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January 30, 2026

Submitted via electronic mail

Mr. Tony Peterson
Wisconsin Department of Natural Resources
141 NW Barstow St Ste 180
Waukesha, WI 53188-3789

Subject: **Annual CCR Landfill Report**
Wisconsin Power and Light Company
Dry Ash Disposal Facility (WDNR License #3025)
Columbia Energy Center
Portage, WI

Dear Mr. Peterson,

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is submitting this Annual CCR Landfill Report in accordance with NR 506.20(3). The annual report consists of the following required documents:

- Annual CCR Fugitive Dust Control Report
- Annual Inspection Report [NR 506.20(2)(b)]
- Annual Groundwater Monitoring and Corrective Action Report [NR 507.15(3)(m)]
    - This includes the Biennial Groundwater Monitoring Report for License #2325
- Leachate Pipe Cleaning and Inspection Report [NR 506.07(5)(g)]

Please note that some of these items are also required by the federal Coal Combustion Residuals (CCR) Rule and have been prepared to satisfy federal requirements. Please call me if you have any questions or concerns regarding these documents and Wisconsin-specific requirements.

Thank you very much for your consideration of this initial submittal. If you have any questions or comments regarding this information, please call me at (608) 458-3853.

Regards,

Jeff Maxted
Manager – Environmental Services
Alliant Energy

CC: Tyler Sullivan – Wisconsin DNR
Brian Clepper, Cheryl Bommarito – Columbia Energy Center
Phil Gearing, Tom Karwoski, Meg Blodgett – SCS Engineers

Annual CCR Fugitive Dust Control Report

Wisconsin Power and Light Company

Columbia Energy Center (COL)

Annual Coal Combustion Residuals (CCR) Fugitive Dust Control Report

November 14, 2025

This report applies to the following CCR units at this facility:

CCR Surface Impoundments

COL Primary Ash Pond (closed)

COL Secondary Ash Pond

CCR Landfill

COL Dry Ash Disposal Facility Modules 1-3 (Existing CCR Landfill)

COL Dry Ash Disposal Facility Modules 4-6, 10-13 (New CCR Landfill)

Annual Coal Combustion Residuals (CCR) Fugitive Dust Control Report

November 14, 2025

Background

This report describes the actions taken to minimize fugitive CCR dust from CCR units at this facility, provides a record of citizen complaints received since the previous report, and summarizes any corrective actions taken to minimize CCR fugitive dust. This report has been developed in accordance with 40 CFR 257.80(c).

The COL facility includes CCR landfills and CCR surface impoundments. COL Dry Ash Disposal Facility Modules 1-3 are regulated as an existing CCR landfill, and Modules 4-6 and 10-13 are regulated as a new CCR landfill. A dry ash handling system was commissioned in 2023, resulting in the permanent discontinuation of sluicing at the facility. Subsequently, closure of the COL Primary Ash Pond was initiated in 2023, and all CCR from the Primary Ash Pond was excavated. The Primary Ash Pond was certified as closed in October 2025, and therefore this will be the final Fugitive Dust Control Report for that unit. All CCR has also been excavated from the Secondary Ash Pond.

Description of the Actions Taken to Control CCR Fugitive Dust

In accordance with the CCR Fugitive Dust Control Plan developed for this facility, the following measures were taken when needed to minimize CCR from becoming airborne:

- Establishing and enforcing a vehicle speed limit of 10 mph or less. Reduced speeds minimize fugitive dust generated from vehicle traffic.
- Storing fly ash in silos and/or buildings prior to transport. Enclosing CCR in silos and/or buildings minimizes exposure to conditions that could lead to airborne CCR.
- Limiting the filling of open-bodied vehicles that are transporting CCR or using covers as needed to minimize the generation of fugitive dust during transport of CCR.
- Minimizing fall distances when handling or transferring CCR. The use of telescoping chutes, best practices when handling CCR with end loaders, and other best management practices can be used to minimize the generation of fugitive dust.
- Promptly collecting CCR that is observed in vehicle loading/unloading areas to minimize the potential for CCR to become airborne.
- Applying water directly to CCR using a water truck or irrigation system. Moistened CCR is less likely to become airborne.
- Suspending CCR management activities, including placement of CCR, during excessively windy conditions to minimize CCR from becoming airborne.
- Placement of soil and/or vegetated cover to minimize exposure of CCR in inactive landfill areas to conditions that could lead to fugitive dust.

Record of Citizen Complaints

Citizen complaints pertaining to fugitive dust are managed in accordance with Alliant Corporate Policy ENV-107. Specifically, the complaint must be reported to Environmental Services (1) via phone call and (2) in writing by submitting a completed Environmental Incident Report to Environmental Services within 10 business days. Citizen complaints are tracked within the Alliant Environmental Management Information System ("ENVIANCE").

On March 21, 2025, Wisconsin Power and Light Company (WPL) was notified by the Wisconsin Department of Natural Resources (WDNR) of an anonymous complaint regarding fugitive dust at the site. The fugitive dust issue appears to be the result of fly ash disposal activities by contractors on site during an outage on Unit 1 when conditions were windy. Further, the temperature was below freezing, which limited the facility's ability to apply water to mitigate the dust without creating icy work areas. The combination of these conditions this week led to a brief period of excessive fugitive dust. When on-site operators became aware of dust concerns, the outage team suspended use of the landfill until the wind subsided.

Summary of Corrective Measures Taken

WPL submitted a written response to WDNR on March 21, summarizing the issue. A follow-up meeting was held with WDNR on April 18, 2025, resulting in updated training for contractors and new contract language to clearly communicate expectations for fugitive dust prevention. In addition, fugitive dust prevention plans and annual fugitive dust training for COL staff have been updated.

Periodic Review of CCR Fugitive Dust Control Plan

The CCR Fugitive Dust Control Plan is reviewed annually, and updated as necessary, in conjunction with preparation of the Annual CCR Fugitive Dust Control Report [40 CFR 257.80(c)]. During the periodic review, staff evaluate each measure for controlling fugitive dust to ensure that it is still appropriate for minimizing CCR from becoming airborne at the facility, verify that the procedures for conditioning CCR prior to landfilling and the procedure for logging complaints are sufficient, and evaluate other operations changes at the facility to determine whether additional dust control measures should be added.

- END -

Annual Inspection Report

Annual CCR Landfill Inspection

Columbia Dry Ash Disposal Facility

Prepared for:

Wisconsin Power and Light Company
W8375 Murray Road
Pardeeville, Wisconsin 53954

SCS ENGINEERS

25225067.00 | December 9, 2025

2830 Dairy Drive
Madison, WI 53718-6751
608-224-2830

Table of Contents

Section Page

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PE CERTIFICATION

	I, Phillip E. Gearing, hereby certify that this Annual CCR Landfill Inspection Report meets the requirements of 40 CFR 257.84(b)(2), was prepared by me or under my direct supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Wisconsin. 12/9/2025 (signature) (date) Phillip Gearing (printed or typed name) License number E-45115 My license renewal date is July 31, 2026. Pages or sheets covered by this seal: 12/9/2025 All – Annual CCR Landfill Inspection – Columbia Dry Ash Disposal Facility

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1.0 INTRODUCTION

1.1 PURPOSE

On July 14, 2025, SCS Engineers (SCS) completed an annual inspection of the Wisconsin Power and Light Company (WPL) Columbia Dry Ash Disposal Facility (COL) in Pardeeville, Wisconsin. The annual inspection was completed in accordance with the U.S. Environmental Protection Agency (U.S. EPA) coal combustion residuals (CCR) rule, 40 Code of Federal Regulations (CFR) 257 Subpart D, in particular 257.84(b)(1). According to 40 CFR 257.84(b)(1), an annual inspection by a qualified professional engineer is required for all existing and new CCR landfills, and any lateral expansion of a CCR landfill. The purpose of the annual inspection is to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

- A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and

- A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

This report has been prepared in accordance with 40 CFR 257.84(b)(2) to document the annual inspection.

1.2 BACKGROUND

The COL facility includes an active CCR landfill, which currently consists of the following CCR units:

- Module 1 through Module 3 (existing CCR landfill per 40 CFR 257.53).
- Module 4 through Module 6, Module 10, and Module 11 (new CCR landfill per 40 CFR 257.53).

Modules 1 through 3 are one existing CCR landfill under the federal CCR Rule. Modules 4, 5, 6, 10, and 11 are a new CCR landfill that initiated construction after October 19, 2015, and is therefore identified as a separate CCR unit under the CCR Rule. The existing and new CCR landfills are contiguous and managed as a single landfill by the facility and licensed as a single landfill by the Wisconsin Department of Natural Resources (DNR). Modules 12 and 13 were constructed in 2024; however, they had not received CCR or become operational, at the time of the inspection. Modules 12 and 13 became operational after concurrence was received from the Wisconsin DNR on August 13, 2025. Modules 7, 8, and 9 are permitted by the State of Wisconsin, but have not yet been developed.

The inspection requirements in 40 CFR 257.84(b)(1) apply to all the CCR units listed above.

At the time of the inspection, the active CCR landfill units were in various stages of development or use, as described in the table below.

Disposal Phase	Unit	CCR Rule Status	Basis for Status
Phase 1	Modules 1 - 3	Existing CCR Landfill. Currently accepting CCR.	Final or interim grades have been reached. Final cover has been completed on portions of the CCR unit. Final closure per 257.102 will not be completed until final grades are reached throughout the CCR unit. CCR overlay from Module 10 was occurring onto Module 3.
Phase 1/ Phase 2	Modules 4 - 6, Module 10, and Module 11	New CCR Landfill. Currently accepting CCR.	CCR placement began on November 5, 2018, in the unit. Intermediate cover has been placed over most of Modules 4 through 6 and final cover over a western portion of Module 4. CCR overlay from Module 11 was occurring onto Module 4.

2.0 SUMMARY OF RESULTS AND RECOMMENDATIONS

SCS identified no deficiencies or releases during the annual inspection of the CCR units at COL. Deficiencies and releases must be remedied by the owner or operator as soon as feasible and the remedy documented.

SCS did identify additional conditions during the annual inspection that are not considered deficiencies but have the potential to become a deficiency if left unaddressed. Each condition and the recommendations provided by SCS to address them are summarized in the table below. These conditions and recommendations are described in further detail in Section 4.0.

Condition	CCR Unit / Area	Recommendation(s) / [STATUS]	Report Section
Vegetation growth in down chute, which could eventually affect final cover	Grouted Down Chutes (Module 1 Final Cover)	Remove vegetation. **[COMPLETED]** Continue to observe and remove existing / future vegetation, as necessary. Monitor during 7-day inspections.	4.3.2
Vegetation growth at outlet, which could eventually compromise leachate drainage	Module 1 Leachate Pipe Outlet	Remove vegetation. **[COMPLETED]** Continue to observe and remove vegetation, as necessary to provide outlet operation. Monitor during 7-day inspections.	4.3.2

Condition	CCR Unit / Area	Recommendation(s) / [STATUS]	Report Section
Woody and overgrown vegetation growth near access road and leachate clean outs	West of Contact Water/Leachate Pond and east of Module 2	Remove woody growth or other unwanted vegetation. **[COMPLETED]** Continue to observe and remove vegetation, as necessary. Monitor during 7-day inspections.	4.3.2
Vegetation growth at final cover and intermediate cover inlets, which could impede flow and affect final cover	Final Cover and Intermediate Cover Inlets	Remove overgrown vegetation at inlets. **[COMPLETED]** Continue to observe and remove vegetation, as necessary to maintain inlet flow and protect cover. Monitor during 7-day inspections.	4.3.2
Accumulated sediment in storm water culverts, outlets, and swales, which could restrict flow and cause ponding water	Storm Water Culverts, Outlets, and Swales – West of Contact Water/Leachate Pond, Module 2 Outlet, North of Module 6, East of Modules 10 and 11	Remove accumulated sediment in culverts, piping, and at outlets. **[COMPLETED]** Regrade storm water swale areas with standing water. Re-seed and install erosion mat, as necessary, after grading. **[COMPLETED]** Monitor during 7-day inspections.	4.3.4
Erosion and bare areas on intermediate cover slopes and storm water inlets, which could lead to sediment migration	Intermediate Cover Areas – Module 2 (SW of Contact Water Area), Module 4/5 (West Landfill Slope), Module 4 (Top of Landfill to West Slope), Module 6 (Northeast Slopes and Inlet)	Seed, add topsoil, and place erosion mat on exposed intermediate cover. **[COMPLETED]** Install erosion control best management practices (BMPs) (e.g., sediment logs) until vegetation is established. **[COMPLETED]** Add riprap to armor high flow areas, as necessary. **[COMPLETED]** Monitor during 7-day inspections.	4.3.4
Sediment migration into storm water inlets from road aggregate and intermediate cover	Northern Access Road – Module 6	Add additional riprap at inlets and place sediment logs before riprap to prevent sediment migration. **[COMPLETED]** Continue to observe and maintain as necessary. Monitor during 7-day inspections.	4.3.4

3.0 ANNUAL INSPECTION

Mr. Phillip Gearing of SCS completed an annual inspection of active CCR landfill areas at COL, including Modules 1 through 3, Modules 4 through 6, and Modules 10 and 11 on July 14, 2025. Mr. Gearing is a licensed professional engineer in Wisconsin and holds a Bachelor of Science degree in Geological Engineering. He has over 19 years of experience in the design, construction, and operation of solid waste disposal facilities. The scope of the annual inspection is described in Sections 3.1 and 3.2. The results of the annual inspection are discussed in Section 4.0.

3.1 OPERATING RECORD REVIEW

SCS reviewed the available information in the operating record for COL. Information reviewed by SCS included operating record materials provided by WPL, and the information posted on Alliant Energy's CCR Rule Compliance Data and Information website for the COL facility.

3.2 VISUAL INSPECTION

SCS completed a visual inspection of Modules 1 through 3, Modules 4 through 6, and Modules 10 and 11 to identify signs of distress or malfunction of the CCR units.

The visual inspection included observations of the following:

- CCR placement areas including active filling areas, intermediate cover areas, final cover areas, and exterior non-CCR berms or slopes.
- Leachate collection and removal system components including visible leachate drainage layer materials.
- Leachate and contact water run-off management features including internal contact water drainage features, leachate collection system discharge pipe, and the leachate/surface water pond.
- Non-contact storm water run-on and run-off control features including swales located adjacent to active fill areas, on intermediate/final cover slopes, and outside the landfill limits and the south sedimentation basin.

4.0 INSPECTION RESULTS

The results of the annual inspection, along with a description of any deficiencies or releases identified during the visual inspection, are summarized in the following sections.

4.1 CHANGES IN GEOMETRY

No apparent changes in geometry were noted that would indicate distress or malfunction of the CCR units at the facility since the previous annual inspection at the COL facility completed under 40 CFR 257.84(b)(1). Changes in geometry observed during the annual inspection were the result of planned CCR filling in the current CCR units.

As noted in Section 1.2, CCR placement occurs in Module 10 and Module 11, with overlay into Module 3 and Module 4. Final cover or intermediate cover is established along portions of Modules 1 through 3 and Modules 4 through 6. Modules 12 and 13 were constructed but were not

operational during the 2025 inspection. Vegetation is established or becoming established on all final and intermediate cover areas.

4.2 CCR VOLUMES

The approximate volume of CCR contained in each of the active units near the time of the inspection is summarized below. Note that the inspection was performed on July 14, 2025, and a survey of CCR was performed on July 22, 2025. A description of how the estimate was developed is summarized below.

Disposal Phase	Unit	Estimated Volume of CCR in Place	Basis for Estimate and Source
Phase 1	Modules 1-3	1,084,100 cubic yards	There was CCR overlay onto Module 3 at the time of the inspection. Estimated volume based on a survey performed on 7/22/2025 compared to documented base grades. Estimated volume excludes final cover or intermediate cover material installed at time of survey. Estimated volume considers a vertical boundary at the Module 3 limit to Module 4 and Module 10.
Phase1/ Phase 2	Modules 4 - 6, Module 10, and Module 11	1,017,000 cubic yards	CCR placement was occurring in Modules 10 and 11 and overlayed onto Modules 3 and 4 at the time of the inspection. CCR volume placed in Modules 4 - 6, 10, and 11 was estimated based on a survey performed on 7/22/2025 compared to documented top of leachate drainage layer grades. Estimated volume considers a vertical boundary at the Module 4 limit to Module 3 and Module 10 limit to Module 3.

4.3 APPEARANCE OF STRUCTURAL WEAKNESS

The inspection included a review of the appearance of an actual or potential structural weakness of the CCR unit. The visual inspection included a review of CCR fill areas including the top slopes, internal side slopes, external side slopes, and internal ramps/haul roads for the presence of the following conditions:

- Signs of surface movement or instability:
  - Sloughing, slumping, or sliding
  - Surface cracking
  - Slopes greater than three horizontal to one vertical (3H:1V)
  - Toe of slope bench movement
  - Evidence of inadequate compaction of exposed CCR

- Inappropriate vegetation growth

- Animal burrows
- Erosion damage
- Unusual surface damage caused by vehicle traffic

4.3.1 Signs of Surface Movement or Instability

No signs of surface movement or instability were noted during the inspection.

4.3.2 Inappropriate Vegetation Growth

No inappropriate vegetation growth impacting the CCR unit was noted during the inspection. The following items have the potential to become a deficiency if left unaddressed:

- Vegetation was observed in the southwest grouted riprap down chutes located on the Module 1 Final Cover. WPL should remove existing vegetation before it becomes established and impacts the final cover. Continued removal of future vegetation as necessary and monitoring during 7-day inspections is recommended.

- Woody vegetation was observed to the west of the contact water/leachate pond, off the edge of the access road. WPL should remove woody vegetation growth before it becomes established. The vegetative growth was not impacting the stability of the CCR landfill at the time of the inspection. Continued vegetation removal and monitoring during 7-day inspections is recommended.

- Vegetation made it difficult to observe the leachate outlet from Module 1. The location was staked so it could be located. No issues with the current operation of the outlet were observed. WPL should monitor vegetation during 7-day inspections and keep the area maintained to allow for the effective observation of flow from the pipe outlet.

Vegetation growth was discussed with plant staff. Maintenance and removal of vegetation has occurred post the inspection based on observations performed by SCS during COL construction activities and weekly inspections.

4.3.3 Animal Burrows

No animal burrows were noted during the inspection.

4.3.4 Erosion Damage

The following erosion damage was noted during the inspection:

- Areas of bare soil were observed on the intermediate cover on the east slopes of Modules 2 and 3. Bare soil may erode, eventually exposing CCR if not addressed. Bare soil areas should have seed and erosion mat or hydromulch added to promote vegetation growth on the intermediate cover. WPL should continue to monitor this during 7-day inspections.

- Sediment accumulation was observed in the following areas due to erosion of intermediate cover materials: storm water swales and culverts; Module 2 contact water piping outlets; and the contact water/leachate pond east of Module 2 contact water

piping outlets. WPL should remove the accumulated sediment and continue to monitor it during 7-day inspections.

The bare soil and sediment accumulation areas were discussed with plant staff after the inspection was performed. Erosion was addressed with restoration activities and sediment accumulation areas were addressed with sediment removal post the inspection based on observations performed by SCS during COL construction activities and weekly inspections.

While these conditions are not currently considered deficiencies, WPL should continue to actively observe these areas during 7-day inspections to prevent future erosion or sediment migration impacting CCR stability.

4.3.5 Unusual Surface Damage Caused by Vehicle Traffic

No unusual surface damage caused by vehicle traffic was noted during the inspection.

4.4 DISRUPTIVE CONDITIONS

4.4.1 Existing Disruptive Conditions

No disruptive conditions exist.

4.4.1.1 Current Inspection

No existing conditions that were disrupting the operation and safety of the CCR units were noted during the annual inspection.

4.4.1.2 Previous Inspection

No existing conditions that were disrupting the operation and safety of the CCR units were noted during the previous inspection.

4.4.2 Potentially Disruptive Conditions

4.4.2.1 Current Inspection

No potentially disruptive conditions were observed during the current inspection.

4.4.2.2 Previous Inspection

Potentially disruptive conditions observed during the previous inspection included the following:

- Module 2 leachate pipe outlet blockage due to sediment and debris from large rain event.
- Module 1 toe drain outlet blockage due to sediment from large rain event.
- Limited contact water capacity along the southern limit of Module 10.
- LH-2, LH-5, and LH-6 leachate headwell transducers and pond level sensor communication issues due to damaged solar panel affecting the signal repeater.

The above conditions were addressed previously and not observed during the current inspection.

4.5 OTHER CHANGES SINCE PREVIOUS ANNUAL INSPECTION

No changes to site conditions that appear to have the potential to affect the stability or operation of the facility were noted during the inspection.

5.0 FUTURE INSPECTIONS

5.1 EXISTING CCR LANDFILL

As stated in 40 CFR 257.84(b)(4), the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the inspection report is the basis for establishing the deadline to complete the next subsequent inspection. Any required inspection may be conducted prior to the required deadline, provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. The owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record.

The next annual inspection of CCR units Modules 1 through 3, Modules 4 through 6, and Modules 10 and 11, must be completed within 1 year of the placement of this inspection report in the operating record for the COL facility.

5.2 NEW CCR LANDFILLS AND LATERAL EXPANSIONS

For any newly constructed modules (e.g., Modules 12 and 13), the initial annual inspection must be completed within 14 months of the first receipt of CCR in the module, in accordance with 40 CFR 257.84(b)(4). Construction and placement activities should be documented, and preventive measures for drainage, erosion, and vegetation should be implemented before the initial inspection. The initial inspection for Modules 12 and 13 will need to occur before October 18, 2026 based on receipt of CCR in the modules in 2025.

Annual Groundwater Monitoring and Corrective Action Report

Alliant Energy
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January 30, 2026

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Subject: **2025 Annual Groundwater Monitoring and Corrective Action Report**
Wisconsin Power and Light Company Columbia Energy Center
Dry Ash Disposal Facility, License #3025
Ash Ponds Facility, License #2325

Dear Mr. Sullivan:

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is providing the enclosed 2025 Annual Groundwater Monitoring and Corrective Action Report. The report was prepared by SCS Engineers (SCS)to fulfill reporting requirements for both the activeAsh Disposal Facility (License #3025), and for the closed Ash Ponds Facility (License #2325).

Please call me at (608) 458-3197 with any questions regarding this information.

Sincerely,

Matt Bizjack
Senior Environmental Specialist
Alliant Energy Corporate Services, Inc.

Enclosures

Cc: Brian Clepper, Cheryl Bommarito – WPL Columbia Energy Center
Jeff Maxted – Alliant Energy Corporate Services, Inc.
Meghan Blodgett, Thomas Karwoski, Bridget Jarosinski – SCS Engineers

2025 Annual Groundwater Monitoring and Corrective Action Report

Columbia Energy Center
Dry Ash Disposal Facility, License #3025
Ash Ponds Facility, License #2325
Pardeeville, Wisconsin

Prepared for:

Alliant Energy

SCS ENGINEERS

25225067.10 | January 30, 2026

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OVERVIEW OF CURRENT STATUS: DRY ASH DISPOSAL FACILITY

Columbia Energy Center, Dry Ash Disposal Facility
2025 Annual Report

In accordance with Wisconsin Administrative Code NR 507.15(3)(m)(5), this section at the beginning of the annual report provides an overview of the current status of groundwater monitoring and corrective action programs for the coal combustion residuals (CCR) landfill. This overview applies only to the Dry Ash Disposal Facility (License #3025) and not to the Ash Ponds Facility (License #2325). Supporting information is provided in the text of the annual report.

Category	Rule Requirement	Site Status
Monitoring Status – Start of Year	(a) At the start of the current annual reporting period, whether the CCR unit was operating under detection monitoring or assessment monitoring	Detection
Monitoring Status – End of Year	(b) At the end of the current annual reporting period, whether the CCR unit was operating under detection monitoring or assessment monitoring	Detection
Groundwater Quality Exceedances at CCR Monitoring Wells	(c) If it was determined that there was a groundwater quality exceedance under ch. NR 140 for one or more constituents listed under the ch. NR 507 Appendix I for CCR wells:	
	A listing of those constituents, the names of the monitoring wells associated with the exceedances, and;	Jan 2025: Hardness and sulfate: MW-33AR (confirmed by resample following October 2024 semiannual) April 2025 (confirmed by July 2025 resample): Chloride: MW-319 Sulfate: MW-310 & MW-318
	The date when the assessment monitoring was initiated for the CCR landfill.	Not applicable. Assessment monitoring not initiated in 2025.

Category	Rule Requirement	Site Status
Corrective Action	(d) If corrective action measures were required,	Not applicable – Corrective action measures were not required during 2025
	The date when the assessment of corrective measures was initiated for the CCR landfill;	
	The date when the public informational hearing under s. NR 508.06(3)(e) was held for the discussion of the results of the remedial action options report, and;	
	The date when the assessment of corrective measures was completed.	
Selection of Remedy	(e) If a remedy was required under ch. NR 508 during the annual reporting period, the date of remedy selection, and whether remedial activities were initiated or are ongoing during the annual reporting period.	Not applicable – Remedy was not required during 2025

Table of Contents

Section Page

Tables

Figures

Appendices

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1.0 INTRODUCTION

This 2025 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the NR 507.15(3). Specifically, this report was prepared to fulfill the requirements of NR 507.15(3)(m). Sections of this report that fulfill specific requirements of NR 207.15(3)(m) are indicated within the text by providing sections of the Rule in *italics,* followed by applicable information relative to the 2025 Annual Groundwater Monitoring and Corrective Action Report.

This report was also prepared to support compliance with additional sampling and reporting requirements of the landfill permit for the Columbia Dry Ash Disposal Facility (ADF) (License #3025) and the Columbia Ash Ponds Facility (License #2325). These additional sampling and reporting requirements are related to environmental monitoring data collected at points not designated as CCR monitoring wells. Non-CCR monitoring at the ADF was conducted in accordance with the May 3, 2024, Conditional Approval. Non-CCR monitoring for the Ash Ponds Facility was conducted in accordance with Conditional Plan Modification Approval letters dated March 11, 1996, and January 19, 2000, and May 17, 2022.

REPORTING PERIOD

This report includes data submitted to the Wisconsin Department of Natural Resources (DNR) during 2025. An October 2025 update to NR 507.26(3) requires data submittal within 90 days of the end of a sampling period, therefore data from the October 2025 semiannual sampling events at both the ADF and Ash Ponds Facility will be submitted to DNR in January 2026 and will be included in the 2026 annual report.

This report covers a 1-year period for the Ash Ponds Facility, which is more frequent than that facility's permit requirement of reporting on a biennial basis. WPL anticipates proposing an update to annual reporting for License #02325 in a future Plan Modification Request in order to support a more holistic approach to groundwater monitoring and reporting at the site. The ADF and the Ash Ponds Facility are both located at the Columbia Energy Center, therefore biennial reporting for the two facilities has historically been combined to support a more holistic view of groundwater quality and flow conditions at the site.

2.0 BACKGROUND

To provide context for the required annual report information, the following background information is provided in this section of the report, prior to the required information:

- Site Description
- Geologic and Hydrogeologic Setting
- Monitoring Systems

2.1 SITE DESCRIPTION

The Columbia Energy Center (COL) has been burning coal and disposing of CCR on site since the mid-1970s. The site location is shown on **Figure 1** and site plan is shown on **Figure 2**. The Ash Ponds site includes a closed ash landfill, a bottom ash settling pond (Primary Pond), and an inactive settling pond (Secondary Pond). Closure of the settling ponds, including excavation of CCR material, was completed in 2024. The Dry Ash site includes an active CCR landfill and a landfill surface water

runoff/leachate collection pond located to the east. A Wisconsin Pollutant Discharge Elimination System (WPDES) pond is located to the west of the ADF; this pond formerly accepted discharge water from the bottom ash settling ponds but has not received any ash transport water since the mid-2000s.

Ash Ponds

The Ash Ponds Disposal Facility (DNR License No. 2325) was active between 1975 and the early 1980s. The unlined bottom ash settling ponds are located to the northeast of the closed ash landfill. Bottom ash has historically been sluiced to the western settling pond (Primary Pond) and was recirculated from this pond back to the plant. In addition to the bottom ash sluicing, other low-volume wastewater from the plant was also discharged to this pond. At the end of 2022, the Primary Pond was no longer receiving low-volume wastewater and was only receiving bottom ash transport water if the new bottom ash conveyor system required maintenance during commissioning activities. Sluicing and discharge of water to the Primary Pond was permanently ended on March 31, 2023.

Historically, water flowed from the Primary Pond into the eastern settling basin (Secondary Pond), before discharging to the WPDES basin and eventually through Outfall 002 near the coal pile; however, no water has been discharged through Outfall 002 since 2004.

WPL completed full closure of both the Primary and Secondary Ash Ponds as of the end of 2023. The pond closure plan included excavating CCR from the ponds and placing it in the ADF. In 2025, WPL amended the closure plan to excavate CCR material from the Ash Expansion Area, located to the south of the former Secondary Pond and within the Ash Ponds Disposal Facility limits, and place the material in the ADF. Removal of CCR material from the Ash Expansion Area was completed in 2025.

Dry Ash

The ADF (DNR License No. 3025) is an active CCR landfill that was opened in 1985 and accepts both bottom ash and fly ash. Beginning in 2014, the site also began accepting spray dryer absorber (SDA) by-product that is generated by the on-site Air Quality Control System. Most of the fly ash and bottom ash generated by the Columbia plant is sold for beneficial use, and WPL has beneficially used some SDA byproduct in agricultural applications. Modules 1-3 existed prior to October 19, 2015. Module 4 of the new unit became operational in 2018 and Modules 5 and 6 became active in 2021. Modules 10 and 11 became operational in 2023. Modules 12 and 13 became operational in 2025. The lined pond located to the east of the ADF collects surface water runoff and leachate from the dry ash landfill.

2.2 GEOLOGIC AND HYDROGEOLOGIC SETTING

2.2.1 Regional Information

For the purposes of groundwater monitoring under NR 507.15(3), the surficial sand and gravel aquifer is considered to be the uppermost aquifer unit. Immediately underlying the surficial sand and gravel aquifer is the Cambrian-Ordovician sandstone aquifer. A summary of the regional hydrogeologic stratigraphy is presented in **Appendix A**.

The sand and gravel aquifer is capable of producing sufficient water for industrial or municipal use in some parts of Columbia County and is capable of producing sufficient water for domestic use in

many areas, including along the Wisconsin River near COL (Harr et. al, 1978). A map showing expected well yields within the sand and gravel aquifer in Columbia County is included in **Appendix A**.

Regional groundwater flow in the site vicinity is generally west toward the Wisconsin River. A map showing the regional water table elevations is included with the regional hydrogeologic information in **Appendix A**.

2.2.2 Site Information

Soils at the site are primarily sand to a depth of approximately 50 to 100 feet and overlie sandstone bedrock. Soils encountered during the site feasibility study for the ADF were described as generally sandy with interbedded silty clay lenses up to 20 feet thick (Warzyn, 1978). CCR monitoring wells are screened within the unconsolidated sand unit.

Shallow groundwater at the site generally flows north and west across the existing landfill area. During the April 2025 monitoring event, groundwater flow within the ADF area was predominantly to the north, with minor variations. At the northeast corner of the ADF, flow was directed toward the south-southeast, while along the western edge, flow was primarily toward the west and southwest. Water table elevations and detailed flow directions for the April 2025 event are presented in **Figure 3.**

Vertical hydraulic gradients were calculated at eight monitoring well nests for the April 2025 sampling event. These gradients are summarized in **Table 1**. Calculated vertical gradients at well nests at the Ash Ponds site and at MW-91AR/MW-91B were near zero or slightly downward, and gradients at well nests MW-33AR/MW-33BR, MW-34A/MW-34B, and MW-84A/MW-84B were upward.

2.3 CCR MONITORING SYSTEM

The CCR groundwater monitoring system for the ADF was approved in the May 3, 2024 Conditional Approval. The CCR monitoring system consists of two upgradient (background) monitoring wells and nine downgradient monitoring wells (**Table 2** and **Figure 2**).

The background wells are MW-301 and MW-84A. The active downgradient wells included in this report, covering January through July 2025 (October 2025 data will be reported in next year's annual report), are MW-302, MW-309, MW-310, MW-311, MW-317, MW-318, and MW-319.

Wells MW-317, MW-318, and MW-319 were installed in 2024, and baseline sampling for these wells began that same year and was completed on March 3, 2025. Following completion of baseline sampling, WPL submitted a plan modification request on August 29, 2025, that included preventive action limits (PALs) and alternative concentration limits (ACLs). The DNR granted conditional approval on December 5, 2025. Groundwater standards exceedances in this report are evaluated based on the standards applicable at the time of the original data submittal to GEMS, therefore PALs and ACLs approved in the December 5, 2025 Conditional Approval, are not used for comparison in this report.

2.4 NON-CCR MONITORING SYSTEM

Updates to the non-CCR monitoring system for the ADF were approved in the May 3, 2024 Conditional Approval. Monitoring of the Ash Ponds Facility is performed in accordance with the

requirements of the May 17, 2022 Conditional Ash Ponds Closure Plan of Operation Approval Modification.

Monitoring points, including both CCR and non-CCR monitoring wells, are listed in **Table 2**, and shown on **Figure 2**.

2.5 MONITORING WELL NETWORK EVALUATION

The integrity of the monitoring well network is assessed during each semi-annual groundwater monitoring event. Monitoring point conditions as of April 2025 are summarized in **Appendix B**. In general, the monitoring wells are in good condition and are functioning as intended with the exception of Ash Pond Facility monitoring wells W-217 and MW-220RR. The casings of these wells are bent and dedicated bailers can no longer fit down the wells. Dedicated Waterra pumps are used to purge and sample these two wells, as discussed in previous data submittals and biennial reports. These wells will continue to be assessed during future sampling events and will be repaired or replaced if necessary.

The following deviations from the sampling plan occurred during the reporting period.

- ADF:
  - Lysimeter LS-3R was dry during the April 2025 monitoring event and was therefore not sampled.
  - MW-91B was found to be damaged during the October 2025 monitoring event, apparently by mowing equipment. The well damage was reported in writing to DNR within 10 days of discovery. The well has been repaired and was sampled in December 2025.
- Ash Ponds Facility: None

3.0 DRY ASH FACILITY: NR 507.15(3)(m) ANNUAL REPORT REQUIREMENTS

Section 3.0 specifically addresses requirements of NR 507.15(3)(m) for the CCR well monitoring network of the ADF. Non-CCR well monitoring for the ADF and Ash Ponds Facility are discussed elsewhere in the report.

The owner or operator of a CCR landfill shall prepare an annual groundwater monitoring and corrective action report for submittal to the department. The annual groundwater monitoring and corrective action report shall be placed in the written operating record and posted on a publicly accessible internet site under s. NR 506.17 (2) and (3) no later than January 31 of the year following the calendar year a groundwater monitoring system has been approved by the department, and annually thereafter. For the preceding calendar year, the annual report shall document the status of the groundwater monitoring and any corrective action implemented at the CCR landfill, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. At a minimum, the annual groundwater monitoring and corrective action report shall contain all of the following information, to the extent available:

3.1 NR 507.15(3)(m)(1) SITE MAP

A map, aerial image, or diagram showing the CCR unit and all upgradient and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR landfill;

A map of the site location is provided on **Figure 1**. A map showing the ADF and Ash Ponds Facility and all monitoring points, including well identification numbers, is shown on **Figure 2**. CCR monitoring wells are differentiated from non-CCR wells on **Figure 2**.

3.2 NR 507.15(3)(m)(2) MONITORING SYSTEM CHANGES

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

No Monitoring wells were installed or decommissioned in 2025.

3.3 NR 507.15(3)(m)(3) SUMMARY OF SAMPLING EVENTS

In addition to all the monitoring data obtained under par. (L), a summary including the number of groundwater samples that were collected for analysis for each upgradient and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring;

Groundwater sampling events were completed at CCR Monitoring wells in January, April, July, October, and December 2025 at the ADF as part of detection monitoring in accordance with the DNR approved Groundwater Sampling and Analysis Plan. Samples collected in January, July, and December 2025 were collected for limited parameters at select wells during resampling events following the October 2024, April 2025, and October 2025 sampling events, respectively. As noted earlier in this report, data from the October semiannual event and December resampling event will be submitted to DNR in January 2026, therefore these data will be discussed in the 2026 Annual Report.

A summary including the number of groundwater samples that were collected in 2025 for analysis at each monitoring well, the dates the samples were collected, and whether the sample was required by the detection or assessment monitoring program is included in **Table 3**.

A previous Demonstration of False Groundwater Exceedance was submitted on January 21, 2025, related to October 2024 sampling and November 2024 resampling. These data and a copy of the January 21, 2025 Demonstration, were included in the 2024 Annual Report. DNR responded to this Demonstration via email on February 20, 2025, stating that the site should continue in detection monitoring (**Appendix C1**).

Groundwater samples collected during the semiannual events were analyzed for the required constituents. The resampling events in 2025 were limited to a subset of constituents. The January resampling was performed for hardness and sulfate at MW-33AR, which were detected at concentrations above the well-specific PAL and ACL, respectively, in October 2024. The resample results confirmed the exceedances. The resampling results were submitted to DNR in a Demonstration of False Groundwater Exceedance dated March 27, 2025 (**Appendix C2**). The Department responded to this Demonstration by email on April 10, 2025, stating that the site should continue in detection monitoring (**Appendix C2**).

Sampling results for the April 2025 monitoring event were submitted to DNR on June 27, 2025. July 2025 resampling data for the ADF confirmed exceedances of the chloride PAL at MW-319 and the sulfate ACL at MW-33AR. These resampling results were submitted to DNR in a Demonstration of False Groundwater Exceedance dated September 26, 2025 (**Appendix C3**). The Department responded to this Demonstration via email on October 21, 2025, stating that the site should continue in detection monitoring (**Appendix C3**).

Detection monitoring results for the CCR monitoring wells and non-CCR monitoring wells reported in 2025 at the ADF are summarized in **Appendix D**.

3.4 NR 507.15(3)(m)(4) MONITORING TRANSITION NARRATIVE

A narrative discussion of any transition between monitoring programs including the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected above ch. NR 140 standards;

There were no transitions from detection to assessment monitoring programs during 2025. Detection monitoring of ADF CCR monitoring wells under NR 507.15(3) was begun during 2024. The ADF remained in the detection monitoring program at the end of 2025.

The monitoring results for samples collected through July 2025 were compared to standards listed in NR 140 or to applicable well-specific PALs and/or ACLs listed in the May 3, 2024 Conditional Approval.

Section 4.1 presents a summary of constituents detected above ch. NR 140 standards, including results at CCR monitoring wells.

3.5 NR 507.15(3)(m)(5) OVERVIEW SECTION

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action for the CCR landfill.

This overview is provided at the beginning of this report, before the Table of Contents.

3.5.1 NR 507.15(3) General Requirements

For the preceding calendar year, the annual report shall document the status of the groundwater monitoring and any corrective action implemented at the CCR landfill, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

Status of Groundwater Monitoring and Corrective Action Program. The groundwater monitoring and corrective action program was in detection monitoring as of April 2025 in accordance with the Conditional Approval granted by the DNR on May 3, 2024. Monitoring parameters required by the CCR monitoring program were collected during the April 2025 monitoring event. The ADF remained in detection monitoring at the end of 2025.

Summary of Key Actions Completed in 2025.

- January 2025 resampling event at MW-33AR.

- Two semiannual groundwater sampling and analysis events (April and October 2025).
- July and December 2025 resampling events.
- Evaluation of data from the April 2025 monitoring events (As noted above, October and December 2025 results will be submitted to DNR in 2026 and discussed in the 2026 annual report.
- Baseline sampling of MW-317, MW-318, and MW-319 completed in March 2025.
- Submittal of Plan Modification Request including NR 140 exemption requests and calculated PALs and ACLs, on August 29, 2025.
- Receipt of Conditional Approval dated December 5, 2025.

Description of Any Problems Encountered. No problems were encountered during groundwater monitoring of CCR wells in 2025.

Discussion of Actions to Resolve the Problems. Not applicable.

Projection of Key Activities for the Upcoming Year (2026).

- Evaluation and submittal of October 2025 semiannual and December 2025 resampling results.
- Two semiannual groundwater sampling and analysis events (April and October 2025).
- Evaluation of April 2026 groundwater sampling results.
- If an exceedance at a CCR monitoring well is confirmed by resampling, then proceed in accordance with NR 508.06.

4.0 MONITORING RESULTS SUMMARY: ADF

4.1 MONITORING WELLS

This section discusses monitoring results for both CCR monitoring wells and non-CCR monitoring wells at the ADF for sample results submitted to DNR in 2025. Sample results from October 2025 will be submitted to DNR in January 2026 and will therefore be included in the 2026 Annual Report. Wells are identified in each section below as either CCR or non-CCR monitoring wells. An exceedance summary is presented in **Table 4**, and full monitoring results are summarized in **Appendix D**. Relevant historical data graphs are provided for reference in **Appendix E**. Exceedances detected during the April 2025 semiannual monitoring event are shown on **Figure 6**.

4.1.1 Boron

Non-CCR Monitoring Wells

Boron was reported above the NR 140 PAL at non-CCR monitoring well MW-91AR and MW-91B during the April 2025 monitoring event. Concentrations of other CCR indicator parameters (e.g. sulfate and specific conductance) have increased and then decreased with boron at these wells, and the April 2025 boron concentrations at MW-91AR and MW-91B are consistent with ongoing decreases.

Elevated boron concentrations at these wells are attributable to historical leachate management activities at the site. Improvements to the piping system conveying leachate from Module 1 to the leachate collection basin were made in the 2000s. Groundwater quality improvements observed since the mid- to late-2000s at MW-91A/AR and MW-91B indicate that groundwater impacts at this well nest were addressed by these improvements.

CCR Monitoring Wells

Boron was not detected at a concentration above the NR 140 PAL at any of the CCR monitoring wells during the April 2025 monitoring event.

4.1.2 Chloride

Non-CCR Monitoring Wells

Chloride is not included in the current monitoring program for non-CCR monitoring wells.

CCR Monitoring Wells

Baseline sampling at MW-319 was completed in March 2025. The April 2025 chloride concentration exceeded the NR 140 PAL, and the July resampling result confirmed this exceedance.

MW-319 is located near Murray Rd. Elevated chloride concentrations are routinely detected at several other site monitoring wells in the vicinity of Murray Rd., and these concentrations have been attributed to road salt application (**Appendix C3**).

4.1.3 Molybdenum

Non-CCR Monitoring Wells

Molybdenum concentrations exceeded the NR 140 PAL at monitoring wells MW-91AR and MW-91B in April 2025.

MW-91AR, and MW-91B have exhibited generally decreasing concentrations since molybdenum monitoring began in 2011. Molybdenum concentrations in groundwater at these wells appear to reflect impacts from historical leachate management at the site.

CCR Monitoring Wells

Molybdenum is not a detection monitoring parameter and was therefore not included in the April 2025 sampling event at CCR monitoring wells.

4.1.4 Sulfate

Non-CCR Monitoring Wells

Sulfate was reported above the NR 140 PAL at non-CCR monitoring well MW-91AR during April 2025. The sulfate result at MW-91AR (137 mg/L) is higher than concentrations detected in recent years but is consistent with an overall decrease in sulfate concentrations at this well from a high of 890 mg/L in 2006. This decrease in sulfate concentrations supports the attribution of elevated sulfate concentrations at MW-91A to historical leachate management activities at the site.

CCR Monitoring Wells

Individual sulfate results above the NR 140 PAL were detected at MW-310 and MW-318 in April 2025, however these exceedances were not confirmed by resampling in July 2025.

The January 2025 resampling event confirmed a sulfate ACL exceedance at MW-33AR, as did the April 2025 semiannual and subsequent July 2025 resampling events. Sulfate concentrations detected in April 2025 were above the NR 140 PAL at MW-310 and MW-318, and above the well-specific ACL at MW-33AR. These confirmed exceedances were reported in False Groundwater Exceedance Demonstrations submitted on February 20, 2025, and September 26, 2026, respectively, and DNR responded to both submittals with statements that the site should continue in detection monitoring (**Appendices C2** and **C3**).

4.1.5 Concentrations Above Well-Specific PALs

Well-specific PALs for indicator parameters were included in the May 3, 2024 Conditional Approval. Concentrations above the following well-specific PAL were confirmed in January 2025, following the October 2024 semiannual monitoring event.

- Hardness at CCR monitoring well MW-33AR

The hardness PAL exceedance at MW-33AR was included in the Demonstration of False Groundwater Exceedance submitted on January 21, 2025. DNR responded to this submittal on February 20, indicating that detection monitoring should continue (**Appendix C1**). Well-specific PAL exceedances were not detected during the April 2025 semiannual monitoring event.

4.1.6 Additional Baseline Monitoring

Monitoring well MW-93A was installed in April 2022 to replace abandoned well MW-1AR. In addition to the required semiannual monitoring program parameter list, the April 2025 samples at MW-93A were analyzed for additional baseline parameters during the April 2025 semiannual monitoring event. Sample results for these additional parameters are summarized in **Appendix D**.

4.2 WATER SUPPLY WELLS

The site water supply wells (HC-1, HC-2, and HC-3) draw water from the sandstone aquifer underlying the sand and gravel aquifer material at the site.

Water supply wells HC-1, HC-2, and HC-3 were sampled during the April and October semiannual events. As noted earlier in this report, October 2025 results will be reported in January 2026 and will be included in the 2026 Annual Report. Analytical results for samples collected from the supply wells

are summarized in **Appendix D**. Results for parameters for which the NR 140 PAL was exceeded in any supply well during April 2025 are summarized in **Table 4** and are discussed below.

4.2.1 Arsenic

The detected arsenic concentration exceeded the NR 140 PAL at HC-1 in April 2025. This concentration was consistent with historical data at this well and appears to be attributable to natural sources.

4.2.2 Boron

Boron concentrations exceeded the NR 140 PAL at HC-1, HC-2, and HC-3 during April 2025. These concentrations are within the historic range at each well, and the concentrations at HC-2 and HC-3 are consistent with long-term decreases in concentrations. The April 2025 result at HC-1 is consistent with stable concentrations. Boron concentrations in groundwater at the site appear to reflect impacts from historical ash management activities prior to construction of the active landfill.

4.2.3 Chloride

Chloride concentrations exceeded the NR 140 PAL at HC-1 during April 2025. This chloride concentration is consistent with generally increasing concentrations at this well since chloride was added back into the sampling program in 2015. Elevated and increasing chloride concentrations at HC-1 appear to reflect impacts from road salt.

4.2.4 Molybdenum

Molybdenum concentrations exceeded the NR 140 PAL at HC-2 and HC-3 during April 2025. Molybdenum has been included in the sampling program since April 2011. Molybdenum concentrations at the supply wells were within the historical range for each well.

4.2.5 Nitrate + Nitrite as Nitrogen

Nitrate plus nitrite was reported above the NR 140 PAL at supply well HC-3 in April 2025. This result was within the historic range at this well.

Nitrate + nitrite detections at the site are attributed to historical agricultural land use. Nitrate + nitrite was added to the monitoring program in December 2014 and has shown generally consistent results at each supply well. Removal of nitrate + nitrite from the list of parameters required at monitoring wells was approved in the May 3, 2024, Conditional Approval; however, nitrate + nitrite was retained as a required parameter at supply wells HC-1, HC-2, and HC-3.

4.3 LYSIMETERS

Lysimeters LS-1 and LS-3R are located within the dry ash landfill limits. Lysimeter LS-3R was dry during the April 2025 monitoring event. At lysimeter LS-1, all concentrations were within historical ranges. Analytical results for LS-1 are summarized in **Appendix D**.

4.4 SURFACE WATER/LEACHATE COLLECTION POND MONITORING POINT

Samples were collected from the surface water/leachate collection pond (LP-1), located to the east of the dry ash landfill, during semiannual events in 2025. The LP-1 sampling location is located near

the leachate collection line outlet. Results were consistent with historical results at this monitoring point during the April 2025 monitoring event, with the exceptions of iron and manganese. Iron and manganese concentrations at LP-1 in April 2025 are higher than previous results; however, this was only the third sampling event during which these parameters were included and therefore this comparison is based on a limited historical data set. Analytical results for samples collected from LP-1 are summarized in **Appendix D**.

5.0 MONITORING RESULTS SUMMARY: ASH PONDS FACILITY

The Ash Ponds Disposal Facility does not have a CCR monitoring program under NR 507.15(3) and well-specific PALs and ACLs have not been established for this facility. Therefore, results from 2025 monitoring are compared only to PALs and ESs listed in NR 140. As discussed earlier in this report, October 2025 results will be submitted in January 2026 and will be discussed in the 2025 Annual Report. The discussion in this section therefore focuses on April 2025 monitoring data. Exceedances of applicable standards detected in April 2025 are summarized below and in **Tables 5** and **6**. Full monitoring results are summarized in **Appendix D**. Relevant historical data graphs are provided for reference in **Appendix E**. Exceedances detected during April 2025 are shown on **Figure 4**.

5.1 ARSENIC

Arsenic was reported above the NR 140 PAL in April 2025 at monitoring wells MW-57 and MW-217.

The April 2025 arsenic concentrations at MW-57 and MW-217 are consistent with historic concentrations at these wells. Arsenic PAL exceedances at these wells may be attributable to the ash pond facility; however, arsenic is also typically detected at concentrations up to 2.8 µg/L in MW-92B, located upgradient at the ADF, indicating that arsenic concentrations at the site may be at least partially attributable to natural background conditions. Arsenic PAL exceedances at monitoring well MW-57 may also be attributable to reducing conditions at this well, which is located in a wetland area.

5.2 BORON

Boron concentrations exceeded the NR 140 PAL in monitoring wells M-4R, MW-57, MW-216R, MW-217, and MW-220RR in April 2025.

The boron concentration detected at each of these wells in April 2025 is within the historical range for each well, with the exception of an historic low concentration at MW-57. The boron concentration at MW-217 is the lowest detected since April 2017, but is consistent with generally increasing concentrations observed since the mid-1990s at this well. Boron PAL exceedances at the site have been attributed to sluice water in the ash settling ponds and/or to the closed ash landfill located in the ash ponds disposal area.

5.3 SPECIFIC CONDUCTANCE

Field-specific conductance measurements are compared to the site-specific PAL (1,400 micromhos per centimeter [µmhos/cm]). The April 2025 field specific conductance measurement at MW-39A (**Table 6**) exceeded this value and is consistent with the historical range of values measured at this well. No other specific conductance measurements exceeded the site-specific PAL in April 2025.

5.4 SULFATE

Sulfate was reported above the NR 140 PAL at monitoring well MW-59. The April 2025 concentration at MW-59 is the highest detected at this well since the mid-1980s. Sulfate PAL exceedances at the site have been attributed to the ash settling ponds and/or to the closed ash landfill located in the ash pond area.

6.0 RECOMMENDATIONS

Continued sampling in 2026 under the approved monitoring programs for the ADF and Ash Ponds Facility is recommended. Monitoring at the ADF will be performed as approved in the December 5, 2025 Conditional Approval. Monitoring will continue under the detection monitoring program per Department concurrence with the demonstrations of false groundwater exceedance submitted in 2025 (**Appendix C**). Additional demonstrations of false groundwater exceedance will be submitted, as appropriate, or assessment monitoring will be initiated if a demonstration is not submitted and approved for a confirmed exceedance.

Detection monitoring under the Federal CCR Rule 40 CFR 257.50-107 continues at the ADF. Different standards are used for comparison under that program, therefore criteria for continuing detection monitoring may differ between Federal and State CCR Rules.

7.0 REFERENCES

Harr, C.A., L.C. Trotta, and R.G. Borman, 1978, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconsin-Extension Geological and Natural History Survey Information Circular Number 37, 1978.

U.S. Environmental Protection Agency (U.S. EPA), 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, EPA 530-R-09-007, March 2009.

Warzyn Engineering, Inc., 1978, Feasibility Study, Proposed Fly Ash and/or Scrubber Sludge Disposal Facility – Columbia Site, Wisconsin Power and Light Company, Town of Pacific, Columbia County, WI, January 1978.

Tables

Table 1. Summary of Calculated Vertical Hydraulic Gradients
Wisconsin Power and Light - Columbia Ash Ponds and Dry Ash Disposal Facilities
Licenses #2325 and 3025

	Ash Ponds				Dry Ash Diposal Facility			
Date	**MW-92A/ MW-92B**	**W-39A/ W-39B**	**MW-48A/ MW-48B**	**MW-220RR/ W-217**	**MW-33AR/ MW-33BR**	**MW-34A/ MW-34B**	**MW-84A/ MW-84B**	**MW-91AR/ MW-91B**
April 21-23, 2025	-0.018	-0.001	-0.002	-0.030	0.050	0.107	0.023	-0.009

Note:
A positive vertical gradient indicates upward flow potential, and a negative vertical gradient indicates downward flow potential.

Created by: MDB Date: 1/7/2015
Last revision by: BLJ Date: 1/7/2026
Checked by: MDB Date: 1/7/2026

Table 2. Groundwater Monitoring Program^
Wisconsin Power and Light - Columbia Ash Ponds and Dry Ash Disposal Facilities
Licenses #2325 and 3025

Columbia Ash Ponds Disposal Facility - License No. 2325 (1)		
Monitoring Point	**Parameters**	**Frequency**
Groundwater		
M-3 M-4R W-39A W-39B MW-48A MW-48B MW-57 W-59 MW-216R W-217 MW-220RR	Groundwater elevation Field temperature Field conductivity Field pH Metals, dissolved (Arsenic, Barium, Boron, Chromium) Sulfate, dissolved	Semiannual (April and October)
Staff Gauges		
SG-1	Surface Water Elevation	Semiannual (April and October)
Columbia Dry Ash Disposal Facility - License No. 3025 (2)		
Monitoring Points	**Parameters**	**Frequency**
Groundwater (non-CCR)		
MW-33BR MW-34B MW-37A MW-83 MW-84B MW-86 MW-91AR MW-91B MW-92A MW-92B MW-93A(3)	Groundwater elevation Field odor, color, and turbidity Field temperature, conductivity at 25° C, and pH Nitrate + Nitrite as N, total Metals, dissolved (Arsenic, Boron, Molybdenum) Sulfate, dissolved Total Hardness, dissolved (mg/L as CaCO3) Alkalinity, dissolved	Semiannual (April and October)
Groundwater (CCR wells - detection monitoring)		
MW-33AR MW-34A MW-84A(4) MW-301(4) MW-302 MW-309 MW-310 MW-311 MW-317 MW-318 MW-319	Groundwater elevation Field odor, color, and turbidity Field temperature, conductivity at 25° C, and pH Metals, total (Boron, calcium) Chloride, total Fluoride, total Sulfate, total Total Hardness, dissolved (mg/L as CaCO3) Alkalinity, total	Semiannual (April and October)
Water Supply Wells		
HC-1 HC-2 HC-3	Field odor, color, and turbidity Field temperature, conductivity at 25° C, and pH Nitrate + Nitrite as N, total Metals, total (Arsenic, Boron, molybdenum) Sulfate, total Chloride, total Total Hardness (mg/L as $CaCO_3$) Alkalinity, total	Semiannual (April and October)

Table 2. Groundwater Monitoring Program^
Wisconsin Power and Light - Columbia Ash Ponds and Dry Ash Disposal Facilities
Licenses #2325 and 3025

Columbia Dry Ash Disposal Facility - License No. 3025 (2)		
Monitoring Point	**Parameters**	**Frequency**
Leachate Head Wells		
LH-2 LH-10A, LH-10B LH-11A, LH-11B LH-12B, LH-13A, LH-13B	Leachate head elevation Leachate depth	Monthly
Other Monitoring Points		
LS-1 LS-3R	Field odor, color, and turbidity Field temperature, conductivity at 25° C, and pH Nitrogen, Kheldahl, total (mg/L as N) Metals, total (Aluminum, Arsenic, Boron, Chromium, Molybdenum, Selenium) Sulfate, total Chloride, total Total Hardness (mg/L as $CaCO_3$) Alkalinity	Semiannual (April and October)
LP-1	Field pH and conductivity TSS BOD Alkalinity Hardness Chloride Fluoride and Sulfate, total Metals, total (Antimony, Beryllium, Boron, Cadmium, Cobalt, Iron, Lead, Lithium, Manganese, Mercury, Molybdenum, Selenium, Thallium) Radium 226 + 228	Semiannual (April and October)
	SVOCs	Annual (October)
	Leachate Volume Pumped	Monthly

Notes:

(1) The Columbia Ash Pond Facility monitoring program is based on the Conditional Ash Ponds Closure Plan of Operation Approval dated May 17, 2022.

(2) The Columbia Dry Ash Disposal Facility monitoring program is based on the WDNR Plan of Operation Modification Conditional Approval Letter dated May 3, 2024.

(3) MW-1AR was abandoned and replaced by new water table well MW-93A in April 2022. MW-93A was analyzed for additional baseline monitoring parameters during all 2024-2025 monitoring events.

(4) MW-84A and MW-301 are background monitoring wells that supports the Federal CCR Rule sampling program at the Dry Ash Facility. They are sampled for additional parameters not required by the Dry Ash Facility program.

Created by: MDB Date: 1/8/2015
Last revision by: BLJ Date: 1/7/2026
Checked by: MDB Date: 1/7/2026

Table 3. 2025 CCR Monitoring Well Groundwater Samples Summary
Columbia Energy Center Dry Ash Disposal Facility
SCS Engineers Project #25225067.00

Sample Dates	Background Wells		Downgradient Wells								
	MW-84A	MW-301	MW-302	MW-309	MW-310	MW-311	MW-317	MW-318	MW-319	MW-33AR	MW-34A
January 10, 2025	--	--	--	--	--	--	--	--	--	D-R	--
April 21-23, 2025	D	D	D	D	D	D	D	D	D	D	D
July 16-17 & 30, 2025	--	--	--	--	D-R	--	--	D-R	D-R	D-R	--
October 27-29, 2025*	D	D	D	D	D	D	D	D	D	D	D
December 12, 2025*	--	--	--	D-R	--	--	--	--	--	D-R	--
Total Samples in 2025	2	2	2	3	3	2	2	3	3	5	2

Abbreviations:
D = Required by Detection Monitoring Program
D-R = Detection Monitoring Retest Sample
*: Results to be reported in 2026

Created by: MDB Date: 1/8/2024
Last revision by: BLJ Date: 1/7/2026
Checked by: MDB Date: 1/7/2026

Table 4. Groundwater Quality Standard Exceedance Summary
WPL-Columbia Dry Ash Disposal Facility / SCS Engineers Project #25225067.00
License #03025

Parameter	Units	Sample ID	Applicable Standard(s)				Collected Date	Result	Data Flags	Exceedance	CCR Monitoring Well?	In DMZ*
			NR 140 PAL	NR 140 ES	Well-Specific PAL	ACL						
Arsenic, Total	µg/L	HC-1	1	10	N/A	N/A	4/23/2025	1.1	--	PAL	No	No
Boron, Dissolved	µg/L	MW-91AR	200	1000	N/A	N/A	4/23/2025	201	--	PAL	No	Yes
		MW-91B					4/22/2025	677	--	PAL	No	Yes
Boron, Total	µg/L	HC-1	200	1000	N/A	N/A	4/23/2025	255	--	PAL	No	No
		HC-2					4/23/2025	359	--	PAL	No	No
		HC-3					4/23/2025	398	--	PAL	No	No
Chloride, Total	mg/L	MW-319	125	250	N/A	N/A	4/26/2025	242	--	PAL - confirmed by resample	Yes	N/A
							7/17/2025	141	--			
		HC-1					4/23/2025	156	--	PAL	No	No
Hardness, Total	mg/L	MW-33AR	N/A	N/A	390	N/A	1/10/2025	412	--	PAL - confirmation sample following October 2024 sampling event	Yes	N/A
Molybdenum, Dissolved	µg/L	MW-91AR	8	40	N/A	N/A	4/23/2025	15.1	--	PAL	No	Yes
		MW-91B					4/22/2025	56.4	--	PAL	No	Yes
Molybdenum, Total	µg/L	HC-2	8	40	N/A	N	4/23/2025	16.3	--	PAL	No	No
		HC-3					4/23/2025	18.0	--	PAL	No	No
Nitrogen, NO_2+NO_3 as N	mg/L	HC-3	2	10	N/A	N/A	4/23/2025	2.4	--	PAL	No	No
Sulfate, Dissolved	mg/L	MW-91AR	125	250	N/A	N/A	4/23/2025	137	--	PAL	No	Yes
Sulfate, Total	mg/L	MW-33AR	N/A	250	N/A	200	1/10/2025	250	--	ACL - confirmation sample following October 2024 event	Yes	N/A
							4/21/2025	236	--	ACL	Yes	N/A
							7/16/2025	231	--			
		MW-310	125	250	N/A	N/A	4/21/2025	170	--	Not confirmed by resample	Yes	N/A
							7/30/2025	67.4	--			
		MW-318					4/26/2025	156	--	Not confirmed by resample	Yes	N/A
							7/16/2025	122	--			

Notes/Abbreviations:
µg/L = micrograms per liter
mg/L = milligrams per liter
ACL = Alternative Concentration Limit
ES = NR 140 Enforcement Standard
PAL = NR 140 Preventive Action Limit
* = Enforcement Standards (ESs) do not apply to wells within the design management zone (DMZ)

Created By: MDB Date: 6/1/2023
Last Modified: ACW Date: 7/6/2025
Checked By: MDB Date: 1/7/2025

Table 5. NR 140 Groundwater Quality Standard Exceedances
Wisconsin Power and Light - Columbia Ash Ponds Disposal Facility / SCS Engineers Project #25225067.00
License #02325

Parameter	Units	NR 140 PAL	NR 140 ES	Sample ID	Collected Date	Result	Data Flags	Exceedance	In DMZ*
Arsenic, Dissolved	µg/L	1	10	MW-57	4/22/2025	15.8	--	PAL	Y
				MW-217	4/22/2025	3.2	--	PAL	Y
Boron, Dissolved	µg/L	200	1,000	M-4R	4/21/2025	498	--	PAL	Y
				MW-57	4/22/2025	536	--	PAL	Y
				MW-216R	4/21/2025	364	--	PAL	Y
				MW-217	4/22/2025	2,040	--	PAL	Y
				MW-220RR	4/22/2025	288	--	PAL	Y
Sulfate, Dissolved	mg/L	125	250	MW-59	4/22/2025	241	--	PAL	Y

Notes/Abbreviations:
µg/L = micrograms per liter
mg/L = milligrams per liter
PAL = NR 140 Preventive Action Limit
ES = NR 140 Enforcement Standard
* = Enforcement Standards (ESs) do not apply to wells within the design management zone (DMZ)

Created By: MDB Date: 7/5/2020
Last Modified: AJR Date: 6/3/2025
Checked By: MDB Date: 6/12/2025

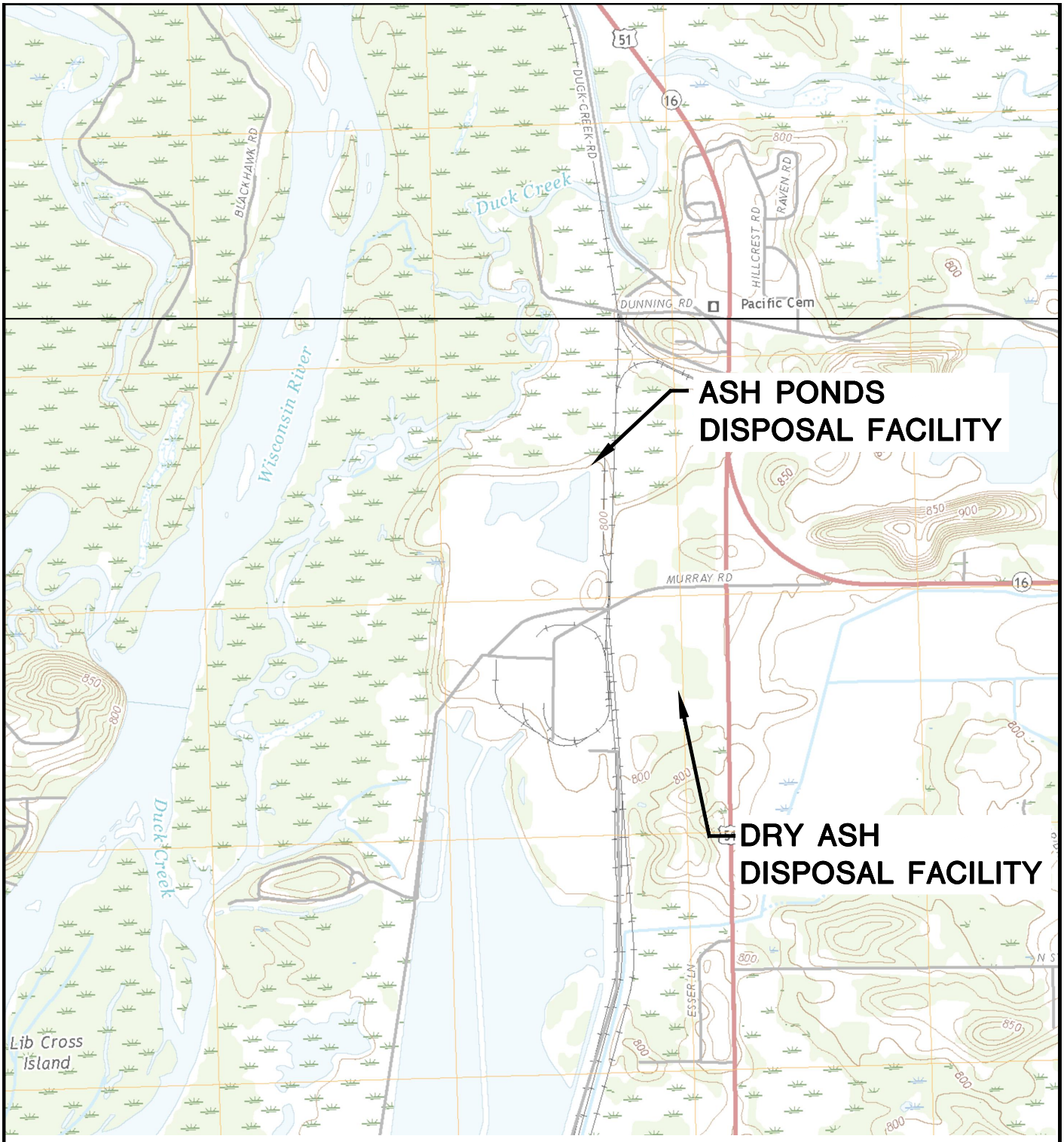
Table 6. Site-Specific Groundwater Quality Standard Exceedances
Wisconsin Power and Light - Columbia Ash Ponds Disposal Facility / SCS Engineers Project #25225067.00
License #02325

Parameter	Units	Site-Specific PAL	Sample ID	Collected Date	Result
Specific Conductance, Field	µmhos/cm	1,400	MW-39A	4/22/2025	2,009

Notes/Abbreviations:
PAL = Preventive Action Limit umhos/cm = micromhos/cm

Created By:	MDB	Date:	6/12/2025
Last Modified:	MDB	Date:	6/12/2025
Checked By:	REO	Date:	6/13/2025

Figures

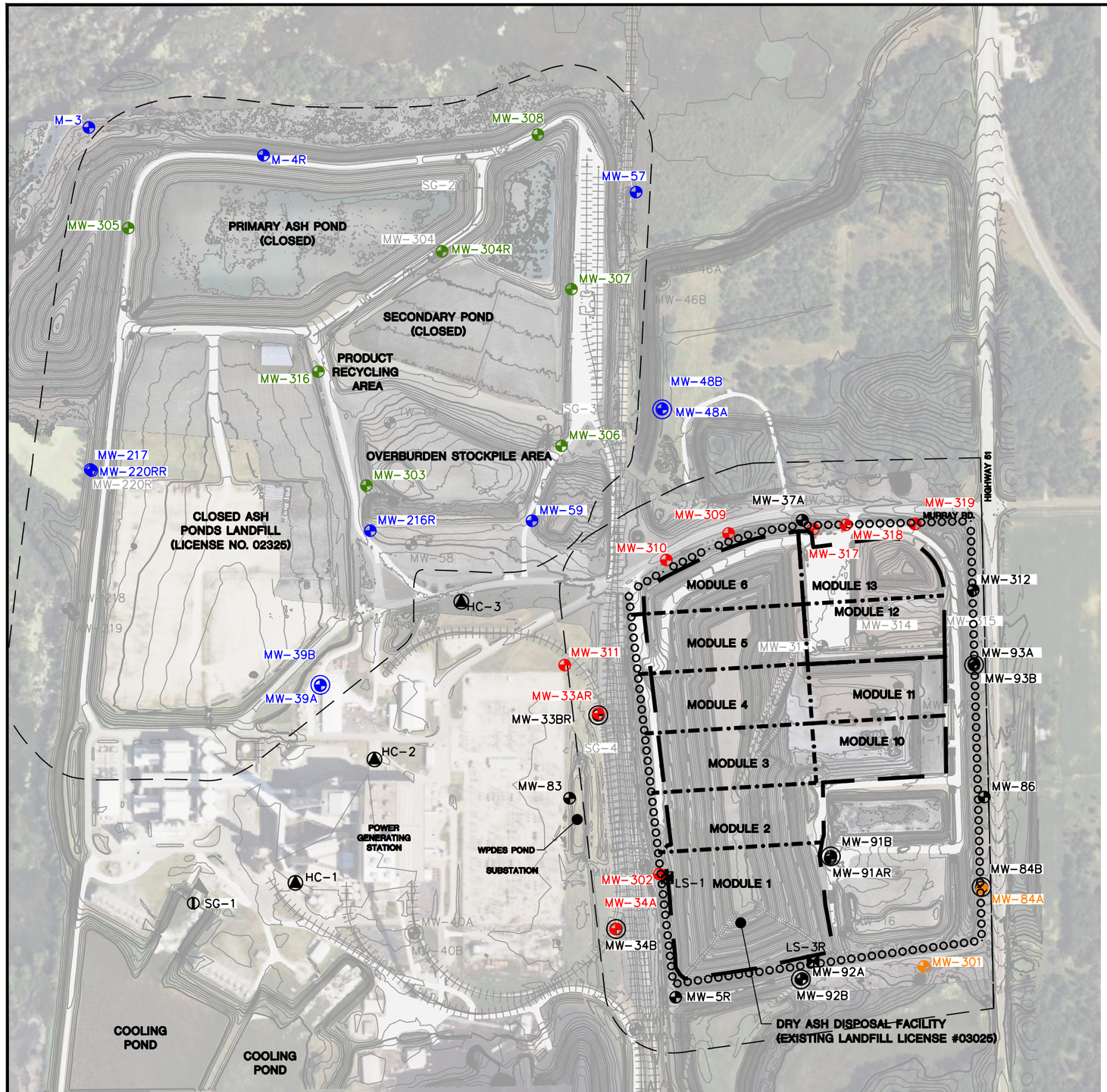


N

POYNETTE QUADRANGLE
WISCONSIN–COLUMBIA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT: ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE: ALLIANT ENERGY COLUMBIA ENERGY CENTER PARDEEVILLE, WI	SITE LOCATION MAP	
PROJECT NO. 25219067.00	DRAWN BY: BSS	ENGINEER: SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE 1
DRAWN: 12/02/2019	CHECKED BY: MDB		
REVISED: 01/10/2020	APPROVED BY: TK 01/30/2020		

I:\25219067.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:38:21 PM



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- DRY ASH DISPOSAL FACILITY LIMITS
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- ADF NON-CCR MONITORING WELL
- ADF CCR MONITORING WELL
- UPGRADIENT MONITORING WELL
- ASH PONDS STATE PROGRAM MONITORING WELL
- ASH PONDS CCR MONITORING WELL (FEDERAL CCR RULE PROGRAM ONLY)
- DESIGN MANAGEMENT ZONE
- APPROVED LIMITS OF WASTE (ADF ONLY)

N

500 0 500

SCALE: 1" = 500'

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, AND DECEMBER 2023 DRONE SURVEY BY AMES.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
8. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION & EXPLORATION ON MAY 22-23, 2024.
9. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
10. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 9 THROUGH 11, 2024.

