0.5	< 0.0005	< 0.01	< 0.0002	0.048	0.478	< 0.0025	< 0.002
	5/4/2016	< 0.003	0.0083	0.017	< 0.001	< 0.0005	< 0.005	< 0.001	0.61	< 0.0005	< 0.01	< 0.0002	0.046	< 0.542	< 0.0025	< 0.002
	8/24/2016	< 0.003	0.0099	0.019	< 0.001	< 0.0005	< 0.005	< 0.001	0.56	< 0.0005	< 0.01	< 0.0002	0.049	< 0.461	< 0.0025	< 0.002
	12/5/2016	< 0.003	0.019	0.13	< 0.001	< 0.0005	< 0.005	< 0.0010	0.21	< 0.0005	< 0.01	< 0.0002	0.0097	1.04	0.02	< 0.002
	2/22/2017	< 0.003	0.036	0.093	< 0.001	< 0.0005	< 0.005	< 0.0010	0.17	< 0.0005	< 0.01	< 0.0002	0.015	0.886	0.0042	< 0.002
	5/16/2017	< 0.003	0.024	0.072	^< 0.001	< 0.0005	< 0.005	< 0.0010	0.32	< 0.0005	< 0.01	< 0.0002	0.017	0.55	0.032	< 0.002
	7/5/2017	< 0.003	0.0034	0.076	< 0.001	< 0.0005	< 0.005	< 0.0010	0.29	< 0.0005	< 0.01	< 0.0002	0.017	0.515	0.062	< 0.002
	9/14/2017	< 0.003	0.0028	0.076	< 0.001	< 0.0005	< 0.005	< 0.0010	0.28	< 0.0005	< 0.01	< 0.0002	0.021	0.794	0.026	< 0.002
	11/28/2017	< 0.003	0.0027	0.053	< ^ 0.001	< 0.0005	< 0.005	< 0.0010	0.28	< 0.0005	< 0.01	< 0.0002	0.032	0.872	0.0069	< 0.002
MW-16 down-gradient	11/3/2015	< 0.003	0.001	0.047	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.43	< 0.0005	0.071	< 0.0002	0.021	0.865	0.0074	< 0.002
	3/2/2016	< 0.003	0.0015	0.035	< 0.001	0.001	< 0.005	< 0.001	0.35	< 0.0005	0.13	< 0.0002	0.013	< 0.396	0.0052	0.002
	5/2/2016	< 0.003	0.0011	0.052	< 0.001	0.00053	< 0.005	< 0.001	0.49	< 0.0005	0.024	< 0.0002	0.014	0.70	< 0.0025	< 0.002
	8/24/2016	< 0.003	< 0.001	0.028	< 0.001	< 0.0005	< 0.005	< 0.001	0.71	< 0.0005	0.014	< 0.0002	0.022	< 0.462	< 0.0025	< 0.002
	12/5/2016	< 0.003	0.036	0.062	< 0.001	< 0.0005	< 0.005	0.0012	0.51	0.00054	0.011	< 0.0002	0.021	0.791	< 0.0025	< 0.002
	2/24/2017	< 0.003	0.027	0.067	< 0.001	< 0.0005	0.005	0.0011	0.2	< 0.0005	0.012	< 0.0002	0.023	0.54	0.0037	< 0.002
	5/16/2017	< 0.003	0.043	0.045	^< 0.001	0.0043	0.0076	< 0.001	0.15	0.00057	0.13	< 0.0002	0.016	0.441	0.016	0.0021
	7/6/2017	< 0.003	0.0029	0.029	< 0.001	0.00069	< 0.005	< 0.001	0.57	< 0.0005	0.017	< 0.0002	0.017	< 0.382	< 0.0025	< 0.002
	9/13/2017	< 0.003	< 0.001	0.024	< 0.001	0.0005	< 0.005	< 0.001	0.61	< 0.0005	< 0.01	< 0.0002	0.024	< 0.335	< 0.0025	< 0.002
	11/27/2017	< 0.003	0.0031	0.026	< ^ 0.001	0.00097	< 0.005	< 0.001	0.71	< 0.0005	0.01	< 0.0002	0.026	0.557	< 0.0025	< 0.002

Notes:
All units are in mg/l except pH is in standard units.

^ - Denotes instrument related QC exceeds the control limits
NS - No Standard

H - Sample preped or analyzed beyond specific holding time.

