Exelon Generation

SVP-18-026

April 5, 2018

Illinois Emergency Protection Agency
Bureau of Water
Groundwater Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Subject: Submittal of Quad Cities Radionuclide Release Report Follow-up Report

Enclosed is the follow-up written report to the radionuclide release initial report submitted on March 29, 2018, as prescribed by section 35 Ill. Adm. Code 1010.204.

Should you have any questions concerning this letter, please contact Rebecca Craddick, Chemistry Manager at (309) 227-3708.

Respectfully,

Kenneth S. Ohr
Site Vice President
Quad Cities Nuclear Power Station

Attachment

ATTACHMENT 2
RADIONUCLIDE RELEASE FOLLOW-UP REPORT ELECTRONIC AND HARD COPY FORMAT

STATE OF ILLINOIS

NUCLEAR POWER PLANT

RADIONUCLIDE RELEASE REPORT

FOLLOW-UP REPORT

The following information must be submitted electronically to the Illinois Environmental Protection Agency and to the Illinois Emergency Management Agency pursuant to 35 Ill. Adm. Code 1010.204 as a follow-up report to the reporting of a release of a radionuclide. Please attach additional sheets as needed.

This form can also be used as a follow-up report by a licensee that, pursuant to the last section of 35 Ill. Adm. Code 1010.104, reports a release of radionuclides that is not required to be reported under Section 13.6 of the Environmental Protection Act.

This follow-up report must be submitted electronically to both the Illinois EPA and IEMA within 5 business days after the reporting of the release. Hard copies of the electronic report must be submitted to the Illinois EPA and IEMA within 5 days after the submission of the electronic report.

Initial Report Date/Time 3/29/2018 15:10

Follow-up Report Date 4/5/2018 15:10

Nuclear Generation Station Name Quad Cities Nuclear Power Station

Address 22710 206th Avenue North

City, State, Zip Cordova, Illinois 61242

Name of Principal Executive Officer Kenneth Ohr

Telephone Number 309-227-3600

Signature

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If any of the information provided in the initial report for this release has changed, please provide an update of changed information.

No information has changed from the initial report.

Estimate of Quantity Released but not Recovered (Curies)

A conservative estimate of 0.095 Curies of tritium in water was released as part of the reported event. This estimate was developed by using the best available data and a series of conservative engineering calculations.

Estimate of Volume Released but not Recovered

An estimated 4400-5500 gallons of water was released as part of the reported event. This estimate was developed using the best available data and a series of conservative engineering calculations. Tritium in groundwater as a result of the spill has not migrated off the property in detectable concentrations.

Estimate of Concentration (pCi/L) Released but not Recovered

Estimated concentrations are based on a series of calculations and analytical results from samples collected during the course of the release and the station's routine monitoring program. Based on the aforementioned information, the highest concentration of tritium released was 4,570,000 pCi/L.

Updated Description of Activities Taken in Response to the Release

It has been confirmed the water in the vault came from a clamped connection on 6" floor drain line that runs through the pipe vault. The pipe clamp has been repaired and the leak arrested. The leakage accumulated in the Radwaste Pipe Vault and exited the vault through a partially unsealed vertical seam in the southwest corner of the vault which is within 10 feet of groundwater well QC-GP-18. A detailed schedule has been developed for sealing the concrete seal on the southwest vault corner. This activity is scheduled to be completed on April 10, 2018.

Mitigation is ongoing from QC-GP-18 with removed water returned to the Radwaste treatment system for processing. Chemistry is sampling and analyzing the removed water. A new remediation well has been installed and will be placed in service as remediation through QC-GP-18 slows and/or if activity in the new remediation well indicates the tritiated water is migrating beyond the influence of QC-GP-18. The new well is 12'8" NW of existing QC-GP-18.

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Additional Activities Planned in Response to the Release

A sampling program will be implemented around the release to monitor the concentrations and migration, if any, of tritium in groundwater. Once the concentration in QC-GP-18 stabilizes the site will sample monthly until the concentration decreases below 20,000 pCi/L.

The site has commenced an investigation to identify the actions that led to failure of the clamp and failure of the seams in the vault. Based upon the results of the investigation, corrective actions will be implemented to prevent recurrence.

Additional Information

Copies of laboratory analysis, plan views, geological cross section maps, locations of samples taken and analyzed, groundwater direction, groundwater contours, map of the boundary of the licensee controlled area and other surface features are included with this Follow-Up Report.

Attach copies of all laboratory analyses used to confirm the presence of, or conducted in response to, the release (if lab analyses have been conducted).

Also attach a plan view and, if available, geological cross-section maps, showing, at a minimum, the location of the release, the locations of samples taken to confirm the release or taken in response to the release (if samples have been taken), the measured and modeled extent of the release (if known), the groundwater flow direction (if known), groundwater contours (if known), the boundary of the licensee controlled area, and structures, roads, and other surface features.

Submit electronically to:

IEPA at "EPA.RadRelease@illinois.gov"

IEMA at "ema.npprelease@illinois.gov"

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RADIONUCLIDE RELEASE FOLLOW-UP REPORT ELECTRONIC AND HARD COPY FORMAT

Submit hard copies to the addresses below:

Illinois Environmental Protection Agency
Bureau of Water
Groundwater Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Illinois Emergency Management Agency
Division of Nuclear Safety
Bureau of Environmental Safety
1035 Outer Park Drive
Springfield, IL 62704

