ALLIANT ENERGY Wisconsin Power and Light Company Edgewater Generating Station

CCR SURFACE IMPOUNDMENT

HISTORY OF CONSTRUCTION

Report Issued: September 21, 2016 Revision 0

> **HARD HAT SERVICES**TM Engineering, Construction and Management Solutions



EXECUTIVE SUMMARY

This History of Construction (Report) is prepared in accordance with the requirements of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System - Disposal of Coal Combustion Residual (CCR) from Electric Utilities (40 CFR Parts 257 and 261, also known as the CCR Rule) published on April 17, 2015 and effective October 19, 2015.

This Report documents the construction history of each CCR unit at Edgewater Generating Station in Sheboygan, Wisconsin in accordance with §257.73(c) of the CCR Rule. For purposes of this Report, the term "CCR unit" only refers to existing CCR surface impoundments.

Primarily, this Report is focused on providing history of construction information for each CCR surface impoundment to the extent feasible, provided that that such information is reasonably and readily available.



Table of Contents

| 1 | INTRO | DUCTION | 1 |
|---|-----------------------|--|------|
| | 1.1 C | CR Rule Applicability | 1 |
| | 1.2 H | istory of Construction Applicability | 1 |
| 2 | FACILI | TY DESCRIPTION | 2 |
| | 2.1 N | ame and Address - §257.73(c)(1)(i) | 2 |
| | 2.2 G | eneral Facility History | 2 |
| 3 | HISTO | RY OF CONSTRUCTION - §257.73(c)(1) | 9 |
| | 3.1 E | DG Slag Pond | 9 |
| | 3.1.1 | CCR Unit Location - §257.73(c)(1)(ii) | 9 |
| | 3.1.2 | Statement of Purpose - §257.73(c)(1)(iii) | 9 |
| | 3.1.3 | Physical Layout Information - §257.73(c)(1)(iv) | . 10 |
| | 3.1.4 | Foundation and Abutment Properties - §257.73(c)(1)(v) | .11 |
| | 3.1.5 | Historical Construction and Use - §257.73(c)(1)(vi) | .11 |
| | 3.1.6 | Structures, Appurtenances, and Operations- §257.73(c)(1)(vii) | . 15 |
| | 3.1.7 | Instrumentation - §257.73(c)(1)(viii) | . 16 |
| | 3.1.8 | Area-Capacity Curve - §257.73(c)(1)(ix) | . 16 |
| | 3.1.9 | Spillway and Diversion Features - §257.73(c)(1)(x) | . 16 |
| | 3.1.10 | Construction Specifications, Surveillance, Maintenance, and Repair - §257.73(c)(1)(xi) | . 16 |
| | 3.1.11 | Structural Instability Records - §257.73(c)(1)(xii) | . 17 |
| | 3.2 E | DG North A-Pond | 17 |
| | 3.2.1 | CCR Unit Location - §257.73(c)(1)(ii) | . 18 |
| | 3.2.2 | Statement of Purpose - §257.73(c)(1)(iii) | . 18 |
| | 3.2.3 | Physical Layout Information - §257.73(c)(1)(iv) | . 18 |
| | 3.2.4 | Foundation and Abutment Properties - §257.73(c)(1)(v) | . 19 |
| | 3.2.5 | Historical Construction and Use - §257.73(c)(1)(vi) | . 19 |
| | 3.2.6 | Structures, Appurtenances, and Operations- §257.73(c)(1)(vii) | .23 |
| | 3.2.7 | Instrumentation - §257.73(c)(1)(viii) | .24 |
| | 3.2.8 | Area-Capacity Curve - §257.73(c)(1)(ix) | .24 |
| | 3.2.9 | Spillway and Diversion Features - §257.73(c)(1)(x) | .24 |
| | 3.2.10 | Construction Specifications, Surveillance, Maintenance, and Repair - §257.73(c)(1)(xi) | .25 |
| | 3.2.11 | Structural Instability Records - §257.73(c)(1)(xii) | .26 |
| | 3.3 E | DG South A-Pond | 26 |
| | 3.3.1 | CCR Unit Location - §257.73(c)(1)(ii) | .26 |
| | 3.3.2 | Statement of Purpose - §257.73(c)(1)(iii) | .26 |
| | 3.3.3 | Physical Layout Information - §257.73(c)(1)(iv) | .27 |
| | 3.3.4 | Foundation and Abutment Properties - §257.73(c)(1)(v) | .28 |
| | 3.3.5 | Historical Construction and Use - §257.73(c)(1)(vi) | .29 |
| M | 3.3.6 /isconsin Po | Structures, Appurtenances, and Operations- §257.73(c)(1)(vii) ower and Light Company – Edgewater Generating Station | . 32 |



| | 3.3.7 | Instrumentation - §257.73(c)(1)(viii) | .33 |
|-----|--------|--|------|
| | 3.3.8 | Area-Capacity Curve - §257.73(c)(1)(ix) | . 33 |
| | 3.3.9 | Spillway and Diversion Features - §257.73(c)(1)(x) | . 34 |
| | 3.3.10 | Construction Specifications, Surveillance, Maintenance, and Repair - §257.73(c)(1)(xi) | . 34 |
| | 3.3.11 | Structural Instability Records - §257.73(c)(1)(xii) | .35 |
| 3.4 | 4 E | DG B-Pond | 35 |
| | 3.4.1 | CCR Unit Location - §257.73(c)(1)(ii) | .35 |
| | 3.4.2 | Statement of Purpose - §257.73(c)(1)(iii) | .36 |
| | 3.4.3 | Physical Layout Information - §257.73(c)(1)(iv) | .36 |
| | 3.4.4 | Foundation and Abutment Properties - §257.73(c)(1)(v) | . 37 |
| | 3.4.5 | Historical Construction and Use - §257.73(c)(1)(vi) | . 38 |
| | 3.4.6 | Structures, Appurtenances, and Operations- §257.73(c)(1)(vii) | .40 |
| | 3.4.7 | Instrumentation - §257.73(c)(1)(viii) | .41 |
| | 3.4.8 | Area-Capacity Curve - §257.73(c)(1)(ix) | .41 |
| | 3.4.9 | Spillway and Diversion Features - §257.73(c)(1)(x) | .42 |
| | 3.4.10 | Construction Specifications, Surveillance, Maintenance, and Repair - §257.73(c)(1)(xi) | .42 |
| | 3.4.11 | Structural Instability Records - §257.73(c)(1)(xii) | .43 |
| 4 | CHAN | GES TO THE HISTORY OF CONSTRUCTION | .44 |

Figures

Figure 1: Site Location Figure 2: Hydraulic Routing

Appendices

- Appendix A: Edgewater Ash Disposal Site 1976
- Appendix B: EDR Historical Aerial Photograph Package
- **Appendix C**: EDR Historical Topographic Map Report
- Appendix D: Geoprobe Soil Borings 2010
- Appendix E: EDG Existing CCR Surface Impoundment Drawings



INTRODUCTION 1

The owner/operator of the CCR units must provide a history of construction for the existing CCR surface impoundments at Edgewater Generating Station (EDG) in Sheboygan, Wisconsin in accordance with §257.73(c)(1) of the CCR Rule. Hard Hat Services, on behalf of Wisconsin Power and Light Company, has provided history of construction information for the existing CCR surface impoundments to the extent feasible, provided that such information is reasonably and readily available.

1.1 CCR Rule Applicability

The CCR Rule requires that an owner/operator of the CCR unit must provide a history of construction for existing CCR surface impoundments with a height of 5 feet or more and a storage volume of 20 acre-feet or more (§257.73(b)(1)); or the existing CCR surface impoundment has a height of 20 feet or more (§257.73(b)(2)).

1.2 History of Construction Applicability

EDG has four existing CCR surface impoundments, which meets the requirements of §257.73(b)(1) and/or §257.73(b)(2), identified as follows:

- EDG Slag Pond
- EDG North A-Pond
- EDG South A-Pond
- EDG B-Pond



2 FACILITY DESCRIPTION

The following sub-sections provide a general facility description.

2.1 Name and Address - §257.73(c)(1)(i)

Included below is the name and address of the owner/operator of the CCR unit, name of the CCR unit, and state identification number for the CCR Unit (if one has been assigned by the state).

Owner/Operator Name and Address:

Wisconsin Power and Light Company (an Alliant Energy Company) **Edgewater Generating Station** 3739 Lakeshore Drive Sheboygan, WI 53081

The names of the existing CCR Units located at EDG are identified as follows:

- EDG Slag Pond
- EDG North A-Pond
- EDG South A-Pond
- EDG B-Pond

No state identification numbers have been assigned to the CCR units at EDG.

2.2 General Facility History

EDG is located on the south edge of the City of Sheboygan, Wisconsin along the western shore of Lake Michigan in Sheboygan County. Figure 1 provides both a topographic map and an aerial photograph of the EDG facility location, with the approximate property boundary of the facility identified.

EDG, originally owned and operated by the Wisconsin Power and Light Company, initiated facility operations in 1930. At the time of initial operations EDG was a fossilfueled electric generating station that consisted of one steam electric generating unit (Unit 1) which burned coal as its primary fuel source. The initial steam electric generating unit at EDG had a nameplate rating of 30 Megawatts (MW) and consisted of two boilers. The



original CCR surface impoundment at EDG was located to the south of the generating plant. There are no known reasonably and readily available historical documents or drawings that identify the location of the original CCR surface impoundment, however, discussions with facility personnel with knowledge of historical operations at EDG confirmed the presence of a surface impoundment located south of the generating plant at the time of initial facility operations.

At the time of initial facility operations, the CCR that was produced from the burning of coal included boiler slag and fly ash. Unit 1 consisted of two wet bottom boilers. The ash from pulverized coal that was burned in the boilers would be quenched in water which produced the slag. The slag would then be sluiced from the generating plant to a surface impoundment, presumably to the CCR surface impoundment located south of the generating plant. At the time of initial operations, the fly ash that was produced was partially recovered in mechanical cyclone separators. Discussions with facility personnel with knowledge of historical operations confirmed electrostatic precipitators were eventually constructed for Unit 1, however, the timeframe for this could not be confirmed.

In 1940, a second steam electric generating unit (Unit 2) was constructed and initiated operations. Unit 2 had a nameplate rating of 30 MW. Unit 2 was owned and operated by Wisconsin Power and Light Company. Unit 2 utilized the same wet bottom boilers as Unit 1. The pulverized coal that was burned in the boilers would be quenched in water which produced the slag. The slag would then be sluiced from the generating plant to a surface impoundment, presumably to the CCR surface impoundment located south of the generating plant. At the time of initial operations, the fly ash that was produced was partially recovered in mechanical cyclone separators.

Discussions with facility personnel with knowledge of historical operations confirmed electrostatic precipitators were eventually constructed for both Unit 1 and Unit 2, however, the timeframe for this cannot be confirmed. Once the electrostatic precipitators



were constructed the fly ash produced by Unit 1 and Unit 2 would have been sluiced to the ash disposal facility until the two units were retired.

In 1951, a third steam electric generating unit (Unit 3) was constructed and initiated operations. Unit 3 had a nameplate rating of 60 MW. Similar to Unit 1 and Unit 2, Unit 3 was owned and operated by Wisconsin Power and Light Company. The burning of coal in Unit 3 produced slag and fly ash. At the time of initial operations, the slag that was produced would be sluiced from the generating plant to a surface impoundment, presumably to the CCR surface impoundment located south of the generating plant. The fly ash that was produced was not recovered.

In 1969, EDG constructed an ash disposal facility (See Appendix A). The ash disposal facility was constructed west of the generating plant and west of Lakeshore Drive. As discussed in a Groundwater Assessment Report¹ dated September 1997, the ash disposal facility was constructed by excavating native soil, which consisted mostly of silt and clay, and mounding the excavated soil to form a perimeter berm. At the time of initial construction, the ash disposal facility became a primary receiver of CCR. The initial CCR sluiced to the ash disposal facility included boiler slag from Unit 1, Unit 2, and Unit 3. The initial layout of the ash disposal facility consisted of one large CCR surface impoundment as identified in historical aerial photographs (See Appendix B). A secondary pond was constructed adjacent to the southeast side of the CCR surface impoundment for decanting effluent from the ash disposal facility. A hydraulic structure consisting of an overflow weir was constructed along the perimeter berm between the ash disposal facility and the secondary pond. Additional information regarding the historical construction and use, as well as modifications to the ash disposal facility is discussed in further detail throughout Section 3.

September 21, 2016



¹ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc. <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

A fourth steam electric generating unit (Unit 4) was constructed and initiated operations in 1969. Unit 4 had a nameplate rating of 350 MW. Unit 4 was owned and operated by Wisconsin Power and Light Company, as well as Wisconsin Public Service Corporation. The burning of coal in Unit 4 produced both slag and fly ash, as well as air heater ash. At the time of initial operations, the slag that was produced was sluiced to the ash disposal facility. The fly ash that was produced by Unit 4 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was collected. The fly ash that was collected was then sluiced to the ash disposal facility. In addition to the slag and fly ash, the air heater ash that was produced was also sluiced to the ash disposal facility.

In 1977, electrostatic precipitators were constructed for Unit 3. The fly ash that was produced by Unit 3 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was collected. The fly ash that was collected was then sluiced to the ash disposal facility, along with the slag produced by Unit 3.

In 1983, Unit 1 and Unit 2 at EDG were retired. Slag that was formerly produced by the two units was no longer sluiced to the ash disposal facility.

In 1985, EDG modified CCR operations with the conversion from sluiced fly ash to a dry fly ash handling system. The conversion involved Unit 3 and Unit 4. The fly ash that was collected by the electrostatic precipitators, for both Unit 3 and Unit 4, was pneumatically conveyed to the Unit 4 fly ash storage silo as it ceased being sluiced to the ash disposal facility. Following conversion to a dry fly ash handling system, EDG initiated closure of the western portion of the ash disposal facility. As discussed in a Groundwater Assessment Report² dated September 1997, dry fly ash from Unit 3 and Unit 4 was used to bring the western portion of the ash disposal facility to final grades. A clay cap was placed on the closed ash disposal facility in 1986. The CCR surface impoundments that remained after closure of the western portion of the ash disposal

History of Construction September 21, 2016



² Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc. Wisconsin Power and Light Company – Edgewater Generating Station

facility included a slag basin (presently the EDG Slag Pond), the north WPDES basin (presently the EDG North A-Pond), and the south WPDES basin (presently the EDG South A-Pond). With the closure of the western portion of the ash disposal facility also came the incorporation of what was identified as the primary pond in historical drawings (presently the EDG B-Pond), which was located in the southeast corner of the ash disposal facility footprint. The primary pond consisted of the facility's original overflow weir hydraulic structure that discharged into the secondary pond (presently the EDG C-Pond). Additional information regarding the modifications to the ash disposal facility are provided in further detail throughout Section 3.

In addition to the conversion to dry fly ash handling for Unit 3 and Unit 4, as well as closure of the ash disposal facility, a fifth steam electric generating unit (Unit 5) was constructed and initiated operations in 1985. Unit 5 has a nameplate rating of 385 MW. At the time of initial operation, the owners and operators of Unit 5 included Wisconsin Power and Light Company, as well as Wisconsin Electric. The burning of coal in Unit 5 produces bottom ash, fly ash, and economizer ash. At the time of initial operation, the bottom ash was collected in the hydrobins, while the excess process water was sent to the surge tank. Water in the surge tank included excess process water from the Unit 5 hydrobin, steam water treatment reject water, and water from the facility floor drains, which was pumped to the north and south WPDES Basins (presently identified as the EDG North A-Pond and EDG South A-Pond). The bottom ash was dredged as needed and stockpiled adjacent to the CCR surface impoundments for dewatering prior to transporting off-site for beneficial reuse. The fly ash that was produced by Unit 5 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was collected. The fly ash that was collected was then pneumatically conveyed to the Unit 5 fly ash storage silo. The fly ash within the storage silo would then be loaded into over-the-road haul trucks and transported off-site for either beneficial reuse or disposal at the EDG I-43 landfill, located off-site. The economizer ash was collected in an economizer hopper. The economizer ash would then be conveyed to the Unit 4 fly ash



storage silo where it would then be loaded into over-the-road haul trucks and transported off-site for disposal at the EDG I-43 landfill.

Discussions with facility personnel with knowledge of historical operations confirmed that in 2005, EDG added on an economizer hopper to Unit 4. With the addition of the economizer hopper, the economizer ash that was produced was collected and conveyed to the Unit 4 fly ash storage silo along with the fly ash from Unit 3 and Unit 4 and the economizer ash from Unit 5.

In 2015, Unit 3 was retired. As a result, slag and fly ash was no longer produced by the unit. As EDG exists today, the generating plant consists of two steam electric generating units (Unit 4 and Unit 5). Unit 4 remains owned by both Wisconsin Power and Light Company, as well as Wisconsin Public Service Corporation. Unit 5 is solely owned by Wisconsin Power and Light Company. Sub-bituminous coal is the primary fuel for producing steam. The burning of coal at EDG produces various forms of CCR, which includes slag (Unit 4 only), bottom ash (Unit 5 only), economizer ash, and fly ash. CCR operations at EDG include Unit 4 slag being sluiced to what is now identified as the EDG Slag Pond. The slag is dredged from the EDG Slag Pond on a regular basis and temporarily stockpiled in a containerized area adjacent to the existing CCR surface impoundments for dewatering prior to transporting off-site via over-the-road haul trucks for beneficial reuse. The Unit 5 bottom ash produced at EDG is collected in a hydrobin at the generating plant. Bottom ash from the hydrobin is dewatered and transported via over-the-road haul trucks to the area west of the EDG South A-Pond for temporary staging in a contained, clay-lined area prior to transporting off-site for beneficial reuse. The economizer ash produced by Unit 4 is collected in a hopper and conveyed to the Unit 4 fly ash storage silo. Similarly, the economizer ash produced by Unit 5 is collected in a hopper and conveyed to the Unit 4 fly ash storage silo. The Unit 4 fly ash, as well as economizer ash from Unit 4 and Unit 5, is loaded into over-the-road haul trucks or rail cars for transportation off-site to EDGs I-43 landfill for disposal. The Unit 5 fly ash that

is collected in the Unit 5 fly ash storage silo is loaded into over-the-road haul trucks or <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

September 21, 2016



rail cars and transported off-site for either beneficial reuse or disposal at the EDG I-43 landfill. Additional discussions regarding the purpose of each of the existing CCR surface impoundments at EDG is provided in further detail throughout Section 3.



HISTORY OF CONSTRUCTION - §257.73(c)(1) 3

This Report documents the history of construction information for the existing CCR surface impoundments to the extent feasible, provided that such information is reasonable and readily available. The following activities were completed in order to reasonably collect and assemble the readily available history of construction information:

- File review at the local regulatory agency;
- Historical aerial photography review;
- Historical topography review;
- Onsite design drawing, specification, and report review;
- Electronic design drawing, specification, and report review; and
- Interview(s) with onsite personnel with historical knowledge of the existing CCR surface impoundment.

3.1 EDG Slag Pond

The following subsections are intended to meet the requirements of the CCR Rule §257.73(c)(1) for the EDG Slag Pond.

3.1.1 CCR Unit Location - §257.73(c)(1)(ii)

The EDG Slag Pond is located southwest of the generating plant, north of the EDG North A-Pond, and adjacent to the closed ash disposal facility. The location of the EDG Slag Pond, in reference to the surrounding topography, is identified on both a USGS 7 $\frac{1}{2}$ minute topographic quadrangle map and aerial photograph on Figure 1. The location of the EDG Slag Pond, in reference to the immediate surroundings within the EDG property, is identified on Figure 2.

3.1.2 Statement of Purpose - §257.73(c)(1)(iii)

The EDG Slag Pond receives influent flow from the generating plant via the Unit 4 boiler slag tanks. The water-slag slurry discharges into the southwest portion of the EDG Slag Pond. The slag is dredged out of the EDG Slag Pond and stockpiled adjacent to the existing CCR surface impoundment for dewatering. The slag is then screened to separate the coarsely graded material from the finely graded material prior to being transported off-site for beneficial reuse.



The water in the EDG Slag Pond flows to the southwest where it gravity flows through a v-notch weir and through a four feet wide concrete structure into a 48-inch diameter corrugated metal pipe (CMP). The water from the EDG Slag Pond, which combines with flows from the EDG North A-Pond and EDG South A-Pond in the 48-inch diameter CMP, flows to the south into the northwest corner of the EDG B-Pond. The water in the EDG B-Pond flows to the east through an overflow weir structure, which is also the original hydraulic structure associated with the initial ash disposal facility. CCR that does not settle in the EDG Slag Pond or EDG A-Ponds settles in the EDG B-Pond. As determined by WPL, process water discharging from the EDG B-Pond does not contain a significant quantity of CCR, and downstream impoundments contain only de minimis quantities of CCR. The water gravity flows to the east through a 24-inch diameter CMP where it discharges into the west side of the EDG C-Pond. The water in the EDG C-Pond gravity flows a significant length to the east through two CMPs. The northeast corner of the EDG C-Pond consists of a 20-inch diameter CMP while the southeast corner of the EDG C-Pond consists of a 24-inch diameter CMP. The two CMPs tie in together prior to discharging into the EDG F-Pond which is located south of the generating plant. The EDG F-Pond also receives influent flows from the EDG E-Pond. The EDG E-Pond, located south of the EDG F-Pond, collects storm water runoff from the coal pile storage area. The water that accumulates in the EDG F-Pond flows to the east through the facility's Wisconsin Pollution Discharge Elimination System (WPDES) Outfall 004 and discharges into Lake Michigan.

3.1.3 Physical Layout Information - §257.73(c)(1)(iv)

As identified in an Inflow Flood Control Plan³ prepared for EDG in accordance with §257.82 of the CCR Rule, the EDG Slag Pond has a watershed of approximately 2.9 acres. The drainage area includes the surface area of the EDG Slag Pond, as well as a portion of the slag dewatering area located to the west of the EDG Slag Pond.

Wisconsin Power and Light Company - Edgewater Generating Station History of Construction September 21, 2016 10



³ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services

As discussed in an Annual Inspection Report⁴ prepared for EDG in accordance with §257.83 of the CCR Rule, the EDG Slag Pond is incised along the west side of the CCR Unit. The southern embankment of the EDG Slag Pond separates the CCR surface impoundment from the EDG North A-Pond. The east embankment of the EDG Slag Pond has a height of approximately 12 feet from the crest to the toe of the downstream slope of the embankment at its greatest height. The interior storage depth of the EDG Slag Pond is approximately 17 feet. Currently, the total volume of impounded CCR and water within the EDG Slag Pond is approximately 47,000 cubic yards.

3.1.4 Foundation and Abutment Properties - §257.73(c)(1)(v)

As discussed in a Groundwater Assessment Report⁵, dated September 1997, the unconsolidated materials in the site primarily consist of glacial till with some lacustrine and alluvial deposits. Based on site boring logs, local private well logs, and geologic cross sections, the glacial sediment is predominately silt and clay with some sand intervals. The glacial deposits are underlain by the Silurian dolomite in most areas, although a small thickness of the Devonian Milwaukee Formation (mostly dolomite) may overlie the Silurian in some areas. The bedrock, which is encountered at depths ranging from 75 to 140 feet below ground surface, generally slopes to the south in the vicinity of the site.

As identified in a Safety Factor Assessment⁶ prepared for EDG in accordance with §257.73(e) of the CCR Rule, the embankments foundation consist of medium dense to very loose silt starting at elevation 586 feet and extending to a medium stiff clay at an elevation of 560 to 569 feet.

3.1.5 Historical Construction and Use - §257.73(c)(1)(vi)

September 21, 2016

The EDG Slag Pond (formerly identified as the northeastern part of the ash disposal facility in historical drawings) was constructed in 1969 in an area located west of the generating plant, west of Lakeshore Drive. After review of readily available information

⁶ Safety Factor Assessment, Edgewater Generating Station, 2016, Hard Hat Environmental Services <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction



⁴ Annual Inspection Report, Edgewater Generating Station, 2016, Hard Hat Environmental Services

⁵ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.

there were no known historical drawings that identify the initial layout of the ash disposal area or the initial layout of the EDG Slag Pond.

The only known readily available document that detailed the method of site preparation and construction of the ash disposal facility was in a Groundwater Assessment Report prepared by RMT, Inc. The report states the unlined closed ash disposal facility was constructed by excavating native soil, which consisted mostly of silt and clay, and mounding the excavated soil to form a perimeter berm. In addition to the Groundwater Assessment Report, historical drawings from 1976 (See Appendix A) identify the existing topography and layout of the ash disposal area prior to construction of the EDG Slag Pond.

At the time of initial construction, the ash disposal facility became the primary receiver of CCR. The initial CCR sluiced to the ash disposal facility included boiler slag from Unit 1, Unit 2, and Unit 3. As identified in historical drawings (See Appendix A) and historical aerial photographs (See Appendix B), the layout of the ash disposal facility consisted of one large CCR surface impoundment. A secondary pond was constructed adjacent to the southeast side of the CCR surface impoundment for decanting effluent from the ash disposal facility. The initial hydraulic structure associated with the ash disposal facility consisted of an overflow weir that was constructed along the perimeter berm between the ash disposal facility and the secondary pond.

In addition to slag from Unit 1, Unit 2, and Unit 3 being sluiced to the ash disposal facility, CCR from Unit 4 was sluiced to the ash disposal facility with its initial operation in 1969. The CCR produced from Unit 4 included both slag and fly ash, as well as air heater ash. The slag that was produced was sluiced from the boiler furnace to the ash disposal facility. The fly ash that was produced by Unit 4 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility. The air heater ash that was produced was also sluiced to the ash disposal facility.

Wisconsin Power and Light Company – Edgewater Generating Station History of Construction September 21, 2016 12



In 1977, an electrostatic precipitator was constructed for Unit 3. The fly ash that was produced by Unit 3 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility, along with the slag produced by Unit 3.

A historical aerial photograph from 1978 (See Appendix B) identifies the first known modifications to the ash disposal facility with the construction of the EDG North A-Pond (formerly identified as North WPDES Basin in historical drawings) and EDG South A-Pond (formerly identified as South WPDES Basin in historical drawings). From the historical aerial photographs (See Appendix B), the existing footprint of the EDG Slag Pond doesn't exist in its present layout until 1987. At some point between 1981 and 1987 the current layout of the EDG Slag Pond was constructed, however, the exact timeframe for this modification cannot be confirmed.

In 1983, Unit 1 and Unit 2 at EDG were retired. Slag that was formerly produced by the two units was no longer sluiced to the ash disposal facility. The fly ash produced by Unit 1 and Unit 2 originally was partially recovered by the mechanical cyclone separators, while the remaining portion was carried out as particulate matter from the boiler furnaces and emitted as part of the flue gas. Discussions with facility personnel with knowledge of historical operations confirmed electrostatic precipitators were eventually constructed for both Unit 1 and Unit 2, however, the timeframe for this modification cannot be confirmed. Once the electrostatic precipitators were constructed, the fly ash produced by Unit 1 and Unit 2 would have been sluiced to the ash disposal facility until the two units were retired.

In 1985, EDG modified CCR operations with the conversion from sluiced fly ash to a dry fly ash handling system. The conversion involved Unit 3 and Unit 4. The fly ash that was collected by the electrostatic precipitators, for both Unit 3 and Unit 4, was pneumatically conveyed to the Unit 4 fly ash storage silo as it ceased being sluiced to the



ash disposal facility. Following conversion to a dry fly ash handling system, EDG initiated closure of the western portion of the ash disposal facility. As discussed in a Groundwater Assessment Report⁷ dated September 1997, dry fly ash from Unit 3 and Unit 4 was used to bring the western portion of the ash disposal facility to final grades. A clay cap was placed on the closed ash disposal facility in 1986. The CCR surface impoundments that remained after closure of the western portion of the ash disposal facility included the EDG Slag Pond (formerly identified as the slag basin in historical drawings), the EDG North A-Pond (formerly identified as the north WPDES basin), and the EDG South A-Pond (formerly identified as the south WPDES basin). With the closure of the western portion of the ash disposal facility also came the incorporation of the EDG B-Pond (formerly identified as the primary pond in historical drawings), which is located in the southeast corner of the initial ash disposal facility. The EDG B-Pond (formerly identified as the secondary pond in historical drawings).

In-situ soil properties of the EDG Slag Pond were identified in a Safety Factor Assessment. As discussed in the Safety Factor Assessment, soil borings were installed in 2010 (See Appendix D). The soil boring data observed the embankments of the EDG Slag Pond to be constructed of very stiff to stiff compacted clay (CL).

The following list provides a general overview of known modifications associated with the EDG Slag Pond since construction of the initial ash disposal facility.

• The existing hydraulic structure associated with the EDG Slag Pond was installed. The existing hydraulic structure consists of a four feet wide concrete structure with a v-notch weir. Water within the EDG Slag Pond flows through the v-notch weir and through the concrete structure into a 48-inch diameter CMP. The timeframe of this modification has not been documented.

September 21, 2016



⁷ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc. <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

- The 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond was installed. The 48-inch diameter CMP includes influent flows from the EDG Slag Pond, EDG North A-Pond, and EDG South A-Pond. The timeframe of this modification has not been documented.
- In 2015, Unit 3 at EDG was retired. As a result, slag was no longer sluiced to the EDG Slag Pond from Unit 3.

Historical aerial photographs (See Appendix B) and historical topographic maps (See Appendix C) identify the topographic changes to the EDG Slag Pond that have occurred since the time of initial facility operations.

3.1.6 Structures, Appurtenances, and Operations- §257.73(c)(1)(vii)

Detailed dimensional drawings of the EDG Slag Pond that were reasonably and readily available are identified below. The detailed dimensional drawings were obtained from various designs, plans, and reports that were assembled during the historical information review.

- Edgewater Ash Disposal Site (1976) Drawings prepared by Donohue & Associates, Inc. provides existing topography and layout of the ash disposal facility, as well as proposed site development plans and cross-sections (Appendix A).
- Edgewater Closed Ash Disposal Facility (1991) Drawings prepared by Dames & Moore provides layout and cross-sections of the modifications to the ash disposal facility after closure, inclusive of the EDG Slag Pond (slag basin), EDG North A-Pond (North WPDES Basin), EDG South A-Pond (South WPDES Basin), EDG B-Pond (Primary Pond), and EDG C-Pond (Secondary Pond). Drawings also provide water table and aquifer mapping (Appendix E).



 Edgewater Generating Station Ash Pond Evaluation (2011) – Drawings prepared by Miller Engineers Scientists provides topographic layout and cross-sections of the EDG Slag Pond (Appendix E).

3.1.7 Instrumentation - §257.73(c)(1)(viii)

The EDG Slag Pond does not have existing instrumentation that supports the operation of the CCR Unit. Additionally, review of readily available historical documents has not identified instrumentation that was used to support the operation of the EDG Slag Pond.

3.1.8 Area-Capacity Curve - §257.73(c)(1)(ix)

An area-capacity curve identifies the relationship between the surface area of the existing CCR surface impoundment and an elevation, which corresponds to an available storage capacity. After review of readily available historical documents there is no readily available information regarding area-capacity curves for the EDG Slag Pond.

3.1.9 Spillway and Diversion Features - §257.73(c)(1)(x)

Water within the EDG Slag Pond flows to the southwest where it gravity flows through a v-notch weir and through a four feet wide concrete structure into a 48-inch diameter CMP. The hydraulic structure is constructed of non-erodible material and designed to carry sustained flows. Additional information regarding the hydraulic capacity of the hydraulic structure associated with the EDG Slag Pond is provided in the Inflow Flood Control Plan⁸.

3.1.10 Construction Specifications, Surveillance, Maintenance, and Repair -§257.73(c)(1)(xi)

EDG implements a Site-Specific Inspection and Maintenance (I&M) Plan⁹, in accordance with an Alliant Energy I&M Plan¹⁰. The Site-Specific I&M Plan has been implemented at EDG in order to identify the factors which may affect the long-term stability of the existing CCR surface impoundment. The Site-Specific I&M Plan identifies existing operation and maintenance activities, and identifies the inspection, monitoring,

⁹ Inspection and Maintenance (I&M) Plan, Edgewater Generating Station, October 2015, Version 2.0-Revision 0.0 ¹⁰ Inspection and Maintenance (I&M) Plan, Alliant Energy, September 2015, Version 2.0-Revision 0.0



⁸ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services

maintenance, and recordkeeping requirements as outlined in the Alliant Energy I&M Plan in order to maintain the integrity of the existing CCR surface impoundment.

Visual inspections of the EDG Slag Pond are completed in accordance with §257.83 of the CCR Rule. At intervals not exceeding seven days, the EDG Slag Pond is visually inspected for any appearances of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the existing CCR surface impoundment. In addition to seven-day inspections, EDG conducts event-related inspections which may include inspections following storm events, seismic events, major maintenance activities, as well as other unusual events. Annual inspections are conducted by a qualified PE who is familiar with the requirements of the CCR Rule, the Alliant Energy I&M Plan, the EDG Site-Specific I&M Plan, and other facility specific information pertaining to the existing CCR surface impoundment.

Maintenance activities that are completed at EDG may include routine maintenance, event-related maintenance, and long-term maintenance. Routine maintenance activities may include management of vegetation (or other forms of slope protection), tree and sapling removal, reseeding of disturbed vegetated areas, removal of debris from collection and diversion channels, and repair of eroded areas. Event-related maintenance activities may include maintenance after unusual events such as heavy rainfall, periods of very high winds, or seismic activity. Maintenance may include repair of eroded areas or removal of damaged vegetation. Long-term maintenance activities are identified as part of the ongoing inspection program, through the annual inspections, or through other engineering evaluations and may include larger remediation activities.

3.1.11 Structural Instability Records - §257.73(c)(1)(xii)

After review of readily available historical documents there are no known records of structural instability associated with the EDG Slag Pond that were identified.

3.2 EDG North A-Pond



The following subsections are intended to meet the requirements of the CCR Rule §257.73(c)(1) for the EDG North A-Pond.

3.2.1 CCR Unit Location - §257.73(c)(1)(ii)

The EDG North A-Pond is located southwest of the generating plant and south of the EDG Slag Pond. The location of the EDG North A-Pond, in reference to the surrounding topography, is identified on both a USGS 7 ½ minute topographic quadrangle map and aerial photograph on Figure 1. The location of the EDG North A-Pond, in reference to the immediate surroundings within the EDG property, is identified on Figure 2.

3.2.2 Statement of Purpose - §257.73(c)(1)(iii)

The EDG North A-Pond as it currently exists is generally operated as a storm water detention pond with the only influent sources consisting of precipitation and storm water runoff from the surrounding area. The EDG North A-Pond is no longer a primary receiver of the surge tank process flows from the generating plant. The hydraulic structure associated with the EDG North A-Pond consists of an 18-inch diameter corrugated plastic pipe (CPP) located in the southwest corner of the existing CCR surface impoundment. The hydraulic structure is currently plugged and therefore the EDG North A-Pond does not discharge. The water that presently collects within the EDG North A-Pond either exfiltrates through the bottom of the CCR surface impoundment or evaporates.

3.2.3 Physical Layout Information - §257.73(c)(1)(iv)

History of Construction September 21, 2016

As identified in an Inflow Flood Control Plan¹¹ prepared for EDG in accordance with §257.82 of the CCR Rule, the EDG North A-Pond has a watershed of approximately 2.7 acres. The drainage area includes the surface area of the EDG North A-Pond, as well as a portion of the slag dewatering area located to the west of the EDG North A-Pond.