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-1-Wa** SHEET 1 OF 2
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.5**

ELEVATION	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
23.5	0.0		Brown fine sand, fine gravel, black cinders, ash FILL				
				SS-1 1.0-2.5 16"R	3 5 7		qu=NT
							Bentonite seal 2.0'-20.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 18"R	6 10 13		qu=NT
			Dry				
				SS-3 6.0-7.5 14"R	6 11 16		qu=NT
			Dry	SS-4 8.5-10.0 12"R	4 9 10		qu=NT
				SS-5 11.0-12.5 16"R	2 3 3		qu=NT
10.0	13.5		Light brown fine and medium sand, dry FILL	SS-6 13.5-15.0 18"R	2 4 3		qu=NT
			Occasional black coal, cinders	SS-7 16.0-17.5 18"R	3 4 4		qu=NT
			Brown fine sand, occasional black cinders	SS-8 18.5-20.0 18"R	6 7 9		qu=NT
3.5	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.5**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-1-Wa** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.5**

ELEVATION	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
3.5	20.0		Light brown fine sand, trace medium sand, medium dense, moist				Sand pack 20.0'-32.0'
			SM	SS-9 21.0-22.5 18"R	5 8 10		qu=NT
							Set screen (slot 0.010") 22.0'-32.0'
0.0	23.5		▽ Saturated	SS-10 23.5-25.0 18"R	6 9 10		qu=NT
			Trace fine gravel				
				SS-11 26.0-27.5 18"R	5 6 12		qu=NT
				SS-12 28.5-30.0 18"R	6 9 13		qu=NT
			Fine sand, trace coarse to medium sand, medium dense, saturated				
-8.5	32.0		End of Boring at 32.0'				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.5**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-2-Wa** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.0**

ELEVATION	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
23.0	0.0		Black coal cinders, ash, fine sand, fine gravel, gray silt FILL				
				SS-1 1.0-2.5 14"R	4 10 15		qu=NT
							Bentonite seal 2.0'-19.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 14"R	8 10 23		qu=NT
			Dry				
				SS-3 6.0-7.5 14"R	12 11 16		qu=NT
				SS-4 8.5-10.0 18"R	7 12 14		qu=NT
			Dry				
12.0	11.0		Light brown fine sand, gray fine sand	SS-5 11.0-12.5 18"R	12 13 13		qu=NT
				SS-6 13.5-15.0 18"R	1 3 6		qu=NT
				SS-7 16.0-17.5 18"R	8 10 10		qu=NT
			Dry				
4.5	18.5		Light brown fine sand, trace medium sand, well graded SM	SS-8 18.5-20.0 18"R	9 12 14		qu=NT Sand pack 19.0'-30.0'

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.5**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-2-Wa** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.0**

ELEVATION	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
3.0	20.0						Set screen (slot 0.010") 20.0'-30.0'
1.5	21.5		▽ Saturated	SS-9 21.0-22.5 18"R	6 10 11		qu=NT
			Medium dense, dry				
			Trace fine gravel and coarse sand	SS-10 23.5-25.0 18"R	3 7 12		qu=NT
				SS-11 26.0-27.5 18"R	4 7 13		qu=NT
				SS-12 28.5-30.0 18"R	2 8 12		qu=NT
-7.0	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 **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.5**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-3-Wa** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.2**

ELEVATION	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
23.2	0.0		Brown silty sand, fine gravel, black coal cinders, ash				
			FILL	SS-1 1.0-2.5 16"R	7 13 16		qu=NT
							Bentonite seal 2.0'-19.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 18"R	9 16 18		qu=NT
			Dry				
				SS-3 6.0-7.5 14"R	15 20 26/4.5"		qu=NT
			Gray silt, cinders, ash, sand				
				SS-4 8.5-10.0 18"R	9 16 18		qu=NT
				SS-5 11.0-12.5 18"R	6 10 12		qu=NT
				SS-6 13.5-15.0 18"R	3 4 9		qu=NT
			Light brown fine sand				
			Black coarse coal cinders	SS-7 16.0-17.5 18"R	7 7 9		qu=NT
4.7	18.5		Light brown fine sand				
			SM	SS-8 18.5-20.0 18"R	6 7 12		Sand pack 19.0'-20.0'
3.2	20.0						

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-3-Wa** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.2**