Contacts for Further Information

Name Rebecca S. Craddick

Address 22710 206th Avenue A

City, State, Zip Cordova, Illinois 61242

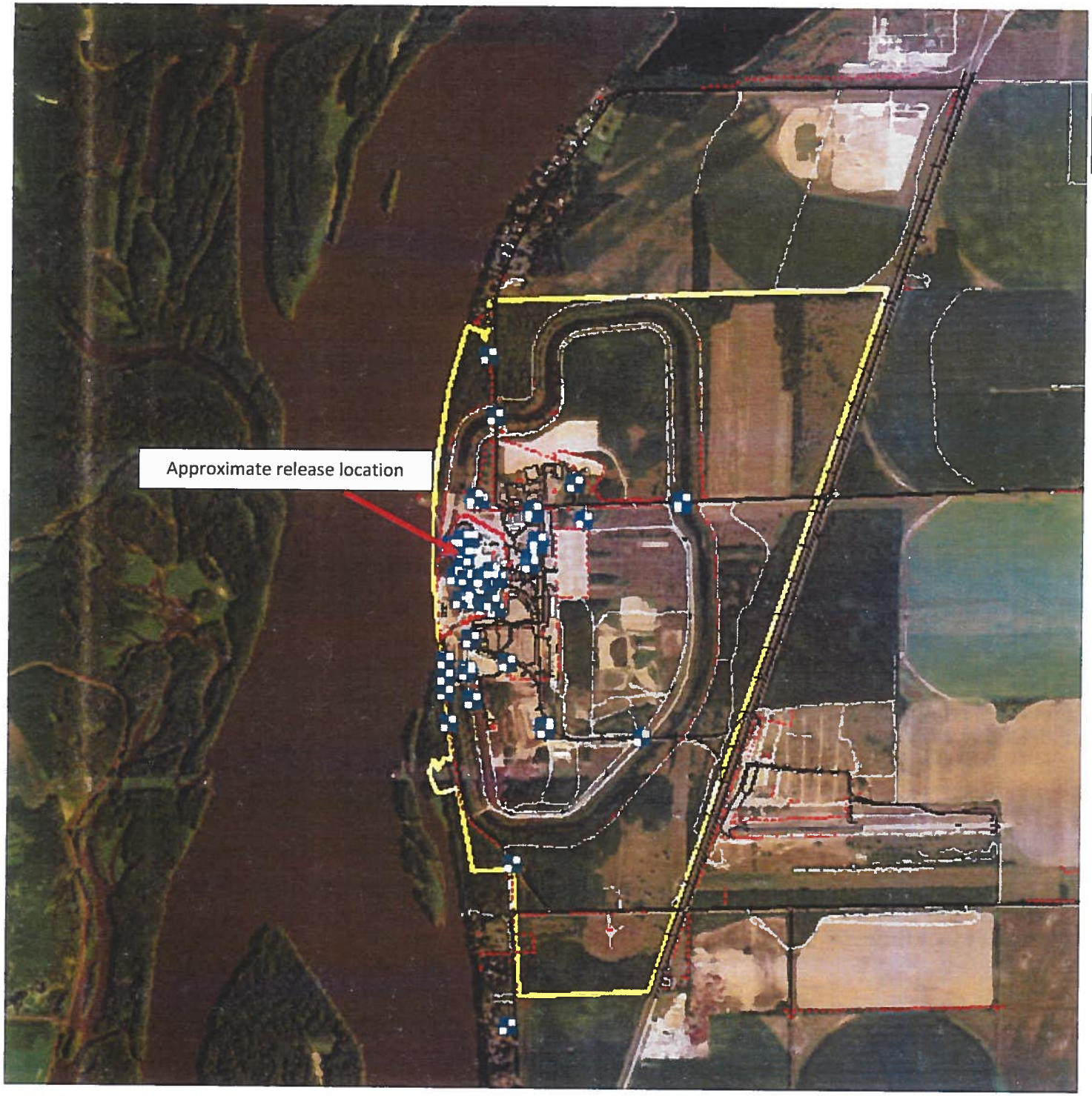
Telephone Number 309-227-3708

Name Mark Stuhlman

Address 22710 206th Avenue A

City, State, Zip Cordova, Illinois

Telephone Number 309-227-2765



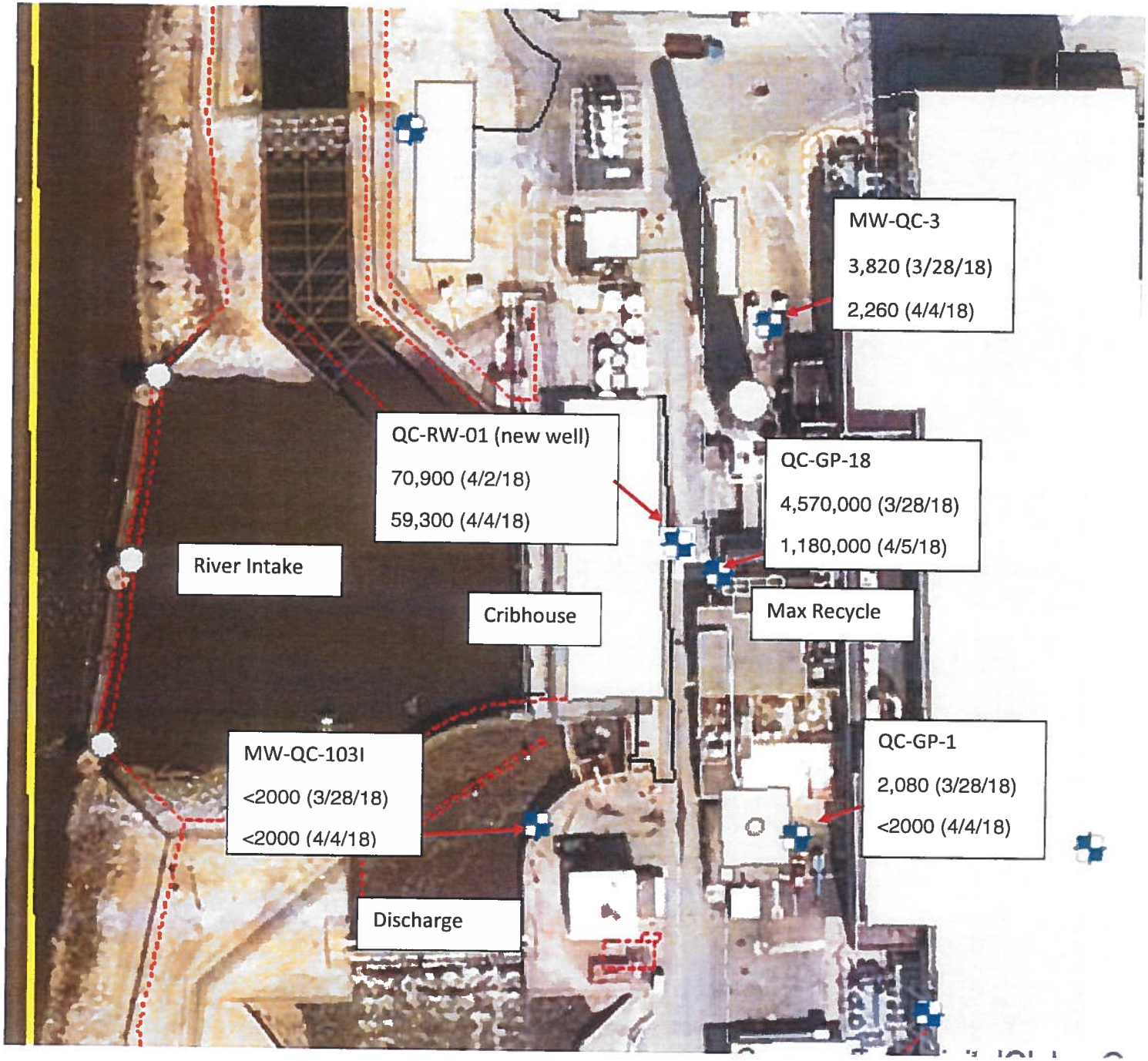
Quad Cities Station

Well location

Property boundary

N

Quad Cities Station Tritium Results



Tritium concentrations related to the 3/28/18 release

N

Well location

Sample results in pCi/L

Not to Scale

Quad Cities Station Sample Data

Sample Pt.	Date / Time	Tritium pCi/L	Total Gamma Isotopic Activity pCi/L	Mn-54 pCi/L	Co-60 pCi/L	SB-124 pCi/L	Total Hours Since Recovery Pump Started	% Remediated
QC-GP-18	3/28/2018 11:25	4,570,000	No Peaks	NP	NP	NP		0.0%
QC-GP-18	3/28/2018 19:35	4,530,000	N/A	N/A	N/A	N/A		0.9%
QC-GP-18 (50 gal)	3/29/2018 2:20	4,450,000	N/A	N/A	N/A	N/A		2.6%
QC-GP-18 (100 gal)	3/29/2018 2:50	4,400,000	N/A	N/A	N/A	N/A		3.7%
QC-GP-18 (110 gal)	3/29/2018 3:20	4,460,000	N/A	N/A	N/A	N/A		2.4%
QC-GP-18 (200 gal)	3/29/2018 4:45	4,320,000	N/A	N/A	N/A	N/A		5.5%
QC-GP-18	3/29/2018 10:55	N/A	68	NP	68	NP		Pump started
QC-GP-18	3/29/2018 12:10	4,340,000	66	NP	66	NP	1.3	5.0%
QC-GP-18	3/29/2018 13:08	4,460,000	70	NP	70	NP	2.2	2.4%
QC-GP-18	3/29/2018 14:00	4,370,000	74	NP	68	6	3.1	4.4%
QC-GP-18	3/29/2018 15:00	4,160,000	127	13	114	NP	4.1	9.0%
QC-GP-18	3/29/2018 15:57	4,110,000	90	NP	90	NP	5.0	10.1%
QC-GP-18	3/29/2018 17:00	4,340,000	93	NP	93	NP	6.1	5.0%
QC-GP-18	3/29/2018 18:00	4,280,000	83	NP	83	NP	7.1	6.3%
QC-GP-18	3/29/2018 19:00	4,200,000	93	6	87	NP	8.1	8.1%
QC-GP-18	3/29/2018 20:00	4,300,000	86	NP	86	NP	9.1	5.9%
QC-GP-18	3/29/2018 21:00	4,290,000	71	NP	71	NP	10.1	6.1%
QC-GP-18	3/29/2018 22:00	4,210,000	75	NP	75	NP	11.1	7.9%
QC-GP-18	3/29/2018 23:00	4,210,000	76	NP	76	NP	12.1	7.9%
QC-GP-18	3/30/2018 0:00	4,150,000	84	NP	77	7	13.1	9.2%
QC-GP-18	3/30/2018 1:00	4,210,000	63	NP	63	NP	14.1	7.9%
QC-GP-18	3/30/2018 2:00	4,260,000	66	NP	66	NP	15.1	6.8%
QC-GP-18	3/30/2018 3:00	3,940,000	75	NP	69	6	16.1	13.8%
QC-GP-18	3/30/2018 4:00	4,120,000	61	NP	61	NP	17.1	9.8%
QC-GP-18	3/30/2018 5:00	4,060,000	59	NP	59	NP	18.1	11.2%
QC-GP-18	3/30/2018 6:05	4,200,000	76	NP	76	NP	19.2	8.1%
QC-GP-18	3/30/2018 7:00	4,180,000	68	NP	68	NP	20.1	8.5%
QC-GP-18	3/30/2018 8:00	4,050,000	64	NP	64	NP	21.1	11.4%
QC-GP-18	3/30/2018 9:00	4,050,000	64	NP	64	NP	22.1	11.4%
QC-GP-18	3/30/2018 13:00	4,100,000	73	NP	73	NP	26.1	10.3%
QC-GP-18	3/30/2018 16:00	3,960,000	72	NP	72	NP	29.1	13.3%
QC-GP-18	3/30/2018 20:00	3,830,000	70	NP	70	NP	33.1	16.2%
QC-GP-18	3/31/2018 0:00	3,820,000	61	NP	61	NP	37.1	16.4%
QC-GP-18	3/31/2018 3:45	3,750,000	74	NP	74	NP	40.8	17.9%