As discussed in an Annual Inspection Report¹² prepared for EDG in accordance with §257.83 of the CCR Rule, the EDG North A-Pond is incised along the west side of the CCR

¹¹ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services ¹² Annual Inspection Report, Edgewater Generating Station, 2016, Hard Hat Environmental Services Wisconsin Power and Light Company – Edgewater Generating Station



Unit. The northern embankment of the EDG North A-Pond separates the CCR surface impoundment from the EDG Slag Pond. The southern embankment separates the CCR surface impoundment from the EDG South A-Pond. The east embankment of the EDG North A-Pond has a height of approximately 18 feet from the crest to the toe of the downstream slope of the embankment at its greatest height. The interior storage depth of the EDG North A-Pond is approximately 21 feet. Currently, the total volume of impounded CCR and water within the EDG North A-Pond is approximately 73,000 cubic yards.

3.2.4 Foundation and Abutment Properties - §257.73(c)(1)(v)

As discussed in a Groundwater Assessment Report¹³, dated September 1997, the unconsolidated materials in the site primarily consist of glacial till with some lacustrine and alluvial deposits. Based on site boring logs, local private well logs, and geologic cross sections, the glacial sediment is predominately silt and clay with some sand intervals. The glacial deposits are underlain by the Silurian dolomite in most areas, although a small thickness of the Devonian Milwaukee Formation (mostly dolomite) may overlie the Silurian in some areas. The bedrock, which is encountered at depths ranging from 75 to 140 feet below ground surface, generally slopes to the south in the vicinity of the site.

As identified in a Safety Factor Assessment¹⁴ prepared for EDG in accordance with §257.73(e) of the CCR Rule, the embankments foundation consist of medium dense to very loose silt starting at elevation 586 feet and extending to a medium stiff clay at an elevation of 560 to 569 feet.

3.2.5 Historical Construction and Use - §257.73(c)(1)(vi)

September 21, 2016

The EDG North A-Pond (formerly identified as a portion of the eastern part of the ash disposal facility in historical drawings) was constructed in 1969 in an area located west of the generating plant, west of Lakeshore Drive. After review of readily available

¹⁴ Safety Factor Assessment, Edgewater Generating Station, 2016, Hard Hat Environmental Services <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction



¹³ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.

information there were no known historical drawings that identify the initial layout of the ash disposal area or the initial layout of the EDG North A-Pond.

The only known readily available document that detailed the method of site preparation and construction of the ash disposal facility was in a Groundwater Assessment Report¹⁵ dated September 1997. The report states the unlined closed ash disposal facility was constructed by excavating native soil, which consisted mostly of silt and clay, and mounding the excavated soil to form a perimeter berm. In addition to the Groundwater Assessment Report, historical drawings from 1976 (See Appendix A) identify the existing topography and layout of the ash disposal area prior to construction of the EDG North A-Pond.

At the time of initial construction, the ash disposal facility became the primary receiver of CCR. The initial CCR sluiced to the ash disposal facility included boiler slag from Unit 1, Unit 2, and Unit 3. As identified in historical drawings (See Appendix A) and historical aerial photographs (See Appendix B), the layout of the ash disposal facility consisted of one large CCR surface impoundment. A secondary pond was constructed adjacent to the southeast side of the CCR surface impoundment for decanting effluent from the ash disposal facility. The initial hydraulic structure associated with the ash disposal facility consisted of an overflow weir that was constructed along the perimeter berm between the ash disposal facility and the secondary pond.

In addition to slag from Unit 1, Unit 2, and Unit 3 being sluiced to the ash disposal facility, CCR from Unit 4 was sluiced to the ash disposal facility with its initial operation in 1969. The CCR produced from Unit 4 included both slag and fly ash, as well as air heater ash. The slag that was produced was sluiced from the boiler furnace to the ash disposal facility. The fly ash that was produced by Unit 4 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated

<u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction





¹⁵ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.
Wisconsin Power and Light Company – Edgewater Generating Station

and collected. The fly ash that was collected was then sluiced to the ash disposal facility. The air heater ash that was produced was also sluiced to the ash disposal facility.

In 1977, electrostatic precipitators were constructed for Unit 3. The fly ash that was produced by Unit 3 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility, along with the slag produced by Unit 3.

A historical aerial photograph from 1978 (See Appendix B) identifies the first known modifications to the ash disposal facility with the construction of the EDG North A-Pond (formerly identified as North WPDES Basin in historical drawings) and EDG South A-Pond (formerly identified as South WPDES Basin in historical drawings). At some point between 1969 and 1978 the current layout of the EDG North A-Pond was constructed, however, the exact timeframe for this cannot be confirmed.

In 1983, Unit 1 and Unit 2 at EDG were retired. Slag that was formerly produced by the two units was no longer sluiced to the ash disposal facility. The fly ash produced by Unit 1 and Unit 2 originally was partially recovered by the mechanical cyclone separators, while the remaining portion would get carried as particulate matter from the boiler furnaces and emitted as part of the flue gas. Discussions with facility personnel with knowledge of historical operations confirmed electrostatic precipitators were eventually constructed for both Unit 1 and Unit 2, however, the timeframe for this cannot be confirmed. Once the electrostatic precipitators were constructed the fly ash produced by Unit 1 and Unit 2 would have been sluiced to the ash disposal facility until the two units were retired.

In 1985, EDG modified CCR operations with the conversion from sluiced fly ash to a dry fly ash handling system. The conversion involved Unit 3 and Unit 4. The fly ash that was collected by the electrostatic precipitators, for both Unit 3 and Unit 4, was



pneumatically conveyed to the Unit 4 fly ash storage silo as it ceased being sluiced to the ash disposal facility. Following conversion to a dry fly ash handling system, EDG initiated closure of the western portion of the ash disposal facility. As discussed in a Groundwater Assessment Report¹⁶ dated September 1997, dry fly ash from Unit 3 and Unit 4 was used to bring the western portion of the ash disposal facility to final grades. A clay cap was placed on the closed ash disposal facility in 1986. The CCR surface impoundments that remained after closure of the western portion of the ash disposal facility included the EDG Slag Pond (formerly identified as the slag basin in historical drawings), the EDG North A-Pond (formerly identified as the north WPDES basin), and the EDG South A-Pond (formerly identified as the south WPDES basin). With the closure of the western portion of the ash disposal facility also came the incorporation of the EDG B-Pond (formerly identified as the primary pond in historical drawings), which is located in the southeast corner of the initial ash disposal facility. The EDG B-Pond consists of the facility's original hydraulic structure that discharges into the EDG C-Pond (formerly identified as the secondary pond in historical drawings).

In-situ soil properties of the EDG North A-Pond were identified in a Safety Factor Assessment prepared for EDG in accordance with §257.73(e) of the CCR Rule. As discussed in the Safety Factor Assessment, soil borings were installed in 2010 (Appendix D). The soil boring data observed the embankments of the North A-Pond to be constructed of very stiff to stiff compacted clay (CL).

The following list provides a general overview of known modifications associated with the EDG North A-Pond since construction of the initial ash disposal facility.

The existing hydraulic structure associated with the EDG North A-Pond was • installed. The existing hydraulic structure consists of an 18-inch diameter CPP. Water within the EDG North A-Pond flowed through the hydraulic structure into



a concrete sluice box. The water within the sluice box flowed through a Parshall flume structure and into the 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond. The timeframe of this modification has not been documented.

- The instrumentation associated with the EDG North A-Pond, as well as the EDG South A-Pond, includes a Parshall flume structure and flow monitoring equipment. The Parshall flume and flow monitoring equipment were installed southwest of the EDG North A-Pond. The timeframe of this modification has not been documented.
- The 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond was installed. The 48-inch diameter CMP includes influent flows from the EDG Slag Pond, EDG North A-Pond, and EDG South A-Pond. The timeframe of this modification has not been documented.
- The EDG North A-Pond ceased being a primary receiver of Unit 5 bottom ash, as well as other process flows from the generating plant. The timeframe of this modification has not been documented.

Historical aerial photographs (See Appendix B) and historical topographic maps (See Appendix C) identify the topographic changes to the EDG North A-Pond that have occurred since the time of initial facility operations.

3.2.6 Structures, Appurtenances, and Operations- §257.73(c)(1)(vii)

Detailed dimensional drawings of the EDG North A-Pond that were reasonably and readily available are identified below. The detailed dimensional drawings were obtained from various designs, plans, and reports that were assembled during the historical information review.

• Edgewater Ash Disposal Site (1976) - Drawings prepared by Donohue &

Associates, Inc. provides existing topography and layout of the ash disposal <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> facility, as well as proposed site development plans and cross-sections (Appendix A).

- Edgewater Closed Ash Disposal Facility (1991) Drawings prepared by Dames & Moore provides layout and cross-sections of the modifications to the ash disposal facility after closure, inclusive of the EDG Slag Pond (slag basin), EDG North A-Pond (North WPDES Basin), EDG South A-Pond (South WPDES Basin), EDG B-Pond (Primary Pond), and EDG C-Pond (Secondary Pond). Drawings also provide water table and aquifer mapping (Appendix E).
- Edgewater Generating Station Ash Pond Evaluation (2011) Drawings prepared by Miller Engineers Scientists provides topographic layout and cross-sections of the EDG North A-Pond (Appendix E).

3.2.7 Instrumentation - §257.73(c)(1)(viii)

Instrumentation used to support the operation of the EDG North A-Pond consists of a Parshall flume discharge structure and equipment to measure the flow of the combined discharged water of the EDG North A-Pond and EDG South A-Pond. The instrumentation is located near the southwest corner of the EDG North A-Pond.

3.2.8 Area-Capacity Curve - §257.73(c)(1)(ix)

An area-capacity curve identifies the relationship between the surface area of the existing CCR surface impoundment and an elevation, which corresponds to an available storage capacity. After review of readily available historical documents there is no readily available information regarding area-capacity curves for the EDG North A-Pond.

3.2.9 Spillway and Diversion Features - §257.73(c)(1)(x)

The EDG North A-Pond generally operates as a zero discharge pond. However, water within the EDG North A-Pond has the ability to flow to the southwest corner of the existing CCR surface impoundment where it would flow through an 18-inch diameter CPP. The hydraulic structure is constructed of non-erodible material and designed to carry sustained flows. Additional information regarding the hydraulic capacity of the



hydraulic structure associated with the EDG North A-Pond is provided in the Inflow Flood Control Plan¹⁷.

3.2.10 Construction Specifications, Surveillance, Maintenance, and Repair -§257.73(c)(1)(xi)

EDG implements a Site-Specific Inspection and Maintenance (I&M) Plan¹⁸, in accordance with an Alliant Energy I&M Plan¹⁹. The Site-Specific I&M Plan has been implemented at EDG in order to identify the factors which may affect the long-term stability of the existing CCR surface impoundment. The Site-Specific I&M Plan identifies existing operation and maintenance activities, and identifies the inspection, monitoring, maintenance, and recordkeeping requirements as outlined in the Alliant Energy I&M Plan in order to maintain the integrity of the existing CCR surface impoundment.

Visual inspections of the EDG North A-Pond are completed in accordance with §257.83 of the CCR Rule. At intervals not exceeding seven days, the EDG North A-Pond is visually inspected for any appearances of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the existing CCR surface impoundment. In addition to seven-day inspections, EDG conducts 30-day instrumentation inspections and event-related inspections, which may include inspections following storm events, seismic events, major maintenance activities, as well as other unusual events. Annual inspections are conducted by a qualified PE who is familiar with the requirements of the CCR Rule, the Alliant Energy I&M Plan, the EDG Site-Specific I&M Plan, and other facility specific information pertaining to the existing CCR surface impoundment.

Maintenance activities that are completed at EDG may include routine maintenance, event-related maintenance, and long-term maintenance. Routine maintenance activities may include management of vegetation (or other forms of slope protection), tree and

 ¹⁸ Inspection and Maintenance (I&M) Plan, Edgewater Generating Station, October 2015, Version 2.0-Revision 0.0
 ¹⁹ Inspection and Maintenance (I&M) Plan, Alliant Energy, September 2015, Version 2.0-Revision 0.0
 Wisconsin Power and Light Company – Edgewater Generating Station



¹⁷ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services

sapling removal, reseeding of disturbed vegetated areas, removal of debris from collection and diversion channels, and repair of eroded areas. Event-related maintenance activities may include maintenance after unusual events such as heavy rainfall, periods of very high winds, or seismic activity. Maintenance may include repair of eroded areas or removal of damaged vegetation. Long-term maintenance activities are identified as part of the ongoing inspection program, through the annual inspections, or through other engineering evaluations and may include larger remediation activities.

3.2.11 Structural Instability Records - §257.73(c)(1)(xii)

After review of readily available historical documents there are no known records of structural instability associated with the EDG North A-Pond that were identified.

3.3 EDG South A-Pond

The following subsections are intended to meet the requirements of the CCR Rule §257.73(c)(1) for the EDG South A-Pond.

3.3.1 CCR Unit Location - §257.73(c)(1)(ii)

The EDG South A-Pond is located southwest of the generating plant, south of the EDG North A-Pond, and north of the EDG B-Pond. The location of the EDG South A-Pond, in reference to the surrounding topography, is identified on both a USGS 7 ¹/₂ minute topographic quadrangle map and aerial photograph on Figure 1. The location of the EDG South A-Pond, in reference to the immediate surroundings within the EDG property, is identified on Figure 2.

3.3.2 Statement of Purpose - §257.73(c)(1)(iii)

The EDG South A-Pond, as currently configured, is the primary receiver of water that is pumped from a surge tank. Water in the surge tank includes excess process water from the Unit 5 bottom ash hydrobin, steam water treatment reject water, and water from the facility floor drains.

The water from the surge tank is pumped to the EDG South A-Pond via a 10-inch diameter steel pipe. The water within the EDG South A-Pond flows to the west. The



hydraulic structure associated with the EDG South A-Pond consists of an 18-inch diameter CPP located in the northwest corner of the existing CCR surface impoundment. The water flows through the CPP to the west into a concrete sluice box. The water within the sluice box flows through a Parshall flume prior to discharging into a 48-inch diameter CMP. The 48-inch diameter CMP also hydraulically conveys water from the EDG Slag Pond prior to gravity flowing to the south into the northwest corner of the EDG B-Pond. The water in the EDG B-Pond flows to the east through an overflow weir structure, which is also the original hydraulic structure associated with the initial ash disposal facility. CCR that does not settle in the EDG Slag Pond or EDG A-Ponds settles in the EDG B-Pond. As determined by WPL, process water discharging from the EDG B-Pond does not contain a significant quantity of CCR, and downstream impoundments contain only de minimis quantities of CCR. The water gravity flows to the east through a 24-inch diameter CMP where it discharges into the west side of the EDG C-Pond. The water in the EDG C-Pond gravity flows approximately 1,600 feet to the east through two CMPs. The northeast corner of the EDG C-Pond consists of a 20-inch diameter CMP while the southeast corner of the EDG C-Pond consists of a 24-inch diameter CMP. The two CMPs tie in together prior to discharging into the EDG F-Pond which is located south of the generating plant. The EDG F-Pond also receives influent flows from the EDG E-Pond. The EDG E-Pond, located south of the EDG F-Pond, collects storm water runoff from the coal pile storage area. The water that accumulates in the EDG F-Pond flows to the east through the facility's Wisconsin Pollution Discharge Elimination System (WPDES) Outfall 004 and discharges into Lake Michigan.

3.3.3 Physical Layout Information - §257.73(c)(1)(iv)

September 21, 2016

As identified in an Inflow Flood Control Plan²⁰ prepared for EDG in accordance with §257.82 of the CCR Rule, the EDG South A-Pond has a watershed of approximately 3.7 acres. The drainage area includes the surface area of the EDG South A-Pond, as well as a portion of the bottom ash staging area located to the west of the EDG South A-Pond.

²⁰ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction



As discussed in an Annual Inspection Report²¹ prepared for EDG in accordance with §257.83 of the CCR Rule, the EDG South A-Pond is incised along the west side of the CCR Unit. The northern embankment of the EDG South A-Pond separates the CCR surface impoundment from the EDG North A-Pond. The southern embankment separates the CCR surface impoundment from the EDG B-Pond. The east embankment of the EDG South A-Pond has a height of approximately 26 feet from the crest to the toe of the downstream slope of the embankment at its greatest height. The interior storage depth of the EDG South A-Pond is approximately 25 feet. Currently, the total volume of impounded CCR and water within the EDG North A-Pond is approximately 90,500 cubic yards.

3.3.4 Foundation and Abutment Properties - §257.73(c)(1)(v)

As discussed in a Groundwater Assessment Report²², dated September 1997, the unconsolidated materials in the site primarily consist of glacial till with some lacustrine and alluvial deposits. Based on site boring logs, local private well logs, and geologic cross sections, the glacial sediment is predominately silt and clay with some sand intervals. The glacial deposits are underlain by the Silurian dolomite in most areas, although a small thickness of the Devonian Milwaukee Formation (mostly dolomite) may overlie the Silurian in some areas. The bedrock, which is encountered at depths ranging from 75 to 140 feet below ground surface, generally slopes to the south in the vicinity of the site.

As identified in a Safety Factor Assessment²³ prepared for EDG in accordance with §257.73(e) of the CCR Rule, the embankments foundation consist of medium dense to very loose silt starting at elevation 586 feet and extending to a medium stiff clay at an elevation of 560 to 569 feet.

September 21, 2016



²¹ Annual Inspection Report, Edgewater Generating Station, 2016, Hard Hat Environmental Services

²² Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.

²³ Safety Factor Assessment, Edgewater Generating Station, 2016, Hard Hat Environmental Services <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

3.3.5 Historical Construction and Use - §257.73(c)(1)(vi)

The EDG South A-Pond (formerly identified as a portion of the eastern part of the ash disposal facility in historical drawings) was constructed in 1969 in an area located west of the generating plant, west of Lakeshore Drive. After review of readily available information there were no known historical drawings that identify the initial layout of the ash disposal area or the initial layout of the EDG South A-Pond.

The only known readily available document that detailed the method of site preparation and construction of the ash disposal facility was in a Groundwater Assessment Report²⁴ dated September 1997. The report states the unlined closed ash disposal facility was constructed by excavating native soil, which consisted mostly of silt and clay, and mounding the excavated soil to form a perimeter berm. In addition to the Groundwater Assessment Report, historical drawings from 1976 (See Appendix A) identify the existing topography and layout of the ash disposal area prior to construction of the EDG South A-Pond.

At the time of initial construction, the ash disposal facility became the primary receiver of CCR. The initial CCR sluiced to the ash disposal facility included boiler slag from Unit 1, Unit 2, and Unit 3. As identified in historical drawings (See Appendix A) and historical aerial photographs (See Appendix B), the layout of the ash disposal facility consisted of one large CCR surface impoundment. A secondary pond was constructed adjacent to the southeast side of the CCR surface impoundment for decanting effluent from the ash disposal facility. The initial hydraulic structure associated with the ash disposal facility consisted of an overflow weir that was constructed along the perimeter berm between the ash disposal facility and the secondary pond.

In addition to slag from Unit 1, Unit 2, and Unit 3 being sluiced to the ash disposal facility, CCR from Unit 4 was sluiced to the ash disposal facility with its initial operation in 1969.

September 21, 2016



²⁴ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc. <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

The CCR produced from Unit 4 included both slag and fly ash, as well as air heater ash. The slag that was produced was sluiced from the boiler furnace to the ash disposal facility. The fly ash that was produced by Unit 4 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility. The air heater ash that was produced was also sluiced to the ash disposal facility.

In 1977, electrostatic precipitators were constructed for Unit 3. The fly ash that was produced by Unit 3 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility, along with the slag produced by Unit 3.

A historical aerial photograph from 1978 (See Appendix B) identifies the first known modifications to the ash disposal facility with the construction of the EDG North A-Pond (formerly identified as North WPDES Basin in historical drawings) and EDG South A-Pond (formerly identified as South WPDES Basin in historical drawings). At some point between 1969 and 1978 the current layout of the EDG South A-Pond was constructed, however, the exact timeframe for this cannot be confirmed.

In 1983, Unit 1 and Unit 2 at EDG were retired. Slag that was formerly produced by the two units was no longer sluiced to the ash disposal facility. The fly ash produced by Unit 1 and Unit 2 originally was partially recovered by the mechanical cyclone separators, while the remaining portion was emitted as particulate matter from the boiler furnaces as part of the flue gas. Discussions with facility personnel with knowledge of historical operations confirmed electrostatic precipitators were eventually constructed for both Unit 1 and Unit 2, however, the timeframe for this cannot be confirmed. Once the electrostatic precipitators were constructed the fly ash produced by Unit 1 and Unit 2 would have been sluiced to the ash disposal facility until the two units were retired.



In 1985, EDG modified CCR operations with the conversion from sluiced fly ash to a dry fly ash handling system. The conversion involved Unit 3 and Unit 4. The fly ash that was collected by the electrostatic precipitators, for both Unit 3 and Unit 4, was pneumatically conveyed to the Unit 4 fly ash storage silo as it ceased being sluiced to the ash disposal facility. Following conversion to a dry fly ash handling system, EDG initiated closure of the western portion of the ash disposal facility. As discussed in a Groundwater Assessment Report²⁵ dated September 1997, dry fly ash from Unit 3 and Unit 4 was used to bring the western portion of the ash disposal facility to final grades. A clay cap was placed on the closed ash disposal facility in 1986. The CCR surface impoundments that remained after closure of the western portion of the ash disposal facility included the EDG Slag Pond (formerly identified as the slag basin in historical drawings), the EDG North A-Pond (formerly identified as the north WPDES basin), and the EDG South A-Pond (formerly identified as the south WPDES basin). With the closure of the western portion of the ash disposal facility also came the incorporation of the EDG B-Pond (formerly identified as the primary pond in historical drawings), which is located in the southeast corner of the initial ash disposal facility. The EDG B-Pond consists of the facility's original hydraulic structure that discharges into the EDG C-Pond (formerly identified as the secondary pond in historical drawings).

In-situ soil properties of the EDG South A-Pond were identified in a Safety Factor Assessment prepared for EDG in accordance with §257.73(e) of the CCR Rule. As discussed in the Safety Factor Assessment, soil borings were installed in 2010 (Appendix D). The soil boring data observed the embankments of the EDG South A-Pond to be constructed of very stiff to stiff compacted clay (CL).

The following list provides a general overview of known modifications associated with the EDG South A-Pond since construction of the initial ash disposal facility.

September 21, 2016



²⁵ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc. <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

- The existing hydraulic structure associated with the EDG South A-Pond was installed. The existing hydraulic structure consists of an 18-inch diameter CPP. Water within the EDG South A-Pond flows through the hydraulic structure into a concrete sluice box. The water within the sluice box flows through a Parshall flume structure and into the 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond. The timeframe of this modification has not been documented.
- The instrumentation associated with the EDG South A-Pond, as well as the EDG North A-Pond, includes a Parshall flume structure and flow monitoring equipment. The Parshall flume and flow monitoring equipment were installed northwest of the EDG South A-Pond. The timeframe of this modification has not been documented.
- The 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond was installed. The 48-inch diameter CMP includes influent flows from the EDG Slag Pond, EDG North A-Pond, and EDG South A-Pond. The timeframe of this modification has not been documented.
- The EDG South A-Pond ceased being a primary receiver of Unit 5 bottom ash. The • timeframe of this modification has not been documented.

Historical aerial photographs (See Appendix B) and historical topographic maps (See Appendix C) identify the topographic changes to the EDG South A-Pond that have occurred since the time of initial facility operations.

3.3.6 Structures, Appurtenances, and Operations- §257.73(c)(1)(vii)

Detailed dimensional drawings of the EDG South A-Pond that were reasonably and readily available are identified below. The detailed dimensional drawings were obtained from various designs, plans, and reports that were assembled during the historical information review.


- Edgewater Ash Disposal Site (1976) Drawings prepared by Donohue & Associates, Inc. provides existing topography and layout of the ash disposal facility, as well as proposed site development plans and cross-sections (Appendix A).
- Edgewater Closed Ash Disposal Facility (1991) Drawings prepared by Dames & Moore provides layout and cross-sections of the modifications to the ash disposal facility after closure, inclusive of the EDG Slag Pond (slag basin), EDG North A-Pond (North WPDES Basin), EDG South A-Pond (South WPDES Basin), EDG B-Pond (Primary Pond), and EDG C-Pond (Secondary Pond). Drawings also provide water table and aquifer mapping (Appendix E).
- Edgewater Generating Station Ash Pond Evaluation (2011) Drawings prepared • by Miller Engineers Scientists provides topographic layout and cross-sections of the EDG South A-Pond (Appendix E).
- Coal Pile Runoff Pond Study (2015) Bathymetric survey by Burns & McDonnell Engineering Company, Inc. was completed for the EDG South A-Pond. Drawings provided identify the bathymetric surface (Appendix E).

3.3.7 Instrumentation - §257.73(c)(1)(viii)

Instrumentation used to support the operation of the EDG South A-Pond consists of a Parshall flume discharge structure and equipment to measure the flow of the combined discharged water of the EDG North A-Pond and EDG South A-Pond. The instrumentation is located near the northwest corner of the EDG South A-Pond.

3.3.8 Area-Capacity Curve - §257.73(c)(1)(ix)

An area-capacity curve identifies the relationship between the surface area of the existing CCR surface impoundment and an elevation, which corresponds to an available storage capacity. After review of readily available historical documents there is no readily available information regarding area-capacity curves for the EDG South A-Pond.



3.3.9 Spillway and Diversion Features - §257.73(c)(1)(x)

The EDG South A-Pond is equipped with one hydraulic structure located in the northwest corner of the existing CCR surface impoundment. The hydraulic structure consists of an 18-inch diameter CPP. Water within the EDG South A-Pond flows to the northwest corner of the existing CCR surface impoundment and through the hydraulic structure. The hydraulic structure is constructed of non-erodible material and designed to carry sustained flows. Additional information regarding the hydraulic capacity of the hydraulic structure associated with the EDG South A-Pond is provided in the Inflow Flood Control Plan²⁶.

3.3.10 Construction Specifications, Surveillance, Maintenance, and Repair -§257.73(c)(1)(xi)

EDG implements a Site-Specific Inspection and Maintenance (I&M) Plan²⁷, in accordance with an Alliant Energy I&M Plan²⁸. The Site-Specific I&M Plan has been implemented at EDG in order to identify the factors which may affect the long-term stability of the existing CCR surface impoundment. The Site-Specific I&M Plan identifies existing operation and maintenance activities, and identifies the inspection, monitoring, maintenance, and recordkeeping requirements as outlined in the Alliant Energy I&M Plan in order to maintain the integrity of the existing CCR surface impoundment.

Visual inspections of the EDG South A-Pond are completed in accordance with §257.83 of the CCR Rule. At intervals not exceeding seven days, the EDG South A-Pond is visually inspected for any appearances of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the existing CCR surface impoundment. In addition to seven-day inspections, EDG conducts 30-Day instrumentation inspections and event-related inspections which may include inspections following storm events, seismic events, major maintenance activities, as well as other unusual events. Annual inspections are conducted by a qualified PE who is

 ²⁷ Inspection and Maintenance (I&M) Plan, Edgewater Generating Station, October 2015, Version 2.0-Revision 0.0
 ²⁸ Inspection and Maintenance (I&M) Plan, Alliant Energy, September 2015, Version 2.0-Revision 0.0
 Wisconsin Power and Light Company – Edgewater Generating Station



²⁶ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services

familiar with the requirements of the CCR Rule, the Alliant Energy I&M Plan, the EDG Site-Specific I&M Plan, and other facility specific information pertaining to the existing CCR surface impoundment.

Maintenance activities that are completed at EDG may include routine maintenance, event-related maintenance, and long-term maintenance. Routine maintenance activities may include management of vegetation (or other forms of slope protection), tree and sapling removal, reseeding of disturbed vegetated areas, removal of debris from collection and diversion channels, and repair of eroded areas. Event-related maintenance activities may include maintenance after unusual events such as heavy rainfall, periods of very high winds, or seismic activity. Maintenance may include repair of eroded areas or removal of damaged vegetation. Long-term maintenance activities are identified as part of the ongoing inspection program, through the annual inspections, or through other engineering evaluations and may include larger remediation activities.

3.3.11 Structural Instability Records - §257.73(c)(1)(xii)

After review of readily available historical documents there are no known records of structural instability associated with the EDG South A-Pond that were identified.

3.4 EDG B-Pond

The following subsections are intended to meet the requirements of the CCR Rule §257.73(c)(1) for the EDG B-Pond.

3.4.1 CCR Unit Location - §257.73(c)(1)(ii)

The EDG B-Pond is located southwest of the generating plant, south of the EDG South A-Pond, and west of the EDG C-Pond. The location of the EDG B-Pond, in reference to the surrounding topography, is identified on both a USGS 7 ¹/₂ minute topographic quadrangle map and aerial photograph on Figure 1. The location of the EDG B-Pond, in reference to the immediate surroundings within the EDG property, is identified on Figure

2.



3.4.2 Statement of Purpose - §257.73(c)(1)(iii)

The EDG B-Pond receives influent flow via a 48-inch diameter CMP. The 48-inch diameter CMP consists of a combined flow from the EDG Slag Pond, EDG North A-Pond (presently no discharge), and EDG South A-Pond. Additionally, the EDG B-Pond receives storm water drainage from a portion of the closed ash disposal facility located west of the EDG B-Pond. The storm water from the closed ash disposal facility discharges into the west side of the EDG B-Pond via a small diameter CPP.

The water in the EDG B-Pond flows to the east through an overflow weir structure, which is also the original hydraulic structure associated with the initial ash disposal facility. CCR that does not settle in the EDG Slag Pond or EDG A-Ponds settles in the EDG B-Pond. As determined by WPL, process water discharging from the EDG B-Pond does not contain a significant quantity of CCR, and downstream impoundments contain only de minimis quantities of CCR. The water gravity flows to the east through a 24-inch diameter CMP where it discharges into the west side of the EDG C-Pond. The water in the EDG C-Pond gravity flows a significant length to the east through two CMPs. The northeast corner of the EDG C-Pond consists of a 20-inch diameter CMP while the southeast corner of the EDG C-Pond consists of a 24-inch diameter CMP. The two CMPs tie in together prior to discharging into the EDG F-Pond which is located south of the generating plant. The EDG F-Pond also receives influent flows from the EDG E-Pond. The EDG E-Pond, located south of the EDG F-Pond, collects storm water runoff from the coal pile storage area. The water that accumulates in the EDG F-Pond flows to the east through the facility's Wisconsin Pollution Discharge Elimination System (WPDES) Outfall 004 and discharges into Lake Michigan.

3.4.3 Physical Layout Information - §257.73(c)(1)(iv)

As identified in an Inflow Flood Control Plan²⁹ prepared for EDG in accordance with §257.82 of the CCR Rule, the EDG B-Pond has a watershed of approximately 5.5 acres.

²⁹ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services Wisconsin Power and Light Company - Edgewater Generating Station History of Construction September 21, 2016



The drainage area includes the surface area of the EDG B-Pond, as well as a portion of the closed ash disposal facility located to the west of the EDG B-Pond.

As discussed in an Annual Inspection Report³⁰ prepared for EDG in accordance with §257.83 of the CCR Rule, the EDG B-Pond is incised along the west side of the CCR Unit. The northern embankment of the EDG B-Pond separates the CCR surface impoundment from the EDG South A-Pond. The eastern embankment separates the CCR surface impoundment from the EDG C-Pond. The south embankment of the EDG B-Pond has a height of approximately 24 feet from the crest to the toe of the downstream slope of the embankment at its greatest height. The interior storage depth of the EDG South A-Pond is approximately 15 feet. Currently, the total volume of impounded CCR and water within the EDG North A-Pond is approximately 46,500 cubic yards.

3.4.4 Foundation and Abutment Properties - §257.73(c)(1)(v)

As discussed in a Groundwater Assessment Report³¹, dated September 1997, the unconsolidated materials in the site primarily consist of glacial till with some lacustrine and alluvial deposits. Based on site boring logs, local private well logs, and geologic cross sections, the glacial sediment is predominately silt and clay with some sand intervals. The glacial deposits are underlain by the Silurian dolomite in most areas, although a small thickness of the Devonian Milwaukee Formation (mostly dolomite) may overlie the Silurian in some areas. The bedrock, which is encountered at depths ranging from 75 to 140 feet below ground surface, generally slopes to the south in the vicinity of the site.

As identified in a Safety Factor Assessment³² prepared for EDG in accordance with §257.73(e) of the CCR Rule, the embankments foundation consist of medium dense to very loose silt starting at elevation 586 feet and extending to a medium stiff clay at an elevation of 560 to 569 feet.

September 21, 2016



³⁰ Annual Inspection Report, Edgewater Generating Station, 2016, Hard Hat Environmental Services

³¹ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.

³² Safety Factor Assessment, Edgewater Generating Station, 2016, Hard Hat Environmental Services <u>Wisconsin Power and Light Company – Edgewater Generating Station</u> History of Construction

3.4.5 Historical Construction and Use - §257.73(c)(1)(vi)

The EDG B-Pond (formerly identified as the southeastern part of the ash disposal facility in historical drawings) was constructed in 1969 in an area located west of the generating plant, west of Lakeshore Drive. After review of readily available information there were no known historical drawings that identify the initial layout of the ash disposal area or the initial layout of the EDG B-Pond.

The only known readily available document that detailed the method of site preparation and construction of the ash disposal facility was in the Groundwater Assessment Report. The report states the unlined closed ash disposal facility was constructed by excavating native soil, which consisted mostly of silt and clay, and mounding the excavated soil to form a perimeter berm. In addition to the Groundwater Assessment Report, historical drawings from 1976 (See Appendix A) identify the existing topography and layout of the ash disposal area prior to construction of the EDG B-Pond.

At the time of initial construction, the ash disposal facility became the primary receiver of CCR. The initial CCR sluiced to the ash disposal facility included boiler slag from Unit 1, Unit 2, and Unit 3. As identified in historical drawings (Appendix A) and historical aerial photographs (Appendix B), the layout of the ash disposal facility consisted of one large CCR surface impoundment. A secondary pond was constructed adjacent to the southeast side of the CCR surface impoundment for decanting effluent from the ash disposal facility. The initial hydraulic structure associated with the ash disposal facility consisted of an overflow weir that was constructed along the perimeter berm between the ash disposal facility and the secondary pond.

In addition to slag from Unit 1, Unit 2, and Unit 3 being sluiced to the ash disposal facility, CCR from Unit 4 was sluiced to the ash disposal facility with its initial operation in 1969. The CCR produced from Unit 4 included both slag and fly ash, as well as air heater ash. The slag that was produced was sluiced from the boiler furnace to the ash disposal facility. The fly ash that was produced by Unit 4 was carried as particulate matter by the



flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility. The air heater ash that was produced was also sluiced to the ash disposal facility.

In 1977, electrostatic precipitators were constructed for Unit 3. The fly ash that was produced by Unit 3 was carried as particulate matter by the flue gases into the electrostatic precipitators where it was electrostatically precipitated and collected. The fly ash that was collected was then sluiced to the ash disposal facility, along with the slag produced by Unit 3.

A historical aerial photograph from 1978 (See Appendix B) identifies the first known modifications to the ash disposal facility. A historical aerial photograph from 1987 (See Appendix B) identifies the construction of the EDG B-Pond (formerly identified as Primary Pond). At some point between 1981 and 1987 the current layout of the EDG B-Pond was constructed, however, the exact timeframe for this cannot be confirmed.

