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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

CCR COMPLIANCE
ASSESSMENT OF CORRECTIVE MEASURES REPORT
WILL COUNTY STATION PONDS 2S AND 3S

Midwest Generation, LLC
Will County Generating Station
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1.0 INTRODUCTION

In accordance with Title 40 of the Code of Federal Regulations, 40 CFR Part 257.96, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (CCR Rule), a Facility (Owner/Operator) is required to initiate and complete an Assessment of Corrective Measures if there has been a statistically significant increase (SSI) detected above the Groundwater Protection Standard or detection of a release from the unit. This document satisfies and complies with the requirements of this section for the regulated units (Will County Ponds 2S and 3S) monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Will County Generating Station.

The initial Detection Monitoring requirements in 40 CFR Parts 257.94 of the CCR Rule have been completed to meet the monitoring requirements of this section of the CCR Rule. The CCR monitoring well network consists of six (6) monitoring wells (MW-5, MW-6, MW-9, MW-10, MW-11, and MW-12) as shown on Figure 1. Wells MW-5 and MW-6 are upgradient and considered background monitoring wells. Appendix III detection monitoring groundwater sampling in the fourth quarter of 2021 identified a SSI for chloride in downgradient monitoring well MW-11. Resampling events performed in December 2021 confirmed the initial concentration was above the established prediction limit. Based on this confirmatory data, completion of an Alternative Source Demonstration (ASD) focused on chloride in well MW-11 was recommended.

An ASD (dated March 28, 2022) focused on chloride in well MW-11 was performed. The ASD concluded that it is not believed that Pond 3S is the source of the downgradient chloride impacts at monitoring well MW-11, however, the data relative to Pond 2S does not allow for that conclusion to be reached based on the following:

- Results of basic conservative fluid mixing calculations indicated that the observed chloride concentration in well MW-11 falls within the range of expected concentrations when mixing upgradient groundwater concentrations with the high value Leaf Test chloride concentration from Pond 2S.

- There are statistically significant decreasing trends in chloride concentrations in both upgradient monitoring wells and there are statistically significant increasing trends in chloride concentrations in monitoring wells MW-09 and MW-11, both of which are immediately downgradient of Pond 2S.

Based on the results of the ASD, it was recommended to transition from detection monitoring into assessment monitoring in accordance with Section 257.95. Assessment monitoring for Appendix III and IV parameters began in the second quarter of 2022 and is ongoing. Assessment monitoring in the fourth quarter of 2022 identified Appendix IV parameters selenium and arsenic were detected above the Groundwater Protection Standards (GWPSs) after verification resampling. Selenium was detected in upgradient well MW-5 and arsenic was detected in downgradient wells MW-10 and MW-11. It is noted that there have never been, and continue to be no detections of selenium in any of the downgradient wells above the GWPS.

In accordance with Section 257.96, an assessment of corrective measures was initiated to prevent further releases, to remediate any releases and to restore the affected area to original conditions. This Assessment of Corrective Measures Report is structured to provide the following information:

- A summary of the site geology/hydrogeology as a basis for evaluating various remedial options,
- The extent of impacts to date in support of engineering evaluations, and
- An assessment of corrective measures that meets the requirements set forth in Section 257.96(c)(1) through 257.96(c)(3).

2.0 PHYSICAL SITE CONDITIONS

Ponds 2S and 3S are located adjacent to each other on the southwest portion of the station property. The physical properties of the foundation materials in which Ponds 2S and 3S were constructed consist of a fill layer with underlying sandy and gravelly units and some clay. KPRG performed a site investigation in 2005 that consisted of performing soil borings adjacent to the four existing CCR surface impoundments. The borings performed around the ponds show that the site stratigraphy consists of a 1.5 feet to 2.5 feet thick fill layer at the site surface. This surface layer is underlain by a 1-foot thick layer of sand and silt with some gravel, which is underlain by 5-feet of lean clay. The surface layer is underlain by a 3-feet thick layer of sand and gravel with clay and this layer is then underlain by 5-feet of silty clay. Bedrock was generally encountered at approximately 10 feet below ground surface (bgs).

The silty clay is underlain by Silurian Dolomite with an average Rock Quality Designation (RQD) of 94.84%. The RQD from the samples collected with the closest proximity to Ponds 2S and 3S is 99.45%. The closest proximity samples are approximately 13 to 15 miles from Pond 2S and Pond 3S. These RQDs were obtained from a study performed by the Illinois Geological Survey in 1991 titled, "Geotechnical Properties of Selected Pleistocene, Silurian, and Ordovician Deposits of Northeastern Illinois". An RQD greater than 75% is considered good and an RQD greater than 90% is considered excellent. The RQD is a measure that determines the rock quality, which is used as part of the early site evaluation process when determining locations for engineered structures such as power facilities, underground tunnels, and dams. During the early site evaluation process, the RQD is used to determine any potential problems of bearing capacity, settlement, or sliding. The higher the RQD percentage, the more competent the rock and its ability to support structures, resist settlement and prevent sliding.

Based on construction documents available from Harza dated 1979, dikes existed in the area prior to construction of the ponds. During construction, these dikes were raised and widened with compacted fill material. The fill material was placed at the desired height and width and compacted to the extent to prevent erosion. As part of placing the fill material, any unsuitable material identified within the existing foundations was specified to be removed based on the construction drawings.

The interior slopes were originally lined with fill material and shot rock, which is similar to rip rap, and the pond base was originally lined with three layers consisting of a 12-inch Poz-O-Pac layer, a 12-inch fill layer, and another 12-inch Poz-O-Pac layer on top of the fill layer. The interior slopes and base were then covered with a bituminous curing coat. In 2013, Pond 2S's original upper Poz-O-Pac layer and fill material in the pond base were removed and replaced with a 60-mil HDPE geomembrane liner on the base and interior slopes for Pond 2S. The lower layer of Poz-O-Pac remained. Pond 2S also has a concrete geocell on the sides of the basin. In 2009, Pond 3S's original upper Poz-O-Pac layer and fill material in the pond base were removed and replaced with a 60-mil HDPE geomembrane liner on the base and interior slopes for Pond 3S. The lower layer of Poz-O-Pac remained. A warning layer was constructed in both Ponds 2S and 3S on top of the HDPE geomembrane liner that consisted of 12 inches of sand-sized material overtopped with 6 inches of crushed stone like material.

The side slopes were designed with 3H:1V (horizontal:vertical) interior slopes, with 3H:1V exterior slopes when the outer embankment is the interior slope of the adjacent pond. The exterior embankment of the south slope of Pond 2S was designed with a 2H:1V slope, the exterior embankment of the west slope of Pond 2S and Pond 3S is approximately 3H:1V. The north embankment of Pond 2S does not have an exterior slope because the crest of the embankment is at the same elevation as the ground level going north.

2.1 Summary of Geology and Hydrogeology

2.1.1 Geology

The physiography of Will County is made up of ground moraines, end moraines, outwash plains, stream terraces, flood plains and bogs. It is in the Till Plaines and Great Lakes Sections of the Central Lowland Province. Near surface soils in the vicinity of the subject impoundment are predominately Romeo Silt Loam and Joliet Silt Loam, both with areas that are frequently flooded. These soils are poorly drained. Organic content ranges from 3 to 5 percent and have a low to negligible accelerated erosion rate, a low to high corrosivity rate and a pH range from slightly acidic to slightly basic (6.1 to 8.4). Surface runoff class is low (Soil Survey of Will County Illinois). Based on the Surficial Geology Map of Romeo Quadrangle (Caron, 2017) the surficial deposits in the vicinity of the subject surface impoundments are identified as disturbed ground which is generally described as diamicton, sand, gravel, silt and peat as much as 40 feet thick. This disturbed ground is generally interpreted as disturbed land, which includes former gravel pits and major areas of construction.

The general stratigraphy in the area consists of post-glacial alluvium underlain by unconsolidated glacial deposits, which overlay Silurian dolomite. The Silurian dolomite is underlain by the Maquoketa Group, which includes the Scales Shale, which is considered a regional aquitard separating the overlying Silurian dolomite from the deeper Cambro-Ordovician sandstone and limestone aquifers. To evaluate local stratigraphy, water well logs and engineering test boring logs were obtained for water wells and engineering test borings in the vicinity of the Will County Generation Station. The depths of these wells and borings range from 50 feet to 300 feet. Fifteen (15) monitoring wells were installed in the vicinity of all four surface impoundments, of which six, were installed around Ponds 2S and 3S. Based on an evaluation of the monitoring well boring logs, the following general site-specific stratigraphy is defined:

- Fill (approx. 5’ to 10’ thick) – Consisting of a thin layer of sand and gravel roadway followed by brown and black silty clay and silty sand mixed with gravel and crushed dolomite. The fill may include coal, black cinders and slag.

- Silty Sand, Silt and Clay (approx. 1’ – 16’ thick) – Consisting of gravelly tan to brown silty sand fining downward to gray/greenish mottled silty clays and clay.

- Bedrock – Dolomite bedrock. Top of weathered bedrock is generally encountered between 9 feet and greater than 20 feet below ground surface with depth increasing towards the southwest. It is noted that at monitoring well location MW-12, top of bedrock was not encountered at the terminus of the boring at 20 feet below ground surface.

The Silurian dolomite is divided into four units identified as a weathered bedrock rind, Joliet Formation dolomite, Kankakee Formation dolomite and the Elwood/Wilhelmi dolomite. Beneath the Silurian dolomite is the Ordovician age Maquoketa Group consisting of the Brainard Shale, Fort Atkinson dolomite and the Scales Shale. The Brainard Shale unit is not necessarily regionally continuous; therefore, it may or may not be present beneath the subject site. The Scales Shale unit, however, is extensive and is a recognized regional aquitard, which hydraulically isolates the deeper bedrock aquifers from the shallower Silurian dolomite. Based on the available information, the dolomite bedrock thickness to the top of the Scales Shale beneath the Will County site is approximately 55 feet.

Regional and local studies and investigations document fractures in the Silurian dolomite describing a primary joint set that is vertical and oriented about N52ºE and N40ºW. The N40ºW joints are described as "more distinct". Natural spacing between the joint sets ranges from three (3) to more than 10 feet, and joint apertures are described as less than $1/16^{th}$ -inch. Bedding plane fractures are also described. Descriptions from various bedrock quarry walls show significant clay infilling of the vertical joints and bedding plane fractures. Evidence of water movement through fractures is interpreted from iron staining and mineralization (primarily calcite, with some pyrite and marcasite).

Silurian dolomite is a calcium-magnesium carbonate rock that includes horizons of cherty (silica) nodules and is documented both regionally and locally to include mineralization along fractures and within vugs. The mineralization includes, but is not limited to calcite (calcium carbonate) and various sulfide minerals such as pyrite, marcasite, etc. As such, the presence of these minerals and associated weathering products can also be expected within the overlying unconsolidated materials.

There are no underground mines beneath the subject CCR surface impoundments.

2.1.2 Hydrogeology

Based on information from the Soil Survey of Will County, the average annual precipitation is approximately 37 inches with about 63% of that total falling between April and October of any given year. The average seasonal snowfall is approximately just over 10 inches.

The nearest surface water bodies are the Des Plaines River (see Figure 1) and the Chicago Ship and Sanitary Canal (CSSC) respectively located to the west and east of the subject CCR units. There are no drinking water intakes within the segment of river adjacent to the subject site and for that matter on any portion of the Des Plaines River downstream of the site (Meet Your Water – An Introduction to Understanding Drinking Water in Northeastern Illinois, Metropolitan Planning Council, 2017).

Groundwater beneath the subject units occurs under water table conditions. Saturated conditions are generally encountered between eight (8) and 12 feet bgs, depending on the well location, within the lower portion of the above defined silty sand/silt/clay unit and/or bedrock. A review of the data shows some slight temporal fluctuations with the highest water levels tending to be in the May timeframe and the lowest water levels generally occurring August through October timeframe.

Groundwater flow maps for the four quarters from 3rd quarter 2020 through the 2nd quarter 2021 shows the groundwater flow is in a westerly direction. The horizontal hydraulic gradient is fairly shallow.

Hydraulic conductivity values were initially estimated for monitoring wells MW-1, MW-4, MW-6, MW-7, and MW-9, screened in the carbonate unit, from slug tests completed by Patrick Engineering in 2010. The geometric mean of the data for these wells was approximately 30 feet per day (ft/d; 3.47 $x10^{-4}$ ft/sec) for each well, as calculated by Patrick Engineering Hydrogeologic Assessment Report – Will County Station, February 2011). The slug test data were reviewed as part of the modeling study being completed for the Construction Permit application and the data were reanalyzed using corrected input values for the well casing and borehole dimensions, effective porosity of the sand filter pack material and minor line fitting refinement. The revised geometric mean of the test data for these wells decreased to approximately 20 ft/d ($2.31x10^{-4}$ ft/sec) for each well. The estimated effective porosity of the aquifer materials (0.2) was obtained from literature (Applied Hydrogeology, Fetter, 1980).