QC-GP-18	3/31/2018 8:00	3,710,000	6	NP	6	NP	45.1	18.8%
QC-GP-18	3/31/2018 12:50	3,720,000	66	NP	66	NP	49.9	18.6%
QC-GP-18	3/31/2018 16:00	3,550,000	57	NP	57	NP	53.1	22.3%
QC-GP-18	3/31/2018 20:00	3,420,000	86	NP	86	NP	57.1	25.2%
QC-GP-18	4/1/2018 0:10	3,360,000	44	NP	44	NP	61.3	26.5%
QC-GP-18	4/1/2018 4:05	3,340,000	59	NP	59	NP	65.2	26.9%
QC-GP-18	4/1/2018 8:00	3,200,000	58	NP	58	NP	69.1	30.0%
QC-GP-18	4/1/2018 12:20	2,830,000	55	NP	55	NP	73.4	38.1%
QC-GP-18	4/1/2018 16:35	2,930,000	49	NP	49	NP	77.7	35.9%
QC-GP-18	4/1/2018 20:00	2,850,000	60	NP	60	NP	81.1	37.6%
QC-GP-18	4/2/2018 0:15	2,700,000	54	NP	47	7	85.3	40.9%
QC-GP-18	4/2/2018 4:00	2,590,000	42	NP	42	NP	89.1	43.3%
QC-GP-18	4/2/2018 8:00	2,590,000	41	NP	41	NP	93.1	43.3%
QC-GP-18	4/2/2018 12:15	2,420,000	33	NP	33	NP	97.3	47.0%
QC-GP-18	4/2/2018 16:00	2,340,000	41	NP	41	NP	101.1	48.8%
QC-GP-18	4/2/2018 20:00	2,220,000	36	NP	36	NP	105.1	51.4%
QC-GP-18	4/3/2018 0:20	2,120,000	32	NP	32	NP	109.4	53.6%
QC-GP-18	4/3/2018 3:35	2,050,000	36	NP	36	NP	112.7	55.1%
QC-GP-18	4/3/2018 8:00	1,970,000	35	NP	35	NP	117.1	56.9%
QC-GP-18	4/3/2018 12:15	1,890,000	28	NP	28	NP	121.3	58.6%
QC-GP-18	4/3/2018 16:00	1,730,000	29	NP	29	NP	125.1	62.1%
QC-GP-18	4/3/2018 19:50	1,660,000	28	NP	28	NP	128.9	63.7%
QC-GP-18	4/4/2018 0:15	1,630,000	24	NP	24	NP	133.3	64.3%
QC-GP-18	4/4/2018 3:50	1,570,000	26	NP	26	NP	136.9	65.6%
QC-GP-18	4/4/2018 8:00	1,500,000	28	NP	28	NP	141.1	67.2%
QC-GP-18	4/4/2018 12:15	1,420,000	28	NP	28	NP	145.3	68.9%
QC-GP-18	4/4/2018 20:00	1,290,000	25	NP	25	NP	153.1	71.8%
QC-GP-18	4/5/2018 0:20	1,180,000	22	NP	22	NP	157.4	74.2%

Quad Cities Station Sample Data

Sample Pt.	Date / Time	Tritium pCi/L	Total Isotopic Activity
MW-QC-3	3/28/2018 19:52	3,820	N/A
QC-GP-1	3/28/2018 20:35	2,080	N/A
MW-QC-103 I	3/28/2018 21:15	<2000	N/A
Disch. Bay	3/28/2018 22:45	<2000	N/A
MW-QC-3	3/29/2018 18:50	3,310	N/A
MW-QC-103 I	3/29/2018 19:55	<2000	N/A
QC-GP-1	3/29/2018 20:50	<2000	N/A
QC-GP-1	3/30/2018 12:40	2,680	N/A
MW-QC-3	3/30/2018 13:20	3,500	N/A
MW-QC-103 I	3/30/2018 13:00	<2000	N/A
QC-GP-1	3/31/2018 9:55	<2000	N/A
MW-QC-3	3/31/2018 10:10	3,530	N/A
MW-QC-103i	3/31/2018 10:25	<2000	N/A
QC-GP-1	4/1/2018 10:40	<2000	N/A
MW-QC-3	4/1/2018 11:25	<2000	N/A
MW-QC-103I	4/1/2018 12:50	<2000	N/A
QC-GP-1	4/2/2018 11:00	<2000	N/A
MW-QC-3	4/2/2018 10:00	2,670	N/A
MW-QC-103I	4/2/2018 10:30	<2000	N/A
QC-RW-01 (new well)	4/2/2018 16:15	70,900	No Peaks
QC-RW-01 (new well)	4/3/2018 3:30	56,800	No Peaks
QC-RW-01 (new well)	4/3/2018 14:15	63,100	No Peaks
QC-GP-1	4/3/2018 12:40	<2000	N/A
MW-QC-3	4/3/2018 11:30	4,070	N/A
MW-QC-103I	4/3/2018 12:00	<2000	N/A
QC-GP-1	4/4/2018 10:40	<2000	N/A
MW-QC-3	4/4/2018 9:55	2,260	N/A
MW-QC-103I	4/4/2018 11:00	<2000	N/A
QC-RW-1	4/4/2018 14:45	59,300	No Peaks