PROJECT NO.	25224067.00	DRAWN BY:	SB/RVG
DRAWN:	01/14/2025	CHECKED BY:	MDB
REVISED:	01/21/2025	APPROVED BY:	MDB 1/21/2025

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

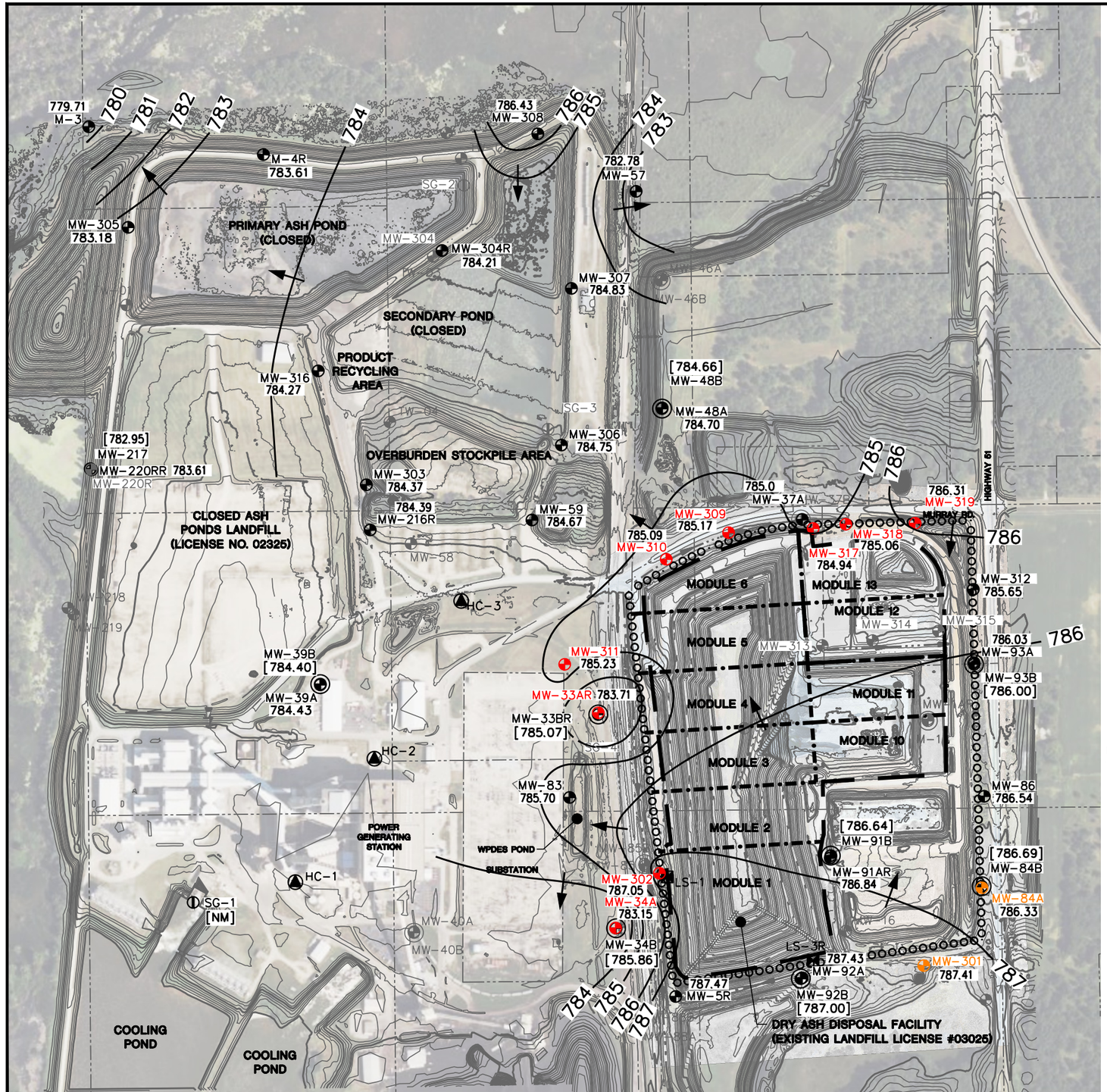
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

SITE PLAN AND MONITORING WELL LOCATIONS
COLUMBIA DRY ASH DISPOSAL FACILITY

FIGURE 2

I:\25224067.00\Drawings\Biennial Report Figure\02_Site Plan.dwg, 1/21/2025 4:36:12 PM



LEGEND

	EXISTING MAJOR CONTOUR (10' INTERVAL)
	EXISTING MINOR CONTOUR (2' CONTOUR)
— x — x —	EXISTING FENCELINE
	EXISTING TRACKS
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EDGE OF WATER
	DRY ASH DISPOSAL FACILITY LIMITS
	LINER PHASE/MODULE LIMITS
	WATER SUPPLY WELL
	STAFF GAUGE
	NON-CCR WATER TABLE WELL
	NON-CCR PIEZOMETER
	LYSIMETER
	ABANDONED STAFF GUAGE
	ABANDONED WATER TABLE WELL
	ABANDONED PIEZOMETER
	CCR MONITORING WELL
	CCR BACKGROUND MONITORING WELL
	ADF CCR MONITORING WELL

788.75	WATER TABLE ELEVATION
[781.47]	POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
[NM]	NOT MEASURED
	WATER TABLE CONTOUR (1-FOOT CONTOUR INTERVAL) (DASHED WHERE INFERRED)
	APPROXIMATE GROUNDWATER FLOW DIRECTION
	APPROXIMATE PROPERTY LINE

N

500 0 500

SCALE: 1" = 500'

NOTES:

1. WATER LEVELS WERE MEASURED ON APRIL 21-23, 2025.
2. WELL INSTALLATION AND SURVEY INFORMATION, SEE SITE PLAN FIGURE 2 NOTES.
3. STATE MONITORING WELLS M-3, M-4R, MW-5R, MW-33AR, MW-33BR, MW-34A, MW-34B, MW-37A, MW-39A, MW-39B, MW-48A, MW-48B, MW-57, MW-59, MW-83, MW-84A, MW-84B, MW-91AR, MW-91B, MW-92A, MW-92B, MW-93A, MW-93B, MW-86, MW-216R, MW-217 and MW-220RR.
4. CCR BACKGROUND MONITORING WELLS: MW-301 & MW-84A.
5. CCR MONITORING WELLS: MW-33AR, MW-34A, MW-302, MW-302A, MW-303, MW-304R, MW-305, MW-306, MW-307, MW-308, MW-309, MW-310, MW-311, MW-312, MW-316, MW-317, MW-318, MW-31 and MW-319.
6. SURFACE WATER MONITORING POINTS: STAFF GAUGE SG-1.
7. OTHER MONITORING POINTS: SUPPLY WELLS HC-1, HC-2 AND HC-3. LYSIMETERS L-1 AND LS-3R.
8. THERE WERE NO DRY MONITORING WELLS OR LEACHATE HEADWELLS IN APRIL 2025.
9. VERTICAL DATUM IS REFERENCED TO THE USGS MEAN SEA LEVEL (MSL).
10. BACKGROUND AERIAL IMAGE IS A COMPOSITE OF AN AERIAL PHOTOGRAPH IMPORTED FROM BING MAPS USING AUTOCAD GEOLOCATION MAP TOOL AND DRONE PHOTO BY SCS ENGINEERS DATED JANUARY 20th, 2025.

PROJECT NO.	25225067.00	DRAWN BY:	RVG/SB
DRAWN:	05/15/2025	CHECKED BY:	NLB
REVISED:	01/29/2026	APPROVED BY:	TK 1/23/2026

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

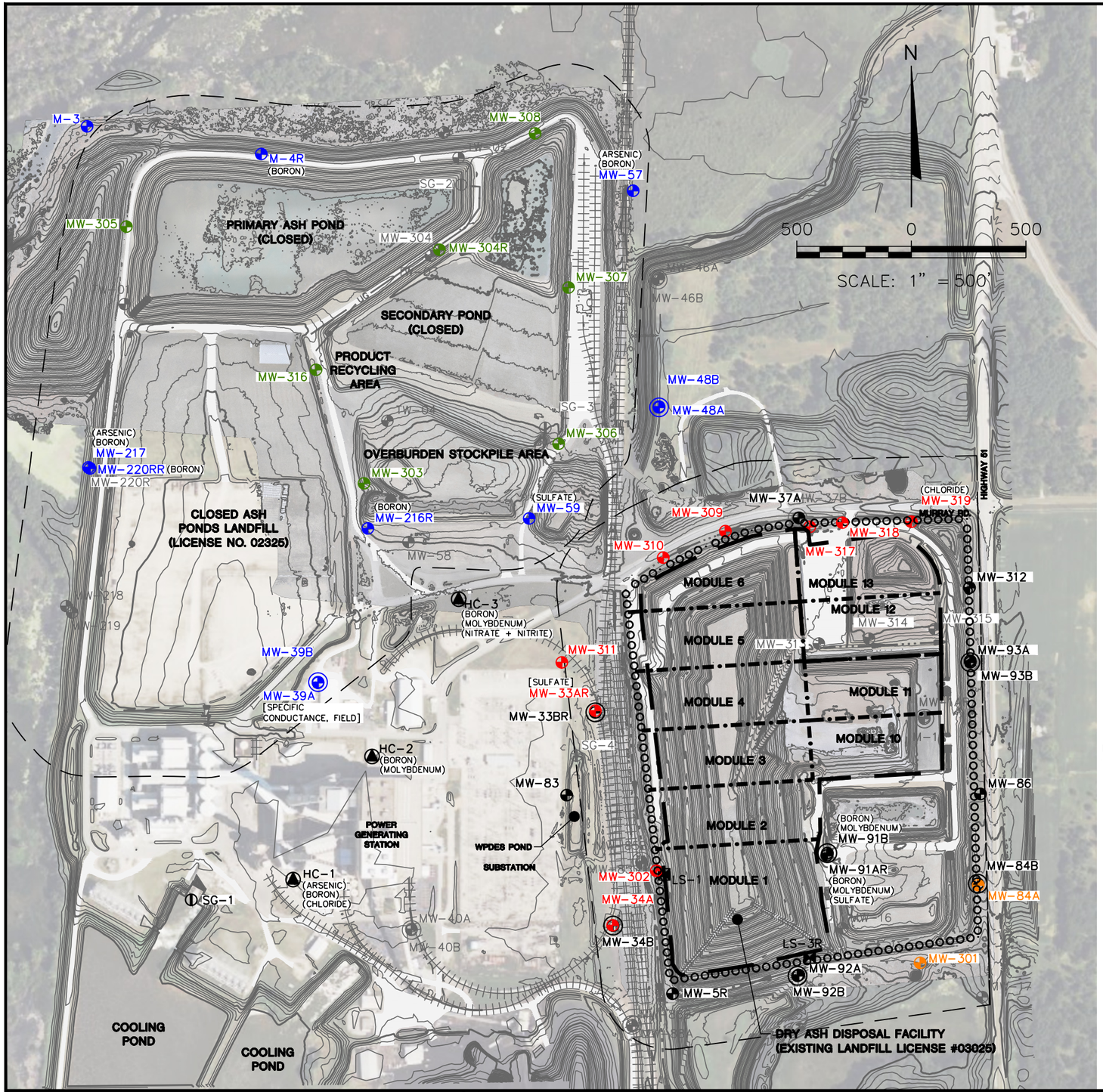
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

WATER TABLE CONTOUR MAP
APRIL 2025

FIGURE 3

I:\25225067.00\Drawings\2025 Annual CCR Report\03_COL April 2025 WTBL.dwg, 1/29/2026 1:51:23 PM



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- DRY ASH DISPOSAL FACILITY LIMITS
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- ADF NON-CCR MONITORING WELL
- ADF CCR MONITORING WELL
- UPGRADIENT MONITORING WELL
- ASH PONDS STATE PROGRAM MONITORING WELL
- ASH PONDS CCR MONITORING WELL (FEDERAL CCR RULE PROGRAM ONLY)
- (BORON) NR 140 PAL EXCEEDANCE
- **(CHLORIDE)** NR 140 ES EXCEEDANCE
- [CALCIUM] WELL-SPECIFIC PAL OR ACL EXCEEDANCE
- DESIGN MANAGEMENT ZONE
- APPROVED LIMITS OF WASTE (ADF ONLY)

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, AND DECEMBER 2023 DRONE SURVEY BY AMES.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
8. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION & EXPLORATION ON MAY 22-23, 2024.
9. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
10. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 9 THROUGH 11, 2024.
11. SULFATE CONCENTRATIONS AT MONITORING WELLS MW-310 AND MW-318 WERE ABOVE THE PAL IN APRIL 2025 BUT BELOW THE PAL IN THE JULY RESAMPLES; THEREFORE, THE EXCEEDANCES WERE NOT CONFIRMED AND ARE NOT SHOWN AS EXCEEDANCES ON THIS FIGURE.

PROJECT NO.	25225067.00	DRAWN BY:	RVG
DRAWN:	01/14/2025	CHECKED BY:	AW
REVISED:	01/29/2026	APPROVED BY:	MB 1/29/2026

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

SITE PLAN AND MONITORING WELL LOCATIONS EXCEEDANCE SUMMARY - APRIL 2025

FIGURE 4

I:\25225067.00\Drawings\2025 Annual State Report\04_Exceedance Summary.dwg, 1/29/2026 1:59:11 PM

Appendix A

Summary of Regional Hydrogeologic Stratigraphy

Table COL-3. Regional Hydrogeologic Stratigraphy
Columbia Energy Center / SCS Engineers Project #25215053

Approximate Age	Hydrogeologic Unit	General Thickness (feet)	Name of Rock Unit*	Predominant Lithology
Quaternary (0-1 million years old)	Surficial Aquifer	0 to 300+	Holocene & Pleistocene Deposits	• Unconsolidated clay, silt, sand, gravel, cobbles, boulders, and organic matter
Ordovician (460 to 490 million years old)	Sandstone Aquifer	0 to 800+	Galena Decorah Platteville St. Peter Prairie du Chien	• Dolomite and shaley dolomite • Sandstone
Cambrian (490 to 500 million years old)			Trempeleau Franconia Galesville Eau Claire Mt. Simon	• Sandstone
Precambrian (more than 1 billion years old)	Used for domestic supply in some areas	--	Precambrian	• Igneous and metamorphic rocks

*This nomenclature and classification of rock units in this report are those of the Wisconsin Geological and Natural History Survey and do not necessarily coincide with those accepted by the U.S. Geological Survey.

Sources:

Harr, C.A., L.C. Trotta, and R.G. Borman, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconsin-Extension Geological and Natural History Survey Information Circular Number 37, 1978.

Wisconsin Geological and Natural History Survey, Bedrock Stratigraphic Units in Wisconsin, UW Extension Educational Series 51, ISSN: 1052-2115, 2011.

I:\25215053\Reports\Report 3 - Columbia\Tables\Table_2_Regional_Hydrogeologic_Stratigraphy.doc

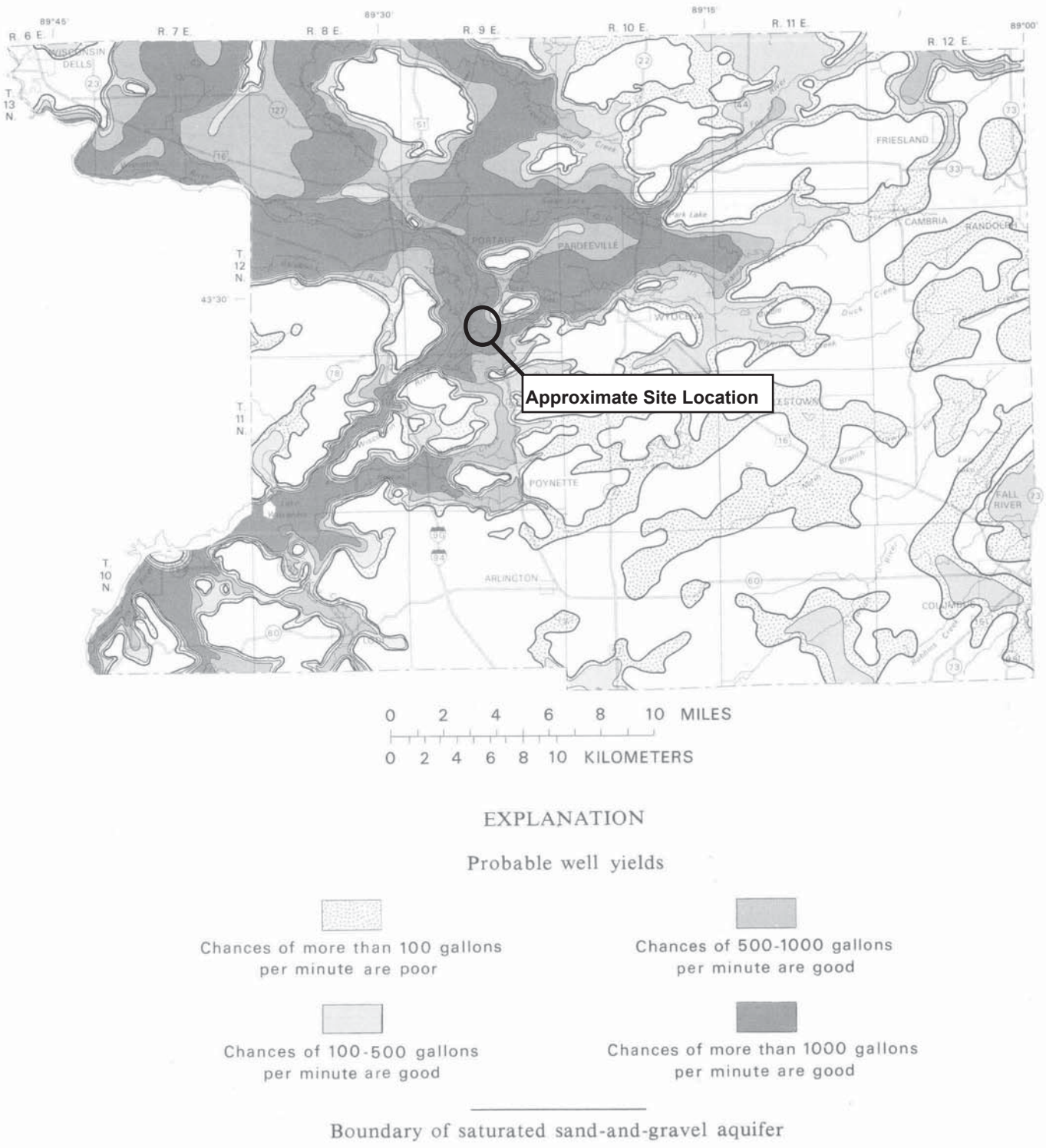
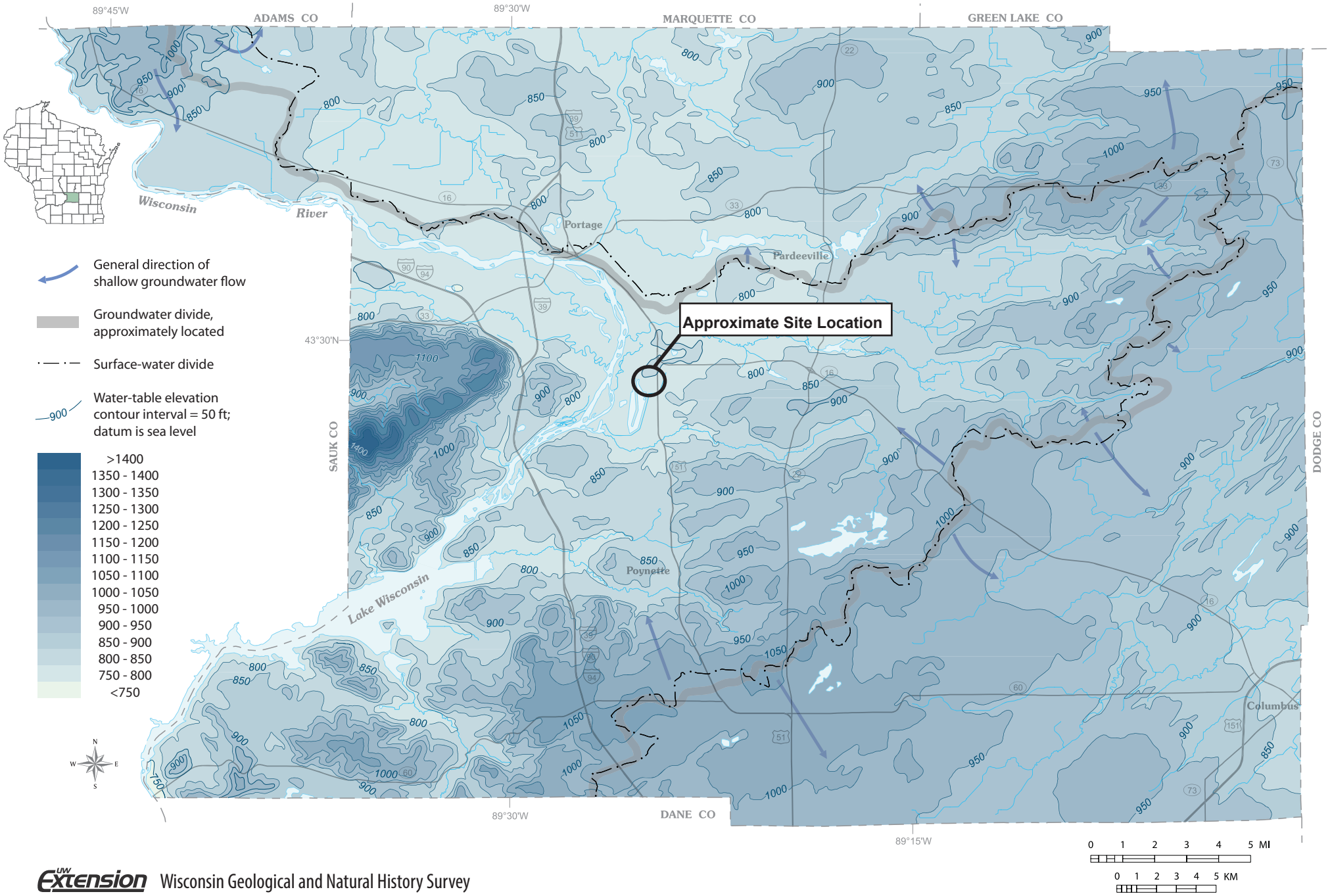


Figure 9. Probably well yields from the sand-and-gravel aquifer.

Source: Harr, C.A., L.C. Trotta, and R.G. Borman, "Ground-Water Resources and Geology of Columbia County, Wisconsin," University of Wisconisn-Extension Geological and Natural History Surevy Information Circular Number 37, 1978.

Generalized water-table elevation in Columbia County, Wisconsin



Wisconsin Geological and Natural History Survey

Source: Sellwood, Stephen M., Wisconsin Geologic and Natural History Survey, Water Table Elevation, Groundwater Resources of Columbia County Wisconsin,

Appendix B

Well Conditions Summary

Well Conditions Summary
WPL - Columbia Ash Ponds and Dry Ash Disposal Facilities
April 2025

Columbia Ash Ponds Disposal Facility - License No. 2325	
Monitoring Point	**Condition/Comments**
Groundwater	
M-3	Good
M-4R	Good
W-39A	Good
W-39B	Good
MW-48A	Good
MW-48B	Good
MW-57	Good
W-59 (W-2)	Good
MW-216R	Good
W-217	Casing bent, cannot fit bailer down well. Dedicated Waterra pump has been used to purge and sample the well since 2021.
MW-220RR	Casing bent and leaning towards the west, cannot fit bailer down well. Dedicated Waterra pump has been used to purge and sample well since October 2019.
Staff Gauges	
SG-1	Good: elevations provided by WPL from meter at plant intake

Well Conditions Summary
WPL - Columbia Ash Ponds and Dry Ash Disposal Facilities
April 2025

Columbia Dry Ash Disposal Facility - License No. 3025	
Monitoring Point	**Condition/Comments**
Groundwater, non-CCR	
MW-33AR	Good
MW-33BR	Good
MW-34A	Good
MW-34B	Good
MW-37A	Good
MW-83	Good
MW-84A	Good
MW-84B	Good
MW-86	Good
MW-91AR	Good
MW-91B	Good
MW-92A	Good
MW-92B	Good
MW-93A	Good
MW-301	Good
MW-302	Good
MW-309	Good
MW-310	Good
MW-311	Good
MW-317	Good
MW-318	Good
MW-319	Good

Well Conditions Summary
WPL - Columbia Ash Ponds and Dry Ash Disposal Facilities
April 2025

Water Supply Wells	
HC-1	Good
HC-2	Good
HC-3	Good
Leachate Head Wells	
LH-2	Good
LH-5	Good
LH-6	Good
LH-10A	Good
LH-10B	Good
LH-11A	Good
LH-11B	Good
Other Monitoring Points	
LS-1	Good
LS-3R	Good
LP-1	Good

Appendix C

Demonstration of False Groundwater Exceedance

C1 Department Response to January 21, 2025 Demonstration of False Groundwater Exceedance

Blodgett, Meghan

From: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
Sent: Thursday, February 20, 2025 12:05 PM
To: Bizjack, Matthew
Cc: Clepper, Brian; JeffreyMaxted@alliantenergy.com; Karwoski, Thomas; Clark, Sherren; Blodgett, Meghan; Peterson, Anthony L - DNR; Burns, Melanie M - DNR; Lourigan, Joseph J - DNR
Subject: RE: WPL Columbia Ash Disposal Facility - Data Submittal and Demonstration of False Groundwater Exceedance

Categories: Filed by Newforma

Matt,

The department has reviewed the information provided in the January 21, 2025, submittal, as well as supplemental information provided on February 18, 2025. Environmental monitoring data available in the department's GEMS database was also reviewed.

The department acknowledges that there are and have been other sources on the property that could affect contaminant concentrations. Activities at some of the other historic anthropogenic sources have largely subsided or gone away. There may be some remaining residual impact from historic sources; however, over time those impacts are expected to also decrease in level. The department believes at this time, enough information has been provided to suggest a source other than the landfill is largely contributing to the elevated concentrations described in the January 21, 2025, submittal. It is expected that contaminant concentrations should begin to stabilize or decrease. At this time, the department has determined for detection monitoring to continue and for continued evaluation of concentration trends. If contaminant concentrations continue to go up, changes are observed in contaminant concentrations of other substances, or other relevant information becomes known, it may mean reassessing the potential forthe landfill to be a contributing source.

Regards,
Tyler

Tyler Sullivan, P.G.
Phone: 608-516-3962
tyler.sullivan@wisconsin.gov

Our core values include professionalism, integrity, and customer service.
Please visit our survey to provide feedback on your experience interacting with any DNR employee.

From: Blodgett, Meghan <mblodgett@scsengineers.com>
Sent: Tuesday, January 21, 2025 2:20 PM
To: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
Cc: Clepper, Brian <BrianClepper@alliantenergy.com>; matthewbizjack@alliantenergy.com; JeffreyMaxted@alliantenergy.com; Manjooran, Priyanth <PriyanthManjooran@alliantenergy.com>; Rosser, Brent <brosser@hunton.com>; Manjooran, Priyanth <PriyanthManjooran@alliantenergy.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>; Clark, Sherren <SClark@scsengineers.com>; Ostien, Regin

<ROstien@scsengineers.com>
Subject: WPL Columbia Ash Disposal Facility - Data Submittal and Demonstration of False Groundwater Exceedance

Tyler,

On behalf of Wisconsin Power and Light Company (WPL) and Alliant Energy, SCS Engineers is providing the attached Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance the WPL Columbia Ash Disposal Facility. The data being submitted in this letter is associated with a November 2024 resampling event.

Please call Matt Bizjack, Alliant Energy at 608-458-3197 with any questions regarding this information.

Thank you,

Meghan Blodgett, PG*
Hydrogeologist
SCS Engineers
2830 Dairy Drive
Madison, WI 53718-6751 USA
608-216-7362 (O)
608-345-9221 (C)
mblodgett@scsengineers.com
*Licensed in Wisconsin

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www.scsengineers.com

C2 March 27, 2025 Demonstration of False Groundwater Exceedance, with Department Response

Blodgett, Meghan

From: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
Sent: Thursday, April 10, 2025 2:38 PM
To: Bizjack, Matthew
Cc: JeffreyMaxted@alliantenergy.com; Clepper, Brian; Manjooran, Priyanth; Rosser, Brent; Karwoski, Thomas; Clark, Sherren; Ostien, Regin; Matzuk, Ryan; Blodgett, Meghan; Burns, Melanie M - DNR; Peterson, Anthony L - DNR; Lourigan, Joseph J - DNR
Subject: RE: WPL Columbia Ash Disposal Facility - Lic #3025 - Data Submittal and Demonstration of False Groundwater Exceedance

Categories: Filed by Newforma

Matt,

The department has reviewed the information provided in the March 27, 2025, submittal. Environmental monitoring data available in the department's GEMS database was also reviewed.

The department acknowledges that there are and have been other sources on the property that could affect contaminant concentrations. Activities at some of the other historic anthropogenic sources have largely subsided or gone away. There may be some remaining residual impact from historic sources; however, over time those impacts are expected to also decrease in level. The department believes at this time, enough information has been provided to suggest a source other than the landfill is largely contributing to the elevated concentrations described in the March 27, 2025, submittal. It is expected that contaminant concentrations should begin to stabilize or decrease. At this time, the department has determined for detection monitoring to continue and for continued evaluation of concentration trends. If contaminant concentrations continue to go up, changes are observed in contaminant concentrations of other substances, or other relevant information becomes known, it may mean reassessing the potential for the landfill to be a contributing source.

Regards,
Tyler

Tyler Sullivan, P.G.
Phone: 608-516-3962
tyler.sullivan@wisconsin.gov

From: Blodgett, Meghan <mblodgett@scsengineers.com>
Sent: Thursday, March 27, 2025 2:10 PM
To: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
Cc: matthewbizjack@alliantenergy.com; JeffreyMaxted@alliantenergy.com; Clepper, Brian <BrianClepper@alliantenergy.com>; Manjooran, Priyanth <PriyanthManjooran@alliantenergy.com>; Rosser, Brent

<brosser@hunton.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>; Clark, Sherren <SClark@scsengineers.com>; Ostien, Regin <ROstien@scsengineers.com>; Matzuk, Ryan <RMatzuk@scsengineers.com>
Subject: WPL Columbia Ash Disposal Facility - Lic #3025 - Data Submittal and Demonstration of False Groundwater Exceedance

Tyler,

On behalf of Wisconsin Power and Light Company (WPL) and Alliant Energy, SCS Engineers is providing the attached Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance the WPL Columbia Ash Disposal Facility. The data being submitted in this letter is associated with a January 2025 resampling event.

Please call Matt Bizjack, Alliant Energy at 608-458-3197 with any questions regarding this information.

Thank you,

Meghan Blodgett, PG*
Hydrogeologist
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Madison, WI 53707-1007

1-800-ALLIANT (800-255-4268)
alliantenergy.com

March 27, 2025

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Subject: **January 2025 Resampling Event - Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance**
Wisconsin Power and Light Company – Columbia Ash Disposal Facility
Portage, Wisconsin
License #3025

Dear Mr. Sullivan:

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is providing the enclosed summary and data submittal for the groundwater sampling performed at the WPL Columbia Ash Disposal Facility during January 2025. The work was performed by SCS Engineers (SCS). The work was performed in accordance with the Department's May 3, 2024, Conditional Plan of Operation Approval Modification, Initial Permitting of Coal Combustion Residuals (CCR) Landfill for the ADF.

The January 2025 resampling event confirmed a subset of the results previously reported to the Department, and in response, WPL has prepared a Demonstration of False Groundwater Exceedance. WPL respectfully requests Department concurrence with this Demonstration in accordance with NR 508.06(1)(c).

Please call me at (608) 458-3197 with any questions regarding this information.

Sincerely,

Matt Bizjack
Senior Environmental Specialist
Alliant Energy Corporate Services, Inc.

Enclosures

Cc: Brian Clepper – WPL Columbia Energy Center
Jeff Maxted – Alliant Energy Corporate Services, Inc.
Meghan Blodgett, Thomas Karwoski – SCS Engineers

March 27, 2025
File No. 25224067.00

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Subject: January 2025 Resampling Event – Demonstration of False Groundwater Exceedance
Wisconsin Power and Light Company
Columbia Dry Ash Disposal Facility
Portage, Wisconsin
License No. 03025

Dear Mr. Sullivan:

This letter summarizes the monitoring results for a groundwater resampling event performed at the Columbia Dry Ash Disposal Facility (ADF) in January 2025. The letter presents a demonstration of false groundwater exceedance in accordance with NR 508.06(1)(c).

Resampling was performed in response to detection of groundwater constituents above applicable standards at CCR monitoring well MW-33AR during the October 2024 semiannual event. The January 2025 resampling confirmed the exceedances observed in the October 2024 results for CCR monitoring well MW-33AR. For these confirmed exceedances, this letter presents a demonstration of false groundwater exceedance in accordance with NR 508.06(1)(c).

Monitoring was performed in accordance with the site-specific monitoring program approved by the Wisconsin Department of Natural Resources (DNR) in the May 3, 2024 Conditional Plan of Operation Approval Modification, Initial Permitting of Coal Combustion Residuals (CCR) Landfill for the ADF. Where applicable, groundwater analytical results are compared to well-specific Preventive Action Limits (PALs) or Alternative Concentration Limits (ACLs) approved in the May 3, 2024 Approval.

The January 2025 monitoring results are being submitted to the DNR GEMS Data Submittal Contact in a separate letter dated March 27, 2025. A copy of the GEMS data submittal is provided in **Attachment A**.

The Demonstration of False Exceedance includes this letter and the following attachments:

- Groundwater Standards Exceedance Summary (**Table 1**).
- Site Location Map, Site Plan, and October 2024 Groundwater Flow Map (**Figures 1-3**).
- Information supporting the demonstration of false groundwater exceedance (**Attachments B-F**).

1 BACKGROUND

In the December 30, 2024 data submittal letter for the October 2024 semiannual sampling event results, WPL indicated an intention to resample CCR monitoring wells MW-33AR, MW-309, and

MW-310 for select parameters detected at concentrations above applicable standards during the October 2024 monitoring event. These well locations are shown on **Figure 2**.

As described in the approved site Groundwater Sampling and Analysis Plan, WPL may retest potential groundwater exceedances during additional sampling events between the routine semiannual events. The resampling event at MW-33AR was performed on January 10, 2025. The laboratory analytical report was issued on January 27, 2025. SCS Engineers (SCS) performed the monitoring. Pace Analytical Services, Inc., of Green Bay, Wisconsin, provided laboratory analysis.

Retesting at MW-309 and MW-310 was completed separately in November 2024. A False Exceedance Demonstration for confirmed exceedances at these wells was submitted to DNR on January 21, 2025. Supplemental information was provided to DNR on February 18, 2025. DNR issued an email in response to the False Exceedance Demonstration on February 20, 2025, stating that the site should continue in detection monitoring.

2 OCTOBER 2024 AND JANUARY 2025 SAMPLING RESULTS

Groundwater quality results were compared to NR 140 PALs and enforcement standards (ESs), or to well-specific PALs and ACLs where applicable. Exceedances detected during the October 2024 monitoring event were previously summarized in the December 30, 2024 GEMS data submittal. Hardness and sulfate were detected in the October 2024 sample from MW-33AR at concentrations exceeding applicable standards. In the data submittal. WPL indicated an intention to resample to confirm these exceedances, and the resampling was completed in January 2025.

The hardness and sulfate results from October 2024 sampling and January 2025 resampling at MW-33AR are included in **Table 1**.

As described above, resampling data and a False Exceedance Demonstration for exceedances at other wells were submitted separately.

Hardness

Hardness was detected above the well-specific PAL (390 mg/L) at CCR monitoring well MW-33AR during the October 2024 sampling event. The January 2025 resampling result (412 mg/L) confirmed this exceedance.

Sulfate

Sulfate was detected above the well-specific ACL (200 mg/L) at CCR monitoring well MW-33AR during the October 2024 sampling event. The January 2025 resampling result (250 mg/L) confirmed the ACL exceedance.

Summary

Based on the October 2024 and January 2025 monitoring events, the values for hardness and sulfate at MW-33AR were confirmed.

3 DEMONSTRATION OF FALSE EXCEEDANCE REQUIREMENTS

NR 508.06 RESPONSES WHEN A GROUNDWATER STANDARD IS ATTAINED OR EXCEEDED AT A CCR WELL

If a PAL, ACL, or ES is attained or exceeded at a CCR well according to s. NR 140.14 and the value is confirmed, the owner or operator of the CCR landfill shall continue detection monitoring in accordance with s. NR 507.15 (3) (L) and shall respond in accordance with all of the following requirements.

WPL notified the Department of the detection of possible groundwater exceedances in site CCR wells in the October 2024 monitoring event with the GEMS data submittal transmitted to DNR on December 30, 2024. A resampling event in January 2025 confirmed the values at MW-33AR as described above. This submittal includes a False Exceedance Demonstration for those confirmed values.

NR 508.06(1)(C) DEMONSTRATION OF FALSE EXCEEDANCE SUBMITTAL REQUIREMENTS

The owner or operator may demonstrate that a reported value represents a false exceedance of a groundwater standard in accordance with s. NR 507.28(3) and shall submit the demonstration within 60 days of the groundwater standard attainment or exceedance. If the department does not concur with the written demonstration within 30 days after receipt of the demonstration, the owner or operator shall begin assessment monitoring in accordance with sub. (2). If the department concurs within 30 days after receipt of the demonstration, the owner or operator is not required to begin assessment monitoring. The owner or operator shall include the demonstration in the annual groundwater monitoring and corrective action report.

This submittal serves as a demonstration of false exceedance in accordance with NR 507.28(3). A copy of this demonstration will be included in the annual groundwater monitoring and corrective action report for monitoring performed in 2025.

The January 2025 resampling event laboratory analytical report was issued on January 27, 2025. WPL therefore understands that the deadline for submittal of this demonstration is March 28, 2025.

NR 507.28(3) DEMONSTRATION OF FALSE GROUNDWATER EXCEEDANCE

The owner or operator may demonstrate, by resampling or other means, that a source other than the solid waste disposal facility caused the contamination or that the sample result attaining or exceeding a groundwater standard is due to an error. The owner or operator shall notify the department of the intent to either begin assessment monitoring or determine that a false exceedance has occurred. The owner or operator shall submit the statement of intent with the notification required in s. NR 507.30 (1). The owner or operator shall submit the written demonstration of false exceedance with the results of the next routine monitoring.

This demonstration presents evidence that a source other than the Columbia ADF caused the standards exceedances discussed in this report. In the December 30, 2024 GEMS data submittal for

the ADF, WPL indicated an intent to submit a demonstration of false groundwater standards exceedance should resampling confirm the October 2024 value. While NR 507.28(3) requires submittal of the demonstration with the results of the next routine monitoring, WPL understands that in the case of exceedances at CCR monitoring wells the submittal timeline in NR 508.06(1)(c) applies.

4 DEMONSTRATION OF FALSE EXCEEDANCE

OVERVIEW OF DEMONSTRATION

This Demonstration includes:

- Trend Analysis.
- Evaluation of potential that exceedances are due to natural sources or man-made sources other than the CCR Units.
- Demonstration conclusions.

TREND ANALYSIS

This section discusses trend analysis performed on data collected at MW-33AR since the initiation of groundwater monitoring under the Federal CCR Rule. The results of a Mann-Kendall trend analysis performed using Sanitas™ software are included in Attachment B.

For sulfate, the trend analysis was performed on data collected since detection monitoring was initiated under the Federal CCR Rule. Hardness is not a required parameter under the Federal CCR Rule. Hardness was added to the CCR monitoring program under NR 507.15(3). The trend analysis includes hardness data from both baseline and detection monitoring because not enough detection events have been performed to complete trend analysis using only detection monitoring results.

This Mann-Kendall trend analysis did not identify significant increasing trends at MW-33AR for CCR Rule detection monitoring parameters, and in fact, identified a decreasing trend for boron at MW-33AR. Boron is generally considered to be a conservative tracer in groundwater and a CCR indicator parameter. If the COL ADF or leachate pond were the source of groundwater standards exceedances at MW-33AR, boron concentrations would be expected to increase.

ALTERNATIVE SOURCES

This section discusses the potential alternative sources for the confirmed exceedances at downgradient well MW-33AR; identifies the most likely alternative source(s); and presents the lines of evidence indicating that an alternative source is the most likely cause of the observed exceedances.

Natural Variation

The groundwater standards to which hardness and sulfate concentrations at MW-33AR are compared are well-specific PALs and ACLs based on baseline sampling at this well. If concentrations of a constituent that is naturally present in the aquifer vary with time, then the potential exists that the compliance sampling concentrations may be higher than baseline concentrations due to natural temporal variation.

Temporal variation can occur seasonally or due to longer-term events such as changes in infiltration patterns and groundwater flow directions caused by wet or dry years.

Based on comparison to the upgradient CCR monitoring wells (MW-301 and MW-84A), it appears likely that hardness concentrations observed at MW-33AR are at least partially attributable to natural variation. A time series plot showing hardness concentrations at upgradient CCR wells MW-301 and MW-84A is included in Attachment C. Concentrations detected at MW-84A prior to the initiation of groundwater monitoring under the CCR Rule are included in the graph. The October 2024 and January 2025 concentrations at MW-33AR (415 mg/L and 412 mg/L) are within the historical range detected at these upgradient wells.

The baseline data set for hardness at MW-33AR was collected over a short period of time from October 2022 through May 2023, and likely does not represent the full range of temporal variability in concentrations at this well. In addition, the trend analysis discussed above did not identify a statistically significant increasing trend for hardness at MW-33AR.

Sulfate concentrations at upgradient CCR monitoring wells MW-84A and MW-301 are lower than current and historical concentrations at MW-33AR. Based on this comparison, sulfate concentrations at MW-33AR in October 2024 and January 2025 appear to reflect man-made sources. Regardless of the source, natural temporal variations in infiltration and groundwater flow direction may have contributed to the confirmed groundwater standards exceedances at MW-33AR.

Man-Made Alternative Sources

The following lines of evidence indicate that the standard exceedance for sulfate in MW-33AR is due to one or more alternative sources:

- Elevated levels of sulfate were present in the area west of the landfill, where MW-33AR is located, before the landfill was constructed.
- Monitoring performed under the non-CCR monitoring program documents that the concentrations of sulfate were elevated in the area around MW-33AR before CCR disposal in the landfill began and have decreased since the landfill has been in operation.
- Groundwater flow directions have changed through time due to historical changes in water management at the plant, so that groundwater impacted by the effluent ditch formerly flowed to the east, under the landfill, and is now flowing west and/or north.
- Recent groundwater flow conditions also appear to have been affected by unusual precipitation and runoff conditions during 2024.

These lines of evidence and the supporting data are discussed in more detail in the following sections.

Pre-Landfill Water Quality

Elevated levels of sulfate were present in the area west of the landfill, where the MW-33AR is located, before the landfill was constructed. Groundwater monitoring performed in 1977 and 1978

as part of the Feasibility Study for the landfill permitting showed that wells located along the west side of the future landfill footprint, where MW-33AR is located, had elevated results for sulfate.

The 1978 Feasibility Study (Warzyn, 1978) for the Dry ADF discusses the influence of the ash pond effluent ditch on groundwater west of the proposed site. The former ash pond effluent ditch carried effluent from the ash ponds located north of the plant, and flowed south between the west side of the current landfill and the substation. Groundwater monitoring in December 1977 indicated that sulfate was present at 1,200 milligrams per liter (mg/L) in MW-33A, which was located near the point where the ash pond effluent discharged from a culvert into the effluent ditch. The sulfate concentration at this well decreased to 830 mg/L in the December 1978 sampling (Warzyn, 1979). Current concentrations of sulfate in this area, while above those detected at background wells, are much lower than these historical results at MW-33A.

Selected text and tables from the 1978 Feasibility Study and the 1979 Supplementary Feasibility Study Report are included in Attachment D.

Long-Term Monitoring Data Comparison

Monitoring performed under the non-CCR monitoring program documents that concentrations of sulfate on the west side of the landfill, in the vicinity of MW-33AR, were elevated before CCR disposal in the landfill began.

Routine groundwater monitoring for the COL ADF began after the Plan of Operation was approved and prior to initial CCR disposal. The earliest data available from the DNR Groundwater Environmental Monitoring System (GEMS) database are from September 1984. Initial placement of CCR in test plots in Module 1 of the ADF was approved in October 1984, and CCR disposal began sometime after that. Therefore, the initial groundwater monitoring results in the GEMS database represent pre-disposal conditions for the landfill. The earliest sulfate data available in GEMS for MW-33A, which MW-33AR replaced, are from 1994, therefore earlier results from nearby monitoring wells are also included in this discussion.

Graphs of historical sulfate concentrations at MW-33A/MW-33AR, MW-34A, and MW-85/MW-302 are provided in Attachment C. Available data from the 1978 Feasibility Study, discussed above, are also included on the graphs for comparison. Historical data for MW-85 are shown on the MW-302 graph because this well was close to the current location of MW-302.

Groundwater Flow Direction Changes

Groundwater flow directions have changed through time due to changes in water management at the plant, so that groundwater impacted by the effluent ditch formerly flowed to the east, under the landfill, and is now flowing north and/or west. The 1978 Feasibility Study report states that the southern 2/3 of the proposed fill area (including the area of the active CCR landfill phases) exhibits a southeast and southerly groundwater flow direction, toward an agricultural drainage ditch southeast and south of the landfill area. The 1981 Plan of Operation indicates that flow in the landfill area is to the east-southeast. A water table map prepared by RMT, based on October 2002 water level measurements, shows flow under the landfill generally to the east and northeast from a groundwater high near the effluent ditch and the Wisconsin Pollutant Discharge Elimination System (WPDES) pond between the landfill and the substation. The 1981 and 2002 water table maps are provided in Attachment E.

Under typical conditions in recent years, groundwater flow below the active landfill area is generally to the north and northwest. As an example, the October 2023 water table map is included in **Attachment E**. The flow changes with time reflect the termination of discharge to the ash pond effluent ditch in the mid-2000s. When discharge via this ditch was active, the ditch was a source of recharge to the groundwater and created a high groundwater area with flow moving away from the ditch to the east. After discharge to the ditch was terminated, water levels in this area decreased significantly and the groundwater flow direction changed.

The October 2024 (**Figure 3**) water table map includes an apparent groundwater mound to the south of MW-33AR, in the same former effluent ditch area where a groundwater high is shown on the October 2022 water table map (**Attachment E**). Groundwater flow at the site in summer and fall of 2024 was likely influenced by unusually high overall precipitation and several intense rain events. During 2024, Columbia County experienced the highest total precipitation in a May-July three-month period on record (**Attachment F**). Site-specific rain measurements were recorded as part of landfill construction oversight activities in 2024 and include unusually heavy rain events of 5.5" on June 2, 5.5" on June 21-22, 3.75" over the weekend preceding July 15, and 4.75" on September 22. The overall high precipitation and numerous intense rain events led to substantial surface runoff and subsequent infiltration to the west of the ADF. These precipitation events and subsequent infiltration appear to have had a temporary effect on groundwater flow at the site, as evidenced by unusual groundwater flow patterns observed during late 2024.

With the changes in groundwater flow described above, historically impacted groundwater moved in alternating directions during and after discharge to the effluent ditch. While the effluent ditch was active, impacted groundwater likely moved eastward in the area of MW-33AR, as indicated by the long-term concentration data. Although MW-33AR is downgradient from the ADF under flow conditions typically observed since flow to the effluent ditch ceased, the observed sulfate concentrations may be residual from the past when the well was influenced by the effluent ditch. Groundwater flow conditions near MW-33AR in late 2024 were not typical of flow conditions observed in recent years, and this may have contributed to increased sulfate concentrations at MW-33AR associated with historical impacts from the effluent ditch.

5 CONCLUSIONS

The trend analysis and the lines of evidence discussed above regarding the standards exceedances for hardness and sulfate at MW-33AR in October 2024 and January 2025 demonstrate that the exceedances were caused by sources other than the Columbia ADF. In accordance with NR 508.06(1)(c), if the Department concurs with this demonstration within 30 days of receipt the owner or operator is not required to begin assessment monitoring.

Sincerely,

Tom Karwoski, PG
Project Manager
SCS Engineers

Sherren Clark, PG, PE
Project Director
SCS Engineers

MDB/REO_jsn/SCC/TK

cc: Matt Bizjack, Alliant Energy (e-copy only)
Jeff Maxted, Alliant Energy (e-copy only)
Brian Clepper, WPL-Columbia (e-copy only)

Encl. Table 1 – Groundwater Standards Exceedance Summary
Figure 1 – Site Location Map
Figure 2 – Site Plan and Monitoring Well Locations
Figure 3 – October 2024 Shallow Groundwater Flow Map
Attachment A – GEMS Data Submittal Package
Attachment B – Trend Analysis
Attachment C – Time Series Plots
Attachment D – Feasibility Study Water Quality Information
Attachment E – Historical Groundwater Flow Maps
Attachment F – Columbia County Precipitation Graph

I:\25224067.00\Deliverables\2503 Demonstration of False Exceedance_MW33AR\250327_COL ADF_Demonstration of False Exceedance_Final.docx

Table 1

Groundwater Standards Exceedance Summary

Table 1. Monitoring Results - January 2025 Resample Results and Exceedance Confirmation
WPL-Columbia Dry Ash Disposal Facility / SCS Engineers Project #25224067.00
License #03025

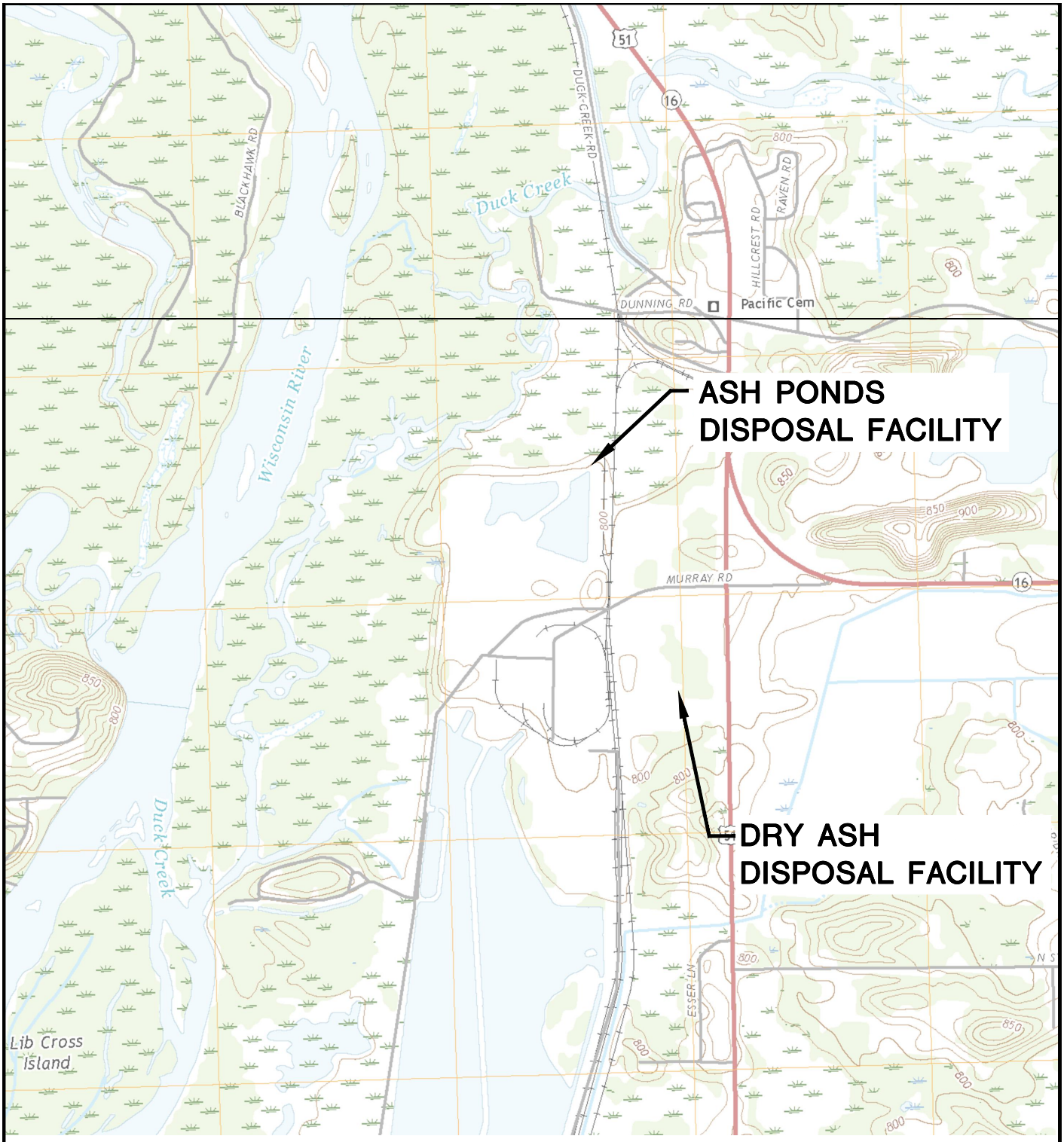
Parameter	Units	Sample ID	Groundwater Standard for Comparison	Standard Type	Collected Date	Result	Resample Confirmed Exceedance?
Hardness, Total	mg/L	MW-33AR	390	Well-Specific PAL	10/2/2024*	415	Yes
					1/10/2025	412	
Sulfate, Total	mg/L	MW-33AR	200	ACL	10/2/2024*	224	Yes
					1/10/2025	250	

Abbreviations:
mg/L = milligrams per liter ACL = Alternative Concentration Limit PAL = Preventive Action Limit

Notes:
*: October 2024 sample results included for reference. These results were previously submitted in the December 30, 2024 GEMS data submittal.

Created By: MDB Date: 3/4/2025
Last Modified: MDB Date: 3/4/2025
Checked By: REO Date: 3/7/2025

Figures

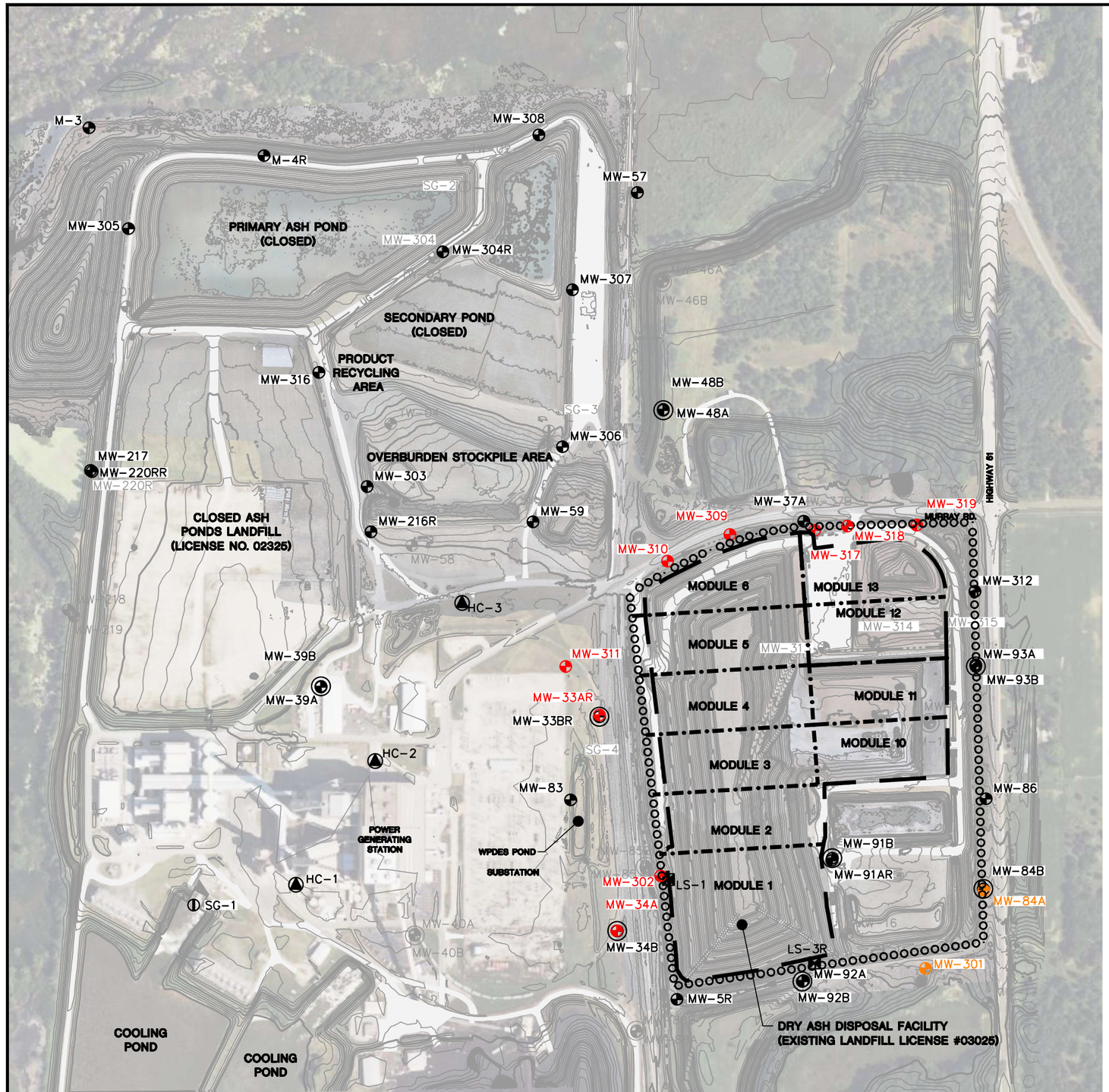


N

POYNETTE QUADRANGLE
WISCONSIN–COLUMBIA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT: ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE: ALLIANT ENERGY COLUMBIA ENERGY CENTER PARDEEVILLE, WI	SITE LOCATION MAP	
PROJECT NO. 25219067.00	DRAWN BY: BSS	ENGINEER: SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE 1
DRAWN: 12/02/2019	CHECKED BY: MDB		
REVISED: 01/10/2020	APPROVED BY: TK 01/30/2020		

I:\25219067.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:38:21 PM



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EDGE OF WATER
- DRY ASH DISPOSAL FACILITY LIMITS
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- NON-CCR MONITORING WELL
- CCR MONITORING WELL
- UPGRADIENT CCR MONITORING WELL

N

500 0 500

SCALE: 1" = 500'

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, AND DECEMBER 2023 DRONE SURVEY BY AMES.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
8. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION & EXPLORATION ON MAY 22-23, 2024.
9. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
10. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 9 THROUGH 11, 2024.
11. BACKGROUND MONITORING WELLS FOR THE CCR NETWORK ARE: MW-301 AND MW-84A.