ELEVATION	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
3.2	20.0		Light brown fine sand, trace medium sand, well graded, medium dense				Set screen (slot 0.010") 20.0'-30.0'
2.2	21.0		▽ SM Saturated	SS-9 21.0-22.5 18"R	4 6 10		qu=NT
			Trace fine gravel	SS-10 23.5-25.0 18"R	4 6 10		qu=NT
				SS-11 26.0-27.5 18"R	6 7 16		qu=NT
				SS-12 28.5-30.0 18"R	6 12 14		qu=NT
-6.8	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 **10/13/10** ENDED **10/13/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**
▼
▼

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-4-Wa** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.6**

ELEVATION	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
23.6	0.0		Dark brown silt, coarse gravel, black coal cinders, dry				
			FILL	SS-1 1.0-2.5 18"R	6 13 19		qu=NT
							Bentonite seal 2.0'-19.0'. Stickup protective cover installed.
				SS-2 3.5-5.0 17"R	8 24 21		qu=NT
				SS-3 6.0-7.5 6"R	13 31/4"		qu=NT
			Wood, gray silt, cinders, dry	SS-4 8.5-10.0 18"R	14 26 26		qu=NT
			Some medium sand	SS-5 11.0-12.5 18"R	11 14 13		qu=NT
			Cinders mixed with brown fine sand	SS-6 13.5-15.0 18"R	5 8 8		qu=NT
				SS-7 16.0-17.5 18"R	7 10 12		qu=NT
5.1	18.5		Light brown fine sand, well graded, medium dense	SS-8 18.5-20.0 18"R	7 11 13		qu=NT Sand pack 19.0'-30.0'
			SM				

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/12/10** ENDED **10/12/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-4-Wa** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **23.6**

ELEVATION	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
3.6	20.0						Set screen (slot 0.010") 20.0'-30.0'
			Moist	SS-9 21.0-22.5 18"R	4 6 6		qu=NT
0.6	23.0		▽ Saturated				
				SS-10 23.5-25.0 18"R	4 4 8		qu=NT
				SS-11 26.0-27.5 18"R	8 8 10		qu=NT
			Trace fine gravel, trace coarse sand	SS-12 28.5-30.0 18"R	7 8 12		qu=NT
-6.4	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 **10/12/10** ENDED **10/12/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **23.0**
▽
▽

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-5-Wa** SHEET **1** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **21.5**

ELEVATION	DEPTH (FT)	STRATA	SOIL/ROCK DESCRIPTION	SAMPLE TYPE & NO. DEPTH (FT) RECOVERY(IN)	BLOW COUNTS	Water Content PL LL / Unconfined Compressive Strength (TSF)	NOTES & TEST RESULTS
21.5	0.0		Dark brown silty clay topsoil				
21.0	0.5		FILL				
			Black coal cinders, medium sand	SS-1	6		qu=NT
			FILL	1.0-2.5	10		
				14"R	10		Bentonite seal 2.0'-18.0'. Stickup protective cover installed.
				SS-2	4		qu=NT
			Dry	3.5-5.0	6		
				14"R	5		
				SS-3	2		qu=NT
				6.0-7.5	6		
			Brown fine to medium sand, with black coal cinders	16"R	8		
				SS-4	2		qu=NT
			Loose	8.5-10.0	2		
				18"R	2		
			Brick	SS-5	1		qu=NT
				11.0-12.5	2		
			Moist	18"R	1		
				SS-6	1		qu=NT
			Black coal cinders	13.5-15.0	2		
				17"R	1		
			Dark gray silt	SS-7	4		qu=NT
4.5	17.0		Gray medium sand, black coal cinders	16.0-17.5	2		
			Gray fine sand, trace medium to coarse sand, well graded, loose to medium dense, saturated	18"R	2		
			SM	SS-8	4		Sand pack 18.0'-30.0'
				18.5-20.0	4		Set screen (slot 0.010") 18.5'-28.5'
					5		

DRILLING CONTRACTOR **Groff Testing**
DRILLING METHOD **4.25" I.D. HSA**
DRILLING EQUIPMENT **CME 550 ATV**
DRILLING STARTED **10/12/10** ENDED **10/12/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**

PATRICK ENGINEERING INC.