[redacted]

TABLE 2.1

SUMMARY OF MONITORING WELL INSTALLATION DETAILS
QUAD CITIES GENERATING STATION
CORDOVA, ILLINOIS

Sample Location	X-coord. (UTM Coordinates)[1]	Y-coord. (UTM Coordinates)[1]	Surface Elevation (ft AMSL)[2]	Reference Elevation (ft AMSL)	Installation Date	Boring Total Depth (ft bgs)[3]	Screened Interval Top (ft bgs)	Screened Interval Bottom (ft bgs)	Screened Interval Top (ft AMSL)	Screened Interval Bottom (ft AMSL)	Well Construction[4]	Hydrogeologic Unit Screened
Upper Sand and Gravel Monitoring Wells												
MW-QC-1	2374176.65	15167262.88	594.10	593.44	1/8/2002	27.5	17	27	577.10	567.10	2-inch PVC[3] Screen	Sand
MW-QC-2	2374087.035	15167250.690	593.70	592.90	1/8/2002	27.5	17	27	576.70	566.70	2-inch PVC Screen	Sand
MW-QC-3	2374127.66	15167094.77	593.80	593.44	1/8/2002	27.5	17	27	576.80	566.80	2-inch PVC Screen	Sand
MW-QC-101S	2374971.495	15167048.04	594.41	596.83	5/3/2006	29	18	28	576.41	566.41	2-inch PVC Screen	Sand
MW-QC-101I	2374966.398	15167054.51	594.39	596.93	5/3/2006	40	35	40	559.39	554.39	2-inch PVC Screen	Sand
MW-QC-102S	2374545.852	15166383.760	594.71	596.81	5/8/2006	30	19	29	575.71	565.71	2-inch PVC Screen	Sand
MW-QC-102I	2374540.069	15166383.510	594.70	597.03	5/5/2006	50	44	49	550.70	545.70	2-inch PVC Screen	Sand
MW-QC-102D	2374538.06	15166377.34	594.85	597.30	6/20/2006	70	65	70	529.85	524.85	2-inch PVC Screen	Sand
MW-QC-103I	2374012.833	15166772.840	594.39	596.67	5/10/2006	35	30	35	564.39	559.39	2-inch PVC Screen	Sand
MW-QC-104S	2374197.076	15166486.390	594.07	595.87	5/11/2006	28	18	28	576.07	566.07	2-inch PVC Screen	Sand
MW-QC-105I	2374091.755	15166468.310	593.10	595.39	5/9/2006	50	45	50	548.10	543.10	2-inch PVC Screen	Sand
MW-QC-106S	2373919.546	15167239.810	593.70	596.11	5/10/2006	27	17	27	576.70	566.70	2-inch PVC Screen	Sand
MW-QC-106I	2373919.311	15167246.610	593.91	596.09	5/10/2006	40	35	40	558.91	553.91	2-inch PVC Screen	Sand
MW-QC-107I	2375644.679	15167623.470	606.61	609.05	5/2/2006	39	29	39	577.61	567.61	2-inch PVC Screen	Sand
MW-QC-108S	2374259.340	15166032.650	606.68	608.63	5/15/2006	40	29.5	39.5	577.18	567.18	2-inch PVC Screen	Sand
MW-QC-108I	2374259.660	15166023.530	606.44	608.56	6/13/2006	62	56.0	61.0	550.44	545.44	2-inch PVC Screen	Sand
MW-QC-109S	2374559.940	15166815.030	594.09	593.89	7/12/2006	29	19.5	29.5	574.59	564.59	2-inch PVC Screen	Sand
MW-QC-109I	2374554.960	15166819.530	594.26	594.04	7/13/2006	39	34.0	39.0	560.26	555.26	2-inch PVC Screen	Sand
MW-QC-110I	2374719.18	15165737.66	605.34	604.89	7/11/2006	50	45.0	50.0	560.34	555.34	2-inch PVC Screen	Sand
MW-QC-111I	2374295.16	15165216.74	616.74	618.96	7/12/2006	50	45.0	50.0	571.74	566.74	2-inch PVC Screen	Sand
MW-QC-111D1	2374283.076	15165192.09	617.93	620.60	11/15/2006	102	96.0	101.0	521.93	516.93	2-inch PVC Screen	Sand
MW-QC-112I	2373920.240	15165723.470	602.47	604.60	7/10/2006	50	44.0	49.0	558.47	553.47	2-inch PVC Screen	Sand
MW-QC-113I	2373950.5	15165260.09	603.98	606.24	7/11/2006	50	44.5	49.5	559.48	554.48	2-inch PVC Screen	Sand
MW-QC-114I	2374003.52	15164891.14	604.88	607.18	7/10/2006	50	45.0	50.0	559.88	554.88	2-inch PVC Screen	Sand
MW-QC-115S	2374898.8	15163051.45	607.88	610.04	7/13/2006	40	30.0	40.0	577.88	567.88	2-inch PVC Screen	Sand
MW-QC-116S	2374329.41	15169726.03	609.92	612.37	7/13/2006	44	34.0	44.0	575.92	565.92	2-inch PVC Screen	Sand
QC-GP-1	2374170.435	15166802.02	594.29	593.76	10/1/2007	28	21.0	26.0	573.29	568.29	1.00" PVC[3] Screen	Sand
QC-GP-2	2374398.804	15166706.39	594.66	594.09	10/2/2007	28	22.0	27.0	572.66	567.66	1.00" PVC Screen	Sand
QC-GP-3	2374486.036	15166471.61	594.18	593.76	10/3/2007	28	21.0	26.0	573.18	568.18	1.00" PVC Screen	Sand
QC-GP-4	2374339.112	15166464.48	594.29	593.85	10/4/2007	28	21.0	26.0	573.29	568.29	1.00" PVC Screen	Sand
QC-GP-5	2374378.737	15166751.1	594.25	595.53	10/5/2007	28	25.0	28.0	569.25	566.25	1.25" Galvanized Steel Screen	Sand
QC-GP-6	2374447.759	15166803.46	593.94	595.32	10/6/2007	28	25.0	28.0	568.94	565.94	1.25" Galvanized Steel Screen	Sand
QC-GP-7	2374377.485	15166788.76	594.33	595.76	10/7/2007	28	25.0	28.0	569.33	566.33	1.25" Galvanized Steel Screen	Sand
QC-GP-8	2374450.264	15166728.12	594.14	595.05	10/8/2007	28	25.0	28.0	569.14	566.14	1.25" Galvanized Steel Screen	Sand
QC-GP-9	2374233.99	15166687.3	594.66	596.29	10/9/2007	28	25.0	28.0	569.66	566.66	1.25" Galvanized Steel Screen	Sand
QC-GP-10	2374492	15166896.78	594.02	595.78	10/10/2007	28	25.0	28.0	569.02	566.02	1.25" Galvanized Steel Screen	Sand
QC-GP-11	2374324.12	15166598.52	594.72	594.68	10/11/2007	28	25.0	28.0	569.72	566.72	1.25" Galvanized Steel Screen	Sand
QC-GP-12	2374213.164	15166564.86	593.85	595.26	10/12/2007	33	30.0	33.0	563.85	560.85	1.25" Galvanized Steel Screen	Sand
QC-GP-13	2374294.521	15166463	594.08	594.07	10/13/2007	33	30.0	33.0	564.08	561.08	1.25" Galvanized Steel Screen	Sand
QC-GP-14	2374283.221	15166592.88	594.70	594.68	10/14/2007	28	25.0	28.0	569.70	566.70	1.25" Galvanized Steel Screen	Sand
QC-GP-15	--	--	--	595.70	6/30/1905	29	26.0	29.0	569.70	566.70	1.25" Galvanized Steel Screen	Sand
QC-GP-16	2374259.455	15166513.95	--	595.30	5/1/2010	31	27.9	30.9	567.40	564.40	1.25" Galvanized Steel Screen	Sand