PROJECT NO.	25224067.00	DRAWN BY:	SB
DRAWN:	01/13/2025	CHECKED BY:	RM
REVISED:	01/13/2025	APPROVED BY:	TK 1/21/2025

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

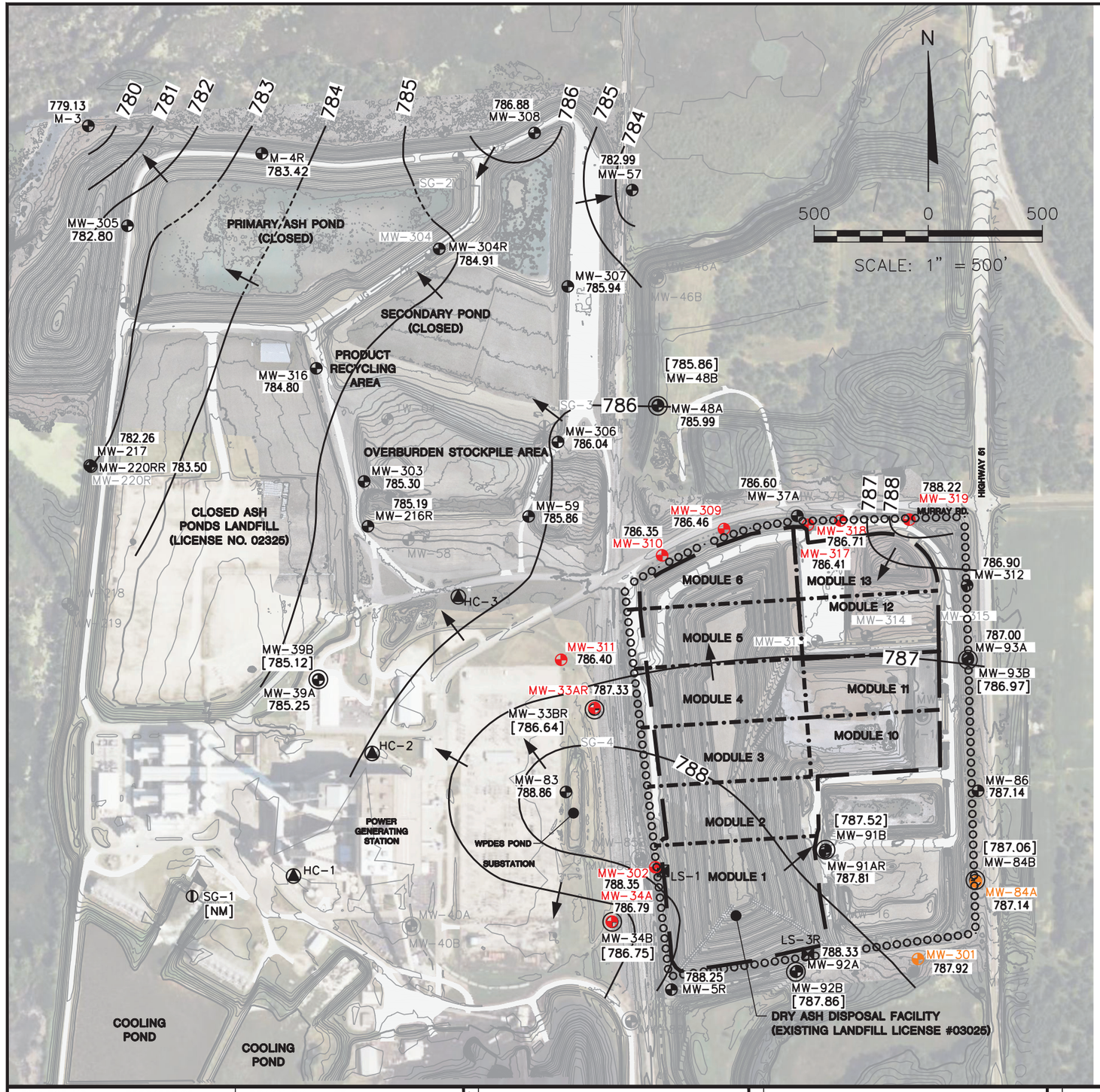
CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

SITE PLAN AND MONITORING WELL LOCATIONS
COLUMBIA DRY ASH DISPOSAL FACILITY

FIGURE 2

I:\25224067.00\Drawings\2024 State Figures\02_2024 COL State Figure.dwg, 1/13/2025 11:31:19 AM



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EDGE OF WATER
- DRY ASH DISPOSAL FACILITY LIMITS
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- NON-CCR WATER TABLE WELL
- NON-CCR PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GUAGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 788.75 WATER TABLE ELEVATION
- [781.47] POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- [NM] NOT MEASURED
- WATER TABLE CONTOUR (1-FOOT CONTOUR INTERVAL) (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, AND DECEMBER 2023 DRONE SURVEY BY AMES.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
8. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
9. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION 7 EXPLORATION ON APRIL 9 THROUGH 11, 2024. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION AND EXPLORATION ON MAY 22-23, 2024.
10. BACKGROUND MONITORING WELLS FOR THE PRIMARY ASH POND ARE: MW-301 AND MW-84A.
11. WELLS SHOWN AS CCR MONITORING WELLS ARE ONLY THOSE IN THE CCR MONITORING PROGRAM FOR THE ADF.

PROJECT NO.	25224067.00	DRAWN BY:	SB
DRAWN:	01/14/2025	CHECKED BY:	MDB
REVISED:		APPROVED BY:	TK 1/21/2025

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

WATER TABLE CONTOUR MAP
OCTOBER 1-3, 2024

FIGURE 3

I:\25224067.00\Drawings\Biennial Report Figure\05_October 2024 WTBL.dwg, 1/14/2025 1:44:40 PM

Attachment A

GEMS Data Submittal Package

March 27, 2025
File No. 25224067.00

GEMS Data Submittal Contact – WA/5
Wisconsin Department of Natural Resources
Bureau of Waste Management
P.O. Box 7921
Madison, WI 53707-7921

Subject: January 2025 Resampling Event – Environmental Monitoring Data Submittal
Wisconsin Power and Light Company
Columbia Dry Ash Disposal Facility
Portage, Wisconsin
License No. 03025

Dear GEMS Data Submittal Contact:

This letter summarizes the monitoring results for a groundwater resampling event performed at the Columbia Dry Ash Disposal Facility (ADF) in January 2025. This resampling was performed in response to detection of groundwater constituents above applicable standards at CCR monitoring well MW-33AR during the October 2024 semiannual event. The January 2025 resampling confirmed the exceedances observed in the October 2024 results for CCR monitoring well MW-33AR.

The data submittal includes this letter and the following attachments:

- Groundwater Standards Exceedance Summary (**Table 1**).
- Environmental Monitoring Data Certification Form.
- Compact disc (CD) containing the results in DNR electronic data submittal format.

OCTOBER 2024 SAMPLING RESULTS

Groundwater quality results for the October 2024 monitoring event were compared to NR 140 PALs and enforcement standards (ESs), or to well-specific PALs and ACLs where applicable. Exceedances detected during the October 2024 monitoring event were previously summarized in the December 30, 2024, GEMS data submittal.

A summary of parameters which were detected at MW-33AR at concentrations exceeding applicable standards during October 2024, and for which WPL indicated an intention to resample to confirm exceedances, is included in **Table 1**. January 2025 resample results for MW-33AR are also included in **Table 1**. A summary of MW-33AR resample results is provided below. As described above, resampling data and a False Exceedance Demonstration for exceedances at other wells were submitted separately.

JANUARY 2025 RESAMPLE RESULTS

Hardness

Hardness was detected above the well-specific PAL (390 mg/L) at CCR monitoring well MW-33AR during the October 2024 sampling event. The January 2025 resampling result (412 mg/L) confirmed this exceedance.

Sulfate

Sulfate was detected above the well-specific ACL (200 mg/L) at CCR monitoring well MW-33AR during the October 2024 sampling event. The January 2025 resampling result (250 mg/L) confirmed the ACL exceedance.

Summary

Based on the October 2024 and January 2025 monitoring events, exceedances of applicable standards for hardness and sulfate at MW-33AR were confirmed. Based on a review of the current and historical data, the standard exceedances do not appear to be attributable to a release from the ADF. A Demonstration of False Groundwater Exceedance, demonstrating that these exceedances are attributable to sources other than the ADF, is being submitted to the DNR concurrently with this data submittal on March 27, 2025.

Please contact Matt Bizjack, Alliant Energy, at 608-458-3197 with any questions regarding the data from the January 2025 resampling event at the Columbia Dry Ash Disposal Facility.

Sincerely,

Meghan Blodgett, PG
Project Hydrogeologist
SCS Engineers

Thomas Karwoski, PG
Project Manager
SCS Engineers

MDB/REO/TK

cc: Tyler Sullivan, Wisconsin Department of Natural Resources (e-copy only)
Matt Bizjack, Alliant Energy (e-copy only)
Jeff Maxted, Alliant Energy (e-copy only)
Brian Clepper, WPL-Columbia (e-copy only)

Encl. Table 1 – Groundwater Standards Exceedance Summary
Environmental Monitoring Data Certification Form
Compact disc (CD) containing the results in Wisconsin DNR electronic data submittal format – (GEMS Data Submittal Contact copy only)

Table 1. Monitoring Results - January 2025 Resample Results and Exceedance Confirmation
WPL-Columbia Dry Ash Disposal Facility / SCS Engineers Project #25224067.00
License #03025

Parameter	Units	Sample ID	Groundwater Standard for Comparison	Standard Type	Collected Date	Result	Resample Confirmed Exceedance?
Hardness, Total	mg/L	MW-33AR	390	Well-Specific PAL	10/2/2024*	415	Yes
					1/10/2025	412	
Sulfate, Total	mg/L	MW-33AR	200	ACL	10/2/2024*	224	Yes
					1/10/2025	250	

Abbreviations:
mg/L = milligrams per liter ACL = Alternative Concentration Limit PAL = Preventive Action Limit

Notes:
*: October 2024 sample results included for reference. These results were previously submitted in the December 30, 2024 GEMS data submittal.

Created By: MDB Date: 3/4/2025
Last Modified: MDB Date: 3/4/2025
Checked By: REO Date: 3/7/2025

Save... Print... Clear Data

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Environmental Monitoring Data Certification

Form 4400-231 (R 5/17)

Notice: Personally identifiable information collected will be used for program administration and enforcement purposes. The Department may also provide this information to requesters as required under Wisconsin's Open Records law, ss. 19.31 to 19.39, Wis. Stats.
When submitting monitoring data, the owner or operator of the facility, practice or activity is required to notify the Department in writing that a groundwater standard or an explosive gas level has been attained or exceeded, as specified in ss. NR 140.24(1)(a); NR 140.26(1)(a); NR 507.30NR 635.14(9)(a); NR 635.18(20) and NR 507.30, Wis. Adm. Code. Failure to report may result in fines, forfeitures or other penalties resulting from enforcement under ss. 289.97, 291.97 or 299.95, Wis. Stats

Instructions:

- **Prepare one form for each license or monitoring ID.**
- **Please type or print legibly.**
- Attach a notification of any values that attain or exceed groundwater standards (that is, preventive action limits, enforcement standards or alternative concentration limits). The notification must include a preliminary analysis of the cause and significance of each value.
- Attach a notification of any gas values that attain or exceed explosive gas levels.
- Send the original signed form, any notification, and Electronic Data Deliverable [EDD] to: GEMS Data Submittal Contact - WA/5, Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707-7921

Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner)
SCS Engineers

Contact for questions about data formatting. Include data preparer's name, telephone number and Email address:

Name	Phone No. (include area code)
Meghan Blodgett	(608) 216-7362

Email
mblodgett@scsengineers.com

Facility Name
WPL Columbia Dry Ash

License # / Monitoring ID	Facility ID (FID)
03025	111049180

Actual sampling dates (e.g., July 2-6, 2003)	The enclosed results are for sampling required in the month(s) of: (e.g., June 2003)
January 10, 2025	January 2025

Type of Data Submitted (Check all that apply):

- [x] Groundwater monitoring data from monitoring wells
- [ ] Groundwater monitoring data from private water supply wells
- [ ] Leachate monitoring data
- [ ] Gas monitoring data
- [ ] Air monitoring data
- [ ] Other (specify):

Notification attached?

- [ ] No. No groundwater standards or explosive gas limits were exceeded.
- [x] Yes, a notification of values exceeding a groundwater standard is attached. It includes a list of monitoring points, dates, sample values, groundwater standard and preliminary analysis of the cause and significance of any concentration.
- [ ] Yes, a notification of values exceeding an explosive gas limit is attached. It includes the monitoring points, dates, sample values and explosive gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards.

Facility Representative Name (Print)	Title	Phone No. (include area code)
Meghan Blodgett	Senior Project Professional	(608) 216-7362

Signature Meghan Blodgett 3/25/2025
Date Signed (mm/dd/yyyy)

For DNR Use Only

Check action taken, and record date and your initials. Describe on back side if necessary.

- [ ] Found uploading problems on _____ Initials
- [ ] Notified contact of problems on _____ Uploaded data successfully on _____

EDD format(s): [ ] Diskette [ ] CD (initial submittal and follow-up) [ ] E-mail (follow-up only) [ ] Other: _____

Attachment B

Trend Analysis

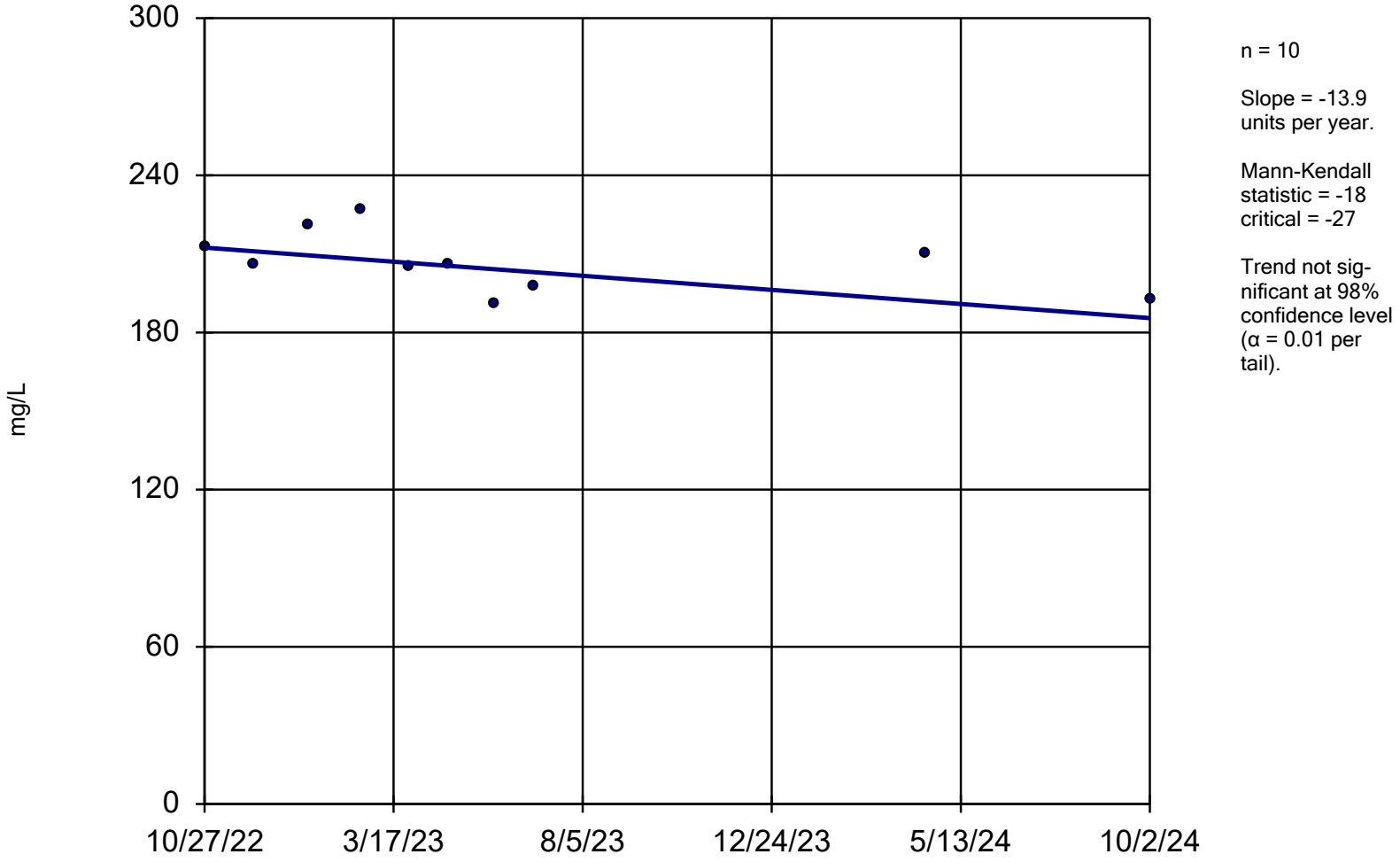
Trend Test

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020 Printed 2/21/2025, 9:28 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Alkalinity, Total as CaCO3 (mg/L)	MW-33AR	-13.9	-18	-27	No	10	0	n/a	n/a	0.02	NP
Boron (ug/L)	**MW-33AR**	**-21**	**-72**	**-53**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (ug/L)	MW-33AR	-4231	-23	-48	No	15	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-33AR	-3.105	-26	-53	No	16	0	n/a	n/a	0.02	NP
Field pH (Std. Units)	**MW-33AR**	**-0.03413**	**-67**	**-63**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Fluoride (mg/L)	**MW-33AR**	**0**	**-50**	**-48**	**Yes**	**15**	**100**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	MW-33AR	4.194	11	58	No	17	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-33AR	-3.183	-6	-58	No	17	0	n/a	n/a	0.02	NP
Total Hardness by 2340B (mg/L)	MW-33AR	39.72	7	31	No	11	0	n/a	n/a	0.02	NP

Alkalinity, Total as CaCO3

MW-33AR



n = 10

Slope = -13.9 units per year.

Mann-Kendall statistic = -18 critical = -27

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:26 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

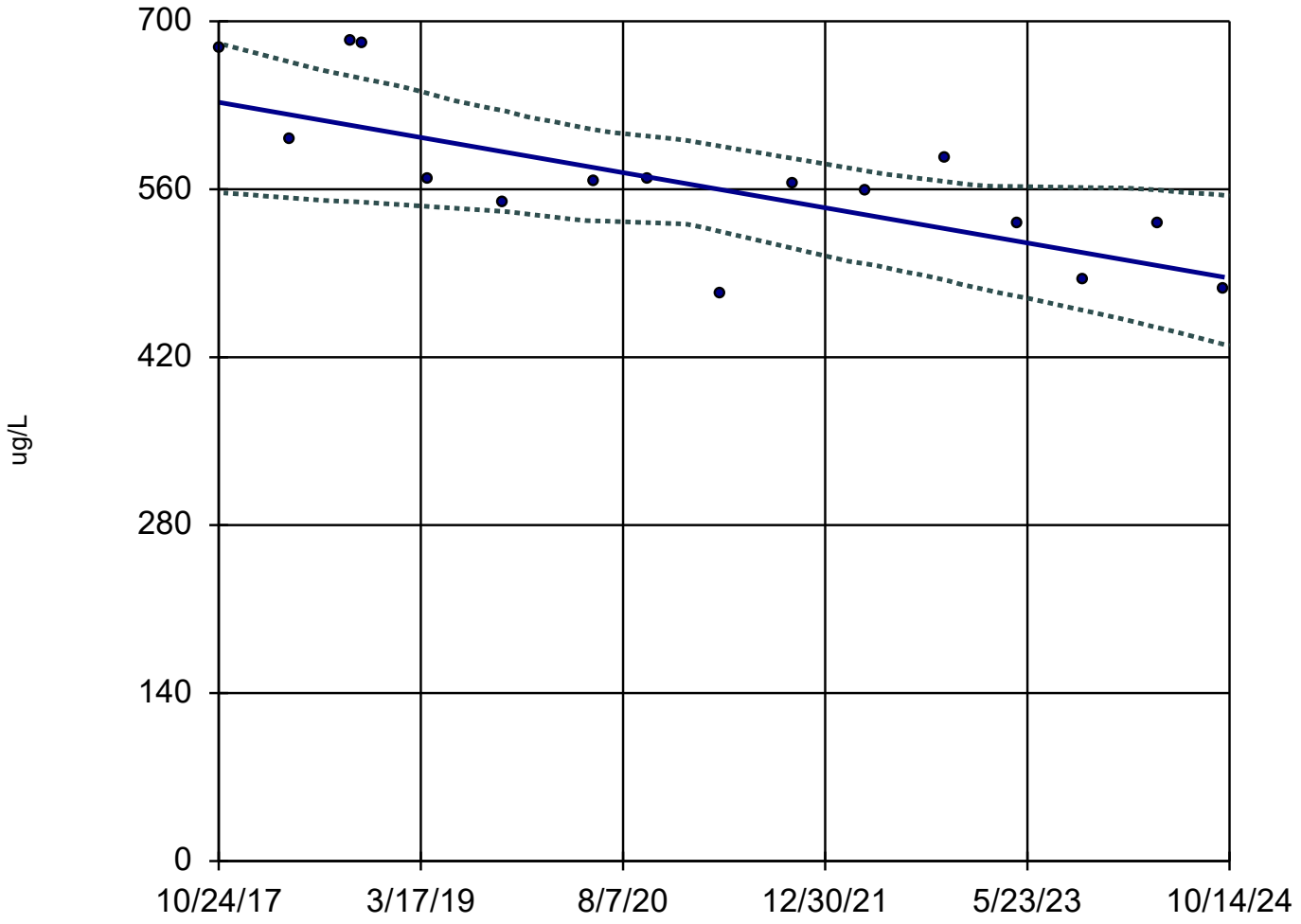
Constituent: Alkalinity, Total as CaCO3 (mg/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR
10/27/2022	213
12/2/2022	206
1/13/2023	221
2/21/2023	227
3/28/2023	205
4/27/2023	206
5/31/2023	191
6/30/2023	198
4/17/2024	210
10/2/2024	193

Boron

MW-33AR



n = 16

Slope = -21 units per year.

Mann-Kendall statistic = -72 critical = -53

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:26 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

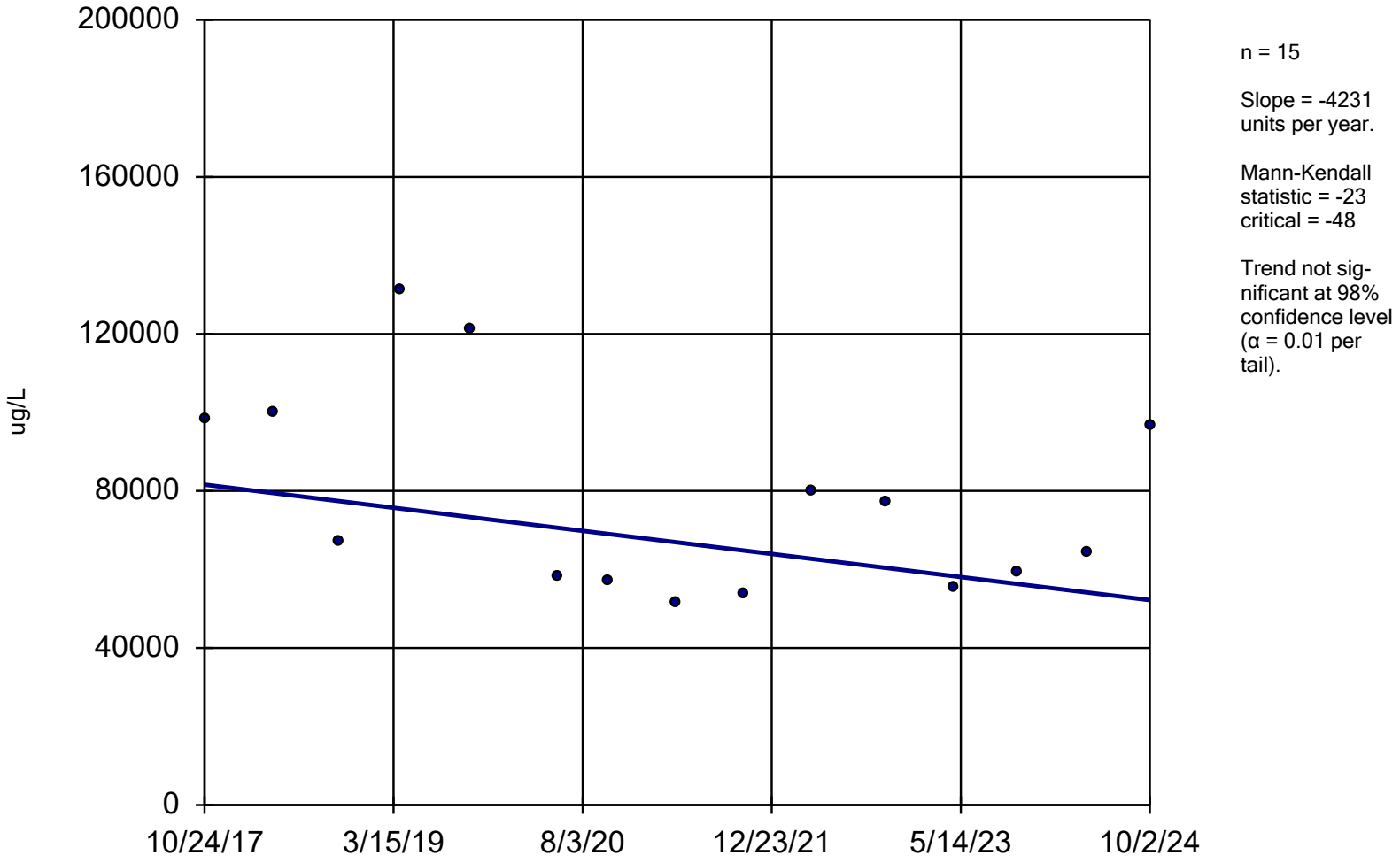
Constituent: Boron (ug/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR	LCL	UCL
10/24/2017	678	557.2	681.6
4/24/2018	601	552.7	665.8
9/21/2018	683	549.7	654.3
10/22/2018	682	549.2	652.2
4/2/2019	568	545.7	640
10/8/2019	548	541.5	625.7
5/28/2020	566	533.7	609.6
10/8/2020	569	532.1	604.2
4/13/2021	473	524.5	595.7
10/12/2021	564	510.5	585.5
4/12/2022	558	497.8	575.3
10/27/2022	586	484.4	566.4
4/27/2023	532	470.9	562.2
10/11/2023	485	459	561.4
4/17/2024	531	444.5	559.4
10/2/2024	477	430.4	554.8

Calcium

MW-33AR



n = 15

Slope = -4231 units per year.

Mann-Kendall statistic = -23 critical = -48

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:26 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

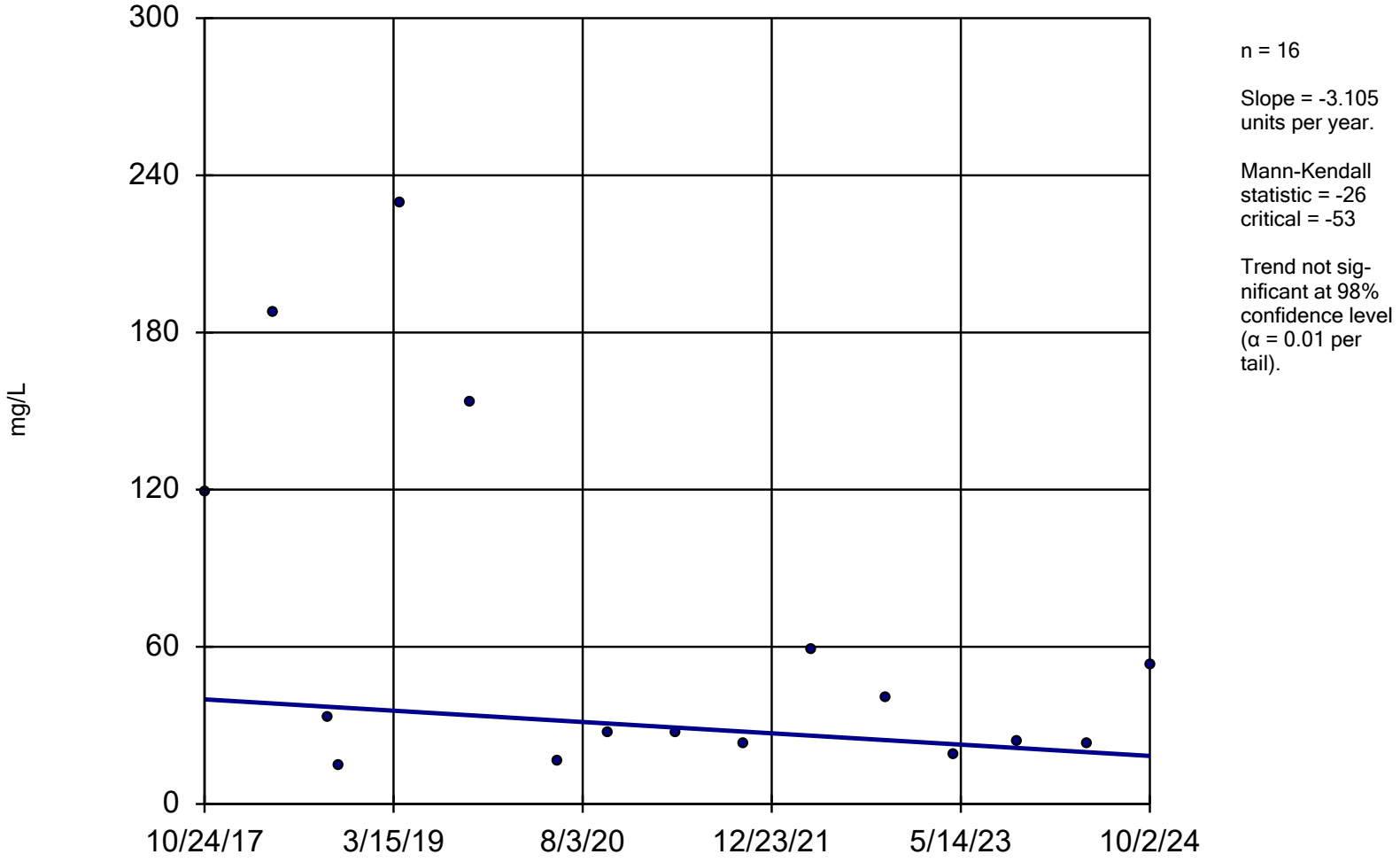
Constituent: Calcium (ug/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR
10/24/2017	98200
4/24/2018	99800
10/22/2018	66900
4/2/2019	131000
10/8/2019	121000
5/28/2020	58400
10/8/2020	57100
4/13/2021	51600
10/12/2021	53700
4/12/2022	80000
10/27/2022	77000
4/27/2023	55300
10/11/2023	59400
4/17/2024	64200
10/2/2024	96400

Chloride

MW-33AR



n = 16

Slope = -3.105 units per year.

Mann-Kendall statistic = -26
critical = -53

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

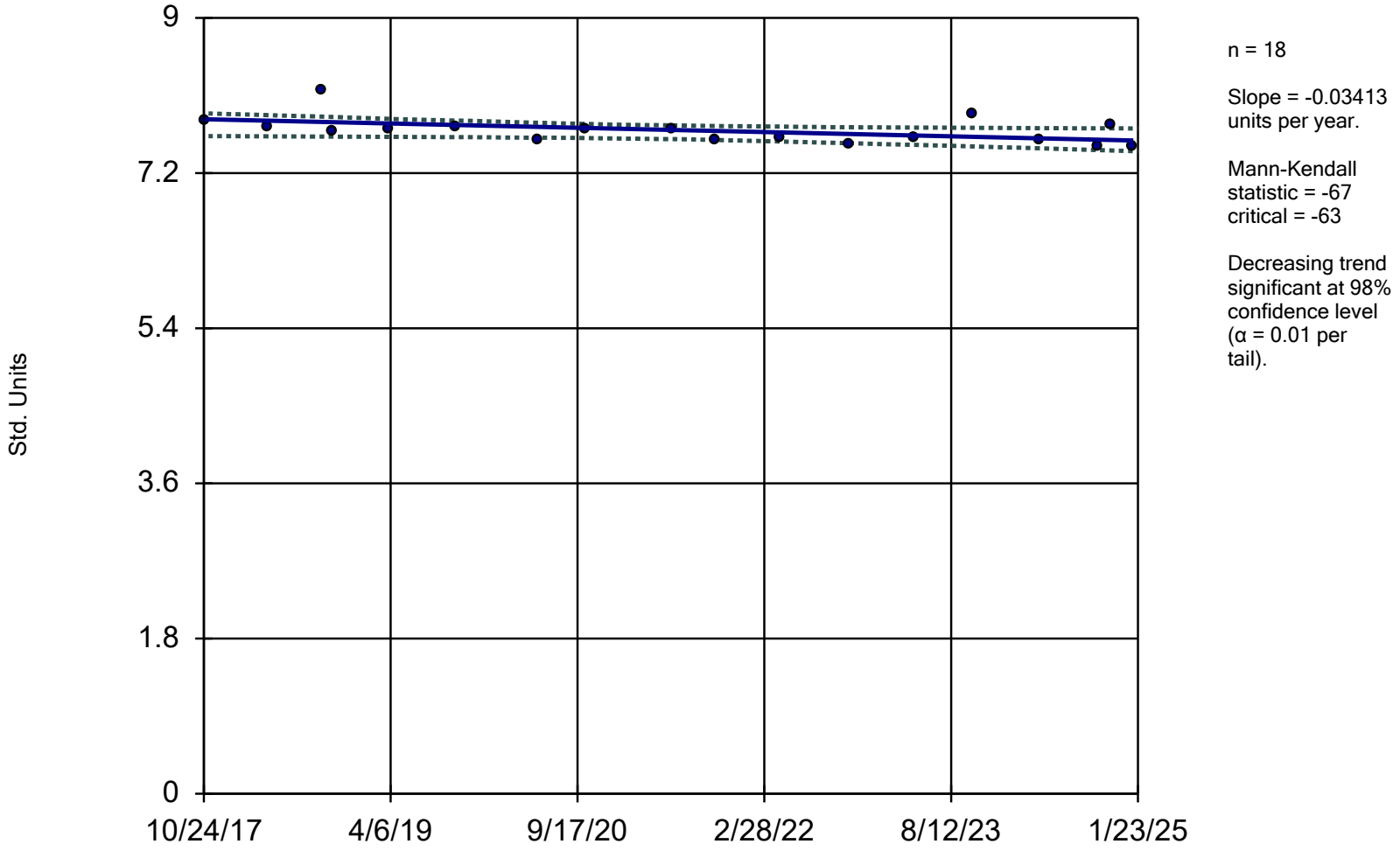
Constituent: Chloride (mg/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR
10/24/2017	119
4/24/2018	188
9/21/2018	32.6
10/22/2018	14.4
4/2/2019	229
10/8/2019	153
5/28/2020	15.9
10/8/2020	27.3
4/13/2021	26.9
10/12/2021	22.6
4/12/2022	59
10/27/2022	40.5
4/27/2023	19
10/11/2023	24.2
4/17/2024	22.8
10/2/2024	52.7

Field pH

MW-33AR



n = 18

Slope = -0.03413 units per year.

Mann-Kendall statistic = -67
critical = -63

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

Constituent: Field pH (Std. Units) Analysis Run 2/21/2025 9:28 AM

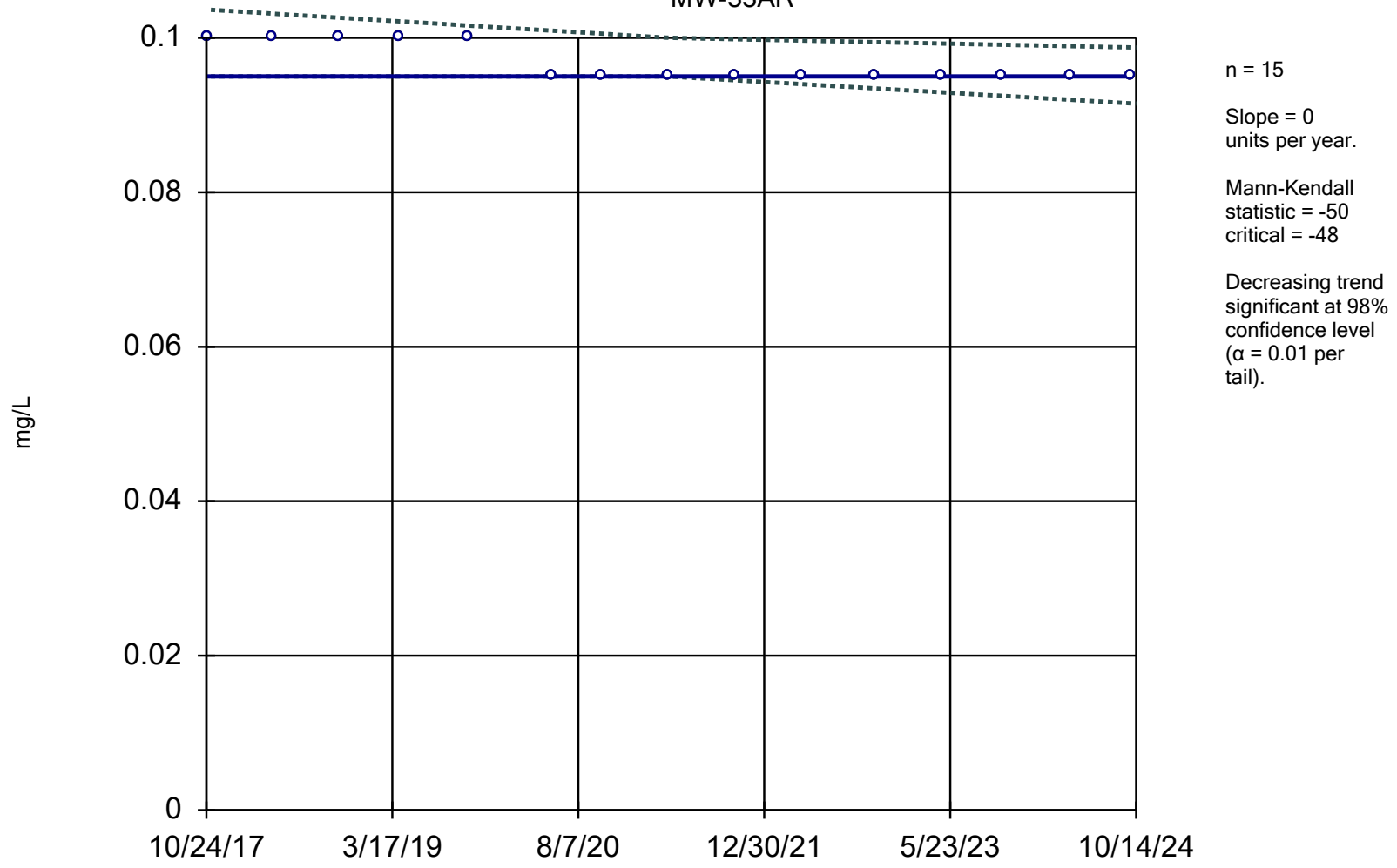
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR	LCL	UCL
10/24/2017	7.81	7.629	7.893
4/24/2018	7.74	7.626	7.872
9/21/2018	8.16	7.623	7.854
10/22/2018	7.69	7.623	7.851
4/2/2019	7.72	7.62	7.829
10/8/2019	7.74	7.617	7.809
5/28/2020	7.59	7.61	7.783
10/8/2020	7.7	7.606	7.77
6/11/2021	7.71 (R)	7.593	7.754
10/12/2021	7.59	7.584	7.746
4/12/2022	7.6	7.566	7.739
10/27/2022	7.54	7.546	7.731
4/27/2023	7.61	7.527	7.728
10/11/2023	7.88	7.509	7.725
4/17/2024	7.58	7.487	7.721
10/2/2024	7.52	7.466	7.719
11/5/2024	7.76	7.462	7.718
1/10/2025	7.51	7.454	7.718

Hollow symbols indicate censored values.

Fluoride

MW-33AR



n = 15

Slope = 0
units per year.

Mann-Kendall
statistic = -50
critical = -48

Decreasing trend
significant at 98%
confidence level
(α = 0.01 per
tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

Constituent: Fluoride (mg/L) Analysis Run 2/21/2025 9:28 AM

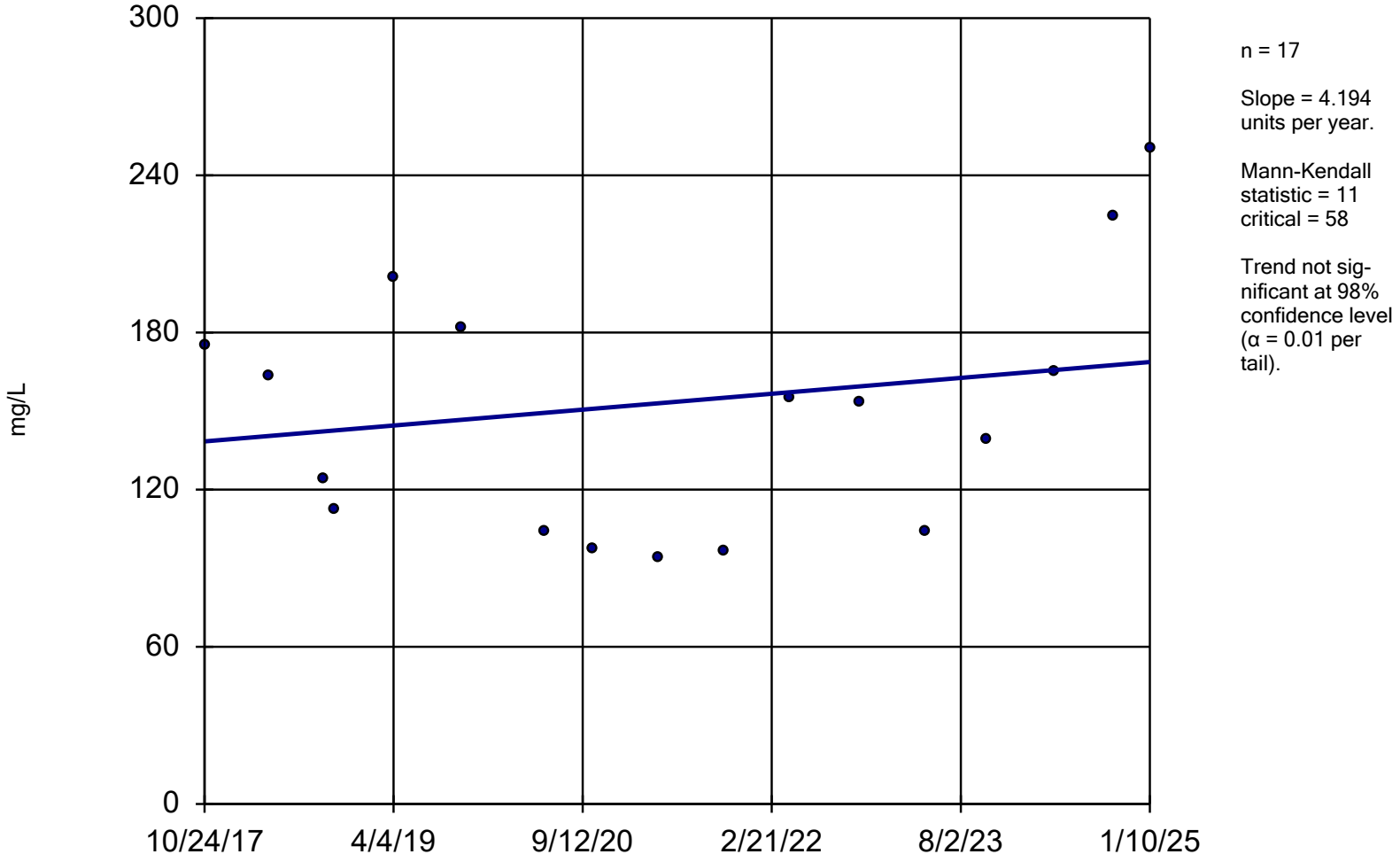
Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR	LCL	UCL
10/24/2017	<0.1 (U)	0.095	0.1037
4/24/2018	<0.1 (U)	0.095	0.1031
10/22/2018	<0.1 (U)	0.095	0.1026
4/2/2019	<0.1 (U)	0.095	0.1021
10/8/2019	<0.1 (U)	0.095	0.1016
5/28/2020	<0.095 (U)	0.095	0.1009
10/8/2020	<0.095 (U)	0.095	0.1005
4/13/2021	<0.095 (U)	0.095	0.1
10/12/2021	<0.095 (U)	0.0945	0.09982
4/12/2022	<0.095 (U)	0.094	0.09964
10/27/2022	<0.095 (U)	0.09345	0.09945
4/27/2023	<0.095 (U)	0.09295	0.09927
10/11/2023	<0.095 (U)	0.09249	0.0991
4/17/2024	<0.095	0.09197	0.09892
10/2/2024	<0.095	0.09151	0.09875

ND substitution: RL or RL/2 if <15% NDs.

Sulfate

MW-33AR



n = 17

Slope = 4.194 units per year.

Mann-Kendall statistic = 11
critical = 58

Trend not significant at 98% confidence level (α = 0.01 per tail).

Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

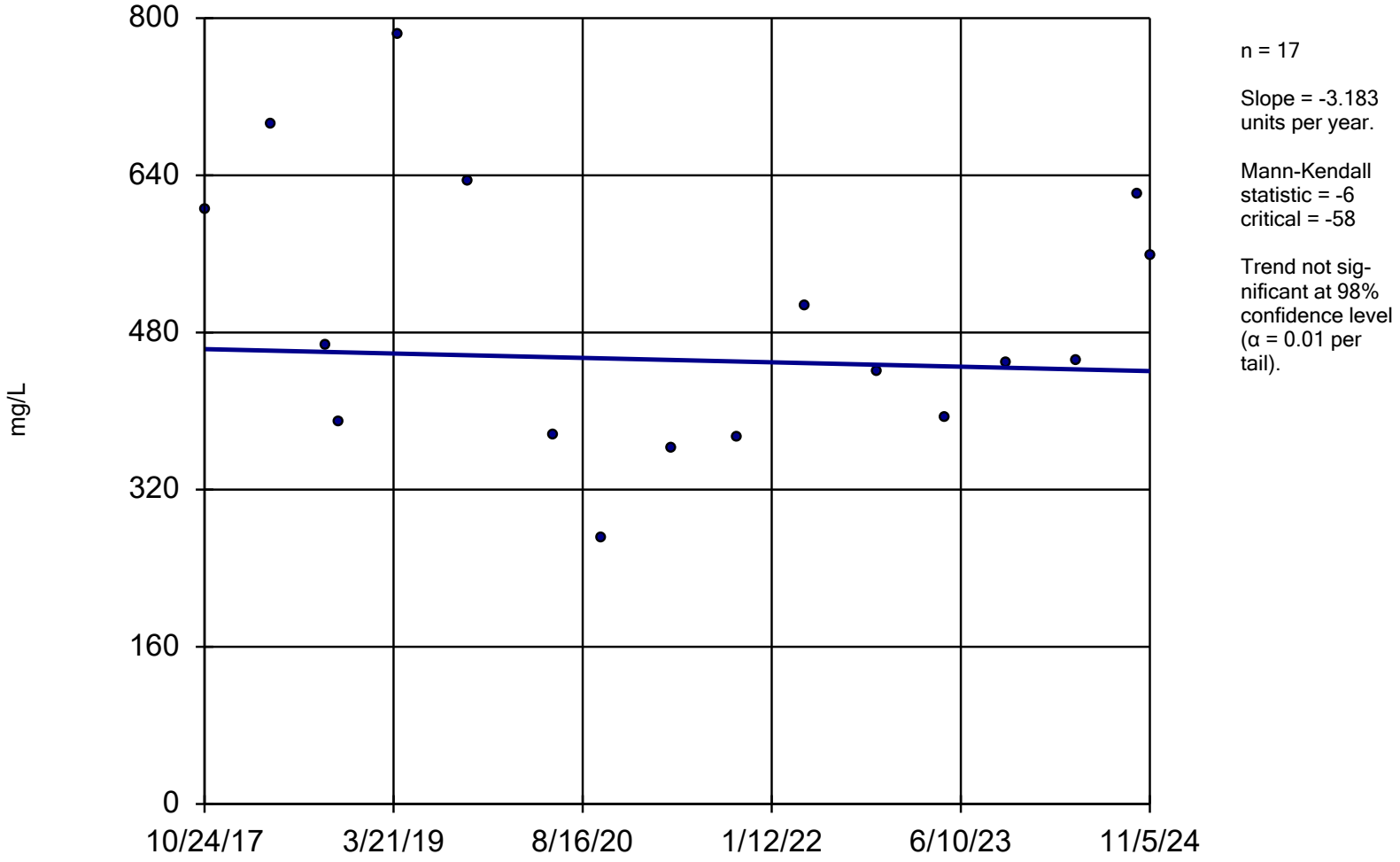
Constituent: Sulfate (mg/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR
10/24/2017	175
4/24/2018	163
9/21/2018	124
10/22/2018	112
4/2/2019	201
10/8/2019	182
5/28/2020	104
10/8/2020	97.4
4/13/2021	94.3
10/12/2021	96.4
4/12/2022	155
10/27/2022	153
4/27/2023	104
10/11/2023	139
4/17/2024	165
10/2/2024	224
1/10/2025	250

Total Dissolved Solids

MW-33AR



Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

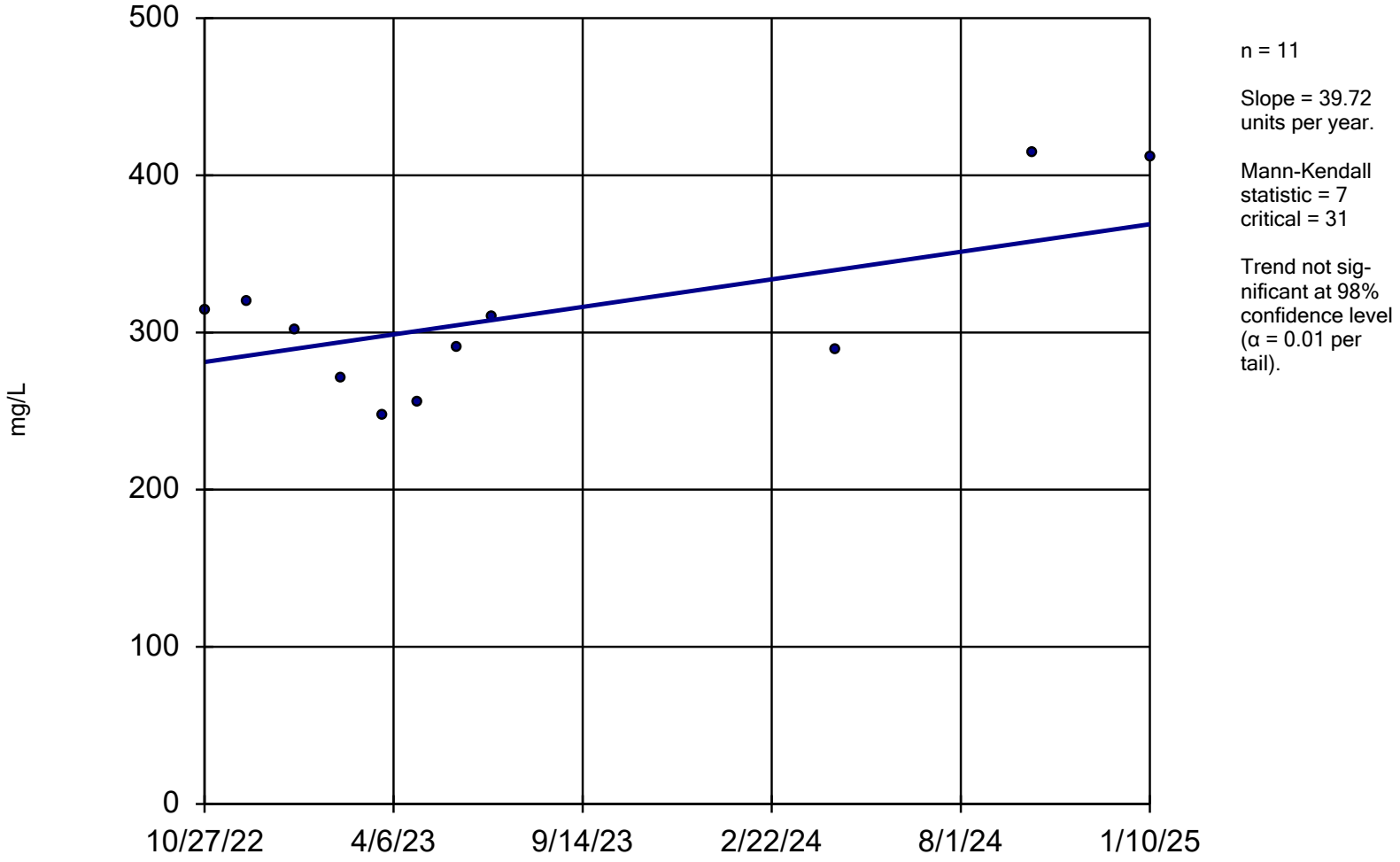
Constituent: Total Dissolved Solids (mg/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

	MW-33AR
10/24/2017	606
4/24/2018	692
9/21/2018	466
10/22/2018	388
4/2/2019	784
10/8/2019	634
5/28/2020	376
10/8/2020	270
4/13/2021	362
10/12/2021	374
4/12/2022	506
10/27/2022	440
4/27/2023	394
10/11/2023	448
4/17/2024	452
10/2/2024	620
11/5/2024	558

Total Hardness by 2340B

MW-33AR



Sen's Slope and 98% Confidence Band Analysis Run 2/21/2025 9:27 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

Sen's Slope Estimator

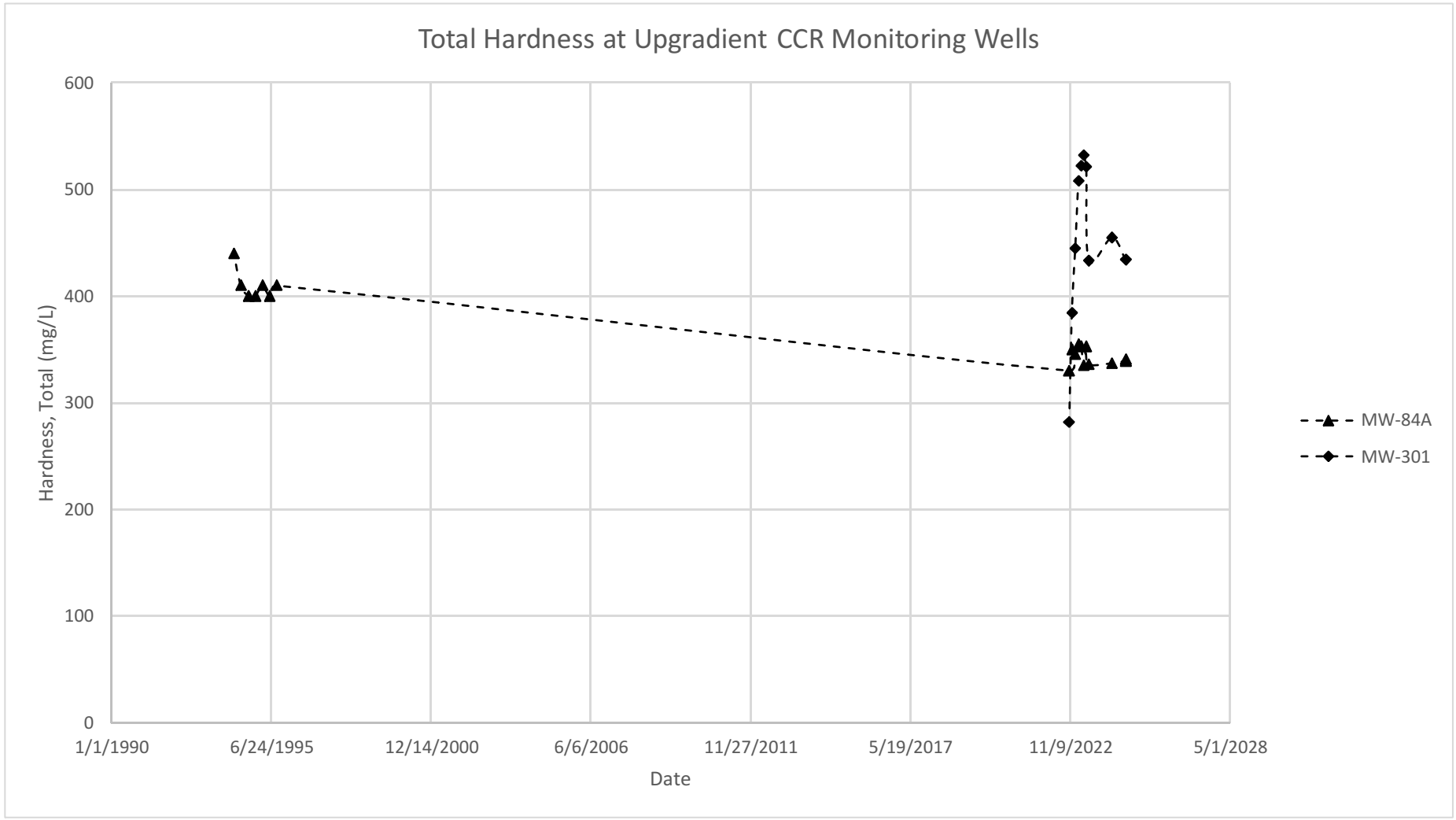
Constituent: Total Hardness by 2340B (mg/L) Analysis Run 2/21/2025 9:28 AM

Columbia Energy Center Client: SCS Engineers Data: December - Chem- export-Dec2020

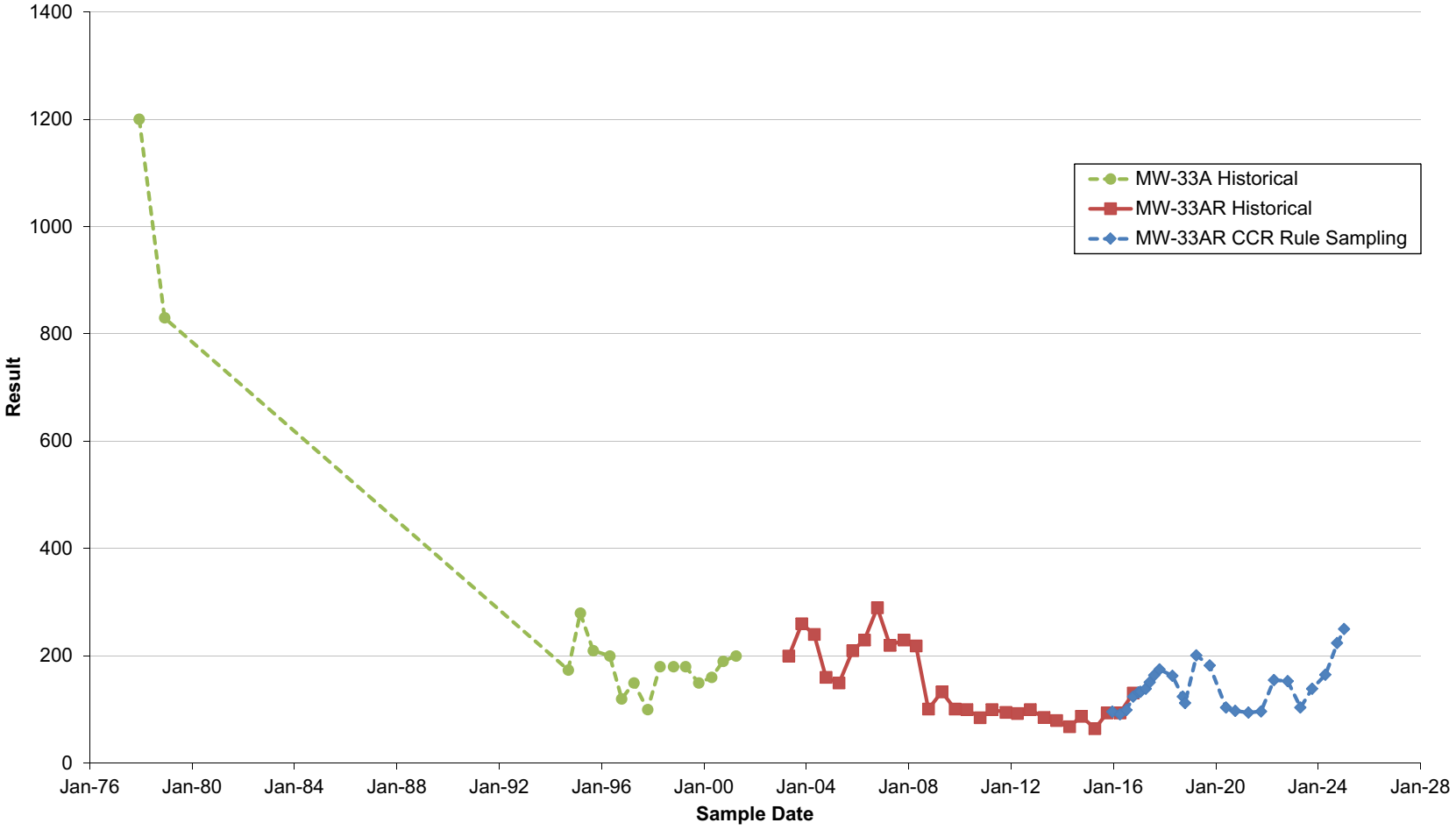
	MW-33AR
10/27/2022	314
12/2/2022	319
1/13/2023	301
2/21/2023	271
3/28/2023	247
4/27/2023	256
5/31/2023	290
6/30/2023	310
4/17/2024	289
10/2/2024	415
1/10/2025	412

Attachment C

Time Series Plots

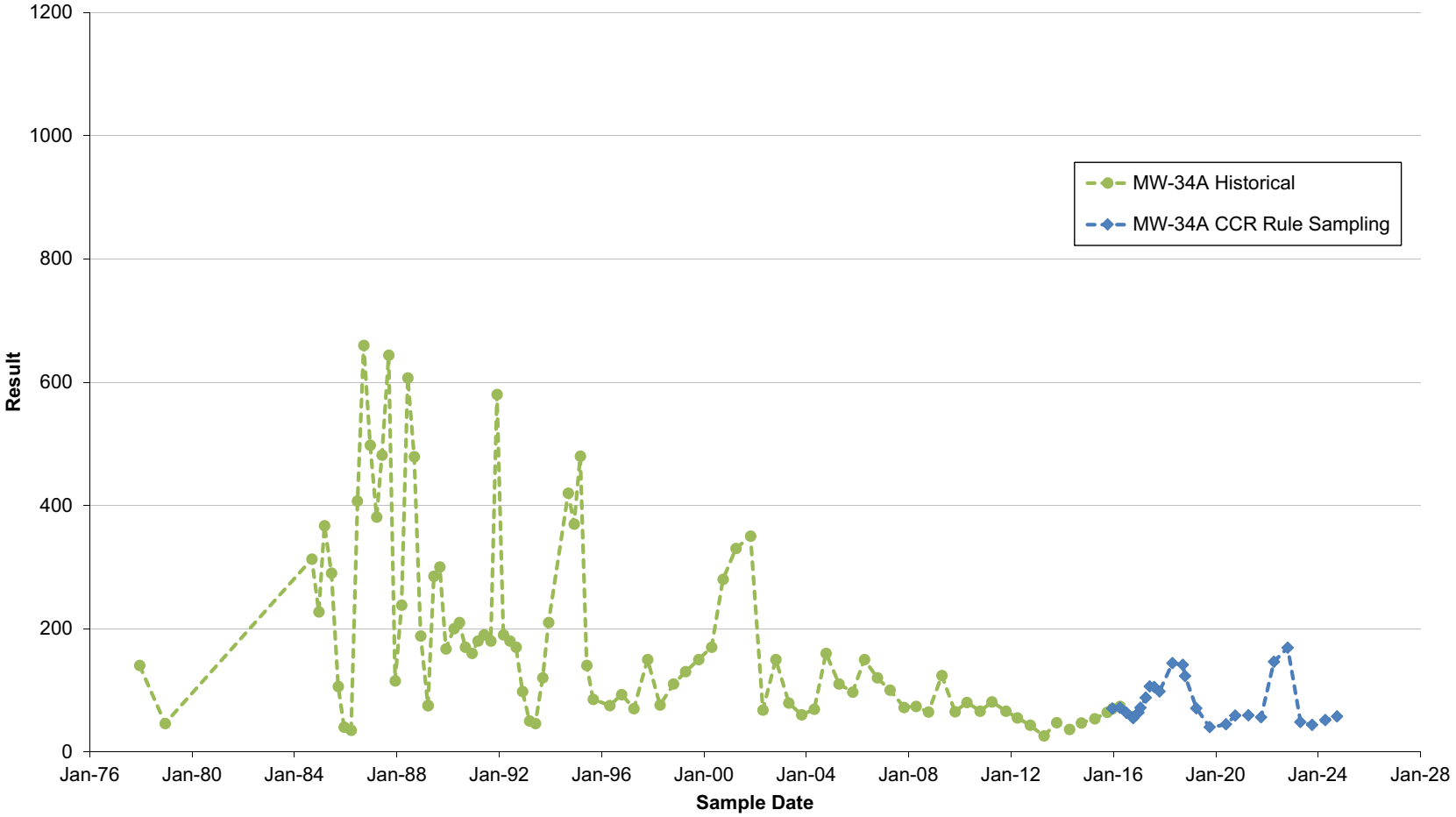

Total Hardness at Upgradient CCR Monitoring Wells
Hardness, Total (mg/L)
600
500
400
300
200
100
0
1/1/1990
6/24/1995
12/14/2000
6/6/2006
11/27/2011
5/19/2017
11/9/2022
5/1/2028
Date
MW-84A
MW-301

Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-33 and MW-33AR - Sulfate (mg/l as SO4)



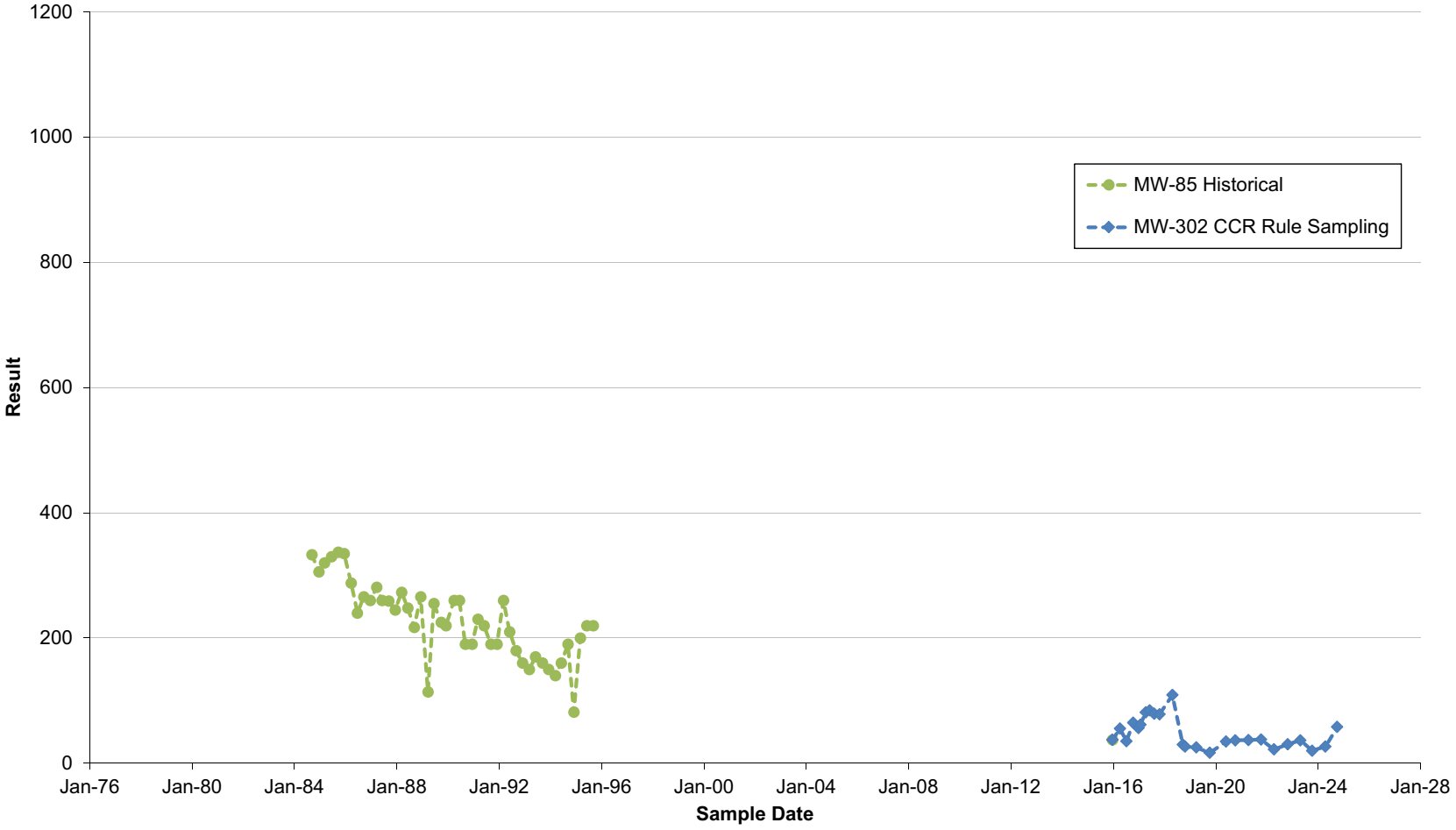
I:\25224067.00\Deliverables\2403 Demonstration of False Exceedance_MW33AR\C_Time Series Plots\[SO4_COL Dry.xlsx]MW-33AR CCR

Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-34A - Sulfate (mg/l as SO4)



I:\25224067.00\Deliverables\2403 Demonstration of False Exceedance_MW33AR\C_Time Series Plots\[SO4_COL Dry.xlsx]MW-34A CCR

Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-85 and MW-302 - Sulfate (mg/l as SO4)

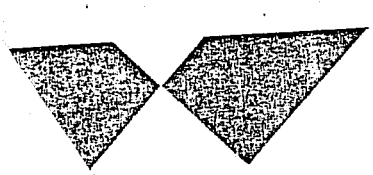


I:\25224067.00\Deliverables\2403 Demonstration of False Exceedance_MW33AR\C_Time Series Plots\[SO4_COL Dry.xlsx]MW-85 MW-302 CCR

Attachment D

Feasibility Study Water Quality Information

1370



FEASIBILITY STUDY
PROPOSED FLY ASH AND/OR SCRUBBER SLUDGE
DISPOSAL FACILITY-COLUMBIA SITE
WISCONSIN POWER AND LIGHT COMPANY
TOWN OF PACIFIC, COLUMBIA COUNTY, WISCONSIN

Jan 78

C 7134

conceivable that groundwater flow in the area north of Murray Road may be altered such that contaminants derived from the present ash settling basin might be diverted southerly towards the homes along Murray Road. These questions would have to be addressed in greater detail, consistent with the goals of Wisconsin Power and Light Company.