BORING NUMBER **B-MW-5-Wa** SHEET **2** OF **2**
CLIENT **Midwest Generation**
PROJECT & NO. **21053.070**
LOCATION **Waukegan**

LOGGED BY **MPG**
GROUND ELEVATION **21.5**

ELEVATION	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
1.5	20.0						
0.5	21.0		▽				
			Gray fine gravel, coarse sand, poorly graded, medium dense, saturated GP	SS-9 21.0-22.5 16"R	5 7 8		qu=NT
				SS-10 23.5-25.0 18"R	6 9 8		qu=NT
-4.5	26.0		Gray fine sand, trace medium sand, trace fine gravel, well graded, medium dense SM	SS-11 26.0-27.5 16"R	6 8 13		qu=NT
				SS-12 28.5-30.0 18"R	7 10 13		qu=NT
-8.5	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 **10/12/10** ENDED **10/12/10**

REMARKS
Installed 2" diameter PVC monitoring well.

WATER LEVEL (ft.)
▽ **21.0**

KPRG
ENVIRONMENTAL CONSULTATION & REMEDIATION
KPRG and Associates, Inc.

GEOLOGIC LOG OF MW-6

Midwest Generation, LLC
Waukegan Station
Waukegan, Illinois

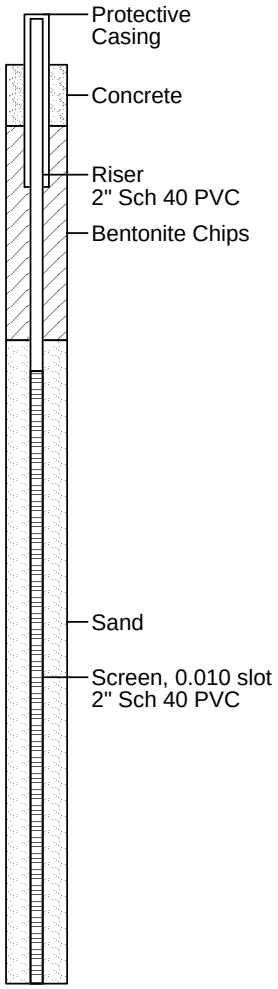
Project No. 18311.31

Date Started	: 11/19/2012
Date Well Set	: 11/19/2012
Rock Coring Tools	: Not cored
Drilling Tools	: 4.25 ID HSA
Drill Rig	: Geoprobe
Driller Name/Co	: T. Brown/Cabeno

Total Boring Depth	: 20 feet
Well Bottom Depth	: 15 feet
Surface Elev.	: 586.75 feet above MSL
TOC Elev.	: 589.73 feet above MSL
Groundwater Elev.	: 580.89 feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	: 42 22' 36.90" N
Coordinate E	: 087 49' 6.7" W
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 586.75	DESCRIPTION	% PID	% Recovery
0		FILL: Dark brown silty clay, slightly moist	0	
			0	
2	585	FILL: Brown to dark brown fine SILTY SAND, moist	0	
			0	
4	583	Black SILTY CLAY, organics, slightly moist	0	80
		Brown medium to fine grained SILTY SAND	0	
6	581	- Wet	0	
8	579		0	80
10	577		0	
12	575		0	100
14	573	- Some coarse sand	0	
16	571		0	80
18	569		0	
20	567	End of Geoprobe boring at 20', end HSA boring at 15'		
22	565			

Well Diagram: MW-6



K P R G
ENVIRONMENTAL CONSULTATION & REMEDIATION
KPRG and Associates, Inc.

Midwest Generation, LLC
Waukegan Station
Waukegan, Illinois

Project No. 18311.31

GEOLOGIC LOG OF MW-7

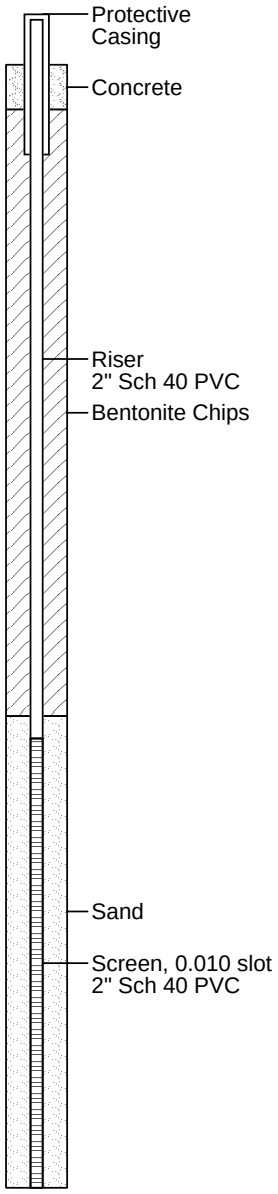
(Page 1 of 1)