At this time, based on the geology discussion in Section 2.1.1 and the site-specific hydrogeology discussions above, the groundwater beneath the CCR surface impoundment is considered as Class I Potable Resource Groundwater in accordance with Section 620.210. However, a Groundwater Management Zone (GMZ) in accordance with Section 620.250 and an Environmental Land Use Control (ELUC) were established where the CCR surface impoundments are located as part of a Compliance Commitment Agreement (CCA) between Midwest Generation and Illinois EPA. The ELUC states that the groundwater shall not be used as potable water.

A survey of all potable water sources within a 2,500 feet radius of the Will County Generating Station was completed by Natural Resources Technology (NRT) in 2009. The following databases and sources of information were utilized in order to determine community water source and water well locations and construction near the ash pond wastewater treatment systems:

- Illinois State Geological Survey (ISGS) -Water Well Database Query;
- Illinois State Water Survey (ISWS) Private Well Database and water well construction report request; and
- Illinois Division of Public Water Supply web-based Geographic System (GIS) files.

As part of the operating permit preparation, KPRG evaluated the NRT information and reviewed the new Illinois State Geological Survey database and interactive map references as “ILWATER”. There are no potable use water wells downgradient of Pond 2S and Pond 3S. There are three existing water wells on the Will County Station property owned by Midwest Generation. These are identified as well numbers 01276, 00253 and 01275. The locations of these wells have been corrected relative to their locations plotted on the ILWATER map. All three wells are greater than 1,500 feet deep. Well 01276 on the north end of the property is no longer in use (permanently closed), well 00253 on the east side of the property is disconnected from the plant piping and electrically disconnected, and well 01275 is in service and repurposed as a potable water supply

for the caretaker building. Two additional wells, beyond the three mentioned above, located on the property by ILWATER shown as numbers 40018 and 40017 have no backup records (i.e., no installation date information and no depth/log information). Discussions with plant personnel indicate no presence or knowledge of these two potential additional wells suggesting these may be spurious data inputs. The well (number 40016) located on the northeast side of the property within the coal storage pile area is registered to Chicks Romeo Tavern and is actually located approximately 1 mile to the west of the Will County Station along Romeo Road (715 W. Romeo Rd.). There are two wells owned by Isle Ala Cache Park/Museum to the northwest, on the other side of the Des Plaines River, which is a regional hydrogeologic boundary. The well (number 41780) noted to the south is associated with the cement operation to the south.

A search of the Illinois Department of Natural Resources dedicated nature preserve database (https://www2.illinois.gov/dnr/INPC/Pages/NaturePreserveDirectory.aspx) was performed to determine whether there may be a nearby dedicated nature preserve. The Romeoville Prairie Nature Preserve is located west of the Des Plaines River and north of Romeo Road, approximately one-quarter mile northwest of the subject impoundments. It is noted that the Des Plaines River is a hydrogeologic barrier and the noted nature preserve is on the other side of the river and upstream relative to surface water flow of the river.

Based on the geology of the site presented above and the above hydrogeology discussions, the primary contaminant migration pathway for a potential release from the subject CCR surface impoundments would be downward migration to groundwater. Due to its proximity to the Des Plaines River, which is the adjacent hydrogeologic flow boundary, minimal to no downward vertical flow mixing is anticipated. There are no other utility or man-made preferential pathway corridors that would act to potentially intercept the flow to move any contamination in a direction other than to the west. There are no potable water wells downgradient of the subject CCR surface impoundments screened within the aquifer of concern. Also, as previously discussed, there are no potable surface water intakes on the Des Plaines River either along or downstream of the subject site.

Pond 2S and Pond 3S were identified as being subject to the new federal requirements under 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 (Federal CCR Rule). As required under the Federal CCR Rule, eight rounds of background sampling were completed for the monitoring wells within the monitoring network for the subject CCR surface impoundments (MW-5, MW-6 and MW-9 through MW-12). This included the full list of Appendix III (detection monitoring) and IV (assessment monitoring) parameters. Subsequently, quarterly groundwater monitoring of these wells was continued for only Appendix III detection monitoring parameters since there were no detections of Appendix III parameters above the established statistical background for those wells and/or an Alternate Source Demonstration (ASD) was completed indicating a source of impacts other than the subject surface impoundments. Because Pond 1N and Pond 1S did not accumulate liquids, they were not identified as being subject to the Federal CCR Rule.

2.2 Extent of Impacts Evaluation

The completed assessment monitoring statistical evaluations and data comparison to the established GWPSs for the site indicated detected Appendix IV parameter concentrations for arsenic above the GWPS in wells MW-10 and MW-11, chloride above the GWPS in well MW-11, and selenium in well MW-5. In accordance with Section 257.95(g)(1) of the CCR Rule requirements, KPRG has initiated an evaluation of the nature and extent of the release relative to the parameters detected above the GWPS. Assessment groundwater sampling continued in the first quarter of 2023 using monitoring wells MW-5, MW-6, MW-9, MW-10, MW-11, and MW-12; it is noted that these wells are already in-place. All groundwater sampling procedures were completed in accordance with the CCR Compliance Monitoring, Sampling and Analysis Plan dated October 10, 2017 for the Will County Generating Station.

As previously noted, the detected Appendix IV parameters include arsenic and selenium. The analytical data from the initial extent of impact monitoring is provided in Tables 1 and 2. Table 1 contains the Appendix III parameters and Table 2 contains the Appendix IV parameters. There were no detections above the GWPSs for selenium in any of the assessment monitoring wells. The extent of detections of arsenic above their respective GWPSs are provided on Figure 2. A review of the extent of detections map for arsenic (Figure 2) indicates that all GWPS exceedances are to the southwest of Pond 2S and northwest of Pond 3S and within the existing interim GMZ.

3.0 IDENTIFICATION OF POTENTIAL CORRECTIVE MEASURES

An assessment of corrective measures for closure of Ponds 2S and 3S was performed in accordance with 257.96(c)(1) to 257.96(c)(3) to address the water quality monitoring parameter detections above established groundwater protection standards discussed above. The three corrective measures assessed for closure of Ponds 2S and 3S were:

- Closure Alternative 1: Complete removal of the CCR;
- Closure Alternative 2: Leave the CCR in place in each pond and install a final cover system;
- Closure Alternative 3: Leave the CCR in place and perform in-situ soil stabilization;

A brief description of each corrective measure is presented below.

3.1 Closure Alternative 1: Complete Closure by Removal

The ponds were used to temporarily contain CCR removed from the boilers and dewater the CCR before it is hauled offsite for permanent disposal. Typically, one pond was used at a time until it reached its storage capacity, then the other pond would be used. Ponds 2S and 3S were used to manage CCR for the most recently operated generating Units 3 and 4. Pond 3S ceased receiving CCR as of April 11, 2021 and Pond 2S ceased received CCR as of June 11, 2022.

The extent of the CCR in Ponds 2S and 3S was determined using a topographical survey from 2022, the original design drawings, and the as-built drawings for the Ponds 2S and 3S liner replacement. The CCR in Pond 2S ranges from the ground surface (590 ft amsl to 591 ft amsl) to 7-8 feet bgs (583 ft amsl). The CCR in Pond 3S ranges from the ground surface (590 ft amsl to 591 ft amsl) to 7.7-8.7 feet bgs (582.3 ft amsl).

As stated in 257.102(c), closure by removal consists of removing all CCR and decontaminating all areas affected by releases of CCR from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the GWPS. To execute closure by removal of Ponds 2S and 3S, the following activities would occur:

- Dewater any standing water in Ponds 2S and 3S, which should be only stormwater at this point;
- Install erosion control measures, prior to earthwork;
- Excavate and stage CCR to allow for additional dewatering, as necessary;
- Load the CCR into haul trucks and transport for off-site disposal;

- Remove geomembrane liner and demolish concrete outlet structures.

The estimated quantity of CCR material that would require excavation from Pond 2S is 32,000 CY and Pond 3S is 32,600 CY, which totals 64,600 CY. The volumes are based on the bank/in-place CCR quantity based upon the existing site elevations, the estimated depth of the CCR material based on the December 2022 topographic survey and the original design drawings of the ponds. If any portion of the warning layer is not considered as CCR material, then it will be used as part of the base material installed to assist with stormwater drainage from the excavated ponds. The extent of the removal areas and post-excavation contours are shown on Figure 3. As the bank/in-place material is removed, it may be stockpiled and staged as necessary to allow for any additional dewatering from the CCR prior to it being loaded and transported offsite. As the CCR is excavated, it is expected to swell by approximately 30%, which creates a handling and transportation volume for Pond 2S is 41,600 CY and Pond 3S is 42,400 CY.

Pond 2S and 3S have a 40-mil geomembrane liner on top of part of the original Poz-O-Pac liner system. Ponds 2S and 3S were relined in 2013/2014 as part of a Compliance Commitment Agreement between Midwest Generation and the Illinois Environmental Protection Agency. The relining consisted of removing part of the original Poz-O-Pac liner system to achieve a desired elevation, then installing the 40-mil geomembrane liner over top of the remaining Poz-O-Pac. On top of the above liners for each pond are eighteen inches of a warning system consisting of 12 inches of a cushion layer directly on the liner followed by 6 inches of warning layer. The cushion layer and warning layer are anticipated to consist of a sand/small aggregate type of materials. The geomembrane liner in Ponds 2S and 3S will be removed and hauled to the same landfill as the CCR material for disposal. The remaining Poz-O-Pac liner below the geomembrane liner will be visually evaluated for the presence of CCR material, and if observed, the Poz-O-Pac liner would be removed and hauled offsite for landfill disposal. For this evaluation, the remaining Poz-O-Pac liner is included as part of the removal quantities for Ponds 2S and 3S.

As part of this scenario, dewatering will be necessary to remove water that may have accumulated in Ponds 2S and 3S to begin CCR removal. CCR impoundment dewatering activities will include pumping accumulated rainwater into the overflow trough and then process thru the wastewater treatment facility prior to discharging.

Fill material is necessary to be placed in the bottom of the Pond 2S and 3S removal excavations after the removal activities have occurred. This fill material is necessary to create a sloped bottom so stormwater will drain from the bottom of this excavation into the existing process water drainage and recirculation system. Approximately 19,000 CY of fill material is necessary to achieve the necessary slopes to ensure drainage will occur. A discussion of this closure alternative option relative to established evaluation criteria is provided in Section 4.0.

3.2 Closure Alternative 2: Closure in Place with a Final Cover System

The closure in place with a final cover system (FCS) alternative would consist of leaving the CCR in place in Ponds 2S and 3S, placing additional fill material in the ponds (as needed), and covering with a final cover system in accordance with 257.102(d) as shown on Figure 4. The final cover system would consist of a geomembrane low permeability layer, which is topped with an

alternative final protective layer that provides equivalent performance to a soil final protective layer. The FCS would be sloped to allow for precipitation to runoff and drain into each ponds existing discharge structure, which enters the water recirculation system. The water is discharged to the CSSC through the permitted outfall in compliance with the existing NPDES permit.

The FCS product that would be used is the proprietary ClosureTurf cover system created by Watershed Geo. The ClosureTurf FCS consists of a geomembrane low permeability layer that also incorporates a drainage layer. The final protective layer is replaced with engineered synthetic turf that is infilled with sand/small aggregate to provide ballast to the synthetic turf. The infiltration layer will be a 60-mil HDPE geomembrane with a hydraulic conductivity that is no greater than $1x10^{-7}$ cm/sec. The engineered synthetic turf is comprised of polyethylene fibers that are tufted through a double layer of woven geotextiles that are highly UV and heat resistant. The engineered synthetic turf is then infilled with small aggregate that is approximately 1/8 inch to 1/4 inch diameter in size.

Pond 2S has a crest embankment elevation that ranges between 590 and 591 ft amsl, a bottom elevation of approximately 583 ft amsl and the discharge structure has a weir elevation of approximately 589 ft amsl. Pond 2S has an outer concrete wall that is part of the discharge structure, which has an elevation between 593.4 ft amsl and 593.5 ft amsl. Any CCR in Pond 2S is below the water level in the pond, which is between elevations 588-589 ft amsl and could not be observed or surveyed. Pond 2S will be dewatered to expose the existing CCR to execute the closure in place. The existing CCR material will be graded to slope towards the existing drainage structure to allow drainage to prevent the accumulation of precipitation. It may be necessary to add additional fill material to achieve the desired grade elevations. Approximately 40 CY of existing CCR will be graded and 6,700 CY of fill material is required. The ClosureTurf FCS would then be placed on top of the sloped surface with the geomembrane being attached to the discharge structure, the synthetic turf placed on top of the geomembrane, and the turf infilled with sand/small aggregate. The surface of the final protective layer will be sloped towards the Pond 2S discharge structure to allow for drainage.