WATER QUALITY

During the first two weeks of December, 1977, 64 water samples were obtained from surface waters and groundwater monitoring wells at the Columbia Energy Center. The purpose of the sampling was to assess background water quality in the vicinity of the proposed disposal site. The sampling stations included 59 monitoring wells, the cooling lake, ash settling pond, the drainage ditch carrying the ash pond discharge waters and the agricultural drainage ditch along the southern boundary of the site. Due to the large number of sampling stations, the analyses were limited to pH, specific conductance, iron, calcium, magnesium, sulfate and chloride. The analytical data is contained in Appendix F and is discussed below.

pH

Most groundwaters found in the United States have pH values ranging from around 6.0 to 8.5. The pH of a water represents the result of a number of interrelated chemical equilibria. This equilibria can be altered shortly after sampling by gains or losses of carbon dioxide, the oxidation of ferrous iron and numerous other chemical reactions. Thus, pH measurements must be taken shortly after obtaining the sample. For this study, the pH of samples was determined immediately upon return to the laboratory.

Within the proposed site boundaries at the Columbia Energy Center, pH values ranged between 6.3 and 8.1 and averaged 7.5. Typically, the lower pH values were observed in the lowland areas and wetlands, probably as a result of acidic organic soils. The pH of water in the ash disposal settling pond and the cooling lake was 11.4 and 8.3, respectively.

SPECIFIC CONDUCTANCE

Specific conductance, or conductivity, is the ability of a substance to conduct an electric current. The conductance determination is correlative with the dissolved-solids concentration. Conductivity, however, is temperature dependent and thus requires the reference of specific conductance measurements to a standard temperature. The values discussed here are referred to 25°C.

The specific conductance of groundwater in the study area ranged from 220 umhos/cm to a maximum of 2600 umhos/cm. The highest conductivity readings were observed in monitoring wells located along the coal storage area and the drainage ditch carrying the ash pond discharge where values up to 2600 umhos/cm were measured. The conductivity of the ash pond effluent was 1380 umhos/cm. This data appears to confirm earlier speculation of infiltration of effluent from the ash pond discharge channel and from the coal storage area into the groundwater. Conductance within the proposed site boundaries averaged approximately 465 umhos/cm.

Conductivity in the ash disposal settling pond was measured at 1510 umhos/cm. Shallow monitoring wells M-6 and 39A, located adjacent to the pond also exhibited elevated values of 1160 umhos/cm and 1800 umhos/cm, respectively.

High conductivities were also observed along U. S. Highway 51 at monitoring wells 51A and 51B. The chloride data, discussed below, indicates infiltration of road salt has probably occurred at this location.

Specific conductance measurements obtained in the vicinity of the proposed disposal site are shown on Drawing C 7134-15.

IRON

The element iron is an abundant element found in most rocks and soil. It generally occurs as sulfides and oxides in igneous and metamorphic rocks and as iron oxide and hydroxide cementing materials in coarse-grained sedimentary rocks.

Ferrous iron is unstable in the presence of oxygen where it is bound to hydroxide anions as $2Fe(OH)_3$.

$$2Fe^{++} + 4HCO_3^- + H_2O \rightleftharpoons 2Fe(OH)_3 + 4CO_2$$

If subjected to a strong reducing environment, such as a marsh, the reaction is reversed and iron goes back into solution. The amount which dissolves is related to a number of variables including the velocity with which water moves through this environment.

The U. S. Public Health Service recommends an iron concentration of less than 0.3 mg/l in water used for drinking and culinary purposes. Laundry and porcelain tend to be stained when concentrations reach 0.5 to 1.0 mg/l. At this level it can also be tasted.

The presence of iron under the proposed disposal area in the majority of cases was below the detection limit of 0.1 mg/l. In monitoring wells 5 and 18, located in or near the central marsh area, iron increased to 10 mg/l and 5.7 mg/l, respectively. In the southern marsh, monitoring wells exhibited concentrations between 0.5 mg/l and 6.1 mg/l. Although the iron concentration in the cooling lake was below the detection limit, down-gradient wells 44 and 30A located on the cooling lake dike yielded values of 11 mg/l and 26 mg/l iron respectively. Boring logs indicated trace amounts of organic material at the base of the dike which is probably the reason for the high concentrations observed. At the same location, iron in well 30B installed to a depth of 100 feet below the surface was below 0.1 mg/l. Thus, the occurrence of high iron concentrations in this area appears restricted to groundwater in the upper portion of the aquifer where organic material is present and conditions are favorable for the dissolution of iron.

The ash pond discharge in the drainage ditch paralleling the west site boundary showed an iron concentration of 3.7 mg/l. Shallow monitoring wells 33A and 34A adjacent to the ditch indicated less than 0.1 mg/l iron.

North of Murray Road the iron concentration in monitoring wells in the marsh and uplands were typically less than 0.1 mg/l. Although the ash basin had less than 0.1 mg/l iron, several wells along cross-section F-F' showed anomalously high values (#M6-2.3 mg/l; #47-16 mg/l; #51B-21 mg/l).

CALCIUM

Calcium, because of its relative abundance and mobility, is the principle cation in most natural fresh water. Calcium is a constituent of many rock types but is found in greatest quantities in waters leaching deposits of limestone and dolomite. In sandstone and other detrital rock, calcium carbonate is a common cement between grains.

Monitoring wells located within the site boundaries exhibited calcium concentrations between 30 mg/l and 66 mg/l and averaged about 42 mg/l. Similar to iron, the concentrations of calcium in monitoring wells along cross-section F-F' were anomalously high, up to 150 mg/l calcium. Water table wells along the drainage ditch carrying the ash pond discharge averaged 83 mg/l while the ash pond effluent contained 28 mg/l. Generally the amount of calcium in groundwater decreased with depth. Nested monitoring wells typically showed somewhat lower concentrations of calcium in the deeper wells.

MAGNESIUM

As a relatively abundant element on the earth's crust, the principle sources of magnesium in natural waters are considered to be ferromagnesian minerals in igneous rocks and magnesium carbonate in carbonate rocks (limestone and dolomite). Waters in which magnesium is the predominant cation are somewhat unusual. Like calcium, magnesium imparts the property of hardness to water and is, therefore, of concern to industrial users.

Generally, concentrations of magnesium were 1/3 to 1/2 of the calcium levels. Magnesium concentrations within the site boundaries ranged between 10 mg/l and 36 mg/l and averaged 27 mg/l. Similar to calcium and iron, higher magnesium values were observed, in general, north of Murray Road and especially in monitoring wells along cross-section F-F'.

SULFATE

Sulphur is widely distributed in reduced form in both igneous and sedimentary rocks as metallic sulfides and when present in sufficient concentrations, constitutes ore of economic importance. During weathering processes with aerated water, the sulfides are oxidized to sulfate ions and are dissolved into water. Pyrite (FeS_2) crystals often occur in sedimentary rocks and are particularly associated with biogenic deposits such as coal which were deposited under strongly reducing conditions.

The concentrations of sulfate in groundwater in the vicinity of the proposed disposal site ranged from less than 1 mg./l to 1,200 mg./l of sulfate. (Refer to Drawing C 7134-15.) Typically, within the site boundaries concentrations averaged approximately 12 mg./l. Near the coal storage area, however, significant increases were observed. Observation wells 26A, 26B, and 42 exhibited concentrations between 900 and 1100 mg./l. The depth of sulfate enrichment in groundwater, near the coal pile, appears to extend to considerable depths, indicated by relatively high sulfate concentrations in Well 26B sealed 100 feet below ground surface. The oxidation of pyrite minerals in the coal leaching into the groundwater is probably the major source of the high concentrations observed.

Sulfate concentrations in the ash disposal settling pond were 520 mg./l. In the ditch carrying the ash pond discharge, the effluent is treated with sulfuric acid which results in precipitation of barium sulfate and aluminum hydroxide (personal communication, Merlin Horn, 1978). Consequently, the sulfate concentration of the effluent waters is lowered considerably to 13 mg./l. Well 33A, however, located near the point of effluent discharge, exhibited 1200 mg./l sulfates.

CHLORIDE

Chloride is generally present in much lower concentrations in rocks than many of the other major constituents of natural water. Important sources, however, are associated with sedimentary rocks, particularly the evaporites. The chemical behavior of chloride in natural water is relatively inert compared to the other major ions. There are few oxidation-reduction reactions and no significant chemical complexing reactions which chloride enters into. In addition, chloride ions are not significantly adsorbed on mineral surfaces. For these reasons, chloride is commonly used as a tracer in groundwater.

Chloride concentrations in groundwater in the vicinity of the Columbia Energy Center typically range between 0.5 mg./l and 30 mg./l. The highest concentrations in monitoring wells tended to be located adjacent to U. S. Highway 51 where the use of road salt has resulted in the percolation of chloride into the groundwater. Monitoring Wells 51A and 51B located in a low area north of Murray Road along U. S. Highway 51, yielded chloride concentrations in excess of 200 mg./l. Two other wells, 52A and 19, also located along U. S. Highway 51, yielded values of 30 mg./l and 42.5 mg./l chloride, respectively.

Within the proposed site boundaries, the chloride concentration averaged 7.1 mg./l. Excluding the few wells adjacent to U. S. Highway 51 exhibiting elevated concentrations, no other significant trends in the occurrence of chloride were observed.

SUMMARY

In summary, the groundwater in the vicinity of the proposed disposal site exhibited a somewhat alkaline pH. In lowland areas, the pH was typically below 7.0, probably a result of the presence of acidic organic soils.

Specific conductance within the proposed site averaged 465 umhos/cm. Conductivities up to 2600 umhos/cm were observed, however, in the vicinity of the coal storage area, the present ash disposal pond and ash pond effluent channel where infilatration of water from these sources is occurring into the groundwater system.

The groundwater typically exhibted relatively low iron concentrations although, locally, concentrations in excess of drinking water standards were observed in about 20% of the wells. The occurrence of the higher iron concentrations appears to be related to the presence of organic soils.

Groundwater at the proposed site also tended to exhibit high calculated hardness (216 mg./l) based on average observed values for calcium (42 mg./l) and magnesium (27 mg./l). Dissolution of limestone and dolomite rocks in the glacial drift are the probable sources of these elements in the groundwater.

Enrichment of sulfate in groundwater has occurred as a result of leaching of pyrite (FeS_2) minerals from the coal storage area where concentrations up to 1200 mg./l were observed. The depth of this enrichment appears to extend beyond the maximum depth into the aquifer investigated. Sulfate concentrations decreased rapidly away from the coal storage area to an average of 12 mg./l within the proposed site boundaries. Other local sources of sulfate in groundwater appear to be related to the present ash settling pond.

The concentration of chloride within the proposed site averaged 7.1 mg./l. Higher levels were generally observed in wells adjacent to U. S. Highway 51 where the infiltration of road salt has locally raised chloride concentrations.

The above interpretations are based on one round of water quality sampling only and should be considered as preliminary in nature. High sulfate and chloride concentrations observed at greater depths may be a temporary condition resulting from contamination of spoil backfill materials with coal dust or salt, respectively, during installation of the monitoring well. Future sampling of these monitoring wells will help to distinguish short term contamination from actual conditions existing in the aquifer.

APPENDIX F
WATER QUALITY DATA

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)
1A	7.6	550	17.	6.5	52	37	<0.1
1B	8.05	460	16.	10.5	39	31	<0.1
2	7.8	527	14.	2.5	45	32	<0.1
3A	7.5	548	13.	2.5	58	36	<0.1
3B	8.1	506	14.	7.0	50	34	<0.1
4	7.8	580	10.	4.0	59	34	<0.1
5	6.3	560	210.	12.5	13	29	10
16	7.6	408	12.	1.5	42	28	<0.1
17	6.45	350	30.	16.5	16	13	0.6
18	6.45	380	4.	4.5	33	22	5.7
19	7.9	570	10.	42.5	44	24	<0.1
20	8.0	340	10.	5.0	36	24	<0.1
21	6.9	220	20.	4.5	23	10	0.1
24A	7.45	775	18.	6.0	76	52	0.1
24B	7.85	440	15.	6.0	43	31	0.1
25	8.1	300	10.	2.5	29	20	<0.1
26A	7.2	2100	900	17.0	140	48	1.5
26B	7.5	2600	1100	16.5	43	7.0	0.2
27	7.15	400	6.	8.0	23	18	<0.1
28A	7.75	500	3.	0.5	48	31	<0.1
28B	7.6	480	4.	3.5	39	28	<0.1
29A	7.8	330	16.	1.5	33	21	0.5
30A	6.75	920	64.	11.0	38	30	26
30B	7.6	770	210	21.0	37	19	<0.1
33A	8.2	2500	1200	24.0	83	50	<0.1
33B	7.9	390	22.	6.5	31	27	0.2
34A	7.7	680	140.	10.0	58	45	0.1
34B	7.7	1700	660	15.0	48	22	<0.1
35	6.8	740	<1.0	4.0	66	33	2.9
36	6.8	740	<1.0	3.5	53	35	6.1
37A	7.7	460	9.	4.0	48	31	0.8
37B	7.5	630	73.	7.5	71	35	<0.1
39A	7.5	1800	350	22.0	180	100	0.1
39B	7.9	330	560	20.5	31	22	0.1
40A	8.0	630	140	8.5	43	29	<0.1
40B	8.1	330	17.	3.0	31	22	<0.1
41	6.8	590	16.	11.0	58	27	9.3

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)
42	7.4	2400	900	17.5	50	12	0.5
44	6.9	490	<1.	16.5	39	23	11
45	7.6	390	14.	3.0	40	25	<0.1
46A	7.3	1100	21.	15.5	140	82	<0.1
46B	7.8	470	25.	17.5	40	26	<0.1
47	6.6	1200	3.	8.0	140	40	16
48A	7.3	620	15.	8.0	62	37	<0.1
48B	7.1	520	22.	20.0	43	29	0.2
49	7.15	730	6.	3.5	75	41	<0.1
50A	7.6	520	28.	15.5	51	34	<0.1
50B	7.5	410	21.	18.0	31	21	<0.1
51A	6.1	1850	8.	205.	65	40	<0.1
51B	7.2	1250	23.	275.	57	36	21
52A	7.7	450	16.	30.5	36	17	<0.1
52B	7.4	430	40.	17.5	32	20	<0.1
53	7.75	450	27.	10.5	39	28	<0.1
54A	7.8	350	12.	4.0	34	21	0.1
54B	7.55	390	15.	5.5	40	24	0.1
55B	7.9	340	23.	17.5	32	22	0.1
56	7.8	450	22.	9.5	43	28	0.1
57	7.85	380	17.	7.0	38	24	0.1
M-6	7.0	1160	5.	7.0	150	91	2.3
Cooling Lake	8.3	370	31.	18.0	34	21	<0.1
Ash Pond Effluent	7.45	1380	13.	4.0	28	1.2	3.7
Ash Pond Drainage Ditch (A)	11.4	1510	520.	23.5	29	0.2	<0.1
Drainage Ditch (B)	7.8	500	21.	7.0	43	29	<0.1
	9.05	1780	750	14.0	42	5.4	<0.1

APPENDICES TO

SUPPLEMENTARY FEASIBILITY STUDY REPORT AND PRELIMINARY ENGINEERING CONCEPTS COLUMBIA SITE WISCONSIN POWER AND LIGHT COMPANY TOWN OF PACIFIC, COLUMBIA COUNTY, WISCONSIN

WARZYN
ENGINEERING INC

APPENDIX I

WATER QUALITY DATA - DECEMBER 1978

WARZYN
ENGINEERING INC

12/76

C 7134

WATER QUALITY DATA

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
1A	7.3	530	30	3.1	54	35	<0.1	-
1B	7.0	470	67	6.1	49	30	<0.1	-
2	7.25	458	91	<.5	48	24	<0.1	-
3A	7.0	560	36	<.5	61	31	<0.1	-
3B	7.15	530	52	35.7	37	33	<0.1	-
4	7.2	750	69	5.8	49	30	<0.1	-
5	6.35	1,650	670	14.1	14	13	1.7	-
16	6.9	390	69	1.0	49	23	<0.1	-
17	5.55	295	57	16.3	14	8.6	0.2	-
18	5.9	430	10	4.2	47	21	1.1	-
19	7.4	765	75	4.2	51	28	<0.1	-
20	7.4	380	26	1.6	39	26	<0.1	-
21	5.7	250	54	10.4	15	8.3	0.2	-
24A	7.2	730	36	1.6	65	42	<0.1	-
24B	7.2	470	10	7.3	42	28	<0.1	-
25	7.0	335	29	7.8	39	21	0.2	-
26A	7.4	2,250	650	12.6	32	8.6	<0.1	-
26B	6.8	2,530	840	20.8	49	18	<0.1	-
27	6.9	410	24	4.2	40	24	0.4	-
28A	7.2	500	61	0.5	45	28	<0.1	-
28B	7.0	465	6	2.1	39	26	0.1	-
29A	7.1	410	24	3.6	31	22	0.1	-
30A	5.8	1,140	15	<0.5	97	56	38	-
30B	6.65	835	160	14.6	37	20	<0.1	-
33A	7.8	1,970	830	16.7	21	8.9	<0.1	-
33B	7.5	380	31	7.3	24	27	<0.1	-
34A	7.25	560	46	4.2	53	33	<0.1	-
34B	8.5	1,575	730	21.9	28	29	0.1	-
35	6.7	545	61	3.6	60	26	1.0	-
36	6.4	515	5.0	2.6	43	24	4.8	-
37A	7.05	438	30	3.7	50	28	<0.1	-
37B	6.7	325	18	7.3	1.0	0.5	<0.1	-
39A	6.35	1,260	33	13.6	70	7.6	0.1	-
39B	6.7	385	25	4.2	30	21	<0.1	<.05
40A	7.35	483	40	<0.5	48	24	<0.1	-
40B	7.25	343	4	4.2	21	14	<0.1	-
41	6.1	640	54	19.8	43	32	<0.1	-

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
42	7.15	2,050	910	15.6	23	7.5	0.1	-
44	6.15	710	6	0.5	56	27	3.5	-
45	7.2	420	32	1.0	44	26	<0.1	-
46A	7.0	560	93	<0.5	130	75	<0.1	<0.05
46B	6.5	1,290	170	20.8	46	30	<0.1	<0.05
47	7.3	958	120	<0.5	110	48	<0.1	-
48A	6.15	640	59	<0.5	42	51	<0.1	<0.05
48B	6.8	450	23	5.2	40	27	<0.1	<0.05
49	7.0	880	26	2.1	93	58	0.1	-
50A	7.4	660	25	17.7	60	36	<0.1	-
50B	7.1	405	16	17.7	38	23	<0.1	-
51A	7.0	1,170	57	135	66	31	<0.1	-
51B	7.3	1,410	22	330	46	39	<0.1	-
52A	7.0	370	110	18.5	35	10	<0.1	-
52B	7.0	595	43	52.5			0.1	-
53	Frozen							
54A	7.5	345	10	1.0	36	22	<0.1	<0.05
54B	Frozen							
55B	7.3	505	26	15.6	52	29	<0.1	<0.05
56	Frozen							
57	Frozen							
M-6								
58	6.55	1,265	140	<0.5	110	65	0.1	-
59	6.8	925	40	<0.5	86	60	<0.1	-
60	7.2	1,510	54	4.7	130	85	<0.1	-
61A	6.85	590	39	30.2	58	31	<0.1	-
61B	7.2	505	6	13.5	48	29	<0.1	-
62	6.7	1,517	72	178	120	53	<0.1	-
64	6.9	670	100	26.8	63	36	0.8	-
65	7.2	830	57	17.8	78	50	<0.1	-
66	6.5	680	55	40	66	24	3.6	-

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
67	7.0	560	100	1.0	57	32	1.0	-
68A	7.6	440	32	2.1	40	27	<0.1	-
68B	7.2	400	36	1.0	42	25	<0.1	-
70A	7.5	440	20	<0.5	27	37	<0.1	-
70B	7.3	520	25	5.2	51	34	<0.1	-
72A	6.45	860	11	<0.5	100	41	1.8	-
72B	8.4	230	45	<0.5	17	19	<0.1	-
M-4	7.6	864	180	26.1	20	11	<0.1	0.39
MM-4			2	2.6	14	21	0.9	-
Cooling Lake at 1	7.7	355	36	13.6	31	21.2	<0.1	-
Ash Pond at 2	11.4	3,210	1,100	22.9	34	<0.1	<0.1	-
Ash Pond at 3	8.7	725	34	21.9	48	16	<0.1	-
Ash Pond Effluent at 4	6.7	3,090	1,400	25.0	39	0.4	<0.1	-
Drainage Ditch at 5	7.2	730	74	33.9	56	38	<0.1	-
Drainage Ditch at 6	7.35	2,750	640	18.8	34	7.5	<0.1	-
Drainage Ditch at 7	8.05	1,780	740	27.1	31	0.2	<0.1	-

Attachment E

Historical Groundwater Flow Maps

LEGEND

- PROPOSED PROJECT AREA
- OBSERVATION WELL LOCATION, NUMBER, AND WATER TABLE ELEVATION
- BORING LOCATION AND NUMBER
- WETLANDS
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL: 20 FT.)
- PRIVATE RESIDENCES (ASSUMED LOCATIONS OF PRIVATE WATER SUPPLY WELLS)
- COMMERCIAL BUILDINGS (ASSUMED LOCATIONS OF POSSIBLE PUBLIC WATER SUPPLY WELLS)
- SURFACE WATERS (STREAMS OR DRAINAGE DITCHES) ARROWS INDICATE DIRECTION OF FLOW
- OTHER BUILDINGS (GARAGES, BARNS, ETC.)
- HIGH CAPICITY WELLS
- —790— WATER TABLE CONTOURS (CONTOUR INTERVAL: 1 FT.)
- DIRECTION OF GROUNDWATER FLOW

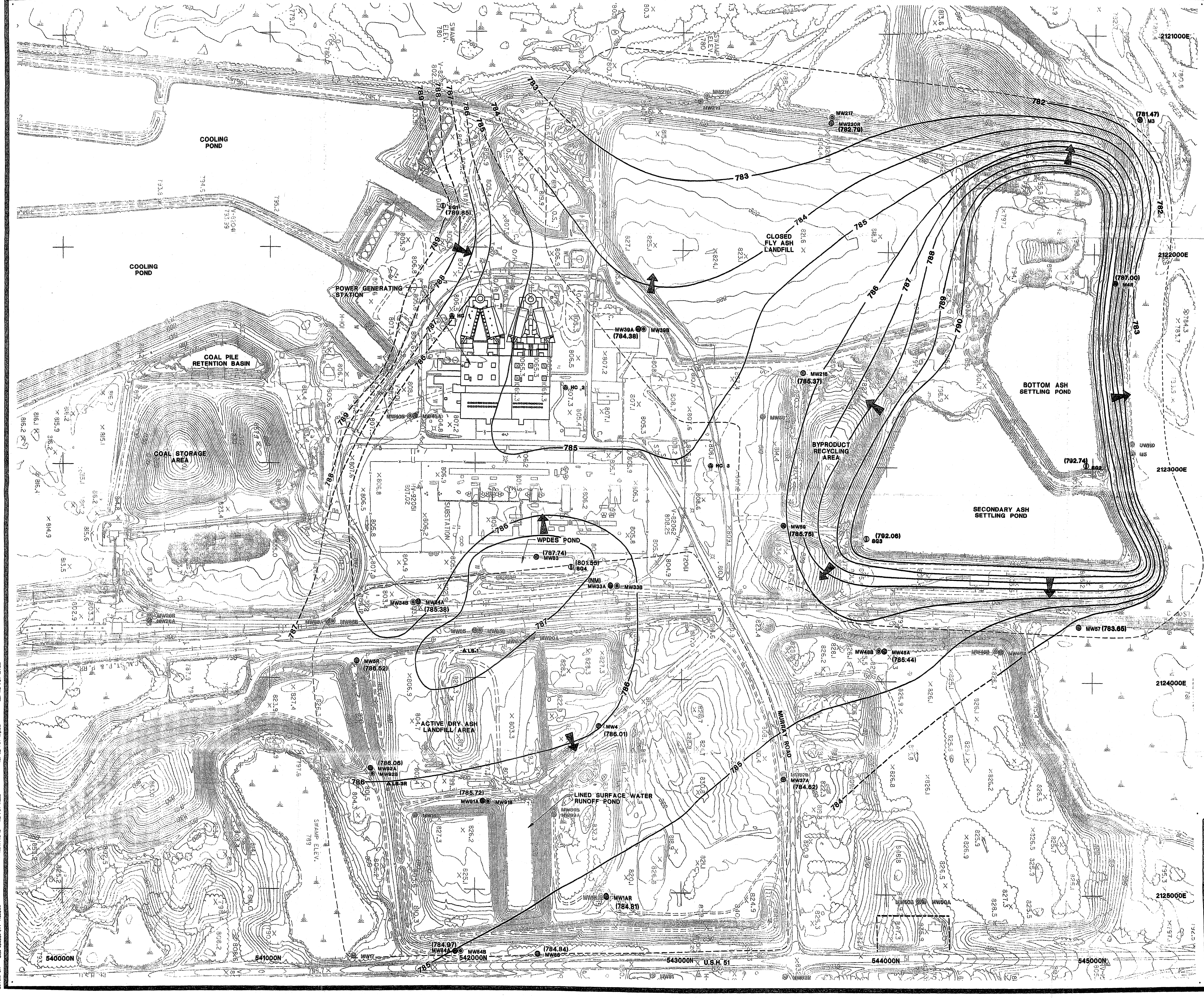
NO.	BY	DATE	REVISION	APP'D

WATER TABLE CONTOUR MAP 2/4/81

PLAN OF OPERATION – ASH DISPOSAL FACILITY
COLUMBIA SITE
WISCONSIN POWER & LIGHT COMPANY
PART OF SECTIONS 27 & 34, T12N, R9E
TOWN OF PACIFIC COLUMBIA CO. WISCONSIN

WARZYN ENGINEERING INC

DRAWN TDH	SCALE 1"=300'	SHEET 39 OF 39	
CHECKED RJK	DATE 2/10/81	DRAWING NO. C7134-94	
APPROVED			
REFERENCE		PRINTED 8/3/88	



LEGEND

- PROPERTY LINE
- EXISTING RAILROAD TRACKS
- EXISTING GROUND CONTOUR
- CONTOUR DEPRESSION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING SPOT ELEVATION
- TREES AND/OR BRUSH
- WETLAND AREA
- EDGE OF WATER
- HC 1 — WATER SUPPLY WELL
- MW91A — WATER TABLE WELL
- MW91B — PIEZOMETER
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- SG1 — STAFF GAUGE
- LS-1 — LYSIMETER
- DESIGN MANAGEMENT ZONE
- PROPERTY LINE
- O.S. — OPEN STORAGE
- O.H. — OVERHEAD STRUCTURE
- E.P.S. — ELECTRICAL POWER STATION
- T — TANK
- W — WALL
- (785.31) — WATER TABLE ELEVATION (FT-MSL) (N.M. = NOT MEASURED)
- 786 — GROUNDWATER CONTOUR LINE (1FT INTERVAL- FT. M.S.L.) (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

NOTES

1. BASE MAP IS PROVIDED BY WISCONSIN POWER & LIGHT CO. AND IS BASED ON PHOTOS TAKEN ON APRIL 6, 1995 BY AERO-METRIC ENGINEERING, SHEBOYGAN, WI.
2. HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE - DATUM: NAD 83(91).
3. VERTICAL DATUM IS REFERENCED TO U.S.G.S. MEAN SEA LEVEL (MSL). TOPOGRAPHIC CONTOUR INTERVAL IS TWO FEET.
4. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER & LIGHT CO. IN DECEMBER 1994 & NOVEMBER 1996.
5. THE LOCATION OF THE DESIGN MANAGEMENT ZONE DEMARCATION LINE IS APPROXIMATE.
6. WATER ELEVATION USED TO PREPARE THIS MAP WERE MEASURED ON OCTOBER 24, 2002.
7. THE WATER LEVEL AT MW 33A AND MW 33B COULD NOT BE MEASURED DURING OCTOBER 2002 DUE TO AN OBSTRUCTION IN THE WELL CASING.

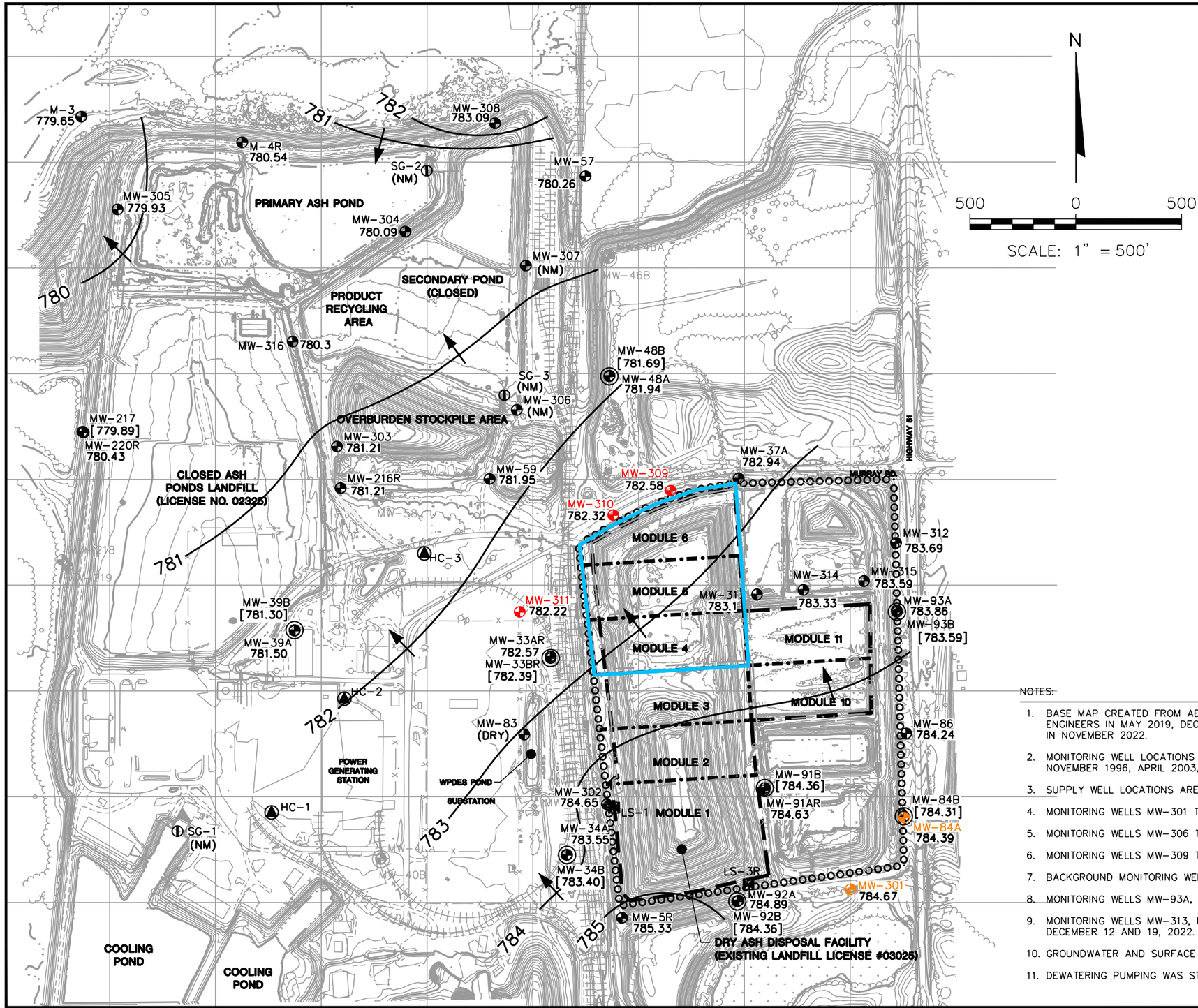
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT:
ALLIANT ENERGY - WP&L
COLUMBIA ASH PONDS & DRY ASH DISPOSAL FACILITY

SHEET TITLE:
WATER TABLE MAP (OCTOBER 2002)

DRAWN BY: defoej	SCALE: 1"=200'	PROJ. NO. 3024.28
CHECKED BY: JMR		FILE NO. WATERTBL.PLT
APPROVED BY: JCO	DATE PRINTED:	**FIGURE 3**
DATE: JANUARY 2003		

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608-831-4444



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EDGE OF WATER
- DRY ASH DISPOSAL FACILITY LIMITS
- LIMITS OF WASTE
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR UNIT
- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 787.62 — WATER TABLE ELEVATION
- [788.87] — POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- (NM) — NOT MEASURED
- WATER TABLE CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, AND GROUND SURVEYS BY SCS ENGINEERS IN MAY 2019, DECEMBER 2020, NOVEMBER 2021, AND DECEMBER 2021, AND BY DRONE SURVEY BY AMES IN NOVEMBER 2022.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. BACKGROUND MONITORING WELLS FOR THE MODULE 4-6 DRY ASH FACILITY ARE: MW-301 AND MW-84A.
8. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
9. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON DECEMBER 12 AND 19, 2022.
10. GROUNDWATER AND SURFACE WATER ELEVATIONS WERE MEASURED OCTOBER 2023.
11. DEWATERING PUMPING WAS STOPPED BY SEPTEMBER 11, 2023.

PROJECT NO.	25224067.00	DRAWN BY:	KP
DRAWN:	11/13/2023	CHECKED BY:	TK
REVISED:	04/24/2024	APPROVED BY:	TK 05/10/2024

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
MODULES 4-6 DRY ASH DISPOSAL FACILITY
PARDEEVILLE, WI

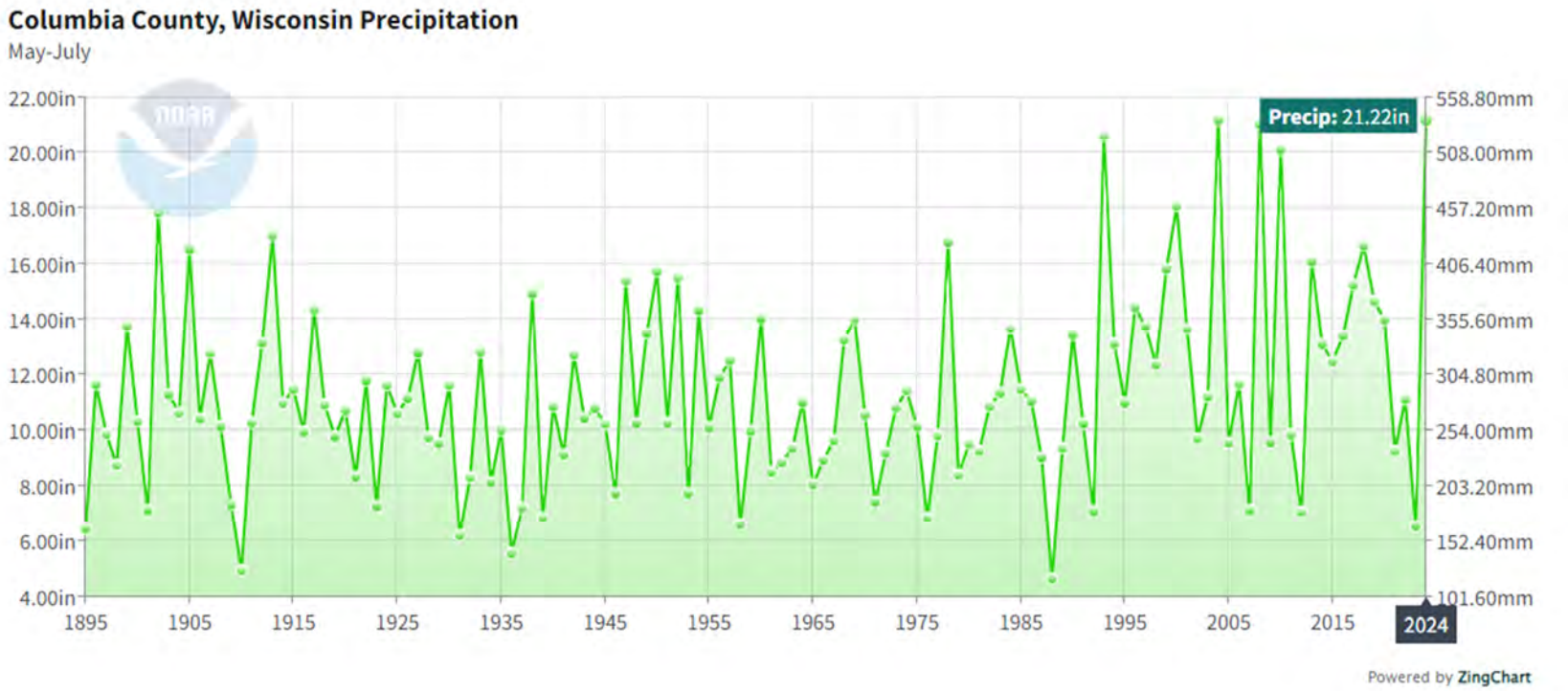
WATER TABLE MAP
OCTOBER 2023

FIGURE 3

I:\25224067.00\Drawings\Modules 4-6\Water Table Map-October 2023.dwg, 4/25/2024 7:24:56 AM

Attachment F

Columbia County Precipitation Graph



2024 3-month precipitation totals, Columbia County, Wisconsin. https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series/WI-021/pcp/3/7/1895-2024, accessed 1/16/2024.

C3 September 27, 2025 Demonstration of False Groundwater Exceedance, with Department Response

Blodgett, Meghan

From: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>
Sent: Tuesday, October 21, 2025 10:31 AM
To: Bizjack, Matthew
Cc: JeffreyMaxted@alliantenergy.com; Bommarito, Cheryl; Clepper, Brian; Manjooran, Priyanth; Karwoski, Thomas; Clark, Sherren; Radunzel, Ashley; Matzuk, Ryan; Burris, Natalie; Blodgett, Meghan
Subject: RE: WPL Columbia Ash Disposal Facility - Lic #3025 - Data Submittal and Demonstration of False Groundwater Exceedance

Categories: Filed by Newforma

Matt,

The department has reviewed the information provided in the September 26, 2025, submittal. Environmental monitoring data available in the department's GEMS database was also reviewed, as well as information provided in the August 29, 2025, plan of operation modification request pertaining to new CCR monitoring wells MW-317, MW-318, and MW-319.

The department acknowledges that there are and have been other sources on the property that could affect contaminant concentrations. Activities at some of the other historic anthropogenic sources have largely subsided or gone away. There may be some remaining residual impact from historic sources; however, over time those impacts are expected to also decrease in level. The department believes at this time, enough information has been provided to suggest a source other than the landfill is largely contributing to the elevated concentrations described in the September 26, 2025, submittal. It is expected that contaminant concentrations should begin to stabilize or decrease. At this time, the department has determined for detection monitoring to continue and for continued evaluation of concentration trends. If contaminant concentrations continue to go up, changes are observed in contaminant concentrations of other substances, or other relevant information becomes known, it may mean reassessing the potential for the landfill to be a contributing source.

Regards,
Tyler

Tyler Sullivan, P.G.
Phone: 608-516-3962
tyler.sullivan@wisconsin.gov

From: Blodgett, Meghan <mblodgett@scsengineers.com>
Sent: Friday, September 26, 2025 10:15 AM
To: Sullivan, Tyler J - DNR <tyler.sullivan@wisconsin.gov>

Cc: matthewbizjack@alliantenergy.com; JeffreyMaxted@alliantenergy.com; Bommarito, Cheryl <cherylbommarito@alliantenergy.com>; Clepper, Brian <BrianClepper@alliantenergy.com>; Manjooran, Priyanth <PriyanthManjooran@alliantenergy.com>; Karwoski, Thomas <TKarwoski@scsengineers.com>; Clark, Sherren <SClark@scsengineers.com>; Radunzel, Ashley <ARadunzel@scsengineers.com>; Matzuk, Ryan <RMatzuk@scsengineers.com>; Burris, Natalie <NBurris@scsengineers.com>
Subject: WPL Columbia Ash Disposal Facility - Lic #3025 - Data Submittal and Demonstration of False Groundwater Exceedance

Tyler,

On behalf of Wisconsin Power and Light Company (WPL) and Alliant Energy, SCS Engineers is providing the attached Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance for the WPL Columbia Ash Disposal Facility. The data being submitted in this letter are associated with a July 2025 resampling event.

A hard copy of the GEMS data submittal package (included as Attachment A in the attached document), including the data CD, is also being mailed to the GEMS Submittal contact today.

Please call Matt Bizjack, Alliant Energy at 608-458-3197 with any questions regarding this information.

Thank you,

Meghan Blodgett, PG*
Hydrogeologist
SCS Engineers
2830 Dairy Drive
Madison, WI 53718-6751 USA
608-216-7362 (O)
608-345-9221 (C)
mblodgett@scsengineers.com
*Licensed in Wisconsin

Driven by Client Success
www.scsengineers.com

Alliant Energy
4902 North Biltmore Lane
P.O. Box 77007
Madison, WI 53707-1007

1-800-ALLIANT (800-255-4268)
alliantenergy.com

September 26, 2025

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Subject: **July 2025 Resampling Event – Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance**
Wisconsin Power and Light Company – Columbia Ash Disposal Facility
Portage, Wisconsin
License #3025

Dear Mr. Sullivan:

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is providing the enclosed summary and data submittal for the groundwater sampling performed at the WPL Columbia Ash Disposal Facility during a July 2025 resampling event. The monitoring was performed by SCS Engineers (SCS) and the samples were analyzed by Pace Analytical Services, Inc. of Green Bay, Wisconsin. All samples were analyzed in accordance with the site-specific monitoring program approved by Wisconsin Department of Natural Resources (WDNR).

The July 2025 resampling event confirmed a subset of the results previously reported to the Department, and in response, WPL has prepared a Demonstration of False Groundwater Exceedance. WPL respectfully requests Department concurrence with this Demonstration in accordance with NR 508.06(1)(c).

Please call me at (608) 458-3197 with any questions regarding this information.

Sincerely,

Matt Bizjack
Senior Environmental Specialist
Alliant Energy Corporate Services, Inc.

Enclosures
Cc: Brian Clepper, Cheryl Bommarito – WPL Columbia Energy Center
Jeff Maxted – Alliant Energy Corporate Services, Inc.
Meghan Blodgett, Thomas Karwoski, Sherren Clark – SCS Engineers

September 26, 2025
File No. 25225067.00

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
Bureau of Waste Management
P.O. Box 7921
Madison, WI 53707-7921

Subject: July 2025 Resampling Event – Environmental Monitoring Data Submittal and Demonstration of False Groundwater Exceedance
Wisconsin Power and Light Company
Columbia Dry Ash Disposal Facility
Portage, Wisconsin
License No. 03025

Dear Mr. Sullivan:

This letter summarizes the monitoring results for a groundwater resampling event performed at the Columbia Dry Ash Disposal Facility (ADF) in July 2025. This resampling was performed in response to detection of groundwater constituents above applicable standards at some CCR monitoring wells during the April 2025 semiannual event.

The July 2025 resampling confirmed some of the exceedances observed in the April 2025 results. For these confirmed exceedances, this letter presents a demonstration of false groundwater exceedance in accordance with NR 508.06(1)(c).

Monitoring was performed in accordance with the site-specific monitoring program approved by the Wisconsin Department of Natural Resources (DNR) in the May 3, 2024 Conditional Plan of Operation Approval Modification, Initial Permitting of Coal Combustion Residuals (CCR) Landfill for the ADF. Where applicable, groundwater analytical results are compared to well-specific Preventive Action Limits (PALs) or Alternative Concentration Limits (ACLs) approved in the May 3, 2024, Approval.

The July 2025 monitoring results are being submitted to the DNR GEMS Data Submittal Contact in a separate letter dated September 26, 2025. A copy of the GEMS data submittal is provided in **Attachment A**.

The data submittal includes this letter and the following attachments:

- Groundwater Quality Standard Exceedances (**Table 1**).
- Site Location Map, Site Plan, and April 2025 Groundwater Flow Map (**Figures 1** through **3**).
- GEMS Data Submittal Package (**Attachment A**).
- Information supporting the demonstration of false groundwater exceedance (**Attachments B** through **E**).

1 MONITORING PROGRAM COMMENTS

In the June 27, 2025, data submittal letter for April 2025 semiannual sampling event results, Wisconsin Power and Light Company (WPL) indicated an intention to resample CCR monitoring wells MW-33AR, MW-310, MW-318, and MW-319 for select parameters detected at concentrations above applicable standards during the April 2025 monitoring event. These well locations are shown on Figure 2.

As described in the approved site Groundwater Sampling and Analysis Plan, WPL may retest potential groundwater exceedances during additional sampling events between the routine semiannual events. The resampling event at MW-33AR, MW-318, and MW-319 was performed on July 16 and 17, 2025, and MW-310 was resampled on July 30, 2025. The laboratory analytical reports were issued July 30, 2025, and August 4, 2025. SCS Engineers (SCS) performed the monitoring. Pace Analytical Services, Inc., of Green Bay, Wisconsin, provided laboratory analysis.

2 APRIL 2025 SAMPLING RESULTS

Groundwater quality results for the April 2025 monitoring event were compared to NR 140 PALs and enforcement standards (ESs), or to well-specific PALs and ACLs where applicable. Exceedances detected during the April 2025 monitoring event were previously summarized in the June 27, 2025, GEMS data submittal.

For the purpose of this submittal, chloride concentrations at MW-319 and sulfate concentrations at MW-310 and MW-318 are compared to NR 140 PALs and ESs. Well-specific ACLs for these parameters at these wells were proposed in the August 29, 2025 Plan Modification Request, which is currently under Department review.

Parameters that were detected at concentrations exceeding applicable standards during April 2025, and for which WPL indicated an intention to resample to confirm exceedances, are summarized in Table 1. July 2025 resample results are also included in Table 1.

A summary of resample results is provided below. For exceedances that were confirmed by the resampling, a demonstration of false exceedance is also provided below.

3 JULY 2025 RESAMPLE RESULTS

Chloride

Chloride was detected above NR 140 PAL (125 milligrams per liter [mg/L] at CCR monitoring well MW-319 during the April 2025 sampling event. The July 2025 resampling result (141 mg/L) confirmed this exceedance. A demonstration of false exceedance for this well and parameter is provided in Section 4.

A well-specific ACL for chloride (900 mg/L) was proposed in the August 29, 2025 Plan Modification Request, which is currently under Department review. As this proposed ACL has not been approved, the April and July 2025 chloride concentrations at MW-319 are compared to the NR 140 PAL and ES in this submittal.

Sulfate

Sulfate was detected above the well-specific ACL (200 mg/L) at CCR monitoring well MW-33AR during the April 2025 sampling event. The July 2025 resampling result (231 mg/L) confirmed the ACL exceedance. A demonstration of false exceedance for this well and parameter is provided in Section 4.

Sulfate was detected above the NR 140 PAL (125 mg/L) at CCR monitoring wells MW-310 and MW-318 during the April 2025 sampling event. The July 2025 resampling event did not confirm these exceedances.

Well-specific ACLs for sulfate at MW-310 and MW-318 were proposed in the August 29, 2025 Plan Modification Request, which is currently under Department review. As these proposed ACLs have not been approved, the April and July 2025 sulfate concentrations at MW-310 and MW-318 are compared to the NR 140 PAL and ES in this submittal.

Summary

Based on the April and July 2025 monitoring events, parameters and wells with confirmed exceedances are:

- Chloride: MW-319
- Sulfate: MW-33AR

4 DEMONSTRATION OF FALSE EXCEEDANCE REQUIREMENTS

NR 508.06 RESPONSES WHEN A GROUNDWATER STANDARD IS ATTAINED OR EXCEEDED AT A CCR WELL

If a PAL, ACL, or ES is attained or exceeded at a CCR well according to s. NR 140.14 and the value is confirmed, the owner or operator of the CCR landfill shall continue detection monitoring in accordance with s. NR 507.15 (3) (L) and shall respond in accordance with all of the following requirements.

WPL notified the Department of the detection of possible groundwater exceedances in site CCR wells in the April 2025 monitoring event with the GEMS data submittal transmitted to DNR on June 27, 2025. A resampling event in July 2025 confirmed some of those exceedances as described above. This submittal includes a False Exceedance Demonstration for those confirmed exceedances.

NR 508.06(1)(C) DEMONSTRATION OF FALSE EXCEEDANCE SUBMITTAL REQUIREMENTS

The owner or operator may demonstrate that a reported value represents a false exceedance of a groundwater standard in accordance with s. NR 507.28(3) and shall submit the demonstration within 60 days of the groundwater standard attainment or exceedance. If the department does not concur with the written demonstration within 30 days after receipt of the demonstration, the owner or operator shall begin assessment monitoring in accordance with sub. (2). If the department concurs within 30 days after receipt of the demonstration, the owner or operator is not required to

begin assessment monitoring. The owner or operator shall include the demonstration in the annual groundwater monitoring and corrective action report.

This submittal serves as a demonstration of false exceedance in accordance with NR 507.28(3). A copy of this demonstration will be included in the annual groundwater monitoring and corrective action report for monitoring performed in 2025.

The first July 2025 resampling event laboratory analytical report was issued on July 30, 2025. Sixty days after this date is September 28, 2025, which is a Sunday. In accordance with Wisconsin Statute 900.001(4) and NR 506.17(4)(a), WPL therefore understands that the deadline for submittal of this demonstration is September 29, 2025.

NR 507.28(3) DEMONSTRATION OF FALSE GROUNDWATER EXCEEDANCE

The owner or operator may demonstrate, by resampling or other means, that a source other than the solid waste disposal facility caused the contamination or that the sample result attaining or exceeding a groundwater standard is due to an error. The owner or operator shall notify the department of the intent to either begin assessment monitoring or determine that a false exceedance has occurred. The owner or operator shall submit the statement of intent with the notification required in s. NR 507.30 (1). The owner or operator shall submit the written demonstration of false exceedance with the results of the next routine monitoring.

This demonstration presents evidence that a source other than the Columbia ADF caused the standards exceedances discussed in this report. In the June 27, 2025 GEMS data submittal for the ADF, WPL indicated an intent to submit a demonstration of false groundwater standards exceedance should resampling confirm an exceedance. While NR 507.28(3) requires submittal of the demonstration with the results of the next routine monitoring, WPL understands that in the case of exceedances at CCR monitoring wells the submittal timeline in NR 508.06(1)(c) applies.

5 DEMONSTRATION OF FALSE EXCEEDANCE

OVERVIEW OF DEMONSTRATION

This Demonstration includes:

- Trend Analysis.
- Evaluation of potential that exceedances are due to natural variation or man-made sources other than the ADF.
- Demonstration conclusions.

TREND ANALYSIS

The results of Mann-Kendall trend analysis performed using Sanitas™ software are included in Attachment B.

MW-33AR

For sulfate at MW-33AR, the trend analysis was performed on data collected since detection monitoring was initiated under the Federal CCR Rule. This predates the August 2022 publication of monitoring requirements for CCR monitoring wells under NR 507.

The Mann-Kendall trend analysis (**Attachment B**) did not identify significant increasing trends at MW-33AR for CCR Rule detection monitoring parameters, and in fact identified a decreasing trend for boron at MW-33AR. Boron is generally considered to be a conservative tracer in groundwater and a CCR indicator parameter.

MW-319

MW-319 was installed in 2024, and baseline and detection monitoring at this well has been performed concurrently under both the Federal CCR Rule and NR 507.18. Both baseline and detection monitoring data are included in the trend analysis for MW-319 because not enough detection monitoring events have been performed to complete trend analysis using only detection monitoring results.

This Mann-Kendall trend analysis did not identify significant increasing trends at MW-319 for CCR Rule detection monitoring parameters. In fact, the analysis identified a statistically significant decreasing trend for chloride at MW-319.

ALTERNATIVE SOURCES

This section discusses the potential alternative sources for the confirmed exceedances at downgradient wells MW-319 and MW-33AR; identifies the most likely alternative source(s); and presents the lines of evidence indicating that an alternative source is the most likely cause of the observed exceedances.

Natural Variation

The groundwater standards to which MW-319 and MW-33AR are compared in this submittal are based on either values listed in NR 140 (chloride at MW-319) or a well-specific ACL based on baseline sampling (sulfate at MW-33AR). If concentrations of a constituent that is naturally present in the aquifer vary with time, then the potential exists that the compliance sampling concentrations may be higher than baseline concentrations due to natural temporal variation.

Temporal variation can occur seasonally or due to longer-term events such as changes in infiltration patterns and groundwater flow directions caused by wet or dry years.

Based on comparison to upgradient wells, it appears likely that April and July 2025 chloride concentrations at MW-319 and sulfate concentrations at MW-33AR reflect man-made sources. Regardless of the source, natural temporal variations in infiltration and groundwater flow direction may have contributed to the confirmed groundwater standard exceedance for sulfate at MW-33AR.

Man-Made Alternative Sources: Sulfate

The following lines of evidence indicate that the standard exceedance for sulfate in MW-33AR is due to one or more alternative sources:

- Elevated levels of sulfate were present in the area west of the landfill, where MW-33AR is located, before the landfill was constructed.
- Monitoring performed under the non-CCR monitoring program documents that the concentrations of sulfate were elevated in the area around MW-33AR before CCR disposal in the landfill began and have decreased since the landfill has been in operation.
- Groundwater flow directions have changed through time due to historical changes in water management at the plant, so that groundwater impacted by the effluent ditch formerly flowed to the east, under the landfill, and is now flowing west and/or north.

These lines of evidence and the supporting data are discussed in more detail in the following sections.

Pre-Landfill Water Quality

Elevated levels of sulfate were present in the area west of the landfill, where MW-33AR is located, before the landfill was constructed. Groundwater monitoring performed in 1977 and 1978 as part of the Feasibility Study for the landfill permitting showed that wells located along the west side of the future landfill footprint, where MW-33AR is located, had elevated results for sulfate.

The 1978 Feasibility Study (Warzyn, 1978) for the Dry ADF discusses the influence of the ash pond effluent ditch on groundwater west of the proposed site. The former ash pond effluent ditch carried effluent from the ash ponds located north of the plant, and flowed south between the west side of the current landfill and the substation. Groundwater monitoring in December 1977 indicated that sulfate was present at 1,200 mg/L in MW-33A, which was located near the point where the ash pond effluent discharged from a culvert into the effluent ditch. The sulfate concentration at this well decreased to 830 mg/L in the December 1978 sampling (Warzyn, 1979). Current concentrations of sulfate in this area, while above those detected at background wells, are much lower than these historical results at MW-33A.

Selected text and tables from the 1978 Feasibility Study and the 1979 Supplementary Feasibility Study Report are included in Attachment C.

Long-Term Monitoring Data Comparison

Monitoring performed under the non-CCR monitoring program documents that concentrations of sulfate on the west side of the landfill, in the vicinity of MW-33AR, were elevated before CCR disposal in the landfill began.

Routine groundwater monitoring for the COL ADF began after the Plan of Operation was approved and prior to initial CCR disposal. The earliest data available from the DNR Groundwater Environmental Monitoring System (GEMS) database are from September 1984. Initial placement of

CCR in test plots in Module 1 of the ADF was approved in October 1984, and CCR disposal began sometime after that. Therefore, the initial groundwater monitoring results in the GEMS database represent pre-disposal conditions for the landfill.

The earliest sulfate data available in GEMS for MW-33A, which MW-33AR replaced, are from 1994, therefore earlier results from monitoring wells MW-34A and MW-302, which are located to the west of the ADF, are included with this letter for additional historical context. Graphs of historical sulfate concentrations at MW-33A/MW-33AR, MW-34A, and MW-85/MW-302 are provided in **Attachment D**. Historical concentrations at MW34A and MW-85/MW-302 are included here for reference because they are Available data from the 1978 Feasibility Study, discussed above, are also included on the graphs for comparison. Historical data for MW-85 are shown on the MW-302 graph because this well was close to the current location of MW-302.

Groundwater Flow Direction Changes

Groundwater flow directions have changed through time due to changes in water management at the plant, so that groundwater impacted by the effluent ditch formerly flowed to the east, under the landfill, and is now flowing north and/or west. The 1978 Feasibility Study report states that the southern 2/3 of the proposed fill area (including the area of the active CCR landfill phases) exhibits a southeast and southerly groundwater flow direction, toward an agricultural drainage ditch southeast and south of the landfill area. The 1981 Plan of Operation indicates that flow in the landfill area is to the east-southeast. A water table map prepared by RMT, based on October 2002 water level measurements, shows flow under the landfill generally to the east and northeast from a groundwater high near the effluent ditch and the Wisconsin Pollutant Discharge Elimination System (WPDES) pond between the landfill and the substation. The 1981 and 2002 water table maps are provided in **Attachment E**.

Under typical conditions in recent years, groundwater flow below the active landfill area is generally to the north and northwest. The flow changes with time reflect the termination of discharge to the ash pond effluent ditch in the mid-2000s. When discharge via this ditch was active, the ditch was a source of recharge to the groundwater and created a high groundwater area with flow moving away from the ditch to the east. After discharge to the ditch was terminated, water levels in this area decreased significantly and the groundwater flow direction changed.

With the changes in groundwater flow described above, historically impacted groundwater moved in alternating directions during and after discharge to the effluent ditch. While the effluent ditch was active, impacted groundwater likely moved eastward in the area of MW-33AR, as indicated by the long-term concentration data. Although MW-33AR is downgradient from the ADF under flow conditions typically observed since flow to the effluent ditch ceased, the observed sulfate concentrations may be residual from the past when the well was influenced by the effluent ditch.

Man-Made Alternative Sources: Chloride

Road salt use appears to be the most likely cause of the chloride standards exceedance at MW-319.

Monitoring well MW-319 is located near the intersection of Murray Road and Highway 51. At this location, there is a high potential for road salt application to result in increased chloride concentrations in groundwater.

Chloride concentrations at MW-319 during the baseline sampling period ranged from 173 mg/L to 802 mg/L. These data were collected over a relatively short period of less than 1 year ending in March 2025 and, therefore, long-term patterns of seasonal variability cannot be fully evaluated based on this data set. Although seasonal patterns were not determined, this fairly large range of concentrations supports the attribution of chloride concentrations at this well to an intermittent source such as road salt application.

Variable and elevated chloride concentrations have been observed at non-CCR monitoring wells MW-37A and MW-86 and at CCR monitoring wells MW-309 and MW-310, which are located near either Murray Road or Highway 51. The earliest data available from the DNR GEMS database is from September 1984. Initial placement of CCR in test plots in Module 1 of the ADF was approved in October 1984, and CCR disposal began sometime after that. Therefore, the initial groundwater monitoring results in the GEMS database represent pre-disposal conditions for the landfill. Comparisons of recent and historical chloride concentrations at non-CCR monitoring wells MW-37A and MW-86 are summarized below:

- MW-37A, located alongside Murray Road: Chloride concentrations from 2015 to present (2 to 279 mg/L) are similar to those detected in 1984 to 1986 (8 to 319 mg/L).

- MW-86, located on the west side of Highway 51: Chloride concentrations from 2015 to present (176 mg/L to 484 mg/L) are similar to those detected in 1984 to 1986 (100 mg/L to 577 mg/L).

Prior submittals, including the February 21, 2024 Addendum No. 5 to Plan of Operation Modification Request; the January 21, 2025 False Exceedance Demonstration, which included a confirmed chloride ACL exceedance at MW-310; and Alternative Source Demonstrations (ASDs) prepared to satisfy requirements of the Federal CCR Rule, have attributed elevated chloride concentrations at roadside monitoring wells to road salt application.

ACLs greater than the April and/or July 2025 chloride concentrations at MW-319 have been approved for monitoring wells MW-37A, MW-86, MW-309, and MW-310. The April and July 2025 results at MW-319 are compared to the NR 140 PAL and ES (125 and 250 mg/L, respectively) for the purpose of this submittal. However, both the April and July 2025 concentrations are below the ACL proposed for MW-319 in the August 29, 2025 Plan Modification Request, based on baseline data collected at this well.

6 CONCLUSIONS

The lines of evidence discussed above regarding standards exceedances confirmed in July 2025 for sulfate at MW-33AR and chloride at MW-319 demonstrate that the exceedances were caused by sources other than the Columbia ADF. In accordance with NR 508.06(1)(c), if the Department concurs with this demonstration within 30 days of receipt the owner or operator is not required to begin assessment monitoring.