Date Started	: 11/19/2012
Date Well Set	: 11/19/2012
Rock Coring Tools	: Not cored
Drilling Tools	: 4.25 ID HSA
Drill Rig	: Geoprobe
Driller Name/Co	: T. Brown/Cabeno

Total Boring Depth	: 25 feet
Well Bottom Depth	: 25 feet
Surface Elev.	: 595.87 feet above MSL
TOC Elev.	: 598.29 feet above MSL
Groundwater Elev.	: 579.57 feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	: 42 22' 34.00" N
Coordinate E	: 087 48' 59.70" W
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 595.87	DESCRIPTION	PID	% Recovery
0		FILL: Brown to dark brown clay approximately 3" thick	0	
		FILL: Black medium grained sand with some reddish and gray layers, some silty layers, slightly moist	0	
2	594		0	
			0	
4	592		0	80
		FILL: Tan fine to medium grained sand with thin black layers	0	
6	590		0	
			0	
8	588		0	80
10	586	FILL: Gray silt with thin banding light to dark, slightly moist		
		Black CLAYEY SILT with organics, soft, wet	0	
12	584		0	100
14	582	Brown fine to medium grained SAND with traces of silt, slightly moist	0	
16	580	- Some gravel	0	80
		- Wet		
18	578		0	
20	576	- Some coarse gravel	0	
22	574	- Some coarse gravel	0	
24	572			
26	570	End of boring at 25'		
28	568			
30	566			

Well Diagram: MW-7



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ENVIRONMENTAL CONSULTATION & REMEDIATION
KPRG and Associates, Inc.

GEOLOGIC LOG OF MW-8

Midwest Generation, LLC
Waukegan Station
Waukegan, Illinois

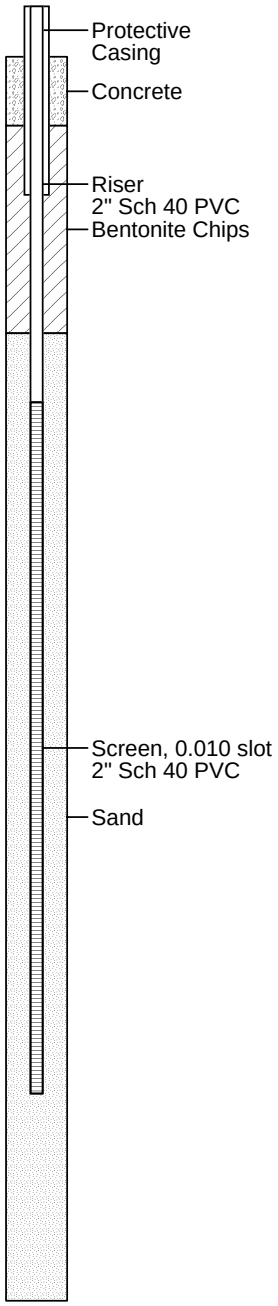
Project No. 20013

Date Started	: 04/29/2014
Date Well Set	: 04/29/2014
Rock Coring Tools	: Not cored
Drilling Tools	: 4.25 ID HSA
Drill Rig	: Geoprobe
Driller Name/Co	: J. Martin/TSC

Total Boring Depth	: 18 feet
Well Bottom Depth	: 15 feet
Surface Elev.	: 588.42 feet above MSL
TOC Elev.	: 590.99 feet above MSL
Groundwater Elev.	: feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	: 2080826 N
Coordinate E	: 1123351 E
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 588.42	DESCRIPTION	PID	% Recovery
0		Grass, Black clayey TOP SOIL		
		FILL: Gray SILT with traces fine sand, very moist		100
2	586			
		FILL: Brown SILT with black sandy SLAG layered		100
4	584	FILL: Greenish gray SILTY SAND - thin slag layer		
		Black SILT and CLAY, wet		100
6	582			
				100
		6" PEAT		
8	580	Gray SILTY SAND, fine to coarse grained, wet		
				50
10	578			
				50
12	576			
				50
14	574	Brown SILTY SAND, fine to medium grained		
				50
16	572			
				50
18	570	End of Boring at 18'		

Well Diagram: MW-8



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ENVIRONMENTAL CONSULTATION & REMEDIATION
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GEOLOGIC LOG OF MW-9