Pond 3S has a crest embankment elevation that ranges between 590 and 592 ft amsl, a bottom elevation of approximately 582.3 ft amsl and the discharge structure has a weir elevation of approximately 589 ft amsl. Pond 3S has an outer concrete wall that is part of the discharge structure, which has an average elevation of 593.48 ft amsl. The majority of the CCR in Pond 3S is present along the perimeter of the pond and has an approximate elevation of 588-590 ft amsl with the CCR in the center of the pond being lower with an elevation of 588 ft amsl to less than 584 ft amsl. Water is present in the center of Pond 3S. The existing CCR material will be graded to slope towards the existing drainage structure to allow drainage to prevent the accumulation of precipitation. It may be necessary to add addition fill material to achieve the desired grade elevations. Approximately 230 CY of existing CCR will be graded and 8,300 CY of fill material is required. The ClosureTurf FCS would then be placed on top of the sloped surface with the geomembrane being attached to the discharge structure, the synthetic turf placed on top of the geomembrane, and the turf infilled with sand/small aggregate. The surface of the final protective layer will be sloped towards the Pond 3S discharge structure to allow for drainage.

The soils used in the FCS will consist of clean material sourced from as close to Ponds 2S and 3S as possible. It may be necessary to use multiple soil sources. A discussion of this closure alternative option relative to established evaluation criteria is provided in Section 4.0.

3.3 Closure Alternative 3: Closure in Place with Soil Stabilization

The in-situ solidification/stabilization (ISS) treatment would occur for the CCR in Ponds 2S and 3S. The ISS treatment in Ponds 2S and 3S would be completed over an approximate combined area of 202,000 square feet and approximately 74,000 CY of CCR, as shown on Figure 5. The ISS would be applied by soil mixing from the top of the CCR to the bottom most extent of the CCR in the ponds. The ISS treatment range in Ponds 2S and 3S extends from elevation 590-591 ft amsl to elevation 580.5 ft amsl, which consists of a treatment thickness range of 9.5-10.5 feet. The geomembrane liners in Ponds 2S and 3S would need to be removed prior to the ISS treatment. This would consist of stockpiling some of the CCR material within the pond extent, removing the geomembrane liner and then placing the stockpiled CCR where the geomembrane was removed. For purposes of this closure alternatives analysis, it is assumed the ISS will be implemented through bucket mixing due to the shallow treatment thickness range.

ISS treatment consists of adding reagents to physically bind/solidify and/or chemically react/stabilize the CCR, resulting in a solidified or stabilized mass with reduced constituent mobility and leachability. The ISS will isolate the CCR from human contact and from groundwater by encapsulating in a low permeable monolith. Active reagents used in ISS can include pozzolanic compounds such as cement or blast furnace slag to produce a solidified material, reducing contact with groundwater and surface water. Other additives such as bentonite may be included to help lower permeability as needed. The reagents and additives are typically mixed with water to create a flowable and pumpable slurry that is then mixed with the CCR. The effectiveness and reagent mix for solidification/stabilization would need to be evaluated in a treatability study. Samples would be collected from the CCR in the ponds and bench top testing would be performed to determine the proper mix design. It may be necessary to use multiple mix designs to treat the ISS based on site factors.

Performing ISS will result in expansion of the treated CCR. This expansion is typically 10% to 25% of the original treatment volume. Depending on the soil type, the expansion can range from 10% for sandy materials to 25% or more for clayey materials. One such application of ISS to treat sandy silty fill material resulted in ISS swell of up to 40%. Testing during the ISS treatability study and the ISS pilot test will provide an estimate of the ISS swell expected from the CCR. For this closure alternative analysis, the swell volume estimate will be 30% to present a conservative estimate of the cost and volume of ISS. Any generated ISS swell would be used to achieve a slope of the ISS surface to prevent accumulation of precipitation and ponding.

The completed ISS treatment area would be covered with a FCS. The extent of the treatment area requiring additional clean soil is 202,000 square feet and approximately 22,000 CY of excess ISS will be regraded to achieve the necessary grades to prevent ponding water. The FCS would be sloped to allow water to drain towards the perimeter of the ISS treatment area and the ponds existing discharge structures. Conceptually, the cover installation would consist of direct

placement of clean fill on the treated ISS area, and then covered with the FCS. For the purposes of this report, it is assumed the FCS will be ClosureTurf. Material used for the clean fill will consist of material imported from non-contaminated sites and/or sources. Stockpiles of on-site materials may be used in the FCS cover.

4.0 CORRECTIVE MEASURE EVALUATION CRITERIA

The three identified corrective measures options were evaluated based on requirements under CCR Rule Parts 257.96(c)(1) through 257.96(c)(3). The evaluation criteria consisted of the following:

- Performance
- Reliability
- Ease of Implementation
- Potential Impacts of Appropriate Potential Remedies
    - safety impacts
    - cross-media impacts
    - control of exposure to residual contamination
- Time Required to Begin and Complete the Remedy
- Institutional requirements, such as state or local permit requirements or other environmental or public requirements

Each corrective measure was evaluated using the above criteria and that evaluation is provided in Table 3. The following highlights are provided from that evaluation.

Alternative Closure Scenario 1: Closure by Removal

- Removing the CCR from Ponds 2S and 3S would require excavating 64,600 CY and hauling 84,000 CY, which would take over 110 days to execute based on 50 truckloads per day and 15 cubic yards per truck (750 CY/day).

- Removing the CCR would remove any remaining amounts of the CCR mass. Groundwater modeling has shown that theoretical impacts to groundwater are reduced by about 80% within 50 years and removing the mass would remove the potential for continued contamination.

- Not removing the CCR would eliminate the volume of material disposed at a landfill, and reduce the number of trucks traveling to and from the station.

- Additionally, the truck traffic removing the CCR will negatively affect the neighboring properties, including air quality and noise pollution, since the entrance and egress for the trucking would be directly via E. Romeo Road and E. Material Service Road

Alternative Closure Scenario 2: Closure in Place with a Final Cover System

- ClosureTurf has successfully been used around the country to close CCR surface impoundments and landfills.

- The ClosureTurf final cover will require approximately 15,000 CY of clean fill material and more overall truck traffic to and from the site because the ponds have to be filled to achieve the necessary grades and elevations. It will require approximately 20 days to deliver clean fill to the site based on 50 truckloads per day and 15 CY per truck.

- The ClosureTurf and soil infill will cover the CCR, prevent infiltration into the CCR, and prevent any human or animal contact.

- The ClosureTurf option will require 30 years of post-closure monitoring.

- Minimizing infiltration through the existing CCR will prevent future groundwater impacts. Any elevated constituents that have been detected in the groundwater will disperse through the existing groundwater and concentrations will decrease in time.

Alternative Closure Scenario 3: Closure in place with In-Situ Solidification/Stabilization

- ISS is expected to contain and stabilize the CCR and is anticipated to be an adequate and reliable means of reducing the leaching potential of the CCR if it is exposed to groundwater and precipitation.

- Placement and maintenance of the FCS would provide adequate and reliable means of controlling exposures to stabilized CCR.

- ISS and installation of the FCS would result in impacts to the community relative to truck traffic and noise during the construction. However, as materials requiring offsite disposal are minimized, this disturbance would be less than closure by removal.

- Approximately 74,000 in-place CY of CCR, warning layer, and Poz-O-Pac would be treated with ISS.

- The leaching potential of CCR would be irreversibly reduced through ISS. The mobility of CCR into surface water or via flooding (i.e., associated with erosion) would be further reduced by installation of the FCS.

5.0 SUMMARY

Three closure options were evaluated as an assessment of corrective measures for closure of Ponds 2S and 3S in accordance with 257.96(c)(1) to 257.96(c)(3) to address the water quality monitoring parameter detections above established groundwater protection standards. The three options evaluated are as follows:

1) Closure by removal;
2) Closure in place in Ponds 2S and 3S with an FCS; and
3) Closure in place with in-situ solidification/stabilization in both north and south portions with an FCS.

The options were evaluated based on performance, reliability, ease of implementation, potential impacts, and institutional requirements.

Closure by removal would require the excavation, transportation, and disposal of 84,000 CY of CCR, warning layer material, and existing Poz-O-Pac liner and take approximately 112 days to complete. The CCR removed is assumed to be disposed of at Laraway RDF for the purposes of evaluating this alternative. If this alternative were to move forward, discussions with the landfill would have to occur prior to selecting this alternative. The area of the removed CCR would be partially re-filled with clean material and graded to prevent accumulation of standing water and facilitate drainage towards the existing ponds' discharge structure. After completion, groundwater quality is anticipated to improve since the CCR for the most part will have been removed.

The closure in place of Ponds 2S and 3S requires filling the ponds to achieve the proper grades and constructing the FCS on this fill material. This scenario would require Ponds 2S and 3S to be filled with approximately 15,000 CY of additional material in order to bring the grade up to the proper elevations to allow precipitation to gravity flow off the FCS. The ClosureTurf FCS system would then be placed on top of the fill material in the ponds. Each ponds' FCS is sloped to drain towards the existing discharge structures in each pond. From the ponds, the water is recycled through the recirculation system and ultimately discharged through the station's NPDES permitted outfall. This option would take approximately 2 months to complete and groundwater monitoring would occur for thirty years.

The in-situ solidification/stabilization (ISS) treatment of the CCR in the ponds would be completed over an approximate 202,000 square feet area. This alternative would include the ISS of approximately 74,000 CY of CCR in the ponds. The ISS would be applied by soil mixing from the top of the CCR to the bottom most extent of the CCR. The completed ISS treatment area would be covered with a ClosureTurf FCS. It is anticipated that the swell material generated during treatment would be used to obtain the necessary grades to prevent ponding water. The ISS swell material would be sloped to allow water to drain towards the west perimeter of the ISS treatment area and the existing ponds' discharge structures. If the swell material quantity is inadequate, then clean soil will supplement as necessary to achieve the desired grades and slopes.

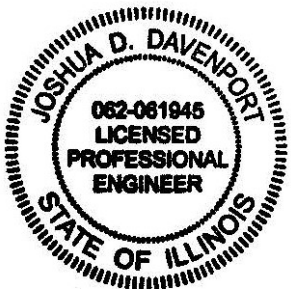
Groundwater modeling has shown that all three closure alternatives reduce concentrations of groundwater constituents to levels below the proposed groundwater protection standards in the downgradient monitoring wells.

6.0 PROFESSIONAL ENGINEER'S CERTIFICATION

This assessment of corrective measures has been prepared in accordance with 40 CFR 257.96(c)(1) through 257.96(c)(3).