Sincerely,

Meghan Blodgett, PG
Project Manager
SCS Engineers

Sherren Clark, PG, PE
Project Director
SCS Engineers

MDB/AJR/TK/SCC

cc: Tyler Sullivan, Wisconsin Department of Natural Resources (e-copy only)
Matt Bizjack, Alliant Energy (e-copy only)
Jeff Maxted, Alliant Energy (e-copy only)
Brian Clepper, WPL-Columbia (e-copy only)

Encl. Table 1 – Groundwater Standards Exceedance Summary
Figure 1 – Site Location Map
Figure 2 – Site Plan and Monitoring Well Locations
Attachment A – GEMS Data Submittal Package
Attachment B – Trend Analysis
Attachment C – Feasibility Study Water Quality Information
Attachment D – Time Series Plots
Attachment E – Historical Groundwater Flow Maps

Table 1

Groundwater Standards Exceedance Summary

Table 1. Monitoring Results - July 2025 Resample Results and Exceedance Confirmation
WPL-Columbia Dry Ash Disposal Facility / SCS Engineers Project #25225067.00
License #03025

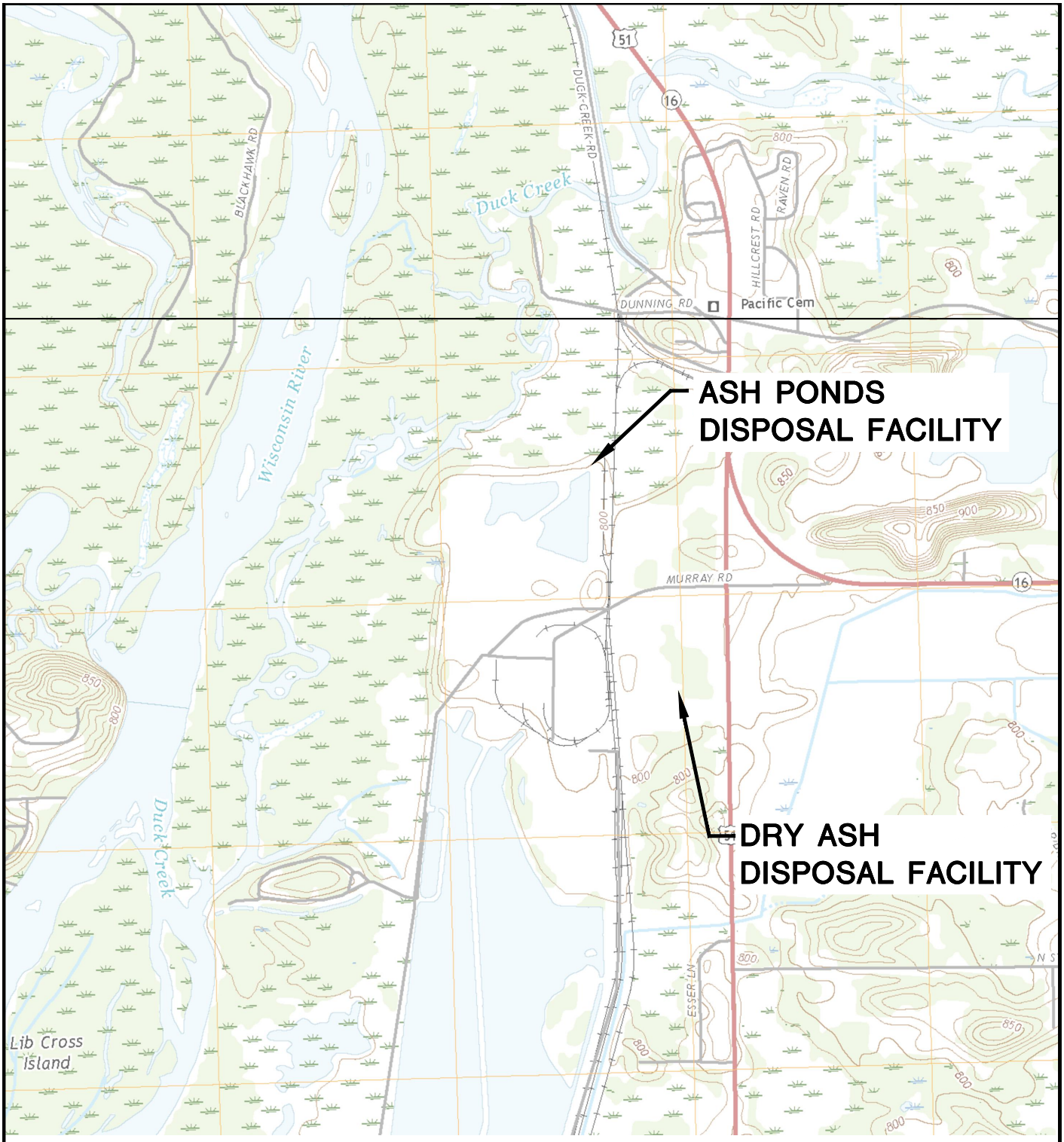
Parameter	Units	Sample ID	Groundwater Standard for Comparison	Standard Type	Collected Date	Result	Resample Confirmed Exceedance?
Chloride, Total	mg/L	MW-319	125 / 250	NR 140 PAL / ES	4/26/2025*	242	Yes
					7/17/2025	141	
Sulfate, Total	mg/L	MW-33AR	200	ACL	4/21/2025*	236	Yes
					7/16/2025	231	
		MW-310	125 / 250	NR 140 PAL / ES	4/21/2025*	170	No
					7/30/2025	67.4	
		MW-318	125 / 250	NR 140 PAL / ES	4/26/2025*	156	No
					7/16/2025	122	

Abbreviations:
mg/L = milligrams per liter
TBD = To be determined
ACL = Alternative Concentration Limit
PAL = Preventive Action Limit
ES = Enforcement Standard

Notes:
*: April 2025 sample results included for reference. These results were previously submitted in the June 27, 2025 GEMS data submittal.

Created By: MDB Date: 8/6/2025
Last Modified: MDB Date: 8/6/2025
Checked By: AJR Date: 8/29/2025

Figures

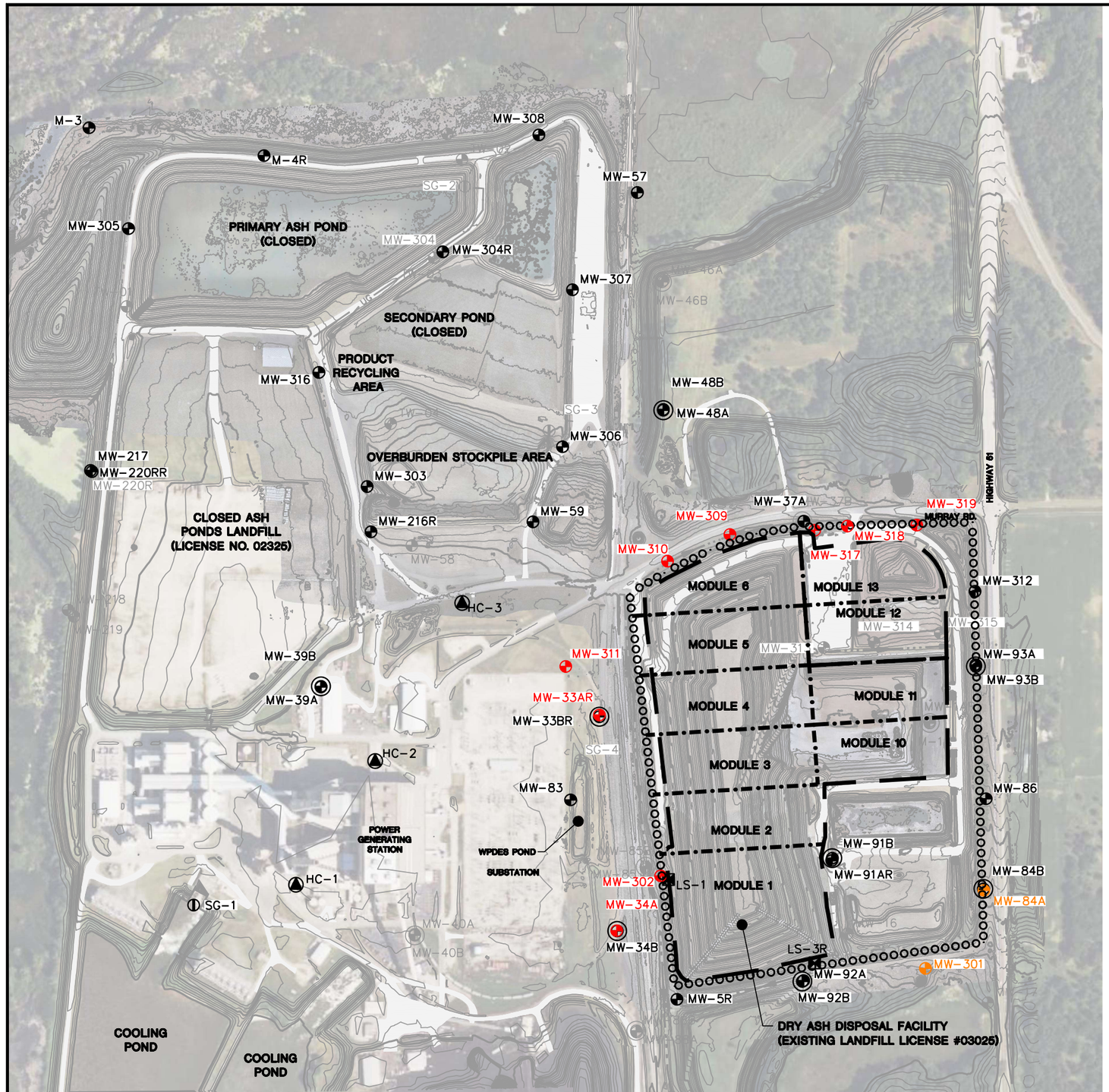


N

POYNETTE QUADRANGLE
WISCONSIN–COLUMBIA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
2018
SCALE: 1" = 2,000'

CLIENT: ALLIANT ENERGY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE: ALLIANT ENERGY COLUMBIA ENERGY CENTER PARDEEVILLE, WI	SITE LOCATION MAP	
PROJECT NO. 25219067.00	DRAWN BY: BSS	ENGINEER: SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE 1
DRAWN: 12/02/2019	CHECKED BY: MDB		
REVISED: 01/10/2020	APPROVED BY: TK 01/30/2020		

I:\25219067.00\Drawings\CCR 2019 Annual Report\Site Location Map.dwg, 1/30/2020 3:38:21 PM



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EDGE OF WATER
- DRY ASH DISPOSAL FACILITY LIMITS
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- PIEZOMETER
- LYSIMETER
- ABANDONED STAFF GAUGE
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- NON-CCR MONITORING WELL
- CCR MONITORING WELL
- UPGRADIENT CCR MONITORING WELL

N

500 0 500

SCALE: 1" = 500'

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, PERIODIC SURVEYS BY SCS ENGINEERS AND CEDAR CREEK SURVEYING, LLC, AND DECEMBER 2023 DRONE SURVEY BY AMES.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
8. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE ABANDONED BY HORIZON CONSTRUCTION & EXPLORATION ON MAY 22-23, 2024.
9. MONITORING WELL MW-316 WAS INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 27, 2023.
10. MONITORING WELLS MW-317, MW-318 AND MW-319 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON APRIL 9 THROUGH 11, 2024.
11. BACKGROUND MONITORING WELLS FOR THE CCR NETWORK ARE: MW-301 AND MW-84A.

PROJECT NO.	25224067.00	DRAWN BY:	SB
DRAWN:	01/13/2025	CHECKED BY:	RM
REVISED:	01/13/2025	APPROVED BY:	TK 1/21/2025

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WI

SITE PLAN AND MONITORING WELL LOCATIONS
COLUMBIA DRY ASH DISPOSAL FACILITY

FIGURE 2

I:\25224067.00\Drawings\2024 State Figures\02_2024 COL State Figure.dwg, 1/13/2025 11:31:19 AM

Attachment A

GEMS Data Submittal Package

Alliant Energy
4902 North Biltmore Lane
P.O. Box 77007
Madison, WI 53707-1007

1-800-ALLIANT (800-255-4268)
alliantenergy.com

September 26, 2025

Mr. Tyler Sullivan
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711-5367

Subject: **July 2025 Semiannual Environmental Monitoring Data Submittal**
Wisconsin Power and Light Company – Columbia Ash Disposal Facility
Portage, Wisconsin
License #3025

Dear Mr. Sullivan:

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is providing the enclosed summary and data submittal for the groundwater sampling performed at the WPL Columbia Ash Disposal Facility during July 2025. The monitoring was performed by SCS Engineers (SCS) and the samples were analyzed by Pace Analytical Services, Inc. of Green Bay, Wisconsin. All samples were analyzed in accordance with the site-specific monitoring program approved by Wisconsin Department of Natural Resources (WDNR).

Please call me at (608) 458-3197 with any questions regarding this information.

Sincerely,

Matt Bizjack
Senior Environmental Specialist
Alliant Energy Corporate Services, Inc.

Enclosures

Cc: Brian Clepper, Cheryl Bommarito – WPL Columbia Energy Center
Jeff Maxted – Alliant Energy Corporate Services, Inc.
Meghan Blodgett, Thomas Karwoski, Sherren Clark – SCS Engineers

September 26, 2025
File No. 25224067.00

GEMS Data Submittal Contact – WA/5
Wisconsin Department of Natural Resources
Bureau of Waste Management
P.O. Box 7921
Madison, WI 53707-7921

Subject: July 2025 Resampling Event – Environmental Monitoring Data Submittal
Wisconsin Power and Light Company
Columbia Dry Ash Disposal Facility
Portage, Wisconsin
License No. 03025

Dear GEMS Data Submittal Contact:

This letter summarizes the monitoring results for a groundwater resampling event performed at the Columbia Dry Ash Disposal Facility (ADF) in July 2025. This resampling was performed in response to detection of groundwater constituents above applicable standards at coal combustion residual (CCR) monitoring wells MW-33AR and MW-319 during the April 2025 semiannual event. The July 2025 resampling confirmed the exceedances observed in the April 2025 results for sulfate at monitoring well MW-33AR and chloride at monitoring well MW-319.

The data submittal includes this letter and the following attachments:

- Groundwater Standards Exceedance Summary (**Table 1**).
- Environmental Monitoring Data Certification Form.
- Compact disc (CD) containing the results in Wisconsin Department of Natural Resources (DNR) electronic data submittal format.

APRIL 2025 SAMPLING RESULTS

Groundwater quality results for the April 2025 monitoring event were compared to NR 140 preventive action limits (PALs) and enforcement standards (ESs), or to well-specific PALs and ACLs where applicable. Exceedances detected during the April 2025 monitoring event were previously summarized in the June 27, 2025 GEMS data submittal. This submittal included a description of the intent to resample at CCR monitoring wells with individual results above applicable standards in order to confirm exceedances.

A summary of parameters which were detected at MW-33AR and MW-319 at concentrations exceeding applicable standards during April 2025, and for which WPL indicated an intention to resample to confirm exceedances, is included in **Table 1**. July 2025 resample results for MW-33AR and MW-319 are also included in **Table 1**. A summary of these resample results is provided below.

JULY 2025 RESAMPLE RESULTS

Chloride

Chloride was detected above the NR 140 PAL (125 mg/L) at CCR monitoring well MW-319 during the April 2025 sampling event. The January 2025 resampling result (141 mg/L) confirmed this exceedance.

Sulfate

Sulfate was detected above the well-specific ACL (200 mg/L) at CCR monitoring well MW-33AR during the October 2024 sampling event. The January 2025 resampling result (231 mg/L) confirmed the ACL exceedance.

Summary

Based on the April and July 2025 monitoring events, exceedances of applicable standards for chloride at MW-319 and sulfate at MW-33AR were confirmed. Based on a review of the current and historical data, the standard exceedances do not appear to be attributable to a release from the ADF. A Demonstration of False Groundwater Exceedance, demonstrating that these exceedances are attributable to sources other than the ADF, is being submitted to the DNR concurrently with this data submittal on September 29, 2025.

Please contact Matt Bizjack, Alliant Energy, at 608-458-3197 with any questions regarding the data from the January 2025 resampling event at the Columbia Dry Ash Disposal Facility.

Sincerely,

Meghan Blodgett, PG
Project Hydrogeologist
SCS Engineers

Thomas Karwoski, PG
Project Manager
SCS Engineers

MDB/AJR/TK

cc: Tyler Sullivan, Wisconsin Department of Natural Resources (e-copy only)
Matt Bizjack, Alliant Energy (e-copy only)
Jeff Maxted, Alliant Energy (e-copy only)
Brian Clepper, WPL-Columbia (e-copy only)
Cheryl Bommarito, WPL-Columbia (e-copy only)

Encl. Table 1 – Groundwater Standards Exceedance Summary
Environmental Monitoring Data Certification Form
Compact disc (CD) containing the results in Wisconsin DNR electronic data submittal format – (GEMS Data Submittal Contact copy only)

Table 1. Monitoring Results - July 2025 Resample Results and Exceedance Confirmation
WPL-Columbia Dry Ash Disposal Facility / SCS Engineers Project #25225067.00
License #03025

Parameter	Units	Sample ID	Groundwater Standard for Comparison	Standard Type	Collected Date	Result	Resample Confirmed Exceedance?
Chloride, Total	mg/L	MW-319	125 / 250	NR 140 PAL / ES	4/26/2025*	242	Yes
					7/17/2025	141	
Sulfate, Total	mg/L	MW-33AR	200	ACL	4/21/2025*	236	Yes
					7/16/2025	231	
		MW-310	125 / 250	NR 140 PAL / ES	4/21/2025*	170	No
					7/30/2025	67.4	
		MW-318	125 / 250	NR 140 PAL / ES	4/26/2025*	156	No
					7/16/2025	122	

Abbreviations:
mg/L = milligrams per liter
TBD = To be determined
ACL = Alternative Concentration Limit
PAL = Preventive Action Limit
ES = Enforcement Standard

Notes:
*: April 2025 sample results included for reference. These results were previously submitted in the June 27, 2025 GEMS data submittal.

Created By: MDB Date: 8/6/2025
Last Modified: MDB Date: 8/6/2025
Checked By: AJR Date: 8/29/2025

Save... Print... Clear Data

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Environmental Monitoring Data Certification

Form 4400-231 (R 5/17)

Notice: Personally identifiable information collected will be used for program administration and enforcement purposes. The Department may also provide this information to requesters as required under Wisconsin's Open Records law, ss. 19.31 to 19.39, Wis. Stats.
When submitting monitoring data, the owner or operator of the facility, practice or activity is required to notify the Department in writing that a groundwater standard or an explosive gas level has been attained or exceeded, as specified in ss. NR 140.24(1)(a); NR 140.26(1)(a); NR 507.30NR 635.14(9)(a); NR 635.18(20) and NR 507.30, Wis. Adm. Code. Failure to report may result in fines, forfeitures or other penalties resulting from enforcement under ss. 289.97, 291.97 or 299.95, Wis. Stats

Instructions:

- **Prepare one form for each license or monitoring ID.**
- **Please type or print legibly.**
- Attach a notification of any values that attain or exceed groundwater standards (that is, preventive action limits, enforcement standards or alternative concentration limits). The notification must include a preliminary analysis of the cause and significance of each value.
- Attach a notification of any gas values that attain or exceed explosive gas levels.
- Send the original signed form, any notification, and Electronic Data Deliverable [EDD] to: GEMS Data Submittal Contact - WA/5, Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707-7921

Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner)
SCS Engineers

Contact for questions about data formatting. Include data preparer's name, telephone number and Email address:

Name	Phone No. (include area code)
Meghan Blodgett	(608\) 216-7362

Email
mblodgett@scsengineers.com

Facility Name
WPL Columbia Dry Ash

License # / Monitoring ID	Facility ID (FID)
03025	111049180

Actual sampling dates (e.g., July 2-6, 2003)	The enclosed results are for sampling required in the month(s) of: (e.g., June 2003)
July 16-17 and 30, 2025	July 2025

Type of Data Submitted (Check all that apply):

- [x] Groundwater monitoring data from monitoring wells
- [ ] Groundwater monitoring data from private water supply wells
- [ ] Leachate monitoring data
- [ ] Gas monitoring data
- [ ] Air monitoring data
- [ ] Other (specify):

Notification attached?

- [ ] No. No groundwater standards or explosive gas limits were exceeded.
- [x] Yes, a notification of values exceeding a groundwater standard is attached. It includes a list of monitoring points, dates, sample values, groundwater standard and preliminary analysis of the cause and significance of any concentration.
- [ ] Yes, a notification of values exceeding an explosive gas limit is attached. It includes the monitoring points, dates, sample values and explosive gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards.

Facility Representative Name (Print)	Title	Phone No. (include area code)
Meghan Blodgett	Hydrogeologist	(608) 216-7362

Signature _____ 8/27/2025
Date Signed (mm/dd/yyyy)

For DNR Use Only

Check action taken, and record date and your initials. Describe on back side if necessary.

- [ ] Found uploading problems on _____ Initials
- [ ] Notified contact of problems on _____ Uploaded data successfully on _____

EDD format(s): [ ] Diskette [ ] CD (initial submittal and follow-up) [ ] E-mail (follow-up only) [ ] Other: _____

Attachment B

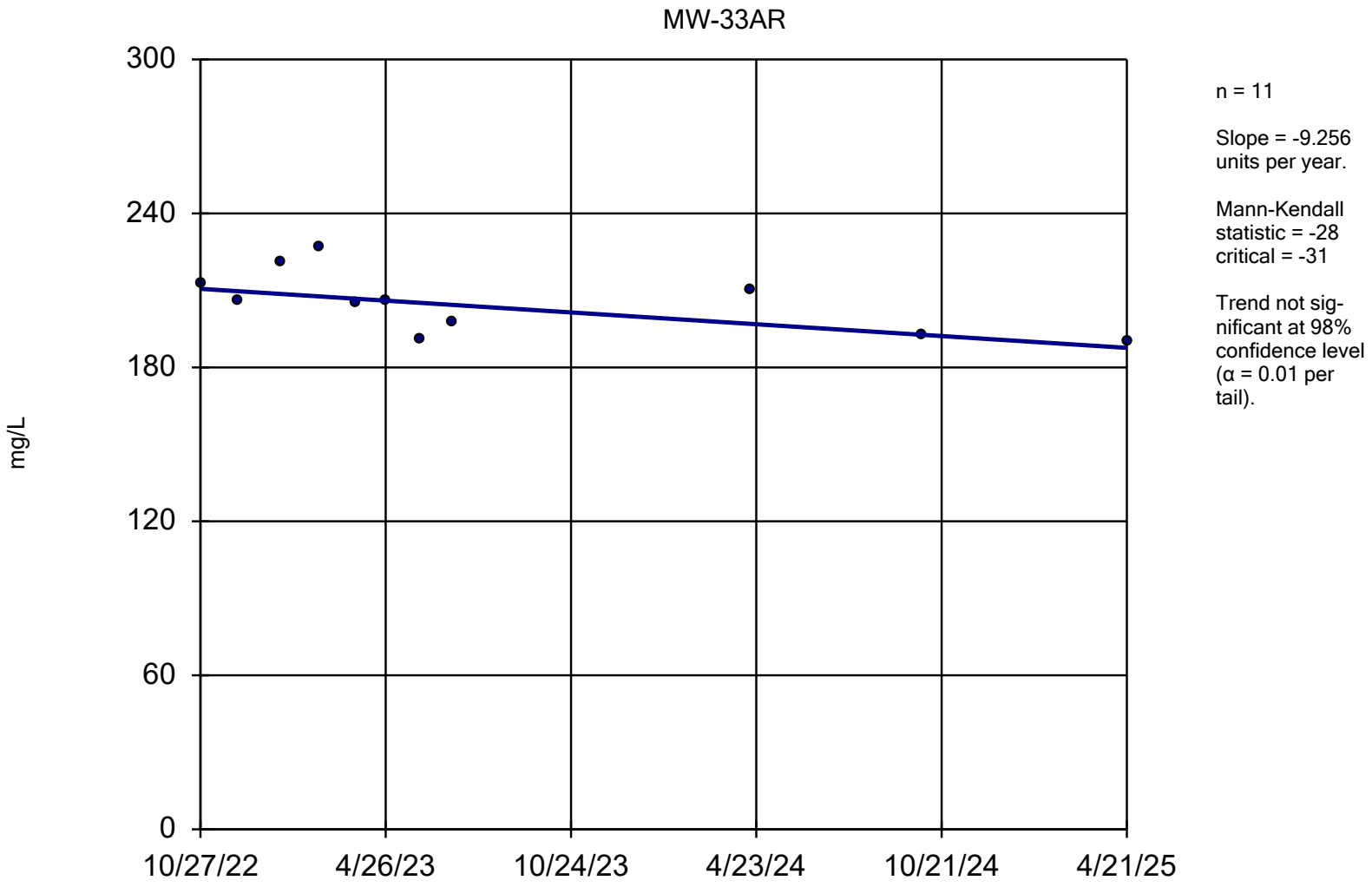
Trend Analysis

Trend Test

Columbia Energy Center Client: SCS Engineers Data: Columbia Printed 8/8/2025, 11:54 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Alkalinity, Total as CaCO3 (mg/L)	MW-33AR	-9.256	-28	-31	No	11	0	n/a	n/a	0.02	NP
Boron (ug/L)	**MW-33AR**	**-21.74**	**-88**	**-58**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (ug/L)	MW-33AR	-2966	-18	-53	No	16	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MW-33AR	-2.645	-22	-58	No	17	0	n/a	n/a	0.02	NP
Field pH (Std. Units)	MW-33AR	-0.03361	-58	-68	No	19	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	MW-33AR	0	-35	-53	No	16	100	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-33AR	8.476	40	68	No	19	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-33AR	-5.522	-8	-58	No	17	0	n/a	n/a	0.02	NP
Total Hardness by 2340B (mg/L)	MW-33AR	37.53	14	35	No	12	0	n/a	n/a	0.02	NP

Sen's Slope Estimator



Constituent: Alkalinity, Total as CaCO3 Analysis Run 8/8/2025 11:52 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

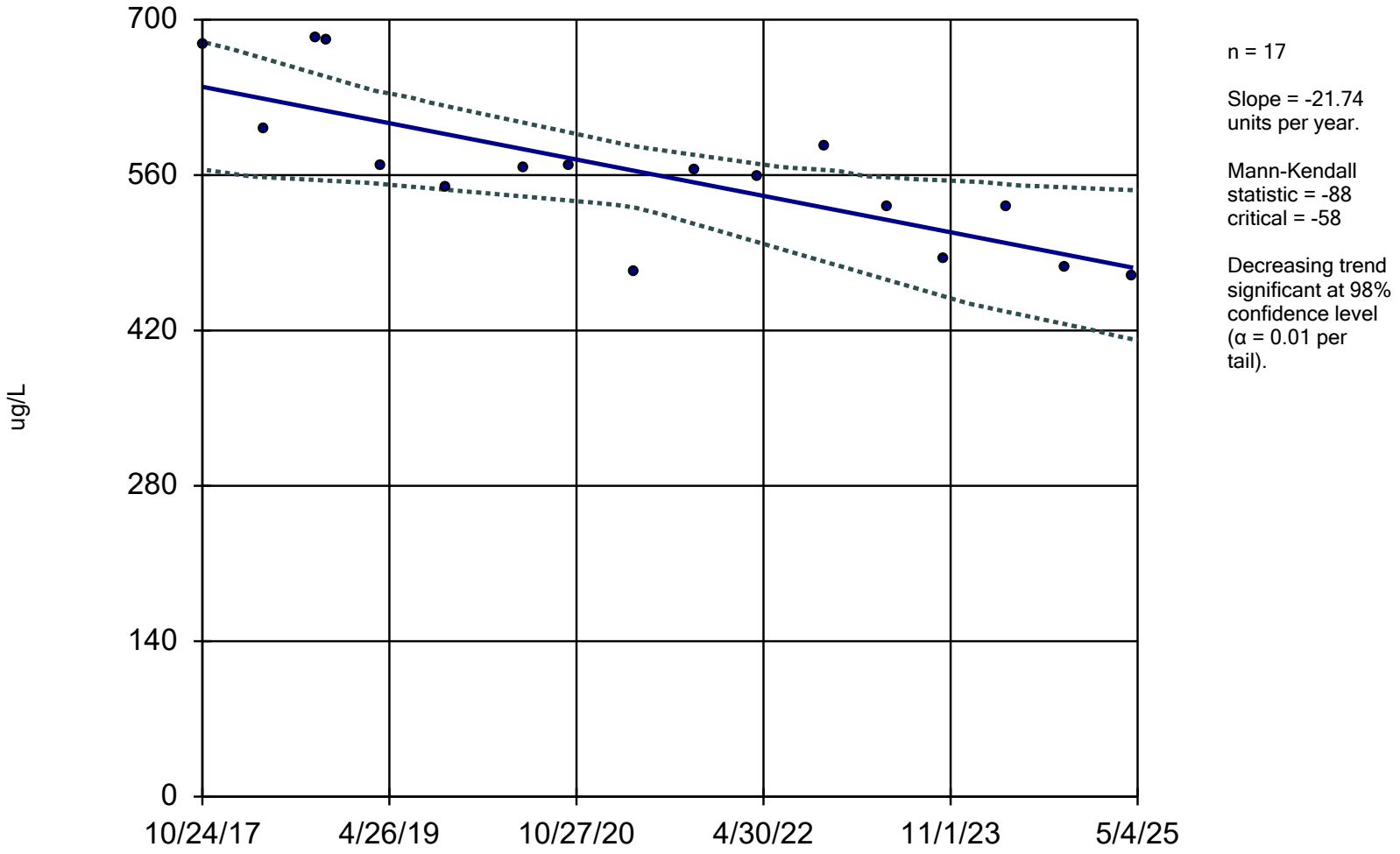
Constituent: Alkalinity, Total as CaCO3 (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/27/2022	213
12/2/2022	206
1/13/2023	221
2/21/2023	227
3/28/2023	205
4/27/2023	206
5/31/2023	191
6/30/2023	198
4/17/2024	210
10/2/2024	193
4/21/2025	190

Sen's Slope and 98% Confidence Band

MW-33AR



n = 17

Slope = -21.74 units per year.

Mann-Kendall statistic = -88
critical = -58

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

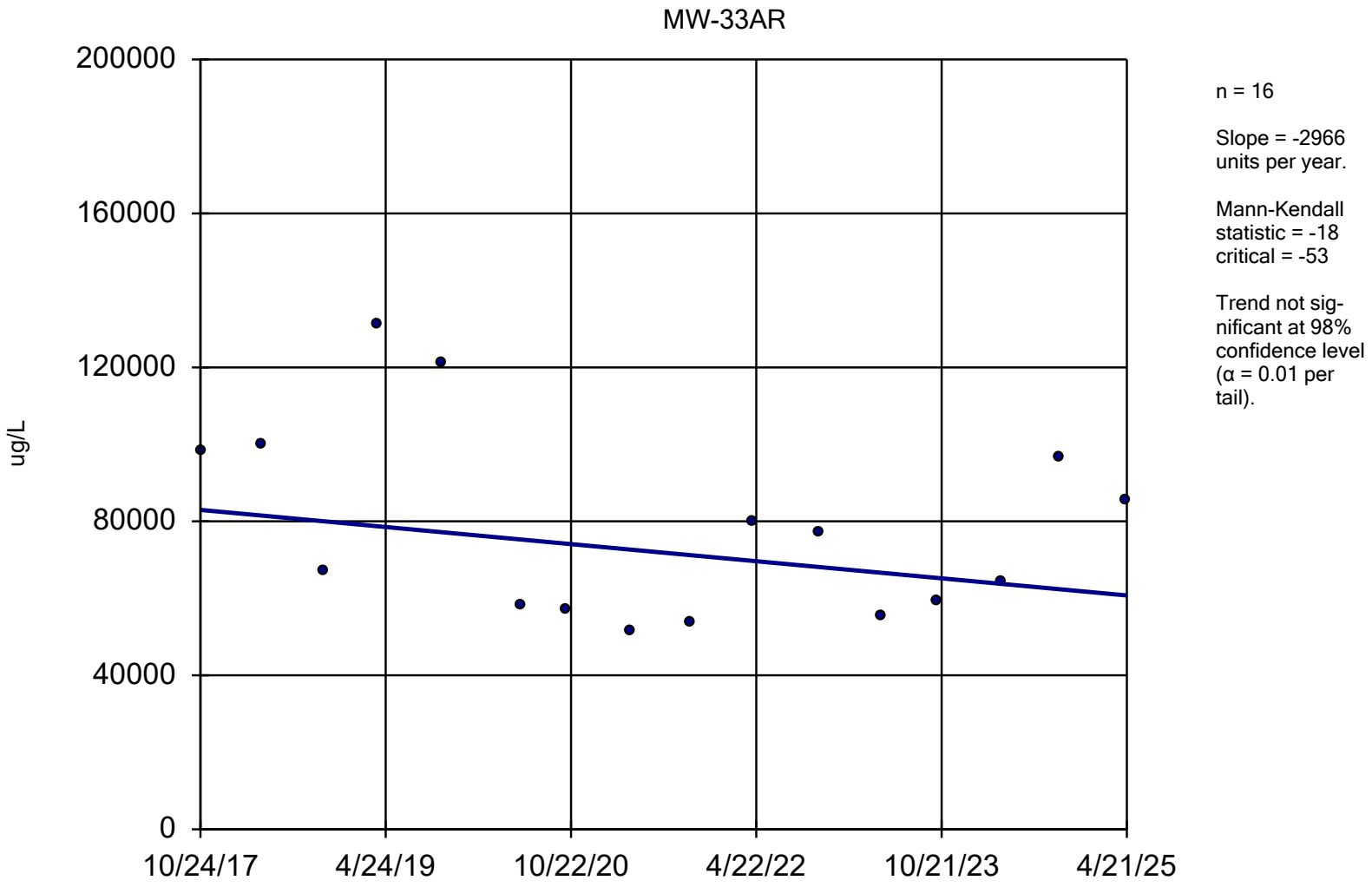
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR	LCL	UCL
10/24/2017	678	565.1	680.1
4/24/2018	601	558	664.9
9/21/2018	683	555.6	651.5
10/22/2018	682	555	648.8
4/2/2019	568	551.9	634.8
10/8/2019	548	546.9	622.3
5/28/2020	566	540.6	607
10/8/2020	569	537	598.3
4/13/2021	473	531	586
10/12/2021	564	515.8	578.1
4/12/2022	558	499.6	570.2
10/27/2022	586	482	564.6
4/27/2023	532	465.8	558.1
10/11/2023	485	450.9	555.2
4/17/2024	531	436.7	551.6
10/2/2024	477	425.7	549
4/21/2025	468	411.9	546.3

Sen's Slope Estimator



Constituent: Calcium Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

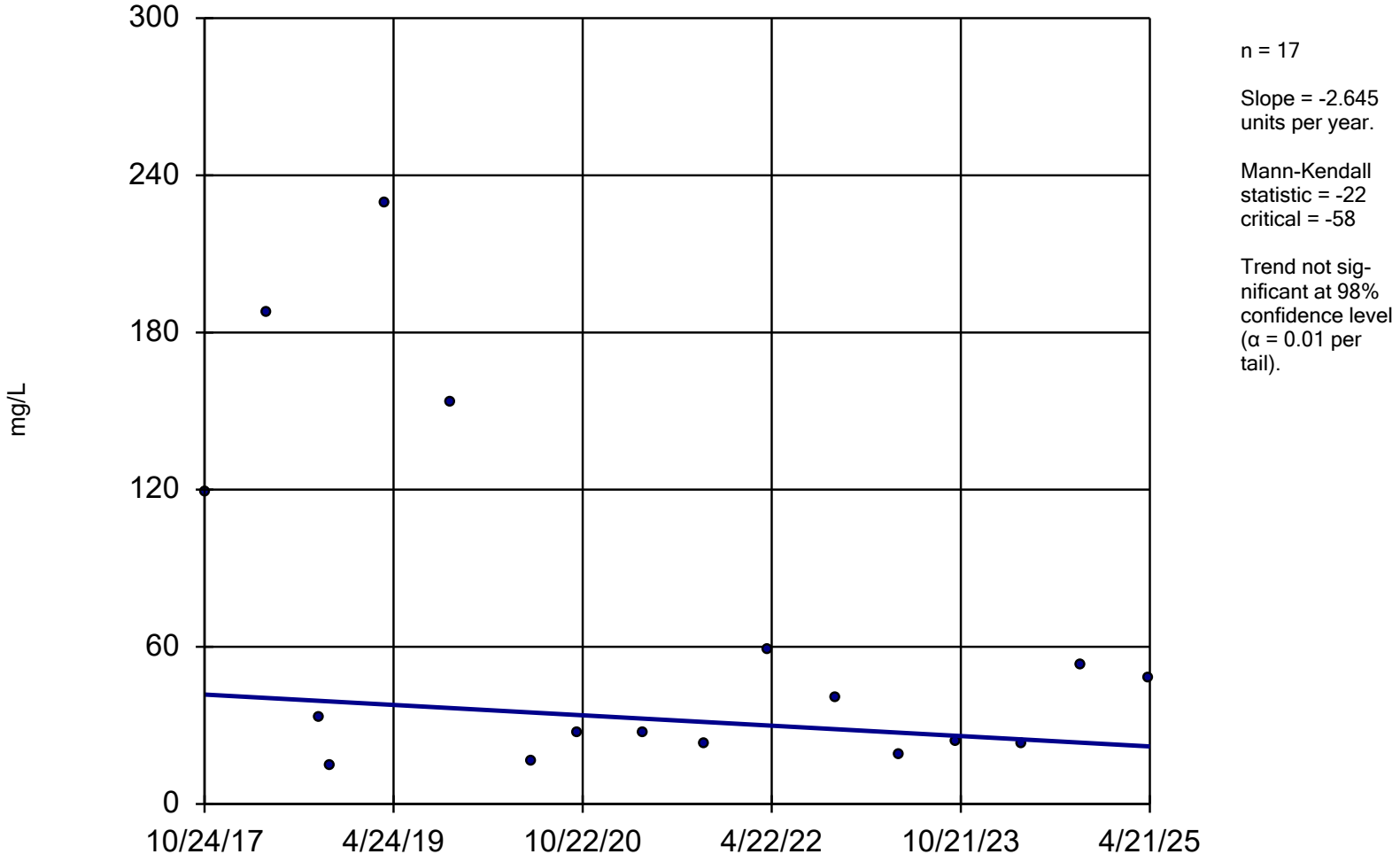
Constituent: Calcium (ug/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	98200
4/24/2018	99800
10/22/2018	66900
4/2/2019	131000
10/8/2019	121000
5/28/2020	58400
10/8/2020	57100
4/13/2021	51600
10/12/2021	53700
4/12/2022	80000
10/27/2022	77000
4/27/2023	55300
10/11/2023	59400
4/17/2024	64200
10/2/2024	96400
4/21/2025	85300

Sen's Slope Estimator

MW-33AR



n = 17

Slope = -2.645 units per year.

Mann-Kendall statistic = -22
critical = -58

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

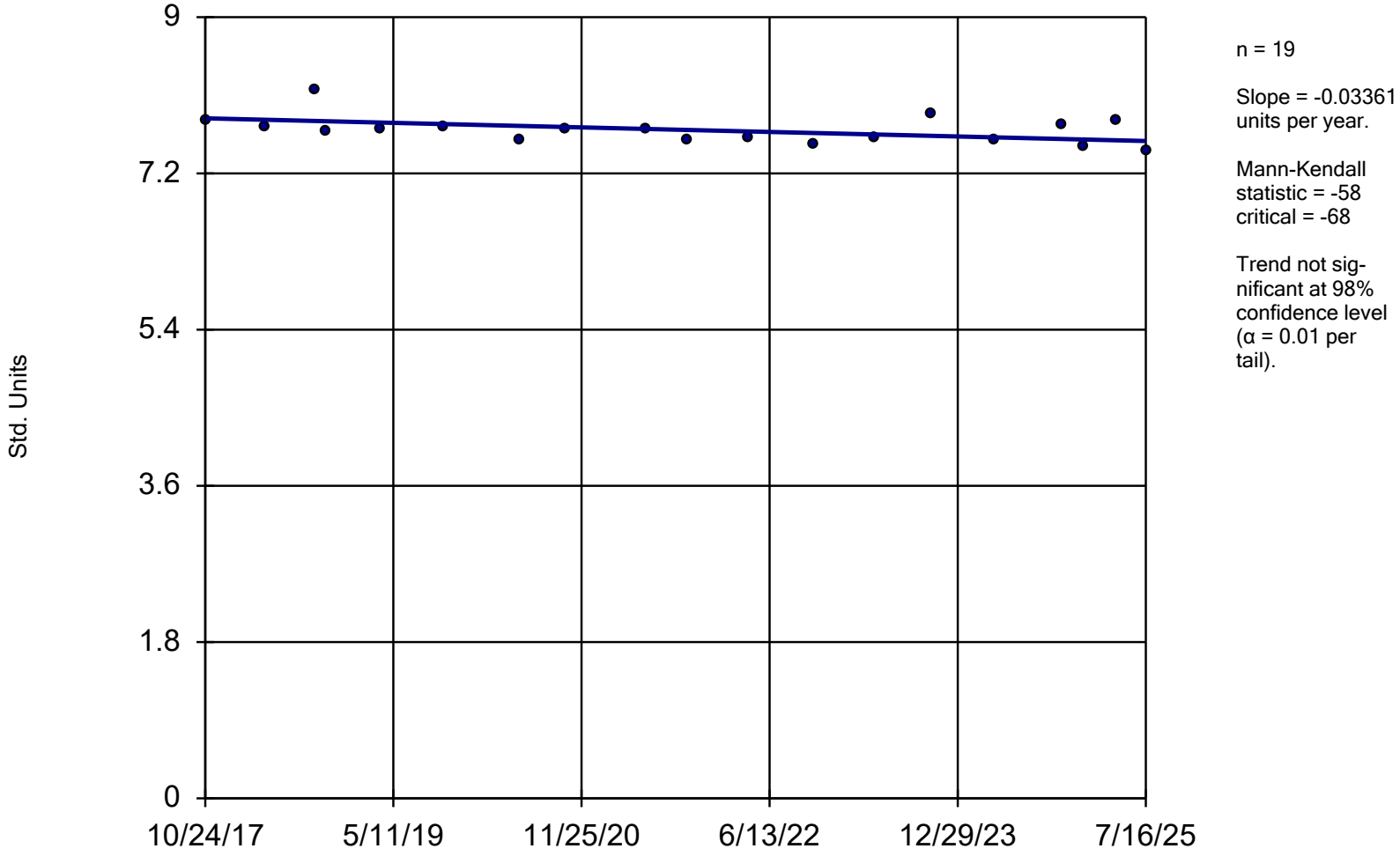
Constituent: Chloride (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	119
4/24/2018	188
9/21/2018	32.6
10/22/2018	14.4
4/2/2019	229
10/8/2019	153
5/28/2020	15.9
10/8/2020	27.3
4/13/2021	26.9
10/12/2021	22.6
4/12/2022	59
10/27/2022	40.5
4/27/2023	19
10/11/2023	24.2
4/17/2024	22.8
10/2/2024	52.7
4/21/2025	47.7

Sen's Slope Estimator

MW-33AR



n = 19

Slope = -0.03361 units per year.

Mann-Kendall statistic = -58
critical = -68

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Field pH Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

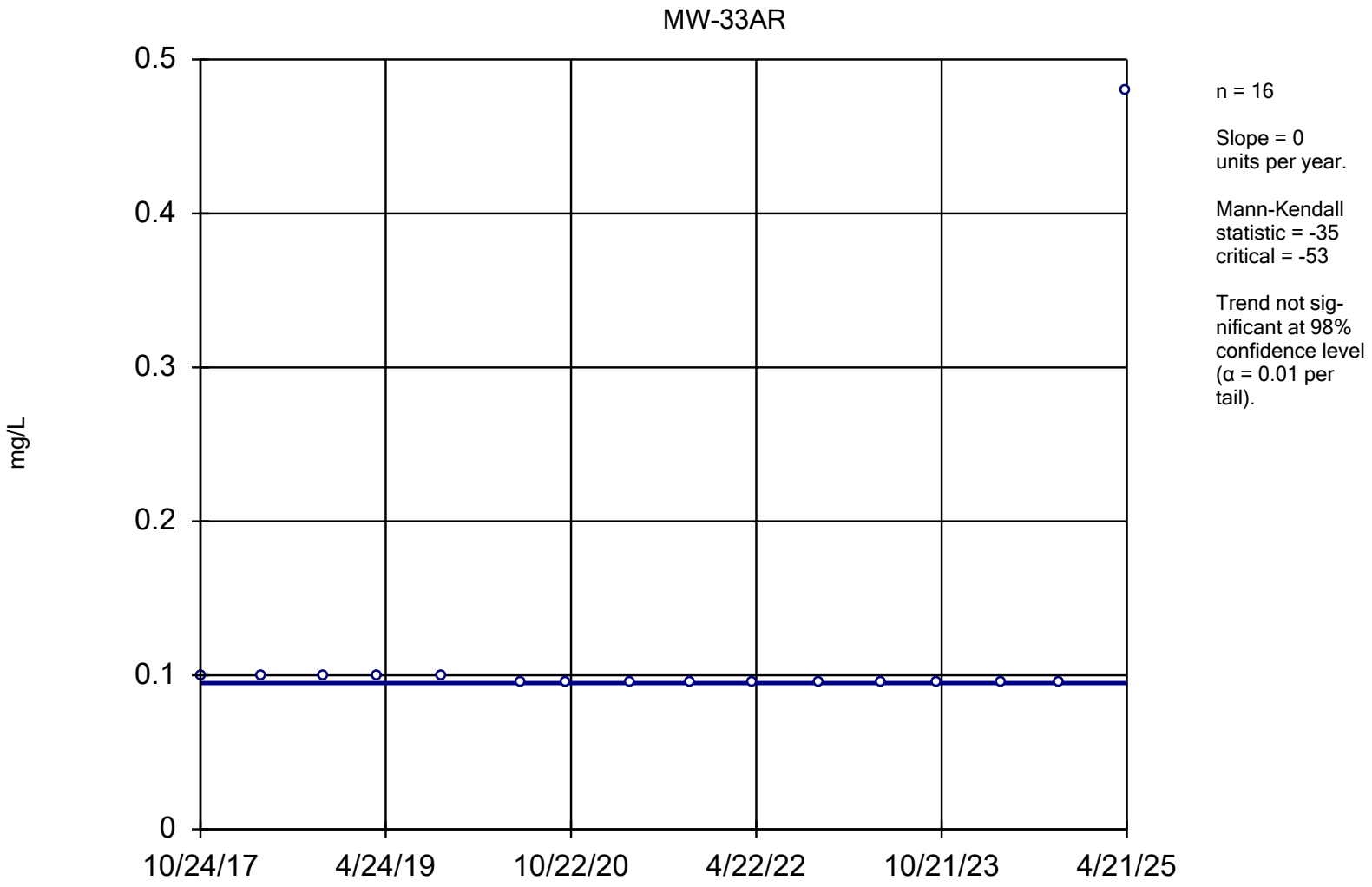
Constituent: Field pH (Std. Units) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	7.81
4/24/2018	7.74
9/21/2018	8.16
10/22/2018	7.69
4/2/2019	7.72
10/8/2019	7.74
5/28/2020	7.59
10/8/2020	7.7
6/11/2021	7.71 (R)
10/12/2021	7.59
4/12/2022	7.6
10/27/2022	7.54
4/27/2023	7.61
10/11/2023	7.88
4/17/2024	7.58
11/5/2024	7.76 (R)
1/10/2025	7.51
4/21/2025	7.81
7/16/2025	7.45

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Fluoride Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

Constituent: Fluoride (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

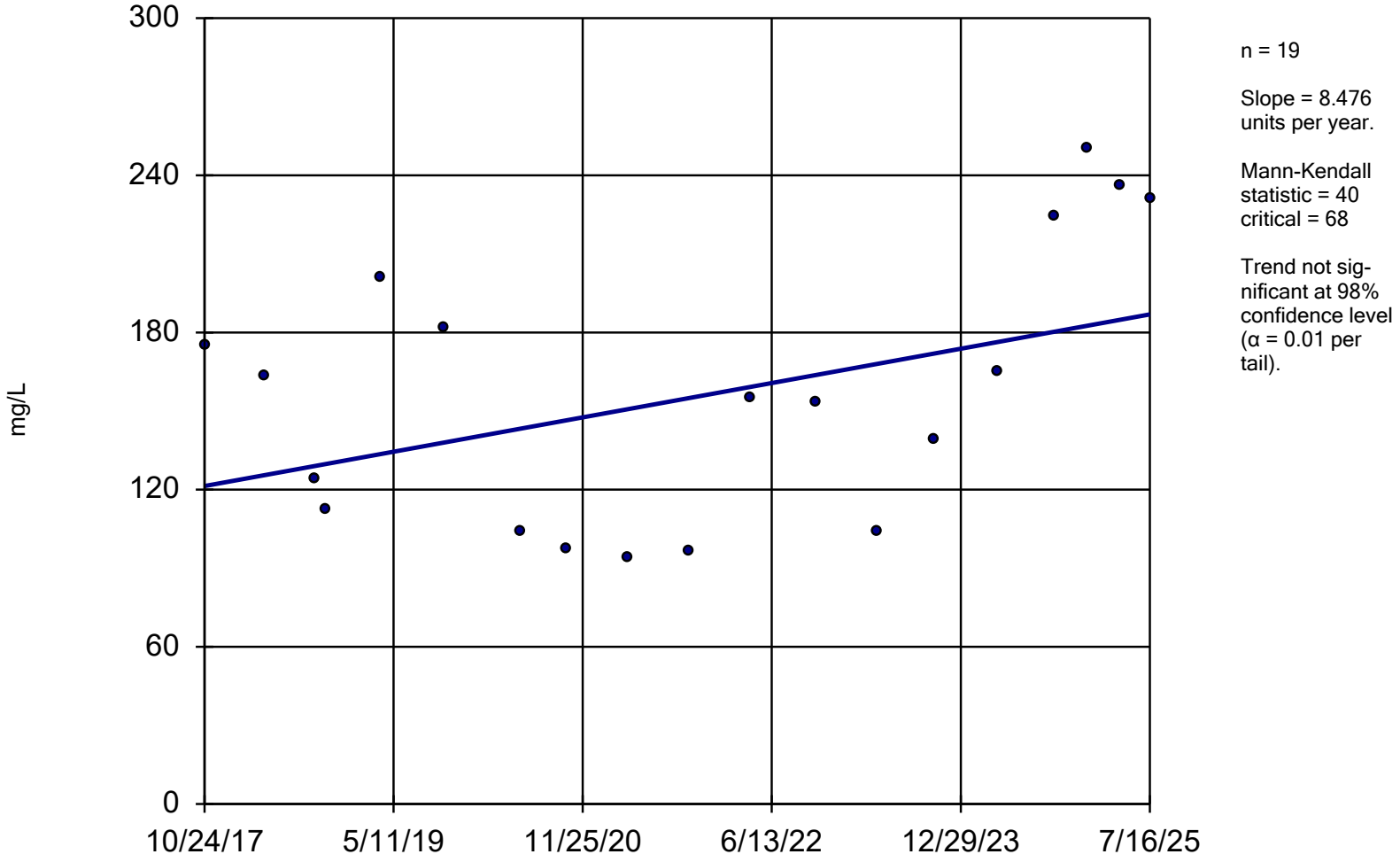
Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	<0.1 (U)
4/24/2018	<0.1 (U)
10/22/2018	<0.1 (U)
4/2/2019	<0.1 (U)
10/8/2019	<0.1 (U)
5/28/2020	<0.095 (U)
10/8/2020	<0.095 (U)
4/13/2021	<0.095 (U)
10/12/2021	<0.095 (U)
4/12/2022	<0.095 (U)
10/27/2022	<0.095 (U)
4/27/2023	<0.095 (U)
10/11/2023	<0.095 (U)
4/17/2024	<0.095
10/2/2024	<0.095
4/21/2025	<0.48

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator

MW-33AR



n = 19

Slope = 8.476 units per year.

Mann-Kendall statistic = 40
critical = 68

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

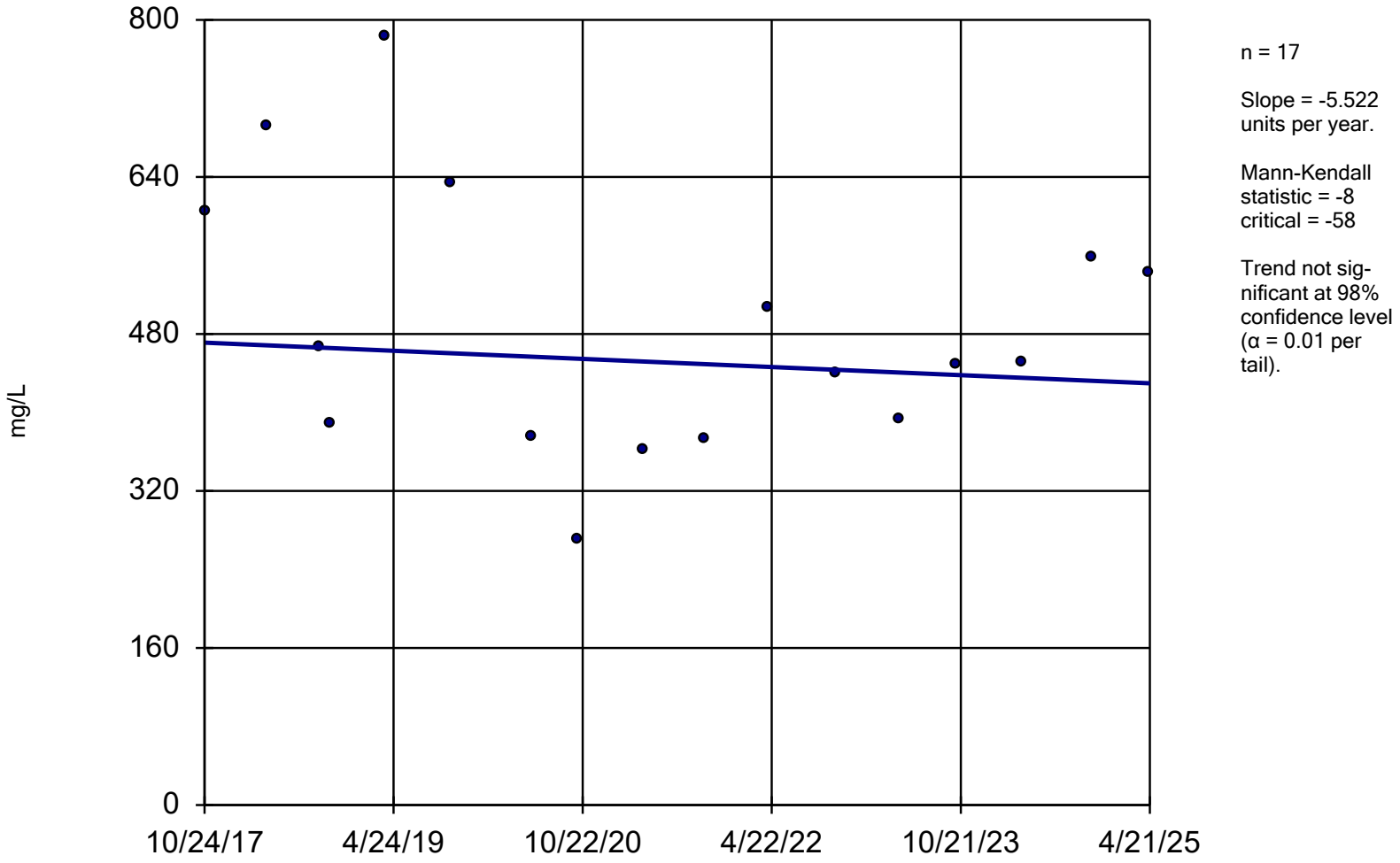
Constituent: Sulfate (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	175
4/24/2018	163
9/21/2018	124
10/22/2018	112
4/2/2019	201
10/8/2019	182
5/28/2020	104
10/8/2020	97.4
4/13/2021	94.3
10/12/2021	96.4
4/12/2022	155
10/27/2022	153
4/27/2023	104
10/11/2023	139
4/17/2024	165
10/2/2024	224
1/10/2025	250
4/21/2025	236
7/16/2025	231

Sen's Slope Estimator

MW-33AR



Constituent: Total Dissolved Solids Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

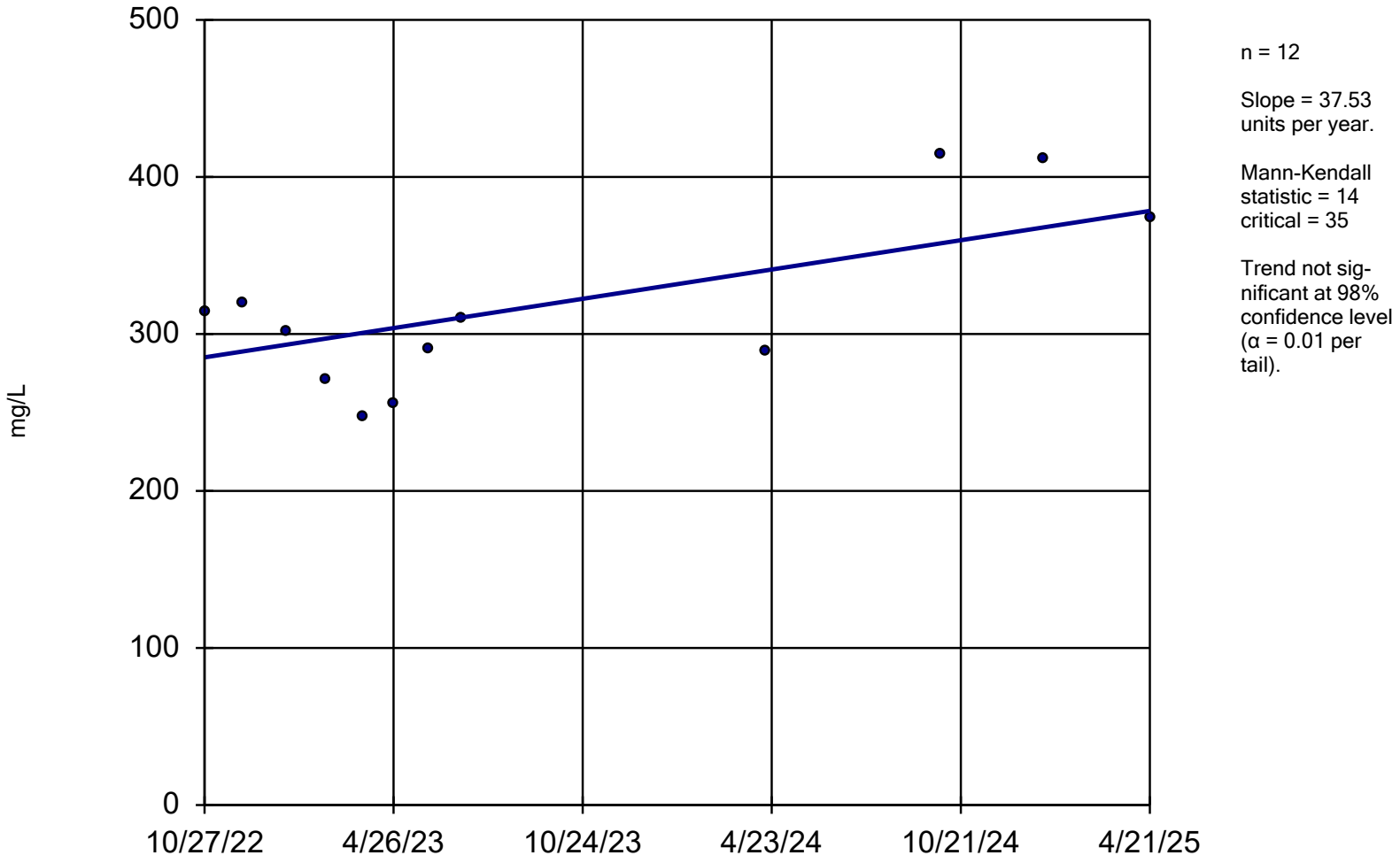
Constituent: Total Dissolved Solids (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-33AR
10/24/2017	606
4/24/2018	692
9/21/2018	466
10/22/2018	388
4/2/2019	784
10/8/2019	634
5/28/2020	376
10/8/2020	270
4/13/2021	362
10/12/2021	374
4/12/2022	506
10/27/2022	440
4/27/2023	394
10/11/2023	448
4/17/2024	452
11/5/2024	558 (R)
4/21/2025	542

Sen's Slope Estimator

MW-33AR



n = 12

Slope = 37.53 units per year.