In 1985, EDG modified CCR operations with the conversion from sluiced fly ash to a dry fly ash handling system. The conversion involved Unit 3 and Unit 4. The fly ash that was collected by the electrostatic precipitators, for both Unit 3 and Unit 4, was pneumatically conveyed to the Unit 4 fly ash storage silo as it ceased being sluiced to the ash disposal facility. Following conversion to a dry fly ash handling system, EDG initiated closure of the western portion of the ash disposal facility. As discussed in a Groundwater Assessment Report³³ dated September 1997, dry fly ash from Unit 3 and Unit 4 was used to bring the western portion of the ash disposal facility to final grades. A clay cap was placed on the closed ash disposal facility in 1986. The CCR surface impoundments that remained after closure of the western portion of the ash disposal facility included the EDG Slag Pond (formerly identified as the slag basin in historical drawings), the EDG North A-Pond (formerly identified as the north WPDES basin), and

History of Construction September 21, 2016



³³ Groundwater Assessment Report – Edgewater Closed Ash Disposal Facility, Wisconsin Power and Light Company, September 1997, RMT, Inc.
Wisconsin Power and Light Company – Edgewater Generating Station

the EDG South A-Pond (formerly identified as the south WPDES basin). With the closure of the western portion of the ash disposal facility also came the incorporation of the EDG B-Pond (formerly identified as the primary pond in historical drawings), which is located in the southeast corner of the initial ash disposal facility. The EDG B-Pond consists of the facility's original hydraulic structure that discharges into the EDG C-Pond (formerly identified as the secondary pond in historical drawings).

In-situ soil properties of the EDG B-Pond were identified in a Safety Factor Assessment prepared for EDG in accordance with §257.73(e) of the CCR Rule. As discussed in the Safety Factor Assessment, soil borings were installed in 2010 (Appendix D). The soil boring data observed the embankments of the EDG B-Pond to be constructed of very stiff to stiff compacted clay (CL).

The following list provides a general overview of known modifications associated with the EDG B-Pond since construction of the initial ash disposal facility.

The 48-inch diameter CMP that connects the EDG Slag Pond to the EDG B-Pond • was installed. The 48-inch diameter CMP includes influent flows from the EDG Slag Pond, EDG North A-Pond, and EDG South A-Pond. The timeframe of this modification has not been documented.

Historical aerial photographs (See Appendix B) and historical topographic maps (See Appendix C) identify the topographic changes to the EDG B-Pond that have occurred since the time of initial facility operations.

3.4.6 Structures, Appurtenances, and Operations- §257.73(c)(1)(vii)

Detailed dimensional drawings of the EDG B-Pond that were reasonably and readily available are identified below. The detailed dimensional drawings were obtained from various designs, plans, and reports that were assembled during the historical information review.



- Edgewater Ash Disposal Site (1976) Drawings prepared by Donohue & Associates, Inc. provides existing topography and layout of the ash disposal facility, as well as proposed site development plans and cross-sections (Appendix A).
- Edgewater Closed Ash Disposal Facility (1991) Drawings prepared by Dames & Moore provides layout and cross-sections of the modifications to the ash disposal facility after closure, inclusive of the EDG Slag Pond (slag basin), EDG North A-Pond (North WPDES Basin), EDG South A-Pond (South WPDES Basin), EDG B-Pond (Primary Pond), and EDG C-Pond (Secondary Pond). Drawings also provide water table and aquifer mapping (Appendix E).
- Edgewater Generating Station Ash Pond Evaluation (2011) Drawings prepared • by Miller Engineers Scientists provides topographic layout and cross-sections of the EDG B-Pond (Appendix E).
- Coal Pile Runoff Pond Study (2015) Bathymetric survey by Burns & McDonnell Engineering Company, Inc. was completed for the EDG B-Pond. Drawings provided identify the bathymetric surface (Appendix E).

3.4.7 Instrumentation - §257.73(c)(1)(viii)

The EDG B-Pond does not have existing instrumentation that supports the operation of the CCR Unit. Additionally, review of readily available historical documents has not identified any past instrumentation that was used to support the operation of the EDG B-Pond.

3.4.8 Area-Capacity Curve - §257.73(c)(1)(ix)

An area-capacity curve identifies the relationship between the surface area of the existing CCR surface impoundment and an elevation, which corresponds to an available storage capacity. After review of readily available historical documents there is no readily available information regarding area-capacity curves for the EDG B-Pond.



3.4.9 Spillway and Diversion Features - §257.73(c)(1)(x)

The EDG B-Pond is equipped with one hydraulic structure located along the east side of the existing CCR surface impoundment. The water in the EDG B-Pond flows to the east through an overflow weir structure. The water gravity flows to the east through a 24-inch diameter corrugated metal pipe where it discharges into the west side of the EDG C-Pond. The hydraulic structure is constructed of non-erodible material and designed to carry sustained flows. Additional information regarding the hydraulic capacity of the hydraulic structure associated with the EDG B-Pond is provided in the Inflow Flood Control Plan³⁴.

3.4.10 Construction Specifications, Surveillance, Maintenance, and Repair -§257.73(c)(1)(xi)

EDG implements a Site-Specific Inspection and Maintenance (I&M) Plan³⁵, in accordance with an Alliant Energy I&M Plan³⁶. The Site-Specific I&M Plan has been implemented at EDG in order to identify the factors which may affect the long-term stability of the existing CCR surface impoundment. The Site-Specific I&M Plan identifies existing operation and maintenance activities, and identifies the inspection, monitoring, maintenance, and recordkeeping requirements as outlined in the Alliant Energy I&M Plan in order to maintain the integrity of the existing CCR surface impoundment.

Visual inspections of the EDG B-Pond are completed in accordance with §257.83 of the CCR Rule. At intervals not exceeding seven days, the EDG B-Pond is visually inspected for any appearances of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the existing CCR surface impoundment. In addition to seven-day inspections, EDG conducts event-related inspections which may include inspections following storm events, seismic events, major maintenance activities, as well as other unusual events. Annual inspections are conducted by a qualified PE who is familiar with the requirements of the CCR Rule, the

 ³⁵ Inspection and Maintenance (I&M) Plan, Edgewater Generating Station, October 2015, Version 2.0-Revision 0.0
 ³⁶ Inspection and Maintenance (I&M) Plan, Alliant Energy, September 2015, Version 2.0-Revision 0.0
 Wisconsin Power and Light Company – Edgewater Generating Station



³⁴ Inflow Flood Control Plan, Edgewater Generating Station, 2016, Hard Hat Environmental Services

Alliant Energy I&M Plan, the EDG Site-Specific I&M Plan, and other facility specific information pertaining to the existing CCR surface impoundment.

Maintenance activities that are completed at EDG may include routine maintenance, event-related maintenance, and long-term maintenance. Routine maintenance activities may include management of vegetation (or other forms of slope protection), tree and sapling removal, reseeding of disturbed vegetated areas, removal of debris from collection and diversion channels, and repair of eroded areas. Event-related maintenance activities may include maintenance after unusual events such as heavy rainfall, periods of very high winds, or seismic activity. Maintenance may include repair of eroded areas or removal of damaged vegetation. Long-term maintenance activities are identified as part of the ongoing inspection program, through the annual inspections, or through other engineering evaluations and may include larger remediation activities.

3.4.11 Structural Instability Records - §257.73(c)(1)(xii)

After review of readily available historical documents there are no known records of structural instability associated with the EDG B-Pond that were identified.



4 CHANGES TO THE HISTORY OF CONSTRUCTION

If there is a significant change to any information compiled within the Report, the owner or operator of the CCR unit must update the relevant information and place into the facility's operating record as required by §257.105(f)(9).



FIGURES

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction











CALM WATER LEVEL 2/2011-578.0 ft HISTORIC HIGH (1986)- 552.9 ft HISTORIC LOW (1944)- 578.5 ft HISTORIC AMDIANE- 579.5 ft



ELEVATIONS IN NGVD DATUM UNLESS NOTED OTHERWISE PLANT DATUM= NGVD+ 0.79

| DRAWING DESCRIPTION | JOB |
|-------------------------|------------------|
| | |
| History of Construction | SHT. FIGURE 2 |
| | DWG. |

APPENDIX A – Edgewater Ash Disposal Site - 1976

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction





WISCONSIN POWER & LIGHT COMPANY EDGEWATER GENERATING STATION EDGEWATER ASH DISPOSAL SITE SHEBOYGAN COUNTY, WISCONSIN

DONOHUE & ASSOCIATES, INC. CONSULTING ENGINEERS SHEBOYGAN, WISCONSIN

CHIG/

ш

K

- TITLE, IN
 LAND USI
 SOILS IN
 EXISTING
 EXISTING
 PROGRES
 PROPOSE
 CROSS SI
 CROSS SI
 CROSS SI
- II. CROSS S

INDEX

| N | DEX | 8 | LOCAL | ITY | MAP | | • | - | • | • | A-3225 |
|----|-------|------|--------|------|------|------|------|------|------------|---|---------|
| SE | E AN | ID Z | ONING | | | | • | • | • | | A-3225 |
| 1, | VENT | ORY | 84 BC | RING | G LC | CAT | FION | IS | • | | A-3225 |
| 6 | тор | OGR | APHY A | ND | SITE | E OF | PER | ΑΤΙΟ |) N | • | A-3225 |
| 6 | ASH | SIT | E TOF | OGR | APH | Y | •, | | • | • | A-3225 |
| S | SIVE | SIT | E OP | ERA | TION | PL | AN | • • | • | | A-3225 |
| Ξ | D Fl | JTUR | E DEVI | ELOF | MEN | T PI | LAN | • | • | • | A-3225 |
| E | ECTIC | DNS, | • | | | | • | | • | | A-32252 |
| E | ECTIC | NS, | | | • • | | • | • | 6 - | • | A-3225 |
| SE | ECTIO | DNS, | • | | | | | • | • | • | A-3225 |
| SE | ECTI | ONS, | • | • | • | • | • | • | • | | A-3224 |

Print A32256 taken on 4/18/18 To marhoff ceptic tanks and well, JA



PROJECT NO 4372 Sheet NO 1 OF II FILE NO.

A-32259

April 76



| Blin | | |
|--|--|---|
| S. HWY | U | |
| | ٦٩ _١ ۳ - ٢٩ | |
| | | NÊ. |
| an a | | Contractory of the second |
| | | |
| s | | |
| 1. Ale | | 1. MA |
| ing and a second | | e San San San San San San San San San San |
| en 🖗 in: The international state | Argentistical stands | đ., |
| | | |
| | | |
| E Frank Star | | |
| | | |
| 1990 - An 140 - | | |
| 2 - Spatter and | | and the second |
| | | • 30 |
| a a la compañía de la | and the second second | NAME: |
| | | |
| | | |
| ng naan lada sin suu naap dhalla aperin haladan aperin. | , the control of the second | |
| **** | and the set of a set of the set o | |
| | | نېږي کې د چې کې |
| | | - C. M. |
| the second s | and the second sec | ી જો એ |
| an Millio n an an An | a sina a sina a sec | i and i |
| | | |
| | | |
| a na sa sa tana an | and the second sec | रे जेनले पूर्व |
| and the second | | 0an 19 10 9 |
| | | i ta ta Vite Sama |
| | | · 化 下 |
| | | s a les Net les les |
| a la construcción de la construcción La construcción de la construcción d La construcción de la construcción d | | ోి లో ఉంది. కొక్క క్ర |
| an and An Anna Anna Anna Anna Anna Anna Anna A | | |
| | 1. C. | 1. Angel |
| MARKE CALL | | Ang |
| | | |
| and the second second second second | a and a second | a la un |
| n and the set | the set on the state of the set of the | |
| | | |
| | | n the B |
| | | |
| | | |
| 19 mil og at 19 mil og av se skrag | | N. A |
| | | æ. 4 |
| | | æ, |
| | | . |
| A CONTRACT | | . 4 |
| | | |
| A | A A A A A A A A A A A A A A A A A A A | 14 - A |
| 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. | | |
| 244 A + + + + + + + + + + + + + + + + + + | | . 5400 E |
| and the second | | 19 1. 19 1. |
| a had be been to be | | ay Solo |
| and the second | State & and the second state | |
| | | ્ય છે. ગુરુ |
| | | 120 |
| | | |
| | inter the | ÷. |
| | And Par 181 - | , Y ^a di ⁰¹ rada atr≫a |
| | | 1. A. |
| | 1 Chan C | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 |
| an a | | and a start |
| | A. S. | :::::::::::::::::::::::::::::::::::::: |
| | | and the second se |
| . Alter and the second | In the state | ÷. |
| | | |

LEGEND

· ** * + + + ** * + + + * ***

| PRIVATE WELL | | | | | | |
|----------------------------------|---------------------------------------|--|--|--|--|--|
| ELEVATION OF ROCK (SOURCE - WELL | | | | | | |
| DRY RUN | DRILLERS LOGI | | | | | |
| INTERMITTENT STRI | EAM | | | | | |
| WISCONSIN POWER | & LIGHT PROPERTY L | | | | | |
| CEMETERIES | | | | | | |
| RESIDENCES | | | | | | |
| INDUSTRIAL BLDGS | • • • • • • • • • • • • • • • • • • • | | | | | |
| CITY LIMITS | | | | | | |
| | | | | | | |

NOTE: ALL RESIDENCES IN TOWN OF WILSON HAVE PRIVATE WELLS



()

Z

Z

0

 \square

| PROJECT NO. | |
|-------------|---|
| 4372 | |
| SHEET NO. | |
| 2 OF 11 | the second se |
| FILE NO. | |
| A-32258 | A ST ST |

| | · . | |
|--|-----|--|
| | | |
| | | |
| | | |



| | 9 | eding Pall |
|-------------------------------|--|---|
| | | 1976 0.4.0 500' |
| | | APRIL, ONS N BY Z (ED BY I = 1 |
| | | DATE REVISI- DRAWI CHECK SCALE |
| | | NEER 23 |
| | N | C O N S O N |
| | | No TE DO COL |
| | LEGEND | N C S S |
| | YAHARA SILT LOAM. SOMEWHAT POORLY DRAINED, LOAMY SOILS FORMED IN CALCAREOUS SAND AND SILT. SEASONAL | ATES, I NGINEE NSIN |
| | HIGH WATER TABLE, I-3 FEET, MODERATELY PERMEABLE. | SOCI, ESIGN E WISCO |
| | FINE TEXTURED SOILS UNDERLAIN BY SILT AND CLAY. SEASONAL HIGH WATER TABLE | R AS |
| | 1-3 FEET. OCCASIONAL FLOODING. | I O H U E SHEBG |
| | SAYLESVILLE SILT LOAM - WELL AND MODERATELY WELL DRAINED, MEDIUM TO FINE TEXTURED SOILS UNDERLAIN BY SILT | |
| | AND CLAY LAKE SEDIMENTS. SEASONAL HIGH WATER TABLE, 3-6 FEET. HIGH SHRINK-SWELL POTENTIAL. | |
| | TEDROW LOAMY FINE SAND. POORLY + + + + + DRAINED SANDY SOILS OVER SAND. | |
| | SEASONAL HIGH WATER TABLE, I-3 FEET. RAPID PERMEABILITY. | |
| | OAKVILLE LOAMY FINE SAND- WELL DRAINED SANDY SOIL OVER SAND. SEASONAL HIGH WATER TABLE MORE | ы SS SS |
| | THAN 3 FEET. RAPID PERMEABILITY. | SITI NTIOI |
| | ALLUVIAL LAND, WET. | |
| S. 8 TH = ST. | COLWOOD SILT LOAM-POORLY DRAINED SILTY CLAY LOAM AND SILT LOAM OVER STRATIFIED VERY FINE SAND AND SILT. SEASONAL HIGH WATER TABLE O-LEOOT | OS/ SCON |
| Alexandra Solar Andreas Solar | FREQUENT FLOODING. | ORIN V, WI |
| | MONTGOMERY SILTY CLAY LOAM - VERY POORLY DRAINED FINE TEXTURED SOILS. SEASONAL HIGH WATER TABLE, 0-1 FOOT. | H B D DUNT |
| | FREQUENT FLOODING. | AS RY N CO |
| | Υ | ER NTO OYGA |
| | | NAT NVE NVE HEB |
| | | GEV S - S - S |
| | | ED |
| | | |
| | ż | |
| | 2 | |
| | | PROJECT NO. |
| | | 4372 SHEET NO. |
| | | 3 OF 11 FILE NO. |
| | | A-32257 |







•

-



د م



 \mathbf{O} Z LAKE CONTOUR INTERVAL = 2' N O SNOS 0 Ω MICHIGAN AN . LL SIT APPROXIMATE MEAN LAKE ELEVATION = 580' ┝━ WISCONSIN LOPMEN DISPOSAL Ш COUNTY, TERTIARY \square ASH Woler URE X585.5 \Elev. 583.1 \ SHEBOYGAN EDGEWATER **L** D L PROPOSED PROJECT NO. 4372 SHEET NO. 7 OF 11 FILE NO. A-32253



····· — —

an the second second

- ----

-

_ . _ _ _ _

| 800 3+ 592 582 582 585 585 585 585 585 585 585 58 | | | | 595 590 | |
|---|-----------|--|-------|--------------------|--------------|
| 600 3+ 592 582 582 582 582 582 582 582 582 582 58 | | | FENCE | 605 600 1+⊖€ |) W- |
| | NAL GRADE | | | 590 585 6I0 | |
| | | | | 600 2+0 595 |) O W |
| 60(3+ 595 590 | | | | 585 6IO 605 | |
| 600 | | | | 3+0 595 590 |)O V |
| 608 | | | | 605 600 | |

. .







APPENDIX B – EDR Historical Aerial Photograph Package

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction



Edgewater Generating Station

3739 Lakeshore Drive Sheboygan, WI 53081

Inquiry Number: 4555570.10 March 07, 2016

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor Shelton, Connecticut 06484 Toll Free: 800.352.0050 www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business. Please contact EDR at 1-800-352-0050 with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report AS IS. Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Date EDR Searched Historical Sources:

Aerial Photography March 07, 2016

Target Property:

3739 Lakeshore Drive Sheboygan, WI 53081

| <u>Year</u> | <u>Scale</u> | <u>Details</u> | <u>Source</u> |
|-------------|------------------------------------|--|---------------|
| 1937 | Aerial Photograph. Scale: 1"=500' | Flight Date: August 15, 1937 | EDR |
| 1966 | Aerial Photograph. Scale: 1"=1000' | Flight Date: October 27, 1966 | EDR |
| 1978 | Aerial Photograph. Scale: 1"=500' | Flight Date: June 19, 1978 | EDR |
| 1981 | Aerial Photograph. Scale: 1"=500' | Flight Date: May 06, 1981 | EDR |
| 1987 | Aerial Photograph. Scale: 1"=500' | Flight Date: June 13, 1987 | EDR |
| 1992 | Aerial Photograph. Scale: 1"=500' | DOQQ - acquisition dates: May 06, 1992 | USGS/DOQQ |
| 1992 | Aerial Photograph. Scale: 1"=500' | DOQQ - acquisition dates: May 06, 1992 | USGS/DOQQ |
| 2005 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2005 | USDA/NAIP |
| 2005 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2005 | USDA/NAIP |
| 2006 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2006 | USDA/NAIP |
| 2006 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2006 | USDA/NAIP |
| 2008 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2008 | USDA/NAIP |
| 2008 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2008 | USDA/NAIP |
| 2010 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2010 | USDA/NAIP |
| 2010 | Aerial Photograph. Scale: 1"=500' | Flight Year: 2010 | USDA/NAIP |






























APPENDIX C – EDR Historical Topographic Map Report

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction



Edgewater Generating Station 3739 Lakeshore Drive Sheboygan, WI 53081

Inquiry Number: 4555570.9 March 04, 2016

EDR Historical Topo Map Report with QuadMatch™



6 Armstrong Road, 4th floor Shelton, CT 06484 Toll Free: 800.352.0050 www.edrnet.com

EDR Historical Topo Map Report

Site Name:

Edgewater Generating Station 3739 Lakeshore Drive Sheboygan, WI 53081 EDR Inquiry # 4555570.9

Client Name:

Environmental Site Assessors 932 North Wright Street, Suite 10 Naperville, IL 60563 Contact: Mark W Loerop



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Environmental Site Assessors were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

| Search Results | | Coordinates: | |
|-----------------|------------------------------|---------------|------------------------------|
| Site Name: | Edgewater Generating Station | Latitude: | 43.714887 43° 42' 54" North |
| Address: | 3739 Lakeshore Drive | Longitude: | -87.707224 -87° 42' 26" West |
| City,State,Zip: | Sheboygan, WI 53081 | UTM Zone: | Zone 16 North |
| P.O.# | 154.018.012.006 | UTM X Meters: | 443028.06 |
| Project: | EDG Historical Docs | UTM Y Meters: | 4840449.76 |
| | | Elevation: | 596.01' above sea level |

Maps Provided:

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provide in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Topo Sheet Thumbnails

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets



Sheboygan South 2013 7.5-minute, 24000

1994 Source Sheets



Sheboygan South 1994 7.5-minute, 24000 Photo Revised 1994 Aerial Photo Revised 1992

1973 Source Sheets



Sheboygan South 1973 7.5-minute, 24000 Photo Revised 1973 Aerial Photo Revised 1973

1954 Source Sheets



Sheboygan South 1954 7.5-minute, 24000 Aerial Photo Revised 1952



SW S SE

Historical Topo Map



SW

S

SE

1994

Historical Topo Map



SW S SE **Environmental Site Assessors**

CLIENT:

Historical Topo Map



SW S SE

E

W

Environmental Site Assessors

CLIENT:

1954

APPENDIX D – Geoprobe Soil Borings - 2011

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction





| | | | | ASTM Designation: D | signation: D 2487 – 69 AND D 2488 – 69 nified Soil Classification System) names Classification criteria ravels and xtures, little gravel-sand- gravel-sand- title or no d sand gra- little or no d sand sand little or no sand-clay sand-clay w of high ays so f hi | | |
|----------------------------|-----------------------------------|------------|------------------|--|---|--|---|
| | | | | (טחוזופס סטו כ | Classification by | stem) | |
| M٤ | ijor divisi | ions | Group symbols | Typical names | | Classification crite | eria |
| | ction | gravels | GW | Well-graded gravels and gravel-sand mixtures, little or no fines | ions symbols | $C_{U} = \frac{D_{60}}{D_{10}} \text{ greater than 4;}$ $C_{Z} = \frac{(D_{30})^{2}}{D_{10} \times D_{60}} \text{ between}$ | 1 and 3 |
| | vels coarse fra No. 4 siev | Clean | GP | Poorly graded gravels and gravel-sand mixtures, little or no fines | s , SP 1, SC classificati se of dual s | Not meeting both criteria | a for GW |
| 00 sieve* | Gran or more of etained on | vith fines | GM | Silty gravels, gravel-sand- silt mixtures | ge of fines 3W, GP, SW 3M, GC, SV <i>forderline</i> o equiring us | Atterberg limits below ''A'' line or P.I. less than 4 | Atterberg limits plot- ting in hatched area |
| ned soils d on No. 2 | 50% | Gravels w | GC | Clayeygravels,gravel- sand-claymixturès | of percents | Atterberg limits above "A" line with P.I. greater than 7 | are <i>border/ine</i> classifi- cations requiring use of dual symbols |
| Coarse-grai 50% retaine | action | sands | sw | Well-graded sands and gra- velly sands, little or no fines | In on basis 00 sieve 200 sieve ieve | $C_{\rm LI} = \frac{D_{60}}{D_{10}} \text{ greater than 6;}$ $C_{\rm Z} = \frac{(D_{30})^2}{D_{10} \times D_{60}} \text{ between}$ | 1 and 3 |
| More than 5 | ids f coarse fra 0. 4 sieve | Clean | SP | Poorly graded sands and gravelly sands, little or no fines | assificatio pass No. 2 pass No. 2 pass No. No. 200 si | Not meeting both criteria | for SW |
| | San than 50% o passes No | ith fines | SM | Silty sands, sand-silt mix- tures | Cl Ss than 5% re than 12% to 12% pass | Atterberg limits below "A" line or P.I. less than 4 | Atterberg limits plot- ting in hatched area |
| | More | Sands wi | sc | Clayey sands, sand-clay mixtures | 3 WC | Atterberg limits above ''A'' line with P.I. greater than 7 | cations requiring use of dual symbols |
| | S | ssa | ML | Inorganic silts, very fine sands, rock flour, silty or clayey fine sands | 60 For cla | Plasticity Cha Plasticity Cha ssification of fine-grained dian fraction of grazen | art |
| * 9 | Its and clay | | CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays | 50 grained 50 Atterbe hatched classif | Isoils. ang Limits plotting in d area are <i>borderline</i> fications requiring use of | СН |
| soils o. 200 siev | Sil | | OL | Organic silts and organic silty clays of low plasticity | 2 x 40 dual sy | mbols, on of A-line: 0.73 (LL - 20) | |
| e-grained s 3 passes No | ys than 50% | | МН | Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts | 20 | · 6: 100 | OH and MH |
| Fin 50% or more | Its and clar nit greater | | СН | lnorganic clays of high plasticity, fat clays | 10 | CL ML and OL | _ |
| a | Sil Líquid lin | . [| ОН | Organic clays of medium to high plasticity _t organic silts | 0 10 2 | 20 30 40 50 60 | 70 80 90 100 |
| - | Highly organic | <u>n</u> | Pt | Peat, muck and other highly organic soils | *Based on 1 | Liquid Limit | in. (76 mm) sieve. |

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

LOG OF TEST BORING GENERAL NOTES

Descriptive Soil Classification

GRAIN SIZE TERMINOLOGY

| Soil F | raction | Particle Size | U.S. Sieve Size |
|--------|-------------|--------------------------------------|--------------------|
| Bould | ers | Larger Than 12" | Larger Than 12" |
| Cobbl | es | | 3" to 12" |
| Grave | I: Coarse | | 3/4" to 3" |
| | Fine | 4.76mm to 3/4" | #4 to 3/4" |
| Sand: | Coarse | | #10 to #4 |
| | Medlum | 0.42mm to 2.00mm | #40 to #10 |
| | Fine | 0.074mm to 0.42mm | #200 to #40 |
| Fines | | Less Than 0.074mm | Smaller Than #200 |
| Silt | | 0.005mm to 0.074mm | Smaller Than #200 |
| Clay | | Smaller Than 0.005mm | |
| | (Plasticity | characteristics differentiate betwee | en silt and clay.) |

COMPOSITION TERMINOLOGY (ASTM D2487)

Primary Constituent:

Gravei with sand...>=15% sand with silt......5-12% silt with clay.....5-12 clay sllty......>12% silt clayey......>12% clay

RELATIVE DENSITY

| COHESIONLE | ess soils |
|---------------|-----------|
| Term | "N" Value |
| Very Loose | 0-4 |
| Loose | 4-10 |
| Medium Dense. | 10-30 |
| Dense | 30-50 |
| Very Dense | over 50 |

The penetration resistance, N, is the summation of the number of blows required to affect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test (ASTM 1586).

MILLER ENGINEERS SCIENTISTS

Sand

with gravel.....>=15% gravel with silt......5-12% silt with clay......5-12% clay slity......>12% silt clayey......>12% clay

Fines (Silt or Clay) with gravel....15-29% gravel gravelly......>=30% gravel with sand......15-29% sand sandy......>=30%sand

CONSISTENCY

COHESIVE SOILS

| Term | pp (tons/sq. ft.) | "N" Value |
|------------|-------------------|-----------|
| Very Soft | 0.00 to 0.25 | <2 |
| Soft | 0.25 to 0.50 | 2-4 |
| Medium | 0.50 to 1.00 | 4-8 |
| Stiff | 1.00 to 2.00 | 8-15 |
| Very Stiff | | 15-30 |
| Hard | over 4.00 | >30 |
| | | |

PLASTICITY

| Term | Plasticity Index |
|-------------------|------------------|
| None to slight | 0 to 4 |
| Slight | 5 to 7 |
| Medium | 8 to 22 |
| High to Very High | over 22 |

SYMBOLS

DRILLING AND SAMPLING

CS--Continuous Sampling RC--Rock Coring: Size AW, BW, NW, 2" W RQD--Rock Quality Designator **RB--Rock Bit** FT-Fish Tail **DC--Drove** Casing C--Casing: Size 2 1/2", NW, 4", HW CW--Clear Water DM--Drilling Mud HSA-Hollow Stem Auger FA--Flight Auger HA--Hand Auger SS-2" Diameter Split-Barrel Sample 2ST--2" Diameter Thin-Walled Tube Sample 3ST--3" Diameter Thin-Walled Tube Sample PT-3" Diameter Piston Tube Sample AS--Auger Sample PS--Pitcher Sample NR--No Recovery VS-Vane Shear Test

LABORATORY TESTS

pp--Penetrometer Reading, tons/sq.ft. qu--Unconfined Strength, tons/sq.ft. MC--Moisture Content, % LL--Liquid Limit, % PL--Plastic Limit, % PI--Plasticity Index, % SL--Shrinkage Limit, % LI--Loss on Ignition, % D--Dry Unit Weight, Ibs./cu. ft. pH--Measure of Soll Alkalinity or Acidity FS--Free Swell, % HNu--ppmv as Benzene TLV--ppmv as Hexane TPH--Total Petroleum Hydrocarbons, ppm

WATER LEVEL MEASUREMENTS V ---Water Table Interpretation

Note: Water level measurements recorded in notes on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.



SEOTLOG GINT 18634 GPJ MILIR ENG GDT 2/9/11 09:59



| | | | | | | r | | | | | Pa | ige I | of | 2 |
|--------------|-----------|------------|----------|------|------------------------------------|-----------------------|-------|---------|-------------------|---|---------------|-----------|-------------------|--------|
| Project | t: | P | ON | DS | TABILITY EVALUATION | Job No: 10-1-18 | 634 | | | Boring | No: | E | | |
| Client: | _ | A | LL | IAN | TUTILITIES | Drilled By: M&K | ENV | / & | SOILS DRILLING | Elevat | ion: | 607.9 | 0.01.11 | 0 |
| Locatio | on: | E | DG | EW | ATER - SHEBOYGAN, WI | Drilling Begun: 12 | /21/1 | 0 IT | ci | Drillin | g Comple | ted: | 2/21/1 | 0 |
| SAMP | LE | ΤY | PE | μ | 1" Geoprobe O No Recovery | Grab Samp | le | L | Auger Sample | Shelby | Tube | NCON | Split Sp | oon |
| | | ц. | Ш. | | | | | | | | COM | PRESS | ION (ts | f) |
| ELEV. | 19 | L | RY (| | SOIL | | LIC | a | | | 1.0 2 | 0 3.0 |) 4.0 | ELE |
| DEPTH | H H | PI.F | VE: | 2 | DESCRIPT | ION | 108 | C | PLASTIC M.C. LIQU | | | EIPEr | V(ISI) | DEP |
| (ft) | MM | AM | EC | PT (| | | | | | | BLOW | COUN | IT (N) | • (ft |
| 607.9 | | S | R | U. | EILL LEANCLAY moist | brown (7.5VR | CL | VI | 10 20 30 40 | | 10 2 | 0 30 |) 40 | 0 |
| | | { | | | 4/4) | 010 mil (7.5 1 K | 02 | | 9 | | | | | |
| | 2 | 1 | 18 | | FILL: LEAN CLAY, trace ro | ots and cinder - | CL | | | | | | | |
| - | | | | 9 | moist, stiff, brown (7.5YR 5/ | 4) | | | • | 4 | | | | in a |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | ÷ | · · · / · · · | | | ère. |
| | 3 | | 18 | | CLAY interbedded with s | ilt seams - moist. | CL | | | | | | 11 | |
| - | | | | 16 | very stiff, brown (7.5YR 4/4) | ····, | | Ø | • | | 1 | 1 | | |
| -602.9 | | | | | | | | | | | |) | | 602 |
| 5 | | | | | | | | | | 1000 | | | | 5 |
| | | - | 10 | | | | CI | | | | | | | ÷ |
| | 4 | | 18 | 16 | | | CL | Ø | | | ٠ | | À | |
| | | | | 10 | | | | | tt litte | | | n terrere | | 1 |
| | | - | | | | | | | | | | | | |
| | | _ | | | | | | | | | | | | |
| - [| 5 | | 18 | | dark brown (7.5YR 3/3) | | CL | | | <u>.</u> | | | | ļ |
| | | | | 18 | | | | | 1 | 2050 | | | / | |
| - 597.9_ | | | | | | _ | | | | teres de la competencia de la | | - h- h | 1 | 10 |
| 10 | | | | | | | | | | | | | | |
| | 6 | W | 18 | | brown (7.5YR 5/4) | | CL | | | | | 1 | 1 | |
| | | | | 18 | | | | Ø | | | | | (| |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | à | | | | in e |
| | 7 | | 18 | | trace fine to medium sand - | brown (7.5YR | CL | | | | | | $\langle \rangle$ | |
| | Í | | | 16 | 4/4) | 010111 (710 111 | | Ø | | | 1 | | Î | |
| 592.9 | | | | | | | | | | | | | | 592 |
| 15 | | | | | | | | | | | | | | 1.1 |
| | | - | 10 | | deals because $(7.5\text{VD} 2/4)$ | | CL | 77 | | | | - deste | | anan e |
| | 8 | V. | 10 | 20 | dark drown (7.3 Y K 5/4) | | CL | | | | | 11 | 1 | |
| | | | | 20 | | | | | | | | | / | |
| | | | | | | | | | | | | / | | |
| - | | | | | | | | _ | | | | / | | |
| | 9 | | 18 | | LEAN CLAY (native) with tra- | oist very stiff | CL | | | | | 4 | | |
| | | | | 16 | dark brown (7.5YR 3/3) | 0.00, 001, 001, 0011, | | | l l l | | | | | 587 |
| 587.9_ 20 | - | - | | | | | | 14 | | i i | | -fri | | 20 |
| | | | | | | | | | | | | | | |
| AI | | Ē | D | T | Wat | er Level Cave-in Dep | th Bo | oreh | ole Abandonment | Crew: | M& | K Dri | ll/WG | F |
| | | . IL Cr | | I | Date 12/21/2010Time | 3_ft. 32.5_f | t . | | 12/21/2010 | Rig: | Mo | oile B5 | 52 | |
| | IN J.T | | KS TC | 2 | Date Time | ftf | t D | vate: | IZZIZULU | Metho | d: HS | 1 | | |
| JULE | VI | 13 | | | lime | π | I IV | rate | nal DENIORITE | | | | | |