Joshua D. Davenport, P.E.
Illinois Professional Engineer

SEAL



TABLES

Table 1. Appendix III Groundwater Analytical Results - Midwest Generation, LLC, Ponds 2S/3S Will County Station, Romeoville, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-05 up-gradient	11/11/2015	6.1	220	110	0.31	7.24	770	1,900
	2/18/2016	4.4	230	120	0.31	6.99	730	1,600
	5/26/2016	3.7	170	110	0.33	6.73	670	1,500
	8/10/2016	3.6	67	120	0.72	8.62	480	970
	10/26/2016	3.6	44	120	0.70	9.08	410	920
	2/1/2017	4.6	250	48	0.35	6.81	530	1,600
	5/11/2017	4.0	140	85	0.31	7.86	610	1,200
	6/27/2017	3.8	83	99	0.53	7.95	500	1,000
	Pred. Limit*	**6.65**	**359**	**148**	**0.72**	**9.93-5.39**	**923**	**2,286**
	9/8/2017	4.8	89	78	0.52	9.40	490	1,000
	11/16/2017	4.8	180	52	0.45	6.70	650	1,500
	5/2/2018	3.6	200	32	0.39	7.23	510	1,300
	10/3/2018	4.9	150	55	0.48	7.07	430	1,200
	5/29/2019	4.1	61	91	0.59	9.10	380	870
	12/6/2019	4.9	170	31	0.41	6.95	440	1,200
	5/22/2020	4.5	52	70	0.59	7.39	300	870
	11/4/2020	5.0	130	29	0.38	7.06	410	1,100
	5/24/2021	4.7	120	28	0.53	7.07	430	1,000
	11/23/2021	5.5	140	22	0.44	6.80	370	1,100
	2/24/2022	4.9	210	25	0.39	6.73	660	1,400
	6/16/2022	5.1	120	41	0.34	7.05	510	1,100
	8/25/2022	6.6	130	20	0.40	6.69	300	940
	11/15/2022	8.9	150	9.8	0.72	6.78	310	930
	2/23/2023	6.3	120	26	0.43	6.83	430	1100
MW-06 up-gradient	11/10/2015	3.0	52	100	0.55	8.63	300	660
	2/18/2016	2.5	74	150	0.47	8.58	280	650
	5/26/2016	2.7	86	92	0.44	7.79	350	800
	8/11/2016	3.6	110	58	0.35	7.74	330	840
	10/26/2016	3.8	86	74	0.40	8.16	220	800
	2/1/2017	3.4	70	83	0.41	7.88	260	700
	5/11/2017	3.0	75	84	0.28	8.68	330	570
	6/27/2017	3.1	65	74	0.38	8.15	330	710
	Pred. Limit*	**4.29**	**122**	**162**	**0.62**	**9.21-7.19**	**415**	**956**
	9/7/2017	3.5	75	67	0.40	8.20	300	740
	11/16/2017	3.9	88	54	0.39	7.59	280	810
	5/3/2018	3.0	91	52	0.26	***6.91***	***530***	750
	7/25/2018 R	NA	NA	NA	NA	7.47	280	NA
	10/3/2018	3.5	93	44	0.31	7.83	240	720
	5/29/2019	***4.3***	120	38	0.21	7.51	350	***1,000***
	7/3/2019 R	3.2	NA	NA	NA	NA	NA	740
	12/6/2019	4.2	98	31	0.33	7.91	210	740
	5/22/2020	3.4	98	56	0.31	7.47	180	710
	11/3/2020	3.3	100	43	0.36	7.29	170	700
	5/24/2021	2.6	99	46	0.33	7.65	160	610
	11/23/2021	2.6	85	43	0.37	7.48	150	720
	2/22/2022	2.8	***130***	35	0.33	7.29	260	940
	6/14/2022	2.5	110	22	0.35	7.06	210	610
	8/25/2022	2.7	110	20	0.42	7.31	170	750
	11/16/2022	3.2	110	19	0.47	7.41	160	600
	2/23/2023	3.0	110	17	0.35	7.54	190	680
MW-09 down-gradient	11/11/2015	1.9	56	190	0.55	9.12	460	750
	2/17/2016	1.8	47	160	0.55	9.10	250	600
	5/24/2016	1.6	48	180	0.51	8.79	240	640
	8/9/2016	2.2	53	140	0.48	8.35	280	750
	10/26/2016	2.2	33	130	0.81	9.16	230	660
	1/31/2017	2.0	61	250	0.57	8.59	180	710
	5/9/2017	1.8	66	340	0.38	8.58	250	900
	6/27/2017	1.9	64	330	0.51	7.76	240	940
	Pred. Limit	**4.26**	**275****	**149****	**0.72****	**9.39-6.48****	**413**	**950**
	Pred. Limit*	**NC**	**NC**	**431.2**	**0.87**	**NC**	**NC**	**1,060**
	9/6/2017	1.8	59	**310**	0.51	8.98	240	890
	11/14/2017	2.6	160	**270**	0.51	8.1	290	910
	5/1/2018	1.7	49	**200**	0.52	7.81	**430**	820
	7/25/2018 R	NA	NA	NA	NA	NA	320	NA
	10/2/2018	2.1	49	**170**	0.55	8.09	270	820
	5/29/2019	1.5	48	**280**	0.29	8.90	150	750
	12/6/2019	2.0	38	140	0.46	8.65	160	630
	5/26/2020	1.3	55	**320**	0.32	8.66	140	720
	11/3/2020	2.0	43	**240**	0.55	8.64	180	750
	5/26/2021	1.6	67	**360**	0.39	8.74	180	900
	11/23/2021	1.1	30	**290**	0.47	8.73	210	900
	2/22/2022	1.5	49	**250**	0.40	8.65	160	900
	6/15/2022	1.9	43	**230**	0.48	8.35	180	730
	8/25/2022	2.1	38	**210**	0.58	8.68	190	770
	11/16/2022	2.3	37	**210**	0.79	8.82	160	690
	2/23/2023	2.0	38	**190**	0.53	9.04	210	680

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

* - Intrawell Prediction Limit. All others are interwell comparisons.

** - Based on pooled background from MW-5/MW-6. All others based on MW-6 as background.

Italics Date - First round of Detection Monitoring and resample after statistical background establishment.

NC - Not calculated.

BOLD - Potential statistically significant increase relative to interwell Prediction Limit.

BOLD - Potential statistically significant increase relative to intrawell Prediction Limit.

BOLD - Above both interwell and intrawell Prediction Limts

NA - Not analyzed. No confirmation resample required.

R - Resample

F1 - MS and/or MSD Recovery outside of limits.

Table 1. Appendix III Groundwater Analytical Results - Midwest Generation, LLC, Ponds 2S/3S Will County Station, Romeoville, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-10 down-gradient	11/10/2015	3.9	140	140	0.77	7.34	310	980
	2/16/2016	3.6	150	240	0.79	7.29	290	950
	5/25/2016	3.6	120	140	0.83	7.26	260	1,000
	8/10/2016	4.3	150	120	0.78	7.22	230	970
	10/26/2016	3.0	160	74	0.52	7.30	220	1,000
	2/2/2017	3.7	180	81	0.54	7.16	160	930
	5/10/2017	3.0	150	100	0.44	7.83	340	860
	6/27/2017	2.8	130	110	0.67	7.49	250	930
	Pred. Limit	**4.26**	**275****	**149****	**0.72****	**9.39-6.48****	**413**	**950**
	Pred. Limit*	**NC**	**NC**	**262.2**	**1.06**	**NC**	**NC**	**1,074**
	9/7/2017	2.8	120	120	**0.77**	7.37	290	920
	11/15/2017	4.1	140	120	**0.77**	7.10	270	**1,000**
	5/1/2018	3.2	150	130	0.65	7.31	280	**990**
	10/3/2018	2.5	110	140	**0.89**	7.60	200	860
	5/29/2019	2.8	100	140	**0.82**	7.53	260	860
	12/5/2019	3.7	120	110	**0.93**	7.21	190	940
	5/27/2020	2.3	100	**170**	**0.90**	7.29	280	850
	11/3/2020	3.7	130	140	**0.87**	7.02	180	920
	5/25/2021	3.0	160	130	0.62	7.16	160	910
	11/23/2021	2.7	110	130	0.71	7.07	230	**990**
	2/24/2022	2.6	130	120	0.53	7.02	170	840
	6/14/2022	2.9	100	140	**0.86**	6.99	280	790
	8/25/2022	2.6	130	140	**0.99**	7.47	280	910
	11/16/2022	4.4	130	160	**0.94**	7.15	220	910
	2/23/2023	3.7	140	140	0.71	7.11	250	930
MW-11 down-gradient	11/10/2015	2.6	120	89	0.61	7.60	180	620
	2/16/2016	3.0	100	88	0.68	7.47	170	640
	5/25/2016	2.8	82	98	0.75	7.43	170	640
	8/10/2016	3.1	96	86	0.72	7.57	150	660
	10/26/2016	2.5	110	67	0.53	7.82	120	630
	2/1/2017	3.9	110	72	0.65	7.54	110	600
	5/10/2017	3.1	95	84	0.46	8.37	170	590
	6/27/2017	2.8	87	90	0.59	7.57	150	680
	Pred. Limit	**4.26**	**275****	**149****	**0.72****	**9.39-6.48****	**413**	**950**
	Pred. Limit*	**NC**	**NC**	**110.6**	**0.88**	**NC**	**NC**	**710**
	9/7/2017	2.8	90	94	0.58	7.40	150	***730***
	11/15/2017	2.9	96	100	0.65	7.41	160	***750***
	5/3/2018	3.8	73	110	0.69	6.74	190	670
	10/3/2018	3.1	78	110	0.66	7.65	120	680
	5/29/2019	2.2	86	110	0.49	7.55	120	610
	12/5/2019	2.5	100	80	0.55	7.26	91	600
	5/26/2020	2.3	89	100	0.54	7.4	90	540
	11/3/2020	4.3	85	***140***	0.72	7.17	68	710
	5/25/2021	3.8	94	***130***	**0.74**	7.68	57	660
	11/23/2021	2.0	130	***150***	0.48	6.94	94	***810***
	12/22/2021 R	NA	NA	***150***	NA	7.03	NA	NA
	2/23/2022	1.8	130	***150***	0.38	6.94	91	***760***
	6/13/2022	2.8	120	***140***	0.40	7.22	97	700
	8/23/2022	2.5	110	***140***	0.53	6.94	160	***740***
	11/16/2022	3.8	120	***130***	0.71	7.34	66	***700***
	2/21/2023	2.2	120	***130***	0.45	7.08	81	710
MW-12 down-gradient	11/10/2015	2.3	150	160	0.59	7.44	290	1,000
	2/16/2016	1.8	130	140	0.52	7.38	220	850
	5/25/2016	1.9	130	150	0.54	7.23	250	890
	8/10/2016	2.4	170	140	0.49	7.20	280	1000
	10/26/2016	2.6	140	120	0.49	7.44	220	980
	2/1/2017	2.0	160	120	0.48	7.30	150	900
	5/10/2017	2.3	200	240	0.30	7.65	260	1,300
	6/27/2017	2.4	180	280	0.44	7.31	260	1,300
	Pred. Limit	**4.26**	**275****	**149****	**0.72****	**9.39-6.48****	**413**	**950**
	Pred. Limit*	**NC**	**NC**	**338.8**	**0.71**	**NC**	**NC**	**1,519**
	9/6/2017	2.6	190	**270**	0.49	7.26	260	**1,400**
	11/15/2017	1.7	55	**200**	0.47	6.90	250	**1,200**
	5/3/2018	1.8	140	**170**	0.47	6.60	170	**960**
	10/2/2018 F1	2.2	150	**160**	0.49	7.30	170	**1,100**
	5/29/2019	1.9	140	140	0.42	7.23	190	930
	12/5/2019	2.1	140	71	0.53	7.02	110	820
	5/22/2020	1.9	180	120	0.4	6.95	140	**1,100**
	11/3/2020	2.2	160	**190**	0.52	7.27	160	**1,000**
	5/25/2021	1.8	140	**170**	0.49	7.37	180	930
	11/23/2021	2.3	180	**210**	0.44	7.01	180	**1,200**
	2/24/2022	1.7	150	**150**	0.4	7.06	150	**1,000**
	6/13/2022	1.9	160	^+ **210**	0.45	7.03	170	**1,000**
	8/23/2022	1.9	150	**170**	0.37	6.62	160	**1,000**
	11/16/2022	2.3	160	**180**	0.97	7.34	180	**1,000**
	2/21/2023	1.6	150	**150**	***0.41***	7.15	180	**980**

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

* - Intrawell Prediction Limit. All others are interwell comparisons.

** - Based on pooled background from MW-5/MW-6. All others based on MW-6 as background.

Italics Date - First round of Detection Monitoring and resample after statistical background establishment.

NC- Not calculated.

BOLD - Potential statistically significant increase relative to interwell Prediction Limit.

BOLD - Potential statistically significant increase relative to intrawell Prediction Limit.

BOLD - Above both interwell and intrawell Prediction Limts

NA - Not analyzed. No confirmation resample required.

R - Resample

F1 - MS and/or MSD Recovery outside of limits.