Mann-Kendall statistic = 14
critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Total Hardness by 2340B Analysis Run 8/8/2025 11:53 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

Constituent: Total Hardness by 2340B (mg/L) Analysis Run 8/8/2025 11:54 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

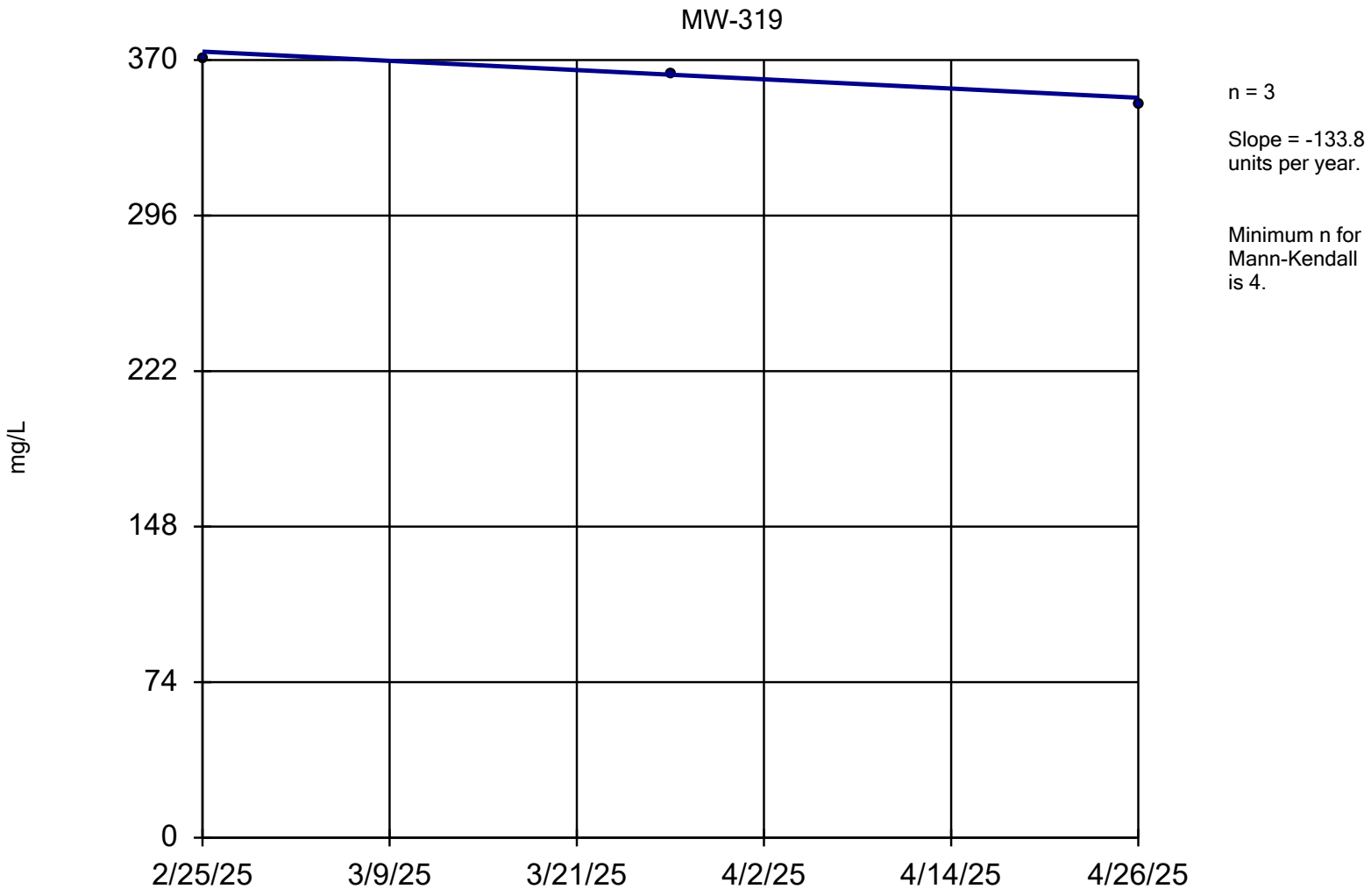
	MW-33AR
10/27/2022	314
12/2/2022	319
1/13/2023	301
2/21/2023	271
3/28/2023	247
4/27/2023	256
5/31/2023	290
6/30/2023	310
4/17/2024	289
10/2/2024	415
1/10/2025	412
4/21/2025	374

Trend Test

Columbia Energy Center Client: SCS Engineers Data: Columbia Printed 8/8/2025, 11:51 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Alkalinity, Total as CaCO3 (mg/L)	MW-319	-133.8	NaN	NaN	No	3	0	n/a	n/a	NaN	NP
Boron (ug/L)	MW-319	-6.692	-21	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (ug/L)	MW-319	-67844	-23	-27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	**MW-319**	**-575**	**-37**	**-31**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Field pH (Std. Units)	MW-319	0.2136	14	31	No	11	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	MW-319	0	8	27	No	10	100	n/a	n/a	0.02	NP
Sulfate (mg/L)	MW-319	-18.25	-9	-27	No	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	MW-319	-1121	-27	-27	No	10	0	n/a	n/a	0.02	NP
Total Hardness by 2340B (mg/L)	MW-319	-596.2	NaN	NaN	No	3	0	n/a	n/a	NaN	NP

Sen's Slope Estimator



Constituent: Alkalinity, Total as CaCO3 Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

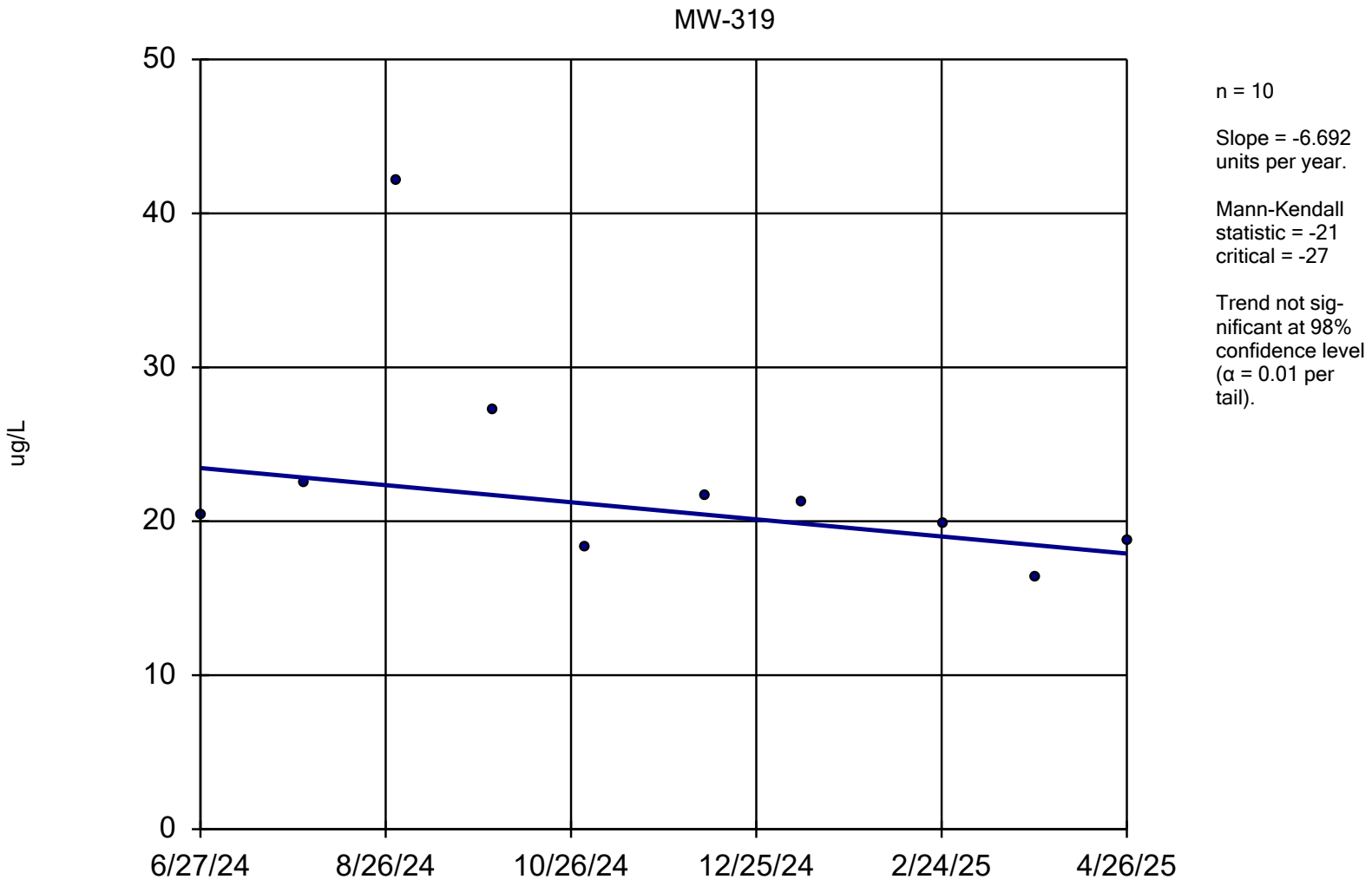
Sen's Slope Estimator

Constituent: Alkalinity, Total as CaCO3 (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
2/25/2025	371
3/27/2025	363
4/26/2025	349

Sen's Slope Estimator



Constituent: Boron Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

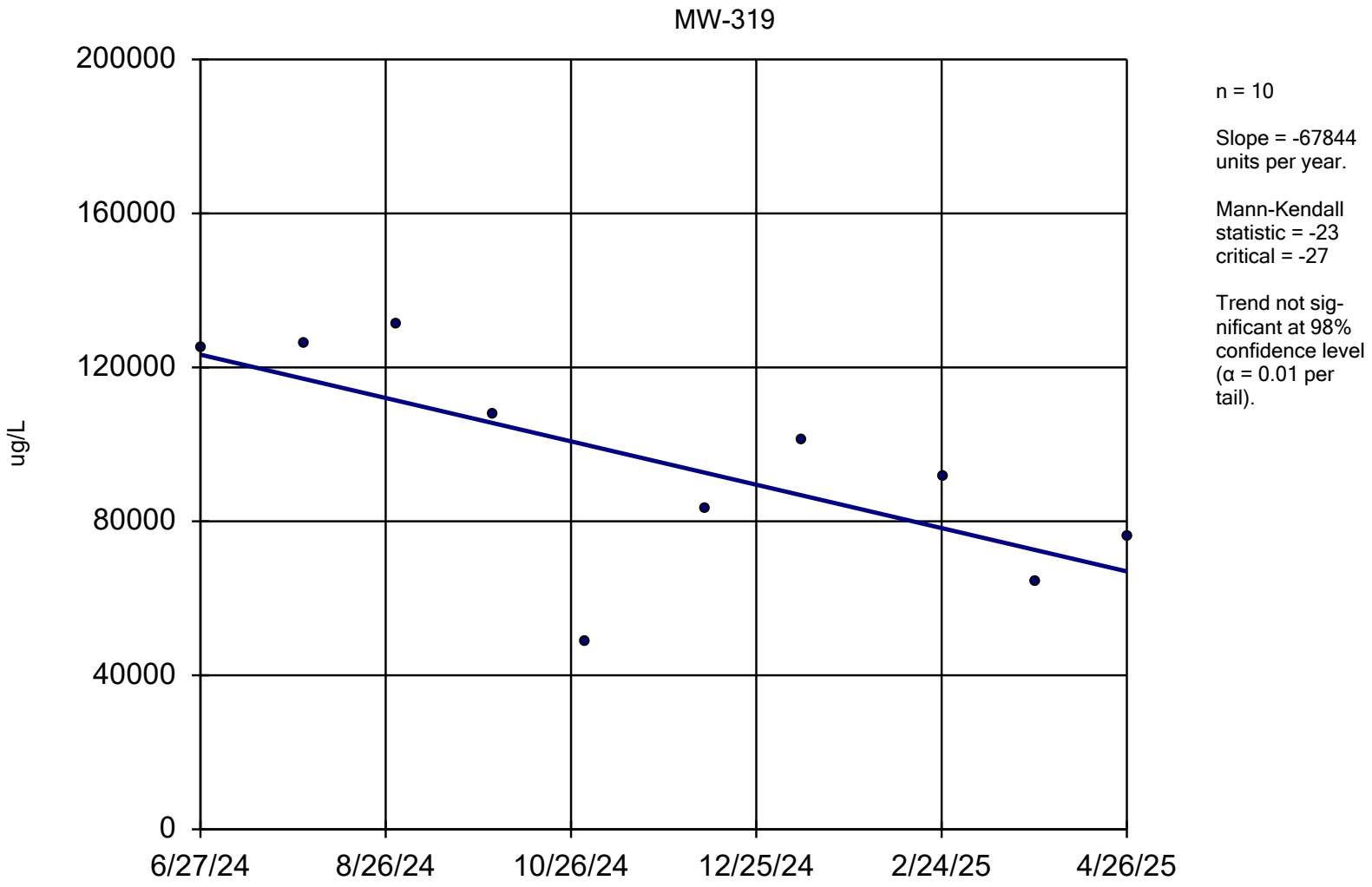
Sen's Slope Estimator

Constituent: Boron (ug/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	20.4
7/31/2024	22.5
8/30/2024	42.2
10/1/2024	27.25 (D)
10/31/2024	18.3
12/9/2024	21.7
1/10/2025	21.2
2/25/2025	19.9
3/27/2025	16.4
4/26/2025	18.8

Sen's Slope Estimator



Constituent: Calcium Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

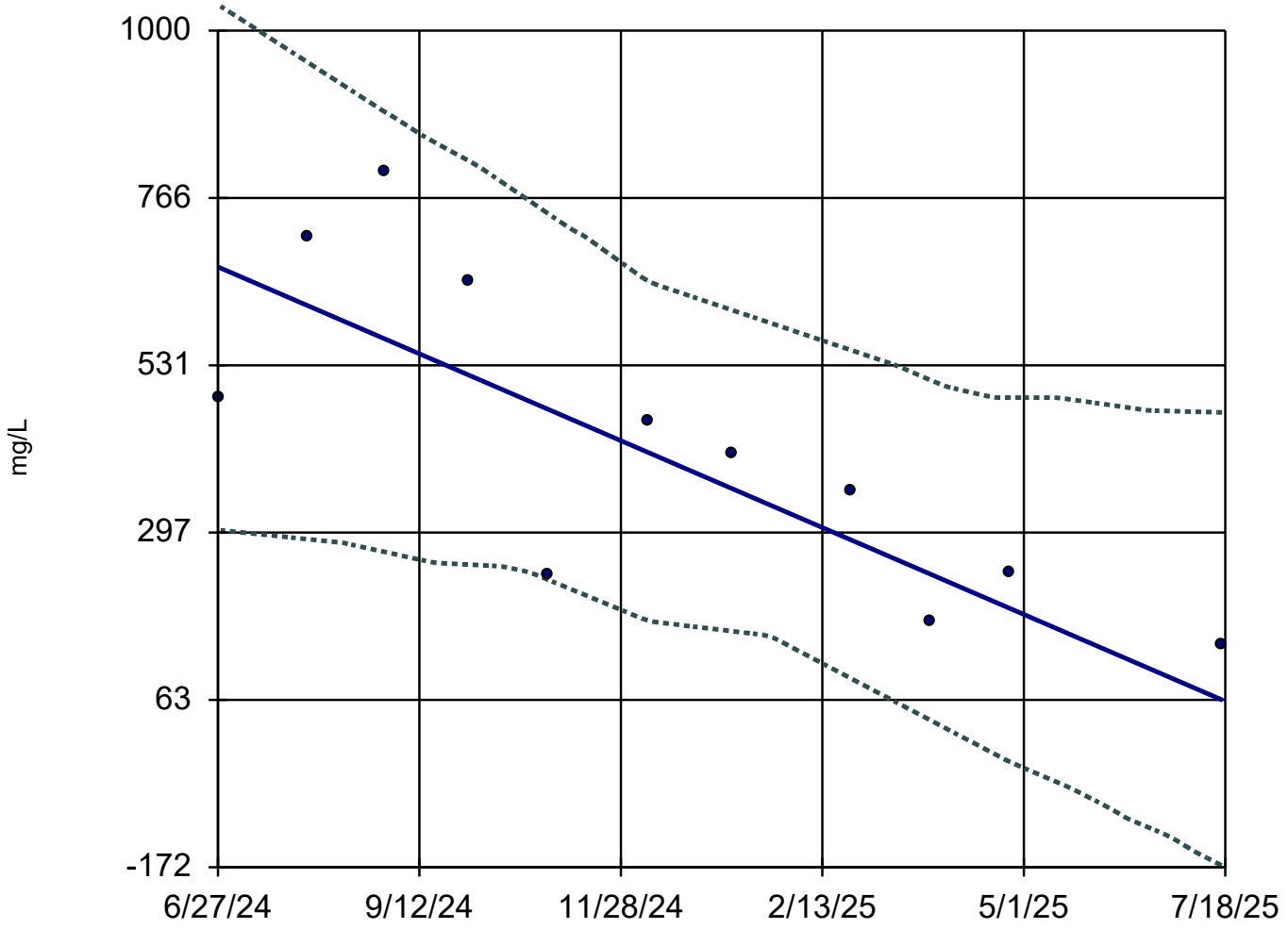
Constituent: Calcium (ug/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	125000
7/31/2024	126000
8/30/2024	131000
10/1/2024	108000 (D)
10/31/2024	48600
12/9/2024	83300
1/10/2025	101000
2/25/2025	91700
3/27/2025	64600
4/26/2025	76000

Sen's Slope and 98% Confidence Band

MW-319



n = 11

Slope = -575 units per year.

Mann-Kendall statistic = -37
critical = -31

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

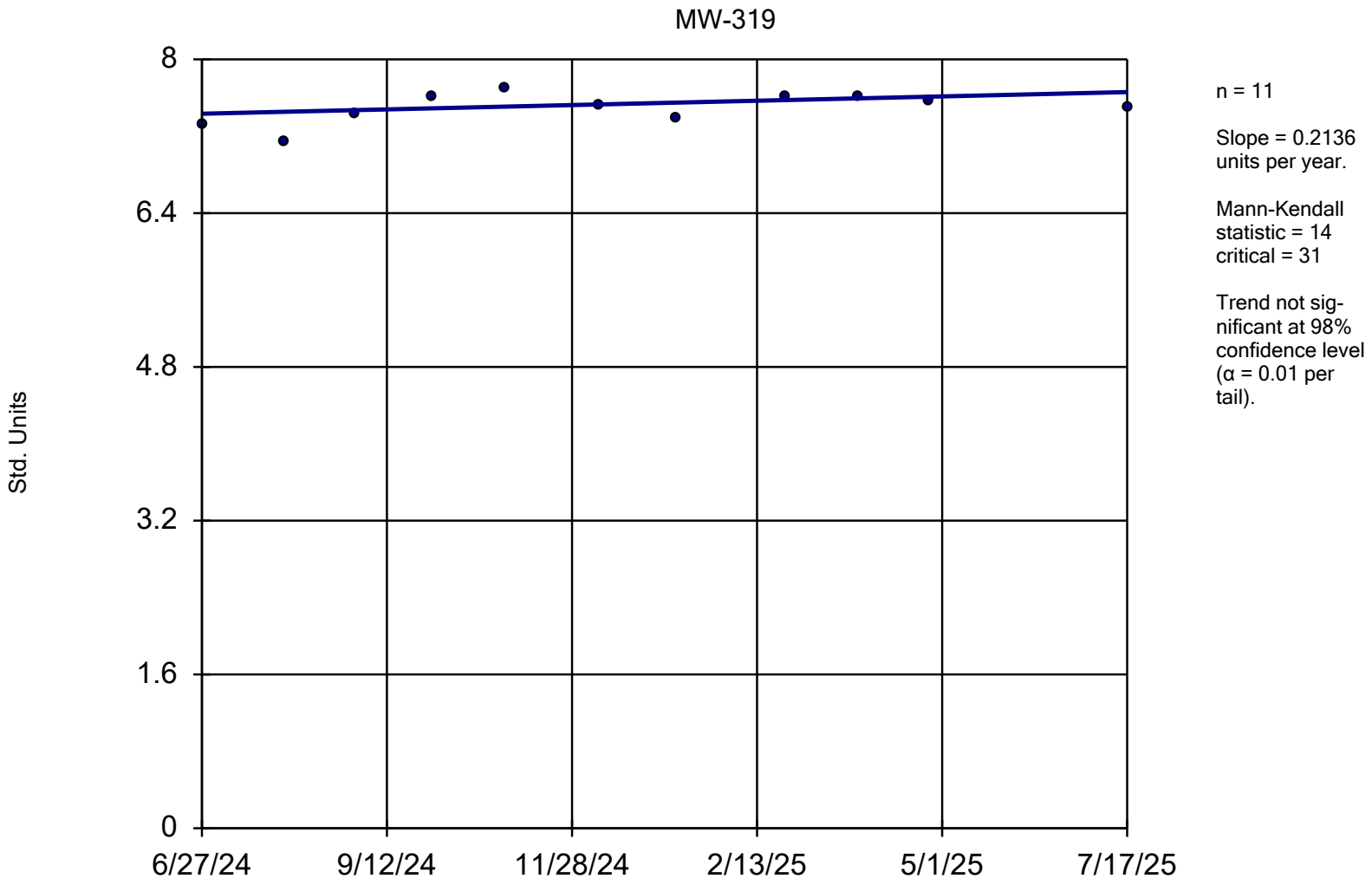
Sen's Slope Estimator

Constituent: Chloride (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319	LCL	UCL
6/27/2024	486	300.7	1037
7/31/2024	712	288.1	956.5
8/30/2024	802	269.9	885.8
10/1/2024	648 (D)	252.3	817.8
10/31/2024	237	231.8	745.1
12/9/2024	455	173	648
1/10/2025	409	159.1	608.6
2/25/2025	355	92.06	552.1
3/27/2025	173	34.39	510.7
4/26/2025	242	-23.28	486
7/17/2025	141	-169.6	465.3

Sen's Slope Estimator



Constituent: Field pH Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

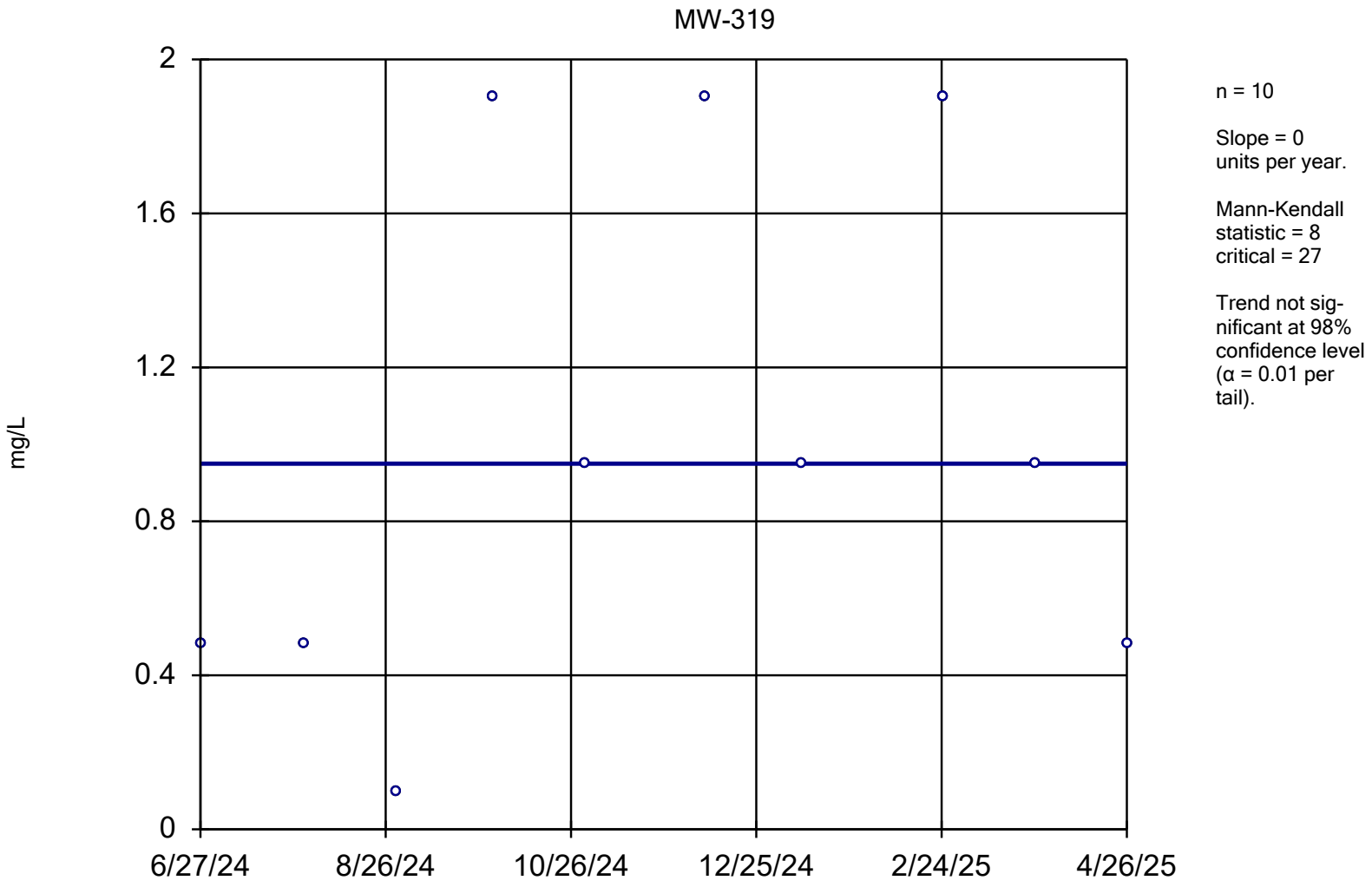
Constituent: Field pH (Std. Units) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	7.32
7/31/2024	7.15
8/30/2024	7.43
10/1/2024	7.61 (D)
10/31/2024	7.7
12/9/2024	7.53
1/10/2025	7.38
2/25/2025	7.6
3/27/2025	7.61
4/26/2025	7.56
7/17/2025	7.49

Hollow symbols indicate censored values.

Sen's Slope Estimator



Constituent: Fluoride Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

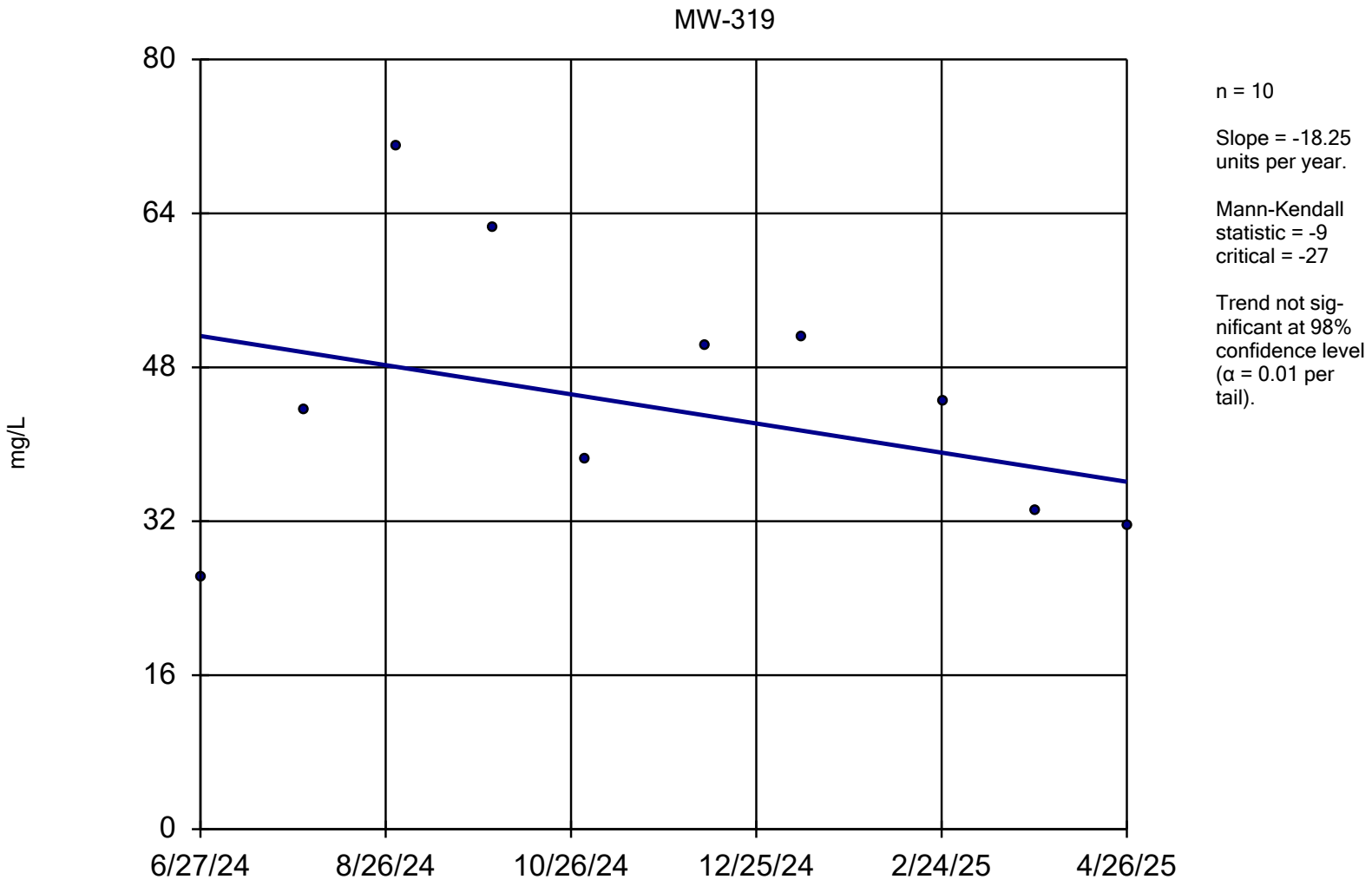
Constituent: Fluoride (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	<0.48
7/31/2024	<0.48
8/30/2024	<0.095
10/1/2024	<1.9 (D)
10/31/2024	<0.95
12/9/2024	<1.9
1/10/2025	<0.95
2/25/2025	<1.9
3/27/2025	<0.95 (U)
4/26/2025	<0.48 (U)

ND substitution: RL or RL/2 if <15% NDs.

Sen's Slope Estimator



Constituent: Sulfate Analysis Run 8/8/2025 11:49 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

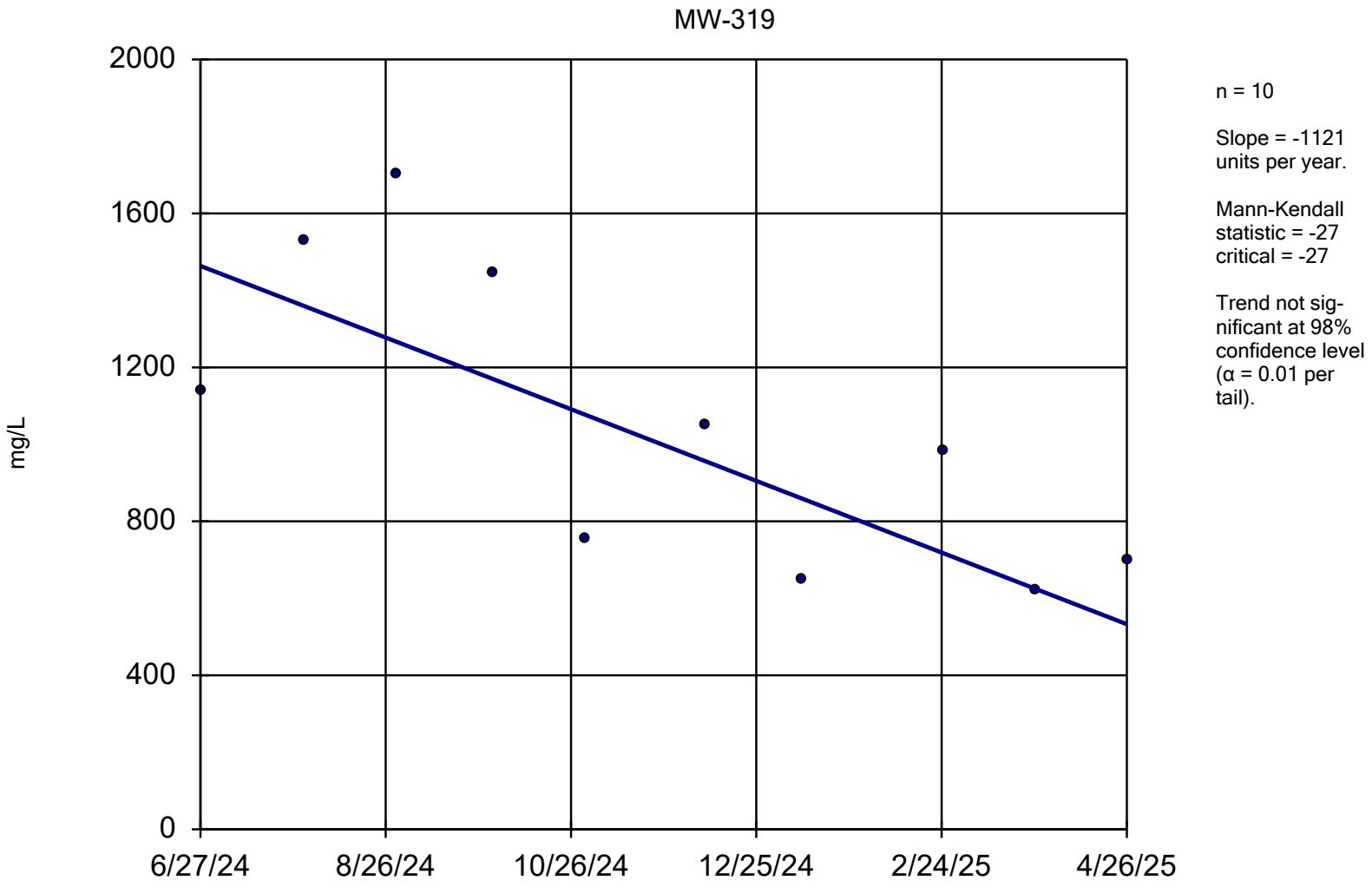
Sen's Slope Estimator

Constituent: Sulfate (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	26.1
7/31/2024	43.6
8/30/2024	70.9 (J)
10/1/2024	62.45 (D)
10/31/2024	38.5
12/9/2024	50.3
1/10/2025	51.2
2/25/2025	44.4
3/27/2025	33.1
4/26/2025	31.6

Sen's Slope Estimator



Constituent: Total Dissolved Solids Analysis Run 8/8/2025 11:50 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

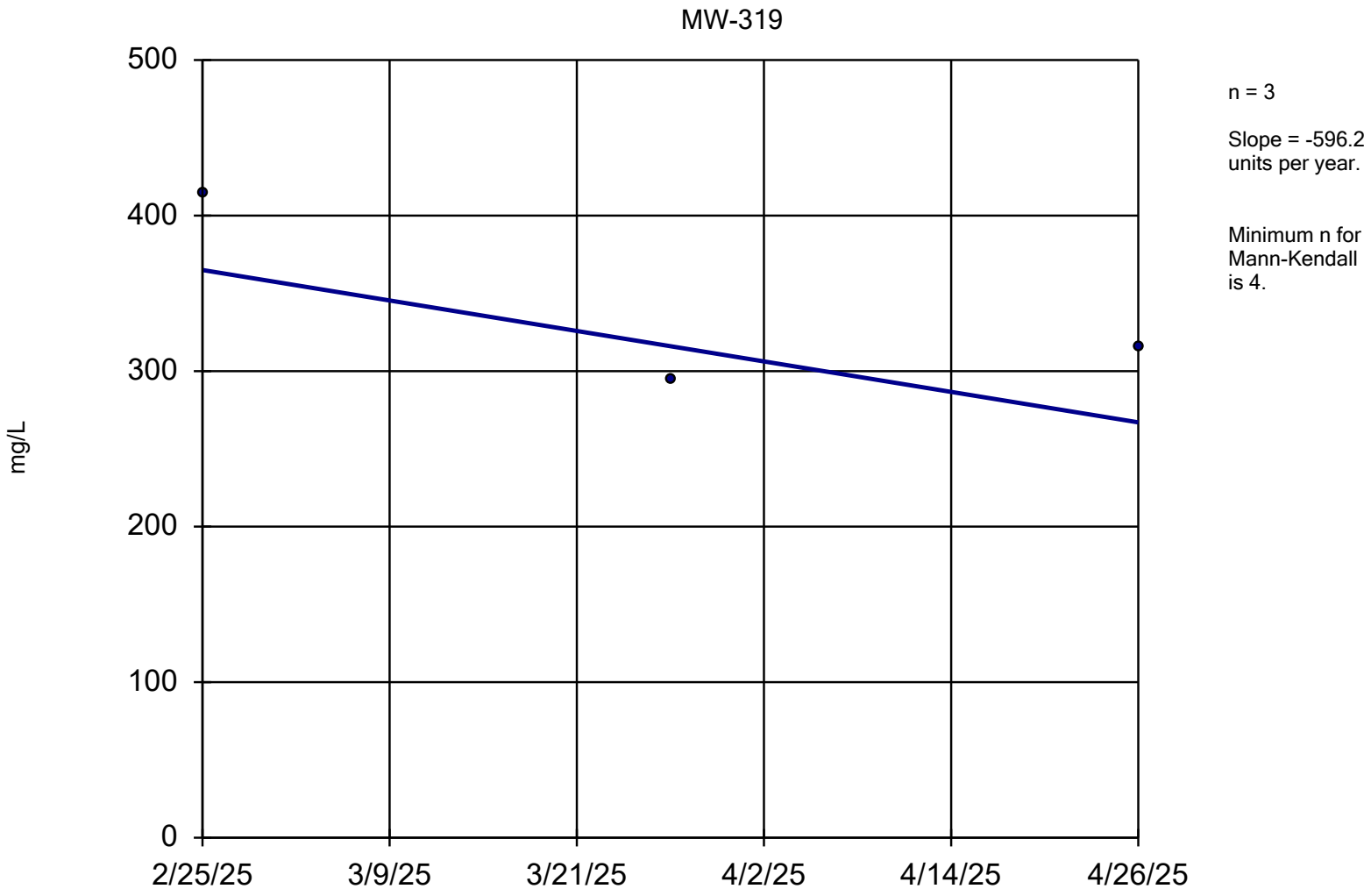
Sen's Slope Estimator

Constituent: Total Dissolved Solids (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
6/27/2024	1140
7/31/2024	1530
8/30/2024	1700
10/1/2024	1445 (D)
10/31/2024	753
12/9/2024	1050
1/10/2025	647
2/25/2025	986
3/27/2025	623
4/26/2025	700

Sen's Slope Estimator



Constituent: Total Hardness by 2340B Analysis Run 8/8/2025 11:50 AM View: COL ADF

Columbia Energy Center Client: SCS Engineers Data: Columbia

Sen's Slope Estimator

Constituent: Total Hardness by 2340B (mg/L) Analysis Run 8/8/2025 11:51 AM View: COL ADF

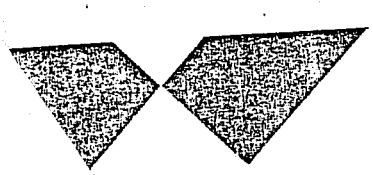
Columbia Energy Center Client: SCS Engineers Data: Columbia

	MW-319
2/25/2025	414
3/27/2025	294
4/26/2025	316

Attachment C

Feasibility Study Water Quality Information

1370



FEASIBILITY STUDY
PROPOSED FLY ASH AND/OR SCRUBBER SLUDGE
DISPOSAL FACILITY-COLUMBIA SITE
WISCONSIN POWER AND LIGHT COMPANY
TOWN OF PACIFIC, COLUMBIA COUNTY, WISCONSIN

Jan 78

C 7134

conceivable that groundwater flow in the area north of Murray Road may be altered such that contaminants derived from the present ash settling basin might be diverted southerly towards the homes along Murray Road. These questions would have to be addressed in greater detail, consistent with the goals of Wisconsin Power and Light Company.

WATER QUALITY

During the first two weeks of December, 1977, 64 water samples were obtained from surface waters and groundwater monitoring wells at the Columbia Energy Center. The purpose of the sampling was to assess background water quality in the vicinity of the proposed disposal site. The sampling stations included 59 monitoring wells, the cooling lake, ash settling pond, the drainage ditch carrying the ash pond discharge waters and the agricultural drainage ditch along the southern boundary of the site. Due to the large number of sampling stations, the analyses were limited to pH, specific conductance, iron, calcium, magnesium, sulfate and chloride. The analytical data is contained in Appendix F and is discussed below.

pH

Most groundwaters found in the United States have pH values ranging from around 6.0 to 8.5. The pH of a water represents the result of a number of interrelated chemical equilibria. This equilibria can be altered shortly after sampling by gains or losses of carbon dioxide, the oxidation of ferrous iron and numerous other chemical reactions. Thus, pH measurements must be taken shortly after obtaining the sample. For this study, the pH of samples was determined immediately upon return to the laboratory.

Within the proposed site boundaries at the Columbia Energy Center, pH values ranged between 6.3 and 8.1 and averaged 7.5. Typically, the lower pH values were observed in the lowland areas and wetlands, probably as a result of acidic organic soils. The pH of water in the ash disposal settling pond and the cooling lake was 11.4 and 8.3, respectively.

SPECIFIC CONDUCTANCE

Specific conductance, or conductivity, is the ability of a substance to conduct an electric current. The conductance determination is correlative with the dissolved-solids concentration. Conductivity, however, is temperature dependent and thus requires the reference of specific conductance measurements to a standard temperature. The values discussed here are referred to 25°C.

The specific conductance of groundwater in the study area ranged from 220 umhos/cm to a maximum of 2600 umhos/cm. The highest conductivity readings were observed in monitoring wells located along the coal storage area and the drainage ditch carrying the ash pond discharge where values up to 2600 umhos/cm were measured. The conductivity of the ash pond effluent was 1380 umhos/cm. This data appears to confirm earlier speculation of infiltration of effluent from the ash pond discharge channel and from the coal storage area into the groundwater. Conductance within the proposed site boundaries averaged approximately 465 umhos/cm.

Conductivity in the ash disposal settling pond was measured at 1510 umhos/cm. Shallow monitoring wells M-6 and 39A, located adjacent to the pond also exhibited elevated values of 1160 umhos/cm and 1800 umhos/cm, respectively.

High conductivities were also observed along U. S. Highway 51 at monitoring wells 51A and 51B. The chloride data, discussed below, indicates infiltration of road salt has probably occurred at this location.

Specific conductance measurements obtained in the vicinity of the proposed disposal site are shown on Drawing C 7134-15.

IRON

The element iron is an abundant element found in most rocks and soil. It generally occurs as sulfides and oxides in igneous and metamorphic rocks and as iron oxide and hydroxide cementing materials in coarse-grained sedimentary rocks.

Ferrous iron is unstable in the presence of oxygen where it is bound to hydroxide anions as $2Fe(OH)_3$.

$$2Fe^{++} + 4HCO_3^- + H_2O \rightleftharpoons 2Fe(OH)_3 + 4CO_2$$

If subjected to a strong reducing environment, such as a marsh, the reaction is reversed and iron goes back into solution. The amount which dissolves is related to a number of variables including the velocity with which water moves through this environment.

The U. S. Public Health Service recommends an iron concentration of less than 0.3 mg/l in water used for drinking and culinary purposes. Laundry and porcelain tend to be stained when concentrations reach 0.5 to 1.0 mg/l. At this level it can also be tasted.

The presence of iron under the proposed disposal area in the majority of cases was below the detection limit of 0.1 mg/l. In monitoring wells 5 and 18, located in or near the central marsh area, iron increased to 10 mg/l and 5.7 mg/l, respectively. In the southern marsh, monitoring wells exhibited concentrations between 0.5 mg/l and 6.1 mg/l. Although the iron concentration in the cooling lake was below the detection limit, down-gradient wells 44 and 30A located on the cooling lake dike yielded values of 11 mg/l and 26 mg/l iron respectively. Boring logs indicated trace amounts of organic material at the base of the dike which is probably the reason for the high concentrations observed. At the same location, iron in well 30B installed to a depth of 100 feet below the surface was below 0.1 mg/l. Thus, the occurrence of high iron concentrations in this area appears restricted to groundwater in the upper portion of the aquifer where organic material is present and conditions are favorable for the dissolution of iron.

The ash pond discharge in the drainage ditch paralleling the west site boundary showed an iron concentration of 3.7 mg/l. Shallow monitoring wells 33A and 34A adjacent to the ditch indicated less than 0.1 mg/l iron.

North of Murray Road the iron concentration in monitoring wells in the marsh and uplands were typically less than 0.1 mg/l. Although the ash basin had less than 0.1 mg/l iron, several wells along cross-section F-F' showed anomalously high values (#M6-2.3 mg/l; #47-16 mg/l; #51B-21 mg/l).

CALCIUM

Calcium, because of its relative abundance and mobility, is the principle cation in most natural fresh water. Calcium is a constituent of many rock types but is found in greatest quantities in waters leaching deposits of limestone and dolomite. In sandstone and other detrital rock, calcium carbonate is a common cement between grains.

Monitoring wells located within the site boundaries exhibited calcium concentrations between 30 mg/l and 66 mg/l and averaged about 42 mg/l. Similar to iron, the concentrations of calcium in monitoring wells along cross-section F-F' were anomalously high, up to 150 mg/l calcium. Water table wells along the drainage ditch carrying the ash pond discharge averaged 83 mg/l while the ash pond effluent contained 28 mg/l. Generally the amount of calcium in groundwater decreased with depth. Nested monitoring wells typically showed somewhat lower concentrations of calcium in the deeper wells.

MAGNESIUM

As a relatively abundant element on the earth's crust, the principle sources of magnesium in natural waters are considered to be ferromagnesian minerals in igneous rocks and magnesium carbonate in carbonate rocks (limestone and dolomite). Waters in which magnesium is the predominant cation are somewhat unusual. Like calcium, magnesium imparts the property of hardness to water and is, therefore, of concern to industrial users.

Generally, concentrations of magnesium were 1/3 to 1/2 of the calcium levels. Magnesium concentrations within the site boundaries ranged between 10 mg/l and 36 mg/l and averaged 27 mg/l. Similar to calcium and iron, higher magnesium values were observed, in general, north of Murray Road and especially in monitoring wells along cross-section F-F'.

SULFATE

Sulphur is widely distributed in reduced form in both igneous and sedimentary rocks as metallic sulfides and when present in sufficient concentrations, constitutes ore of economic importance. During weathering processes with aerated water, the sulfides are oxidized to sulfate ions and are dissolved into water. Pyrite (FeS_2) crystals often occur in sedimentary rocks and are particularly associated with biogenic deposits such as coal which were deposited under strongly reducing conditions.

The concentrations of sulfate in groundwater in the vicinity of the proposed disposal site ranged from less than 1 mg./l to 1,200 mg./l of sulfate. (Refer to Drawing C 7134-15.) Typically, within the site boundaries concentrations averaged approximately 12 mg./l. Near the coal storage area, however, significant increases were observed. Observation wells 26A, 26B, and 42 exhibited concentrations between 900 and 1100 mg./l. The depth of sulfate enrichment in groundwater, near the coal pile, appears to extend to considerable depths, indicated by relatively high sulfate concentrations in Well 26B sealed 100 feet below ground surface. The oxidation of pyrite minerals in the coal leaching into the groundwater is probably the major source of the high concentrations observed.

Sulfate concentrations in the ash disposal settling pond were 520 mg./l. In the ditch carrying the ash pond discharge, the effluent is treated with sulfuric acid which results in precipitation of barium sulfate and aluminum hydroxide (personal communication, Merlin Horn, 1978). Consequently, the sulfate concentration of the effluent waters is lowered considerably to 13 mg./l. Well 33A, however, located near the point of effluent discharge, exhibited 1200 mg./l sulfates.

CHLORIDE

Chloride is generally present in much lower concentrations in rocks than many of the other major constituents of natural water. Important sources, however, are associated with sedimentary rocks, particularly the evaporites. The chemical behavior of chloride in natural water is relatively inert compared to the other major ions. There are few oxidation-reduction reactions and no significant chemical complexing reactions which chloride enters into. In addition, chloride ions are not significantly adsorbed on mineral surfaces. For these reasons, chloride is commonly used as a tracer in groundwater.

Chloride concentrations in groundwater in the vicinity of the Columbia Energy Center typically range between 0.5 mg./l and 30 mg./l. The highest concentrations in monitoring wells tended to be located adjacent to U. S. Highway 51 where the use of road salt has resulted in the percolation of chloride into the groundwater. Monitoring Wells 51A and 51B located in a low area north of Murray Road along U. S. Highway 51, yielded chloride concentrations in excess of 200 mg./l. Two other wells, 52A and 19, also located along U. S. Highway 51, yielded values of 30 mg./l and 42.5 mg./l chloride, respectively.

Within the proposed site boundaries, the chloride concentration averaged 7.1 mg./l. Excluding the few wells adjacent to U. S. Highway 51 exhibiting elevated concentrations, no other significant trends in the occurrence of chloride were observed.

SUMMARY

In summary, the groundwater in the vicinity of the proposed disposal site exhibited a somewhat alkaline pH. In lowland areas, the pH was typically below 7.0, probably a result of the presence of acidic organic soils.

Specific conductance within the proposed site averaged 465 umhos/cm. Conductivities up to 2600 umhos/cm were observed, however, in the vicinity of the coal storage area, the present ash disposal pond and ash pond effluent channel where infilatration of water from these sources is occurring into the groundwater system.

The groundwater typically exhibted relatively low iron concentrations although, locally, concentrations in excess of drinking water standards were observed in about 20% of the wells. The occurrence of the higher iron concentrations appears to be related to the presence of organic soils.

Groundwater at the proposed site also tended to exhibit high calculated hardness (216 mg./l) based on average observed values for calcium (42 mg./l) and magnesium (27 mg./l). Dissolution of limestone and dolomite rocks in the glacial drift are the probable sources of these elements in the groundwater.

Enrichment of sulfate in groundwater has occurred as a result of leaching of pyrite (FeS_2) minerals from the coal storage area where concentrations up to 1200 mg./l were observed. The depth of this enrichment appears to extend beyond the maximum depth into the aquifer investigated. Sulfate concentrations decreased rapidly away from the coal storage area to an average of 12 mg./l within the proposed site boundaries. Other local sources of sulfate in groundwater appear to be related to the present ash settling pond.

The concentration of chloride within the proposed site averaged 7.1 mg./l. Higher levels were generally observed in wells adjacent to U. S. Highway 51 where the infiltration of road salt has locally raised chloride concentrations.

The above interpretations are based on one round of water quality sampling only and should be considered as preliminary in nature. High sulfate and chloride concentrations observed at greater depths may be a temporary condition resulting from contamination of spoil backfill materials with coal dust or salt, respectively, during installation of the monitoring well. Future sampling of these monitoring wells will help to distinguish short term contamination from actual conditions existing in the aquifer.

APPENDIX F
WATER QUALITY DATA

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)
1A	7.6	550	17.	6.5	52	37	<0.1
1B	8.05	460	16.	10.5	39	31	<0.1
2	7.8	527	14.	2.5	45	32	<0.1
3A	7.5	548	13.	2.5	58	36	<0.1
3B	8.1	506	14.	7.0	50	34	<0.1
4	7.8	580	10.	4.0	59	34	<0.1
5	6.3	560	210.	12.5	13	29	10
16	7.6	408	12.	1.5	42	28	<0.1
17	6.45	350	30.	16.5	16	13	0.6
18	6.45	380	4.	4.5	33	22	5.7
19	7.9	570	10.	42.5	44	24	<0.1
20	8.0	340	10.	5.0	36	24	<0.1
21	6.9	220	20.	4.5	23	10	0.1
24A	7.45	775	18.	6.0	76	52	0.1
24B	7.85	440	15.	6.0	43	31	0.1
25	8.1	300	10.	2.5	29	20	<0.1
26A	7.2	2100	900	17.0	140	48	1.5
26B	7.5	2600	1100	16.5	43	7.0	0.2
27	7.15	400	6.	8.0	23	18	<0.1
28A	7.75	500	3.	0.5	48	31	<0.1
28B	7.6	480	4.	3.5	39	28	<0.1
29A	7.8	330	16.	1.5	33	21	0.5
30A	6.75	920	64.	11.0	38	30	26
30B	7.6	770	210	21.0	37	19	<0.1
33A	8.2	2500	1200	24.0	83	50	<0.1
33B	7.9	390	22.	6.5	31	27	0.2
34A	7.7	680	140.	10.0	58	45	0.1
34B	7.7	1700	660	15.0	48	22	<0.1
35	6.8	740	<1.0	4.0	66	33	2.9
36	6.8	740	<1.0	3.5	53	35	6.1
37A	7.7	460	9.	4.0	48	31	0.8
37B	7.5	630	73.	7.5	71	35	<0.1
39A	7.5	1800	350	22.0	180	100	0.1
39B	7.9	330	560	20.5	31	22	0.1
40A	8.0	630	140	8.5	43	29	<0.1
40B	8.1	330	17.	3.0	31	22	<0.1
41	6.8	590	16.	11.0	58	27	9.3

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)
42	7.4	2400	900	17.5	50	12	0.5
44	6.9	490	<1.	16.5	39	23	11
45	7.6	390	14.	3.0	40	25	<0.1
46A	7.3	1100	21.	15.5	140	82	<0.1
46B	7.8	470	25.	17.5	40	26	<0.1
47	6.6	1200	3.	8.0	140	40	16
48A	7.3	620	15.	8.0	62	37	<0.1
48B	7.1	520	22.	20.0	43	29	0.2
49	7.15	730	6.	3.5	75	41	<0.1
50A	7.6	520	28.	15.5	51	34	<0.1
50B	7.5	410	21.	18.0	31	21	<0.1
51A	6.1	1850	8.	205.	65	40	<0.1
51B	7.2	1250	23.	275.	57	36	21
52A	7.7	450	16.	30.5	36	17	<0.1
52B	7.4	430	40.	17.5	32	20	<0.1
53	7.75	450	27.	10.5	39	28	<0.1
54A	7.8	350	12.	4.0	34	21	0.1
54B	7.55	390	15.	5.5	40	24	0.1
55B	7.9	340	23.	17.5	32	22	0.1
56	7.8	450	22.	9.5	43	28	0.1
57	7.85	380	17.	7.0	38	24	0.1
M-6	7.0	1160	5.	7.0	150	91	2.3
Cooling Lake	8.3	370	31.	18.0	34	21	<0.1
Ash Pond Effluent	7.45	1380	13.	4.0	28	1.2	3.7
Ash Pond Drainage Ditch (A)	11.4	1510	520.	23.5	29	0.2	<0.1
Drainage Ditch (B)	7.8	500	21.	7.0	43	29	<0.1
	9.05	1780	750	14.0	42	5.4	<0.1

APPENDICES TO

SUPPLEMENTARY FEASIBILITY STUDY REPORT AND PRELIMINARY ENGINEERING CONCEPTS COLUMBIA SITE WISCONSIN POWER AND LIGHT COMPANY TOWN OF PACIFIC, COLUMBIA COUNTY, WISCONSIN

WARZYN
ENGINEERING INC

APPENDIX I

WATER QUALITY DATA - DECEMBER 1978

WARZYN
ENGINEERING INC

12/76

C 7134

WATER QUALITY DATA

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
1A	7.3	530	30	3.1	54	35	<0.1	-
1B	7.0	470	67	6.1	49	30	<0.1	-
2	7.25	458	91	<.5	48	24	<0.1	-
3A	7.0	560	36	<.5	61	31	<0.1	-
3B	7.15	530	52	35.7	37	33	<0.1	-
4	7.2	750	69	5.8	49	30	<0.1	-
5	6.35	1,650	670	14.1	14	13	1.7	-
16	6.9	390	69	1.0	49	23	<0.1	-
17	5.55	295	57	16.3	14	8.6	0.2	-
18	5.9	430	10	4.2	47	21	1.1	-
19	7.4	765	75	4.2	51	28	<0.1	-
20	7.4	380	26	1.6	39	26	<0.1	-
21	5.7	250	54	10.4	15	8.3	0.2	-
24A	7.2	730	36	1.6	65	42	<0.1	-
24B	7.2	470	10	7.3	42	28	<0.1	-
25	7.0	335	29	7.8	39	21	0.2	-
26A	7.4	2,250	650	12.6	32	8.6	<0.1	-
26B	6.8	2,530	840	20.8	49	18	<0.1	-
27	6.9	410	24	4.2	40	24	0.4	-
28A	7.2	500	61	0.5	45	28	<0.1	-
28B	7.0	465	6	2.1	39	26	0.1	-
29A	7.1	410	24	3.6	31	22	0.1	-
30A	5.8	1,140	15	<0.5	97	56	38	-
30B	6.65	835	160	14.6	37	20	<0.1	-
33A	7.8	1,970	830	16.7	21	8.9	<0.1	-
33B	7.5	380	31	7.3	24	27	<0.1	-
34A	7.25	560	46	4.2	53	33	<0.1	-
34B	8.5	1,575	730	21.9	28	29	0.1	-
35	6.7	545	61	3.6	60	26	1.0	-
36	6.4	515	5.0	2.6	43	24	4.8	-
37A	7.05	438	30	3.7	50	28	<0.1	-
37B	6.7	325	18	7.3	1.0	0.5	<0.1	-
39A	6.35	1,260	33	13.6	70	7.6	0.1	-
39B	6.7	385	25	4.2	30	21	<0.1	<.05
40A	7.35	483	40	<0.5	48	24	<0.1	-
40B	7.25	343	4	4.2	21	14	<0.1	-
41	6.1	640	54	19.8	43	32	<0.1	-

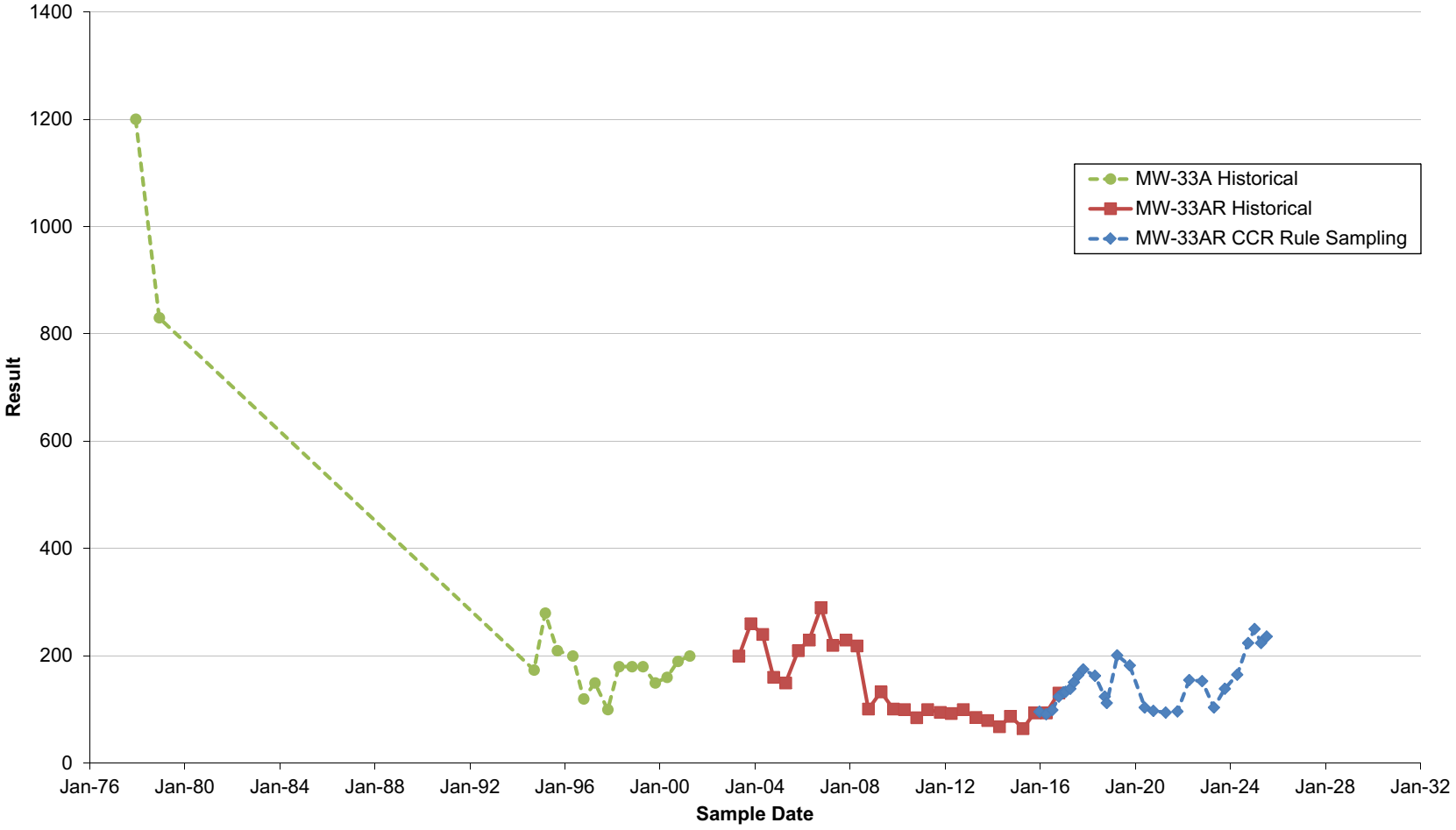
WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
42	7.15	2,050	910	15.6	23	7.5	0.1	-
44	6.15	710	6	0.5	56	27	3.5	-
45	7.2	420	32	1.0	44	26	<0.1	-
46A	7.0	560	93	<0.5	130	75	<0.1	<0.05
46B	6.5	1,290	170	20.8	46	30	<0.1	<0.05
47	7.3	958	120	<0.5	110	48	<0.1	-
48A	6.15	640	59	<0.5	42	51	<0.1	<0.05
48B	6.8	450	23	5.2	40	27	<0.1	<0.05
49	7.0	880	26	2.1	93	58	0.1	-
50A	7.4	660	25	17.7	60	36	<0.1	-
50B	7.1	405	16	17.7	38	23	<0.1	-
51A	7.0	1,170	57	135	66	31	<0.1	-
51B	7.3	1,410	22	330	46	39	<0.1	-
52A	7.0	370	110	18.5	35	10	<0.1	-
52B	7.0	595	43	52.5			0.1	-
53	Frozen							
54A	7.5	345	10	1.0	36	22	<0.1	<0.05
54B	Frozen							
55B	7.3	505	26	15.6	52	29	<0.1	<0.05
56	Frozen							
57	Frozen							
M-6								
58	6.55	1,265	140	<0.5	110	65	0.1	-
59	6.8	925	40	<0.5	86	60	<0.1	-
60	7.2	1,510	54	4.7	130	85	<0.1	-
61A	6.85	590	39	30.2	58	31	<0.1	-
61B	7.2	505	6	13.5	48	29	<0.1	-
62	6.7	1,517	72	178	120	53	<0.1	-
64	6.9	670	100	26.8	63	36	0.8	-
65	7.2	830	57	17.8	78	50	<0.1	-
66	6.5	680	55	40	66	24	3.6	-

WELL NO.	pH	SPECIFIC CONDUCTANCE (umhos/cm @ 25°C)	SULFATE (mg/l)	CHLORIDE (mg/l)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	IRON (mg/l)	BORON (mg/l)
67	7.0	560	100	1.0	57	32	1.0	-
68A	7.6	440	32	2.1	40	27	<0.1	-
68B	7.2	400	36	1.0	42	25	<0.1	-
70A	7.5	440	20	<0.5	27	37	<0.1	-
70B	7.3	520	25	5.2	51	34	<0.1	-
72A	6.45	860	11	<0.5	100	41	1.8	-
72B	8.4	230	45	<0.5	17	19	<0.1	-
M-4	7.6	864	180	26.1	20	11	<0.1	0.39
MM-4			2	2.6	14	21	0.9	-
Cooling Lake at 1	7.7	355	36	13.6	31	21.2	<0.1	-
Ash Pond at 2	11.4	3,210	1,100	22.9	34	<0.1	<0.1	-
Ash Pond at 3	8.7	725	34	21.9	48	16	<0.1	-
Ash Pond Effluent at 4	6.7	3,090	1,400	25.0	39	0.4	<0.1	-
Drainage Ditch at 5	7.2	730	74	33.9	56	38	<0.1	-
Drainage Ditch at 6	7.35	2,750	640	18.8	34	7.5	<0.1	-
Drainage Ditch at 7	8.05	1,780	740	27.1	31	0.2	<0.1	-

Attachment D

Time Series Plots

Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-33 and MW-33AR - Sulfate (mg/l as SO4)



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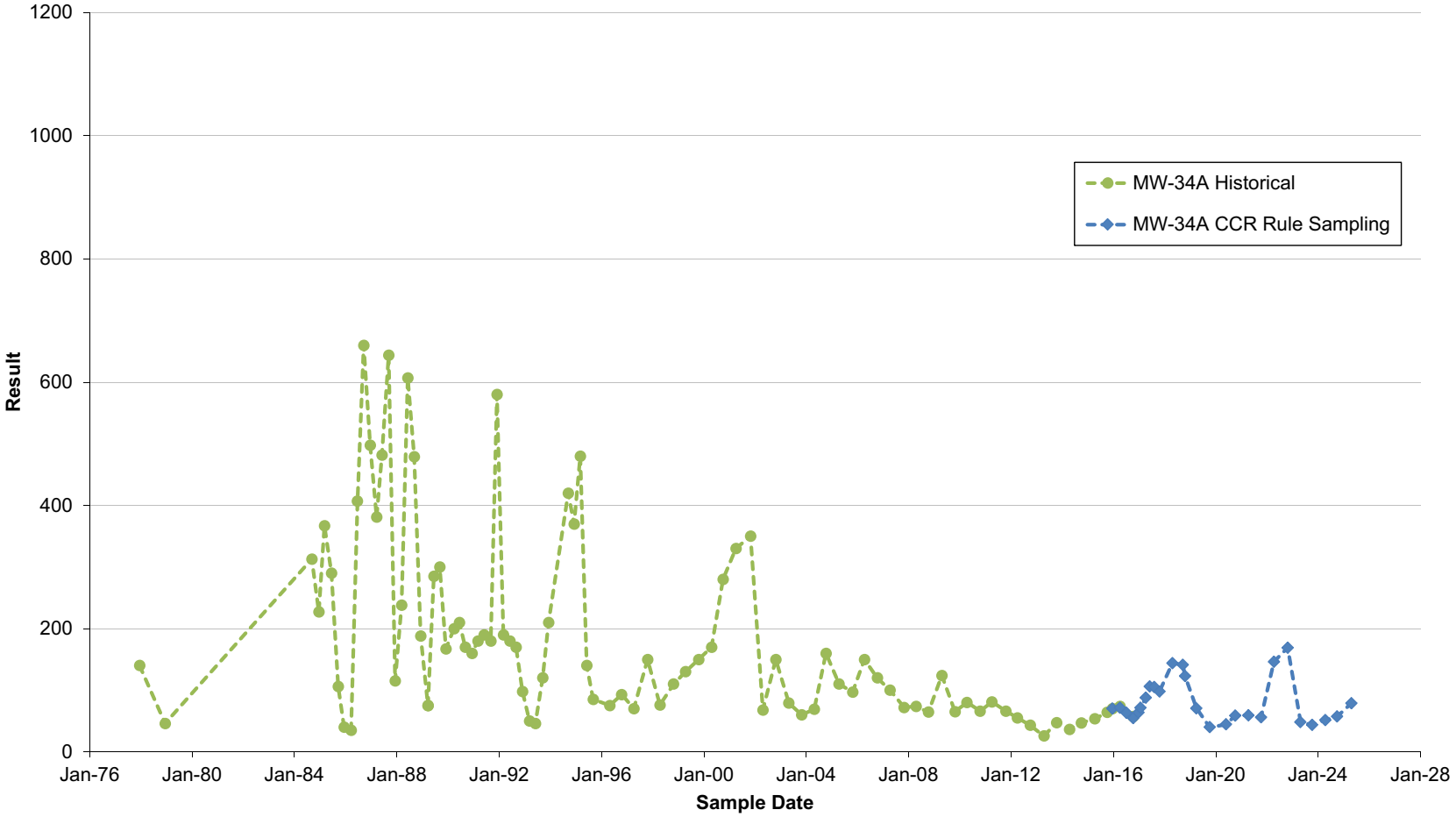
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-34A - Sulfate (mg/l as SO4)