TABLE 2.1

SUMMARY OF MONITORING WELL INSTALLATION DETAILS
QUAD CITIES GENERATING STATION
CORDOVA, ILLINOIS

Sample Location	X-coord. (UTM Coordinates)[1]	Y-coord. (UTM Coordinates)[1]	Surface Elevation (ft AMSL)[2]	Reference Elevation (ft AMSL)	Installation Date	Boring Total Depth (ft bgs)[3]	Screened Interval Top (ft bgs)	Screened Interval Bottom (ft bgs)	Screened Interval Top (ft AMSL)	Screened Interval Bottom (ft AMSL)	Well Construction[4]	Hydrogeologic Unit Screened
QC-GP-17	2374259.116	15166620.28	--	595.30	5/1/2010	30	27.2	30.2	568.10	565.10	1.25" Galvanized Steel Screen	Sand
QC-GP-18	--	--	--	596.81	12/1/2013	28.2	25.2	28.2	571.6	568.6	1.25" Galvanized Steel Screen	Sand
Lower Sand and Gravel Monitoring Wells												
MW-QC-108D	2374260.233	15166006.3	606.27	608.79	11/16/2006	180	144.0	149.0	462.27	457.27	2-inch PVC Screen	Sand
MW-QC-111D2	2374260.233	15166006.3	617.97	620.53	11/14/2006	193	166.0	171.0	451.97	446.97	2-inch PVC Screen	Sand

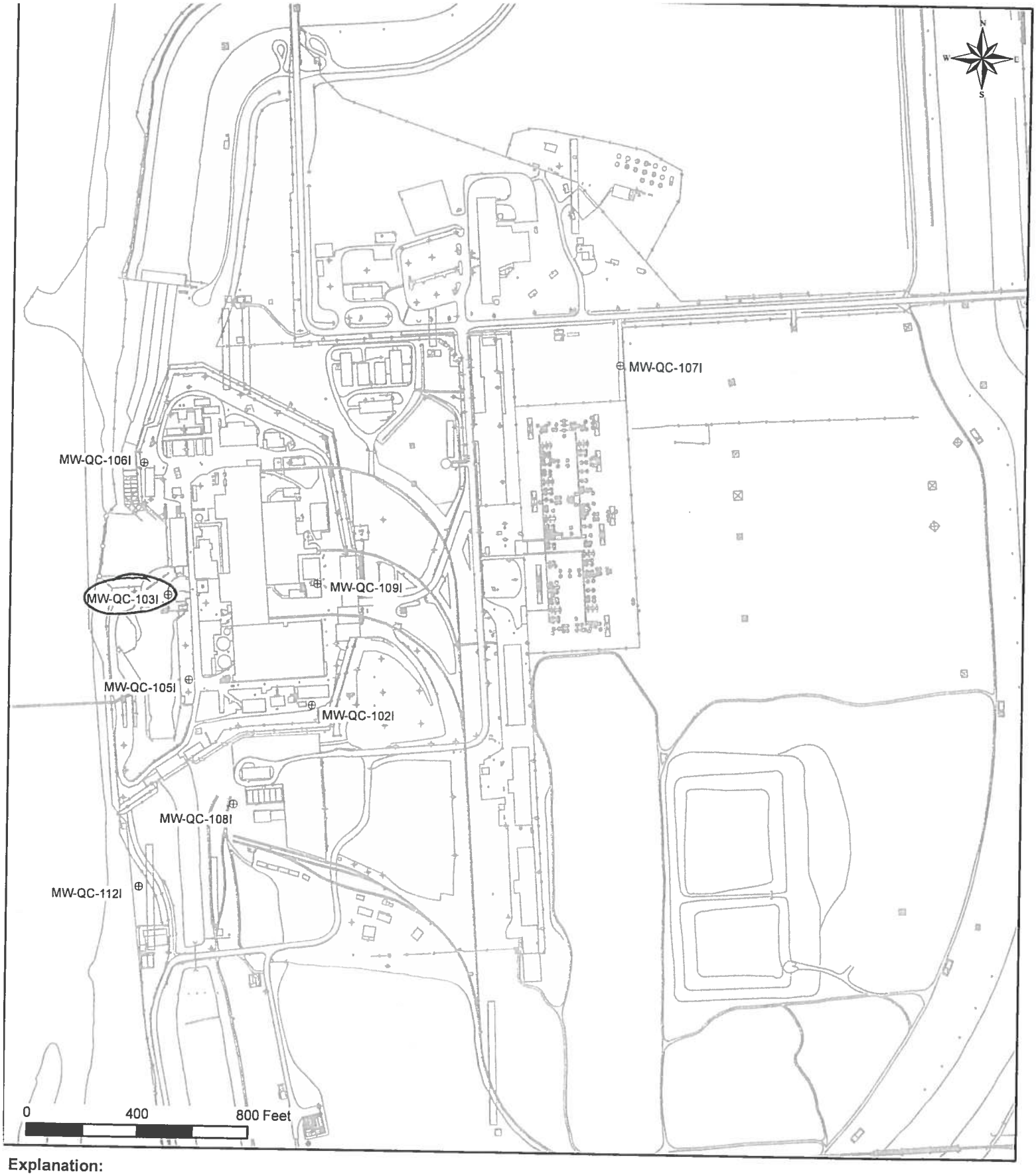
Notes:

[1] Universal Transverse Mercator (UTM), Zone 15, NAD 83, in feet
[2] ft AMSL - feet above mean sea level
[3] ft bgs - feet below ground surface
[4] PVC - polyvinyl chloride

Explanation:

- ⊕ Shallow Aquifer RGPP Monitoring Location
- ● Surface Water RGPP Monitoring Location