Table 2. Appendix IV Groundwater Analytical Results - Midwest Generation, LLC, Ponds 2S/3S Will County Station, Romeoville, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-05 up-gradient	11/11/2015	< 0.003	0.0014	0.071	< 0.001	< 0.0005	< 0.005	< 0.001	0.31	< 0.0005	0.013	< 0.0002	0.0750	-0.168	0.031	< 0.002
	2/18/2016	< 0.003	0.0021	0.058	< 0.001	< 0.0005	< 0.005	< 0.001	0.31	< 0.0005	0.017	< 0.0002	0.079	0.468	0.019	< 0.002
	5/26/2016	< 0.003	0.0023	0.055	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	0.011	< 0.0002	0.077	< 0.402	0.019	< 0.002
	8/10/2016	< 0.003	0.0044	0.043	< 0.001	< 0.0005	< 0.005	< 0.001	0.72	< 0.0005	< 0.010	F1 < 0.0002	0.14	< 0.394	0.0049	< 0.002
	10/26/2016	< 0.003	0.0047	0.033	< 0.001	< 0.0005	< 0.005	< 0.001	0.70	< 0.0005	< 0.01	< 0.0002	0.12	0.592	< 0.0025	< 0.002
	2/1/2017	< 0.003	0.0015	0.058	* < 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.016	^ < 0.0002	0.048	< 0.424	0.029	< 0.002
	5/11/2017	< 0.003	0.0035	0.053	< 0.001	< 0.0005	< 0.005	< 0.001	0.31	< 0.0005	< 0.01	< 0.0002	0.093	< 0.388	< 0.0025	< 0.002
	6/27/2017	< 0.003	0.0037	0.045	< 0.001	< 0.0005	< 0.005	< 0.001	0.53	< 0.0005	< 0.01	< 0.0002	0.11	0.412	< 0.0025	< 0.002
	9/8/2017	< 0.003	0.0038	V 0.069	< 0.001	< 0.0005	< 0.005	< 0.001	0.52	< 0.0005	< 0.01	< 0.0002	0.095	0.486	0.0047	< 0.002
	11/16/2017	< 0.003	0.0028	0.065	< 0.001	< 0.0005	< 0.005	< 0.001	0.45	< 0.0005	0.021	< 0.0002	0.064	< 0.379	0.012	< 0.002
	5/2/2018	NA	NA	NA	NA	NA	NA	NA	0.39	NA	NA	NA	NA	NA	NA	NA
	5/24/2021	< 0.003	0.0011	0.046	^1+< 0.001	< 0.0005	< 0.005	< 0.001	0.53	< 0.0005	0.015	< 0.0002	0.063	< 0.492	0.042	< 0.002
	11/23/2021	< 0.003	0.0035	0.066	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.44	< 0.0005	0.017	< 0.0002	0.066	0.784	0.012	< 0.002
	2/24/2022	< 0.003	0.0092	0.077	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.39	< 0.0005	0.014	< 0.0002	0.059	< 0.415	0.048	< 0.002
	6/16/2022	< 0.003	0.0037	0.055	< 0.001	< 0.0005	< 0.005	< 0.001	0.34	< 0.0005	0.011	< 0.0002	0.064	< 0.471	0.008	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/25/2022	< 0.003	0.0043	0.1	< 0.001	< ^1+ 0.0005	< 0.005	< 0.001	0.4	< 0.0005	0.016	< 0.0002	0.061	< 0.6	0.0056	< 0.002
	11/15/2022	< 0.003	**0.032**	0.1	< ^+ 0.001	0.004	0.0083	< 0.001	0.7	< 0.0005	0.02	< 0.0002	0.1	< 0.6	**0.089**	< 0.002
	12/29/2022 (R)	NS	0.0094	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.10**	NS
	2/23/2023	< 0.0030	0.0018	0.058	< ^1+ ^+ 0.0010	< 0.00050	< 0.0050	< 0.0010	0.43	< 0.00050	0.012	0.00027	0.067	< 0.655	0.021	< 0.0020
MW-06 up-gradient	11/10/2015	< 0.003	0.0016	0.048	< 0.001	< 0.0005	< 0.005	< 0.001	0.55	< 0.0005	0.011	< 0.0002	0.0670	-0.383	0.0039	< 0.002
	2/18/2016	< 0.003	0.0014	0.068	< 0.001	< 0.0005	< 0.005	< 0.001	0.47	< 0.0005	0.015	< 0.0002	0.0630	0.412	< 0.0025	< 0.002
	5/26/2016	< 0.003	0.002	0.068	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.44	< 0.0005	0.012	< 0.0002	0.042	< 0.422	< 0.0025	< 0.002
	8/11/2016	< 0.003	0.0029	0.086	< 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.017	< 0.0002	0.038	< 0.339	< 0.0025	< 0.002
	10/26/2016	< 0.003	0.003	0.074	< 0.001	< 0.0005	< 0.005	< 0.001	0.40	< 0.0005	0.013	< 0.0002	0.043	< 0.531	< 0.0025	< 0.002
	2/1/2017	< 0.003	0.0043	0.068	* < 0.001	< 0.0005	< 0.005	< 0.001	0.41	< 0.0005	0.012	^ < 0.0002	0.05	< 0.511	0.0035	< 0.002
	5/11/2017	< 0.003	0.002	0.054	< 0.001	< 0.0005	< 0.005	< 0.001	0.28	0.00054	0.011	< 0.0002	0.054	< 0.388	< 0.0025	< 0.002
	6/27/2017	< 0.003	0.0014	0.069	< 0.001	< 0.0005	< 0.005	< 0.001	0.38	< 0.0005	0.012	< 0.0002	0.046	0.408	< 0.0025	< 0.002
	9/7/2017	< 0.003	0.0025	0.077	< 0.001	< 0.0005	< 0.005	< 0.001	0.40	< 0.0005	0.013	< 0.0002	0.044	0.397	< 0.0025	< 0.002
	11/16/2017	< 0.003	0.0028	0.077	< 0.001	< 0.0005	< 0.005	< 0.001	0.39	< 0.0005	0.017	< 0.0002	0.038	0.491	0.012	< 0.002
	5/3/2018	NA	NA	NA	NA	NA	NA	NA	0.26	NA	NA	NA	NA	NA	NA	NA
	5/24/2021	< 0.003	0.0025	0.08	^1+< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	0.016	< 0.0002	0.017	0.576	< 0.0025	< 0.002
	11/23/2021	< 0.003	0.002	0.07	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.37	< 0.0005	0.014	< 0.0002	0.017	1.020	< 0.0025	< 0.002
	2/22/2022	< 0.003	0.0019	0.09	< 0.001	< 0.0005	< 0.005	< 0.001	0.33	< 0.0005	0.018	< 0.0002	0.033	0.551	0.05	< 0.002
	6/14/2022	< 0.003	0.0018	0.082	< 0.001	< 0.0005	< 0.005	< 0.001	0.35	< 0.0005	0.014	< 0.0002	0.018	1.220	< 0.0025	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/25/2022	< 0.003	0.0023	0.1	< 0.001	< ^1+ 0.0005	< 0.005	< 0.001	0.4	< 0.0005	0.018	< 0.0002	0.021	< 0.519	< 0.0025	< 0.002
	11/16/2022	< 0.003	0.0017	0.1	< ^+ 0.001	< 0.0005	< 0.005	< 0.001	0.5	< 0.0005	0.016	< 0.0002	0.021	1.080	< 0.0025	< 0.002
	2/23/2023	< 0.0030	0.0023	0.086	< ^1+ ^+ 0.0010	< 0.00050	< 0.0050	< 0.0010	0.35	< 0.00050	0.016	< 0.00020	0.023	0.948	0.022	< 0.0020
MW-09 down-gradient	11/11/2015	< 0.003	0.0047	0.027	< 0.001	< 0.0005	< 0.005	< 0.001	0.55	< 0.0005	< 0.01	< 0.0002	0.14	-0.2208	< 0.0025	< 0.002
	2/17/2016	< 0.003	0.0051	0.027	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.55	0.00065	< 0.01	< 0.0002	0.089	< 0.373	< 0.0025	< 0.002
	5/24/2016	< 0.003	0.0043	0.027	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.51	0.00071	< 0.01	< 0.0002	0.079	0.508	< 0.0025	< 0.002
	8/9/2016	< 0.003	0.0052	0.031	< 0.001	< 0.0005	< 0.005	< 0.001	0.48	< 0.0005	< 0.01	< 0.0002	0.14	0.639	< 0.0025	< 0.002
	10/26/2016	< 0.003	0.0069	0.019	< 0.001	< 0.0005	< 0.005	< 0.0010	0.81	< 0.0005	< 0.01	< 0.0002	0.11	0.608	< 0.0025	< 0.002
	1/31/2017	< 0.003	0.0063	0.038	* < 0.001	< 0.0005	< 0.005	< 0.0010	0.57	0.0014	< 0.01	^ < 0.0002	0.09	< 0.45	< 0.0025	< 0.002
	5/9/2017	< 0.003	0.0052	0.038	< 0.001	< 0.0005	< 0.005	< 0.0010	0.38	0.00054	< 0.01	< 0.0002	0.093	< 0.361	< 0.0025	< 0.002
	6/27/2017	< 0.003	0.0046	0.039	< 0.001	< 0.0005	< 0.005	< 0.0010	0.51	< 0.0005	< 0.01	< 0.0002	0.091	0.638	< 0.0025	< 0.002
	9/6/2017	< 0.003	0.0047	0.038	< 0.001	< 0.0005	< 0.005	< 0.0010	0.51	< 0.0005	< 0.01	< 0.0002	0.1	0.454	< 0.0025	< 0.002
	11/14/2017	< 0.003	0.0017	0.11	< 0.001	< 0.0005	< 0.005	< 0.0010	0.51	< 0.0005	0.018	< 0.0002	0.026	< 0.372	0.0061	< 0.002
	5/1/2018	NA	NA	NA	NA	NA	NA	NA	0.52	NA	NA	NA	NA	NA	NA	NA
	5/25/2021	< 0.003	0.0044	0.054	^1+ < 0.001	< 0.0005	< 0.005	< 0.001	0.39	< 0.0005	< 0.01	< 0.0002	0.054	0.741	< 0.0025	< 0.002
	11/23/2021	< 0.003	0.0046	0.024	^1+ < 0.001	< 0.0005	< 0.005	< 0.001	0.47	< 0.0005	< 0.01	< 0.0002	0.037	0.789	< 0.0025	< 0.002
	2/22/2022	< 0.003	0.007	0.037	< 0.001	< 0.0005	< 0.005	< 0.001	0.4	< 0.0005	0.0065	< 0.0002	0.051	< 0.409	< 0.0025	< 0.002
	6/15/2022	< 0.003	0.0071	0.036	< 0.001	< 0.0005	< 0.005	< 0.001	0.48	< 0.0005	< 0.01	< 0.0002	0.057	< 0.390	< 0.0025	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/25/2022	< 0.003	0.0089	0.034	< 0.001	< ^1+ 0.0005	< 0.005	< 0.001	0.6	< 0.0005	< 0.01	< 0.0002	0.065	1.2	< 0.0025	< 0.002
	11/16/2022	< 0.003	0.0094	0.036	< ^+ 0.001	< 0.0005	< 0.005	< 0.001	0.8	0.00066	< 0.01	< 0.0002	0.067	< 0.5	< 0.0025	< 0.002
	2/23/2023	< 0.0030	0.0086	0.029	< ^1+ ^+ 0.0010	< 0.00050	< 0.0050	< 0.0010	0.53	< 0.00050	< 0.010	< 0.00020	0.065	< 0.614	< 0.0025	< 0.0020

Notes:
All statistics use the detection limit for non-detect results.
All units are in mg/l except Radium is in pCi/L as noted.
Italics - Assessment Monitoring Conducted After Identification of Detected Appendix IV Compounds.

NS - No Standard
DNYA - Data Not Yet Available
R - Resample
GWPS - Groundwater Protection Standard

F1 - MS and/or MSD Recovery outside of limits.
^ - Denotes instrument related QC exceeds the control limits.
* - LCS or LCSD is outside acceptance limits.
NA- Not Analyzed; non-detect in previous monitoring.

^1 or ^+ - Initial or continuing calibration verification limits is outside acceptable limits, high biased.

Table 2. Appendix IV Groundwater Analytical Results - Midwest Generation, LLC, Ponds 2S/3S Will County Station, Romeoville, IL