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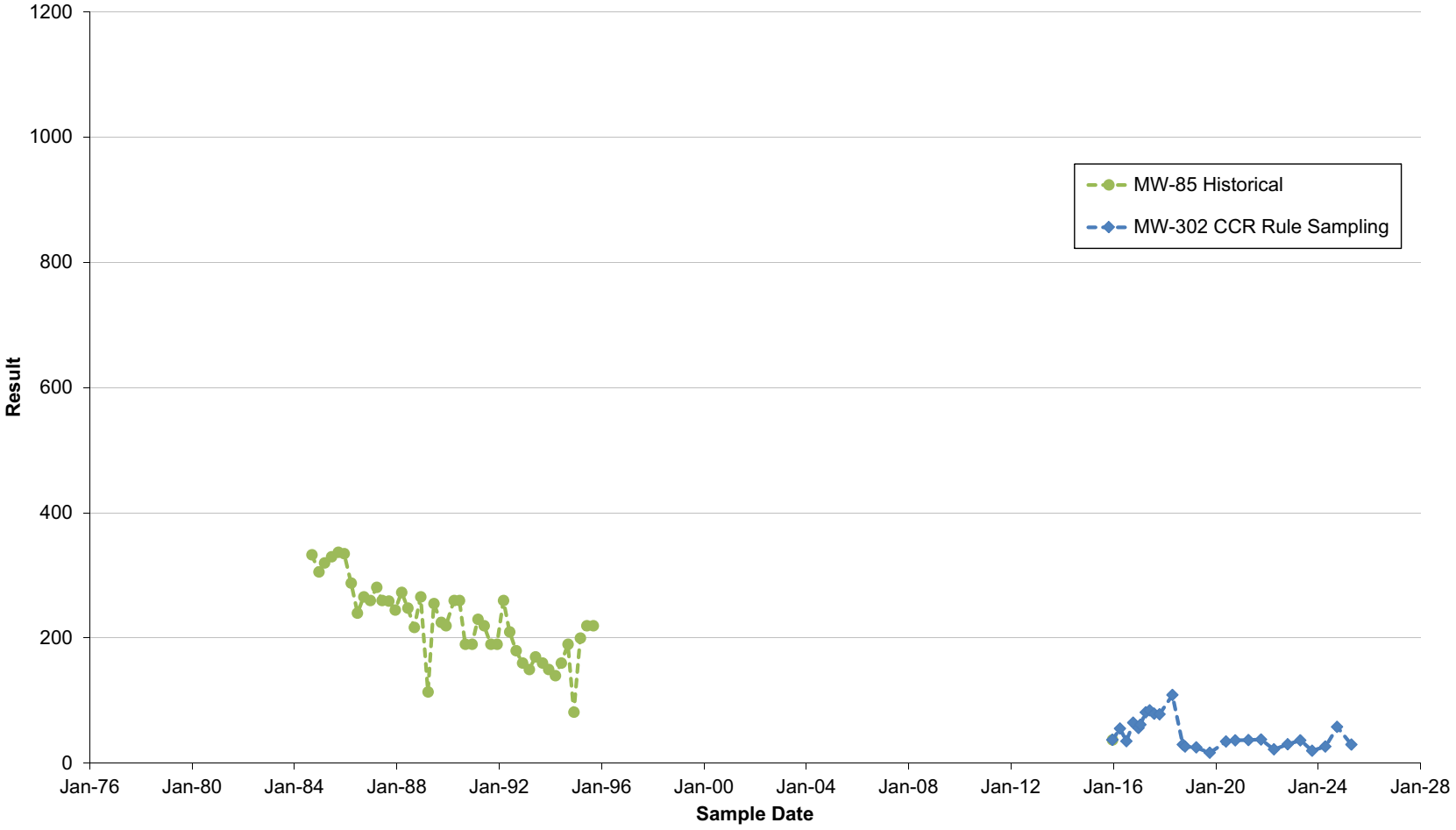
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-85 and MW-302 - Sulfate (mg/l as SO4)



I:\25225067.00\Deliverables\2025_False Exceedance Demonstration_April\C_Time Series Plots\[SO4_COL Dry.xlsx]MW-85 MW-302 CCR

Attachment E

Historical Groundwater Flow Maps

LEGEND

- PROPOSED PROJECT AREA
- OBSERVATION WELL LOCATION, NUMBER, AND WATER TABLE ELEVATION
- BORING LOCATION AND NUMBER
- WETLANDS
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL: 20 FT.)
- PRIVATE RESIDENCES (ASSUMED LOCATIONS OF PRIVATE WATER SUPPLY WELLS)
- COMMERCIAL BUILDINGS (ASSUMED LOCATIONS OF POSSIBLE PUBLIC WATER SUPPLY WELLS)
- SURFACE WATERS (STREAMS OR DRAINAGE DITCHES) ARROWS INDICATE DIRECTION OF FLOW
- OTHER BUILDINGS (GARAGES, BARNS, ETC.)
- HIGH CAPICITY WELLS
- —790— WATER TABLE CONTOURS (CONTOUR INTERVAL: 1 FT.)
- DIRECTION OF GROUNDWATER FLOW

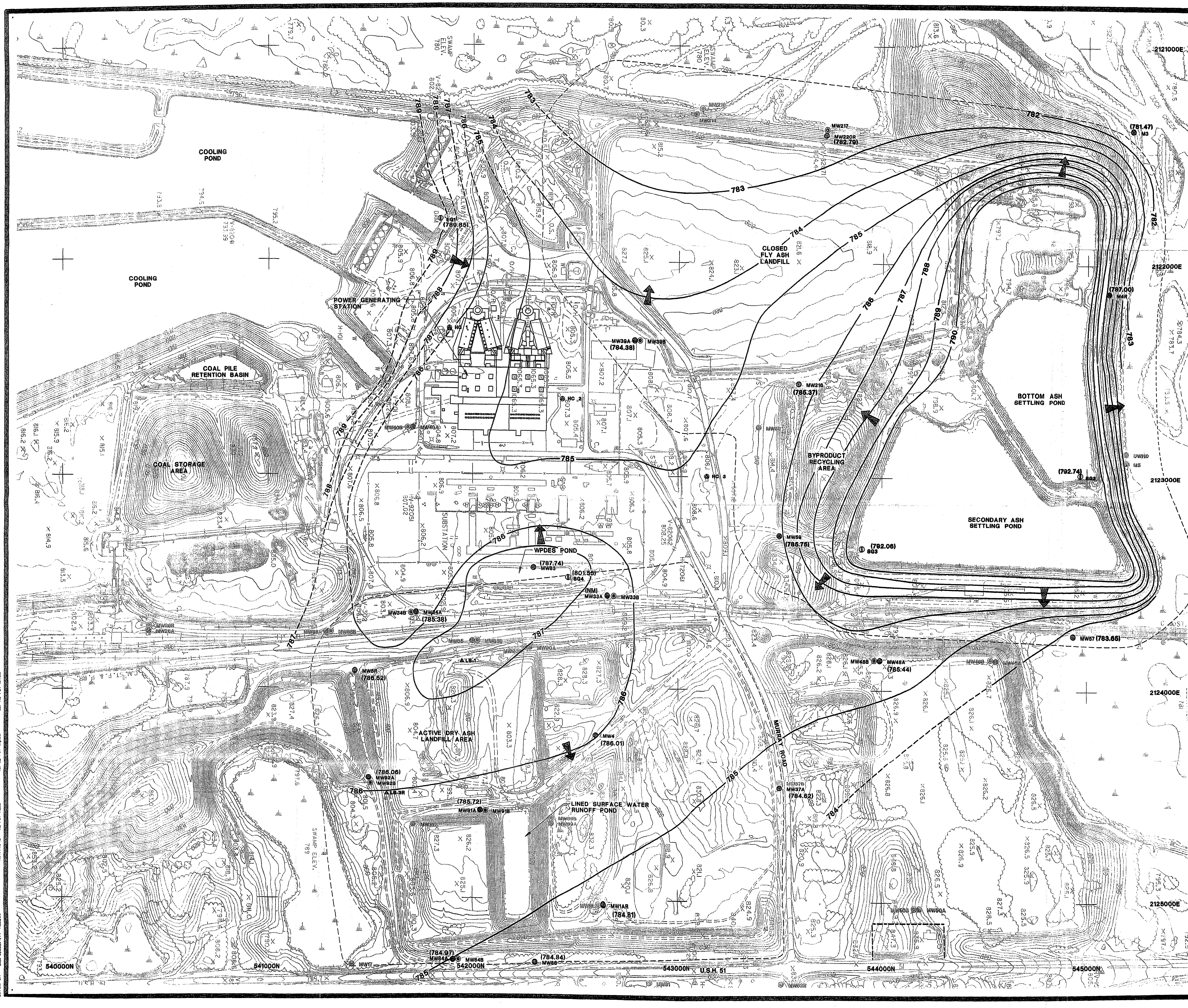
NO.	BY	DATE	REVISION	APP'D

WATER TABLE CONTOUR MAP 2/4/81

PLAN OF OPERATION – ASH DISPOSAL FACILITY
COLUMBIA SITE
WISCONSIN POWER & LIGHT COMPANY
PART OF SECTIONS 27 & 34, T12N, R9E
TOWN OF PACIFIC COLUMBIA CO. WISCONSIN

WARZYN ENGINEERING INC

DRAWN TDH	SCALE 1"=300'	SHEET 39 OF 39	
CHECKED RJK	DATE 2/10/81	DRAWING NO. C7134-94	
APPROVED			
REFERENCE		PRINTED 8/3/88	



LEGEND

- PROPERTY LINE
- EXISTING RAILROAD TRACKS
- EXISTING GROUND CONTOUR
- CONTOUR DEPRESSION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING SPOT ELEVATION
- TREES AND/OR BRUSH
- WETLAND AREA
- EDGE OF WATER
- HC 1 — WATER SUPPLY WELL
- MW91A — WATER TABLE WELL
- MW91B — PIEZOMETER
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- SG1 — STAFF GAUGE
- LS-1 — LYSIMETER
- DESIGN MANAGEMENT ZONE
- PROPERTY LINE
- O.S. — OPEN STORAGE
- O.H. — OVERHEAD STRUCTURE
- E.P.S. — ELECTRICAL POWER STATION
- T — TANK
- W — WALL
- (785.31) — WATER TABLE ELEVATION (FT-MSL) (N.M. = NOT MEASURED)
- 786 — GROUNDWATER CONTOUR LINE (1FT INTERVAL- FT. M.S.L.) (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

NOTES

1. BASE MAP IS PROVIDED BY WISCONSIN POWER & LIGHT CO. AND IS BASED ON PHOTOS TAKEN ON APRIL 6, 1995 BY AERO-METRIC ENGINEERING, SHEBOYGAN, WI.
2. HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE - DATUM: NAD 83(91).
3. VERTICAL DATUM IS REFERENCED TO U.S.G.S. MEAN SEA LEVEL (MSL). TOPOGRAPHIC CONTOUR INTERVAL IS TWO FEET.
4. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER & LIGHT CO. IN DECEMBER 1994 & NOVEMBER 1996.
5. THE LOCATION OF THE DESIGN MANAGEMENT ZONE DEMARCATION LINE IS APPROXIMATE.
6. WATER ELEVATION USED TO PREPARE THIS MAP WERE MEASURED ON OCTOBER 24, 2002.
7. THE WATER LEVEL AT MW 33A AND MW 33B COULD NOT BE MEASURED DURING OCTOBER 2002 DUE TO AN OBSTRUCTION IN THE WELL CASING.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

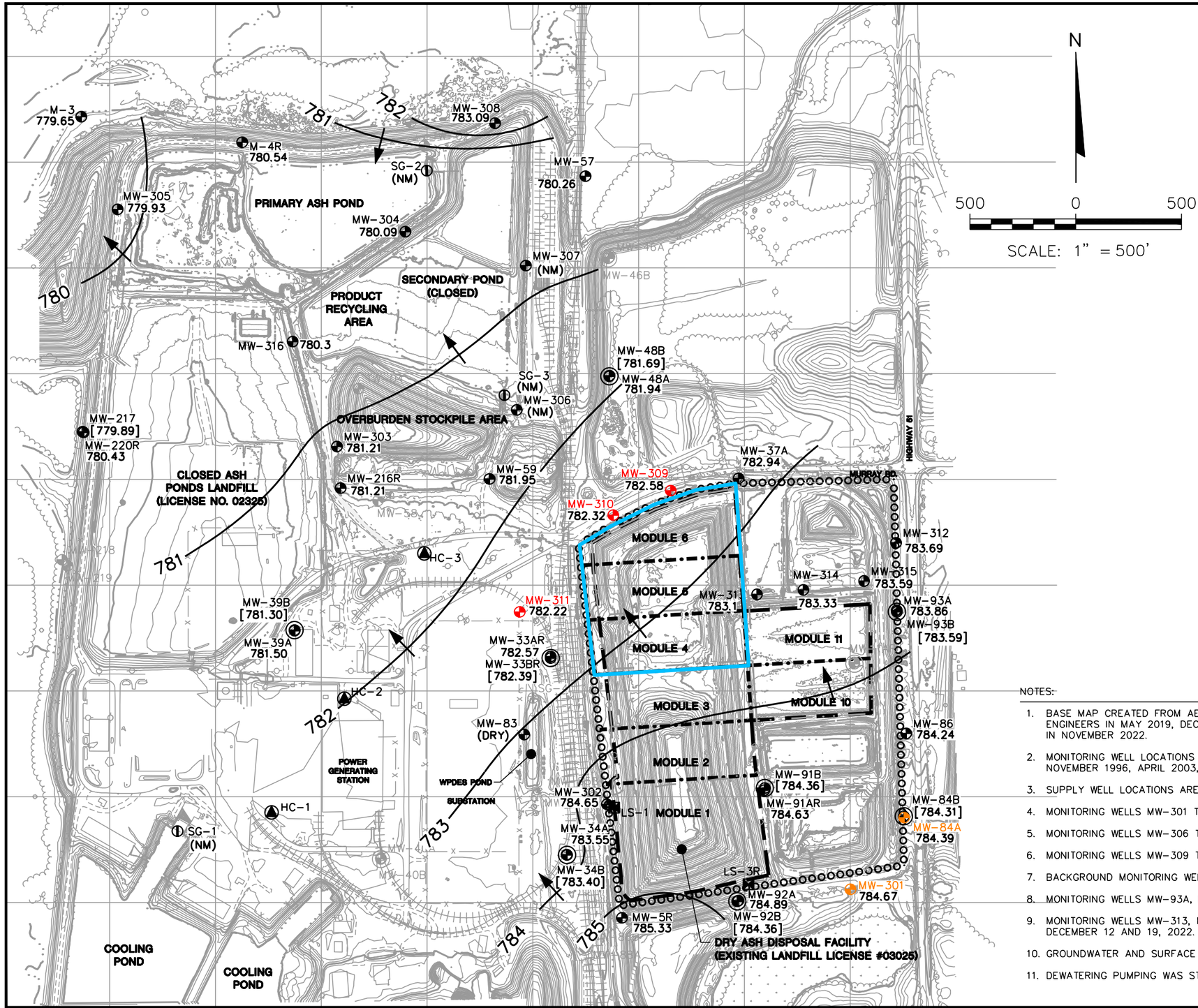
PROJECT: ALLIANT ENERGY - WP&L
COLUMBIA ASH PONDS & DRY ASH DISPOSAL FACILITY

SHEET TITLE: WATER TABLE MAP (OCTOBER 2002)

DRAWN BY: defoej	SCALE: 1"=200'	PROJ. NO. 3024.28
CHECKED BY: JMR		FILE NO. WATERTBL.PLT
APPROVED BY: JCO	DATE PRINTED:	FIGURE 3
DATE: JANUARY 2003		

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608-831-4444

Plot Data
Design File = j:\03024\28\WATERTBL.plt
User ID = defoej
Plot File = j:\03024\28\WATERTBL.prf
Pen Table = K:\CADNET\TBL\default.tbl
Plotter = 8830_24x36
Scale = 1:200.000000
Rotation = 90.000000
Plot Date = Thu Jan 30 08:02:54 2003
Levels On = 1,3,5-8,10,11,34,44-47,51,63
Referenced Files
Ref. File 1 = J:\03024\14\border.dgn
Ref. File 2 = J:\03024\14\bmclient.dgn
Ref. File 3 = J:\03024\14\bmrmt.dgn
Ref. File 4 = *no ref name*
Ref. File 5 = *no ref name*
Ref. File 6 = *no ref name*
Ref. File 7 = *no ref name*
Ref. File 8 = *no ref name*
Ref. File 9 = *no ref name*
Ref. File 10 = *no ref name*
Logical Names
(1) bdr
(2) bmc
(3) bmr
(4) *no ref logical*
(5) *no ref logical*
(6) *no ref logical*
(7) *no ref logical*
(8) *no ref logical*
(9) *no ref logical*
(10) *no ref logical*
Levels
(1) 1-5,9,11,63
(2) 1-6,9-27,29-34,36-63
(3) 7,45-47,50,51
(4) *no ref levels*
(5) *no ref levels*
(6) *no ref levels*
(7) *no ref levels*
(8) *no ref levels*
(9) *no ref levels*
(10) *no ref levels*



LEGEND

- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' CONTOUR)
- EXISTING FENCELINE
- EXISTING TRACKS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EDGE OF WATER
- DRY ASH DISPOSAL FACILITY LIMITS
- LIMITS OF WASTE
- LINER PHASE/MODULE LIMITS
- WATER SUPPLY WELL
- STAFF GAUGE
- WATER TABLE WELL
- PIEZOMETER
- LYSIMETER
- ABANDONED WATER TABLE WELL
- ABANDONED PIEZOMETER
- CCR UNIT
- CCR MONITORING WELL
- CCR BACKGROUND MONITORING WELL
- 787.62 — WATER TABLE ELEVATION
- [788.87] — POTENTIOMETRIC SURFACE ELEVATION (NOT CONTOURED)
- (NM) — NOT MEASURED
- WATER TABLE CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, AND GROUND SURVEYS BY SCS ENGINEERS IN MAY 2019, DECEMBER 2020, NOVEMBER 2021, AND DECEMBER 2021, AND BY DRONE SURVEY BY AMES IN NOVEMBER 2022.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016 AND BY SCS ENGINEERS IN FEBRUARY 2018.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.
7. BACKGROUND MONITORING WELLS FOR THE MODULE 4-6 DRY ASH FACILITY ARE: MW-301 AND MW-84A.
8. MONITORING WELLS MW-93A, MW-93B, AND MW-312 INSTALLED BY CASCADE ENVIRONMENTAL ON MARCH 25-28, 2022.
9. MONITORING WELLS MW-313, MW-314, AND MW-315 WERE INSTALLED BY HORIZON CONSTRUCTION & EXPLORATION ON DECEMBER 12 AND 19, 2022.
10. GROUNDWATER AND SURFACE WATER ELEVATIONS WERE MEASURED OCTOBER 2023.
11. DEWATERING PUMPING WAS STOPPED BY SEPTEMBER 11, 2023.

PROJECT NO.	25224067.00	DRAWN BY:	KP
DRAWN:	11/13/2023	CHECKED BY:	TK
REVISED:	04/24/2024	APPROVED BY:	TK 05/10/2024

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
W8375 MURRAY ROAD
PARDEEVILLE, WI 53954

SITE: ALLIANT ENERGY
COLUMBIA ENERGY CENTER
MODULES 4-6 DRY ASH DISPOSAL FACILITY
PARDEEVILLE, WI

WATER TABLE MAP
OCTOBER 2023

FIGURE 3

I:\25224067.00\Drawings\Modules 4-6\Water Table Map-October 2023.dwg, 4/25/2024 7:24:56 AM

Appendix D

Monitoring Period Results Summary

January - July 2025 CCR Monitoring Results - Groundwater Monitoring Points
Wisconsin Power and Light - Columbia Energy Center Dry Ash Disposal Facility
License #03025

		Background Wells		Downgradient Wells																Leachate	Field Blanks				
Parameter	**Units**	**MW-84A**	**MW-301**	**MW-33AR**			**MW-34A**	**MW-302**	**MW-309**		**MW-310**			**MW-311**	**MW-317**	**MW-318**			**MW-319**		**LP-1**	**FIELD BLANK - LF Modules**				**Field Blank LP**
Date		4/22/2025	4/22/2025	1/10/2025	4/21/2025	7/16/2025	4/21/2025	4/22/2025	4/21/2025	7/17/2025	4/21/2025	7/16/2025	7/30/2025	4/21/2025	4/26/2025	4/26/2025	Duplicate	7/16/2025	4/26/2025	7/17/2025	4/22/2025	1/10/2025	4/22/2025	7/16/2025	7/30/2025	4/22/2025
Groundwater Elevation	feet AMSL	786.33	787.41	785.35	783.71	786.07	783.15	787.05	785.17	785.46	785.09	785.45	784.97	785.23	784.94	785.06	--	785.45	786.30	787.04	--	--	--	--	--	--
Turbidity, Field	NTU	0.0	8.64	0	3.74	4.12	1.09	17.15	0.01	3.33	0.0	21.03	0	0.0	1.76	4.26	--	N	1.98	4.26	Y	--	--	--	--	--
Temperature, Field	deg C	10.8	8.0	11.7	10.2	13.6	11.3	10.6	10.2	13.6	10.6	14.2	13.7	9.4	11.1	11.3	--	11.9	11.3	14.6	11.1	--	--	--	--	--
pH, Field	Std. Units	7.07	6.59	7.51	7.81	7.45	7.80	7.18	7.55	7.75	7.69	7.71	7.84	7.54	7.67	7.46	--	7.38	7.56	7.49	7.26	--	--	--	--	--
Specific Conductance, Field	umhos/cm	587.6	827	858	856	890	522.5	554.8	2,021	2,708	1,097	906	953	453.4	516.4	863	--	733	994	1011	3,508	--	--	--	--	--
Boron, Total	µg/L	10.0	25.5	--	468	--	224	379	102	93.6	86.4	97.9	--	24.8	29.1	18.3	17.9	--	18.8	--	2,360	--	<3.0	<3.0	--	<3.0
Calcium, Total	µg/L	70,000	108,000	--	85,300	--	59,400	66,700	35,900	--	45,900	--	--	51,300	57,900	99,900	102,000	--	76,000	--	--	--	<76.2	--	--	--
Chloride, Total	mg/L	3.0	1.4 J	--	47.7	--	8.7	0.83 J	386 M0	--	110	--	--	2.1	4.5	23.7	23.2	--	242	141	507	--	<0.59	<0.59	--	<0.59
Fluoride, Total	mg/L	<0.095	<0.095	--	<0.48 D3	--	<0.095	<0.095	<0.95 D3	--	<0.48 D3	--	--	<0.095	<0.095	<0.48 D3	<0.095	--	<0.48 D3	--	<4.8 D3	--	<0.095	--	--	<0.095
Sulfate, Total	mg/L	1.7 J	8.2	250	236	231	78.7	30.0	75.7	50.3	170	--	67.4	10.5	5.2	156	149	122	31.6	--	1,250	<0.44	<0.44	<0.44	<1.9	<0.44
Alkalinity, Total as CaCO3	mg/L	359	502	--	190	--	229	288	502	--	334	--	--	261	275	310	309	--	349	--	129	--	<7.4	--	--	<7.4
Total Hardness by 2340B	mg/L	329	475	412	374	--	265	313	156	--	291	--	--	245	268	453	468	--	316	--	940	<1.0	<0.32	--	--	<0.32
Total Dissolved Solids	mg/L	324	468	--	542	--	300	338	1160	--	692	--	--	254	288	544	554	--	700	--	--	--	12.0 J	--	--	--
Total Suspended Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16.4	--	--	--	--	<0.48
BOD, 5 Day	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<4.0 1q	--	--	--	--	<2.0
Antimony, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.37 J	--	--	--	--	<0.15
Beryllium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.25	--	--	--	--	<0.25
Cadmium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.15	--	--	--	--	<0.15
Cobalt, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.2	--	--	--	--	<0.12
Iron, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,480	--	--	--	--	<58.0
Lead, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.99 J	--	--	--	--	<0.24
Lithium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89.8	--	--	--	--	<0.22
Manganese, Total	µg/L				--	--				--		--	--					--		--	332	--	--	--	--	<1.2
Mercury, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.066	--	--	--	--	<0.066
Molybdenum, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	248	--	--	--	--	<0.44
Selenium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.5	--	--	--	--	<0.32
Thallium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.14	--	--	--	--	<0.14
Radium 226 + 228	pCi/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.990±0.861	--	--	--	--	0.861±0.744

Notes/Abbreviations:
AMSL: Above mean sea level
NTU: Nephelometric turbidity units
µg/L: micrograms per liter
mg/L: milligrams per liter
µmhos/cm: micromhos per centimeter
pCi/L: picocuries per liter

J: The reported result is an estimated value.
D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
q1: The BOD result is 3.21 mg/L. This is less than the reporting limit multiplied by the dilution factor.

Created by: MDB Date: 6/1/2023
Last revision: ACW Date: 1/6/2026
Checked by: MDB Date: 1/7/2026

I:\25225067.00\Deliverables\2025 State Annual\Appendix D_Results\working files\Dry Ash_CCR\[2025 April_Columbia_Dry_Ash_03025_All_Data CCR Wells.xls]Revision History

Table 3. Monitoring Results - Non-CCR Monitoring Points
Wisconsin Power and Light - Columbia Energy Center Dry Ash Disposal Facility / SCS Engineers Project #25225067.10
License #03025

		Monitoring Wells															Lysimeters		Supply Wells			Blank
Parameter	**Units**	**MW-5R**	**MW-33BR**	**MW-34B**	**MW-37A**		**MW-83**	**MW-84B**		**MW-86**	**MW-91AR**		**MW-91B**	**MW-92A**	**MW-92B**	**MW-93A^**	**LS-1**	**LS-3R**	**HC-1**	**HC-2**	**HC-3**	**FIELD BLANK**
Date		4/21/2025	4/21/2025	4/21/2025	4/21/2025	Duplicate	4/23/2025	4/21/2025	Duplicate	4/21/2025	4/23/2025	Duplicate	4/22/2025	4/21/2025	4/21/2025	4/21/2025	4/22/2025	4/22/2025	4/23/2025	4/23/2025	4/23/2025	4/22/2025
Groundwater Elevation	feet AMSL	787.47	785.07	785.86	785.00		785.70	786.69	--	786.54	786.84		786.64	787.43	787.000	786.03	--	--	--	--	--	--
Leachate Depth	feet	--	--	--	--	--	--	--		--	--		--	--	--	--	--	--	--	--	--	--
Color, Field	no units	--	N	N	Y	--	N	N	--	N	N	--	N	N	N	N	N	--	N	N	N	--
Odor, Field	no units	--	N	N	N	--	N	N	--	N	N	--	N	N	N	N	N	--	N	N	N	--
Turbidity, Field	no units	--	N	N	Y	--	Y	N	--	Y	Y	--	N	Y	Y	Y	Y	--	Y	N	N	--
Temperature, Field	deg C	--	11.6	11.9	11.3	--	11.0	11.4	--	10.6	11.1	--	12.6	9.9	10.6	10.7	11.3	--	17.0	13.3	11.6	--
pH, Field	Std. Units	--	7.28	7.51	7.30	--	8.00	7.10	--	7.19	6.78	--	6.90	7.10	6.97	7.00	7.42	--	7.31	7.84	7.71	--
Specific Conductance, Field	umhos/cm	--	475	369.5	732	--	278.4	551	--	1,450	841	--	813	459	750	675	1,869	--	1,033	794	629	--
Well Dry	no units	--	--	--	--	--	--	--		--	--		--	--	--	--	--	Yes	--	--	--	--
Nitrate + Nitrite as Nitrogen, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		1.2	1.9	2.4	--
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.76 J	--	--	--	--	<0.21
Aluminum, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<32.2	--	--	--	--	--	--
Arsenic, Dissolved	µg/L	--	0.35 J	0.39 J	<0.28	<0.28	<0.28	<0.28	0.29 J	0.35 J	<0.28	<0.28	<0.28	<0.28	0.52 J	<0.28	--	--	--	--	--	--
Barium, Dissolved^	µg/L	--	--	--	--	--	--	--		--	--		--	--	--	70.3	--	--	--	--	--	--
Boron, Dissolved	µg/L	--	221	182	26.0	24.8	19.6	11.2	10.7	11.2	201	201	677	35.3	9.3 J	12.8	--	--	--	--	--	--
Cadmium, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.15	--	--	--	--	--	--
Chromium, Dissolved	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.1 J	--	--	--	--	--	--
Copper, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.9	--	--	--	--	--	--
Lead, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.24	--	--	--	--	--	--
Manganese, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.2	--	--	--	--	--	--
Mercury, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.066						
Molybdenum, Dissolved	µg/L	--	4.9	<0.44	<0.44	<0.44	4.6	<0.44	<0.44	<0.44	15.1	14.9	56.4	<0.44	<0.44	<0.44	--	--	--	--	--	--
Selenium, Dissolved	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.82 J	--	--	--	--	--	--
Silver, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.13	--	--	--	--	--	--
Sodium, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19,600	--	--	--	--	--	--
Zinc, Dissolved^	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10.3	--	--	--	--	--	--
Chloride, Dissolved^	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18.2	--	--	--	--	--	--
Fluoride, Dissolved^	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.095	--	--	--	--	--	--
Sulfate, Dissolved	mg/L	--	19.9	23.7	66.9	66.1	2.3	1.6 J	1.7 J	38.3	137	137	65.9	5.0	19.8	4.4	--	--	--	--	--	--
Alkalinity, Total as CaCO3, Dissolved	mg/L	--	246	197	328	321	172	352	354	426	436	422	419	282	421	404	--	--	--	--	--	--
Total Hardness by 2340B, Dissolved	mg/L	--	253	216	291	293	167	338	340	467	526	529	477	267	422	373	--	--	--	--	--	--
Chemical Oxygen Demand^	mg/L	--	--	--	--		--	--	--	--	--	--	--	--	--	27.8 J	--	--	--	--	--	--
Aluminum, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,250	--	--	--	--	<32.2
Arsenic, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.5	--	1.1	0.53 J	0.62 J	<0.28
Barium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	206	--	--	--	--	<0.70
Boron, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,170	--	255	359	398	<3.0
Cadmium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.52 J	--	--	--	--	<0.15
Chromium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	--	--	--	--	<1.0
Molybdenum, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,410	--	4.3	16.3	18.0	<0.44
Selenium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.4	--	--	--	--	<0.32
Chloride, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.2 J, D3	--	156	100	37.8	<0.59
Sulfate, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,040	--	92.4	109	112	<0.44
Alkalinity, Total as CaCO3, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	155	--	319	236	219	<7.4
Total Hardness by 2340B, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	480	--	401	329	296	<0.32

Notes/Abbreviations:
AMSL: Above mean sea level
D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
J: The reported result is an estimated value.
^: Additional baseline parameters are included at MW-93A.

µg/L: micrograms per liter
mg/L: milligrams per liter
µmhos/cm: micromhos per centimeter

Created by: MDB Date: 6/1/2023
Last revision: AJR Date: 6/3/2025
Checked by: MDB Date: 6/13/2025

I:\25225067.00\Data and Calculations\Tables\GEMS Tables_April 2025_Dry Ash\[3_2025 April_Columbia_Dry_Ash_03025_All_Data_Non CCR Wells.xls]Data

Table 3. Monitoring Results - Non-CCR Monitoring Points
Wisconsin Power and Light - Columbia Energy Center Dry Ash Disposal Facility / SCS Engineers Project #25225067.10
License #03025

		Leachate Head Wells						
Parameter	**Units**	**LH-2**	**LH-5**	**LH-6**	**LH-10A**	**LH-10B**	**LH-11A**	**LH-11B**
Date		4/30/2025	4/30/2025	4/30/2025	4/30/2025	4/30/2025	4/30/2025	4/30/2025
Groundwater Elevation	feet AMSL	--	--	--	--	--	--	--
Leachate Depth	feet	0.02	0.0	0.0	0.10	0.11	0.04	0.13
Color, Field	no units	--	--	--	--	--	--	--
Odor, Field	no units	--	--	--	--	--	--	--
Turbidity, Field	no units	--	--	--	--	--	--	--
Temperature, Field	deg C	--	--	--	--	--	--	--
pH, Field	Std. Units	--	--	--	--	--	--	--
Specific Conductance, Field	umhos/cm	--	--	--	--	--	--	--
Well Dry	no units	--	--	--	--	--	--	--
Nitrate + Nitrite as Nitrogen, Total	mg/L	--	--	--	--	--	--	--
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	--	--	--
Aluminum, Dissolved^	µg/L	--	--	--	--	--	--	--
Arsenic, Dissolved	µg/L	--	--	--	--	--	--	--
Barium, Dissolved^	µg/L	--	--	--	--	--	--	--
Boron, Dissolved	µg/L	--	--	--	--	--	--	--
Cadmium, Dissolved^	µg/L	--	--	--	--	--	--	--
Chromium, Dissolved	µg/L	--	--	--	--	--	--	--
Copper, Dissolved^	µg/L	--	--	--	--	--	--	--
Lead, Dissolved^	µg/L	--	--	--	--	--	--	--
Manganese, Dissolved^	µg/L	--	--	--	--	--	--	--
Mercury, Dissolved^	µg/L							
Molybdenum, Dissolved	µg/L	--	--	--	--	--	--	--
Selenium, Dissolved	µg/L	--	--	--	--	--	--	--
Silver, Dissolved^	µg/L	--	--	--	--	--	--	--
Sodium, Dissolved^	µg/L	--	--	--	--	--	--	--
Zinc, Dissolved^	µg/L	--	--	--	--	--	--	--
Chloride, Dissolved^	mg/L	--	--	--	--	--	--	--
Fluoride, Dissolved^	mg/L	--	--	--	--	--	--	--
Sulfate, Dissolved	mg/L	--	--	--	--	--	--	--
Alkalinity, Total as CaCO3, Dissolved	mg/L	--	--	--	--	--	--	--
Total Hardness by 2340B, Dissolved	mg/L	--	--	--	--	--	--	--
Chemical Oxygen Demand^	mg/L	--	--	--	--	--	--	--
Aluminum, Total	µg/L	--	--	--	--	--	--	--
Arsenic, Total	µg/L	--	--	--	--	--	--	--
Barium, Total	µg/L	--	--	--	--	--	--	--
Boron, Total	µg/L	--	--	--	--	--	--	--
Cadmium, Total	µg/L	--	--	--	--	--	--	--
Chromium, Total	µg/L	--	--	--	--	--	--	--
Molybdenum, Total	µg/L	--	--	--	--	--	--	--
Selenium, Total	µg/L	--	--	--	--	--	--	--
Chloride, Total	mg/L	--	--	--	--	--	--	--
Sulfate, Total	mg/L	--	--	--	--	--	--	--
Alkalinity, Total as CaCO3, Total	mg/L	--	--	--	--	--	--	--
Total Hardness by 2340B, Total	mg/L	--	--	--	--	--	--	--

Table 3. Monitoring Results
Wisconsin Power and Light - Columbia Energy Center Ash Ponds Disposal Facility / SCS Engineers Project #25225067.00
License #02325

Parameter	Units	M-3	M-4R	MW-39A	MW-39B	MW-48A	MW-48B	MW-57	MW-59	MW-216R	MW-217	MW-220RR	SG-1	FIELD BLANK
Date Collected		4/22/2025	4/21/2025	4/22/2025	4/22/2025	4/21/2025	4/21/2025	4/22/2025	4/22/2025	4/21/2025	4/22/2025	4/22/2025	4/22/2025	4/22/2025
Groundwater Elevation	Feet amsl	779.71	783.61	784.43	784.40	784.70	784.66	782.78	784.67	784.39	782.95	783.61	--	--
Surface Water Elevation	Feet amsl	--	--	--	--	--	--	--	--	--	--	--	788.5	--
Color, Field	no units	Y	N	Y	N	Y	N	N	N	Y	Y	Y	--	--
Odor, Field	no units	N	N	N	N	N	N	N	N	N	N	N	--	--
Turbidity, Field	no units	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	--	--
Specific Conductance, Field	µmhos/cm	503	734	2,009	1,193	975	889	675	863	554	817	364	--	--
pH, Field	Std. Units	7.53	7.28	7.03	6.86	6.73	6.75	6.60	6.90	7.31	7.22	7.48	--	--
Temperature, Field	deg C	9.9	8.8	12.5	12.5	10.2	10.3	7.3	11.4	11.0	12.3	10.6	--	--
Monitoring Point Dry	no units	--	--	--	--	--	--	--	--	--	--	--	--	--
Monitoring Point Inaccessible	no units	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic, Dissolved	µg/L	0.43 J	<0.28	<0.28	<0.28	<0.28	0.65 J	15.8	<0.28	0.40 J	3.2	0.94 J	--	--
Barium, Dissolved	µg/L	14.7	30.5	51.3	34.1	23.5	19.6	56.2	19.4	9.5	8.0	21.0	--	--
Boron, Dissolved	µg/L	186	498	78.7	142	44.5	56.0	536	142	364	2,040	288	--	--
Chromium, Dissolved	µg/L	<1.0	<1.0	2.1 J	<1.0	1.3 J	4.3	<1.0	2.1 J	2.5 J	11.1	<1.0	--	--
Sulfate, Dissolved	mg/L	24.2	109	20.9	24.6	15.5	14.9	0.63 J	241	40.9	114	19.3	--	--
Arsenic, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	<0.28
Barium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	<0.70
Boron, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	<3.0
Chromium, Total	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	<1.0
Sulfate, Total	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	<0.44

Notes/Abbreviations:
µg/L = micrograms per liter
amsl = Above mean sea level
Y = Observed
mg/L = milligrams per liter
µmhos/cm = micromhos/cm
N = None observed
J = The reported result is an estimated value.

Created by: MDB Date: 7/5/2020
Last revision: AJR Date: 6/3/2025
Checked by: MDB Date: 6/12/2025

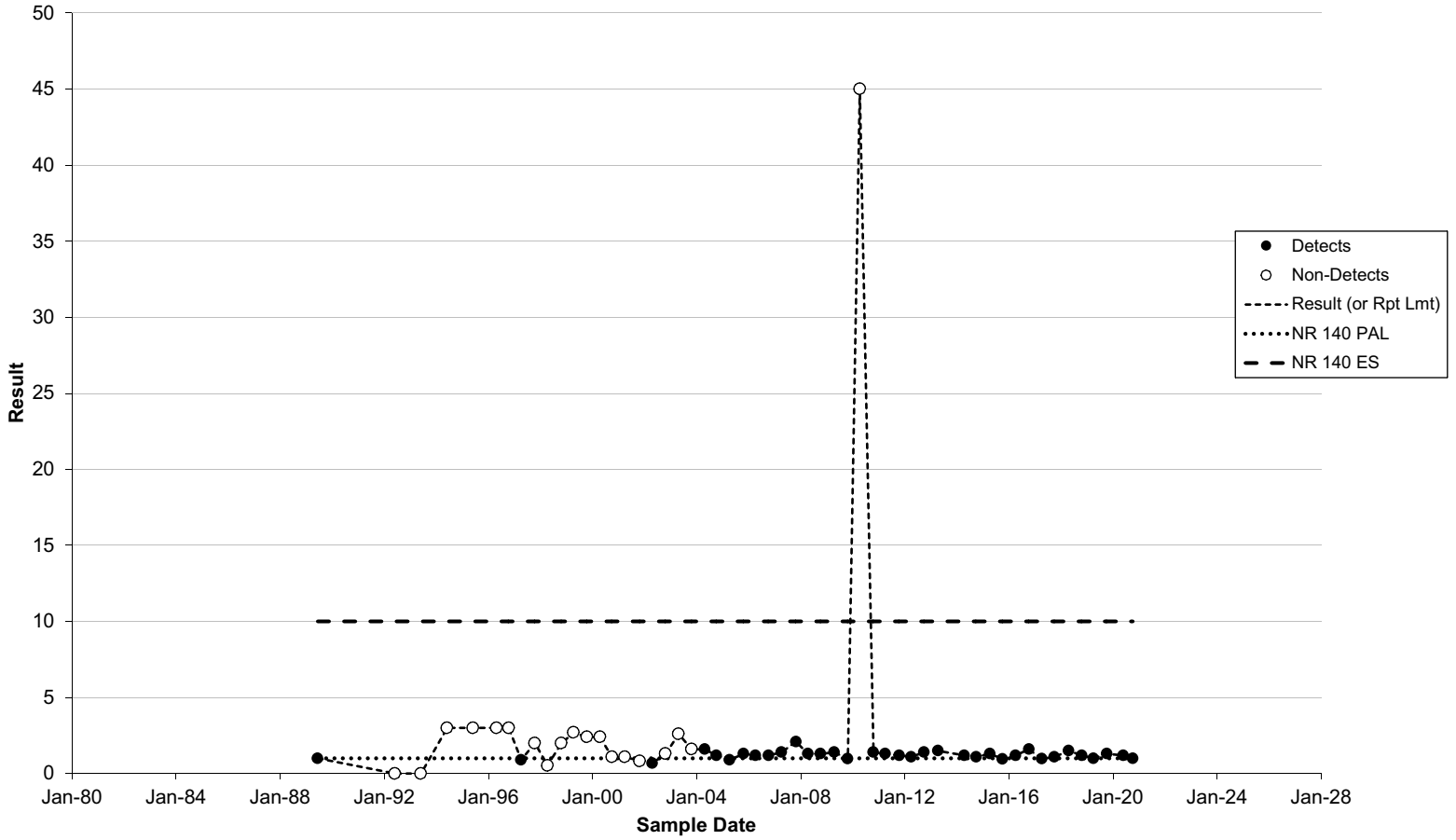
I:\25225067.00\Data and Calculations\Tables\GEMS Tables_April 2025_Ash Ponds\[3_2025 April_Columbia Ash Ponds_02325_All_Data.xls]Data

Appendix E

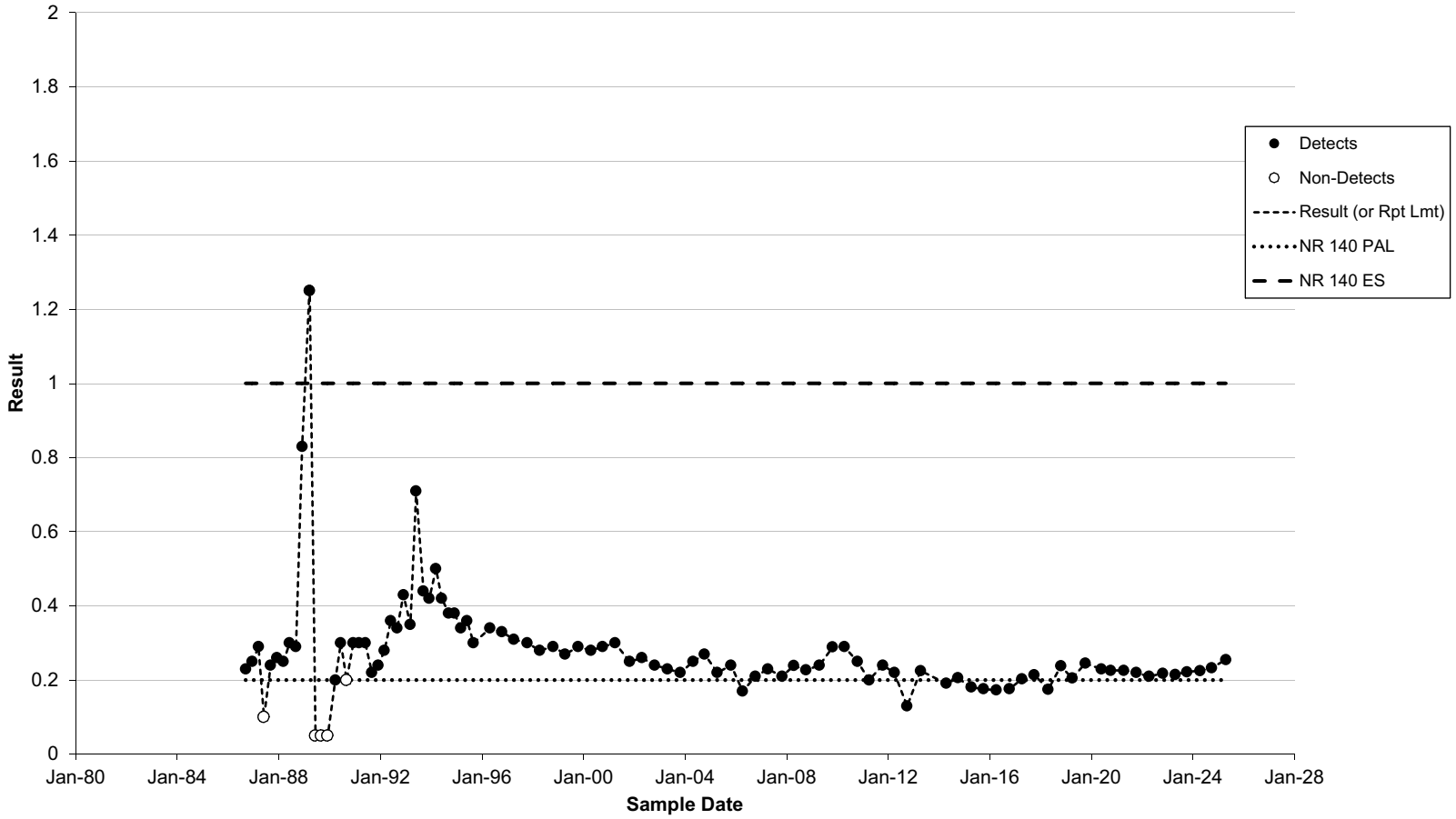
Historical Data Graphs

E1 – Historical Data Graphs – Dry Ash Facility Wells

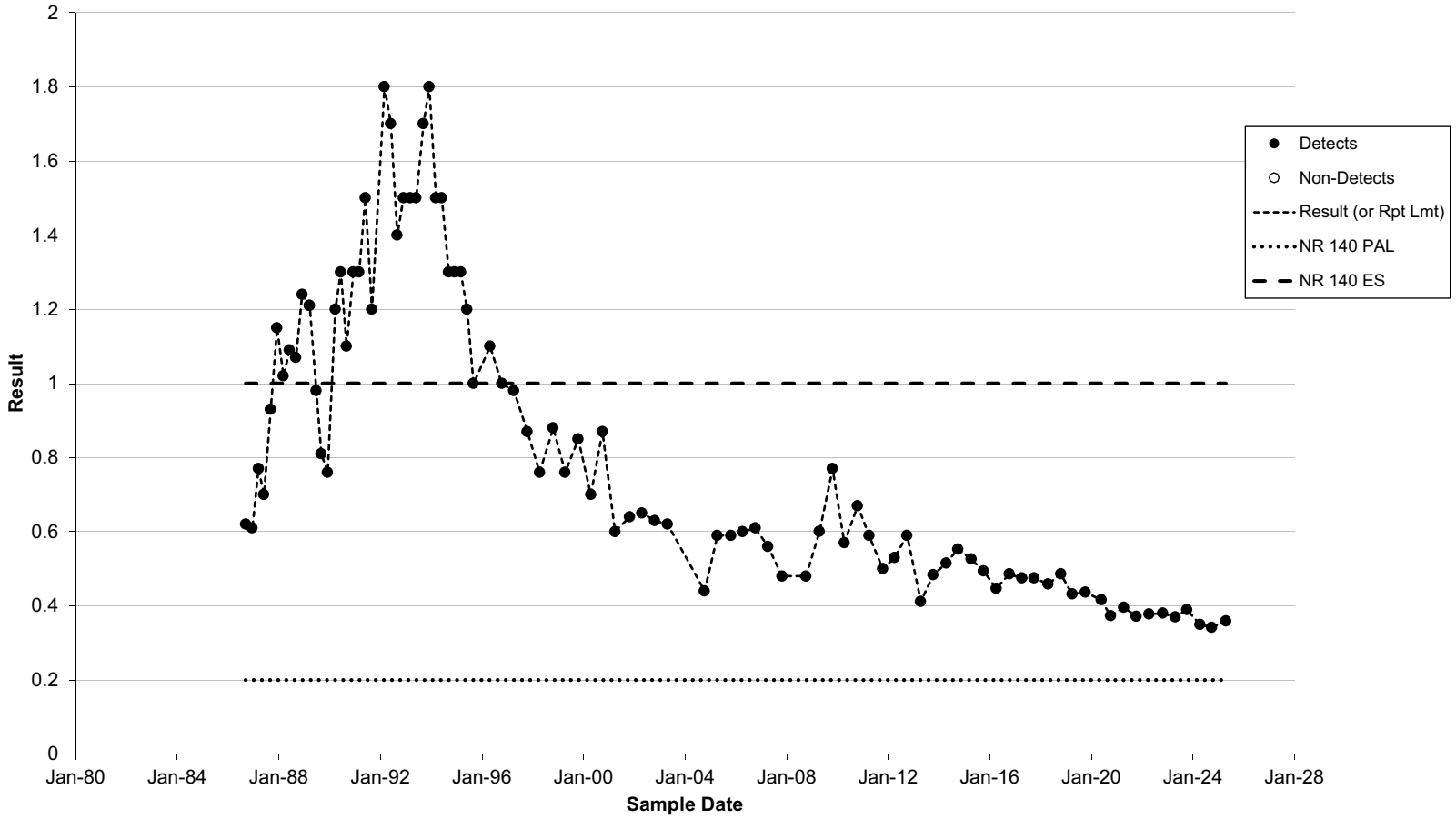
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-1 - Arsenic, total (ug/l As)



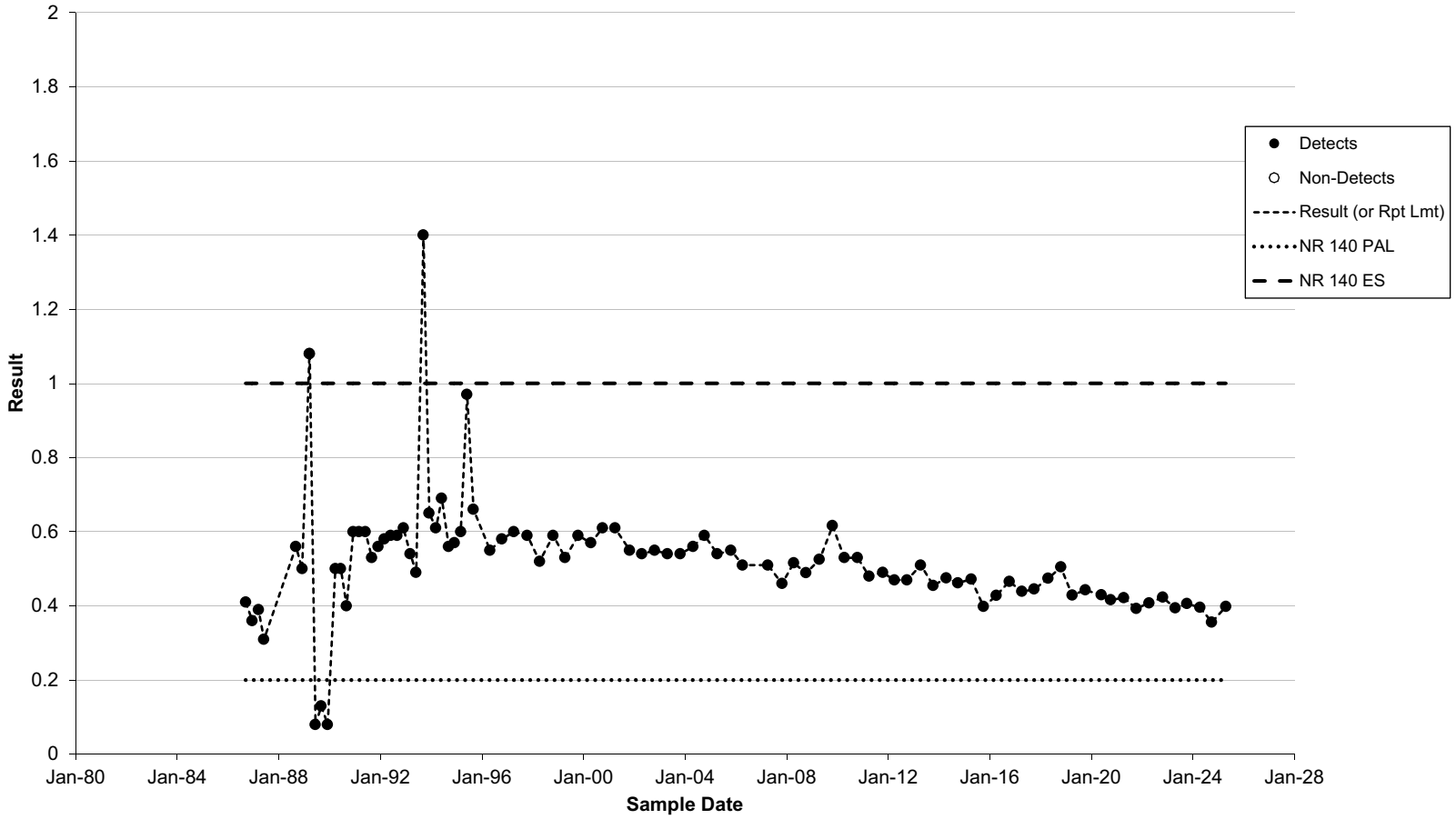
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-1 - Boron, dissolved (mg/l as B)



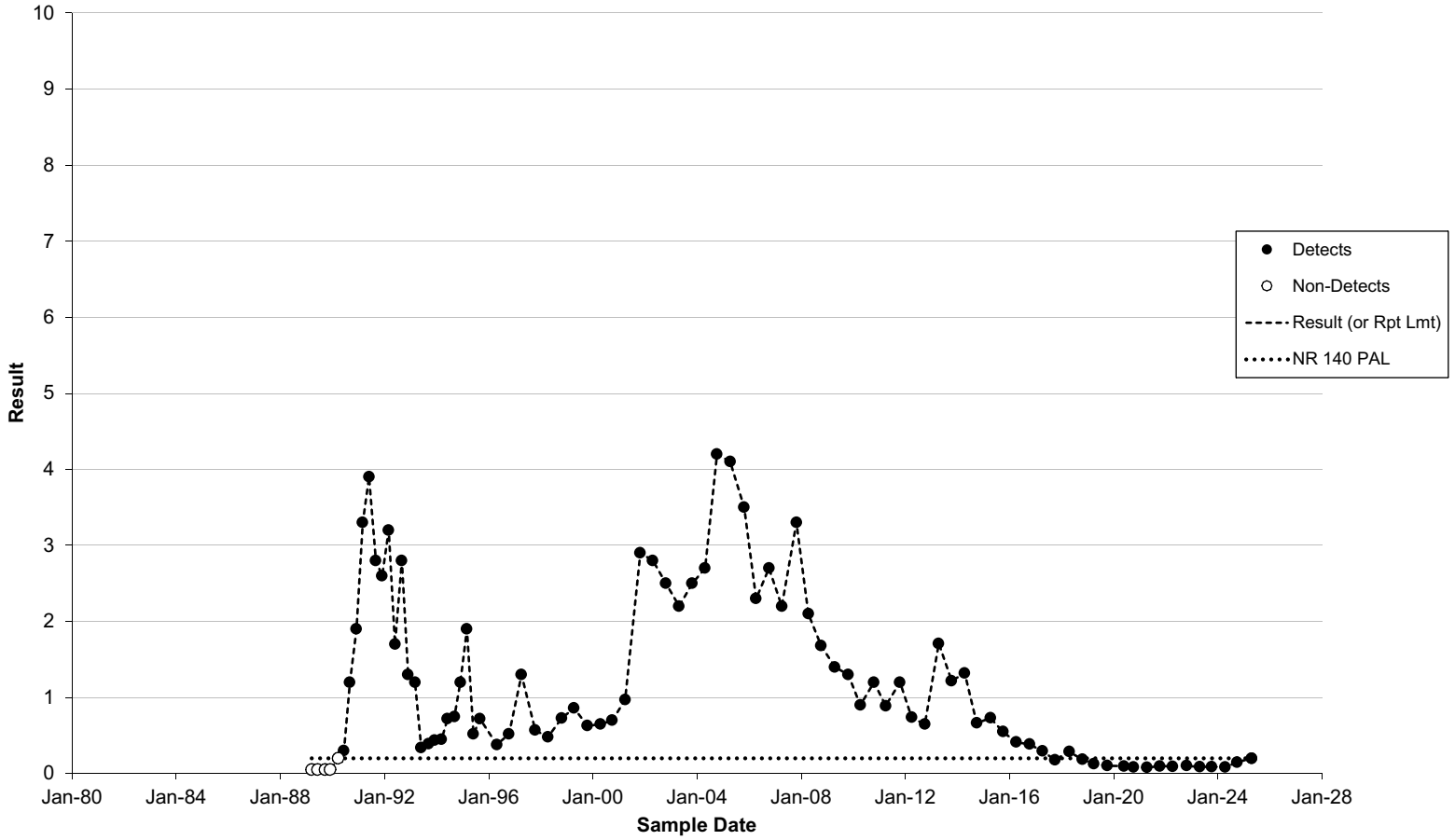
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-2 - Boron, dissolved (mg/l as B)



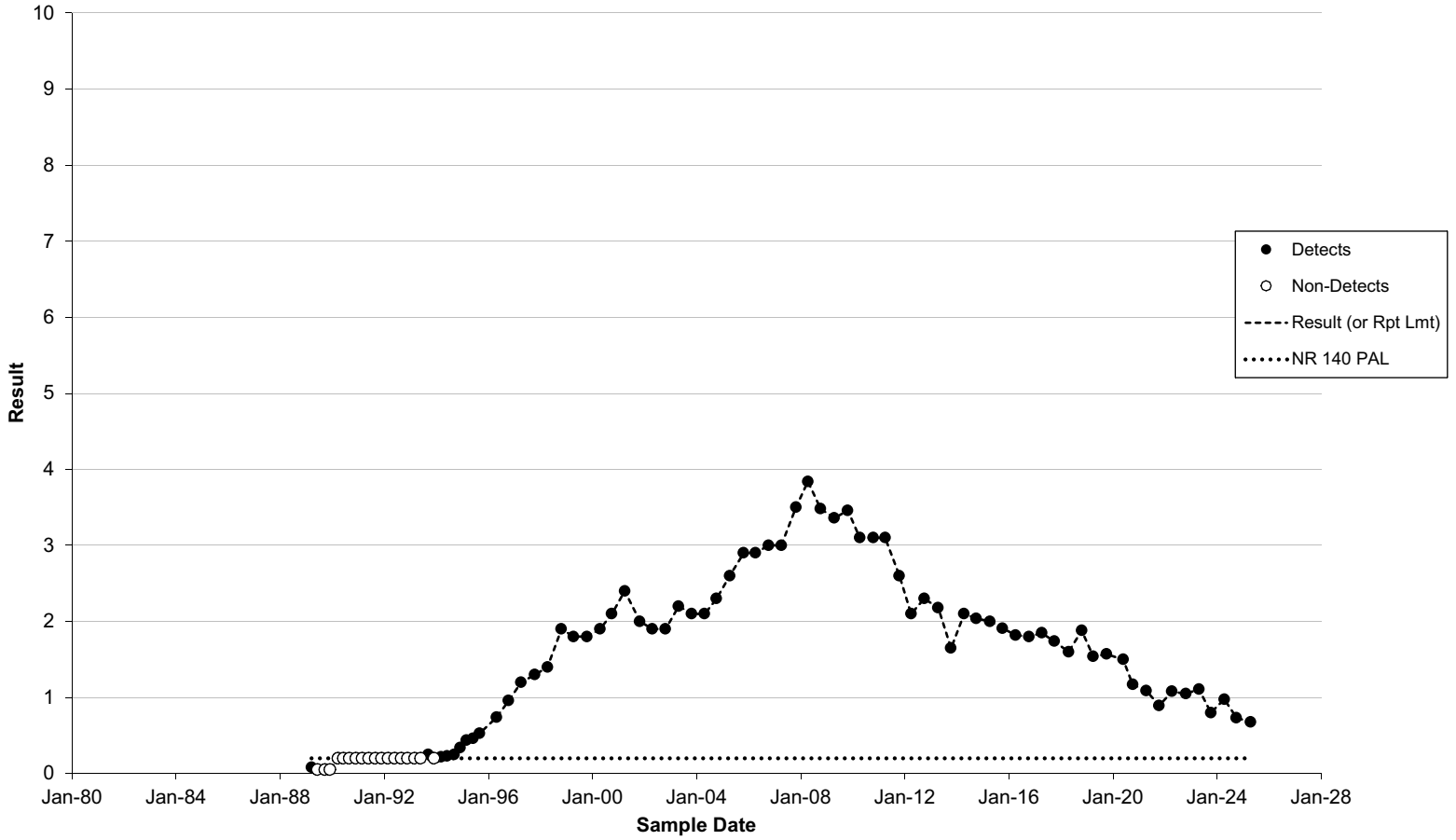
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-3 - Boron, dissolved (mg/l as B)



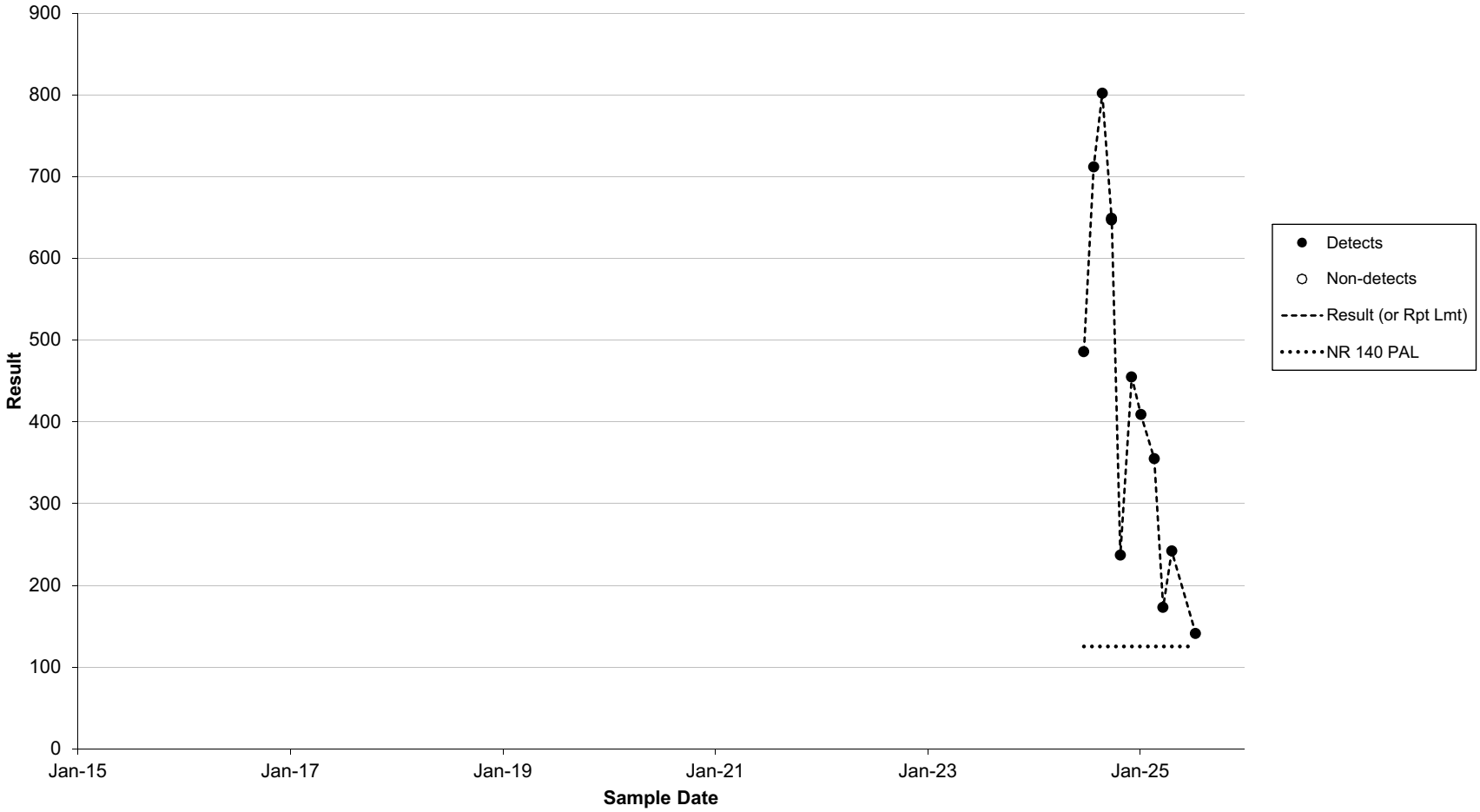
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-91A/MW-91AR - Boron, dissolved (mg/l as B)



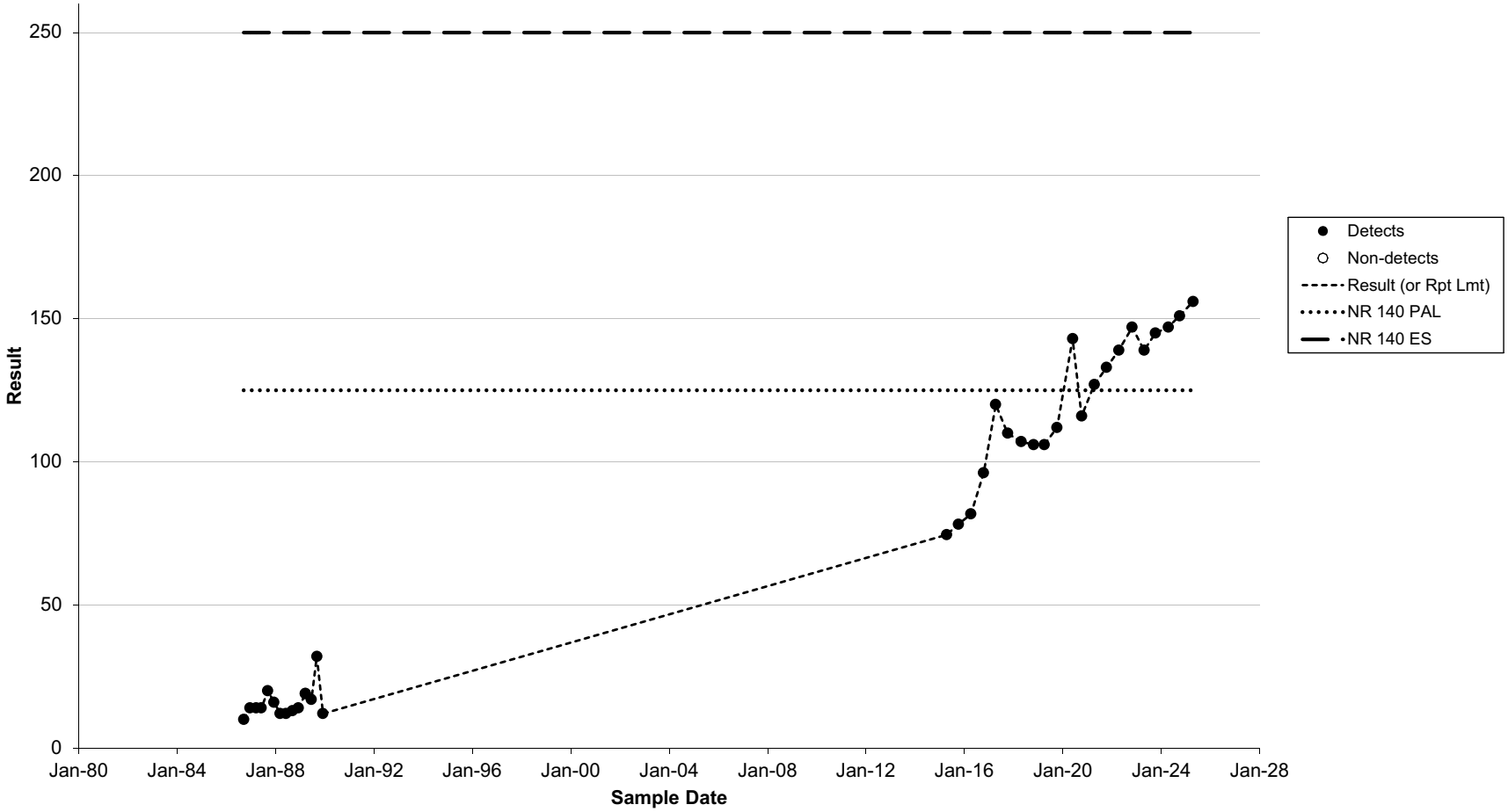
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-91B - Boron, dissolved (mg/l as B)