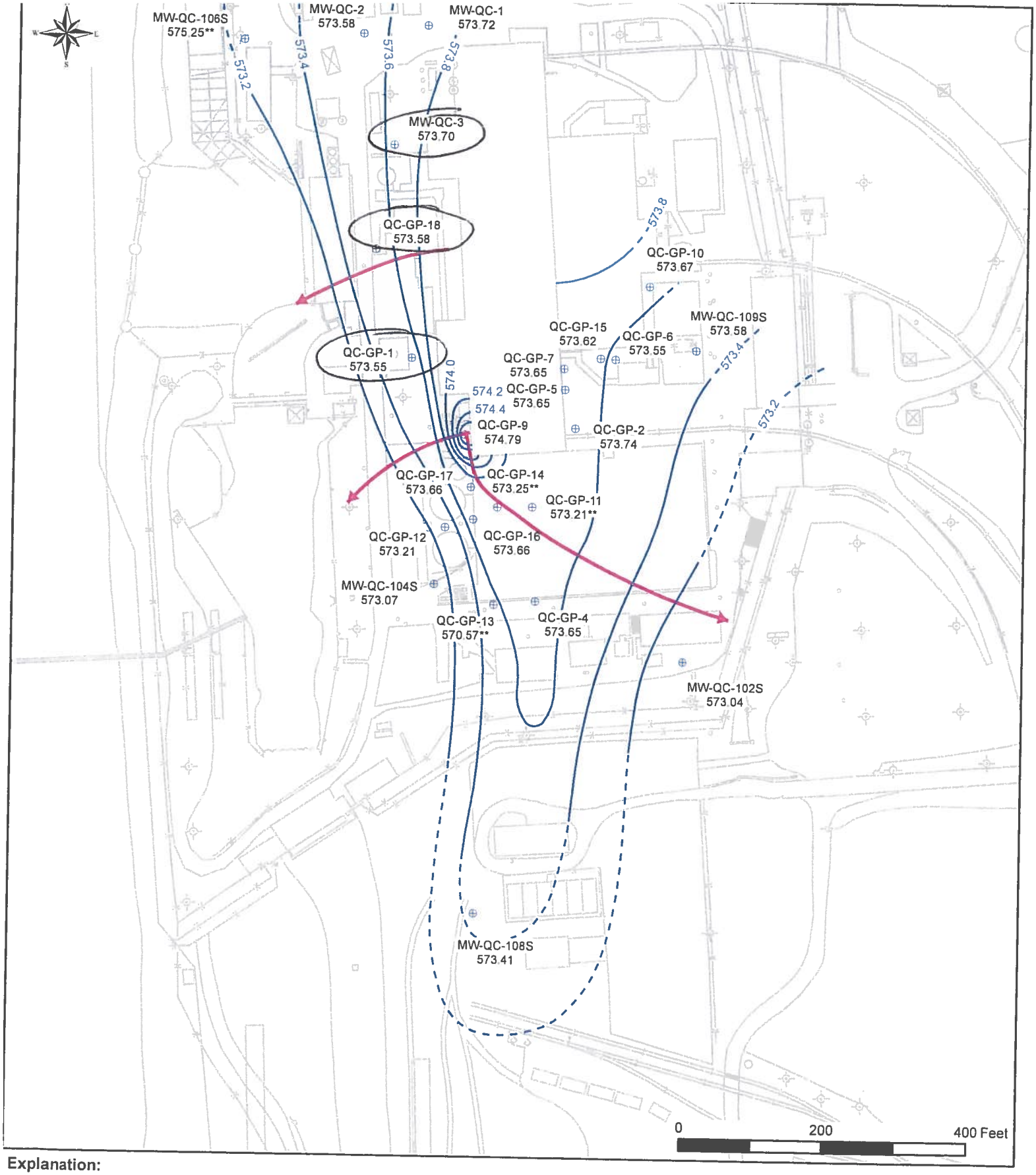
Figure 1a
RGPP Monitoring Locations
Surface Water and Shallow Aquifer
Exelon Corporation
Quad Cities Generating Station



Explanation:

⊕ Intermediate Aquifer RGPP Monitoring Location

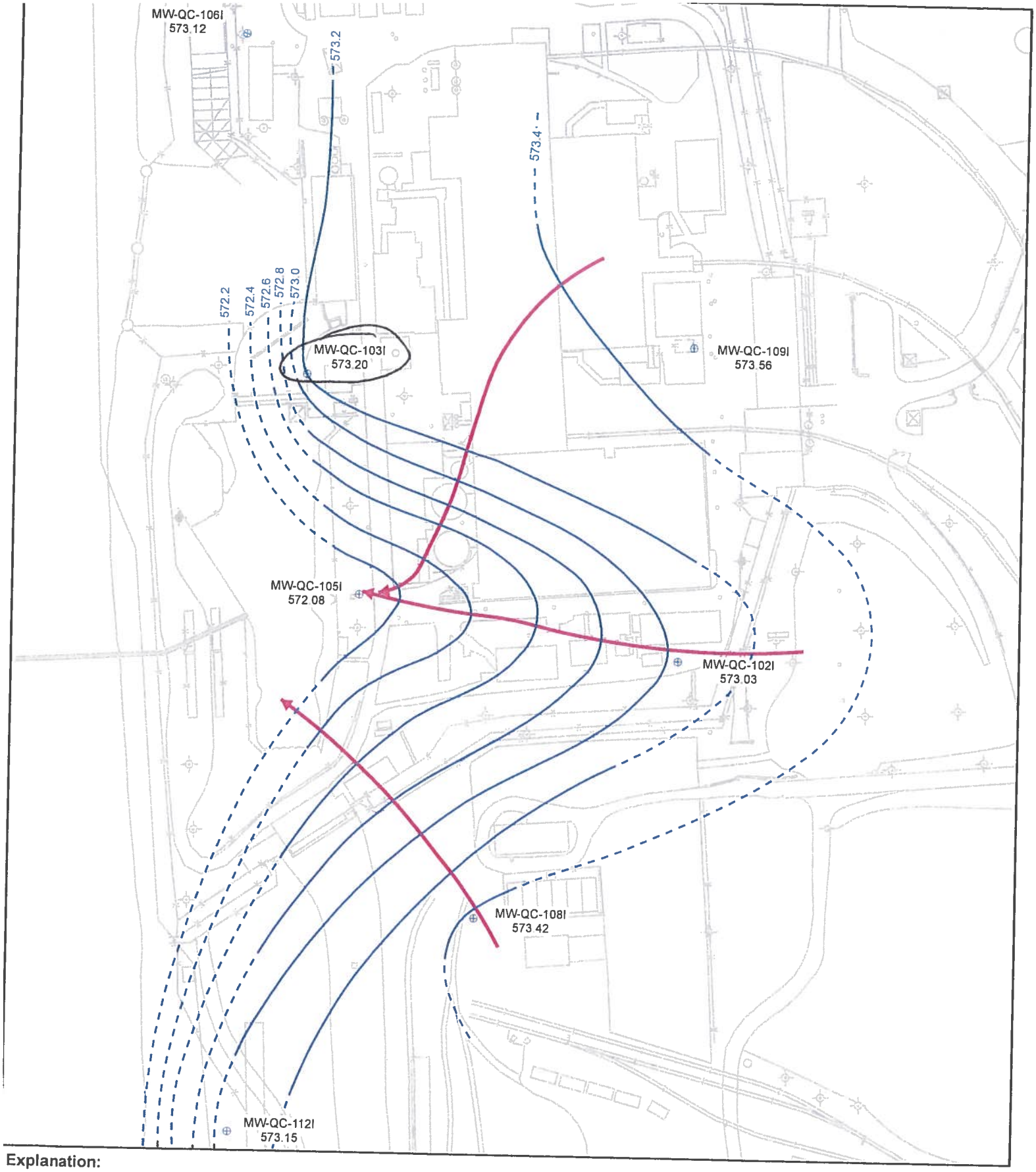
Figure 1b
RGPP Monitoring Locations
Intermediate Aquifer
Exelon Corporation
Quad Cities Generating Station



Explanation:

- ⊕ 4th Qtr. 2017 RGPP Shallow Aquifer Monitoring Location
- Groundwater Elevation Contour
- Inferred Groundwater Elevation Contour
- 573.41 - Groundwater elevation with respect to mean sea level.
- Groundwater flow direction
- ** - Groundwater elevation not used in generating groundwater elevation contours.