Well	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-10 down-gradient	11/10/2015	< 0.003	0.015	0.096	< 0.001	< 0.0005	< 0.005	< 0.001	0.77	< 0.0005	0.018	< 0.0002	0.068	1.341	< 0.0025	< 0.002
	2/16/2016	< 0.003	0.014	0.098	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.79	< 0.0005	0.021	< 0.0002	0.075	0.952	< 0.0025	< 0.002
	5/25/2016	< 0.003	0.034	0.096	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.83	0.00055	0.016	< 0.0002	0.065	0.51	< 0.0025	< 0.002
	8/10/2016	< 0.003	0.017	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.78	< 0.0005	0.021	< 0.0002	0.082	0.864	< 0.0025	< 0.002
	10/26/2016	< 0.003	0.022	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.52	< 0.0005	0.021	< 0.0002	0.030	0.458	< 0.0025	< 0.002
	2/2/2017	< 0.003	0.05	0.14	* < 0.001	< 0.0005	< 0.005	< 0.001	0.54	0.0013	0.02	^ < 0.0002	0.031	< 0.464	< 0.0025	< 0.002
	5/10/2017	< 0.003	0.02	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.44	< 0.0005	0.015	< 0.0002	0.066	0.882	< 0.0025	< 0.002
	6/27/2017	< 0.003	0.0072	0.096	< 0.001	< 0.0005	< 0.005	< 0.001	0.67	< 0.0005	0.017	< 0.0002	0.080	0.953	< 0.0025	< 0.002
	9/7/2017	< 0.003	0.0076	0.086	< 0.001	< 0.0005	< 0.005	< 0.001	0.77	< 0.0005	0.014	0.00058	0.096	0.921	< 0.0025	< 0.002
	11/15/2017	< 0.003	0.015	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.77	< 0.0005	0.021	< 0.0002	0.071	0.893	< 0.0025	< 0.002
	5/1/2018	NA	NA	NA	NA	NA	NA	NA	0.65	NA	NA	NA	NA	NA	NA	NA
	5/25/2021	< 0.003	0.018	0.18	^1+ < 0.001	< 0.0005	< 0.005	0.0013	0.62	0.0054	0.02	< 0.0002	0.036	< 1.14	< 0.0025	< 0.002
	11/23/2021	< 0.003	0.012	0.091	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.71	0.0011	0.013	< 0.0002	0.048	2.22	< 0.0025	< 0.002
	2/24/2022	< 0.003	0.0072	0.1	< ^1+ 0.001	< 0.0005	< 0.005	0.0012	0.53	0.001	0.014	< 0.0002	0.043	0.77	< 0.0025	< 0.002
	6/14/2022	< 0.003	0.008	0.081	< 0.001	< 0.0005	< 0.005	< 0.001	0.86	< 0.0005	0.015	< 0.0002	0.12	1.55	< 0.0025	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/25/2022	< 0.003	0.019	0.11	< 0.001	< ^1+ 0.0005	0.0053	0.001	0.99	0.0077	0.015	< 0.0002	0.12	1.20	< 0.0025	< 0.002
	9/28/2022 (R)	NA	0.0088	NA	NA	NA	NA	NA	0.65	0.00093	NA	NA	NA	NA	NA	NA
	11/16/2022	< 0.003	**0.015**	0.1	< ^+ 0.001	< 0.0005	< 0.005	< 0.001	0.94	0.002	0.018	< 0.0002	0.097	2.74	< 0.0025	< 0.002
	12/29/2022 (R)	NS	**0.071**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/23/2023	< 0.0030	**0.015**	0.12	< ^1+ ^+ 0.0010	< 0.00050	< 0.0050	< 0.0010	0.71	0.00080	0.016	< 0.00020	0.073	1.35	< 0.0025	< 0.0020
MW-11 down-gradient	11/10/2015	< 0.003	0.007	0.098	< 0.001	< 0.0005	< 0.005	< 0.001	0.61	0.00064	< 0.01	< 0.0002	0.0600	0.736	< 0.0025	< 0.002
	2/16/2016	< 0.003	0.0059	0.11	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.68	< 0.0005	0.012	< 0.0002	0.078	1.14	< 0.0025	< 0.002
	5/25/2016	< 0.003	0.0073	0.093	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.75	< 0.0005	< 0.01	< 0.0002	0.083	0.775	< 0.0025	< 0.002
	8/10/2016	< 0.003	0.0072	0.12	< 0.001	< 0.0005	< 0.005	< 0.001	0.72	< 0.0005	< 0.010	< 0.0002	0.087	0.807	< 0.0025	< 0.002
	10/26/2016	< 0.003	0.0082	0.096	< 0.001	< 0.0005	< 0.005	< 0.001	0.53	0.00052	< 0.01	< 0.0002	0.043	0.51	< 0.0025	< 0.002
	2/1/2017	< 0.003	0.011	0.15	* < 0.001	< 0.0005	< 0.005	< 0.001	0.65	< 0.0005	< 0.01	< 0.0002	0.076	0.909	< 0.0025	< 0.002
	5/10/2017	< 0.003	0.014	0.14	< 0.001	< 0.0005	< 0.005	< 0.001	0.46	< 0.0005	< 0.01	< 0.0002	0.074	1.03	< 0.0025	< 0.002
	6/27/2017	< 0.003	0.0058	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.59	< 0.0005	< 0.01	< 0.0002	0.069	0.692	< 0.0025	< 0.002
	9/7/2017	< 0.003	0.0074	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.58	< 0.0005	< 0.01	< 0.0002	0.067	0.676	< 0.0025	< 0.002
	11/15/2017	< 0.003	0.0082	0.15	< 0.001	< 0.0005	< 0.005	< 0.001	0.65	< 0.0005	< 0.01	< 0.0002	0.075	1.04	< 0.0025	< 0.002
	5/3/2018	NA	NA	NA	NA	NA	NA	NA	0.69	NA	NA	NA	NA	NA	NA	NA
	5/25/2021	< 0.003	0.0067	0.16	^1+< 0.001	< 0.0005	< 0.005	< 0.001	0.74	< 0.0005	< 0.01	< 0.0002	0.077	1.29	< 0.0025	< 0.002
	11/23/2021	< 0.003	0.0085	0.11	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.48	< 0.0005	< 0.01	< 0.0002	0.025	2.35	< 0.0025	< 0.002
	2/23/2022	< 0.003	0.013	0.12	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.38	0.0006	0.011	< 0.0002	0.031	1.65	< 0.0025	< 0.002
	6/13/2022	< 0.003	0.0088	0.17	< 0.001	< 0.0005	< 0.005	0.0022	0.4	0.0018	0.011	< 0.0002	0.058	1.44	< 0.0025	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/23/2022	< 0.003	0.0082	0.1	< 0.001	< ^1+ 0.0005	< 0.005	< 0.001	0.5	< 0.0005	< 0.01	< 0.0002	0.033	2.0	< 0.0025	< 0.002
	11/16/2022	< 0.003	**0.013**	0.1	< ^+ 0.001	< 0.0005	< 0.005	0.0015	0.7	0.0014	0.01	< 0.0002	0.052	1.6	< 0.0025	< 0.002
	12/29/2022 (R)	NS	**0.015**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/21/2023	< 0.0030	**0.016**	0.18	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.45	0.00096	< 0.010	< 0.00020	0.037	1.57	< 0.0025	< 0.0020
MW-12 down-gradient	11/10/2015	< 0.003	0.0016	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	0.59	< 0.0005	0.012	< 0.0002	0.034	0.8139	< 0.0025	< 0.002
	2/16/2016	< 0.003	0.0013	0.084	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.52	< 0.0005	0.015	< 0.0002	0.031	< 0.407	< 0.0025	< 0.002
	5/25/2016	< 0.003	0.0013	0.12	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.54	0.00063	0.014	< 0.0002	0.03	0.41	0.0026	< 0.002
	8/10/2016	< 0.003	0.0017	0.12	< 0.001	< 0.0005	< 0.005	< 0.001	0.49	0.0006	0.017	< 0.0002	0.04	< 0.426	0.0077	< 0.002
	10/26/2016	< 0.003	0.0016	0.11	< 0.001	< 0.0005	0.025	< 0.001	0.49	< 0.0005	0.013	< 0.0002	0.036	< 0.664	< 0.0025	< 0.002
	2/1/2017	< 0.003	0.0017	0.11	* < 0.001	< 0.0005	< 0.005	< 0.001	0.48	0.00065	0.013	< 0.0002	0.023	0.949	< 0.0025	< 0.002
	5/10/2017	< 0.003	0.0013	0.13	< 0.001	< 0.0005	< 0.005	< 0.001	0.3	< 0.0005	0.012	< 0.0002	0.029	< 0.464	0.017	< 0.002
	6/27/2017	< 0.003	0.0014	0.14	< 0.001	< 0.0005	< 0.005	< 0.001	0.44	< 0.0005	0.017	< 0.0002	0.03	0.455	0.0032	< 0.002
	9/6/2017	< 0.003	0.0017	0.13	< 0.001	< 0.0005	< 0.005	< 0.001	0.49	< 0.0005	0.014	< 0.0002	0.032	< 0.317	0.0043	< 0.002
	11/15/2017	< 0.003	0.0054	0.034	< 0.001	< 0.0005	< 0.005	< 0.001	0.47	< 0.0005	< 0.01	< 0.0002	0.11	0.434	< 0.0025	< 0.002
	5/3/2018	NA	NA	NA	NA	NA	NA	NA	0.47	NA	NA	NA	NA	NA	NA	NA
	5/25/2021	< 0.003	0.0017	0.14	^1+ < 0.001	< 0.0005	< 0.005	0.001	0.49	< 0.00085	0.014	< 0.0002	0.029	0.529	< 0.0025	< 0.002
	11/23/2021	< 0.003	0.002	0.15	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	0.44	< 0.0005	0.014	< 0.0002	0.022	0.580	0.0055	< 0.002
	2/24/2022	< 0.003	0.0025	0.27	< ^1+ 0.001	< 0.0005	< 0.005	0.0011	0.4	0.0016	0.018	< 0.0002	0.024	< 1.620	0.0061	< 0.002
	6/13/2022	< 0.003	0.0015	0.15	< 0.001	< 0.0005	< 0.005	< 0.001	0.45	< 0.0005	0.012	< 0.0002	0.024	0.957	0.0045	< 0.002
	GWPS	**NS**	**0.01**	**2.0**	**NS**	**NS**	**NS**	**0.006**	**4.0**	**0.015**	**0.04**	**NS**	**0.1**	**5.0**	**0.056**	**NS**
	8/23/2022	< 0.003	0.0011	0.2	< 0.001	< ^1+ 0.0005	< 0.005	< 0.001	0.4	< 0.0005	0.013	< 0.0002	0.015	0.7	0.0086	< 0.002
	11/16/2022	< 0.003	0.0017	0.1	< ^+ 0.001	< 0.0005	< 0.005	< 0.001	1.0	< 0.0005	0.015	< 0.0002	0.029	< 0.1	< 0.0025	< 0.002
	2/21/2023	< 0.0030	0.0015	0.13	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.41	< 0.00050	0.012	< 0.00020	0.025	< 0.651	< 0.0025	< 0.0020

Notes:
All statistics use the detection limit for non-detect results.
All units are in mg/l except Radium is in pCi/L as noted.
Italics - Assessment Monitoring Conducted After Identification of Detected Appendix IV Compounds.

NS - No Standard
DNYA - Data Not Yet Available
R - Resample
GWPS - Groundwater Protection Standard

F1 - MS and/or MSD Recovery outside of limits.
^ - Denotes instrument related QC exceeds the control limits.
* - LCS or LCSD is outside acceptance limits.
NA- Not Analyzed; non-detect in previous monitoring.

^1 or ^+ - Initial or continuing calibration verification limits is outside acceptable limits, high biased.
BOLD - Exceeds established GWPS.
GWPS- Groundwater Protection Standard