SEOTLOG GINT 18634 GPJ MILR ENG GDT 2/9/11 09:59



| Project: | P | | n s | TA | RILITV I | TALLAV | TION | Joh No: | 10-1-18 | 634 | | | _ | | | | Br | ring | No. | Page F | 4 | 01 2 | |
|----------------------|-------------|----------------|---------|-------|---|--|-----------------------------------|------------------------------|-------------------|--------|-------|----------|--------|-------|------------|-----|-------|--------|--------------------------------|--|---|--|----------|
| Client: | | | IAN | | UTILITIE | S | | Drilled By: | M&K | EN | V & | SOI | LSE | RI | LLI | NG | E | evatio | n: | 60 | 9.0 | | |
| Location: | EJ | DG | EW | ΆΤ | ER - SHE | BOYGAN | N, WI | Drilling Beg | un: 12 | /21/1 | 0 | | | | | | Dr | illing | Com | oleted | : 12 | 2/21/10 | |
| SAMPLE | TYI | PE | | 1" (| Geoprobe | O No | Recovery | G Gra | ab Sampi | le | Π | Aug | ger Sa | unple | e | | 3" Sh | elby T | Tube | | 2" S | plit Spoo | n |
| ELEV. CR) (ft) | SAMPLE TYPE | RECOVERY (in.) | SPT (N) | ~ | | S DESC | OIL RIPTI | ON | | US | SC | PLA F | STIC | M | C. | LIQ | | • | CO 1.0 POC 1.0 BLO | UNC MPR 2.0 CKET 2.0 W C(20 | 20NF ESSI 3.0 PEN 3.0 DUNI 20 | $\begin{array}{c} \text{INED} \\ \text{ON (tsf)} \\ 4.0 \\ (\text{tsf)} \\ 4.0 \\ \hline (\text{N}) \\ 40 \end{array}$ | EL DE |
| | | | | | | | | | | | | | | 20 | 31 |) 4 | 0 | | 10 | 20 | 30 | 40 | |
| 10 | | 18 | 17 | d | . with trac ark brown | e medium (7.5YR 3/ | sand - n (4) | noist, very st | tiff, | CL | | | | | | | | | | | | | •• |
| 584.0_ 25 | | | | | ILT topsoi and and ro Boring terr | il with CL/ ots - moist ninated at | AY (nat , stiff, b 25 feet. | ive), trace fi lack (10YR | ne 2/1)_/ | ML | | | | . ` | | | | | | | | | 58 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| 579.0 | | | | | | | | | | | | | | | | | | | | | | | _57 |
| - | | | | | 2 | | | | | | | | | | | | | | | | | | 5- 5- |
| 74.0 | | | | | | | | | | | | | | | | | | | | | | | 57 |
| 35 | | | | | | | | | | | | | | | | | | | | | | | 3 |
| | | | | | | | | | | | | | | | | | | | | | | | - |
| 59.0_ 40 | | | | | | | | | | | | | | | | | | | | | | | 564 |
| 4 | | | 1 | | | | 11/ | in Louis L.C. | , in Deed | b D | | | ande | | at | | | 1 | | 0.1/ | D. 11 | | |
| NILL | Ŀ | K | | ate | 12/21/201 | 10Time | wate | dry ft | е-in Dept 26 Ф | .11 BC | ment | ne Ao | anu0: | miei | IL | | Cr | ew: | M | &K | Drill/ | WGF | |
| NGIN | EEI | RS | D | ate | 14/41/40 | Time | | ft | ft | D | ate: | 1 | 2/21 | /20 | 10 | | RI | g. | IVI | e a | D 32 | | |
| CIENT | IS | FS | D | ate | | Time | | ft. | ft | M | 1ater | ial: E | BEN | TOT | TIN | Е | M | etnod | H | A | | | |





| Projec | t. | 1 | PO | N |) 9 | TABILITY EVALUATION | loh No: 10-1- | 1863 | 4 | | | | | _ | | Т | Rotin | o No | | Page | Z | of | 2 |
|------------------------|---------|---------------|-----------|----------------|------------|---|-------------------------------|-------|-------|-------|----------------|-------|------|------|-----|------|--------|--------------------------|-----------|--|--|---|---------------|
| Client | | | AL | | AN | TUTILITIES | Drilled By M& | K E | NV | & | SO | ILS | DRI | LLI | NG | F | Eleva | ition. | | 61 | 1.9 | | |
| Locati | on: | 1 | ED | GI | EW | ATER - SHEBOYGAN, WI | Drilling Begun: | 12/21 | /10 | | | | | | | I | Drilli | ng C | omp | leted | 12 | 2/21/1 |) |
| SAMF | PLE | T | YPE | | Π | I" Geoprobe O No Recover | y G Grab Sar | nple | | Π | Au | ger S | amp | le | | 3" S | helb | y Tul | be | | 2" S | plit Spo | on |
| ELEV. DEPTH (ft) | AMPLENO | ALANT DE INO. | AMPLEIYPE | LECUVERY (in.) | PT (N) | SOIL | ION | L | JSC | 2 | PLA H | ASTI(| C M | 1.C. | LIQ | UID | | I.(▲ P 1.(● B | | UNC MPRI 2.0 KET 2.0 W CC | ONF ESSIC 3.0 PEN 3.0 UNI | INED DN (tsf 4.0 (tsf) 4.0 (N) |) EI DE |
| | 0. | | 2 0 | × | S | | | - | - | - | 1 | 10 | 20 | 30 |) 4 | 0 | + | 10 |) :T | 20 | 30 | 40 | |
| - | | | | | | | | | | | ······ | | | | | | | | Same Same | | / | / | |
| | 10 | | 1 | 8 | 17 | LEAN CLAY with trace med very stiff, strong brown (7.5Y | ium sand - moist, R 4/6) | C | L | | and the second | | • | | | | | | • | | 1 | / | |
| 586.9_ 25 | | | | | | | | | ALL A | | | | | | | | | | | | | / | _51 |
| - | | | | | | | | - | | | | | | | | | | | | / | / | | |
| - | 11 | | 18 | | 4 | SILT with little clay - wet, me brown (7.5YR 5/2) | dium dense, | MI | | | | | | | | | | | V | / | | | |
| 81.9_ 30 | | | | | | Boring terminated at 30 feet. | | | | 1 | | | | | | | | | | | | | 58 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | |
| 76.9 35 | | | | | | | | | | | | | | | | | | | | | | | 57 |
| - | | | | | | | | | | | | | | | | | | | | | | | + |
| - | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
|) | | | | | | | | | | | | | | | | | | | | | | | 4 |
| | | | | - | | 11/ | Laval Caus in Da | th D | oral | l | Ab | nda | mot | t | | - | | | | 17 - | | | |
| IL | | E | K | | Det | Water | Level Cave-in Dep | | oref | iole | Aba | noor | imen | l | | Cr | ew: | ľ | M& | KD | rill/\ | WGF | |
| IGIN | IE | EF | lS | | Uat Dat | time d | <u>ry</u> tt. <u>27</u> ft | ft [| Date | : | 1 | 2/21 | /201 | 0 | | Ri | g: | N | Mot | oile I | 352 | | |
| IEN' | TI | 57 | CC. | | Date | Time | ft | A A | Anto | orial | B | ENT | TON | ITT | 7 | M | ethod | t F | ISA | | | | |



SEOTLOG GINT 18634 GPJ MILR ENG. GDT 2/9/11 10:00

| Projec | t: | P | ON | DS | TABILITY EVALUATION | Job No: 10-1-1 | 8634 | | | Boring | No: N | 2 01 2 | |
|-----------------------|-----------|-------------|----------------|--------------|-------------------------------|---------------------------|-------|-------|------------------------------------|----------|--|---|----------|
| Client: | | A | LL | IAN | T UTILITIES | Drilled By: M&I | K EN | V 8 | SOILS DRILLING | Elevatio | on: 61 1 | .8 | |
| Locati | on: | E | DG | EW | ATER - SHEBOYGAN, WI | Drilling Begun: 1 | 2/21/ | 10 | | Drilling | g Completed: | 12/21/10 | |
| SAMP | LE | ΤY | PE | | I" Geoprobe 🚺 No Recovery | G Grab Sam | ple | [] | Auger Sample 3" | Shelby ' | Tube | 2" Split Spoon | 1 |
| ELEV DEPTH (ft) | SAMPLE NO | SAMPLE TYPE | RECOVERY (in.) | SPT (N) | SOIL DESCRIPTI | ON | US | SC | PLASTIC M.C. LIQUII 10 20 30 40 | • | UNC COMPRE 1,0 2.0 POCKET 1.0 2.0 BLOW CC 10 20 | ONFINED SSION (tsf) 3.0 4.0 PEN (tsf) ▲ 3.0 4.0 UNT (N) ● 30 40 | E. DI |
| 586.8 | 10 | V | 13 | 22 | wet, very stiff, strong brown | ı (7.5YR 4/4) | CL | | • | | | | 5 |
| 25 | | | | | Boring terminated at 25 feet. | | | | | | | | |
| 81.8 30 | | | Y | | | | | | | | | | _58 |
| 6.8 5 | | | | | | | | | | | | | 57 |
| .8_ | | | | | | | | | | | | | 57 4 |
| | | | - | | | | | | | | | | |
| | | E | K | | Water | Level Cave-in Depth | Bore | ehol | e Abandonment | rew: | M&K D | rill/WGF | |
| GIN | EE | R | S | Date Date | e <u>12/21/2010</u> fime di | <u>y</u> ft <u>29</u> ft. | Da | te: | 12/21/2010 R | ig: | Mobile B | 52 | |
| ICNIT. | TIC. | T | S | Date | Time | £ 6 | Ma | toric | BENTONITE | lethod: | HSA | | |



| | | | | | CIT | | | 0.004 | | | | Pa | age I | of I | _ |
|---------------|------|----------|------------|-------------|--------|--|-----------------------------------|----------|------------|--------------------|---------|-----------------------|------------------------------|---------------------|---------------------|
| Proje | ct: | | | | SI | ABILITY EVALUATION . | | 8634 | 17.6 | | Boring | ; NO: | Q 600.2 | | |
| Client | C | | | | | TED SHEDOVCAN WI | | 102/1- | <u>v c</u> | e SULS DRILLING | Drillin | a Cample | tod: 2/ | 3/11 | |
| Locat | lion | | E D | J | WV F | ATEK - SHEBUYGAN, WI | Jrilling Begun: 2/ | 23/1 | 1 | | | Taka | | 14 0 | |
| SAM | | 51 | YPE | - | | " Geoprobe 💟 No Recovery | Grab Samp | ple | L | Auger Sample | Shelby | Tube | NCONEI | NED | |
| ELEV | H | LE NU. | LE TYPE | VEKY (III.) | 7 | SOIL | | US | SC | PLASTIC M.C. LIQU | | COM 1.0 2 POCK | PRESSIC 0 3.0 ET PEN (| $\frac{4.0}{(tsf)}$ | ELEV |
| (ft) 609.2 | CANE | INIAC | SAME | RECC | SPT () | DESCRIPTIC | | | - | 10 20 <u>30 40</u> | • | 1.0 2 BLOW 10 2 | 0 3.0 COUNT 0 30 | 4.0 (N) • 40 | (ft) 609.2 |
| | | Ş | } | 8 | | FILL: Lean clay - moist, brown | 1 (7.5YR 4/4) | CL | | 1 | | | • • | | 0 |
| 604.2 5 | | | | | 23 | fine sand, occasional gravel - m brown (7.5YR 5/4) | ioist, very stiff, | | | | | | | | _604.2 5 |
| 599.2 10 | - 3 | | 1 | 8 2 | 21 | moist, medium dense, brow | n (7.5YR 5/4) | MIL | Ш | | | | • | | _ 599 .2 |
| 594.2 15 | 4 | | 1 | 3 1 | 8 | FILL: Silty clay with sand - mc brown (7.5YR 5/4) | ist, very stiff, | CL ML | | | | • | | | _594.2 15 |
| 589.2 20 | 5 | | 18 | 2 | 5 | Fill: Sandy lean clay, trace black fine sand - moist, very stiff, dark 3/3) | c topsoil, trace k brown (10YR | CL | | | | | • | × | 589 .2 20 |
| 584.2 25 | 6 | | 18 | 1: | 3 | Fill: Lean clay - moist, stiff, dar (10YR 4/4) | k brown | CL | | | | Í | | | _584.2 25 |
| 579.2 30 | 7 | | 18 | 1 | | Silty clay with trace roots - mois light olive gray (5YR 6/2) with s with black (10YR 2/1) lean clay | t to wet, stiff, and seams | CL ML | | 7 | | / | | | _579.2 30 |
| 574.2_ 35 | 8 | | 16 | 5 | | Silty fine sand - wet, medium, g (10YR 5/2) | rayish brown | SM | | | • | | | | _574.2 35 |
| 569.2 40 | 9 | | 18 | 4 | | Silt - soft, brown (10YR 4/3) | | ML | Π | H | | | | | 569 .2 40 |
| 564.2 45 | 10 | | 18 | 6 | | medium, brown (10YR 5/3) | | ML | Ш | 1 | | | | | 564.2 45 |
| 559.2 50 | L1 | | 18 | 10 | | wet, loose, brown (10YR 5/3 Lean clay - moist, stiff, brown (7 |)/ .5YR 4/4) | ML CL | 团 | | | • | | | 559.2 50 |
| 554.2 1 55 | 12 | | 18 | 13 | | ean clay (lacustrine) - moist, sti 7.5YR 3/4) Boring terminated at 55 feet. | ff, dark brown | CL | | | | • | | | 554.2 55 |
| MI | T | Ī | - P | | | Water | Level Cave-in Dep | th Bo | oreh | ole Abandonment | Crew: | M&I | K Drill/ | WGF | |
| ENC | L | | - I : D | | Dat | e Time | ftf | È. | late- | 2/23/2011 | Rig: | Mob | ile B52 | | |
| | | СС 1С | л.) Т | 2 | Dat | e Time | ftft | | ate: | 2/23/2011 | Method | : Mud | Rotary | | |
| JUICI | 1 | 10 | | 7 | Dat | | | L IV | rate | nai. DEIVIONITE | | | y | | |

Page 1 of 1

| Ргојес | et: | P | ON | DS | ST | ABILITY EVALUATION | Job No: 10-1-18 | 634 | | | | H | Boring No | : R | | |
|--------------------------|------------|-------------|----------------|---------|----------|--|-----------------------------------|----------|--------|-----------|--------|------|--------------------------|---|--|--------------------|
| Client: | : | A | LL | IA | NI | TUTILITIES | Drilled By: M&K | EN | V & | SOILS D | RILLI | NG I | Elevation: | 61 | 2.2 | |
| Locatio | on: | E | DG | EV | VA | TER - SHEBOYGAN, WI | Drilling Begun: 2/2 | 24/11 | l | | | τ | Drilling Co | mpleted | l: 2/24/11 | |
| SAMP | PLE | ΤY | PE | | 1 | "Geoprobe O No Recovery | G Grab Samp | le | | Auger Sa | mple | 3" S | helby Tub | e 📐 | 2" Split Spo | on |
| ELEV DEPTH (ft) | SAMPI F NO | SAMPLE TVDC | RECOVERY (in) | SPT (N) | | SOIL DESCRIPTIO | DN | US | SC | PLASTIC | M.C. | | 1.(▲ P 1.(● B | UNCCOMPR 2.0 OCKET 2.0 LOW CO 20 | CONFINED ESSION (tsf) 3.0 4.0 PEN (tsf) 3.0 4.0 OUNT (N) 30 40 | ELE DEP (ft) |
| 0 607.2 5 | - 1 | | 11 | 10 | 0 | Fill: bottom ash - moist, loose 2.5/1) Fill: Lean clay - moist, stiff, da (10YR 3/3) | , black (7.5YR ark brown | SP CL | | | 20 30 | | | 1 | | 0 |
| 602.2_ 10 | 2 | | 18 | 19 | | Fill: Silt interbedded with silty stiff to very stiff, yellowish bro | r clay - moist, sn (10YR 5/8) | ML | | ł | | | | | <u></u> | 602. |
| 597.2 15 | 3 | | 14 | 18 | 3 | Fill: Silt with clay - moist, very (7.5YR 4/4) | y stiff, brown | ML | | | | | | • | Ì | 597. 15 |
| 592.2_ 20 | 4 | | 18 | 16 | | Fill: Topsoil with cinders - mo gray brown (10YR 4/2) Fill: Lean clay - moist, very stif (10YR 2/2) | ist, stiff, dark f, dark brown | CL CL | | | | | | | <u> </u> | 592 20 |
| 587.2 25 | 5 | | 18 | 21 | | Native lean clay till with occasi sand - moist, very stiff, strong b 4/6) | onal coarse brown (7.5YR | CL | | / | / | | / | / | 1 | 587 25 |
| 582.2 30 | 6 | | 18 | 8 | | Silt - wet, loose, yellowish brov gravel noted at 31.5 feet. | vn (10YR 5/4) | ML | Ш. | 1 | \ \ | | | | | _582 30 |
| 577.2 35 | 7 | | 16 | 12 | | Silty clay - wet, stiff, brown (10 | 9YR 4/3) | CL ML | | | | | | | / | 577 |
| 572.2_ 40 | 8 | | 18 | 5 | | Silt - wet, loose, brown (10YR · | 4/3) | ML | | | | | | | | _572 40 |
| 67.2_ 45 | 9 | | 17 | 9 | 8 | | | ML | ··· | | / | | | | | 567 45 |
| 62.2 50 57.2 55 | 10 | | 18 | 14 | 1 | Lean clay with trace sand - wet, yellowish brown (10YR 4/4) Boring terminated at 50 feet. | stiff, dark | CL | | • | | | | | | 50 557 55 |
| | | | R | | | Water | Level Cave-in Dept | th Bo | orehol | e Abandon | ment | C | Crew: | M&K I | Drill/WGF | |
| NG | IN | FF | R | s | Da | te Time | ft fl | |)ate: | 2/24/2 | 2011 | R | lig: | Mobile | B52 | |
| CIEN | | | T | | Da Da | te Time | tt,ft | | latori | al RENT | IONITI | | fethod: | Mud R | otary | |
| - ILI | | | | | Ja | T hhe | [] | - I IV | mon | a. DETT | ONT | | | _ | v | |

APPENDIX E – EDG Existing CCR Surface Impoundment Drawings

Alliant Energy Wisconsin Power and Light Company Edgewater Generating Station Sheboygan, Wisconsin

History of Construction




WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY

NR 140 COMPLIANCE REPORT WDNR LICENSE #2524

PREPARED BY: DAMES & MOORE MADISON, WISCONSIN

SUBMITTAL DATE: FEBRUARY 1991



COUNTY LOCATOR MAP

INDEX

SHEET TITLE

| 1 | CROSS SECTION LOCATOR MAP |
|----|--|
| 2 | GEOLOGIC CROSS SECTIONS A-A' AND B-B' |
| 3 | WATER TABLE CONTOUR MAP |
| 4 | TDS ISOCONCENTRATION MAP: GLACIAL AQUIFER |
| 5 | TDS ISOCONCENTRATION MAP: DOLOMITE AQUIFER |
| 6 | BORON ISOCONCENTRATION MAP: GLACIAL AQUIFER |
| 7 | BORON ISOCONCENTRATION MAP: DOLOMITE AQUIFER |
| 8 | SULFATE ISOCONCENTRATION MAP: GLACIAL AQUIFER |
| 9 | SULFATE ISOCONCENTRATION MAP: DOLOMITE AQUIFER |
| 10 | IRON ISOCONCENTRATION MAP: GLACIAL AQUIFER |
| 11 | IRON ISOCONCENTRATION MAP: DOLOMITE AQUIFER |
| | |





| Facility Name Edgewater | WP (Unit | E L 5 // 3 E // 4 |) | F | oz524 | Date | 3-13 | -90 | Completed Rick (| By (Name ar 3. Wontz | nd Firr - M | n)] e | er Engin | cors | | | | | | |
|----------------------------|-------------|----------------------|----------------|---------------------|-------------|------|----------------|-----------------------|---------------------|-------------------------|------------------|-------------|------------|----------------|------------|--------------|--------------|------|----------|--|
| | | | | | | Well | Casing | | Elevations | | Refe | renco | Sc | reen | J | , | l'ype | of W | ell () | |
| Well Namo | Well ID | Well Location | NB | IS W | Established | Dlam | Type | Top of Well Casing | grapped Burlaco | ុ ស្ត្រាំទីព្រះស្តា | MAI. | Site | Longth | Muterial | Well Depth | ייוא | ow | pw | LYS Othe | |
| | - | 489.0 | <u> </u> | | - | | | | | | , | | | Slotted | * | | | | | |
| 1-0W | 201 | 3791.2 | | _ X | 2-19-76 | 2'' | Р | 592.53 | 590.36 | 586.55 | · <i>V</i> | | 5' | PVC | 10.98 | | | | | |
| | | 1766.4 | X | | | | | | | · . | . / | | | Slotted | | | | | - | |
| 2-0W | 202 | 1594.1 | | <u> </u> | 2-23-76 | 2'' | <u>Р</u> | 612.28' | 609.75 | 605.56 | V | | 57 | PVC | 11.72 | | <i>V</i> | | | |
| | | 1883.3 | <u>X</u> | | | | | | | | ./ | | | Slotted | | | | | | |
| - 0W | 203 | 1242.5 | | _ <u>x</u> | 2-17-76 | 211 | <u>P</u> | 591.77' | 589.71 | 585.94 | 1 [.] V | · | 5' | PVC | 10.83 | | | | | |
| | | 1878.1 | <u> </u> | _ | | | | | | | 1 | | | Slotted | | | | | | |
| A | | 1237.4 | | <u> </u> | 3-22-82 | 2'' | Р | 592.22' | 590.02 | 582.14 | V | | 5' | PVC | 15.08 | <i>V</i> | | | | |
| | | 667.7 | <u>X</u> | | 0.00.7(| | | | 500 (0 | | . / | | i •• | Slotted | | | | Ì | | |
| -0W | 205 | 2155.2 | | _ _X | 2-20-76 | 2" | P | <u> </u> | 599.69 | 595.23 | ' V | | | PVC | 10.54 | | | | | |
| | 2.01 | 661.0 | × _ | | 2-20-76 | 211 | D | 601 271 | E00 /11 | 582 02 | \sim | | 21 | Slotted | | | | | | |
| A | 206 | 2153.0 | | _ _X | 2 20 70 | | | | | 502.92 | · · · · | | | PVC | 21.45 | | | | | |
| | | 1135.8 | <u> </u> | _ _ | | | | | · . | | \checkmark | | | Slotted | | | | | - | |
| R-OW | | 1713.5 | | <u> </u> | 2-26-90 | 2'' | <u> </u> | <u>591.85'</u> | _589.17 | _586.53 | I | | 5' | PVC | 10.32 | | | | | |
| | | 1137.4 | - <u>X</u> - | - | 2-26-90 | 211 | р | 591 341 | 589 38 | 581 74 | . / | · | ۲ ۱ | Slotted | 14 60 | | í | | | |
| <u>AR</u> | | 1705.4 | | <u> </u> | | | | | | JU1.74 | | | | | 14.00 | | ┟╾╾┨ | | | |
| B | 200 | 1138.8 | _ × | | 2 10 70 | 211 | | 501 011 | -90 (1) | | \checkmark | | 2.1 | Slotted | | \checkmark | | | | |
| | 209 | 1095.0 | | | 2-19-70 | | P — | 591.91 | 509.64 | 5/0.15 | | | 3' | PVC | 19.75 | | | | | |
| -0V | 210 | 1131 5 | $- \hat{-} $ | x | 2 17 76 | 211 | D | 502 761 | 501 J.F. | FPC (1 | \checkmark | | 6.1 | Slotted | | ··· | \checkmark | | | |
| | | 100 6 | | | 2-1/-/0 | | ۲ | 593.70 | - 591.45 | 200.01 | | | 4 | PVC | | | | | | |
| Δ | 211 | 1141 8 | $- \hat{-} $ | | 2-17-76 | 2'' | Р | 593.90' | 591.83 | 576.44 | V | | 3' | PVC | 20.46 | \checkmark | | | | |
| <u></u> | | 1116 5 | | $- \hat{-}$ | | | | | | | | | | | | | | | | |
| 8-0W | 223 | ,2391.7 | - ^- - | X | 6-6-78 | 211 | р | 587 421 | 584 99 | 581 hh | V. | | 101 | Slotted | 15 98 | | | | | |
| اا | | 382 2 | | | 0 0 70 | ~ | <u> </u> | 507.42 | J04.JJ | | | | 10 | F VC | +5.90 | | + | | | |
| -OW | 220 | 1873.0 | | - | 6-5-78 | 211 | . _Р | 615 99 | 612 01 | 1502 201 | \checkmark | | 10' | Slotted PVC | 42 601 | | V | - | | |
| | | 1093 6 | - - - | $-\frac{\alpha}{2}$ | ~ > 10 | | | | 012,04 | -203.40 | | | | | 12100 | | | | | |
| -OW | 224 | 1960.6 | - | - x | 11-27-84 | 211 | р | 589 12 | 586 06 | 1580 .68 | \checkmark | | 101 | Slotted PVC | 18,451 | | \checkmark | | | |
| | | 1096 2 | - - - | | | | | <u></u> | 00.00 | 200.00 | | | | | | | | | | |
| IA | 225 | 1950.4 | - ^ | X | · 11-27-84 | 2'' | Р | 589.21 | 586.38 | 1548.51 | V | | 21 | PVC | 43 701 | \checkmark | | | | |

OBSERVATION WELL DATA TABLE

-2001142"

NOTES:

NO. 2 - 490.05 N 0.00 E A-HOR. CONTROL MONUMENT - NO.1-1000.33 N 19.0 W GRIDGAND COORDINATED FOR ABOVE OBGERVATION WELLS NERE ESTABLIGHED IN THE FIELD BY MILLER ENGINEERS LGING PLANT CONTROL MONUMENTS 142.

ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79.

BENCHMARKG-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE BOX, ELEV. 02.75 2. CHISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. 010.02

Ø GAR - INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEBOYGAN, WIS. ↓ 4.0W INDICATES OBSERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28, 1990.

LEGEND: Private well completed in bedrock aquifer. -�-

Private well completed in glacial overburden. \oplus

Monitoring well completed in glacial overburden.

1) Private well locations are approximate. 2) Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well.

All private wells within the map boundaries may not be shown.

| 3. | | | | | | |
|------|-------|--------------|-------------|--|--|-----------------------|
| 2. | | | | | . · | |
| 1. | | | | • | | |
| NO. | BY | DATE | | REVISION | | APP'D |
| PROJ | JECT | WISC EDGE | ONS WATI | SIN POWER & LIGI ER CLOSED ASH DISF R 140 COMPLIANCE RI | HT COMPA POSAL FACILI EPORT | NY TY |
| SHE | ET TI | TLE C | ROS | S SECTION LOCATOR | MAP | |
| DRAW | N BY: | PP1+ | | SCALE: | PROJ. NO. 07 | 683-107 |
| CHEC | KED E | BY: SCC | | 1 = 200 | DRWG. NO. | |
| APPR | OVED | BY: scc | | • | SHEET 1 OI | 5 .11 |
| DATE | : 2- | 6-91 | | , | | · · · · |
| Da | më | 2 M 2 | on | BASE MAP SOURCE: by Wisconsin Power Originals prepared b | Base map prov & Light Company y Warzyn Engin | ided 4. eering. |





M.

| 3. | | |
|---|---|--|
| 2. | | |
| 1. | | |
| NO. BY DATE | REVISION | APP |
| PROJECT WISCON EDGEWAT | SIN POWER & LIG | HT COMPANY POSAL FACILITY |
| SHEET TITLE GEOLO | GIC CROSS SECTIONS | S A - A' & B - B' |
| DRAWN BY: PPH | SCALE: HORIZ. 1"=200" | PROJ. NO. 07683-10 |
| CHECKED BY: SOC | VERT. 1"=40' | DRWG. NO. |
| APPROVED BY: SCC | | SHEET 2 OF 11 |
| DATE: 2-6-91 | | |
| connent enten des annenses de avenagement distantes son | n na han an ann an A | he he han had de la management de ser de |

.

•

NOTES: 1) Geologic information obtained from well drillers' logs for private wells. Some variations in reported unit thicknesses may reflect differences in logging style or log inaccuracies rather than true geologic variations.

Private well depths are indicated by the vertical lines.

A' SOUTH





| Edgewater | Igewater (Units #3 6 #4) | | | | | 02524 3-13-90 Rick G. Wontz - Miller Engineers | | | | | | | | leers | | | | | | |
|-----------|--------------------------|---------------|----------------------------------|----------|-----------|--|----------|----------|-----------------------|--|---------------|---------------|------|--------|----------------|------------|--------------|------------------|----|----------|
| | | | Well Casing Elevations Reference | | | | | | | Sc | rcen | | | Туре | of W | /cll () | | | | |
| Well Namo | | Well Location | NE | 1 15 | w | Established | Diam | Type | Top of Well Casing | Burlaco | Scheen 100 | MAL | Site | Longth | Material | Well Depth | 1167 | ow | pw | 1.7501 |
| | | 489.0 | <u> _ </u> | <u> </u> | _ | | | | | an a | | | | | Slotted | ^ | | | | |
| 1-0W | 201 | 3791.2 | | _ _ | <u>X</u> | 2-19-76 | 2'' | P | 592.53' | 590.36 | 586.55 | · <i>V</i> . | | 5' | PVC | 10.98 | | | | |
| 2 01 | 202 | 1766.4 | <u>×</u> _ | | | | | | (| | | \mathbf{N} | | | Slotted | | | ./ | | |
| 2-0W | 202 | 1994.1 | | | X | 2-23-76 | 2" | <u>Р</u> | 612.28 | 609.75 | 605.56 | | | 5' | PVC | 11.72 | | | | |
| 3-0W | 203 | 1212 5 | <u> </u> | | - | 2 17 7 | 214 | | | 5 00 7 1 | | \mathcal{N} | | - 1 | Slotted | | | 1 | | |
| | | 1878 1 | | | <u> </u> | 2-1/-/6 | | <u> </u> | 591.77 | 589.71 | 585.94 | | | | PVC | 10.83 | | - | | |
| 3A | | 1237.4 | | | x | 3-22-82 | 211 | р | 592 221 | 590 02 | 582 14 | | | E I | Slotted | 15 08 | 1 | | | |
| | | 667.7 | x | | | <u> </u> | <u> </u> | | JJL.LL | <u></u> | 502.14 | | | | Slotted | 15.00 | | | | <u>├</u> |
| 5-0W | 205 | 2155.2 | | | X | 2-20-76 | 2'' | Р | 601.77' | 599.69 | 595.23 | · / | | 4 1 | PVC | 10.54 | | | | |
| | | 661.0 | X | | | | | | | • | | / | | | Slotted | | | | | |
| 5A | 206 | 2153.8 | | | X | 2-20-76 | 2" | P | 601.37' | 599.41 | 582.92 | · V . | | 3' | PVC . | 21.45 | / | | | |
| | | 1135.8 | _ X | <u> </u> | | | | | | | | | | | Slotted | | | | | |
| 6R-OW | | 1713.5 | | - | <u>_X</u> | 2-26-90 | _2'' | <u> </u> | <u>591.85'</u> | 589.17 | 586.53 | | | 5' | PVC | 10.32 | | V | | |
| | | 1137.4 | <u> </u> | | | 2-26-90 | 211 | р | 591 241 | 580 28 | 581 74 | | | E I | Slotted | 14 601 | | $\left \right $ | | |
| 6AR | | 1705.4 | _ | | X | | | | | | | | | | FVC | 14.00 | | | ·4 | ├── |
| бB | 209 | 1693 0 | _ × | | X | 2-19-76 | 211 | D | 501 011 | 580 6h | E78 1E | \checkmark | | 21 | Slotted | 10 75 | \checkmark | | | |
| | | 499.8* | x | - | | 2 15 70 | <u> </u> | <u> </u> |)),,), | J0 <u>J</u> .04 | 570.15 | | | | PVC | 19.75 | | | | |
| 7-0W | 210 | 1131.5 | | | X | 2-17-76 | 2'' | Р | 593.761 | 591.45 | 586.61 | \mathbf{V} | | 4 1 | Slotted PVC | 11 15 | | \bigvee | | |
| | | 490.6 | X | | | | | | | | | | | | Slotted | | | | | |
| 7A | 211 | 1141.8 | | | X | 2-17-76 | 2'' | Р | 593.90' | 591.83 | 576.44 | V | | 3' | PVC | 20.46 | \checkmark | | | |
| | | 1116.5 | <u> </u> | | | | | | | | | / | | | Slotted | | | | | |
| 18-0W | 223 | 2391.7 | | Ļ | X | 6-6-78 | 2'' | Р | 587.421 | 584.99 | 581.44 | V | | 10' | PVC | 15.98 | | V | | |
| | | 382.3 | _ <u>X</u> | | | | | | | | | | | | Slotted | | | | - | |
|)-0W | 220 | 1873.0 | | | <u>X</u> | 6-5-78 | 2'' | <u> </u> | 615.88 | 612.84 | 583.28 | | | 10' | PVC | 42.60' | | | | |
| 9-0W | 224 | 1093.6 | _ <u> X</u> | | | | | | | - | | \checkmark | | | Slotted | | | \checkmark | | - |
| | | | | | <u>×</u> | 11-27-84 | 21 | <u> </u> | 589.13 | _ <u>586.06</u> | 580.68 | | | 10! | PVC | 18.45 | | | | |
| - | 225 | 1096.3 | - X- | | x | 11-27-84 | 211 | р | 589 21 | 586 38 | 1548 51 | \checkmark | | 21 | Slotted | | \checkmark | | | |
| 9A | - 1 | | | | F. 1 | | ~ | | JUJ.2.1 | 00.00 | 10.71 | 1 | 1 |) | FVC | 43.70 | 1 | 1 | | |

OBSERVATION WELL DATA TABLE

-20011421

ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAN PLANT DATUM, ADD 0.79.

BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE BOX, ELEV. 6275 2. CHISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. 50.62

| | 6AR - | INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDDIGAN, WID. INDICATES OBSERVATION WELLS BY OTHERS |
|---|---------|---|
| | | DEAWING UPDATED ON MARCH 28, 1990. |
| | LEGEND: | |
| | | Private well completed in bedrock aquifer. |
| | | Private well completed in glacial overburden. |
| | | Monitoring well completed in glacial overburden. |
| | 587.51 | Water table elevation (ft), September 1990 |
| | -600 - | Water table contour, contour interval 4 feet |
| • | | |

| NOTES: | 1) | Private well locations are approximate. |
|--------|----|--|
| | 2) | Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. |

All private wells within the map boundaries may not be shown.