Midwest Generation, LLC
Waukegan Station
Waukegan, Illinois

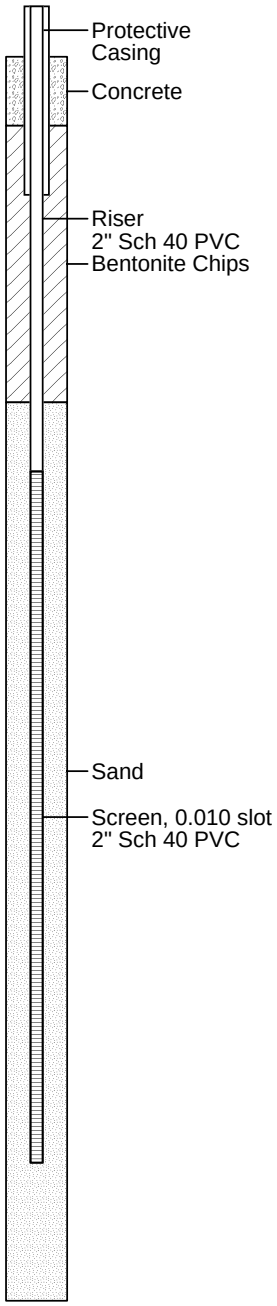
Project No. 20013

Date Started	: 04/29/2014
Date Well Set	: 04/29/2014
Rock Coring Tools	: Not cored
Drilling Tools	: 4.25 ID HSA
Drill Rig	: Geoprobe
Driller Name/Co	: J. Martin/TSC

Total Boring Depth	: 18 feet
Well Bottom Depth	: 16 feet
Surface Elev.	: 591.58 feet above MSL
TOC Elev.	: 594.09 feet above MSL
Groundwater Elev.	: feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	: 2081118 N
Coordinate E	: 1123540 E
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 591.58	DESCRIPTION	PID	% Recovery
0		FILL: Black CLAY/SILT/fine grained SAND mix, moist		
		FILL: Gray SILT, dry		100
	590			
2				75
	588			
4		- Begin dark gray		75
	586			
6		FILL: Black SLAG		100
	584			
8				100
	582			
10		PEAT, black SILTY CLAY with organics, wet		
		Light gray SILTY SAND, fine to medium grained with trace coarse grained, organics		100
	580			
12				
		Brown SILTY SAND, fine to medium grained with trace coarse grained		
	578			
14				
	576			
16				
	574			
18		End of Boring at 18'		

Well Diagram: MW-9



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Midwest Generation, LLC
Waukegan Station
Waukegan, Illinois

GEOLOGIC LOG OF MW-16

Date Started	: 10/20/2015
Date Well Set	: 10/20/2015
Rock Coring Tools	: Not cored
Drilling Tools	: 4.25 ID HSA
Drill Rig	: Geoprobe
Driller Name/Co	: N. Vissman / Cabeno

Total Boring Depth	: 35 feet
Well Bottom Depth	: 30.4 feet
Surface Elev.	: 604.52 feet above MSL
TOC Elev.	: 607.41 feet above MSL
Groundwater Elev.	: feet above MSL
Riser Material	: 2" Sch 40 PVC
Screen Material	: 2" Sch 40 PVC, 0.010 slot
Coordinate N	: 2080069.664
Coordinate E	: 1124344.912
Logged By	: P. Allenstein

Depth in Feet	Surf. Elev. 604.52	DESCRIPTION	PID	% Recovery
0	604	FILL: Dark Brown Clayey Top Soil, dry.		
		FILL: Brown SAND/SILT/GRAVEL mix, dry.		
2	602	FILL: Brown SILTY SAND, slightly moist.		75
		FILL: Brown and Dark Gray SILT, and FINE SAND, some cinders, slightly moist.		
4	600			
6	598			
8	596			100
		FILL: Orange Brown SILTY SAND, medium grained, slightly moist.		
10	594			
		FILL: Dark Brown to Black SAND, fine to medium, cinders, trace silt, slightly moist.		
12	592			100
14	590			
16	588	FILL: Tan SILTY SAND, with Gray SILT layers, slightly moist.		
		FILL: Gray SILT, some black, very moist.		75
18	586	FILL: Black SAND, fine to medium, cinders, slightly moist.		
20	584			
22	582			10
24	580	Brown SILTY SAND, fine to medium, moist.		
26	578			
28	576			10
30	574	End of Boring at 30'		
32	572			
34				

Well Diagram: MW-16