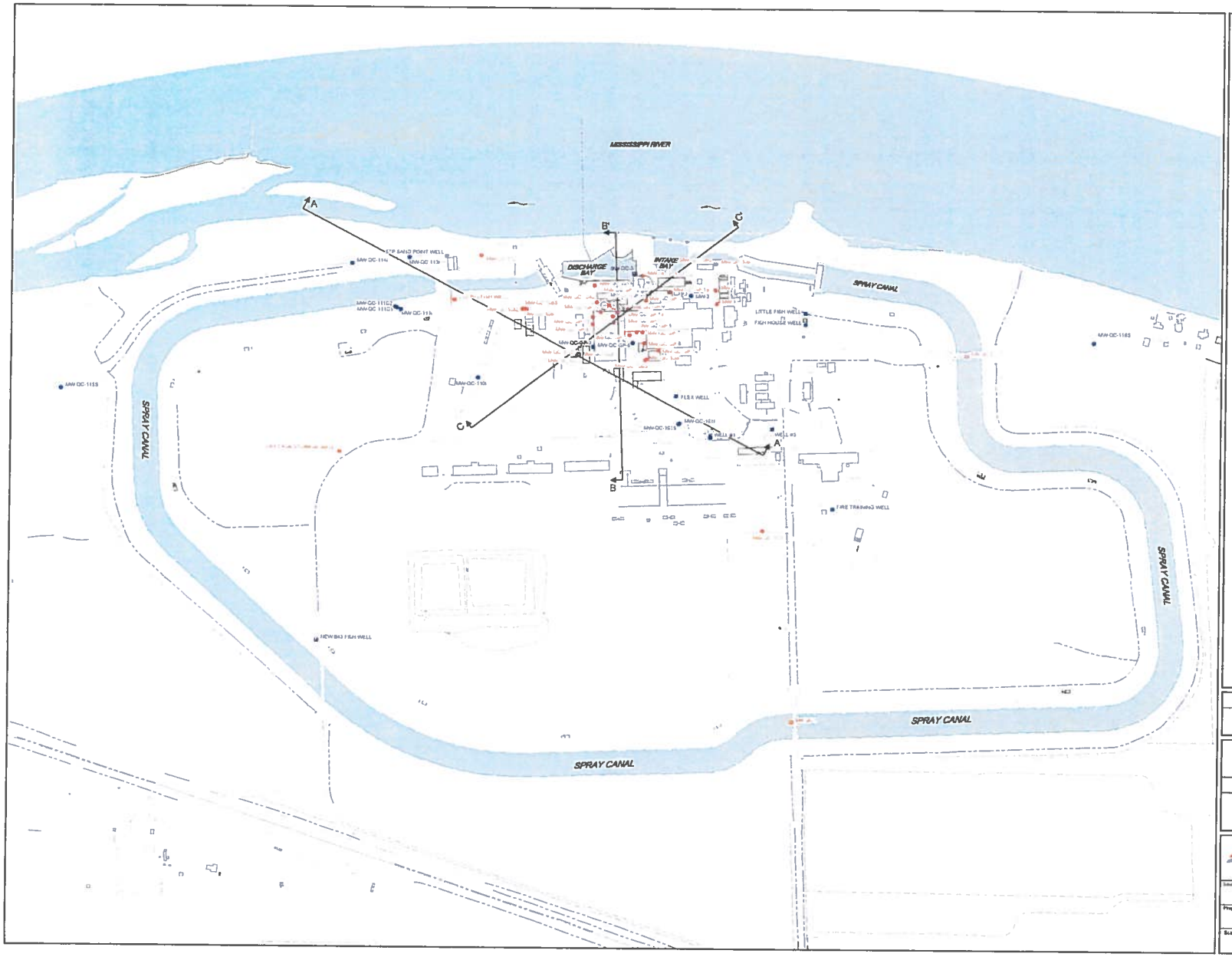
Figure 2a
4th Quarter 2017 (November) RGPP
Groundwater Elevations and
Groundwater Elevation Contours
Shallow Aquifer
Exelon Corporation
Quad Cities Generating Station



Explanation:

- 4th Qtr. 2017 RGPP Intermediate Aquifer Monitoring Location
- Groundwater Elevation Contour
- Inferred Groundwater Elevation Contour
- 573.41 - Groundwater elevation with respect to mean sea level.
- Groundwater flow direction

Figure 2b
4th Quarter 2017 (November) RGPP
Groundwater Elevations and
Groundwater Elevation Contours
Intermediate Aquifer
Exelon Corporation
Quad Cities Generating Station



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EDGE OF WATER
- DRAINAGE DITCH
- FENCE LINE
- CULTIVATED FIELD
- DISCHARGE PIPES
- EXISTING PIPELINE
- MW-QC-1113 MONITORING WELL LOCATION S - SHALLOW I - INTERMEDIATE D - DEEP
- WELL #1 WATER WELL LOCATION
- SW-QC-2 SURFACE WATER MONITORING LOCATION
- MW-2 RADIOACTIVE GROUNDWATER PROTECTION PROGRAM (RGPP) WELLS
- A — GEOLOGIC SECTION LINE
- B — HYDROGEOLOGIC SECTION LINE
- C — HYDROGEOLOGIC SECTION LINE

NOTE
COORDINATES FOR QC-GP-1S AND WELL #11 & SPRAY CANAL WERE UNAVAILABLE AND THEIR RESPECTIVE LOCATIONS ARE NOT SHOWN

SCALE VERIFICATION

THIS BARMIE ASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

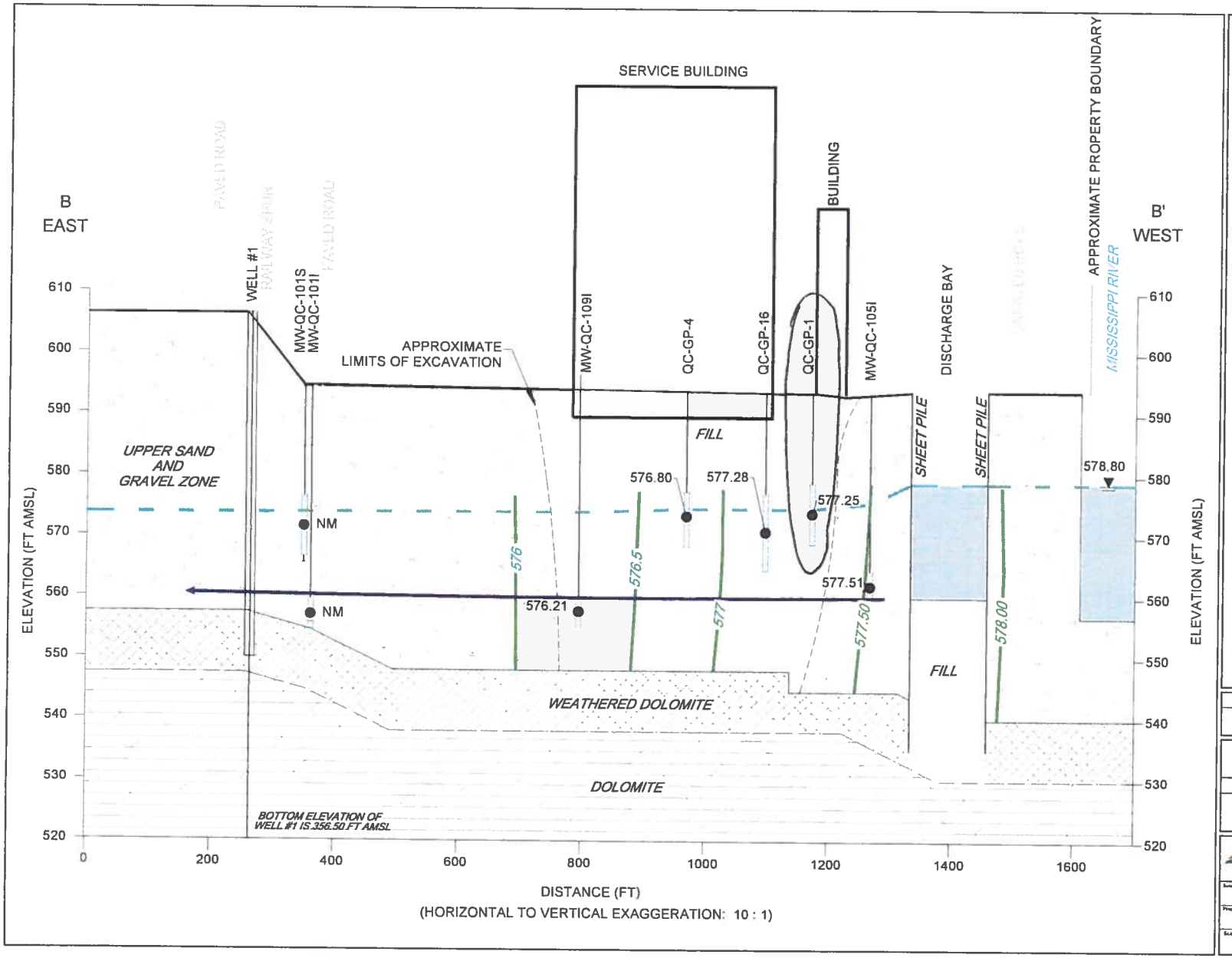
EXELON GENERATION COMPANY, LLC.
QUAD CITIES GENERATING STATION
CORDOVA, ILLINOIS