Water level measurements from September 12-13, 1990.

| 3. | | | | - / | | |
|------|-------|---------------|--------------------|--|--|---------------|
| 2. | | | - | | | - |
| 1. | | | | · · · · · · · · · · · · · · · · · · · | | |
| NO. | BY | DATE | ÷ | REVISION | | APP'D |
| SHE | IECT | WISC EDGE | ONS WAT NF | SIN POWER & LIG ER CLOSED ASH DISF 140 COMPLIANCE R TER TABLE CONTOUR | HT COMPAN POSAL FACILI EPORT MAP | 1Y TY |
| DRAW | N BY: | РРН | Non characteristic | SCALE: | PROJ. NO. 076 | 83-107 |
| CHEC | KED E | 3Y: 5CC | | 1" = 200' | DRWG. NO. | |
| APPR | OVED | BY: Scc | | | SHEET 3 OF | 11 |
| DATE | : 2- | 6-91 | | | | |
| Da | më | : & Mo 20- | 2024 | BASE MAP SOURCE: by Wisconsin Power Originals prepared b | Base map provi & Light Company y Warzyn Engine | dəd ering. |





| max max <thm< th=""><th>Well N</th><th></th><th>15 /3 8 /14</th><th>)</th><th></th><th>Facility ID Numbe</th><th>r Date</th><th>]-13</th><th>- 20</th><th>Completed Rick</th><th>By (Name an G. Wontz</th><th>nd Firr - M</th><th>n)]]er</th><th>Engli</th><th>ncers</th><th></th><th></th><th></th><th></th></thm<> | Well N | | 15 /3 8 /14 |) | | Facility ID Numbe | r Date |]-13 | - 20 | Completed Rick | By (Name an G. Wontz | nd Firr - M | n)]]er | Engli | ncers | | | | |
|---|---------|--|---|--|---|--|--|--|---|---|--|--|--|-----------------|--|--|--------------------------|--------------|---------|
| 1:78 01 251:1 1 2:1:78 01 1:0: <t< th=""><th></th><th></th><th>Well Location</th><th>N</th><th></th><th>M Red 111 Ehed</th><th>Well</th><th>Casing</th><th>Top of</th><th>Elevations grapped</th><th>Actern</th><th>Refe</th><th>Sile</th><th>S</th><th>creen</th><th></th><th>1</th><th>'ype of</th><th>Well (-</th></t<> | | | Well Location | N | | M Red 111 Ehed | Well | Casing | Top of | Elevations grapped | Actern | Refe | Sile | S | creen | | 1 | 'ype of | Well (- |
| 1:00 221 1755.1 2 222.27 300.16 360.00 51 rec 11.28 4 2:00 100 1755.1 2 2:23.27 27 pt: 1.23 60.00 51 rec 11.27 4 3:00 223 178.3.2 1 2 2:32.27 200.27 50.22 50.25 51.28 | | | 489.0 | | <u>X</u> | _ | 1 7/430 | 190 | wen casing | Burnee | 1.00 | 1-1 | | Jongth | Slotted | Well Dopth | אצויע | ow p | W 1.78 |
| 2-20 200 100 100 201 100 202 100 201 100 201 100 <th< td=""><td>1-0W</td><td>201</td><td>3791.2 1766 h</td><td></td><td></td><td>X 2-19-76</td><td>2''</td><td>P.</td><td>592.53</td><td>590.36</td><td>586.55</td><td>·V .</td><td>·</td><td>5'</td><td>PVC</td><td>10.98</td><td></td><td></td><td></td></th<> | 1-0W | 201 | 3791.2 1766 h | | | X 2-19-76 | 2'' | P. | 592.53 | 590.36 | 586.55 | ·V . | · | 5' | PVC | 10.98 | | | |
| 3.00 23 123.2 X = 2.17.76 27 P \$31.77 389.71 255.91 S = 310.44 3.0 123.2 X = 2.17.76 27 P \$31.77 389.71 255.91 S = 310.44 3.0 123.7 1 X = 3.72.2 22 27 P \$31.77 389.71 255.91 S = 310.44 40.7 1 X = 3.72.7 2 P \$10.77 389.71 255.91 S = 310.77 589.41 S = 310.44 50 205 125.7 X = 2.20.75 27 P \$21.77 589.41 582.32 Z = 3 Metter 51 205 125.7 X = 2.20.75 27 P \$21.77 589.41 582.32 Z = 3 Metter 103.9 X = 2.20.75 27 P \$21.85 589.32 Z = 3 Metter 103.9 X = 2.20.75 27 P \$21.85 589.32 Z = 3 Metter 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310.44 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310 Metter 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310 Metter 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310 Metter 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310 Metter 103.9 X = 2.20.75 27 P \$21.85 589.38 581.72 S = 310 Metter 103.9 X = 2.20.75 27 P \$23.87 581.85 586.51 4 S = 400 Metter 103.78 X = 2.20.75 27 P \$23.97 581.85 586.51 4 S = 400 Metter 104.80 X = 2.20.15 X = 2.20.75 27 P \$23.97 581.85 586.51 4 S = 400 Metter 105.6 X = 2.20.77 B = 4.20.75 27 P \$23.90 591.85 586.51 4 S = 400 Metter 104.00 X = 2.20 Metter 105.6 X = 2.20.77 B = 6.5.38 51.25 586.51 4 S = 400 Metter 105.6 X = 2.20 Metter 105.6 X = 2.20.75 X = 2.20 P \$55.80 Metter 105.0 X = 2.20 Metter 105.0 X = 4.20.75 X = 4.20 P \$25.20 X = 2.20 Metter 105.0 X = 4.20.75 X = 4.20 P \$25.20 X = 2.20 Metter 20.0 | 2-0W | 202 | 1594.1 | | | x 2-23-76 | 2'' | P | 612.28' | 609.75 | 605.56 | | | 5 ⁹⁷ | Slotted PVC | 11.72 | | \checkmark | |
| 2.00 00 100 100 1 100 1 10 100 1 10 100 1 10 10 | 2-01 | 202 | 1883.3 | | <u>× </u> | - | | | | | | ./ | | | Slotted | | | / | |
| 3A 1227.1 1 2-22.92 2 2 502.22 302.22 502.14 2 5 <t< td=""><td>· 3-0W</td><td>203</td><td>1242.5</td><td></td><td></td><td>X 2-17-76</td><td>2''</td><td>Р</td><td><u>591.77'</u></td><td>589.71</td><td>585.94</td><td>· V</td><td></td><td>5'</td><td>PVC *</td><td>10.83</td><td>{</td><td></td><td>_</td></t<> | · 3-0W | 203 | 1242.5 | | | X 2-17-76 | 2'' | Р | <u>591.77'</u> | 589.71 | 585.94 | · V | | 5' | PVC * | 10.83 | { | | _ |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | 3A | | 1237.4 | | | x <u>3-22-82</u> | 2'' | Р | 592.22' | 590.02 | 582.14 | · | | 5' | Slotted PVC | 15.08 | \checkmark | | |
| 34 20 $\frac{511}{215.0}$ x $2-20-76$ 2° p $501, 501$ $310, 501$ $700, 700, 700, 700, 700, 700, 700, 700,$ | 5-0W | 205 | <u>667.7</u> 2155.2 | <u>x</u> | | x 2-20-76 | 2'' | Р | 601.77' | 599.69 | 595.23 | . / | | 41 | Slotted | 10 54 | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | 661.0 | X | | | | | | | | / | | | Slotted | | | | - |
| 66-20. 1122.2 A A 2-26-30 22 501.82 580.12 686.53 5 Stott 10,72 5 68 1123.5 X 2-26-30 22 901.82 580.12 686.53 5 Stott 10,00 68 29 1136.8 X 2-26-30 22 901.91 580.11 581.74 5 Stotter 10.75 7-04 210 113.5 X 2-27.75 22 923.76 591.45 556.51 4 | 5A | 206 | 2153.8 | | _ | 2-20-76 | 2'' | P | 601.37' | 599.41 | 582.92 | <i>۷</i> י | | 3' | PVC . | 21.45 | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | 6R-04 | 1 | 1713.5 | | | (2-26-90 | 2'' | P | 591.851 | 589.17 | 586.53 | , V | | 5 I | Slotted | 10.32 | | | |
| Law 1700.1 10 100.2 100.3 100.3 100.3 100.3 100.3 60 200 1138.6 4 2-19-76 2" P 501.01 559.64 578.15 3" 500.01 7.0W 210 1131.5 4 2-17-76 2" P 501.45 566.61 4" 500.01 7.0W 210 1131.5 4 2-17-76 2" P 501.45 566.61 4" 500.01 7.0W 211 116.5 4 2-17-76 2" P 501.45 566.61 4" 500.01 10.02 | <i></i> | | 1137.4 | <u>x</u> | | 2-26-90 | 211 | D | | F80 28 | FQ1 71 | | | <u>.</u> د ا | Slotted | | ./ | | |
| 66 299 1693.0 x z - 19-76 2" r y - 591.15 39.64 573.15 3" | 5AR | | 1705.4 | | | | | · | | | | | | | PVL | 14.601 | | | |
| $7-0u$ 210 $\frac{131.5}{131.5}$ x $2-17-76$ $2"$ p 933.26 591.45 585.61 41 906 11.15 $7A$ 211 1141.6 x $2-17-76$ $2"$ p 593.20 591.45 576.444 31 906 11.15 $18-0u$ 223 2237.7 x G $G-6-78$ m p 597.42^{-1} 584.99 581.444 10^{-1} 906 15.98 $12.20.46$ n p 597.42^{-1} 584.99 581.444 10^{-1} 906 15.98 $12.20.46$ n $12.20.46$ $12.20.46$ $12.20.46$ $12.20.46$ $12.20.46$ | 6B | 209 | 1693.0 | | | 2-19-76 | 2'' | | 591.91' | 589.64 | 578.15 | \checkmark | | 3 ! | PVC | 19.75 | / | | |
| $7n$ 211 192.6 x $2-17-76$ 21° 193.72 201.91 301.91 301.91 31.83 576.44 3° 11.16 11.16 $11.16.5$ $11.16.5$ x $2-17-76$ 21° 553.90 531.83 576.44 3° 91.6 30.86 4° $11.16.5$ x 20.96 31.83 576.44 3° 91.6 30.86 4° $11.16.5$ x 10.16 91.6 30.86 4° $11.16.5$ x 10.16 91.6 30.86 4° $11.16.5$ x 10.16 91.6 30.86 $41.27.96$ 21° 92.6 15.98 $612.891.933.20$ 10° 91.66 42.50 | 7-0W | 210 | 499.8* | _ X | , | 2-17-76 | 211 | р | 593 761 | 591 15 | 586 61 | \checkmark | | l; 1 | Slotted | 11 1-5 | | \checkmark | |
| 7A 211 111.6.5 X 21.7 9 593.30 591.33 576.447 31 PVC 20.46 7 18-04 223 2331.7 X 6 6.6.78 21 P 557.47 584.99 581.447 101 PVC 20.46 7 20-04 20 197.6 X 6 6.5.78 21 P 513.83 586.99 581.447 101 PVC 42.60 7 20-04 20 197.6 X 6 6.5.78 21 P 589.41 580.99 581.447 101 PVC 10.45 101 </td <td></td> <td></td> <td>490.6</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>/</td> <td></td> <td></td> <td>Slotted</td> <td></td> <td></td> <td></td> <td></td> | | | 490.6 | X | | | | | | | | / | | | Slotted | | | | |
| 18-00 22 230177 X 6-6-78 2" p 501.42" 581.44 io' Siotted 15.98 20-04 220 1873.0 X 6-5-78 2" p 615.88 612.81"/581.28 10' Siotted 15.98 29-04 220 1873.0 X 6-5-78 2" p 615.88 612.81"/581.28 10' Siotted 15.98 29-04 220 1873.0 X 6-5-78 2" p 615.88 612.81"/581.28 10' Siotted 15.98 29-04 220 180.5 X 11-27-84 2" p 580.21 586.38"/583.21 3' Siotted 16.5' V 16' Siotted 18.5' V 16' 16' 16' 18.5' V 16' | _7A | 211 | 1141.8 | | | 2-1/-/6 | 2" | P | 593.90' | 591.83 | 576.44 | V | | 3' | PVC | 20.46 | V | | - |
| 28-04 270 $\frac{187.3}{197.0}$ x 6-5-78 22" P 615.88 612.81 583.28 101 Storted 42.63 4 29-04 224 1960.6 x 11-27-84 2" P 589.13 586.65 580.68 4 11-47 29-04 224 1960.6 x 11-27-84 2" P 589.13 586.65 580.68 4 101 Storted 42.63 4 29-04 225 1950.4 x 11-27-84 2" P 589.21 566.38 548.51 3 Storted 43.70 29-04 225 1950.4 x 11-27-84 2" P 589.21 566.38 548.51 3 Storted 43.70 | 18-0W | 223 | 2391.7 | | > | 6-6-78 | 2'' | Р | 587.42' | 584.99 | 581.44 | \checkmark | |)' | Slotted PVC | 15.98 | 1 | | |
| 220 107.10 x b-5-78 2" p 615.88 612.84 1035.6 x x 11-27-86 2" p 589.13 586.06 100 PVC 10.2 PVC 10.45 101 29-04 224 1950.6 x x 11-27-86 2" p 589.13 586.06 280.62 100 PVC 10.45 101 294 225 1950.4 x 11-27-86 2" p 589.21 586.36 548.51 31 Stotted 43.70 294 225 1950.4 x 11-27-86 2" p 589.21 586.36 548.51 31 Stotted 43.70 294 225 1950.4 x 11-27-86 2" p 589.21 586.36 548.51 31 Stotted 43.70 204 205 1042.4 11-27-86 2" p 1042.6 104.66 0.4 0.02 2.0 0.02 204 104.10 114.10 114.67 104.68 0.04 104.06 0.04 105.06 1.05 1.05 1.05 <td>20-04</td> <td>220</td> <td>382.3</td> <td>_<u> x</u></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>./</td> <td></td> <td>~ /</td> <td>Slotted</td> <td></td> <td></td> <td>· · ·</td> <td></td> | 20-04 | 220 | 382.3 | _ <u> x</u> | | - | | | | | | ./ | | ~ / | Slotted | | | · · · | |
| 22+00 224 1360.6 x 11-27-84 22 580.13 580.66 10 PVC 13.45 11-27-84 294 225 1350.4 x 11-27-84 22 p 580.21 586.36 548.51 31 PVC 13.45 11-27-84 294 225 1350.4 x 11-27-84 22 p 580.21 586.36 548.51 31 11-27-84 22 13.45 11-27-84 21 p 580.21 586.36 548.51 31 11-27-84 21 p 580.21 586.36 548.51 31 11-27-84 21 p 580.21 586.56 11-27 10 11-27-84 21 p 580.21 586.56 11-1 31 11-27-84 21 12.60 | | 220 | 1073.0 | X | | 6-5-78 | 211 | <u> </u> | 615.88 | 612.84 | 583.28 | | | 0 | | 42.60' | | | |
| 234 225 1950.4 X 11-27-B4 2" P 589.21 586.38 548.51 3" Stotted Pvt 43.70" ▲ -HPR. CONTROL MONUMENT - NO.1 - 1000. 55 N CRIDS AND COORDINATES FOR ABOVE OBSERVATION NELLS ESTABLISHED IN THE FIELD OF MULER ENGINEERS US NELLS NELLS ESTABLISHED IN THE FIELD OF MULER ENGINEERS US NELLS NELLS ENTRO - MONUMENTS F42. NO.2 - 440.05 N COOPE ELEVAT.ONS SHOWN HEREON FOR ABOVE OBSERVATION NELLS ENTRO - MONUMENTS F42. NO.2 - 440.05 N CONTRO - MONUMENTS F42. ELEVAT.ONS SHOWN HEREON DASED ON USER ENGINEERS US NELLS NELLS NELLS NELLS PLANT DATUM, ADD 0.11 OTAL BENCHMARKS - I.NE COR. OF COLV. PAD FOR EXIST OFFD AT SULCE BOX, BLSV. US. 15 2.0H18612D AGUARE, TOP EXIST. DISCHARGE OTRUCTURE, ELEV. US. 25 2.0H18612D AGUARE, TOP EXIST. DISCHARGE OFFICIERS, SHEED (GAN, WIS. 1000 PLOTTED HEREON BY MULER ENGINEERS OFFED/GAN, WIS. 1000 PLOTTED HEREON BY MULER ENGINEERS OFFED/GAN, WIS. 1000 PLOTTED HEREON DY MULER ENGINEERS OFFED/GAN, WIS. 1000 PLOTTED HEREON MARCH 28, 1990. IEGEND: IEGEND: IEGEND: Private well completed in glacial overburden. ************************************ | 29-0W | 224 | 1960.6 | _ | <u> </u> | 11-27-84 | 2'' | <u> </u> | 589.13 | 586.06 | 580.68 | / |]1 | <u>0'</u> | PVC | 18.451 | . 1 | | |
| ▲-HØR. CONTROL MONUMENT - NO.1-1000, 59 N NO.2 - 490, 05 N 174, 01 W 174, 01 W 10.00 ± 0.00 ± | 29A | 225 | 1096.3 | _X_ | <u> </u> | 11-27-84 | 211 | P | 580 21 | 586 28 | | \checkmark | | - 1 | Slotted | | | | |
| BENCHMARK#-1.NE COR. OF CONC. PAD FOR EXIST. DIBCHARGE STRUCTURE, ELEV. 010.02 ARE - INDICATED DESERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDOGAN, WID. 4-0W INDEXATES OBSERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in glacial overburden. 920 Total dissolved solids concentration (mg/1), September 1990 — 300 — Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | | GRID | 5 AND C | | | | | | | | | 1 | - v, . | | | | | | |
| GAR - INDICATEG DBGERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS HEBOIGAN, WID. HOLATEG DBGERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. 920 Total dissolved solids concentration (mg/1), September 1990 -300 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | | GRID EGTA CONTI ELEV PLAN | 6 AND C BLIGHE 20 L MO AT ONG T DATL | | | VN HERE | ELE - 2. | | AGED | UËR È | NGINE | | -UM | | PLAN 057A | . N | • | | |
| AND PLOTTED HEREON BY MILLER ENGINEERS HEEDIGAN, WID. NDCATES OBSERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. 920 Total dissolved solids concentration (mg/l), September 1990 -300 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | | GRID EGTA CONTI ELEV PLAN BENC | 6 AND C BLIGHE 201 MO ATIONG T DATL | | | VN HERE DD 0. ECOR. O HIBELED | ELE 2 79. F G8 | | AGED AGED | LÈRÈ | | ED RG | -UM AT 6 E 6TR | | PLAN OZTA ZEBOX URE, E | , ELEV LEV. GI | , U D.C | 0 í 102 | 15 |
| DEAMING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. Monitoring well completed in glacial overburden. | • | GRID EGTA CONTI ELEV PLAN BENC | 5 AND C BLIGHE 201 MO ATIONG T DATL | | | VN HERE VN HERE DD 0, E COR. 0 HIBELED 2 085E | ELE 2. 79. F. GR | | AGED AGED RE,TOP | FOR EX EXIST. | (16T. 6H DISCHA | | -UM AT 6 5 6TR | | PLAN OZTA ZEBOX URE, E | , ELEV LEV. 61 | , (j 0, c | 0 í 1-02 | 15 |
| LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. Image: Completed in glacial overburden.< | • | GRID EGTA CONTI ELEV PLAN BENC | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKE - INDIC AND F | | | VN HERE VN VN HERE VN VN HERE VN VN HERE VN VN HERE VN VN V | ELE 2 79. FBR | | ABED ABED KE, TOP | LERE ON U.G FOR EX EXIGT. | CIGINE CIGINE CIGT. OH DISCHA | | AT 5 FIN AT 5 FI | | PLAN PLAN PLAN PLAN PLAN PLAN PLAN PLAN PLAN | TEP | 1. (J D. C 1. [1] | 0.2,- | 15 |
| Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. ⁹²⁰ Total dissolved solids concentration (mg/l), September 1990 -300 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | | GRID EGTA CONTI ELEV PLAN BENC M GAR | ATIONO TOATL HMARKO | | | VN HEKE VN HEKE DD 0, ECOR, 0 HIBELED D 0BBE FED HER D 0BBE | ELE 2 2 7 9 7 7 7 7 7 7 7 7 7 7 7 7 7 | | AGED AGED RE, TOP | LERE ON U.G FOR EX EXIST. ELLER ELLS | CIGINE CIGT. 5H DISCHA ENGIN BY C | | AT 6 E 6 E F | | PLAN O = TA URE, E O LOCABOYGA | T T T T T T T T T T | 1. (J 0. (1. 10) | 0 2.7 | 15 |
| Private well completed in glacial overburden. Monitoring well completed in glacial overburden. ⁹²⁰ Total dissolved solids concentration (mg/l), September 1990 — 300 — Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | • | GRID EGTA CONTI ELEV PLAN BENC M GAR | 6 AND C BLIGHE 20 L MO ATIONG T DATL HMARKS - INDIC AND F INDIC DEAL | | | VN HERE VN HERE DD 0. ECOR. 0 HIBELED D BBE TED HER D DBSE UPDATE | ELE 20 79. FB REC D | DIE DIAF ATI ON | ABED ABED KE, TOP ION W BY MII ON W MAR | LERE ON U.G FOR EX EXIST. ELLS CH 28 | CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE CIGINE | ED RGU ED RGU ED RGU ED RGU N | AT 5 EP | | PLAN PLAN PLAN PLAN PLAN PLAN PLAN PLAN | TEP | | 0.2. | 15 |
| Monitoring well completed in glacial overburden. 920 Total dissolved solids concentration (mg/l), September 1990 -300 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | | GRID EGTA DATI PLAN BENC M GAR | BAND C BUIGHE 201 MO ATIONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva | DIL SM - ALA III te | V N N N N N N N N N N N N N N N N N N N | VN HEKE VN HEKE DD 0, ECOR, 0 HIBELED D 0BBE ED HER D 0BBE UPDATE | ELE 20 79. FB REC Led ted | I BA DAC UAP AT AT ON IN | AGED AGED NACE, TOP | LÈRÈ ON U.G FOR EX EXIBT. ELLS CH 28 k aquif | AG.G.G. (16T. 5H DISCHA ENGIN BY C , 1992 | | AT STR | | PLAN PLAN POSTA DE BOX URE, E D LOCA BOYGA | TEP | 1. (J 0. (1. 10) | 2, | 15 |
| 920 Total dissolved solids concentration (mg/l), September 1990 — 300 — Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | | GRID EGTA PLAN BENC M GAR | BAND C BUIGHE 201 MO ATIONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva | DIL SM - ALA III te | We we we | VN HEKE VN HEKE DD 0, ECOR, 0 HIBELED D BBE D HER D DATE LP DATE L comple | ELL ON FBREVE REV ted ted | I BANATI UAF | AGED AGED AGED AGE, TOP ION W BY MII ON W MAR bedroci glacia | LÈR È ON U.4 FOR EX EX 16T. ELL F ELL 5 CH 28 k aquif 1 overt | G.G.G. (IST. SH DISCHA ZEPAIR ENGIN BY C 1992 fer. | ERGE EETH | AT 5 REP | | PLAN PLAN POSTA LE BOX LRE, E DLOCA BOYGA | TEP | 1. (1) | 2.7 | 15 |
| -300 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. | • | GRID EGTA EGTA PLAN BENC GAR | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva Monit | DI SI - ALA III te | weiling | VN HEKE VN HEKE DD 0, ECOR, 0 HIBELED D 0 HIBELED D 0 HIBELED D 0 HIBELED L 0 BBE HER D 0 HER D 0 D 0 HER D 0 HER D 0 D 0 HER D 0 D 0 HER D 0 D 0 HER | ELE 2 2 2 7 9 1 1 1 1 1 1 1 1 1 1 1 1 1 | I BANATI UAF ATI ON in in | AGED AGED AGED AGE, TOP ION W BY MII ON W MAR bedroc glacia in gla | LER E ON U.4 FOR EX EX OT . ELL R ELLS CH 28 k aquif l over cial over | AG.6. (BT.6H DBCHA CEPAIR ENGIN BY C 1992 fer. purden. verburd | ERGUERT A. | AT 5 REP | | PLAN PLAN POSTA LE BOX LRE, E DLOCA BOYGA | TED TED | 1.0.0 | 0 2 - | 15 |
| - 300 - log interval (, 1, 3, 10, 30,) Private well locations are approximate. | | GRID EGTA EGTA PLAN BENC GAR CONTI EEGEND: CONTI PLAN BENC GAR CONTI PLAN BENC GAR CONTI PLAN BENC GAR CONTI PLAN BENC SCONTI SC | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva Monite Total | DJU SM ALA JIN te te di | weing weing | VN HEKE VN HEKE DD 0, ECOR, O HIBELED D 086E ED HER D 085E UPDATE 1 comple well com | E C C C C C C C C C C C C C C C C C C C | D E D D D D D D D D D D D D D D D D D D | AGED AGED AGED AGE, TOP ION W BY MII ON W MAR bedroc glacia in gla | LER E $ON \ U.4$ FOR EX EX $ 6T$. ELL - 5 $CH \ 28$ k aquif l over cial ov tion (m | LIGINE G.G.G. [(16T. 6H DISCHA ENGIN BY C , 1992 fer. ourden. verburd | ED RGU ED RGU EE TH N Sept | LIM AT 5 E E E E E E E E E E | r 19 | PLAN PLAN POSTA DE BOX URE, E DE LOCA BOYGA 90 | TEP | 1. (1 0. (2 1 10 | 0.2. | 15 |
| Private well locations are approximate. | | EGEND: ELEVI PLAN BENC CAR -4-OW LEGEND: - - - - - - - - - - - - - | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva Monito Total | DIL SM - ALA III te te ori di | weiling .sso | VN HEKE VN HEKE DD 0, ECOR, 0 HIBELED D 0 HIBELED D 0 HIBELED L 0 D 0 HIBELED L 0 D 0 HIBELED L 0 D 0 HIBELED L 0 D 0 HIBELED L 0 HIBELED | E C C C C C C C C C C C C C C C C C C C | I BACUAF | AGED AGED PAD KE,TOP ION W BY MII ON W MAR bedroci glacia in gla centra | LER E $ON \ U.G$ FOR EX EX DT. ELL F LER CH 28 k aquif l overs cial overs tion (m | AGINE G.G.G. [(16T. 6H DISCHA ENGIN ENGIN BY C 1 1992 fer. purden. verburd ng/1), | ERG CAT EDG EDG EDG EDG EDG EDG EDG EDG EDG EDG | TUM AT 5 EE EE EE | r 19 | PLAN PLAN POSTA DEBOX URE, E DLOCA BOYGA 90 | TEP | 1. (1) | 2,7 | 15 |
| Private well locations are approximate. | | EGEND: PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE PLAN BENC CONTINUE CONTINUE PLAN BENC CONTINUE CONTINUE PLAN BENC CONTINUE CONTINUE PLAN BENC CONTINUE CONTINUE CONTINUE PLAN BENC CONTINUE CONTINUE CONTINUE PLAN BENC CONTINUE CONTINE CONTINUE CONTINUE CONTINUE CONTINUE CONTINE CO | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKS - INDIC AND F INDIC DEAL Priva Monito Total Concer log in | DIL SM - ALA III te te ori di | welling welling | VN HEKE VN HEKE DD 0, ECOR. 0 HISELED D 0 HISELED D 0 HISELED L 0 D 0 HISELED L 0 D 0 HISELED L 0 D 0 HISELED L 0 D 0 HISELED L 0 HISELED | ted ted ted tr, 3 | $D = \frac{1}{2}$ $D = \frac{1}{2}$ | AGED AGED AGED AGE,TOP AGE,TOP AGE,TOP AGE,TOP AGE,TOP AGE,TOP AGE AGED AGED AGED AGED AGED AGED AGED | LER E $ON \ U.4$ FOR EX EX $ BT$. ELL S $CH \ 28$ k aquif l over tion (m on an) | AGINE G.G.G. G. G. (16T. 6H DISCHA ENGIN ENGIN BY C 1 1992 fer. verburd ng/1), approx | en. Septimation | TUM AT 6 E 6 TF E F F F F E E E E E E E E E E E E E | | PLAN PLAN POETA DE BOX URE, E DLOCA BOYGA 90 | TEP | 1. (1) | 2,- | 15 |
| | | EGEND: EGEND: CONTINUES OF A CONTINUES OF A CONTI | 6 AND C BLIGHE 20 L MO AT ONG T DATL HMARKE - INDIC AND F INDIC DEAL Priva Monite Total Concer log in | SM - ALA III te te ori di | welling welling | VN HEKE VN HEKE PD 0, ECOR, 0 HIBELED D 080E ED HER D 080E UPDATE I comple well com lved sol on contou 1 (, | E = 2 P | $D = B_{1}$ $D = B_{1}$ $D = D_{1}$ $D = D_{1}$ D = | AGED AGED AGED AGE, TOP AGE, TOP AGE, TOP AGE, TOP AGE, TOP AGE AGED AGED AGED AGED AGED AGED AGED | LER E $ON \ U.4$ FOR EX EX $ 6T$ ELL S $CH \ 28$ k aquif l over tion (m on an) | AG.6. (16T. 6H DIOCHA EPAIR ENGIN BY C , 1992 fer. ourden. verburd ng/1), approx | ED ED ED ED ED ED ED ED ED ED ED ED ED E | LIM AT 5 E FI E E E E E E E E E E E E E E | r 19 | PLAN PLAN PEBOX URE, E DLOCA BOYGA 90 | TEP | 1. (1 0. (2 1 10 | 2,- | 15 |

it supplies water. Dual address indicates a shared well. All private wells within the map

 All private wells within the map boundaries may not be shown.

| of the second | 1. | | | | ······································ | | |
|---|-------|-------|---------------|------------------|---|--|---------------|
| and an and a second | NO. | BY. | DATE | | REVISION | | AP P'D |
| | PROJ | ECT | WISC | ONS WAT NF | SIN POWER & LIG ER CLOSED ASH DIS 140 COMPLIANCE F | HT COMPAN POSAL FACILIT REPORT | I Y Y |
| | SHEE | T TI | TLE | TD | S ISOCONCENTRATIC GLACIAL AQUIFE | DN MAP R | |
| | DRAW | N BY: | РРН | | SCALE: | PROJ. NO. 0768 | 33-107 |
| and the second | CHEC | KED E | BY: SCC | | 1 - 200 | DRWG. NO. | |
| and the second se | APPR | OVED | BY: SCC | | | SHEET 4 OF | 11 |
| | DATE: | 2- | 6-91 | | | • | |
| No. of Concession, Name | Dai | mes | ; & Mo 201 | | BASE MAP SOURCE by Wisconsin Power Originals prepared | : Base map provid & Light Company. by Warzyn Enginee | ləd əring. |





| Edgewater | WP <u>(Unl</u> | 5 L 5 // 3 6 //4 |) | | | 02524 | 1040 | <u>3-13</u> | -20 | Rick | G. Wontz | M | 1110 | r Engin | eers | | | | | |
|---------------|-------------------|-------------------------|----------|------------|---|----------------|----------|-------------|-----------------|------------|-------------|--------------------|-------|---------|----------------|------------|--------------|--------------|-----------|----------|
| Weil Norse | Wall ID | | | | | , finte, , | Well | | Top of | Elevations | Acteen | MAL. | Site | Sci | reen | | | 'ype (| of W | |
| IT DE TABILIB | | LR9 0 | | | | Isstabilshed . | Diam | Type | Well Casing | Burlaco | <u>1'op</u> | 1 | () | Longth | Material | Well Depth | HIRN | ow | <u>pw</u> | 1.780 |
| 1-0W | 201 | 3791.2 | | ^ | x | 2-19-76 | 2'' | P | 592.53' | 590.36 | 586.55 | $\cdot \checkmark$ | | 5' | Slotted PVC | 10.98 | | \checkmark | | |
| 2.017 | 202 | 1766.4 | X | | | 0.00.76 | | | | | | \mathbf{N} | | | Slotted | 1 | | | | |
| 2-0w | 202 | 1887 2 | | - - v | Ĥ | 2-23-70 | | <u> </u> | 612.28 | 609.75 | 605.56 | | | | PVC | 11./2 | | | | |
| 3-0W | 203 | 1242.5 | | | x | 2-17-76 | 211 | р | 591 771 | 589 71 | 585 94 | V | | ΓI | Slotted | 10.83 | | | | |
| | | 1878.1 |) | x | | | | <u> </u> | 221.11 | | | | · | | | 10.05 | | | | |
| 3A | · · | 1237.4 | | | X | 3-22-82 | 2'' | Р | <u> 592.22'</u> | 590.02 | 582.14 | · V | | 5' | PVC | 15.08 | 1 | | | |
| 5-0W | 205 | 667.7 | <u>x</u> | - | x | 2-20-76 | 2'' | Р | 601.77' | 599.69 | 595.23 | • 🗸 | | 41 | Slotted PVC | 10.54 | | / | | |
| 5A | 206 | 661.0 2153.8 | X | | x | 2-20-76 | 211 | P | 601.37' | 599.41 | 582.92 | ·.V. | | 31 | Slotted PVC | 21 45 | / | | | |
| 68-0V | | 1135.8 | | <u>×</u> | | 2 26 00 | 211 | | | F90 17 | | V | | | Slotted | 10.22 | | / | | <u> </u> |
| | | 1137.4 | <u> </u> | < | | 2 20 90 | <u> </u> | <u>_</u> | 291.05 | | | / | · | | Slotted | 10.52 | | | <u></u> | |
| 6AR | · | 1705.4 | | | x | 2-26-90 | 211 | P | 591.34' | 589.38 | 581.74 | I V | | 5' | PVC | 14.60 | V | | | |
| бB | 209 | <u>1138.8</u> 1693.0 | > | < | X | 2-19-76 | 2'' | Р | 591.91' | 589.64 | 578.15 | . / | | 3' | Slotted PVC | 19.75' | 1 | | | |
| 7-0W | 210 | 499.8* 1131.5 | × × | < <u>.</u> | X | 2-17-76 | 2'' | Р | 593.76' | 591.45 | 586.61 | \mathbf{V} | | 41 | Slotted | 11.15 | • • | | | |
| 7A | 211 | 490.6 | X | < · | | 2-17-76 | 2'' | P | 593.90' | 591.83 | 576.44 | ·V | | 3' | Slotted PVC | 20.46 | \checkmark | | - | |
| 18-0W | 223 | 1116.5 | X | < | X | 6-6-78 | 211 | р | 587 421 | 584 99 | 581 LL | \checkmark | | 101 | Slotted | 15 98 | | | | |
| | | 382.3 | X | | | | | | 507.12 | | 501111 | | | 10 | Slotted | 19.90 | | V | - | |
| 20-0W | 220 | 18/3.0 | | - | X | 6-5-78 | 2'' | <u>P</u> | 615.88 | 612.84 | 583.28 | | · | 10' | PVC | 42.60 | | | | |
| 29-0W | 224 | 1960.6 | X | _ | X | 11-27-84 | 2'' | <u> </u> | 589.13 | 586.06 | 580.68 | \checkmark | | _10' | Slotted PVC | 18.45' | | \checkmark | | |
| 29A | 225 | 1096.3 1950.4 | <u> </u> | | x | 11-27-84 | 211 | Р | 589.21 | 586.38 | 548.51 | \checkmark | | 3.1 | Slotted PVC | 43.70' | \checkmark | | | |

OBSERVATION WELL DATA TABLE

GRIDG AND COORDINATED FOR ABOVE OBGERVATION WELLS WERE EGTABLIGHED IN THE FIELD BY MILLER ENGINEERS LGING PLANT CONTROL MONUMENTS (\$2.

ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79.