Table 3 - Assessment of Corrective Measures Evaluation

40 CFR Part 257.96 Requirements		Potential Corrective Measure		
		Closure by CCR Removal	**CCR Closure-in-Place with a ClosureTurf Final Cover System**	**Closure-in-Place with In-situ Stabilization/Solidification**
257.96(c) Requirements & Objectives Compliance				
257.96(c)(1)	Performance	The excavation and removal of the CCR from the four ponds would remove a potential source. This will prevent any precipitation from contacting existing CCR and the potential from passing through the unsaturated CCR into the groundwater. The groundwater modeling has shown that by removing the CCR source material, a reduction of about 80% would occur in groundwater concentrations after 50 years.	Closing the CCR in place with the ClosureTurf final cover system will prevent infiltration through the CCR material. The final cover system also eliminates human/animal exposure to any CCR, in addition to removing the hazard of an open pond. The final cover system would be constructed by grading the existing CCR in each pond, filling each pond with clean material and covering with a geomembrane infiltration layer that has a permeability of 1 x 10^{-13} cm/s, which is covered with a synthetic turf/small aggregate infill erosion layer. This type of cover system has been used throughout the country since 2009 to effectively close CCR surface impoundments. The groundwater modeling has shown that a reduction of 20%-70% of groundwater concentrations would occur after 25 years with the groundwater concentrations reaching steady state conditions at this time with no further increases in groundwater concentrations.	Closing the CCR in place with treating the CCR with in-situ solidification/stabilization (ISS) will prevent infiltration through the CCR material that may be present. The soil cover also eliminates human/animal exposure to any CCR, in addition to removing the hazard of an open area. The ISS would be conducted by mixing the CCR with reagents (cement, bentonite) using either an excavator bucket or a large diameter auger, followed up by covering with ClosureTurf. The ISS would have a permeability of less than 1 x 10^{-7} cm/s. This type of technology has been used throughout the country since the 1960's to effectively treat impacted soil throughout the country. The groundwater modeling has shown that a reduction of approximately 80% of groundwater concentrations would occur after 25 years and the groundwater concentrations would reach a steady state condition after 25 years.
257.96(c)(1)	Reliability	Since the CCR would be removed, the likelihood of a future CCR release is eliminated.	Covering the CCR would prevent the future release of CCR because it would not be exposed to surface water runoff and the potential for erosion. Releases of CCR to the Illinois River have not been identified. The material brought on-site would be evaluated to determine that it will not cause a future release.	Solidifiying and covering the CCR would prevent the future release of CCR because it would not be exposed to surface water runoff, infiltration, and the potential for erosion. Releases of CCR to the Des Plaines River has not been identified. The material brought on-site would be evaluated to determine that it will not cause a future release.
257.96(c)(1)	Ease of Implementation	Removing the CCR from Pond 2S and 3S would require excavating and hauling 84,000 CY, which would take over 110 days to execute based on 50 truckloads per day and 15 cubic yards per truck (750 CY/day). Performing the closure activities such as dewatering, excavating, and hauling are typical construction industry activitities that do not require specialized equipment or personnel. Additionally, the truck traffic removing the CCR will negatively affect the neighboring properties, including air quality and noise pollution, since the entrance and egress for the trucking would be directly via E. Romeo Road and E. Material Service Road	ClosureTurf has been successfully used in at least seventeen other states throughout the country. The proprietors of ClosureTurf have designated several construction companies throughout the country as certified installers of the product. Performing the other required closure activities such as dewatering, re-grading the CCR and constructing an access road are typical construction industry activities that do not require specialized equipment or personnel. ClosureTurf will require less post-closure care than the dry closure with a soil/geomembrane cover.	Implementing the ISS treatment would be the most difficult of the three alternatives. This alternative would require a contractor specializing and experienced in ISS and special equipment that can verify full coverage of the Impoundment area. Quality control testing is required throughout the project, which requires additional staffing and additional professional services.
257.96(c)(1)	Potential Impacts (safety, cross-media, etc.)	Injuries are possible because of the heavy-duty construction equipment used for site activities and truck travel for offsite CCR disposal. Disposing of CCR at an offsite facility would require about 5,600 truck loads. This has the potential to cause 0.069 traffic accident injuries and 0.003 traffic accident fatalities based on a 20-mile round trip for each truckload. 5,600 truckloads has the potential to produce over 22 lbs of particulate matter emissions. If a traffic accident occurs, it is likely that CCR is going to spill out of the truck and could cause dust exposure and potentially surface water impacts. In addition, if the landfill facility to which the CCR is being transferred develops a leak over time, then another currently unimpacted area of groundwater will be degraded in the vicinity of that facility.	Injuries are possible because of the heavy-duty construction equipment used for site activities and truck travel for material delivery. Installation of the ClosureTurf final cover system is estimated at 30 working days. Filling the ponds to the required elevations would require approximately 15,000 CY of additional clean material from off-site and approximately 1,000 trucks to transport this material. Delivering the fill material and ClosureTurf materials could result in 0.0156 traffic accident injuries and 0.0007 traffic accident fatalities based on the materials being delivered from South Carolina and Georgia. Delivering the materials to the site could produce approximately 5 lbs of particulate matter associated with truck transport. Additional groundwater impacts are expected to be minimal during construction since the ash at depth will be less disturbed as would occur with the complete excavation option. Existing groundwater quality being managed is expected to improve since infiltration is precluded through the unsaturated CCR.	Injuries are possible because of the heavy-duty construction equipment used for site activities and truck travel for material delivery. Installation of the ClosureTurf final cover system is estimated at 10 working days. Delivering the necessary materials could result in 0.0090 traffic accident injuries and 0.0004 traffic accident fatalities. Delivering the materials to the site could produce approximately 3 lbs of particulate matter associated with truck transport. Additional groundwater impacts are expected to be minimal during construction since the CCR will be less disturbed as would occur with the complete excavation option. Existing groundwater quality is expected to improve since the infiltration is precluded through the unsaturated CCR.
257.96(c)(1)	Control of Exposure to Residual Impacts	Residual impacts were identified in the groundwater beneath Ponds 2S and 3S, which flows west towards the Des Plaines River. Whether the CCR is closed in place or closed by removal, the potential for exposure to the residual impacts is not present. Groundwater wells will not be installed on the property and the nearby groundwater wells are not located downgradient of Ponds 2S and 3S. In addition, any water wells in the area are located in a hydraulically isolated aquifer from the Des Plaines River and the susurface groundwater beneath the site. Groundwater wells would not be located downgradient of Ponds 2S and 3S because Midwest Generation controls all the land located between the ponds and the Des Plaines River, therefore they could prevent the construction of a groundwater well in this area. This could further be accomplished by use of institutional controls to preclude any future potential for the installation of a water well within this area. In addition, statistical analyses have demonstrated that groundwater constituent concentrations will decrease below groundwater protection standards over time.		
257.96(c)(2)	Time Required to Begin & Complete Remedy	Excavation and disposal of the ponds' 84,000 CY of CCR is estimated to take over 110 days, based on disposing of 50 trucks/day of CCR. Post-closure activities are not required when closure by removal is performed.	The total anticipated time to complete closure construction is 2 months and post-closure activities will take 30 years, which includes groundwater monitoring.	The total anticipated time to complete closure construction is up to 5 months and post-closure activities will take 30 years, which includes groundwater monitoring.
257.96(c)(3)	Institutional Requirements	The anticipated institutional control for this option is groundwater monitoring to document achieving the groundwater protection standard. Closure by removal is except from the deed notice requirement.	The institutional requirements for this option are a deed notice and complying with the post-closure requirements as outlined in 257.104. The deed notice identifies the post-closure use of the property and prevents its disturbance of the final cover and the function of the monitoring systems.	The institutional requirements for this option are a deed notice and complying with the post-closure requirements as outlined in 257.104. The deed notice identifies the post-closure use of the property and prevents its disturbance of the final cover and the function of the monitoring systems.

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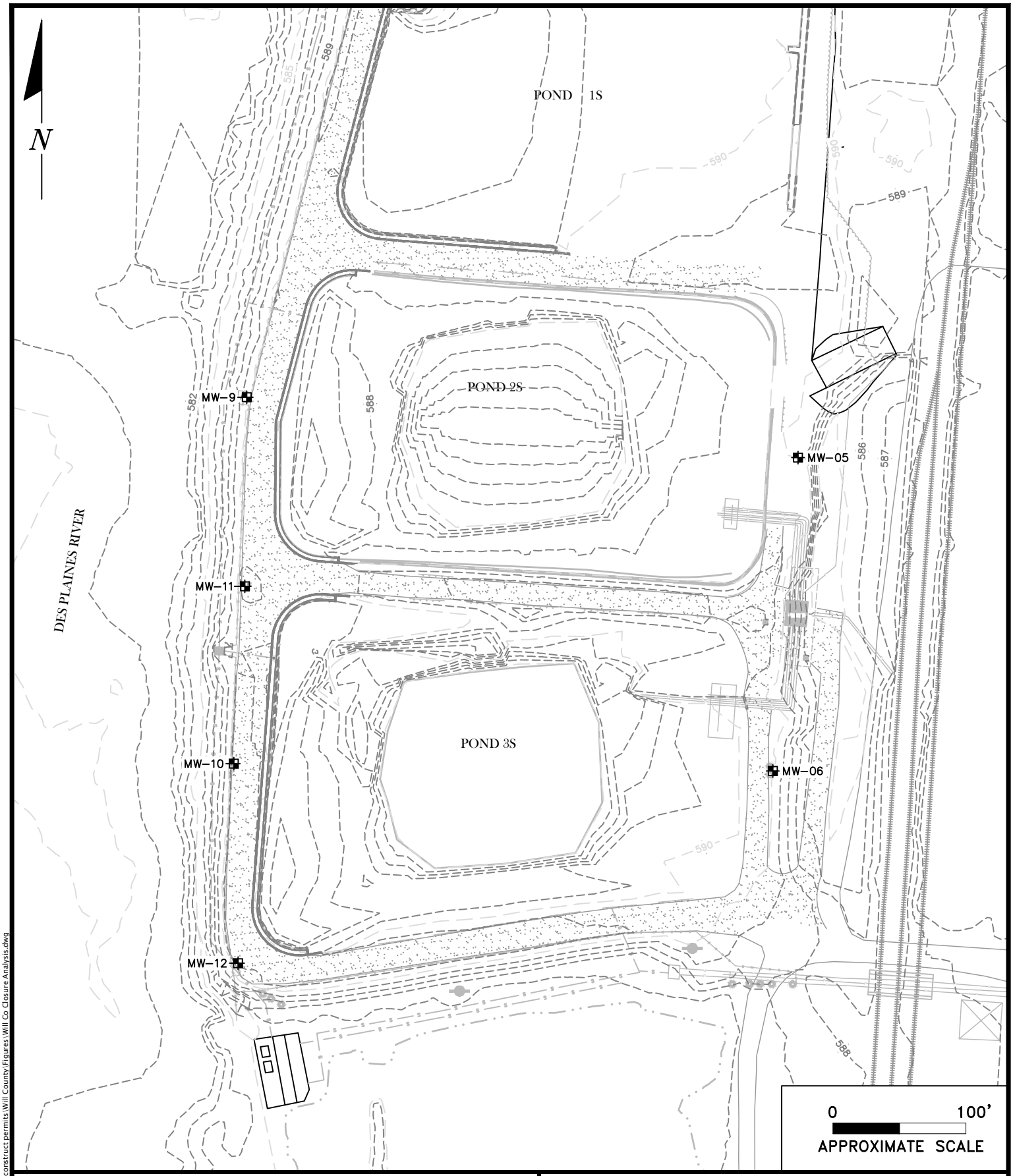
FIGURES



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG

KPRG and Associates, inc.

14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

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

EXISTING SITE CONDITIONS
POND 2S AND POND 3S

WILL COUNTY GENERATING STATION
ROMEOVILLE, ILLINOIS

Scale: 1" = 100' | Date: May 1, 2023

KPRG Project No. 19620.3 | FIGURE 1

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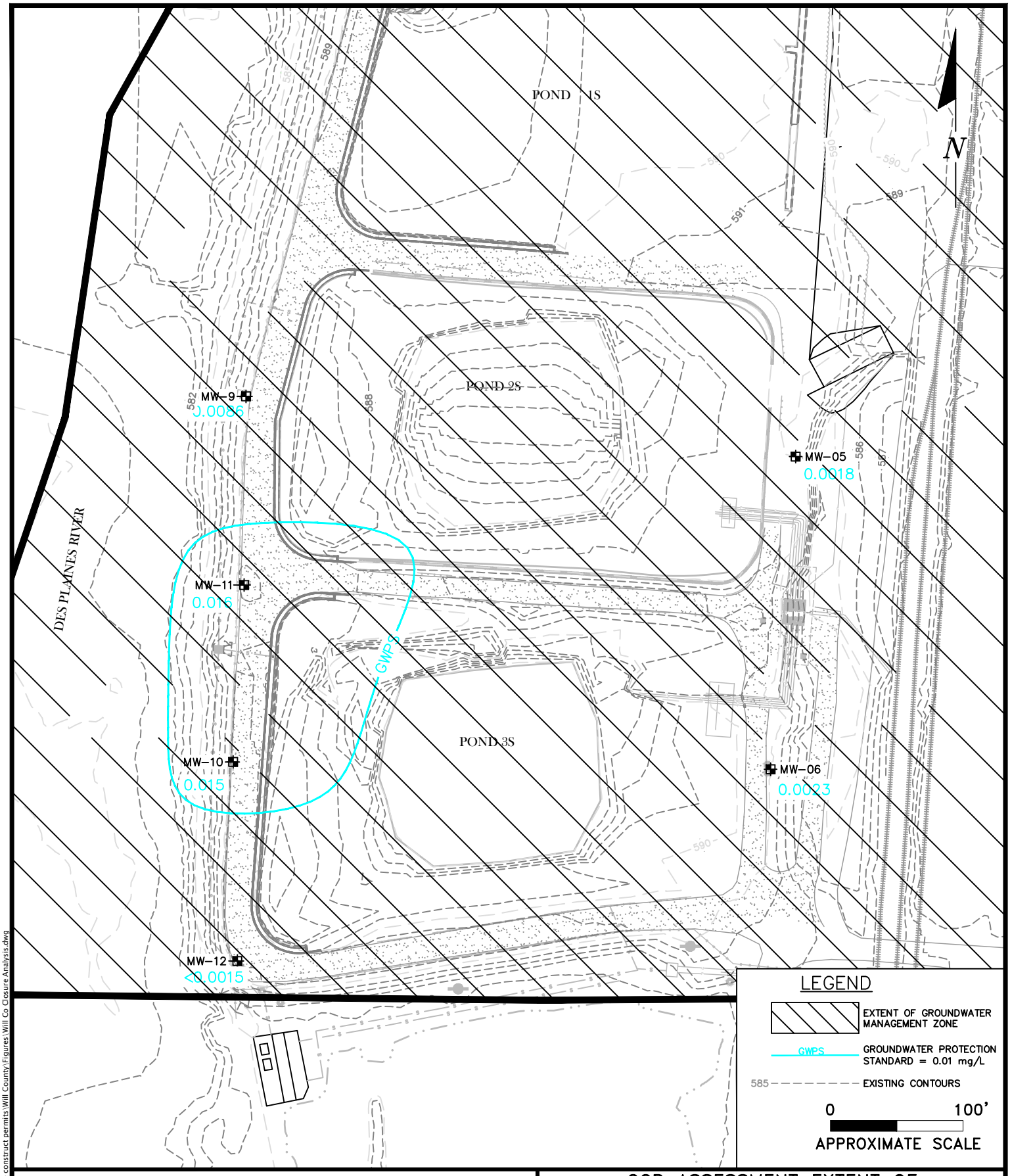