WELL LOCATIONS

Exelon GHD

Project Manager	Reviewed By	Date	
J. DARGES	E. PINTO	AUGUST 2017	
Scale	Project No.	Report No.	Drawing No.
AS SHOWN	11137315-00	001	PLATE 2.1

11137315 (Map) (Rev 0) (1) JUN 8 2017



LEGEND

WELL ID

WELL

UPPER SAND AND GRAVEL ZONE GROUNDWATER ELEVATION

STRATIGRAPHY LAYER

WELL SCREEN

PIEZOMETRIC CONTOUR

ESTIMATED VALUE

GROUNDWATER FLOW DIRECTION

GROUNDWATER FLOW DIRECTION INTO PAGE

NOTE

WATER LEVEL DATA COLLECTED MAY 30, 2017 EXCEPTIONS NOTED

MISSISSIPPI RIVER ELEVATION COLLECTED AT INTAKE BOX

NM NOT MEASURED

STRATIGRAPHY LEGEND

FILL

SAND

SAND AND GRAVEL

CLAY

WEATHERED DOLOMITE BEDROCK

DOLOMITE BEDROCK

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

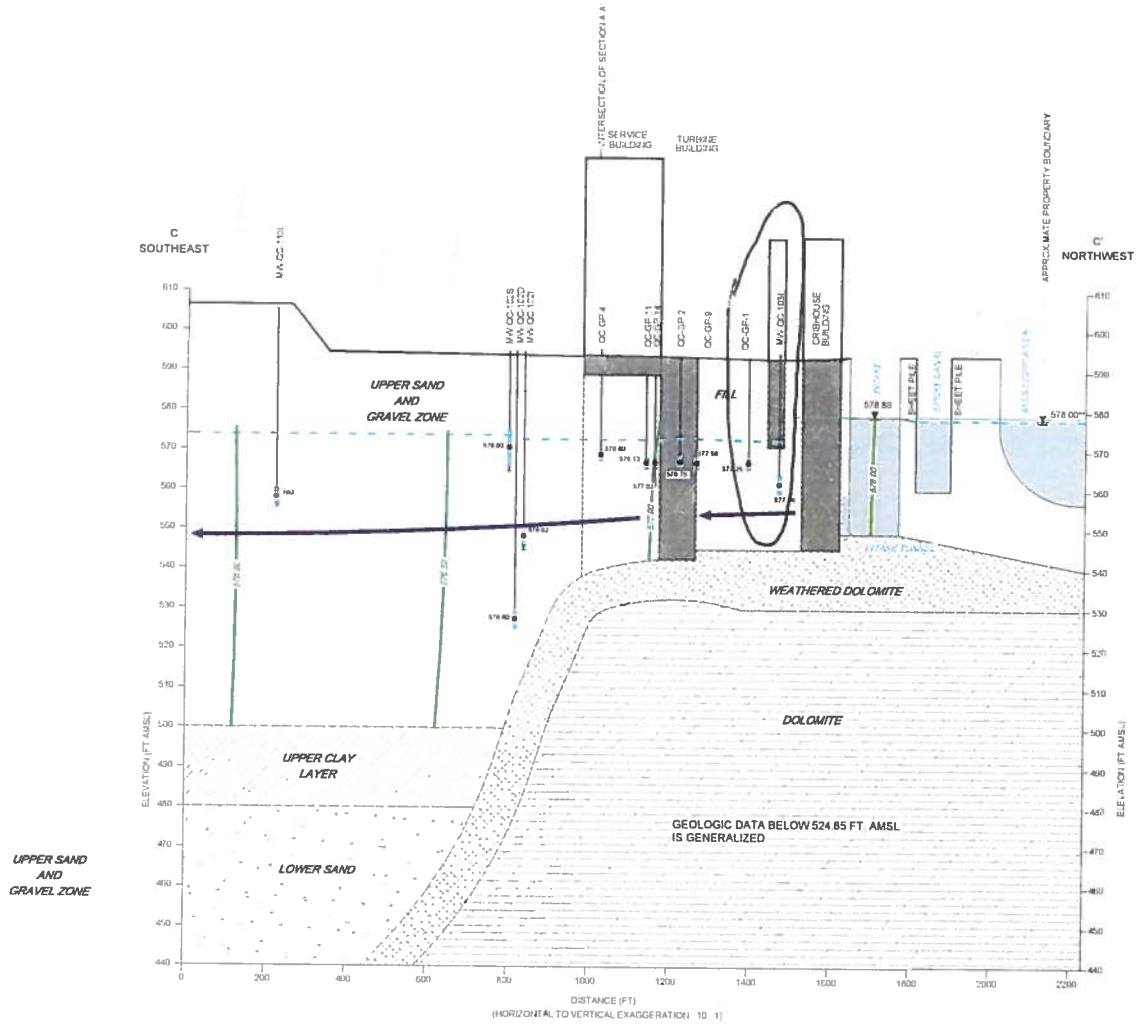
EXELON GENERATION COMPANY, LLC.
QUAD CITIES GENERATING STATION
CORDOVA, ILLINOIS

HYDROGEOLOGIC CROSS-SECTION B-B'

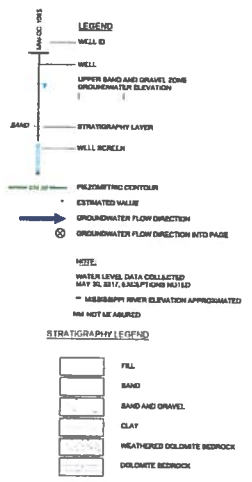
Exelon. GHD

Source Reference		
Project Manager: A. GARSEE	Reviewed By: E. PINTO	Date: AUGUST 2017
Scale: AS SHOWN	Project No: 11137315-00	Report No: 001
		Drawing No: figure 5.6

11137315 GA03(1)v4 WA012 AUG 15, 2017



UPPER SAND AND GRAVEL ZONE



SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

EXELON GENERATION COMPANY, LLC.
QUAD CITIES GENERATING STATION
CORDOVA, ILLINOIS

HYDROGEOLOGIC CROSS-SECTION C-C'

Exelon GHD

Source Reference		
Project Manager: J GARGES	Reviewed By: E PINTO	Date: AUGUST 2017
Scale: AS SHOWN	Project No: 11137315-00	Report No: 001
		Drawing No: figure 5.7

11137315-DGA-1(Jul) WA213 AUG 14 2017