BENCHMARKG-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUKE BOX, ELEV. (02.75 2. CHISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. (010.62

| & GAR - INDICATED OBSERVATION WELL REPAIRED, FIELD LOCATED |
|---|
| AND PLOTTED HEREON BY MILLER ENGINEERS, SHEBOYGAN, WID. 4-0W INDICATES OBSERVATION WELLS BY OTHERS |
| DEAWING UPDATED ON MARCH 28, 1990. |

| LEGEND: | |
|---------|---|
| - | Private well completed in bedrock aquifer. |
| | Private well completed in glacial overburden. |
| | Monitoring well completed in glacial overburden. |
| 260 | Total dissolved solids concentration (mg/l), September 199 |
| - 300- | Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) |

1) Private well locations are approximate. NOTES:

- Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well.
- All private wells within the map boundaries may not be shown.

| | 3. | | | | 1. A. | | | | |
|--|------|-------|---------------|-------------|--|--|------------------------------|--------------------------------|--------------|
| Contraction of | 2. | | | | | | | | |
| - | 1. | · | | | - | | | | |
| the second second | NO. | BY | DATE | | RE | VISION | | | APP'D |
| | PRO | JECT | WISC EDGE | ONS WATI | SIN POWER ER CLOSED A 140 COMPLI | & LIGH SH DISPO | T CO DSAL F PORT | MPAN | Y Y |
| | SHE | ET TI | TLE | TD | S ISOCONCEI DOLOMITE | NTRATION AQUIFEF | | | |
| TANK DO DO DO | DRAW | N BY: | PPH | | SCALE: | | PROJ. N | 0.0768 | 3-107 |
| And a second second second | CHEC | KED E | BY: SCC | | 1 = 20 | | DRWG. N | 10. | |
| TARGET | APPR | OVED | BY: SCC | | | | SHEET | 5 OF | 11 |
| | DATE | : 2. | 6-91 | | | | | | |
| A LA | Da | mes | ; & Ma 201 | xor | BASE MAP by Wiscon Originals p | SOURCE: 6 sin Power & repared by | 3ase ma Light C Warzyn | p provid ompany. Enginee | ed ering. |

-200114211





| Facility Name Edgewater | WP (Uniu | 5 /13 5 //4 |) | | Fa | cility ID Number 02524 | Date | 3-13 | - 20 | Completed Rick | By (Name ar G. Wontz | id Firi | n) 1]]]e | r Engli | neers | | | | | |
|----------------------------|-------------|----------------------------|--------------|----------|---------|---------------------------|------|----------|---------|-------------------|-------------------------|--------------|-------------|-----------|----------------|------------|---------------------------------------|--------------|--------------|--------|
| Well Namo | | Well Location | N | 8 | sw | Established | Well | Casing | Top of | Elevations | Mgreen. | Hefe MAL | site | Longth | Nutarial | Well Donth | | l'ype o | We | ·II () |
| 1-0W | 201 | 489.0 3791.2 | | <u>x</u> | | 2-19-76 | 2'' | P | 592.53' | 590.36 | 586.55 | •√ | | <u> </u> | Slotted | 10.98 | | | | |
| 2-0W | 202 | 1766.4 | × | | - | 2-23-76 | 211 | P | 612.28' | 609.75 | 605.56 | ~ | · · · · | <u> </u> | Slotted | 11.72 | | \checkmark | | |
| 3-0W | 203 | 1883.3 | | X | | 2-17-76 | | Р | 591 77' | 589 71 | 585 94 | V | | | Slotted | 10.83 | | / | | |
| 3A | | 1878.1 | | <u>x</u> | X | 3-22-82 | 211 | p | 592 221 | 590 02 | 582 14 | | | | Slotted | 15.08 | | | | |
| 5-0W | 205 | <u> 667.7</u> 2155.2 | X | | x | 2-20-76 | 2'' | <u> </u> | 601.77' | 599.69 | 595.23 | , / | | 4+ | Slotted | 10.54 | | | | |
| 5A | 206 | 661.0 2153.8 | X | | | 2-20-76 | 2'' | P | 601.37' | 599.41 | 582.92 | · V | | 3' | Slotted | 21 45 | / | | | |
| 6R-OW | | 1135.8 | | X | | 2-26-90 | 211 | Р | 591 851 | 589 17 | 586 53 | \checkmark | | קי | Slotted | 10.32 | | | - | |
| 6AR | | 1137.4 | <u>)</u> | X | | 2-26-90 | 2'' | P | 591.341 | 589.38 | 581.74 | . / | | 5' | Slotted PVC | 14.60 | V | | | _ |
| бB | 209 | <u>1138.8</u> 1693.0 | > | ×_ | X | 2-19-76 | 2" | p | 591.91' | 589.64 | 578.15 | . ✓ | | 3' | Slotted PVC | 19.75' | , , , , , , , , , , , , , , , , , , , | | | |
| 7-0W | 210 | 499.8* 1131.5 | | < - | X | 2-17-76 | 2'' | P | 593.76' | 591.45 | 586.61 | . ✓ | | <u></u> + | Slotted PVC | 11.15 | · . | \checkmark | | |
| 7A | 211 | 490.6 1141.8 | | < | X | 2-17-76 | 2'' | <u></u> | 593.90' | 591.83 | 576.44 | · V | | 3' | Slotted PVC | 20.46 | \checkmark | | , | |
| 18-0W | 223 | 1116.5 ,2391.7 | <u> </u> | < | X | 6-6-78 | 2'' | P | 587.42' | 584.99 | 581.44 | | | 10' | Slotted PVC | 15.981 | | | | |
| 0-0V | 220 | 382.3 1873.0 | _ <u>x</u> | | x | 6-5-78 | 2'' | P | 615.88 | 612 84 | 1583 28 | / | | 10' | Slotted PVC | 42.60' | + | V . | - - | |
| 9-0W | 224 | 1093.6 1960.6 | X | | x | 11-27-84 | 2'' | P | 589.13 | 586.06 | 580 681 | V | | 101 | Slotted PVC | 18.45' | | \checkmark | | |
| .9A | 225 | <u>1096.3</u> 1950.4 | _ X | | x | 11-27-84 | 211 | р | 589 21 | 586.38 | 1548 51 | \checkmark | | <u></u> | Slotted | ha 701 | \checkmark | | | |

OBSERVATION WELL DATA TABLE

A-HOR. CONTROL MONUMENT - NO.1-1000.83 N 179.01 W NO. 2 - 490.05 NO. 00 E GRIDG AND COORDINATED FOR ABOVE OBGERVATION WELLS WERE EGTABLIGHED IN THE FIELD BY MILLER ENGINEERS LGING PLANT CONTROL MONUMENTS 142.

ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKG-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUKE BOX, ELEV. 02.75 2. CHISELED BORLARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. 610.62

| | | |
|------------------|--|---------------------------|
| 🛛 6AR | INDICATES OBSERVATION WELL REPAIRED, FIELD AND PLOTTED HEREON BY MILLER ENGINEERS SHE INDICATES OBSERVATION WELLS BY OTHERS | > LOCATED BOYGAN, WID. |
| | DEAWING UPDATED ON MARCH 28, 1990. | |
| LEGEND: | Private well completed in bedrock aquifer. | |
| - - | Private well completed in glacial overburden. | |
| | Monitoring well completed in glacial overburden. | |
| <1.0 1 | Boron concentration (mg/l), September 1990 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | |
| | | |

| NOTES: | 1) | Private well locations are approximate |
|--------|----|---|
| | 2) | Each private well is identified by the street address of the home(s) for whic it supplies water. Dual address indicates a shared well. |
| | 3) | All private wells within the map boundaries may not be shown. |
| | 4) | Results shown for monitoring wells are for dissolved boron (filtered samples) Results shown for private wells are fo total boron (unfiltered samples). |
| | | |

an a li anta de l'ad

| | | | | ······································ | |
|-------|--|--|--|--|---|
| | | | · | | |
| | | · · | | | |
| | | | | · · | |
| BY | DATE | | REVISION | ······································ | APP'D |
| | WISC EDGE | ONS WATI | SIN POWER & LIC ER CLOSED ASH DIS R 140 COMPLIANCE | GHT COMPAN SPOSAL FACILI REPORT | ΙΥ ΓΥ |
| ET TI | TLE | BOR | ON ISOCONCENTRA GLACIAL AQUIFE | TION MAP | |
| N BY: | PPH | | SCALE: | PROJ. NO. 076 | 83-107 |
| KED E | BY: SCC | | 1 = 200 | DRWG. NO. | |
| OVED | BY: SCC | | | SHEET 6 OF | 11 |
| : 2- | 6-91 | 10 1 | | | |
| mës | : & Mc 2 |))) | BASE MAP SOURCE by Wisconsin Powe Originals prepared | E: Base map provi r & Light Company by Warzyn Engine | dəd sering. |
| | BY JECT ET TI ET TI EXED E ROVED : 2 | BY DATE JECT WISC EDGE ET TITLE VN BY: PPH CKED BY: SCC ROVED BY: SCC | BY DATE JECT WISCONS EDGEWAT NF ET TITLE BOR VN BY: PPH CKED BY: SCC ROVED BY: SCC : 2-4-91 THES & MOON | BY DATE REVISION JECT WISCONSIN POWER & LIC EDGEWATER CLOSED ASH DIS NR 140 COMPLIANCE ET TITLE BORON ISOCONCENTRA GLACIAL AQUIFE SCALE: VN BY: PPH SCALE: CKED BY: SCC 1" = 200" CNVED BY: SCC BASE MAP SOURCE DVED BY: SCC BASE MAP SOURCE DVED BY: SCC Criginals prepared | BY DATE REVISION JECT WISCONSIN POWER & LIGHT COMPANEDGEWATER CLOSED ASH DISPOSAL FACILITINR 140 COMPLIANCE REPORT ET TITLE BORON ISOCONCENTRATION MAPIGLACIAL AQUIFER VN BY: PPH SCALE: VN BY: PPH SCALE: DATE PROJ. NO. 076 DRWG. NO. SHEET 6 OF DRWG. NO. SHEET 6 OF DRWS & MOORE BASE MAP SOURCE: Base map provi Dy Wisconsin Power & Light Company Originals prepared by Warzyn Engine |





| | | r (Unit | 8 L 5 //3 6 //4 |) | | Facility ID Numbe | r Data | 9 3-13 | -90 | Completed Rick (| By (Name ar 3. Wontz | nd Firm |) Iller Engi | ncers | | | | |
|----------|---|---|--|--|--|--|--|--|--|---|--|--|---|--|------------------------------------|------------------------------------|---------|--------------|
| - | Well Name | Yoll ID | Well Levelley | | 14 | | Well | Casing | | Elevations frequent | Øgteen | Nefero | Site | creen | | Typ | e of We | <u>II ()</u> |
| | | | 489.0 | | 15 | Y ISSENDISHED | 11181 | - Type | Wall Casing | Burneo | 1.00 | 1001 | (-) Longth | Slotted | Well Dopth | | | 7901 |
| - | 1-0W | 201 | 3791.2 | | | X 2-19-76 | 2'' | Р | 592.53' | 590.36 | 586.55 | ·V | 5' | PVC | 10.98 | | | |
| | 2-04 | 202 | 1766.4 | X | $\left - \right $ | × 2-22-76 | 211 | | 612 281 | 600 75 | | \mathbf{V} | C 11 | Slotted | 11 70 | V | / | |
| - | 2 0 W | 202 | 1883.3 | x | $\left - \right $ | <u> </u> | - | | 012.20 | 009.75 | 005.50 | | | | | | | |
| _ | 3-0W | 203 | 1242.5 | | | x 2-17-76 | 2'' | Р | 591.77' | 589.71 | 585.94 | | 5' | Slotted PVC | 10.83 | V | | |
| | | | 1878.1 | <u> </u> | | | | - | | - | | | | Slotted | | | | |
| · | ЗА | | 667.7 | | | <u>X 3-22-82</u> | 2'' | P | 592.22' | 590.02 | 582.14 | | 5' | PVC | 15.08 | | | |
| - | 5-0W | 205 | 2155.2 | <u>^</u> | | x 2-20-76 | 2'' | Р | 601.77' | 599.69 | 595.23 | · 🗸 | 41 | PVC | 10.54 | \checkmark | | |
| | 15.0 | 2.0.1 | 661.0 | <u>×</u> | | 2-20-76 | 211 | D | 601 271 | Egg 11 | E82 02 | | | Slotted | | | | |
| - | 5A | 206 | 2153.6 | | _ | X 2 20 70 | | | | -555.41 | 502.92 | · · · | | | 21.45 | r | | |
| | 6R-OW | | 1713.5 | - | - | x 2-26-90 | 211 | P | 591.85' | 589.17 | 586.53 | \checkmark | 5' | Slotted PVC | 10.32 | \checkmark | | |
| | | - | 1137.4 | <u> </u> | | | | | | | | | | Slotted | | | | |
| _ | 6AR | | 1705.4 | | _ | x 2-26-90 | 2" | P | 591.34' | 589.38 | 581.74 | | | PVC | 14.60 | <i>V</i> . | | |
| | 6B | 209 | 1138.8 | X | | X 2-19-76 | 2'' | Р | 591.91' | 589.64 | 578.15 | . / | 31 | Slotted PVC | 19.751 | \checkmark | | |
| - | - | | 499.8* | X | | | | | | | | | | Slotted | | | | |
| _ | 7-0W | 210 | 1131.5 | | _ | X 2-17-76 | -2'' | P | 593.76' | 591.45 | .586.61 | | <u></u> | PVC | 11.15 | | _ | |
| | 7A | 211 | 490.6 | | | x 2-17-76 | 2'' | P | 593.90' | 591.83 | 576.44 | V | 3' | Slotted PVC | 20.46 | \checkmark | | |
| - | | | 1116.5 | X | | | - | | | | | | | Slotted | | | | |
| - | 18-0W | 223 | 2391.7 | | | × 6-6-78 | 2'' | Р | 587.42' | 584.99 | 581.44 | , V | 10' | PVC - | 15.98 | | | |
| 2 | 0-0V | 220 | 382.3 | <u> </u> | | × 6 5 70 | | | (15.00) | | | | 10' | Slotted | 12 601 | V | | - |
| | | | 1073.6 | ——— X | | . 0-5-70 | 2. | <u>P</u> | 615.00 | 612.84 | -583-28. | | | Slottod | 42.00 | | | |
| ·2 | 9-0W | 224 | 1960.6 | | | (11-27-84 | 2" | _ <u>P</u> | 589.13 | 586.06 | '580.68' | V | 10.' | PVC | 18.45' | | | |
| _ | | 225 | 1096.3 | X_ | | | | | | | | | | Slotted | | | | |
| | ے E | ARID ESTA | 6 AND BLIGHE | | 7 1 | DINATEA | シティ | 2R D • 1 | , ABOVE BY MIL | E 086 LER E | ERVA- | | J NELL | 5 NER | | | | |
| | 2 2 2 | EGTA ONTI | SAND BLIGHE ROL MO ATIONS T DATI | | | NATER THE FI ENTS I WN HERE ADD. 0. | 5 F2 ELL EON 79 | | ABOVE BY MIL AGED | E OB6 LER E ON U.4 | ERVA- NGINE 2.6.6. | | | 0.00 NER 1 PLAN | | | | |
| | | ELEV DLAN BENC | BLIGHE ROL MO ATIONG T DATI | | | NATER THE FI ENTS I ADD. 0. HISELED | 5 Fill 5 Fill 5 | | ABOVE BY MIL AGED C. PAD RE,TOP | FOR EXIST | ERVA NGINE 2.G.B. XIBT.BI DIBCH | DAT LED ARGE | J NELL 5 16,NG -UM (TO AT 5LU E 5TRUC | VER PLAN VOSTA | | 1. (J 0. (J | 2.75 | - |
| - | | ELEV DLAN 3ENC | AND BLIGHE ROLMO ATIONG TOATI HMARK HMARK AND NDK | SH JM PL2 | | NATER THE FI ENTS I WN HERE ADD. 0. HISELED GOBGE TED HEI GOBGE | SELA EN EN EN EN EN EN EN EN EN EN EN EN EN | | ABOVE BY MIL AGED C. PAD RE, TOP | FOR EXIST | RVA NGINE 2.G.G. XIGT. OI DIOCHA REPAIR ENGIN BY C | DAT LED ARGE REEL | J WELL 5 16,NG UM (TO AT 6LU E 6TRUCT R6 6HI EPS | D NER PLAN D D D TA VRE, E D LOCA | ATED ANY, W | 1. (J 1. (J 1. (J) 1. (J) | 2,75 | 2 |
| | | ELEV BENC | AND BLIGHE ROL ME ATIONS T DATI HMARK HMARK AND N INDK DEA | SH JM JM JM JM JM JM JM JM JM JM JM JM JM | | NATER THE FI WN HERE ADD. 0. HIBELED GOBGE TED HEI GOBGE | FLLA DAG LAND RECY D | DR E DA | ABOVE BY MIL ABED ABED C. PAD RE, TOP ION W BY MI ION W ION W | FOREN JELL FOREN FOREN JELL FLL FLL FLL FLL FLL FLL FLL | ERVA NGINE 2.G.G. XIGT. GI DIGCHA ENGIN ENGIN BY C | DAT EDAT RED REE RARGE | J $V = LL$ $5 \ L6 \ NG$ -UM (TC) $AT \ 5 \ LU$ $= \ 5 \ RUC$ $R6 \ 6HE$ EP | D NER PLAN D D D D VRE, E D LOCA | LEV. 61 | 1. () (). () (). () | 2,75 | 2 |
| | | SENC SENC | ATIONS TOATI HMARK - INDIA AND V INDK | SHM SHM | | NATER THE FI ENTS I WN HERE ADD. 0. HIBELED GOBGE TED HEI GOBGE | FLLA DAG LAG EL | | ABOVE BY MIL ABED C. PAD RE, TOP ION W BY MI ION W J MAR | FOR EXIST | ERVA NGINE 2.G.G. XIBT. SI DIBCHA REPAIR ENGIN BY C | DAT DAT LED ARGE REEL ZEEL | J NELL 5 16,NG -UM (TO AT 5LU E 6TRUC 0, FIEL ERS 6HI ERS | D LOCA | ATED A.V. | 1. () (). () (). () | 2,75 | |
| | | SENC SENC | BLIGHE ROL MC ATIONS T DATI HMARK - INDI AND V INDK DEA | SHU SHU PLZAT | | NATER THE FI ENTS I WN HERE ADD. 0. HIBELED GOBGE TED HEI GOBGE HIBELED | FLL2 DA LO REL E | I I I I I I I I I I I I I I I I I I I | ABOVE BY MIL AGED C. PAD RE, TOP ION W BY MI ION W J MAR bedroc | EVERENCE ON U.G FOR EN EXIST VELL ELLS 22H 28 ex aqui | ERVA NGINE 2.G.G. XIBT. 5 DIBCH ENGIN ENGIN BY C | DAT EDAT EDAT EDAT | J $V = LL$ $5 \ L6 \ NG$ -UM (TC) $AT \ 5 \ LU$ $E \ 5 \ 5 \ 16$ | D. DO D. NER 1 PLAN V OSTA VRE, E D LOCA | ATED AV, N | 1. (D 10. G | 2.75 | , |
| | | ARIDAN BENC BENC BENC BENC BEND EGEND | BLIGHE ROL MC ATIONG T DATI HMARK - INDI AND V INDK DEA Priva | SHU SHU PLAT WIN ate | WE WE | NATER THE FI ENTS FI WN HERE ADD. 0. ECOR. C HISELED GOBSE TED HEI SOBSE LIPDAT | FLL DA CO RECY D at ed | A A A A A A A A A A | ABOVE BY MIL AGED C. PAD RE, TOP ION W BY MI ION W J MAR bedroc glacia | EVER EXIST FOR EXIST FOR E | ERVA NGINE 2.G.6. XIST. SI DISCH REPAIR ENGIN BY C S, 199 fer. burden | DAT EDAT EDAT EDET ARGE | J NELL 5 16,NG -UM (TO AT 5LU E 5TRUCT 0, FIEL EP5 | D. DO D. NER 1 PLAN V OSTA LE BOX URE, E D LOCA | ATED AV, W | 1. (D 10. (D 11/10. | 2,75 | 2 |
| | | EGEND: | BLIGHE ROL MC ATIONG T DATI HMARKA - INDIA AND V INDIA DEA Priva Monit | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | | NATER THE FI ENTS I WN HERE ADD. 0. HIGELED GOBGE TED HER GOBGE LIPDAT Il comple | DI CONCEPTE E et ed aple | A A A A A A A A A A | ABOVE BY MIL AGED C. PAD RE,TOP ION W BY MI ION W J MAR bedroc glacia in gla | EVERE FORE EXIST VELL ELLS ELLS ELLS ELLS CH 28 A aqui a over a cial o | ERVA NGINE 2.G.6. XIST. SI DISCH ENGIN ENGIN BY C in 199 fer. burden verburd | DAT DAT ED ARGE ZEEH ARGE ZEEH ARGE | J NELL S JG,NG UM (TO AT SLU E STRUCT | D LOCA | A Z Z | 1, ()), ()), () | 2.75 | , |
| · · · | 2 5 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | EGEND: | BLIGHE ROL MC ATIONG T DATI HMARK - INDI AND V INDK DEA Priva Monit Total | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | | NHERE NHE FI ENTS FI WN HERE ADD. 0. HIBELED GOBGE TED HE GOBGE LIPDAT Il comple well com | SET OF CONCEPTED AND AND AND AND AND AND AND AND AND AN | A | ABOVE BY MIL AGED C. PAD RE, TOP ION W BY MI ION W J MAR bedroc glacia in gla (mg/l) | EVIST FOR EXIST FOR | ERVA NGINE 2.G.6. XIST. SI DISCH ENGIN BY C in 199 fer. burden verburd ember | DAT DAT LED ARGE ZEE ZEE ZEE ZEE ZEE ZEE ZEE ZEE ZEE Z | J NELL 5 16,NG -UM (TO AT 5LU EP3 | D. DU D. NER 1 PLAN 2 OSTA URE, E D LOCA | ATED AV, W | 1. (D 1. (D 1. (D) | 2.75 | , |
| | | $\frac{1}{2}$ | AND ATIONS TOATI HMARK - INDIA AND V INDK DEA Priva Monit Total Conce log i | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | We we we no ro at we | NHERE ADD. 0. HIGELED GOBGE TED HE GOBGE LIPDAT I comple well com on concent ion conto al (, | $F_{L} = 0.9$ $C_{R} = 0.9$ | A A A A A A A A A A | ABOVE DY MIL AGED (, PAD RE, TOP ION W DY MI ION W I MAE bedroc glacia in gla (mg/l) ntoured 10, 30, | EVIST CON U.A FOR EXIST VELL EXIST VELL ELLS CCH 28 CCH 28 CC | ERVA NGINE 2.G.6. XIST. SI DISCH ENGIN ENGIN ENGIN BY C S JISS fer. burden verburd ember approx | DAT DAT LED ARGE ZEE ZEE ZEE ZEE ZEE ZEE ZEE ZEE ZEE Z | J NELL S JG,NG UM (TO AT SLU E STRUCT RG SHE EPS | D. DU D. NER 1 PLAN 2 OSTA URE, E D LOCA EBOYGA | X N , ELEV LEV. 61 A V, W | 1.0 | 2.75 | 2 |
| | | $\frac{1}{2}$ | ATIONG ROL MC ATIONG T DATI HMARKA - INDI AND V INDK DEA Priva Monit Total Conce log i | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | | NHERE NHE FI ENTS FI WN HERE ADD. 0. HISELED SOBSE TED HEI SOBSE UPDAT Il comple well com n concent ion conto al (, | F_{+} $= 0$ $= 1$ $= 0$ $= 1$ $= 0$ $= 1$ $= 0$ $= 1$ $= 0$ $= 1$ $= 0$ $= $ | A = 0 | ABOVE DY MIL AGED (, PAD RE, TOP ION W DY MI ION W J MAE bedroc glacia in gla (mg/l) ntoured 10, 30, | FOR EXIST I ON U.A FOR EXIST IELL EXIST I ELLS I OVER ACIAL OVER ACIAL OVER I ON AN) | ERVA NGINE | DAT ED ARGE ZEEH O. Ien. 1987 cima | J NELL 5 16,NG -UM (TO AT 5LU E 5TRUCT 0, FIEL EP5 te | D LOCZ | ATED AV, M | 1.0 | 2,75 | 2 |
| | 2 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | EGEND: | AND BLIGHE ROL MC ATIONO T DATI HMARK AND N INDK DEA Priva Priva Monit Total Conce log i | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | | NHERE NHE FI ENTS FI WN HERE ADD. 0, ECOR. C HISELED S OBSE TED HE S OBSE UPDAT Il comple Il comple well com on concent al (, re approx | DEL E et | $rac{1}{2}$ | ABOVE DY MIL AGED (, PAD RE, TOP ION W DY MI ION W J MAE bedroc glacia in gla (mg/l) ntoured 10, 30, | EVIDER EXIDE I ON U.A FOR EXIDE I DELL ELLS I ON A CELLS I OVER I OVER I ON AN SEPT I ON AN) | ERVA NGINE 2.G.6. XIGT. 6 DIOCH ZEPAIF ENGIN BY fer. burden verburd ember approx | DAT EDAT LEDAR LEDAR LEDAR LEDAR LEDAR LEDAR LEDAR LEDAT LEDAT LEDAR LEDAT LEDAT LEDAT LEDAT LEDAT | J NELL S JG,NG -UM (TO AT GLU E GTRUC D, FIEL EPS te | D. DU D. NER 1 PLAN V DUTA VRE, E D LOCA ED (GA | ATED AV, M | 1.0 | 2,75 | |
| L) 2) | Each r | EGEND: | AND BLIGHE ROL MC ATIONG T DATI HMARKA - INDIA AND V INDIA DEA Priva Monit Total Conce log i | SHU SHU SHU SHU SHU SHU SHU SHU SHU SHU | We we we and a construction of the constructio | NHERE WNHERE ADD.0. HECOR.C. HEC | SET ON REV D at the steed of th | $rac{1}{2}$ | ABOVE DY MIL AGED (, PAD RE, TOP ION W DY MI ION W J MAE bedroc glacia in gla (mg/l) ntoured 10, 30, | E = OBE LER = 0 $C = 0$ $FOR E EX 6 = 0$ $C = 0$ | ERVA AGINE AGINE AGINE AGINE AGINE C AGINE AGINE C AGIN AGINE C AGINE C AGINE C AGIN AGINE C AGINE C AGINE C AGINE C A | DAT DAT LED ARGE ZEE ZEE ARGE ARGE ZEE ZEE ZEE ARGE | J NEUL 5 16,NG -UM (TA AT 6LU E 6TRUC 0, FIEL EP3 | D. DU D. NER 1 PLAN J DETA URE, E D LOCA EZO (GA | TELEV LEV. 61 | 1.0 | 2,75 | |

 All private wells within the map boundaries may not be shown.

· ***

4) Total boron concentrations for September 1987 were plotted, rather than September 1990, because the 1990 results had a detection limit of 1 mg/l and all results were below detection.

| 2. | | | | | | |
|------|-------|---------------|-------------------|--|--|-----------------------|
| 1. | | | | | | |
| NO. | BY. | DATE | | REVISION | • | APP'D |
| PRO | IECT | WISC | ONS WATI NR | SIN POWER & LIG ER CLOSED ASH DISF 140 COMPLIANCE R | HT COMPAI POSAL FACILI EPORT | ΝΥ ΤΥ |
| SHE | ET TI | TLE | BOR | ON ISOCONCENTRAT DOLOMITE AQUIFE | ION MAP R | |
| DRAW | N BY: | PPH | | SCALE: | PROJ. NO. 07 | 683-107 |
| CHEC | KED E | BY: SCC | | 1 = 200 | DRWG. NO. | |
| APPR | OVED | BY: SCC | | | SHEET 7 OF | - 11 |
| DATE | : 2-6 | -91 | | | | |
| Da | me | s & Ma 201 | DOre | BASE MAP SOURCE: by Wisconsin Power Originals prepared b | Base map provi & Light Company y Warzyn Engine | ided /. eering. |





| Weil Name Weil Location N B E Weil Cosing Elevations Inference Serven 1-0W 201 3791.2 X 2-19-76 2'' P 592.53' 590.36 586.55' 5' Slotted 1-0W 201 3791.2 X 2-19-76 2'' P 592.53' 590.36 586.55' 5' Slotted 2-0W 202 1594.1 X 2-23-76 2'' P 612.28' 609.75 605.56' 5' 5' PVC 11.72' 3-0W 203 1242.5 X 2-17-76 2'' P 591.77' 589.71 585.94' 5' Slotted 3A 1242.5 X 2-17-76 2'' P 591.77' 589.71 585.94' 5' Slotted 3A 1237.4 X 3-22-82 2'' P 592.22' 590.02 582.14' V 5' Slotted 5-0W 205 | | | T) | Гу.р | ype | e o | ŧ v | V.e | 11 |
|--|---|---|-------------------|------------|---|----------------------|-----|---------|-----|
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | BAL | Inv | | | , | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | 1 | | <u>, , , , , , , , , , , , , , , , , , , </u> | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | - | | | | - | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | | V | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | · · · | | - - | 1 | | | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | \checkmark | | | | | | | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | 1 | ~ | / | 1 | | | |
| <u>6R-OW</u> <u>1713.5</u> <u>X</u> <u>2-26-90</u> <u>2''</u> P <u>591.85'</u> <u>589.17</u> <u>586.53'</u> <u>5'</u> <u>PVC</u> <u>10.32</u> | | / | | | | | | | |
| <u>6R-OW</u> 1713.5 X 2-26-90 2" P 591.85' 589.17 586.53' 5' PVC 10.32 | | | | | _ | | | | - |
| 1137.4 X Slotted | | | V - | ✓ | / . | - | | | |
| 5AR 1705.4 x 2-26-90 2" P 591.34" 589.38 581.74 5" PVC 14.60" | · · · | <i>V</i> · | - | | | | | | |
| 6B 209 1693.0 X 2-19-76 2'' P 591.91' 589.64 578.15 V 3' Slotted PVC 19.75' | V | \checkmark | | | | | - | | |
| 7-0W 210 1131.5 X 2-17-76 2" P 593.76' 591.45 586.61 4' Slotted PVC 11.15 | | | L | V | / | | | | |
| 7A 211 1141 8 2 2-17-76 2" P 593.90' 591.83 576.44 V 3' Slotted PVC 20.46 | | | / | | | | 1 | | |
| 18-0V 222 2301 7 Slotted | | | _ | | | | | | |
| <u>382.3 X</u> <u>382.3 X</u> <u>382.3</u> | | | | V | | | | | 2-1 |
| 20-0W 220 1873.0 X 6-5-78 2" P 615.88 612.84 583.28 10' PVC, 42.60' | | | | | _ | | | | - |
| <u>29-0W</u> <u>224</u> <u>1960.6</u> <u>X</u> <u>11-27-84</u> <u>2''</u> <u>P</u> <u>589.13</u> <u>586.06'580.68</u> <u>V</u> <u>10'</u> <u>PVC</u> <u>18.45'</u> | | | V | \swarrow | / | | | | |
| 29A 225 1950.4 X 11-27-84 2" P 589.21 586.38 548.51 V 3' PVC 43.70" | V | \checkmark | - | | | | | | |
| GRIDG AND COORDINATED FOR ABOVE OBGERVATION WELLS WERE EGTABLIGHED IN THE FIELD BY MILLER ENGINEERS LGING PLANT CONTROL MONUMENTS 142. | | | | | | | | | |
| GRIDG AND COORDINATED FOR ABOVE OBGERVATION WELLS WERE EGTABLIGHED IN THE FIELD BY MILLER ENGINEERS LGING PLANT CONTROL MONUMENTS 142. ELEVATIONS SHOWN HEREON BAGED ON LIGG.G. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE BOX, ELEV 2. CHISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. GI | 1.0 | 1.0 | 0 | | 2 | 2.1 | | 5 | , |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS WERE ESTABLISHED IN THE FIELD BY MILLER ENGINEERS USING PLANT CONTROL MONUMENTS 142. ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE DOX, ELEV 2.0HISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. OF AND PLOTTED HEREON BY MILLER ENGINEERS SHEDD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDDYGAN, W UNDLATES OBSERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28 1990 | V. (0 .10. (c) N16. | 1. (0., | 60.6 | 2 | 22 | 2., | | | _ |
| GRIDG AND COORDINATED FOR ABOVE OBGERVATION WELLS NERE ESTABLIGHED IN THE FIELD BY MILLER ENGINEERS USING PLANT CONTROL MONUMENTS 142. ELEVATIONS SHOWN HEREON BAGED ON U.G.G.G. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT GLUICE DOX, ELEV 2. CHISELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. O MG GAR - INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDDIGAN, W HAOW INDICATES OBSERVATION WELLS BY OTHERS DEAWING UPDATED ON MARCH 28, 1990. LEGEND: | V. 6 | /、(の… /// | 0 . U D | 2. | 2 | 2 | | | _ |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS NERE ESTABLISHED IN THE FIELD BY MILLER ENGINEERS USING PLANT ONTROL MONUMENTS 142. ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE BOX, ELEV 2.24HSELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. GI & GAR - INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDOYGAN, W DEAMING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. | V. (0 ,10. (c N16. | /, () | 10 | 2. | 22 | 2 | | | |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS NERE ESTABLISHED IN THE FIELD BY MILLER ENGINEERS JOING PLANT CONTROL MONUMENTS [42. ELEVATIONS SHOWN HEREON BASED ON J.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUICE DOX, ELEV 2. CHIBELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. GI SGAR - INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS, SHEDDYGAN, W DEAMING UPDATED ON MARCH 23, 1990. LECEND: → Private well completed in bedrock aquifer. | V. (0 ,10. 60 N10. | / , () | 10 2. (1 10 | 2 | 222 | 2.,2 | | 5 | |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS NERE ESTABLISHED IN THE FIELD OF MILLER ENGINEERS USING PLANT ELEVATIONS SHOWN HEREON BASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-INE COR. OF CONC. PAD FOR EXIST. SHED AT SLUKE DOX, ELEV 2.4HISELED SQUARE, TOP EXIST. SHED AT SLUKES OX, ELEV 2.4HISELED SQUARE, TOP EXIST. SHED AT SLUKES, ELEV. ON MARKS-IND PLOTTED HEREON BY MILLER ENGINEERS SHEEDYGAN, W H40W INDUCATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEEDYGAN, W DEAWING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. | V. 0 ,10.6 | /, () | 10 10 10 | 2. | 22 | 2. | | | |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS NERE ESTABLISHED IN THE FIELD BY MILLER ENGINEERS USING PLANT ELEVATIONS SHOWN HEREON DASED ON U.S.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SUBJECT DOX, ELEV 2.CHIBELED SQUARE, TOP EXIST. SHED AT SUBJECT DOX, ELEV 2.CHIBELED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. OF MADD PLOTTED HEREON BY MILLER ENGINEERS SHEBOYGAN, W INDICATES OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEBOYGAN, W DEAWING UPDATED ON MARCH 28, 1990. LECEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. Sulfate concentration (mg/1), September 1990 | V. (0 ,10. (0 N16. | /, (0, /////////////////////////////////// | | 2. | 22 | 2 | . 1 | | |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION WELLS NERE ESTABLISHED IN THE FIELD OF MILLER ENGINEERS USING PLANT CANTROL MONUMENTS [42. ELEVATIONS SHOWN HEREON DASED ON U.G.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0. 19. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. OHED AT SUBJECTORS, ELEV. CONCLUSION OF DECEMBER OF PRINTURE, ELEV. CONCLUSION OF PRINT | V. (0 ,10.6 | /, () | | 2. | 22 | 2 | . 1 | 5 | |
| GRIDA AND COORDINATED FOR ABOVE OBDERVATION NELLA NERE ESTABLISHED IN THE FIELD OF MILLER ENGINEERS JOING PLANT FLEVATIONS SHOWN HEREON BAGED ON JAGA. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. SHED AT SLUCE DOX, ELEV 2.0416ELED 68JARE, TOP EXIST. DHECHARGE STRUCTURE, ELEV. OF AND PLATTED HEREON BY MILLER ENGINEERS, SHEDOYGAN, WELL REPAIRED, FIELD LOCATED AND PLATTED HEREON BY MILLER ENGINEERS, SHEDOYGAN, WELL AND PLATTED HEREON BY MILLER ENGINEERS, SHEDOYGAN, WELL ADD DEALING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. ¹⁴⁰ Sulfate concentration (mg/1), September 1990 -100 — Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | V. (0 ,10. Co N10. | /, () | | 2. | 22 | 2, , , | | | |
| GRIDS AND COORDINATES FOR ABOVE OBSERVATION MELLS NERE ESTABLISHED IN THE FIELD OF MILLER ENGINEERS JAING PLANT CONTROL MENUMENTS IFL. ELEVATIONS SHOWN HEREON BASED ON U.G.G.S. DATUM (TO OSTAIN PLANT DATUM, ADD 0.79. BENCHMARKS - I.NE COR. OF CONC. PAD FOR EXIST SHED AT SUBJEST DOX, ELEV 2. CHISSLED SQUARE, TOP EXIST. DISCHARGE STRUCTURE, ELEV. OF AND PLATTED OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLATTED OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLATED OBSERVATION WELL REPAIRED, FIELD LOCATED AND PLATES OBSERVATION WELL REPAIRED, HEREON GHEORYGAN, W DEAWING CATES OF CONTON MELL REPAIRED, HEREON GHEORYGAN, W DEAWING CATES OF CONTON WELL REPAIRED, HEREON GHEORYGAN, W DEAWING CATES OF CONTON WELL REPAIRED, HEREON GHEORYGAN, W DEAWING UPDATED ON MARCH 28, 1990. LEGEND: Private well completed in bedrock aquifer. Monitoring well completed in glacial overburden. ¹⁴⁰ Sulfate concentration (mg/1), September 1990 - 100 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | V. (0 10.6 | / , () | | | 22 | 2 | | 5 | |
| GRIDA AND COORDINATED FOR ABOVE OBSERVATION NELLS NEED ESTABLISHED IN THE FIELD OF MULER ENGINEERS Joing PLANT CATEGOL MONUMENTS FIELD OF MULER ENGINEERS Joing PLANT E-EVATIONS SHOWN HEXEON BASED ON JAG.S. DATUM (TO OCTAIN PLANT DATIM, ADD 0.79. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST SHED AT SUBJECT EDX. ELEV 2.0HISELED SQUARE, TO EXIST SHED AT SUBJECT EDX. ELEV 3.0HISELED SQUARE, TO EXIST SHED AT SUBJECT EDX. ELEV 3.0HISELED SQUARE, TO EXIST SHED AT SUBJECT EDX. ELEV 3.0HISELED SQUARE, TO EXIST SHED AT SUBJECT EDX. 3.0HISELED SQUERYATION WELL REPAIRED, FIELD LOCATED 4.0W INDECATES OBSERVATION WELL BY OTHERS 5.0HISELED STREAM TION WELL BY OTHERS 5.0HISE WELL COMPLETED ON MARCH 23, 1990. LEGEND: 3.0Frivate well completed in glacial overburden. 4.0 4.0 Nonitoring well completed in glacial overburden. 4.0 4.0 Sulfate concentration (mg/1), September 1990 - 100 - Concentration contour, contoured on an approximate 10g interval (, 1, 3, 10, 30,) Private well locations are approximate. Each private well is identified by the street address of the home(s) for which 100, BY DATE REVISION | V. (0 ,10. (c N16). | | | | 22 | 2 | | 5 AF | |
| GRIDA AND COORDINATED FOR ADDRE OF MULLER ENGINEERS USING PLANT ENTROL MONUMERS FILE OF MULLER ENGINEERS USING PLANT ELEVATIONS SHOWN HEREON BASED ON U.M.G.G. DATUM (TO DETAIN PLANT DATUM, ADD 0.77. BENCHMARKS-I.NE COR. OF CONC. PAD FOR EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, ELEV 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX, W 2.04 HOLED SQUARE, TOP EXIST. OHED AT SUBJECT SOX AND PLATED HEREON BY MULLER ENGINEERS SHEED GAIN, W 14000 NDICATES DESERVATION WELLS ET STATES AND PLATED HEREON BY MULLER ENGINEERS DEAMING UPDATED ON MARCH 28, 1990 LECEND: Private well completed in glacial overburden. 100 Concentration (mg/1), September 1990 - 100 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. 2.1 NO. BY DATE 2.1 NO. BY DATE REVISION PROJECT WISCONSIN POWER & LIGHT CO | V. 0 10.0 N/10. N/10. | /、 () / // | | 2. 2. | | 2.2 | | 5 AF | |
| GRIDS AND COORDINATES FB2. ABOVE OBSERVATION WELLS WERE ESTABLISHED IN THE FIELD OF MILLER ENGINEERS 16 NG PLANT ELEVATIONS SHOWN HEREON BASED ON USG. 0. DATUM (TO OSTAN) FLANT DATUM, ADD 0.73. BENCHMARKS-INE COR. OF CONC. PAD FOR EXIST. SHED AT SUBJEST ON, ELEV 2.04163LED AGUARE, TOP EXIST. SHED AT SUBJEST ON THE SON, ELEV W GAR - INDICATES OBSERVATION WELL REPARED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS SHEDOGAN, M W ADD PLOTTED HEREON BY MILLER ENGINEERS SHEDOGAN, M DEAMING UPDATED ON MARCH 28, 1990 LEGEND: Private well completed in bedrock aquifer. Private well completed in glacial overburden. 140 Sulfate concentration (mg/1), September 1990 -100 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well is identified by the street address of the home (s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. | V. (0 10. (0 N/10. N/10. OMP/ FACIL T | / (/ / / / / / / / / / / / / / / / / / | | | | 2 2. AN .IT | | | |
| GRIDS AND CONCENTRATES =>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> | V. (0) NIO. (0) NIO. (0) NIO. (0) FACILIT | / (/ / / / / / / / / / / / / / / / / / | | | | 2 2. AN .IT | | | |

Dames & Moore BASE MAP SOURCE: Base map provided by Wisconsin Power & Light Company. Originals prepared by Warzyn Engineering.