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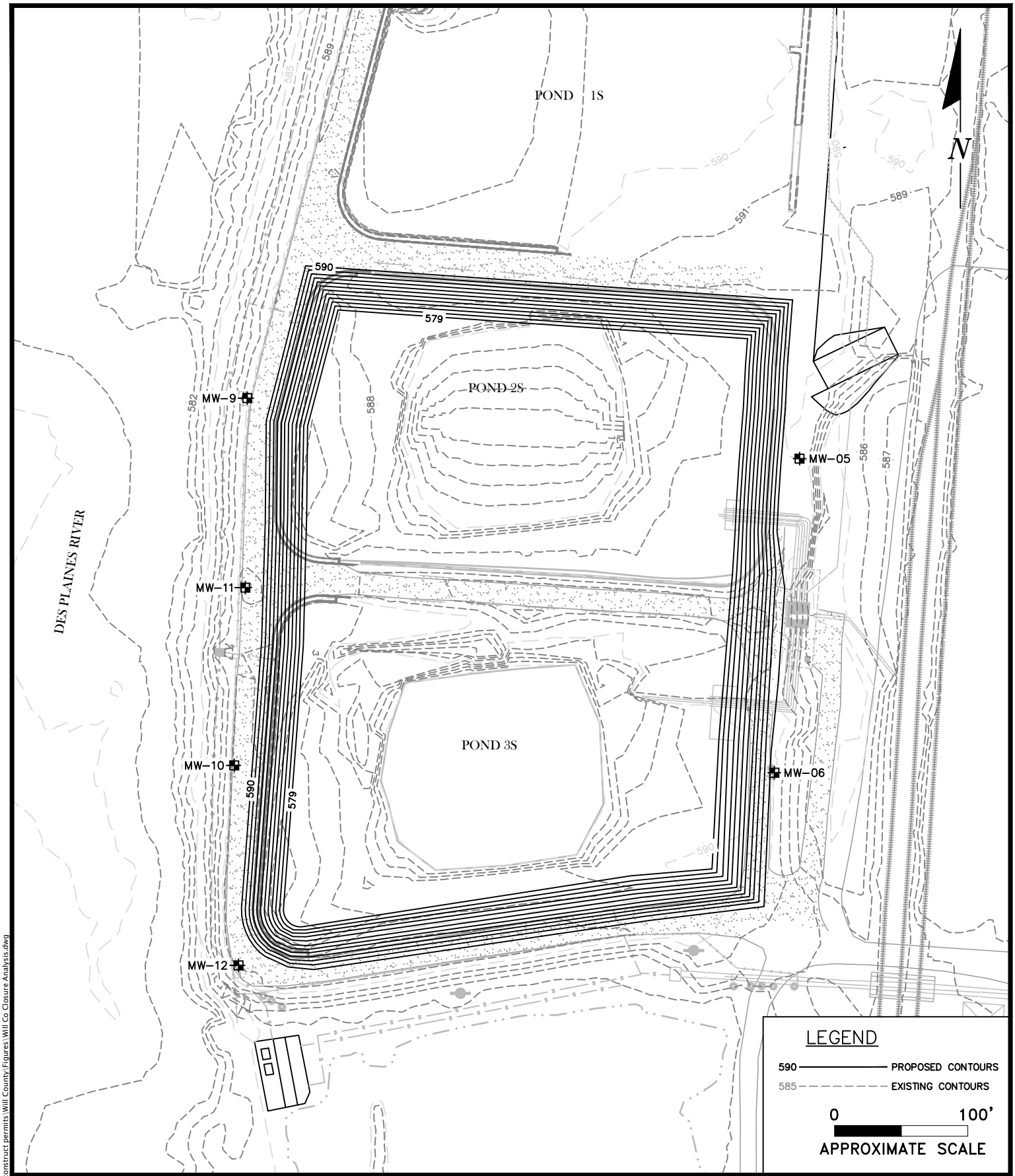
CCR ASSESSMENT EXTENT OF IMPACTS–ARSENIC

WILL COUNTY GENERATING STATION
ROMEOVILLE, ILLINOIS

Scale: 1" = 100' | Date: May 1, 2023

KPRG Project No. 19620.3 | FIGURE 2

W:\projects\midwest generation\operating & construct permits\Will County\Figures\Will Co Closure Analysis.dwg



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CLOSURE BY REMOVAL ALTERNATIVE POND 2S AND POND 3S

WILL COUNTY GENERATING STATION ROMEOVILLE, ILLINOIS

Scale: 1" = 100' | Date: May 1, 2023

KPRG Project No. 19620.3 | FIGURE 3

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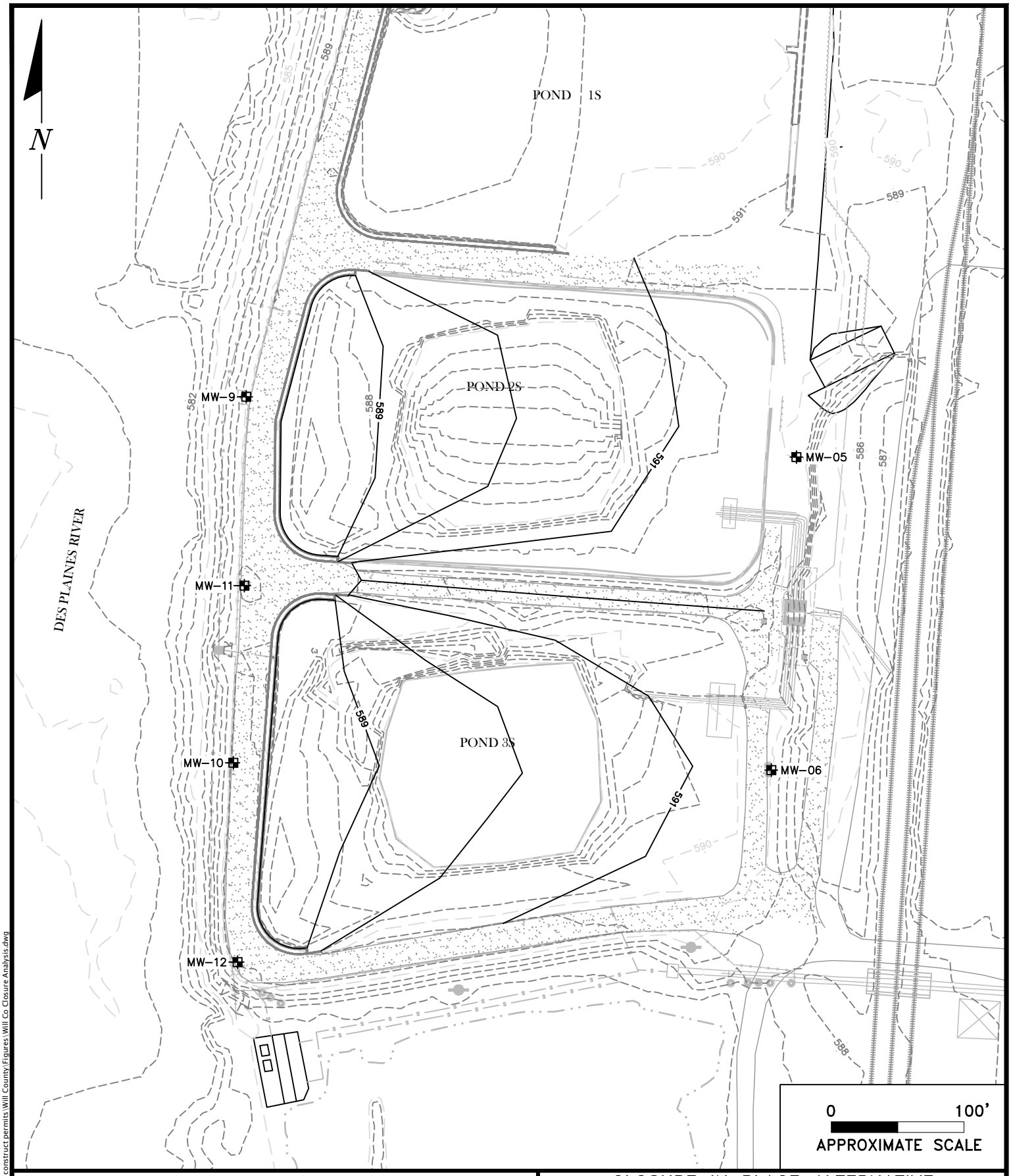

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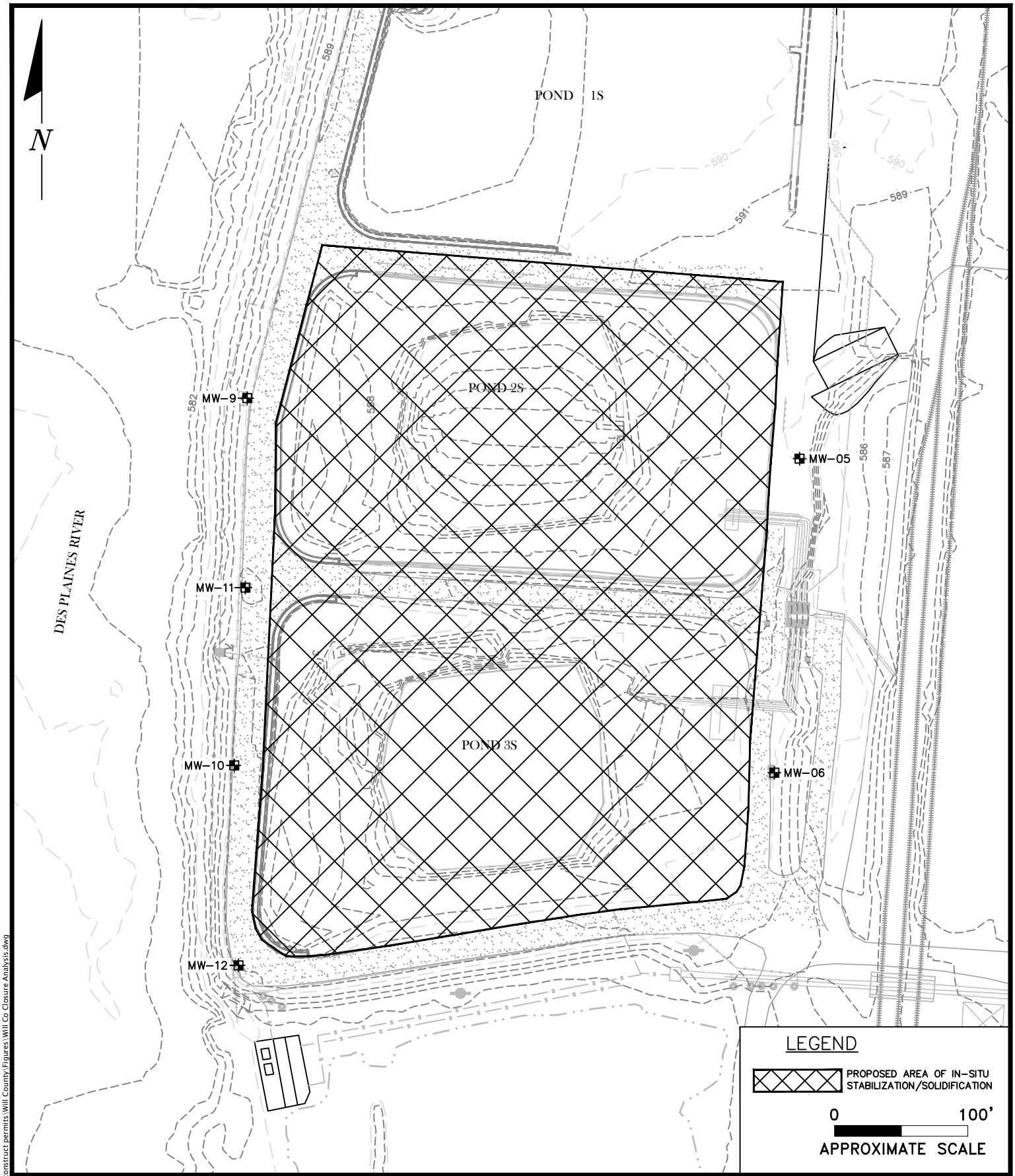
CLOSURE IN PLACE ALTERNATIVE POND 2S AND POND 3S

WILL COUNTY GENERATING STATION
ROMEOVILLE, ILLINOIS

Scale: 1" = 100' | Date: May 1, 2023

KPRG Project No. 19620.3 | FIGURE 4

W:\projects\midwest generation\operating & construct permits\Will County\Figures\Will Co Closure Analysis.dwg



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ENVIRONMENTAL CONSULTATION & REMEDIATION

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

IN-SITU STABILIZATION/SOLIDIFICATION ALTERNATIVE-POND 2S AND POND 3S

WILL COUNTY GENERATING STATION
ROMEOVILLE, ILLINOIS

Scale: 1" = 100' | Date: May 1, 2023

KPRG Project No. 19620.3 | FIGURE 5