20011'42"

NOTES:





| | · (Unit | ε L 5 // 3 ε //4 |) | | Facility ID Numbe 02524 | Dat | e 3-13 | -90 | Completed Rick | By (Name a G. Wontz | nd Firm) : - M11 | ler Engir | neers | | | | |
|---------------------------------------|--|---|---|--|--|--|--|--|---|--|---|---|---|--|----------------------|----------------|--|
| Well Nome | | Well Location | N | 8 8 1 | V Batilina | Well Diam | Casing | Top of Well Casing | Elevations Surface | Ø <u>steen</u> | Reference MAL Up II | e So | Material | Well Douth | | l'ype c | e Well |
| 1-01/ | 201 | 489.0 | | <u>x</u> | | | | | | | | | Slotted | | | ./ | |
| | 201 | 1766.4 | | | 2-19-76 | | | 592.53 | 590.36 | 586.55 | | - | PVC | 10.98 | | | |
| 2-0W | 202 | 1594.1 | | | 2-23-76 | 2'' | Р | 612.28 | 609.75 | 605.56 | | 5" | PVC | 11.72 | l | \checkmark | |
| 3-0W | 203 | 1242.5 | | × | 2-17-76 | 211 | P | 591.77' | 589.71 | 585.94 | $\overline{\mathbf{V}}$ | 51 | Slotted PVC | 10.83 | | / | |
| 2 4 | | 1878.1 |) | x | | | | | | | ./ | | Slotted | | | | |
| <u> </u> | | 667.7 | X | | 3-22-82 | 2" | <u>Р</u> | 592.22 | 590.02 | 582.14 | | 5' | Slotted | 15.08 | | | |
| 5-0W | 205 | 2155.2 661.0 | <u>x</u> | | . 2-20-76 | 2'' | Р | 601.77' | 599.69 | 595.23 | · ✓ | 4 ' · | PVC | 10.54 | | | |
| 5A | 206 | 2153.8 | <u> </u> | | 2-20-76 | 2'' | P | 601.37' | 599.41 | 582.92 | · V . | 3' | PVC | <u>'21.45</u> | | | |
| 6R-OW | | 1135.8 | | < <u> </u> | 2-26-90 | 211 | P | 591 851 | 589 17 | E86 E2 | V | 51 | Slotted | 10 32 | | | |
| | | 1137.4 | X | - < | 2-26-00 | 211 | | 501 244 | 50.9.17 | | | | Slotted | 10.52 | | | |
| 6AR | | <u>1705.4</u> 1138.8 | _ X | <u> </u> | 2-20-90 | 2 | P | 591.34 | 509.30 | 501./4 | | 5' | PVL . | 14.60 | | | |
| 6B | 209 | 1693.0 | | , | 2-19-76 | 211 | Р | 591.91' | 589.64 | 578.15 | | 3' | PVC | 19.75 | | | |
| 7-0W | 210 | 499.8* | | | 2-17-76 | 211 | Р | 593.76' | 591.45 | 586.61 | | Lj 1 | Slotted PVC | 11.15' | | V | |
| 70 | 211 | 490.6 | X | | 2-17-76 | 2'' | Р | 593.90' | 591.83 | 576.44 | V | 31 | Slotted PVC | 20 46 | | | |
| 10 | 411 | 1116.5 | X | | | | - | | | | | | Slotted | | | | |
| 18-0W | 223 | 2391.7 | | × | 6-6-78 | 2'' | P | 587.42' | 584.99 | 581.44 | | 10' | PVC | 15.98 | | | |
| 20-0W | 220 | 1873.0 | | <u> </u> | 6-5-78 | 2'' | Р | 615,88 | 612,84 | '583.28 | | 10' | Slotted PVC | 42.60' | | | |
| 29-0W | 224 | 1093.6 1960.6 | <u> </u> | | 11-27-84 | 2'' | Р | 589 13 | 586 06 | 1580 681 | \checkmark | 101 | Slotted PVC | 18.45 | | \checkmark | |
| · · · · · · · · · · · · · · · · · · · | | 1096.3 | | | | | | | | | | - 1.54 | | | | | |
| .9A | -HOR RID GTA | 1950.4 R. CONTR S AND C BLIGHE 20 L MO | | Me DRI JME | NUMENT NUMENT NNATER THE FI | | P NC D · E | 589.21 2. - 0 ABOVE BY MIL | 586.38 00.37 79.61 = 056 LER = | 548.51 W ERVA | NO. TION EERS | 3' 2 - 4e WELLe LG,NG | Slotted PVC 10.05 0.00 5 NER PLAN | 43.70' | | _ | |
| | 225 -HOR BETA ONTR ELEV BENC | 1950.4 R. CONTR BLIGHE COL MO ATIONO T DATL | | Me DRIZE | VN HERE | 2" - Filt - Filt - Filt - ON - ON - ON - ON - ON - ON - ON - ON | | 589.21 2.1 - 10 1 ABOVE DY MIL ABED | 586.38 00.87 79.01 = 086 LER = 0N U.G | 548.51 W ERVA NGINE | NO. TION EERS DATU | 3' 2 - 4 WELLO JO,NG M (TO | Slotted PVC 10.05 0.00 D NER PLAN | 43.70' | | 02 | |
| | 225 -HOR BETA ONTR | 1950.4 R. CONTR BLIGHE 20 L MO ATIONG T DATL | | Me DRIZE | NUMENT NUMENT DINATER THE FI NTG I & VN HERE DD 0, E COR, C HIBELED | 2" - Fill 019 US | | 589.21 2. - 0 ABOVE BY MIL ABED C. PAD RE,TOP | 586.38 00.87 79.61 000 100 100 100 100 100 100 100 100 1 | 548.51 5 H $S = R \vee A^{-1}$ $S = R \vee A^{$ | NO. TION EERS DATU HED A | 3' 2 - 4 WELLO UGING M (TO T GLUIO STRUCT | Slotted PVC 10.05 0.00 5 NER PLAN , OSTA VE BOX URE, E | 43.70' | 1. 0. | 02 | 7-37 |
| | 225 -HOP BOTA ONTR DELEV BENCH | 1950.4 R. CONTR BLIGHE OL MO ATIONG T DATL MARKE | SIM 2- | Me DRITE HOVA | NUMENT NUMENT NATER THE FI NTG I VN HERE DD 0, ECOR, C HIBELED D 0 BBE ED HER | 2" - FLL2 OPT CON RE | | 589.21 2. - 0 ABOVE BY MIL ABED C. PAD RE,TOP | 586.38 00.87 79.01 000 19.01 000 19.01 000 19.01 000 19.01 000 19.01 000 19.01 | SH8.51 SH8.51 SHRVA ERVA SERVA | NO. TION EERS DATU ED A ARGE REER | 3 2 - 4 WELLA JGING M (TO T GLUIA STRUCT FIELD | Slotted PVC 10.05 0.00 5 NER PLAN 7 OSTA 2 E BOX URE, E D LOCA | 43.70' ZE E LEV.6 ATEQ | 1. C. | 02 | 75 |
| | 225 -HOR ONTR DATA SENC | 1950.4 R. CONTR BLIGHE DLIGHE DLIGHE DATL MARKE - INDIC ANDI INDIC | | Me DRIZE | VN HERE VN HERE VN HERE VN HERE VN HERE VN HERE VN HERE VD OBSE | 2" - FILL DAT US RED | | 589.21 2. - 0 ABOVE DY MIL ABED C. PAD RE,TOP | 586.38 00.33 79.01 = 086 LER = 0N U.G FOR E) EX 10T. IELL F IELL F | 1548.51 WERVA NGINE NGINE NGINE NGINE REPAIR ENGINE | DATU EDATU EDATU EDATU EDATU | 3' $2 - 4e$ $WELLe$ $46,NG$ $M (Tc)$ $T 6 LUIC$ $5TRUCT$ $FIELE$ $65 5HE$ | Slotted PVC 10.05 0.00 b NER PLAN c E BOX URE, E D LOCA | 43.70' ZE LEV.6 ATEP ATEP | 1. C 10 V 1 K | 02 | 7- |
| | 225 -HOR ONTR DATA DATA DATA DENCH | 1950.4 R. CONTR BUIGHE DELIGHE DELIGHE DELIGHE MARKE - INDIC ANDI INDIC DELI | | M R ZE H, X C HOTE JG | VN HERE VN HERE VN HERE VN HERE VN HERE DD 0, HIBELED D BBE ED HEF D DBSE UP DAT | 2" - FLA DA VA | P NO D NO D NO D NO NO NO NO NO NO NO NO NO NO NO NO NO | 589.21 2.1-10 ABOVE DY MIL ABED C. PAD RE,TOP ION W ION W ION W IMAR | 586.38 00.87 79.01 000 19.01 100 100 100 100 100 100 100 | 1548.51 N V ERVA- NGINE D.G.G. (16T. 6) DISCHA REPAIR ENGIN BY C | NO. TICN EERS DATU EDATU EDATU EDATU EDATU EDATU EDATU EDATU | $\frac{3}{2 - 4}$ $\frac{1}{2 - 4}$ | Slotted PVC 10.05 0.00 5 NER PLAN , OSTA , OSTA LOCA BOYG | 43.70' ZE E LE V. 0 ATED ATED | 1. C 10.1 | 02 | 75 |
| | 225 -HOR BOTA ONTR DATA BENCH BENCH GEND: | 1950.4 R. CONTR BUIGHE DUGHE DATU MARKE - INDIC ANDI INDIC DEAL Priva | | | NUMENT DINATER THE FI NTG I NTG I NT | | | 589.21 2. I - IO ABOVE DY MIL ABED C. PAD RE, TOP ION W ION W ION W IMAR bedroc | 586.38 00.87 79.01 EDBG LERE ON U.G FORES EXIST. JELL F ELLS 224 28 24 28 24 28 | 1548.51 W ERVA NGINE NGINE NGINE NGINE REPAIR ENGIN BY C | NO. TERS DATU ED A ARGE REERS O. | 3' $2 - 4e$ $WEULA$ UG,NG $M (TC)$ $T G LUIA 5TRUCT$ $FIELC 5 SHE$ | Slotted PVC 10.05 0.00 5 NER PLAN 7 OSTA 2 E BOX URE, E D LOCA | 43.70' \overline{N} | 1. C 10.1 10.1 | 2 | 75 |
| | 225 -HOP RID ONTR SENCH SENCH GAR -4-OW GEND: | 1950.4 R. CONTR SAND C BUIGHE OL MO ATIONS T DATL MARKS - INDIC AND I INDIC DEAL Priva | = 0 (0) (1) | M R ZE V Z V E V V | NUMENT NUMENT NATER THE FI NTS I VN HERE DD 0, ECOR, C HIBELED D BBE UP DAT I comple | 2" - FILL FLA DIG CO VGV D ted | P NC DR DR DR DR DR DR DR DR DR DR DR DR DR | 589.21 2. I - IP ABOVE DY MIL ABED C. PAD RE, TOP IDN W IDN W IMAR bedroc | 586.38 00.87 79.01 E 086 LER E 0N U.6 FOR E EX 6 ELLS 2CH 28 ELLS 2CH 28 ELLS 2CH 28 ELLS | 548.51 548. | NO. TICKS DATU EDA ARGE REERS DATU EDA REERS ON REERS | 3' $2 - 4e$ $WEULA$ UG,NG $M (TC)$ $T GLUIC$ $FIELE$ $G GHE$ | Slotted PVC 10.05 0.00 5 NER PLAN 7 OSTA 2E BOX URE, E 5 LOCA | 43.70' \overline{ZE} | V 1 K | 02 | 73 |
| | 225 -HOP RID STA ONTR LEV SENC GAR -4-OW GEND: | 1950.4 R. CONTR S AND C BUIGHE SOL MO ATIONG T DATL MARKE - INDIC AND T INDIC DEAL Priva | L COL SIM - ALA JII te | Me ZE V Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z | NUMENT NUMENT NATER THE FI NTS I VN HERE DD 0, ECOR, C HISELED D BSE UPDATI | 2" - Fill F | P NO NO NO NO NO NO NO NO NO NO NO NO NO | 589.21 2. I - IO I ABOVE DY MIL ABED C. PAD RE,TOP ION W ION W I MAR bedroc glacia | 586.38 00.87 79.01 E 000 LER E ON U.G FOR E EX 05 VELL F ULER ELLS 22H 28 ex aqui 1 over | 548.51 FRVA- $CA, 6CA, 6C$ | NO. TICK DATU EDATU EDATU EDATU EDATU EDATU EDATU EDATU | 3' 2 - 4 WELLA JO,NG M (TO T OLUIO T OLUIO FIELC OFRUCT | Slotted PVC 10.05 0.00 5 NER PLAN , OSTA LOCA BOYGA | $\frac{43.70'}{ZE} = \frac{1}{2}$ | 1. C 10.1 | 02 | 73 |
| | 225 -HOR RID A A A A A A A A A A A A A | 1950.4 R. CONTR S AND C BUIGHE S AND C BUIGHE COL MO ATIONG T DATL MARKE PARE Priva Monit | $- \qquad \qquad$ | Me Me Me Me Me Me Me Me Me Me | NUMENT DINATER THE FI NTS I VN HERE DD 0, ED HER DD 0 HIBELED DBBE UPDATI | 2" - Fill - | P NO NO NO NO NO NO NO NO NO NO NO NO NO | 589.21 2. I - IO I ABOVE DY MIL ABE D C. PAD RE,TOP ION W DY MI ION W J MAR bedroc glacia in gla | 586.38 00.87 79.01 00.87 79.01 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 00000 000000 000000 0000000 000000000 0000000000 | 548.51 S=10 S= | NO. TION EERS DATU EDATU EDATU EDATU EDATU EDATU EDATU EDATU EDATU ARGE O, NO. | 3' 2 - 4 WELL JO,NG M (TO T OLUIO T OLUIO FIELC S OHE | Slotted PVC 10.05 0.00 5 NER PLAN 057A CE BOX URE, E D LOCA | $\frac{43.70'}{2}$ | V 1 H | D 2 C2 2 | 7 |
| | 225 -HOR RID A RID A A A A A A A A A A A A A | 1950.4 R. CONTR SAND C SAND C SAND C SAND C SAND C COL MO ATIONO T DATL MARKE PRIVA Priva Monit Total | - OL ODL - SM - ALA II + te or s | Me DRI HO L N L N L N L N L N L N L N L N L N L | NUMENT DINATER THE FI NTS I NTS I NT | 2" - Fill - | P Na Na Na Na Na Na Na Na Na Na Na Na Na | 589.21 2, - 0 A = 0 A | 586.38 00.33 19.01 00.33 19.01 0000 00000 00000 00000 00000 00000 00000 00000 000000 0000000 0000000000 | 1548.51 N ERVA ERVA NGINE 2.6.6. (16T.6) DIBCH ENGIN EN | NO. TERS DATU ED A ARGE ZEERE DATU ED A ARGE ZEERE DATU ED A ARGE ZEERE DATU ED A ARGE ZEERE DATU ED A ARGE ZEERS DATU ED A ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ZEERS ARGE ARGE ZEERS ARGE ZEERS ARGE | 3' 2 - 4 WELLO JO,NG M (TO T OLUIO T OLUIO T OLUIO T OLUIO T OLUIO T OLUIO | Slotted PVC 10.05 0.00 2 NER PLAN 2 E BOX URE, E D LOCA | 43.70' Z = E = 1 V | | 02 | 75 |
| | 225 $-Hor$ RID ATF LEV ATF | 1950.4 R. CONTR S AND C S AND C S AND C S AND C S AND C CONCE INDIC DEAL Priva Monit Total Conce log i | $- \qquad \qquad$ | Me Me Me Me Me Me Me Me Me Me | NUMENT NUMENT NATER THE FI NTS I NTS | $2^{\prime\prime} = \frac{2}{5} = \frac{1}{5} = \frac{1}{$ | P NO NO NO NO NO NO NO NO NO NO NO NO NO | 589.21 2, - 0, ABOVE ABOVE ABED | 586.38 00.87 79.01 00.87 79.01 00.87 00.87 00.87 00.87 00.06 00.87 00.67 | 548.51 48.51 548.5 | NO. NO. TERS DATU EDA VEER ZEER ZEER O. den. r 1990 ximate | 3' 2 - 4 WELL JO,NG M (TO T OLUIO T OLUIO T OLUIO T OLUIO T OLUIO T OLUIO | Slotted PVC 10.05 0.00 5 NER PLAN 057A CE BOX URE, E D LOCA | 43.70' Z = E V = N L = V.6 A = D A = N, M | | | 73 |
| 29A | 225 -HOR RID A RID A A A A A A A A A A A A A | 1950.4 R. CONTR SAND C SAND C SAND C SAND C DEAL MARKE Priva Priva Priva Nonit Total Conce log i 1 locati | $- \qquad \qquad$ | Me DRIE HOLA LA We ing ulfa rat: erva | NUMENT NUMENT DINATER THE FI NTS I VN HERE DO 0. ECOR. CH HERE DO 0. ECOR. CH HERE DO 0. ECOR. CH HERE DO 0. HERE DO DO DO DO DO HERE DO DO DO DO DO HERE DO DO DO DO HERE DO DO DO DO HERE DO HERE DO | 2" - FLA - FLA | P No No No No No No No No No No No No No | 589.21 2, - 0 A = 0 A | 586.38 586.38 79.01 79.01 ECRE CRE | 1548.51 N ERVA ERVA NGINE NGINE NGINE C NG NGINE C NG NG N N N N N N N N N N N N N | NO. TION EERS DATU ED A ARGE REERS OATU ED A ARGE NO. IED A ARGE IED A ARGE NO. IED A ARGE IED A IED A ARGE IED A ARGE IED A IED | 3' 2 - 4 WELLO JO,NG M (TO TOLUIO TOLUIO TOLUIO TOLUIO TOLUIO TOLUIO TOLUIO | Slotted PVC 10.05 0.00 2 NER PLAN 2 E BOX URE, E D LOCA | 43.70' ZEE VN , ELEN LEV. O ATED A.N, M | | 02 | 75 |
| 29A | 225 -HOR RIDA SENC CAR CAR CAR CAR CAR CAR CAR CA | 1950.4 R. CONTR SAND C SAND C SAND C SAND C COL AND C ATIONS TOTAL MARKS Priva Priva Priva Nonit Total Conce log i l locati e well i | ol 2014 SM - ALA III te or s tit on s | Me DRIZE HOV I.N 2.C TE V V V V V V V V V V V V V V V V V V | NUMENT NUMENT NUMENT NATER THE FI NTS I VN HERE DD 0. ED HERE DBSE UPDAT I comple well com ate conce ion conto i (, re approx | $\frac{2^{11}}{2} = \frac{1}{2} =$ | P No No No No No No No No No No No No No | 589.21 2, - 0, A = 0 A | 586.38 586.38 79.61 508.57 79.61 508.57 $FOR E$ $EX 57.$ $7ELL F$ $ELL 5$ $2CH 28$ $CH 28$ CH | 1548.51 N ERVA- NGINE NGINE NGINE NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NGINE C NG NG NG NG NG NG NG NG NG NG NG NG NG N | NO. TERS DATU ED A ARGE ZEER ZEER ARGE NO. IED A ARGE ZEER ARGE NO. IED A ARGE NO. IED A ARGE NO. IED A ARGE NO. IED A IED A | 3' 2 - 4 WELLO JGING M (TC TGLUIC STRUCT FIELE SHE | Slotted PVC 10.05 0.00 2 NER PLAN 2 E BOX URE, E 2 LOCA BOYGA | 43.70' | | 2 | |

boundaries may not be snown.

| J | | | | | | |
|------|-------|--------------|-------------|---|--|--------------|
| NO. | BY | DATE | | REVISION | | APP'D |
| PROJ | ECT | WISC EDGE | ONS WATI | SIN POWER & LIGH ER CLOSED ASH DISP R 140 COMPLIANCE RE | IT COMPAN OSAL FACILIT | Y Y |
| SHEE | ET TI | TLE S | ULF | ATE ISOCONCENTRATI DOLOMITE AQUIFER | ION MAP | |
| DRAW | N BY: | PPH | | SCALE: | PROJ. NO. 076 | 33-107 |
| CHEC | KED E | Y: SCC | | 1 = 200 | DRWG. NO. | |
| APPR | OVED | BY: SCC | | | SHEET 9 OF | 11 |
| DATE | 2-6 | -91 | | | | |
| Da | mes | : & Mc 20 | Dor | BASE MAP SOURCE: by Wisconsin Power & Originals prepared by | Base map provic & Light Company. / Warzyn Engine | ed ering. |

Real Contraction

NOTES:





| | | Facility Name Edgewater | WP • (Un) u | 5 L 5 // 3 6 //4 | } | F | acility ID Number 02524 | Date | 1-13 | -20 | Completed Rick | By (Name a G. Wuntz | nd Firr | n)]]c | r Engin | eers | | | | | |
|------|----------------------|---|---|--|---|--|--|--|---|--|---|--|--|--|--|--|---|-----------------------|--|------------------------------|-------|
| - | | Well Name | | Well Location | ИВ | 15 W | Batablished | Well C | Type | Top of Well Casing | Elevations Burginal Burlace | 牌rtean Top | MAL. | Site | Longth | Material | Well Depti | אצויער | ow 1 | 1 Well | SOLhe |
| | | 1 - OW | 201 | <u>489.0</u> 3791.2 | <u> </u> | x | 2-19-76 | 2'' | Р | 592.53' | 590.36 | 586.55 | V | | 5' | Slotted PVC | 10.98 | | ~ | | |
| | | 2-0W | 202 | 1766.4 | <u>x</u> | | 2-23-76 | 2'' | P | 612.28' | 609.75 | 605.56 | \sim | | <u>ح</u> ۱: | Slotted PVC | 11.72 | | 1 | | |
| | | 3-0W | 203 | 1883.3 | X | | | | | | | | V | | | Slotted | | | | | |
| | | | 205 | 1242.5 | X | | 2-17-76 | | <u>р</u> | 591.77 | 589.71 | 585.94 | | | | PVC Slotted | 10.83 | | | | |
| | | <u>3A</u> | | 1237.4 667.7 | <u>x</u> | <u> </u> | 3-22-82 | 2'' | <u> </u> | 592.22 | 590.02 | 582.14 | | | _5' | PVC Slotted | 15.08 | | | | |
| | | 5-0W | 205 | 2155.2 661.0 | x | - - | 2-20-76 | 2'' | Р —— | 601.77' | 599.69 | 595.23 | | | 4' | PVC Slotted | 10.54 | | | | |
| | | · 5A | 206 | 2153.8 | | X | 2-20-76 | 2'' | Р —— | 601.37' | 599.41 | 582.92 | • V | | 3.* | PVC | 21.45 | | | | |
| | · | 6R-OW | | 1713.5 | | | 2-26-90 | _2'' | <u> </u> | <u>591.85'</u> | 589.17 | 586.53 | V | | 51 | Slotted PVC | 10.32 | | \checkmark | | - |
| | | 6AR | | 1137.4 | X | X | 2-26-90 | 2'' | Р | 591.34' | 589.38 | 581.74 | ~ | - | 5' | Slotted PVC | 14.60 | | | | |
| | | бB | 209 | 11 <u>38.8</u> 1693.0 | X_ | x | 2-19-76 | 2'' | Р | 591.91' | 589.64 | 578.15 | ~ | | 31 | Slotted PVC | 19.75 | 1 | | - | |
| | | 7-0W | 210 | 499.8* | | x | 2-17-76 | 211 | | E07 761 | E01 / E | E86 61 | ~ | | | Slotted | 11 15 | | \checkmark | | |
| | | | | 490.6 | | | 2-17-76 | 211 | г | 593.70 | 591.45 | E76 14 | | | | Slotted | 20.46 | | | | |
| | | <u>/A</u> | 211 | 1141.8 | | _ X | | | , | | | | V | | ر <u>ن</u> يمين | Slotted | 20.40 | | | | - |
| | | 18-0W | 223 | 2391.7 | | X | 6-6-78 | 2'' | Р. | 587.42' | 584.99 | 581.44 | , V | | 10' | PVC | 15.98 | | | | |
| | | 20-0₩ | 220 | 1873.0 | | _ <u>X</u> | 6-5-78 | 2'' | <u>Р</u> | 615.88 | 612,84 | 1583.28 | | | 10' | PVC | 42.60 | | <u> </u> | •. | - |
| | • | ·29-0W | 224 | 1960.6 | | X | 11-27-84 | 2'' | <u> </u> | 589.13 | 586.06 | '580.68' | 1 | | 10.' | Slotted PVC | 18.45 | | \checkmark | | |
| | | 29A | 225 | <u>1096.3</u> 1950.4 | _X_ | - <u>-</u> | 11-27-84 | 2'' | Р | 589.21 | 586.38 | 548.51 | \checkmark | | זי | Slotted PVC | 43 701 | | | | |
| | | | ELEV | 5 AND O BLIGHE 20 L MO ATIONS T DATL | SHA | | VN HERE | FUE ELE 200 79, | PR D · E | ABOVE BY MIL ABED | 19.01 = 084 LER = 0N U.4 | 1 W DERVA ENGINI 9.G.G. | | | NEULA 16,NG 1 (TC | O.OO PLAN OSTA | | | | | |
| | | | ELEV BLAN | 6 AND O BLIGHE 20 L MO ATIONG T DATI | 5H 1M 2- 1. 2 | | NATER THE FIL NTS I I N HERE DD 0, E COR, O HISELED | EL2. | | ABOVE BY MIL ABED C. PAD RE,TOP | FOR E | I W DERVA: ENGINI 9.G.G. XIGT. 5 . DISCH | DA | | | D. OO PLAN PLAN OSTA | | V . (210, | 'D 2 62 | ,75 | |
| | | | ELEV BENC | AND BLIGHE 20 L MO ATIONG T DATI MARK AND INDK | SHI IM IM 2 - I. 2 - AT PLO | | NATER THE FIL NTG I N HERE COR, O HEELED D BEE ED HER D OBSE | FILL 019. CO | | ABOVE BY MIL ABED ABED C. PAD RE, TOP | FOR ELL | REPAIL BY C | TEE DA HEDG REC REC REC REC REC REC REC REC REC REC | | NELLA 16,NG 1 (TC) 5 LUIC TRUCTO FIELC 2 SHE | DEBOX | E ELEV | V. (210. N 14 | 10 2 102 2. | ., 75 | |
| | | | ELEV DAN BENC | AND BLIGHE 201 MO ATIONG TOATI MARKA - INDIA AND INDIA DEAL | SHI 2-1. SHI 2-1. SHI 2-1. | | VN HERE VN HERE DD 0. HOELED DOBSE ED HER DBSE UPDATE | FLA DA FBA REA DA FBA REA D | DALAN ANA ON | ABOVE DY MIL AGED C. PAD RE, TOP ION W DY MI ION W | FOR EN LER ON U.A FOR EN EXIST LLER ELLS ZCH 28 | XIGT. G. XIGT. XIGT. G. XIGT. XIGT. G. XIGT. XIGT. | TEET DA HEDA REDA REDA REDA REDA REDA REDA REDA R | | NELLA 16,NG 1 (TC) FIELD 5 SHE | DE BOX | | V. (210. N 14 | 2 2 | 75 | |
| | | | GEND: | 5 AND BLIGHE 20 L MO ATIONS T DATI MARKS - INDIC AND INDIC DEAL | SHU SHU ZHU ZHU ZHU ZHU ZHU ZHU ZHU ZHU ZHU Z | | NATER THE FIL NTS I NHERE DD 0. ECOR. O HOELED DOBSE UPDATE | FLL DA LA REC D | | ABOVE DY MIL ABED ABED C. PAD RE, TOP ION W DY MI ION W I MAR | FOR E LER FOR E LER ELL IELL ZCH 28 | NERVA ENGINI A.G. G. XIBT. S. NBT. S. | TEE DA HEAR EEST O. | | NELLA 16,NG 1 (TC) FIELC 5,5HE | DE BOX | | V . (210. N 14 | 2 62 2. | 75 | |
| | | | BENC | 5 AND BLIGHE 20 L MO ATIONS T DATI MARKA - INDIA AND INDIA DEA Priva | SHUN SHUN 2 SHUN SHUN SHUN SHUN SHUN SHUN SHUN SHUN | NZH VA NUTURE WEI | NATER THE FIL NTS I NHERE DD 0. ECOR. O HOELED DOBGE ED HER DBGE UPDATE | FLL DA FB REZ Led ted | in B | ABOVE BY MIL ABED ABED ABE, TOP ION W BY MI ION W I MAR bedroc | IT. O IT. O IER IER IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IER IELL IER IER IER IER IER IER IER IER | REPAIL BY C fer. | TEEDA HEAR ELEST | | NELLA 16,NG 1 (TO 5 LUIC TRUCTO FIELC 5 SHE | DE BOX | | V >10. N 14 | 2. | ., 75 | |
| | | | BENC BENC | 5 AND BLIGHE 20 L MO ATIONS T DATI MARKA - INDIA AND INDIA DEA Priva | SHUN SHUN 2 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN 3 SHUN | Wel wel | NATER THE FIL NTS I NHERE DD 0. ECOR. O HOELED DOBOE ED HER DBOE UPDATE 1 comple | FLL N R R L L d d d d d d d d d d d d d | DA IN IN IN | ABOVE BY MIL ABED ABED C. PAD RE, TOP IDN W BY MI IDN W I MAR bedroc glacia | IT. 0 IT. 0 IER IER IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IELL IER IELL IER IELL IER IER IER IER IER IER IER IER | ERVA ENGINI A.G. A. XIGT. A. XIGT. A. XIGT. A. NGII ENGII BY C fer. burden | THE DA HEAR ELECT | | NELLA 16,NG 1 (TO FIELD 5 SHE | DE BOX | | V >10. N 14 | 2. | ., 75 | |
| | | | BENC BENC | 5 AND BLIGHE 20 L MO AT ONG T DATL MARKA - INDIA AND INDIA DEA Priva Monit | SH J J J J J J J J J J | Welling | NATE THE FIL NTS I NHERE DD 0. ECOR. O HOELED DOBOE ED HER DBOE UPDATE I comple N comple | FILL N R R R L C C C C C C C C C C C C C | DA I D I A I A I A I A I A I A I A I A | ABOVE BY MIL ABED ABED ABED ABE,TOP ION W BY MI ION W I MAR bedroc glacia in gla | FOR E FOR E FOR E EX BT ELL | ERVA ENGINI A.G. A. XIAT. A. XIAT. A. XIAT. A. XIAT. A. XIAT. A. XIAT. A. XIAT. A. ENGII ENGII ENGII BY C A. G. A. A. A. A. A. A. A. A. A. A. A. A. A. A | TEDA DA HEAR EEST O. den. | | NELLA 16,NG 1 (TO FIELD 5 SHE | DE BOX | | V. (210. N 14 | 2. | ., 75 | |
| | | | CEND: | 5 AND BLIGHE 20 L MO T DATI MARKA - INDIA AND INDIA DEA Priva Monit Iron | SHUN SHUN 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Welling cen | NATE THE FIL NTS I NHERE DD 0. ED HER DBSE UPDATE 1 comple uppate 1 comple well com | FILL N F N R C C N C N C N C N C N C N C N C N C N C N C N C N C N C N C N C N C C N C C N C C C C C C C C C C C C C | D_{UA} D | ABOVE DY MIL ABED ABED ABE, TOP ION W BY MI ION W I MAR bedroc glacia in gla | IT OF I OF I OF I OF I OF FORE EXIST IELL IELLS IELS | FERVA: FRVA: | THE DA HER CERT | | NELLA 16,NG 1 (TC) FIELC 5 SHE | D. OO PLAN PLAN O STA E BOX URE, E D LOCA | | V. (210. N 14 | 2. | | |
| | | | R D A A A A A A A A A | BLIGHE BLIGHE 20L MO T DATI MARKA - INDIA NDIA DEA Priva Monit Iron Conce | SH JM JM JM Z JL AT JL AT JL AT JL AT T T T T T T T T T | ALLE Welling cen ati | NATE THE FIL NTS I NHERE DD 0. ED HER DBSE UPDATE I comple upDATE I comple well com tration | FILL N R R C C C C C C C C C C C C C | D D D D D D D D D D | ABOVE DY MIL ABED ABED ABE NA DA ABE NA DA ABE MA ABY MI DA MAR Dedroc glacia in gla Septe | IT OF | PERVA: ENGINI $AAAAAAAA$ | THE DA HER CLEAR CALL | | NELLA 16,NG 1 (TC) FIELC 2 SHE | D. OO PLAN PLAN OSTA E BOX URE, E D LOCA | | V. (210. N 14 | 2. | | |
| | | | R = R = R = R = R = R = R = R = R = R = | 5 AND BLIGHE 20 L MO T DATL MARKA - INDIA AND INDIA DEA Priva Monit Iron Conce log i | SHUN SHUN 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | NZE VA ETE G welling cen ita | NATE THE FIL NTS I NHERE DD 0. ED HER DBSE UPDATE I comple upDATE I comple well com tration | FII OP P P P P P P P | D_{UA} D | ABOVE DY MIL ABED ABED ABE NA DA ABE NA DA ABE MA ABY MI DA MAR Dedroc glacia in gla , Septe ntoured | IT OF I OF | PERVA: ENGINI $AAAAAAAA$ | TE DA HER EET O den. | TUN ATE ORE | NELLA 16,NG 1 (TC) FIELC 2 SHE | DER PLAN DETA DE BOX URE, E D LOCA | | V. (210. N 14 | 2. | | |
| TES: | 1) | E E E E E E E E E E E E E E E E E E E | CEND: | 5 AND BLIGHE 20 L MO T DATL MARKA - INDIA AND INDIA DEA Priva Monit Iron Conce log i | SH JM SH JM Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z | ALL VALLE Welling centiva | NHERE THE FIL NTS I NHERE DD 0. ED HER DD 0. ED HER DD 0. | FII $rac{1}{2}$ | D_{A} D_{A | ABOVE DY MIL ABED ABED ABE, TOP ION W BY MI ION W IMAR bedroc glacia in gla , Septe ntoured 10, 30, | FOR E $FOR E$ FOR | ERVA NGINI | TE DA HER EE T O A EE T O A A EE T O A A A A A A A A A A A A A A A A A A | TUN ATE ORE | | D. OO PLAN PLAN OSTA E BOX URE, E D LOCA BOYG | | V. (210. N 14 | 2. | | |
| res: | 1) 2) | Each r | CEND: | AND CONCEPT | SH SH IM Z AT Z AT Z AT AT Z AT | ALL VALLE Welling ar an ar an ar | NATE THE FIL NTS I NHERE DD 0. ED HER DD 0. ED DD 0. ED HER DD 0. ED HER DD 0. ED H | ted ted ted ted ted ted ted | D D D D D D D D D D | ABOVE DY MIL ABED ABED ABE NA DA ABED ABE MAR bedroc glacia in gla , Septe ntoured 10, 30, | $\frac{19.0}{1000}$ $\frac{19.0}{1000}$ $\frac{10000}{1000}$ $\frac{10000}{1000}$ $\frac{100000}{1000}$ $\frac{100000}{1000}$ $\frac{1000000}{1000}$ $\frac{1000000}{1000}$ $\frac{10000000}{1000}$ $1000000000000000000000000000000000000$ | ERVA ENGINI A.G. 6. XIGT. 6. XIGT. 6. XIGT. 6. XIGT. 6. ENGII ENGI | TEDA DA HER EEST O. den. | | | D. OO PLAN PLAN DE BOX URE, E D LOCA BOYGA | | V. 0 210. N 14 | 2. | | |
| res: | 1) 2) | Privat Each privat Each privat | CEND: | AND CONCEPT AND CONCEPT AND AND AND AND AND AND AND AND AND AND | SHUN SHUN 2 - 1.2 2 - | ALL VA RULE We are are and and are are and and are | NATE THE FIL NTS I NTS I | FILL CONTROL IN THE INSTANT OF THE | D_{A} D | ABOVE DY MIL ABED ABED ABED ABE NA DY MI DA ABY MI ABY MI DA ABY MI ABY MI ABY MI ABY MI ABY MI ABY MI ABY MI ABY MI ABY MI ABED ABED ABED ABED ABED ABED ABED ABED | FOR E $FOR E$ FOR | ERVA ENGINI A.G. 6. XIGT. 7. XIGT. 7. X | THE DA HER ELECT | | | PLAN PLAN PLAN POSTA E BOX URE, E DLOCA BOYGA | | V. () D. N 14 | | | P'D |
| res: | 1) 2) 3) | Privat Each pr street it sup indica All pr | GEND: | AND AND AND AND AND AND AND AND AND AND | SHUN SHUN SHUN Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z | ALL VALUE We and a control of the second of | NATE THE FIL NTS I NTS I | ted ted ted ted ted ted ted | D_{A} D_{A | ABOVE DY MIL ABED ABED ABE NA DY MI DA ABE NA DY MI ABY MI DA ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABED ABE NA ABE NA ABED ABE NA ABA NA ABA NA ABE NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA NA ABA AB | FOR E FOR E EX 6T $FOR E EX 6T FOR E ELL5 2CH 22 ck aqui al over acial o ember 1 1 on an) 3. 2. 1. NO. PROJE$ | SERVA SE | | | VELLA JOING 1 (TO FIELD DOHE SHE | REVISION | E E E E E E E E E E E E C A T E C A T E C A T E C C A T E C C A T E C C C A T E C C C A T E C C C A T E C C C C C C C C C C C C C | V. (20 N - FA | | | P'D |
| res: | 1) 2) 3) 4) | Privat Each r street it sur indica All pr bounda Result for di | GEND: | AND AND AND AND AND AND AND AND AND AND | SHUN SHUN SHUN SHUN SHUN SHUN SHUN SHUN | ALL VALUE We all a contractions that is the | NATER THE FIL NTS IN NHERE DD 0, ISELED DBSE DBSE DBSE DBSE DBSE DBSE DBSE DB | ELC No Control | in in in ted (1), contained (1), | ABOVE DY MIL ABED ABED ABE, TOP ION W BY MI IMAE bedroc glacia in gla , Septe htoured 10, 30, | IT OF | ERVA ENGINI A.G. A. XIGT. A DIACH REPAIL ENGII BY DAT OVERBUR 990 A approx 990 A approx 990 A approx EDC EDC F TITLE | TEDA HERG EECO den. | TUN ATE DREE DREE NSII RON | NELLA JGING 1 (TC) FIELC SHE SHE N POWI CLOSEI 40 COM | REVISION REVISION REVISION | E E E E E E E E E E E E E E E E E E E | | | | P'D |
| res: | 1) 2) 3) 4) | Privat Each privat Each privat Each privat Each privat Each privat It sup indica All privat Result for di Result | GEND: | AND a BLIGHE 20 L Ma AT ONG T DATE AT ONG T DATE MARKA - INDIA AND INDIA DEA Priva Priva Nonit Iron Conce log i 1 locati e well i ess of t water. shared wells w may not wn for m ed iron wn for m funfilte | SHUN SHUN SHUN SHUN SHUN SHUN SHUN SHUN | NZE VARUE We are a long in the states | NATES THE FIL NTS IN NERE INTS IN NERE IN INTS IN NERE IN INTS IN NERE IN INTS IN INTS IN INTS IN INTS IN NERE IN INTS IN INTS INTS IN INTS INTS INTS INTS INTS INTS INTS INTS | FLA NE NE NE NE NE NE NE NE NE NE | in in ted (1), contract of the second | ABOVE DY MIL ABED (, PAD RE, TOP ION W DY MI I MAR bedroc glacia in gla , Septe ntoured 10, 30, | IP, G IP, G IP | BY DAT BY: PPA ED BY: SA | TEDA HERG EEGA den. | TUN ATE DRE DRE NSII RON SC | NELLA JELA JELA TRUCTO FIELC SHE SHE SHE SHE SHE SHE SHE SHE SHE SHE | REVISION | E E E E E E E E E E E E E E E E E E E | | () 2 () 2 () 2 () 2 () 2 () 2 () 2 () 2 | ., 75 АР NY ТY | P'D |
| res: | 1) 2) 3) 4) | Privat Each privat Each privat Carlindica All pribounda Result for di Result total | GEND: | AND a BLIGHE COL MO AT ONG T DATE MARKA - INDIA AND INDIA DEA Priva Priva Nonit Iron Conce log i 1 locati e well i ess of t water. shared wells w may not wn for m ed iron wn for m funfilte | SHUN SHUN SHUN SHUN SHUN SHUN SHUN SHUN | ALL VALUE We all a contractions to the second of the secon | NATES THE FIL NTS IN NERE DO 0, ISECOR, O HER DO 1, ISECOR, O HER DO 0, ISECOR, O HER DO 0, ISECOR, O HER DO 0, ISECOR, O HER DO 0, ISECOR, O HER DO 0, ISECOR, O HER DO 0, ISECOR, O ISECOR, O ISEC | FL2 N C C C C C C C C C C C C C C C C C C C | in in ted (1), contraction of the second sec | ABOVE DY MIL ABED (, PAD RE, TOP ION W DY MI I MAR bedroc glacia in gla , Septe ntoured 10, 30, | IT OF | ERVA ENGINE A.G. A. A.G. A. A.G. A. A.G. A. A.G. A. A.G. A. A.G. A. A.G. A. A.G. A. A. A.G. A. A. A.G. A. A. A. B. A. A. A. B. D. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. B. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. A. C. C. C. C. C. C. C. C. C. C. C. C. C. | den. | TUN ATE DRE DRE DRE NSII RON SC | NELLA JGING 1 (TC) FIELC SHE SHE SHE SHE SHE SHE SHE SHE SHE SHE | REVISION REVISION REVISION REVISION REVISION | E E E E E E E E E E E E E E E E E E E | | 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | лэ Ар NY ТҮ 683- | P'D |

An

20011'42"

•





| Barton | | Edgewater (Units #3 c #4) 02524 3-13-90 | | | 1-20 | Rick G. Wantz - Miller Engineers | | | | | | | | | | | | | | |
|--|---|--|---|---|-----------------------------|---|---|--|--|---|--|---|--|------------------------------------|--|---------------------------------------|--------------|--------------|-----------------------------|-----|
| 1-10 201 <td< th=""><th>Well Name</th><th></th><th>Well Location</th><th></th><th>3</th><th>18 N</th><th>Kar JULE had</th><th>Wel</th><th>Casing</th><th>Top of</th><th>Elevations</th><th>agreen</th><th>NAL Site</th><th>Sc</th><th>reen</th><th></th><th> 'I</th><th>'ype c</th><th>if Well</th><th>[]</th></td<> | Well Name | | Well Location | | 3 | 18 N | Kar JULE had | Wel | Casing | Top of | Elevations | agreen | NAL Site | Sc | reen | | 'I | 'ype c | if Well | [] |
| 1/20 1/20 2/20 <th< td=""><td>1-01/</td><td>201</td><td>489.0</td><td></td><td><u>x</u></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td>/</td><td>Dongen</td><td>Slotted</td><td>A A A A A A A A A A A A A A A A A A A</td><td>9167</td><td></td><td><u> </u></td><td>190</td></th<> | 1-01/ | 201 | 489.0 | | <u>x</u> | | _ | | | | | | / | Dongen | Slotted | A A A A A A A A A A A A A A A A A A A | 9167 | | <u> </u> | 190 |
| 2-00 200 201 100 <td>1-014</td> <td>201</td> <td>1766.4</td> <td>- - X</td> <td>-</td> <td>- -</td> <td>2-19-76</td> <td>2'</td> <td>* P</td> <td>592.53'</td> <td>590.36</td> <td>586.55</td> <td></td> <td>5'</td> <td>PVC</td> <td>10.98</td> <td></td> <td></td> <td></td> <td></td> | 1-014 | 201 | 1766.4 | - - X | - | - - | 2-19-76 | 2' | * P | 592.53' | 590.36 | 586.55 | | 5' | PVC | 10.98 | | | | |
| 1:00 1:31 1:32,2,2,3 1:32 2:17,76 2'r 1:32,77 3:32,27 3:32,27 3:32,27 1:32,37 1:33,37 1:32,37 1:33,37 1:33,37 1:33,37 1:33,37 1:33,37 1:33,37 1:33,37 1:33,37 1:33,37 | 2-0W | 202 | 1594.12 | | | > | 2-23-76 | 2' | P | 612.28' | 609.75 | 605.56 | · ✓ | 5" | Slotted _ PVC | 11.72 | 1 | \checkmark | _ | |
| 3.1 19911 1 2 2011 | 3-0W | 203 | 1883.3 | | X | | 2-17-76 | 21 | I D | 591 771 | 580 71 | | \mathbf{V} | | Slotted | 10.92 | | | | |
| 13 122.4 1 122.42 2" 120.77 2.90 122.22 1.90 | | | 1878.1 | | X | | | | - | | | | | | Slotted | 10.05 | | | | |
| Serie 105 2135.2 1 2 - 20-76 2" 61./7 292.4 61 217.5 10 21.74 21.74 | 3A | | <u> 1237.4</u> 667.7 | | <u> </u> | - × | 3-22-82 | 2' | Р | 592.22' | 590.02 | 582.14 | | 5' | PVC | 15.08 | | | | |
| 23 20. 20.3.0 2 2 20.70 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 3 20.10 20 | 5-0W | 205 | 2155.2 | | | X | 2-20-76 | 2' | P | 601.77' | 599.69 | 595.23 | · ✓ | 4 ' | PVC | 10.54 | | \checkmark | | |
| Sn 20 1132-3 Status | 5A | 206 | 2153.8 | X | _ | x | 2-20-76 | 2'' | P | 601.37' | 599.41 | 582.92 | V | 3' | Slotted PVC | 21-45 | / | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | 1135.8 | | X | | | | | | | | V | | Slotted | | | / | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | DK-UW | | 1137.4 | | X | | 2-26-90 | 2'' | <u> </u> | <u>591.85'</u> | 589.17 | _586.53 | <u> </u> | | Slotted | 10.32 | | V | _ _ | - |
| 68 209 1033.0 1 $2.19-76$ 20^{-1} 531.43 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 323.45 31.45 <td>6AR</td> <td></td> <td>1705.4</td> <td></td> <td></td> <td><u> </u></td> <td>2-26-90</td> <td>2"</td> <td>P</td> <td>591.34'</td> <td>589.38</td> <td>581.74</td> <td></td> <td>5.'</td> <td>PVC</td> <td>14.60</td> <td>V</td> <td></td> <td></td> <td></td> | 6AR | | 1705.4 | | | <u> </u> | 2-26-90 | 2" | P | 591.34' | 589.38 | 581.74 | | 5.' | PVC | 14.60 | V | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | бB | 209 | 1693.0 | | <u>^</u> | X | 2-19-76 | 2'' | Р | 591.91' | 589.64 | 578.15 | \checkmark | _3' | Slotted PVC | 19.75' | \checkmark | | | |
| 21 100.0 1.1.2 1 | 7-0W | 210 | 499.8* 1131.5 | | X 1 | X | 2-17-76 | 211 | P | 593 761 | 501 15 | 586 61 | \checkmark | 1.1 | Slotted | 11 15 | | \checkmark | | |
| $2A$ 211 1116.5 X $2^{-17/2}$ 2^{-1} 293.90 371.84 372.84 V 3^{-1} V 20.45 1116.5 X X 565.77 2^{-1} 593.90 371.84 10^{-1} | | | 490.6 | | X | | | | | 552.70 | 551.45 | 500.01 | | | Slotted | | | | | - |
| 13. mv 223 2731.7 1 1 6-6-78 2" a \$57.42' \$581.49 \$21.44 10 Statue 10, 23 10, 24 200 1073.0 1 1 6-6-78 2" p 615.68 617.89'.581.28 10' Statue 10' Statue 10' Statue 10' 10' Statue 10' <td>7A</td> <td>211</td> <td>1141.8</td> <td></td> <td>X X</td> <td><u> </u></td> <td>2-1/-/6</td> <td>2"</td> <td>P</td> <td>593.90'</td> <td>591.83</td> <td>576.44</td> <td><u></u></td> <td>3'</td> <td>PVC</td> <td>20.46</td> <td></td> <td></td> <td></td> <td></td> | 7A | 211 | 1141.8 | | X X | <u> </u> | 2-1/-/6 | 2" | P | 593.90' | 591.83 | 576.44 | <u></u> | 3' | PVC | 20.46 | | | | |
| 0-00 220 1373.0 x x 55-76 2" p 615.88 612.68 10" Stotted 10" Stotted 10.4 10" Stotted 10" Stotted 10" Stotted 10.4 10" Stotted 10" Stotted 10" Stotted 10" 10" Stotted 10" Stotted 10" Stotted 10" 10" Stotted 10" | 18-0W | 223 | 2391.7 | | | X | 6-6-78 | 2'' | P | 587.421 | 584.99 | 581.44 | \checkmark | 10' | Slotted PVC | 15.98 | 1 | | | |
| 9-04 224 1071.6 x 11-27-88 21 950.13 \$86.05130.65 10.1 | 0-0W | 220 | <u>382.3</u> 1873.0 | <u></u> | <u>x </u> | - <u>-</u> | 6-5-78 | 211 | р | 615 88 | 612 84 | | / | 10' | Slotted PVC | 42 601 | 1 | | | |
| A 1006.3 X 11-27-84 27 P 580.36/580.66 101 Signice A 125 1930.4 X X 11-27-84 27 P 580.36/580.66 31 Signice 42.70 A HOK CONTROL MONUMENT - NO.1 - IOCON.85 N NO.2 - 490.05 Y 2.00 E 500.05 Y GRIDP AND CODENTROL MONUMENT - NO.1 - IOCON.85 N NO.2 - 490.05 Y 2.00 E 500.05 Y GRIDP AND CODENTROL FEED ON THE FIELD OF MILLER ENGINEERS IN NELL STATE NO.2 - 400.05 Y 2.00 E ELEVAT ONS SHOWN HEREDN DAGED ON JAG.40. DATIM (TO OSTAN S.80 Y 0.02 10.90 Y PLANT DATUM, ADD 0.19 FILD S.91 PO S.91 PO ELEVAT ONS SHOWN HEREDN DAGED ON JAG.40. DATIM (TO OSTAN S.91 PO S.91 PO PLANT DATUM, ADD 0.19 FILD S.91 PO S.91 PO State of the DATIM, ADD 0.19 S.91 PO S.91 PO S.91 PO State of the DATES OBSTRATION WELL REMARKED, FIELD LOCATED AD PLICENT MULLER SAMENDER (TO DATED AND REMARKED, FIELD LOCATED AD PLICED ON MARCH 28, 1990 TOTAL FEED ON MARCH 28, 1990 TOTAL FEED PLICENT THE SAMENDER (TO THERED AND REMARKED, AND REMARKED, SAMENDER (TO THERED AND REMARKED) S.91 PO <td>9-0W</td> <td>224</td> <td>1093.6</td> <td>_></td> <td>× </td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>012.01</td> <td></td> <td></td> <td></td> <td>Slotted</td> <td></td> <td></td> <td></td> <td></td> <td></td> | 9-0W | 224 | 1093.6 | _> | × | | | | | | 012.01 | | | | Slotted | | | | | |
| 24 225 1950.1 1 11-27-64 21 p 580.21 31 Storted 31 31 Storted 32 43.70 ▲ -Hork: CONTROL MONUMENT - NO.1 - LOCOLED & MONUMENT ENTROL MONUMENT - NO.1 - LOCOLED & MONUMERT ENTROL MONUMENT ELEVATION ADD CORPLIATED FOR ABOVE DEDEEXATION MELLO NELE ENTROL ON THE FIELD OF MILLER ENGINEERS JONG PLANT No.2 - LAD, OS 12 ELEVATION SHOWN HEREON CARED ON U.4. FAD FOR EXCHANCES JONG PLANT NO.2 - MONUMENTS FOR ABOVE DEDEEXATION MELLO DATION (TO DETA N PLANT DATIM, ADD 0.71 ELEVATION SHOWN HEREON CARED ON U.4. FAD FOR EXCHANCES OF ALLOS AND PLANT DATIM, ADD 0.71 Storted Address of ALLOS AND FOR EXCHANCES OF ALLOS AND ADD POTED HEREON OF MILLER ENGINEERS OF CHECOLOGAN, WID. AND POTED HEREON MELL REPARED AT FLUE DOMAN, WID. DEALING UPDATED ON MARCH 23, 1990 Image: Storte well completed in bedrock aguifer. Private well completed in glacial overburden. Storte well completed in glacial overburden. Storte Montoring well completed in glacial overburden. Storte address of the home(s) for which it supplies water. Dual address indicates a shared well. Storte Address of the home(s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. Storte Misconnermation MAP DOLOMITE AQUIFEN Storte Misconnermation MAP DOLOMITE AQUIFEN | | | 1096.3 | | | $- \frac{X}{ }$ | 11-27-84 | 2'' | <u> </u> | 589.13 | 586.06 | 580.68 | | 10' | PVC | 18.45' | | | | |
| ▲-HØR. CONTROL MONUMENT - NO. 1 - 1000. 65 H 117. 01 W NO. 2 - 440.05 Y 2000 AND COORDINATES FOR ADOVE ODDERVATION NELLO NEXE ESTADLOHED IN THE FIELD OF MILLER ENGINEERS JOIN PLANT CONTROL MONUMENTS IFLO OF MILLER ENGINEERS JOIN PLANT ELEVAT ONE SHOWN HEXEDN DAGED ON UMG. O. DATUM (TO OSTAN PLANT DATUM, ADD 0. 174. BENCHMARKS-1.NE COR. OF CONC. 320 FOR EXIST. OFED AT BLUES DOVE, BEV. 01 - 9 2.000 EQUALS, DECK, 320 FOR EXIST. OFED AT BLUES DOVE, ELV. 01 - 9 2.000 EQUALS, DECK, 320 FOR EXIST. OFED AT BLUES DOVE, ELV. 01 - 9 2.000 EQUALS, DECK, 320 FOR EXIST. OF ALL STATURE, ELEV SOLOL MARKS-1.NE COR. OF CONC. 320 FOR EXIST. OFED AT BLUES DOVE, ELV. 01 - 9 2.000 EQUALS DECKATION WELL REPARED AT BLUES DOVE, ELV. 01 - 9 2.000 EQUALS DECKATION WELL REPARED AT BLUES DOVE, AND PLOTTED HEREON DY MILLER ENGINEERS SHEEDIGAN, WIR. ND PLOTTED HEREON DY MILLER ENGINEERS SHEEDIGAN, WIR. DEALING UPDATED ON MARCH 28, 1990 DEALING UPDATED ON MARCH 28, 1990 LECEND: Private well completed in glacial overburden. 32 Total iron concentration (mg/1), September 1990 -0.3 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) PROJECT WISCONSIN POWER & LIGHT COMPANY EDEWMATER CLOSED AND DISPOSAL FACILITY NO. BY DATE REVISION EDEMMATER CLOSED AND DISPOSAL FACILITY NO. BY DATE REVISION EDEMMATER CLOSED AND DISPOSAL FACILITY NO. BY DATE REVISION MAP DOLOMITE ADDIPED | 9A | 225 | 1950.4 | | | X | 11-27-84 | 211 | Р | 589.21 | 586.38 | 548.51 | | 3' | PVC | 43.70' | \checkmark | | _ | |
| SAR - IND CATES 0365ERVATION WELL REPARED, FIELD LOCATED AND PLOTTED HEREON BY MILLER ENGINEERS HEBOYGAN, WIR. HAWN EX BY ALLES BY ALES BY ALES BY ALLES BY ALLES BY ALLES BY ALLES BY ALLES BY A | 2 | DENC | MARKE | - | . 2. | NE G | E COR. 0 16ELED | F C 50 | 0 N/AF | L PAD RE,TOP | FOR EX | (16T, 5H D16CHA | ED AT | - 5LUIC TRUCTU | E BOX | , ELEV LEV JI | '. U 0.C | 02 | 13 | |
| Private well completed in bedrock aquifer. Private well completed in glacial overburden. Monitoring well completed in glacial overburden. Monitoring well completed in glacial overburden. Total iron concentration (mg/l), September 1990 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. | | GEND: | - IND C AND INDK DEAL | | アクトレ | | DOBSE EDHER OBSE UPDATE | | AT ATI ON | ION W BY MIL ON WI MAR | ELL R NER ELL3 (H 28 | EPAIR ENGIN BY C | ED, IEERA THEE >. | FIELD |) [2062 20199 | TEP | 110 | | | |
| Private well completed in glacial overburden. Monitoring well completed in glacial overburden. Total iron concentration (mg/l), September 1990 -0.3 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | -4 | | Priva | te | : W | vel | l comple | ted | in | bedrocl | c aquit | fer. | | | | | | | | |
| Private well completed in glacial overburden. Monitoring well completed in glacial overburden. Total iron concentration (mg/l), September 1990 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. Monitoring well completed in glacial overburden. September 1990 September 1 | ۱ لر | K | _ • | | | - | | | | | | · . | | | | | | | | |
| Monitoring well completed in glacial overburden. Total iron concentration (mg/l), September 1990 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. All private wells within the map boundaries may not be shown. Monitoring well completed in glacial overburden. September 1990 Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) | | P | Priva | τe | W | /el | r comple | ted | in | glacia | l overl | ourden. | | | | | | | | |
| .52 Total iron concentration (mg/l), September 1990 -0.3 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. 3. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. 3. All private wells within the map boundaries may not be shown. 9. PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | -4 | | | - | ÷. | ć. | | - | | | | | | | • | | | | | |
| -0.3 — Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. 3. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. 3. All private wells within the map boundaries may not be shown. 9. PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | | Monit | .or | in | ig i | well com | pre | ted | in glad | cial ov | verburd | en. | | | | | | | |
| -0.3 - Concentration contour, contoured on an approximate log interval (, 1, 3, 10, 30,) Private well locations are approximate. 3. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. 3. All private wells within the map boundaries may not be shown. 9. PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | 2 | Monit Total | or i | in ro | ng n | well com | ple ati | ted on (| <pre>in glad mq/l),</pre> | cial ov Septer | verburd ber 19 | en. 90 | | | | | | | |
| Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. NO. BY DATE REVISION NO. BY DATE REVISION PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | 2 | Monit Total | or i | ro | ig i | well com | ati | ted on (| in glad | cial ov Septer | verburd Nber 19 | en. 90 | | | | | | | |
| Private well locations are approximate. Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. No. BY DATE All private wells within the map boundaries may not be shown. SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER DRAWN BY: Date | | 2 3- | Monit Total Conce log i | i i nt | ro | ng n n tio va | concentration contor | atiour, | ted on (con 3, 1 | <pre>in glad mg/l), toured 0, 30,</pre> | Septer on an | verburd Nber 19 approx | en. 90 imate | | | | | | | |
| Each private well is identified by the street address of the home(s) for which it supplies water. Dual address indicates a shared well. 1. | | 2 3 — | Monit Total Conce log i | i i nt | ro | n o tio va | concentration contor | ati ur, 1, | ted on (con 3, 1 | <pre>in glad mg/l), toured 0, 30,</pre> | Septer on an | verburd Nber 19 approx | en. 90 imate | | · · · | | | | | |
| NO. BY DATE REVISION AP indicates a shared well. NO. BY DATE REVISION AP All private wells within the map boundaries may not be shown. PROJECT WISCONSIN POWER & LIGHT COMPANY EDGEWATER CLOSED ASH DISPOSAL FACILITY NR 140 COMPLIANCE REPORT AP SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | 2 3 | Monit Total Conce log i L locati | i i nt on | ro ra s | n o tic va | concentration contor on contor l (, | ati ur, 1, | ted on (con 3, 1 te. | <pre>in glad mg/l), toured 0, 30,</pre> | Septer on an | verburd Nber 19 approx | en. 90 imate | | | | | | | |
| All private wells within the map boundaries may not be shown. SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | 3 | Monit Total Conce log i L locati | or i nt on s | ro ra er | ng n on (va: are | well com concentration contor l (, i e approximation of the second content contraction of the second content e approximation of the second content content of the second content of the second cont | ationation | ted on (con 3, 1 te. | in glad mg/l), toured 0, 30, | Septer on an $\cdot \cdot \cdot$) | verburd Nber 19 approx | en. 90 imate | | | | | | | |
| boundaries may not be shown. NR 140 COMPLIANCE REPORT SHEET TITLE IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | 3 s well rivate addre plies | Monit Total Conce log i locati well i ess of t water. shared | or i nt nt on s he D | ro ra idhua | ng on (va. ent ome 1 a | well com concentra on contor l (, e approx: cified by e(s) for address | ati ur, 1, ima y tl wh: | ted on (con 3, 1 te. ne ich | in glad mg/l), toured 0, 30, | Septer on an) | verburd Nber 19 approx | en. 90 imate | | REVISION | | | | АРР | Ď |
| IRON ISOCONCENTRATION MAP DOLOMITE AQUIFER | | a well 3- addre plies tes a ivate | Monit Total Conce log i locati well i water. shared wells w | or i nt on s he D we it | rae' s idhuall | ng n tio va are ent ome 1 a • | well com concentra on contor l (, e approx: cified by e(s) for address che map | ationation ur, 1, : imation wh: | ted on (con 3, 1 te. he ich | in glad mg/l), toured 0, 30, | Septer on an) | verburd hber 19 approx y Date T WISC EDGE | en. 90 imate ONSIN | I POWE CLOSED | REVISION | GHT CO | D M FAC | PAN | АРР Ү Ү | D |
| | Private Each pr street it supp indicat All pr boundar | a well 3 e well rivate addre plies tes a ivate ries r | Monit Total Conce log i locati e well i ess of t water. shared wells w | or i nt nt on s he D we it | ro rar i huall his | ng n (va: are ent l a n t | well com concentra on contor l (, e approx: cified by e(s) for address the map vn. | ple ati ur, 1, ima y th wh | ted on (con 3, 1 te. ne ich | in glad mg/l), toured 0, 30, | Septer on an) | verburd hber 19 approx y DATE T WISC EDGE | en. 90 imate CONSIN WATER NR 14 | I POWE CLOSED | REVISION R & LIC ASH DIS LIANCE | GHT CO SPOSAL REPORT | DMF | PAN | АРР Ү Ү | D |
| IDRAWN DT: YYH JOUALE: IPROJ. NO. 07683-1 | | 3 3 a d d d d d d d d d d | Monit Total Conce log i locati well i water. shared wells w may not | or i nt nt on s he D we it | ro rar idhual his | ng n tio va: are ent ome 1 a | well com concentra on contor l (, e approx: cified by e(s) for address the map vn. | ationation ur, 1, : y th wh | ted on (con 3, 1 te. he ich | in glad mg/l), toured 0, 30, | Septer on an) | verburd hber 19 approx y Date T WISC EDGE TITLE | en. 90 imate SONSIN WATER NR 14 IRON | I POWE CLOSED CLOSED COMP | REVISION R & LIC ASH DIS LIANCE ENTRATI E AQUIF | GHT CO SPOSAL REPORT | DMF | PAN | АРР Ү Ү | D |

NOTES:

.



BASE MAP SOURCE: Base map provided by Misconsin Power & Light Company. Ore the prepared by Warzyn Engineering.

Dames & Moore

2

Man I and





| NO | |
|----|--|

| TIFF SILTY CLAY 800 | | | | | |
|---------------------|---|------------|-----------------------|-------|---------------|
| /ERY STIFF SILTY CI | N=22, PL=15%, LL=21% MC=16% LAY LI=0.17 MD=137 PCF C=4000 PSF | | | | |
| STIFF CLAY | N=12 MC=27% MD=124 PCF C=2200 PSF | 594.8 5 | 2 0 2 0 3 | 594.4 | 594.4 4.75 |
| |) 1+2 | 20 | 1+ | 60 | |

| | | CROSS SECTIONS | | | | | | |
|-------------|------|------------------------------|---------------------------------------|--|---|--------|---------|--|
| | | EDGEWATER GENERATING STATION | | | | | | |
| | | IMPOUNDMENT ANALYSIS | | | | | | |
| | | Celebratini 50 Year | ENGIN SCIEN www.StartWitt | LER IEERS TISTS miller.com | 5308 S. 12th Street Sheboygan, WI 53081-8 Phone 920-458-6164 Fax 920-458-0369 www.StartWithMiller.com | | | |
| | | AL ASI 373 SHI | LIANT H POND 39 LAKE EBOYGAN | ENERGY SLOPE STA SHORE DR 1, WISCONSI | BILITY I IVE N | EVALUA | TION | |
| | | SCALE HOR. | 1"=10' 1"-10' | DATE FEB. 25, 201 JOB | 1 ВҮ СК | WGF | SHEET 5 | |
| DESCRIPTION | I BA | | 1 -10 | 10-18634-E | 5 I | RGM | | |

<u>LEGEND</u>

| NO. | DATE | DESCR |
|-----|------|-------|
| | | |

..... SOIL LAYER BOUNDARY USED IN STABILITY ANALYSIS

- N= SPT BLOW COUNTS
- MC= SOIL MOISTURE CONTENT MD= SOIL MOIST DENSITY
- C= SOIL COHESIVE STRENGTH
- \emptyset = ESTIMATED SOIL INTERNAL ANGLE OF FRICTION

| GRAPHIC SCALE | CROSS SECTIONS EDGEWATER GENERATING STATION IMPOUNDMENT ANALYSIS | | | | | | |
|--------------------------------|--|--|--|--|--|--|--|
| (IN FEET) 1 inch = 10 ft. | | celebrating 50 Years ENG SCIEN www.Starty | LER 5 NEERS P ITISTS F ithMiller.com W | 308 S. 12th Stre heboygan, WI 530 hone 920-458-6 ax 920-458-036 ww.StartWithMiller | eet 081–8099 5164 59 5.com | | |
| | | ALLIANT ASH PONE 3739 LAK SHEBOYGA | ENERGY SLOPE STAE SHORE DRIV N, WISCONSIN | BILITY EVALUA /E | TION | | |
| DESCRIPTION | ВҮ | SCALE HOR. 1"=10' VER. 1"=10' | DATE Mar. 15, 2011 JOB 10–18634–B | ВҮ WGF СК RGM | SHEET 5 | | |

--

Path: Z./Clients/ENR/WPL/84143 RiversideTubes/Situdies/Site_Invest/EDGEWATER - To Be Moved/Geospatial/DataFiles/ArcDocs/Pond_A_Bathymetric.mxd bparker 4/8/2015 COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC. Service Laver Credits: Source: Est. DigitalGlobe. GeoFeve. Earthstar Geographics. CNES/Airbus DS, USDA, USGS, AEX. Getmapping. Aeroand, IGN, IGP, swisstopo, and the GIS.

Path: Z:/Cliems/ENR/WPU/84143. RiversideTubes/Studies/Site_Inves/EDGEWATER - To Be Moved/Geospatia/DataFiles/ArcDocs/Pond_A_SedThickness.mxd_bparker_4/8/2015 COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC. Service Laver Credits: Source: Esri, DigitalGlobe, GeoFee, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Gelmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- 64

-

Path: Z./Clients/ENR/WPL/84143 RiversideTubes/Situdies/Site_Invest/EDGEWATER - To Be Moved/Geospatial/DataFiles/ArcDocs/Pond_B_Bathymetric.mxd bparker 4/8/2015 COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC Service Laver Credits: Source: Esh. DigitalGlobe. GeoEve. Earthstar Geographics. CNES/Arthus DS. USDA_USGS. AEX. Getmapping. Aeroorid. IGN. IGP. swisstopo. and the GIS

- -

-

Path: Z:\Clients\ENR\WPL\84143_RiversideTubes\Studies\Stu

-

Source: Water Surface Elevations from Alliant Energy

Issued: 4/8/2015