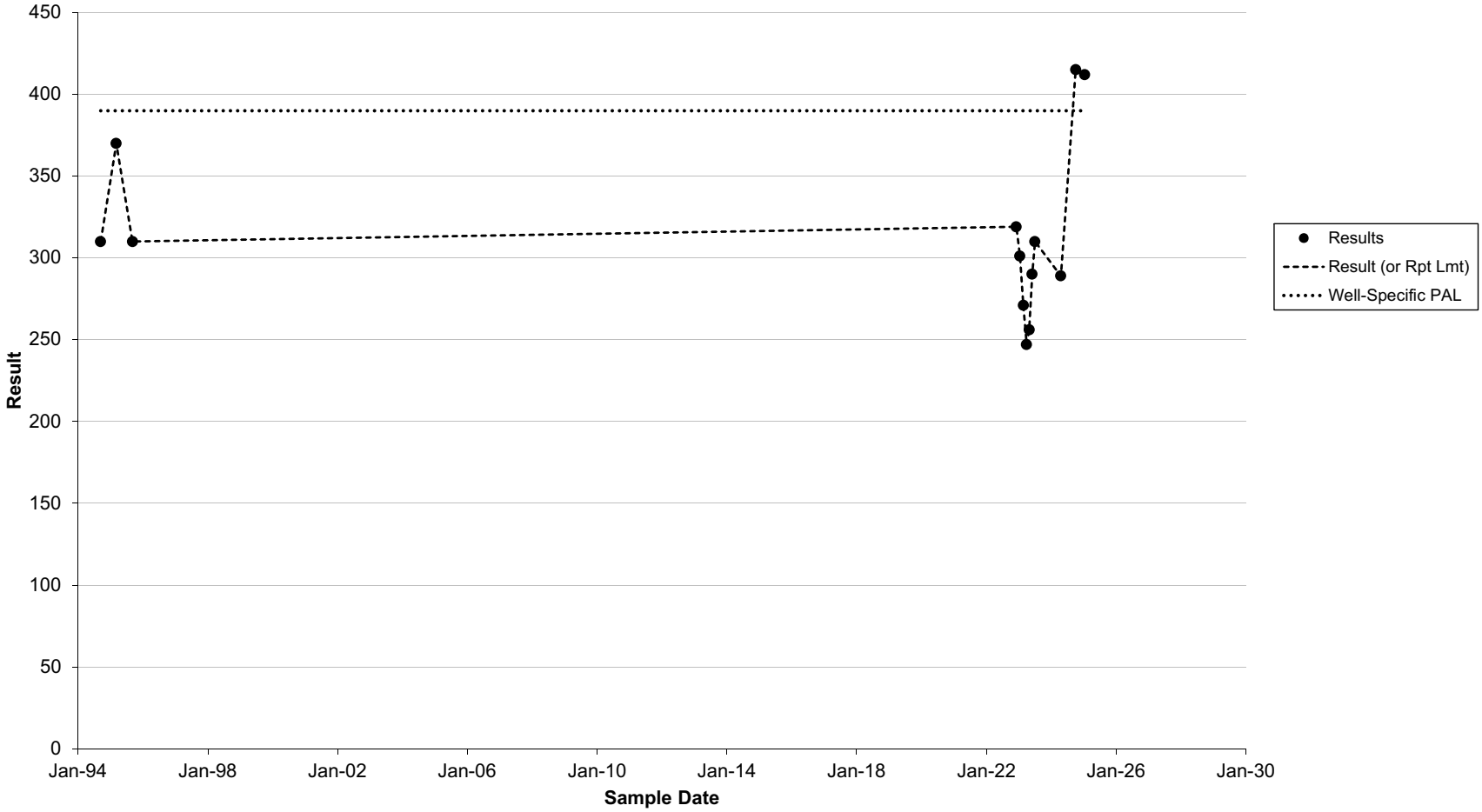
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-319 - Chloride, total (mg/l as Cl)



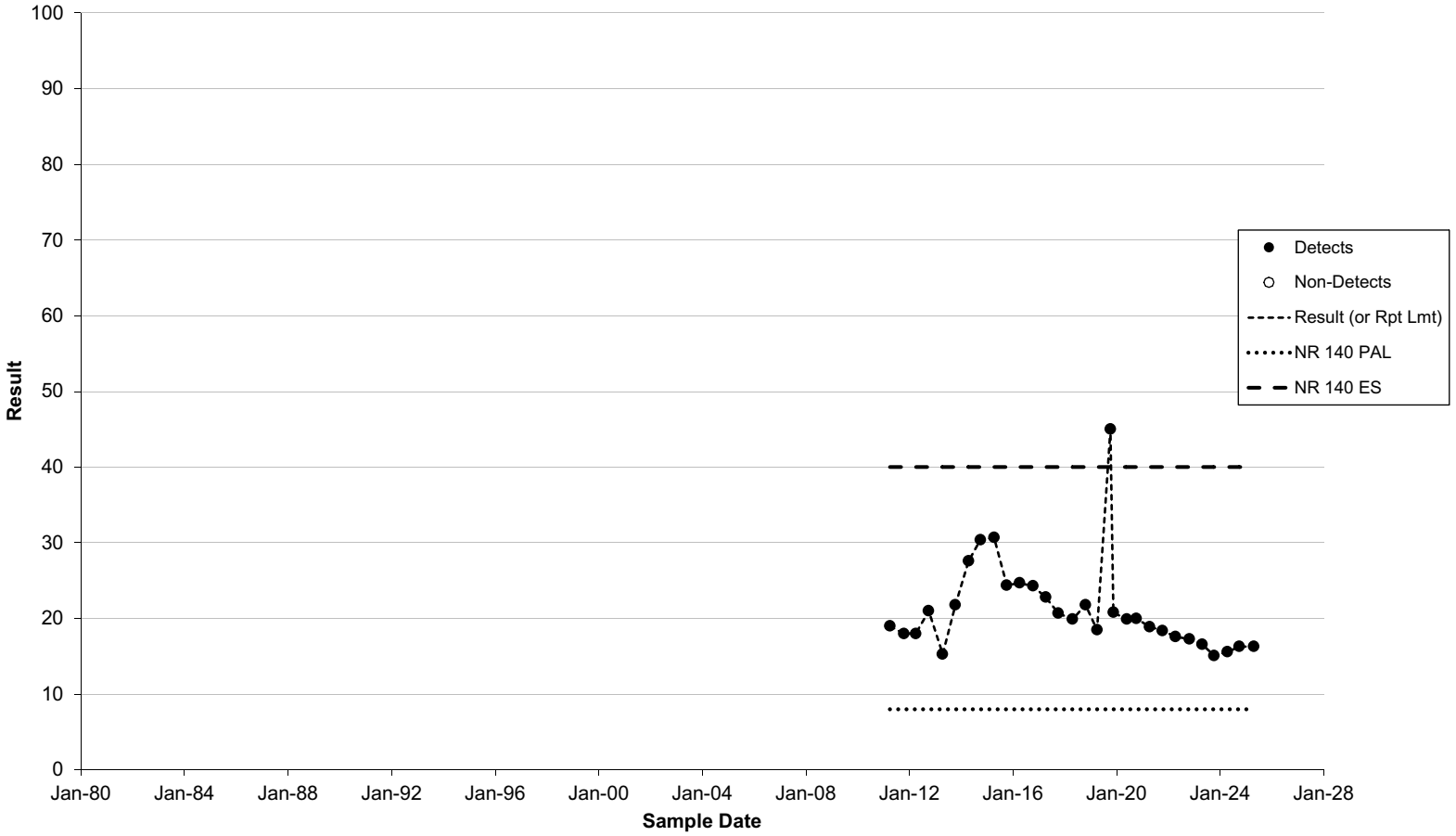
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-1 - Chloride, total (mg/l as Cl)



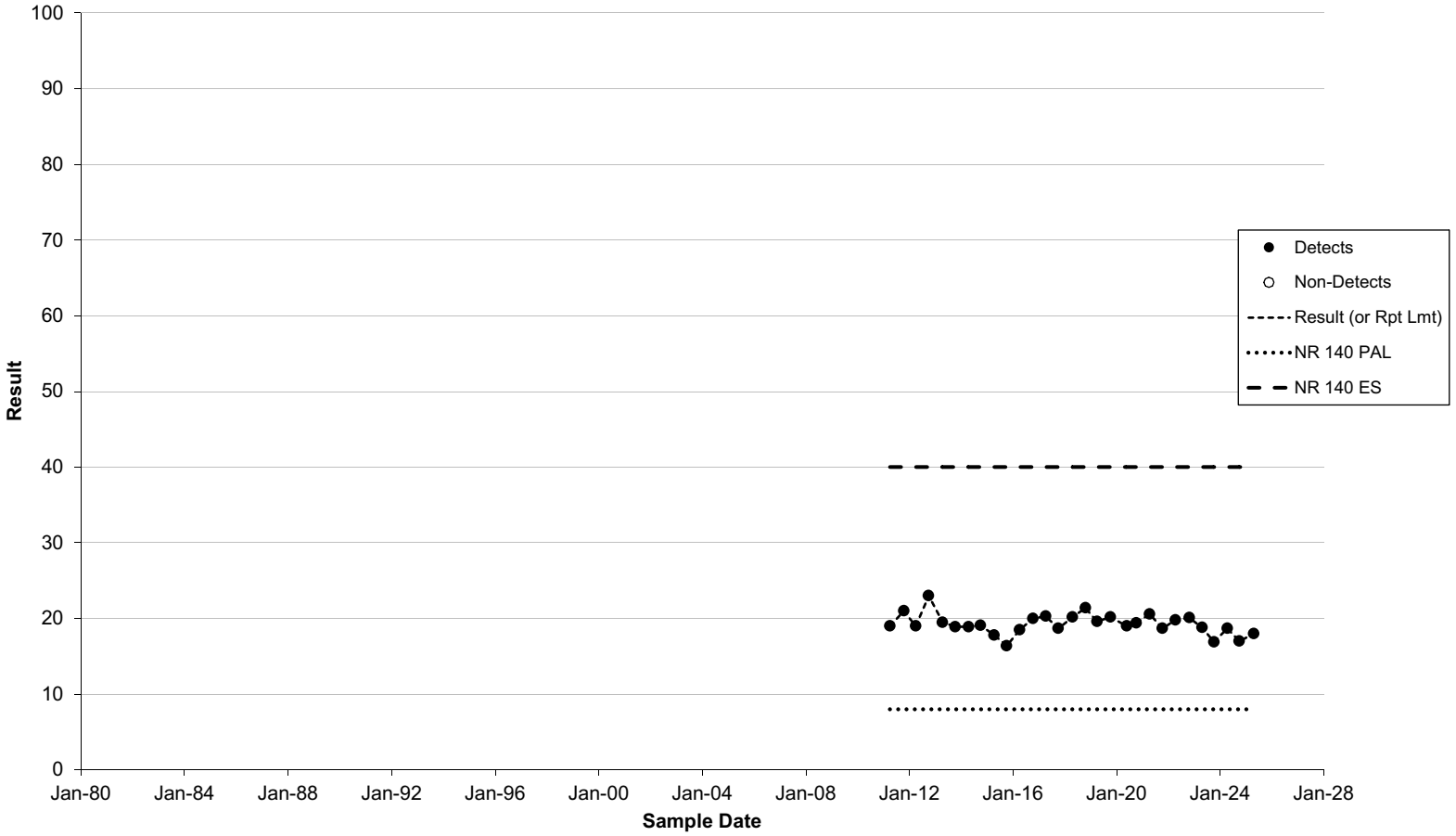
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-33A/MW-33AR - Hardness, total (mg/l as CaCO3)



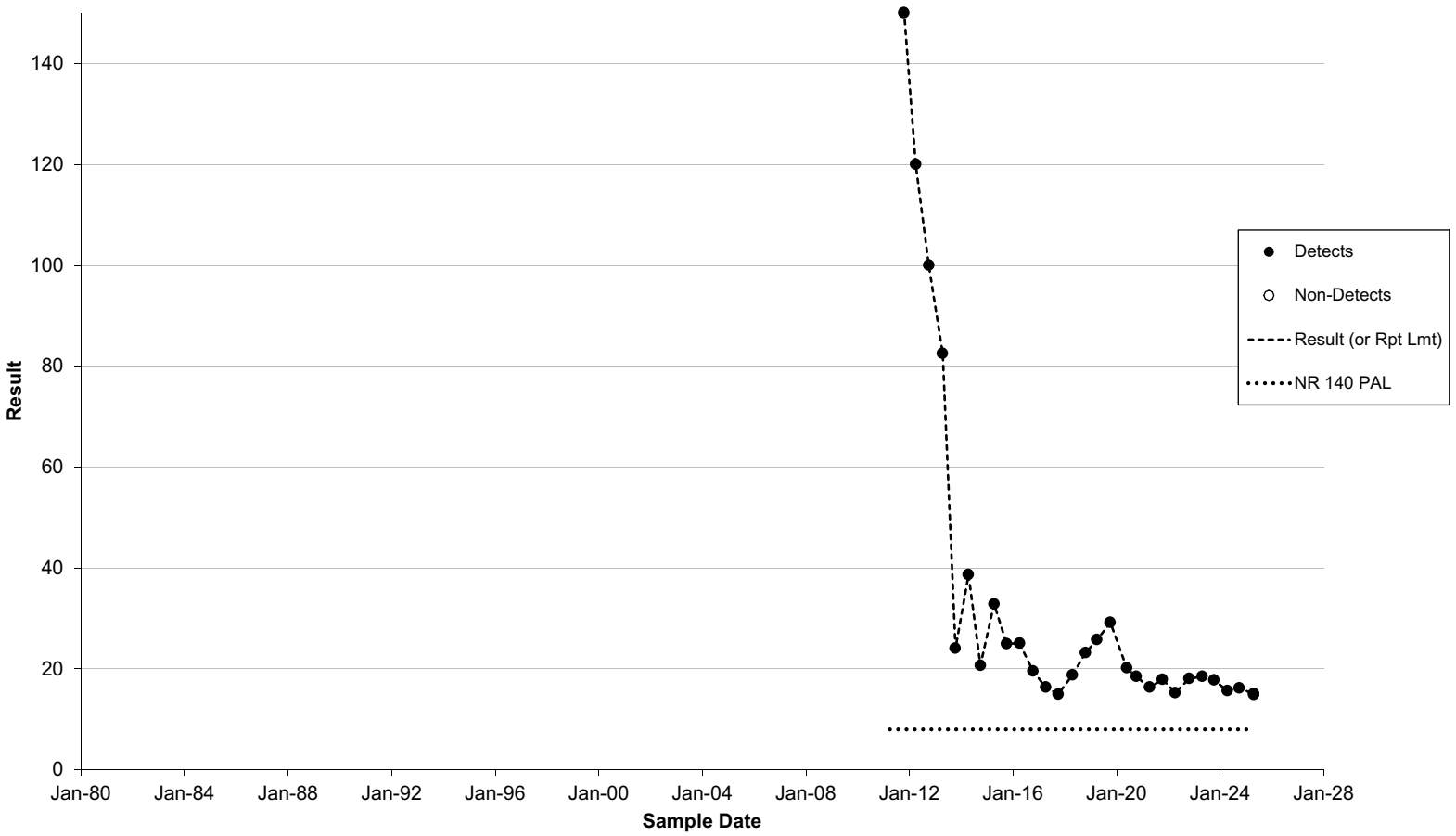
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-2 - Molybdenum, dissolved (ug/l as Mo)



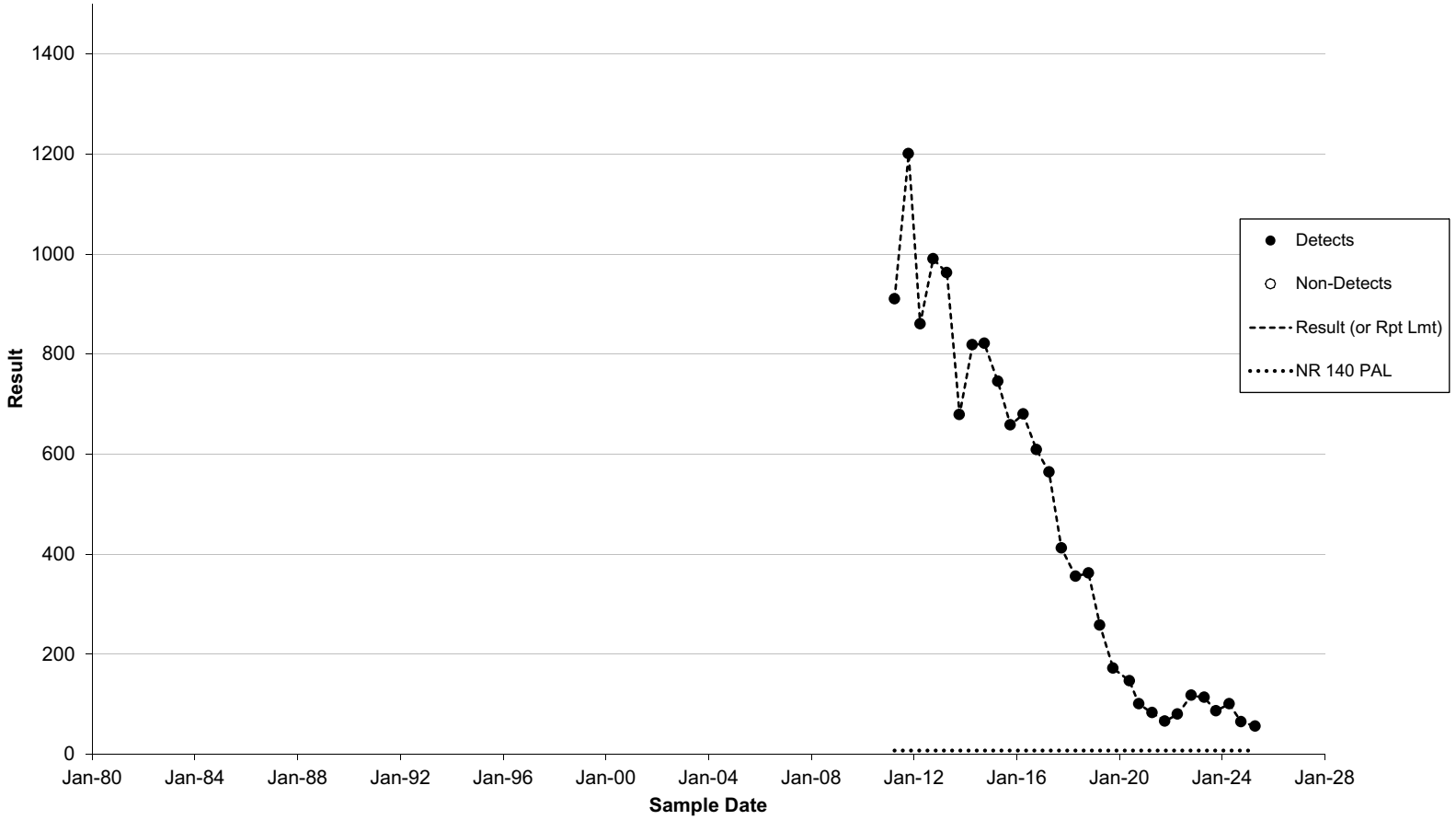
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-3 - Molybdenum, dissolved (ug/l as Mo)



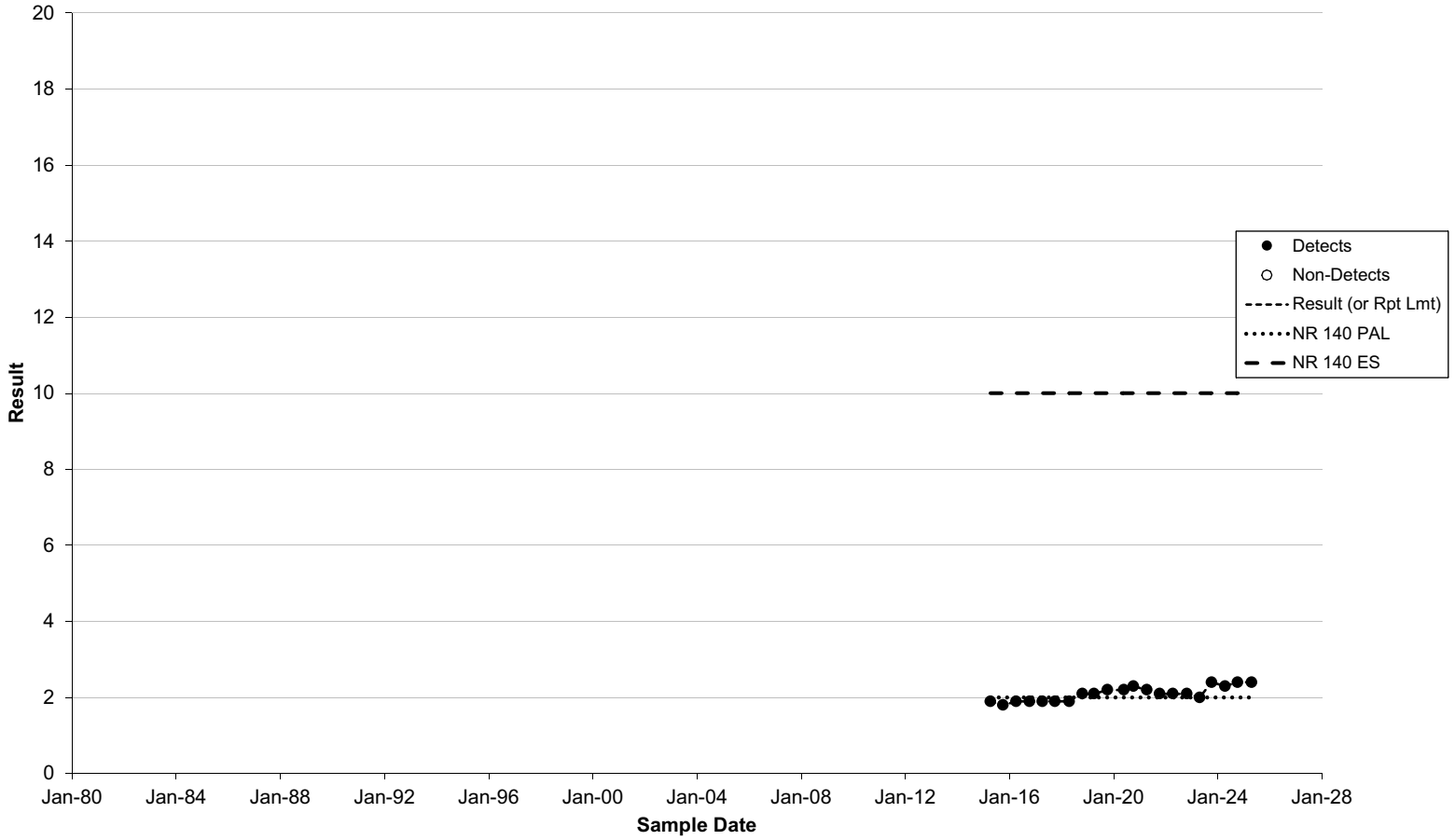
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-91AR - Molybdenum, dissolved (ug/l as Mo)



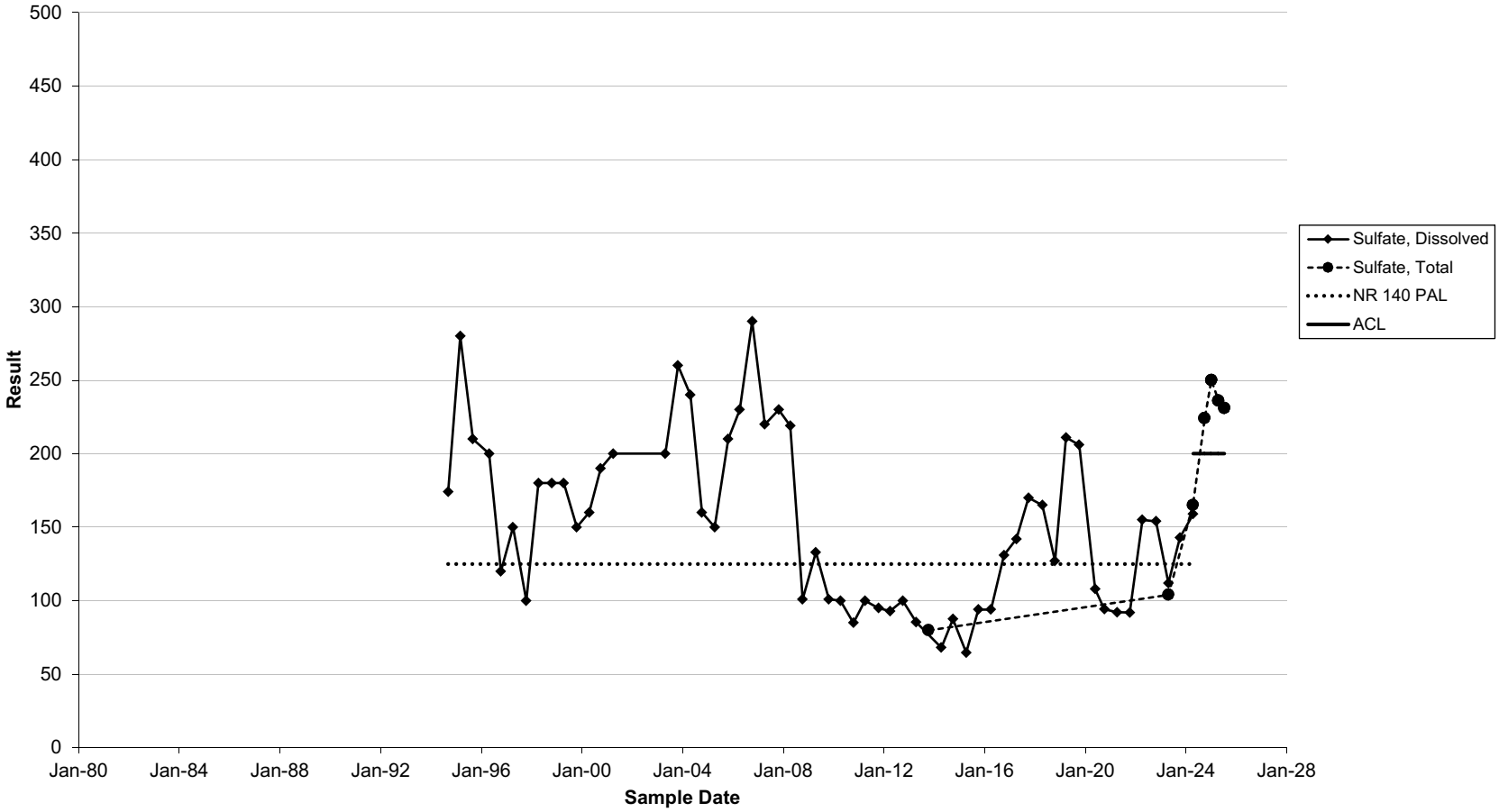
Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-91B - Molybdenum, dissolved (ug/l as Mo)



Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
HC-3 - Nitrite + nitrate, total 1 det. (mg/l as N)

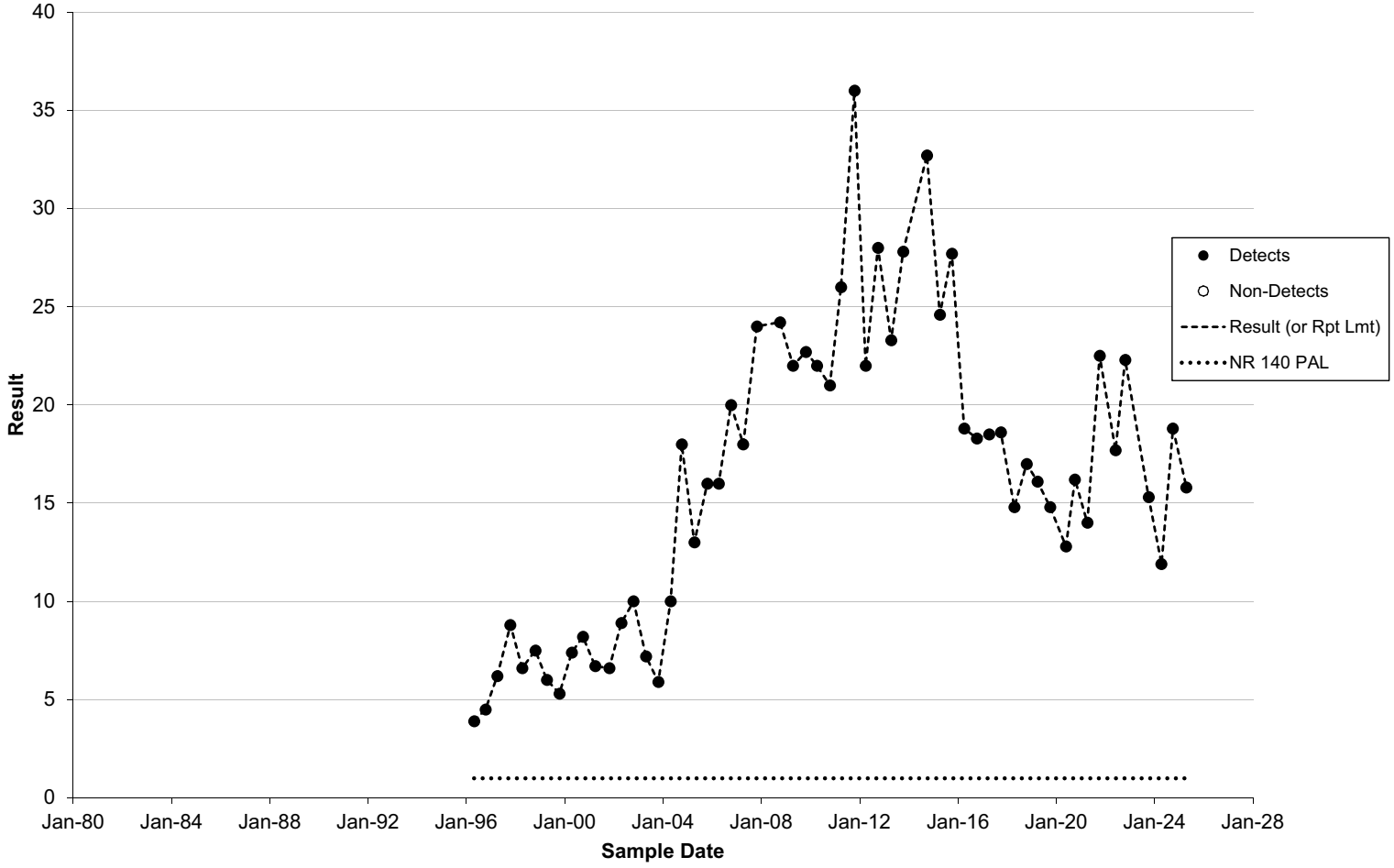


Wisconsin Power & Light Company
Columbia Dry Ash Disposal Facility
MW-33AR - Sulfate

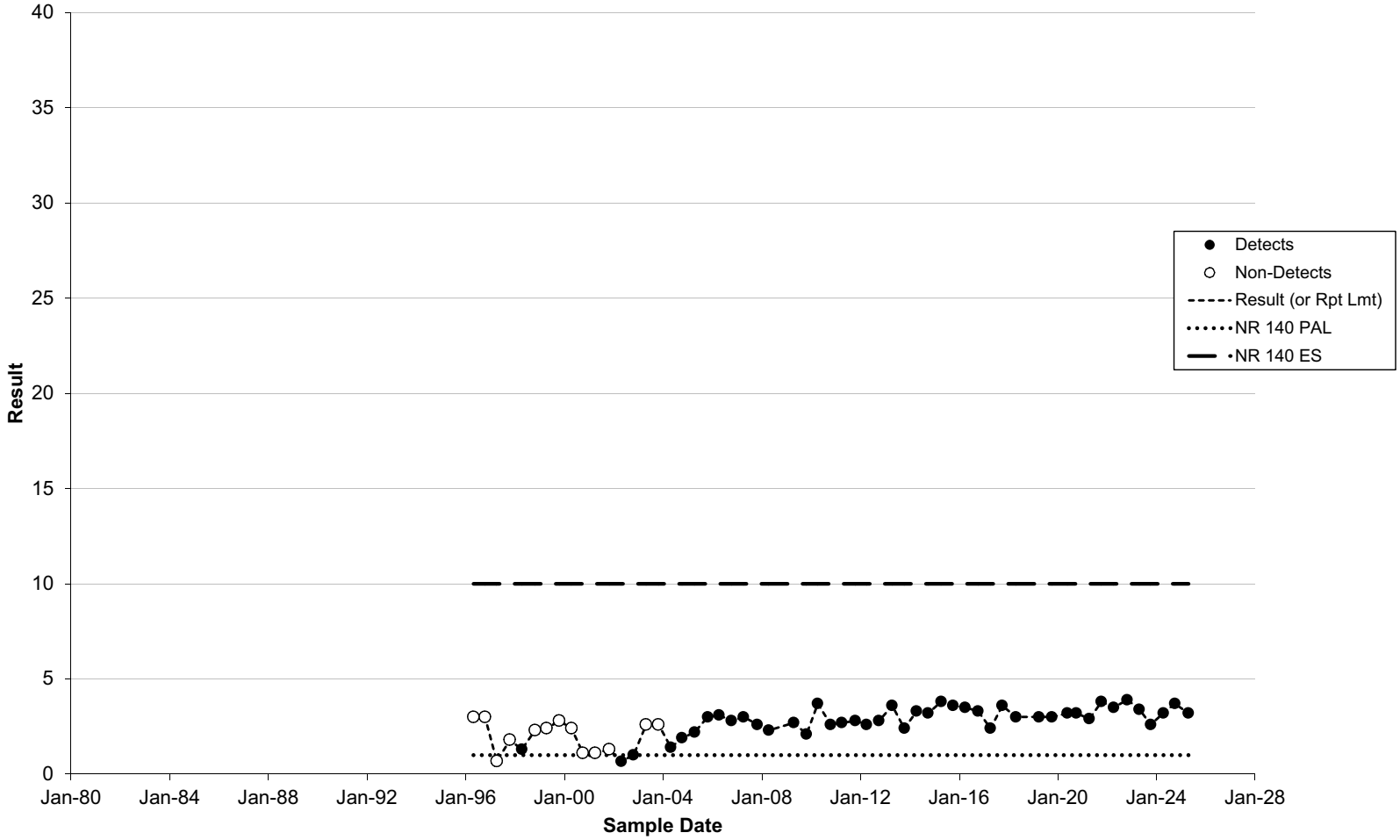


E2 – Historical Data Graphs – Ash Ponds Facility Wells

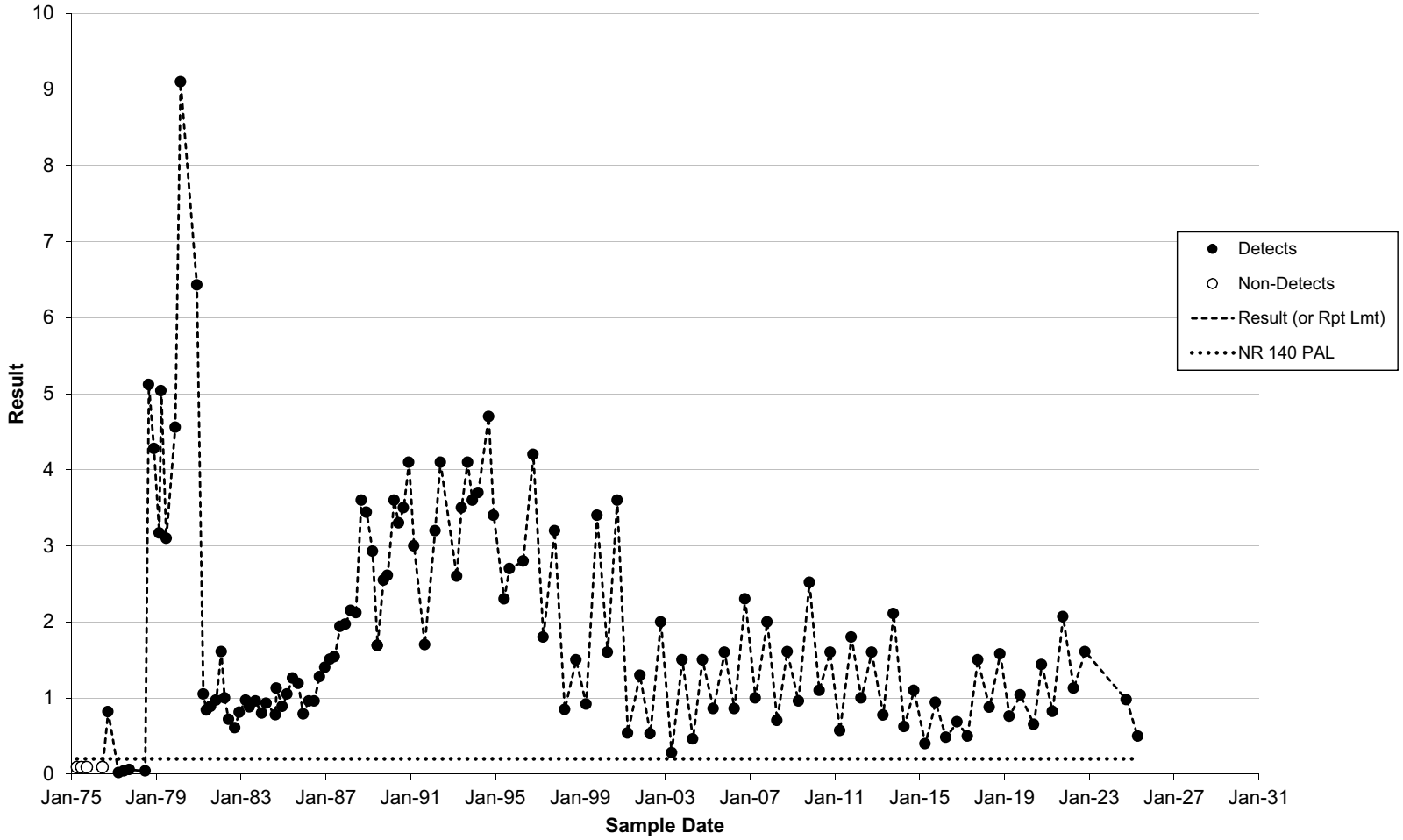
Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-57 - Arsenic, dissolved (ug/l As)



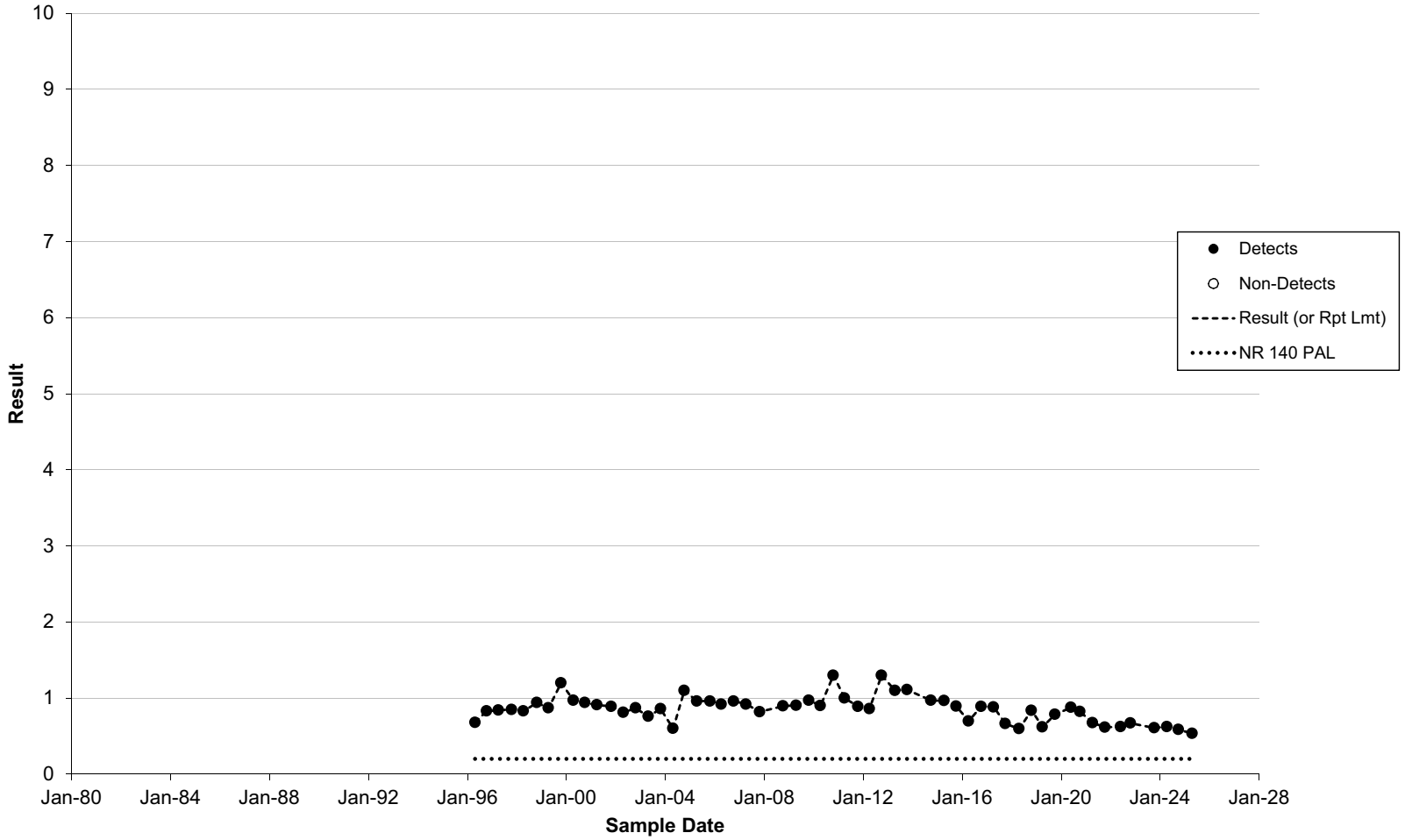
Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-217 - Arsenic, dissolved (ug/l As)



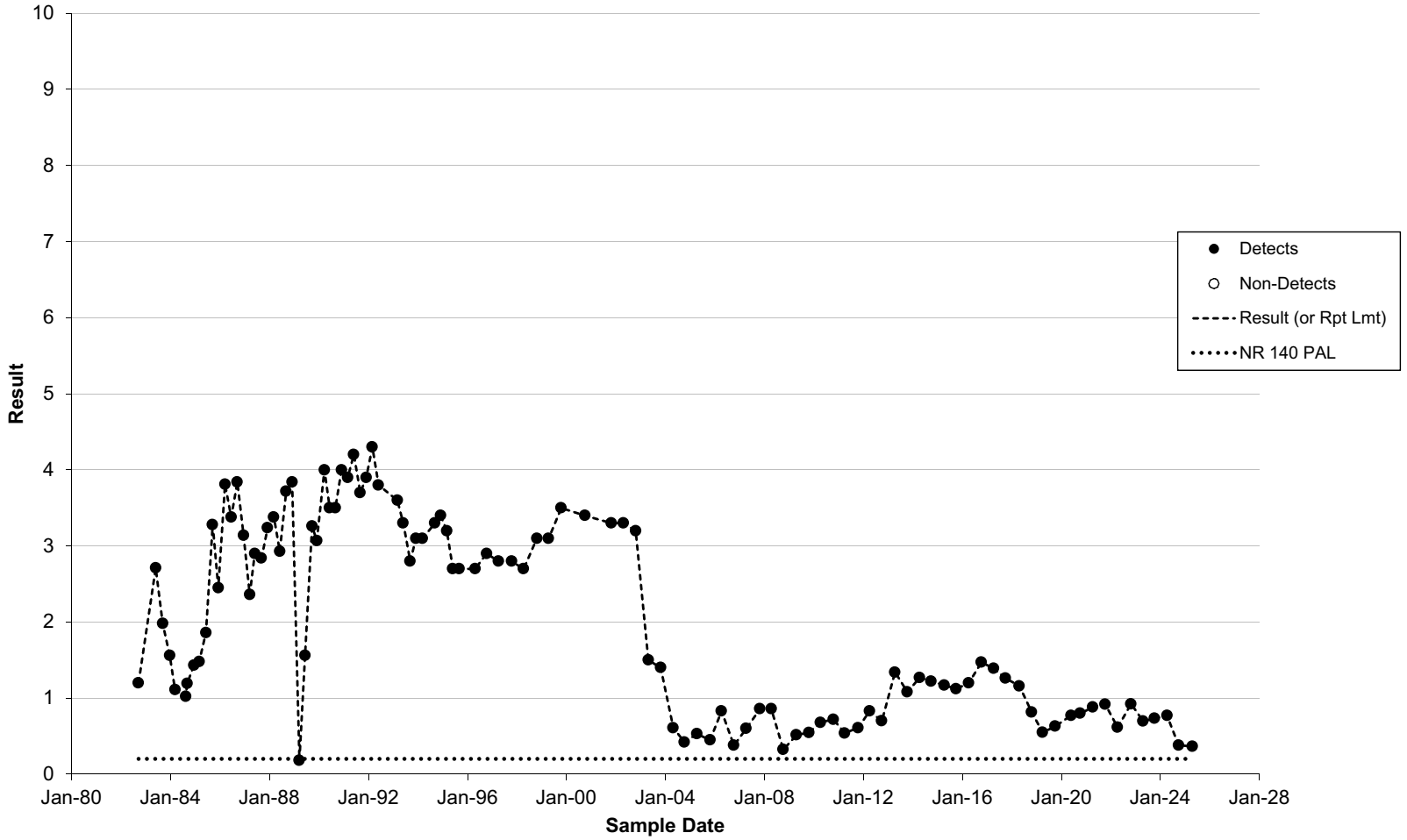
Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
M-4/M-4R - Boron (mg/l as B)



Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-57 - Boron, dissolved (mg/l as B)

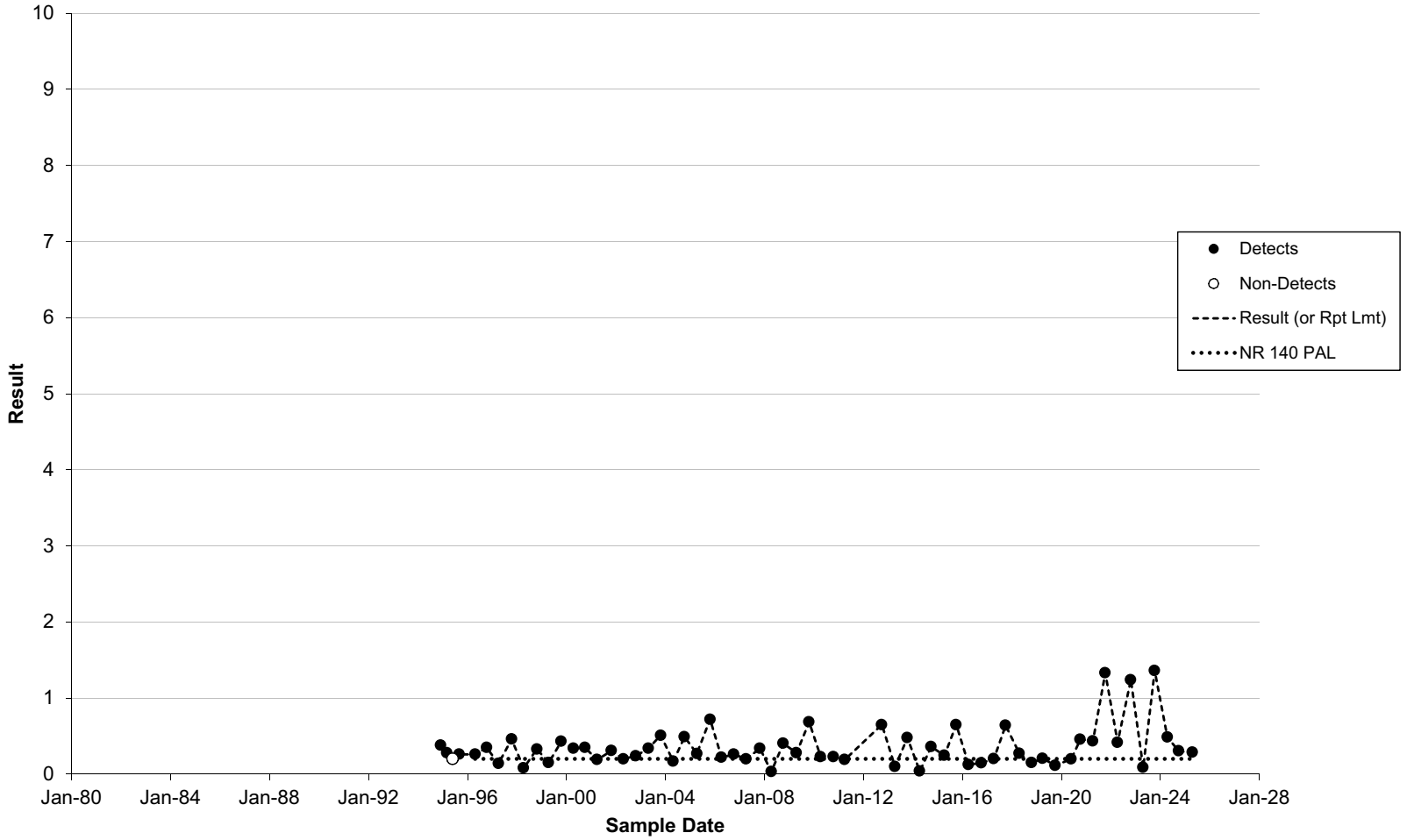


Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-216R - Boron (mg/l as B)

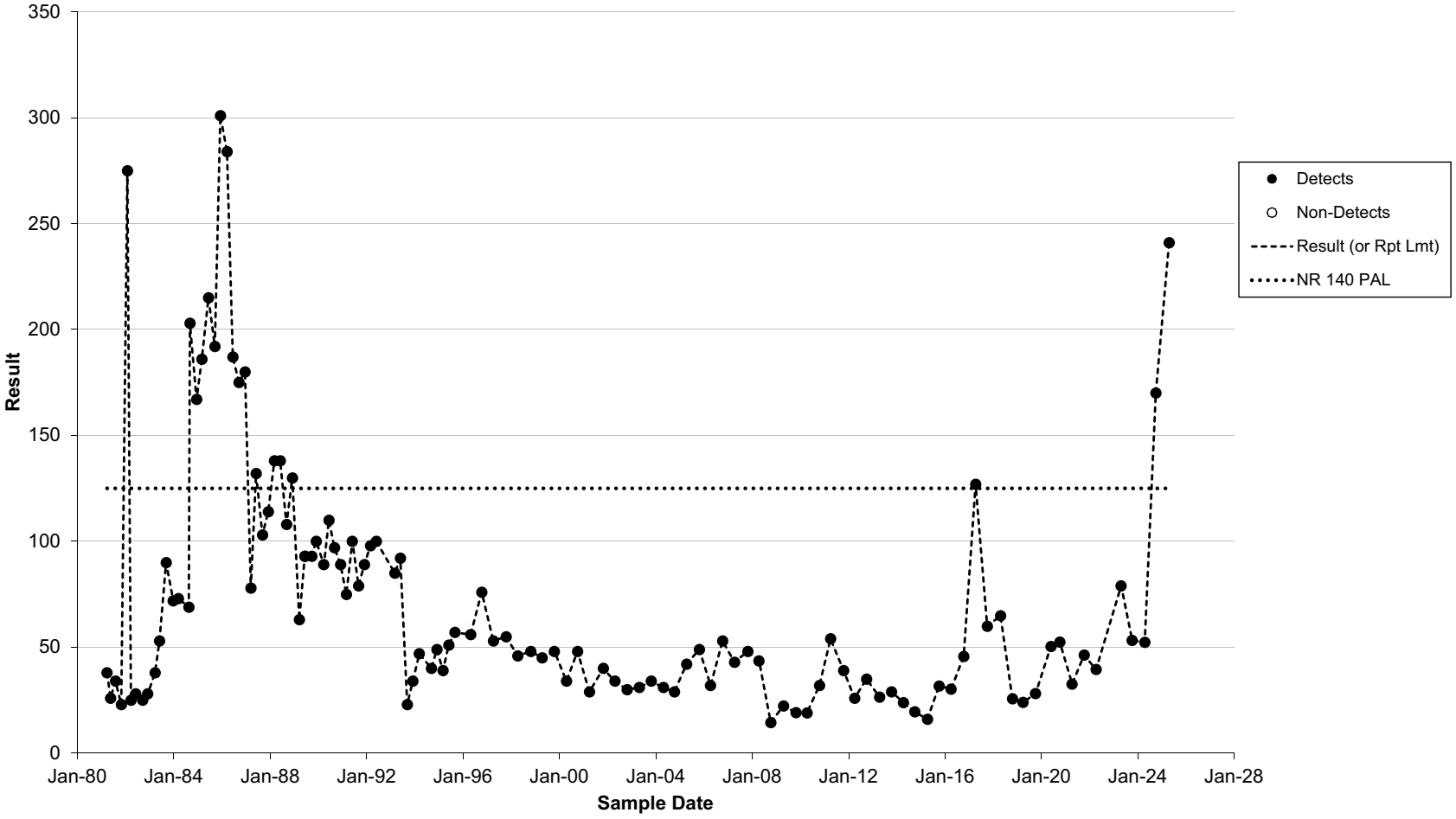


Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
W-217 - Boron (mg/l as B)

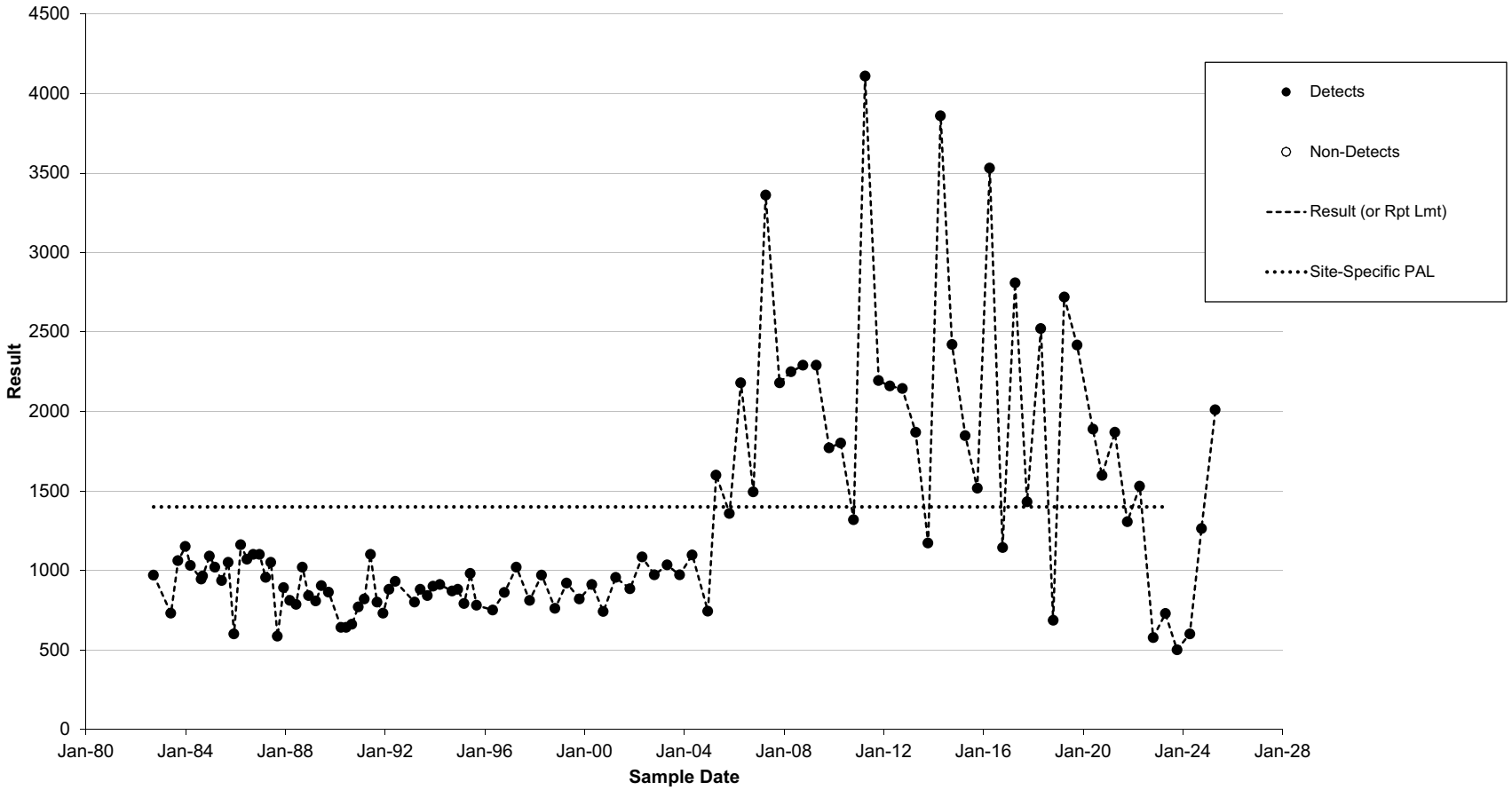
Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-220R/MW-220RR - Boron, dissolved (mg/l as B)



Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
W59 (W-2) - Sulfate (mg/L as SO4)



Wisconsin Power & Light Company
Columbia Ash Ponds Disposal Facility
MW-39A - Specific conductance-field (umhos/cm @ 25c)



Leachate Pipe Cleaning and Inspection Report

Alliant Energy
4902 North Biltmore Lane
P.O. Box 77007
Madison, WI 53707-1007

1-800-ALLIANT (800-255-4268)
alliantenergy.com

October 27, 2025

Submitted via electronic mail.

Mr. Antony Peterson
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Subject: **Annual Leachate Piping Jetting**
Dry Ash Disposal Facility (WDNR License #3025)
WPL-Columbia Energy Center
Portage, WI

Dear Mr. Peterson,

On behalf of Wisconsin Power and Light Company (WPL), Alliant Energy is submitting the attached landfill leachate jetting report for 2025. The jetting and video Work was conducted July 23-24, 2025, by Superior Jetting under the supervision of SCS field staff. In accordance with NR506.07(5)(g) a Customer Service Report provides a summary, descriptions, and observations during Work. Also attached are Pipeline Inspection Reports for each leachate line and includes information on the owner, line size, construction material, general observations, and a few photos. As mentioned, these lines were video recorded in digital format and the file size is rather large and cannot be transmitted over e-mail. I will provide you with the video recordings in an acceptable media format later.

Thank you very much for your consideration. If you have any questions regarding this information, please call me at (608) 742-0713.

Regards,

Cheryl Bommarito

Cheryl Bommarito

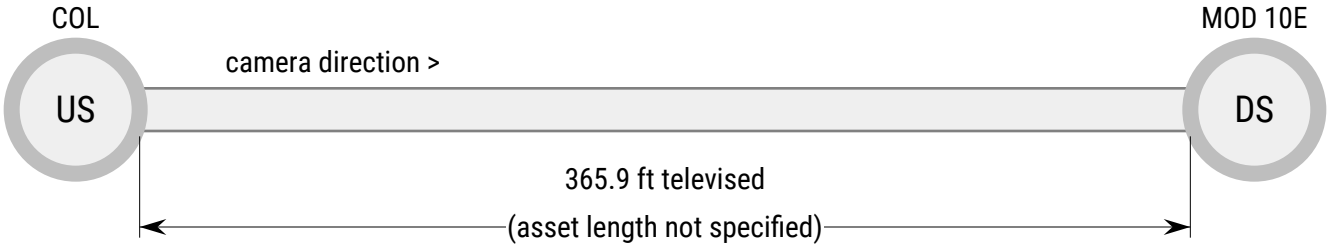
Senior Environmental Specialist

CC: B Clepper
J Maxted
E Sandvig

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 10:57
Comments:	

Observations

COL

camera direction >

flow >

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
091.8	GO	General Observation					camera out of liquid
224.3	GO	General Observation					camera underwater
365.9	GO	General Observation					Begin Inspection. Jet-cam cannot advance

MOD 10E

Snapshots

General Observation at 000.0 ft | end inspection

General Observation at 091.8 ft | camera out of liquid

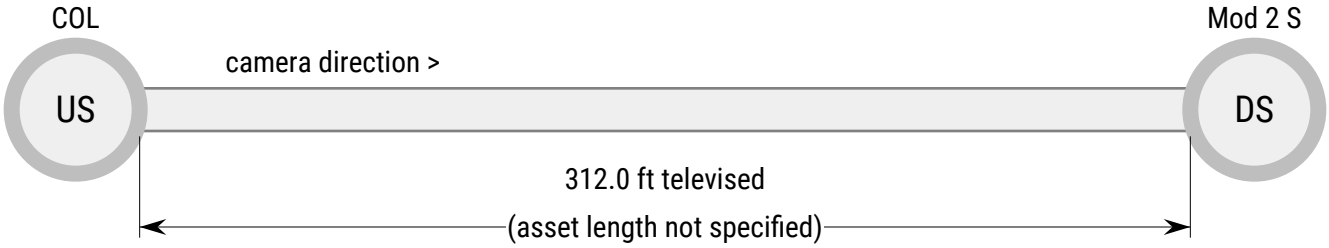
General Observation at 224.3 ft | camera underwater

General Observation at 365.9 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 10:03
Comments:	

Observations

COL

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
312.0	GO	General Observation					Begin Inspection. Jet-cam cannot advance

Mod 2 S

Snapshots

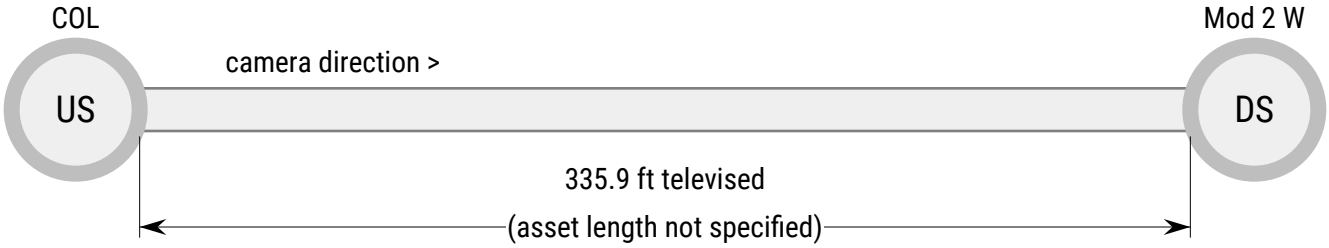
General Observation at 000.0 ft | end inspection

General Observation at 312.0 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

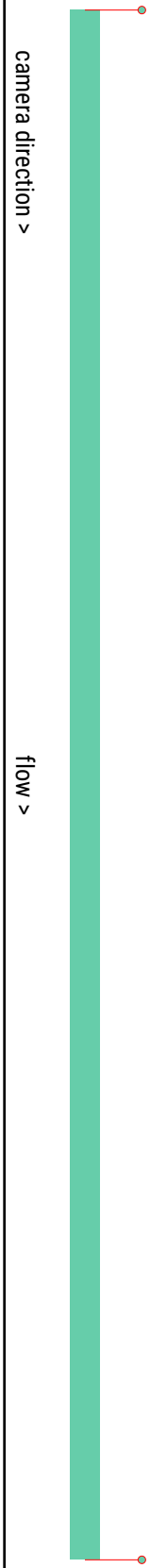
Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 08:20
Comments:	

Observations

COL

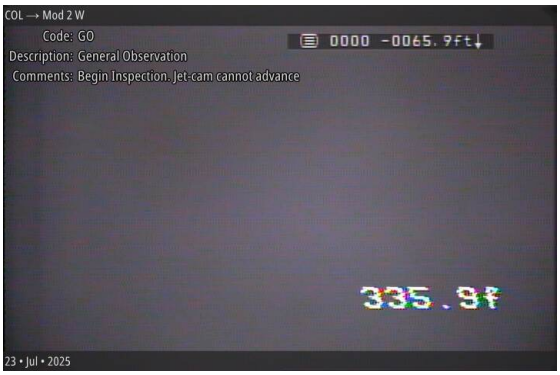


Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
335.9	GO	General Observation					Begin Inspection. Jet-cam cannot advance

Mod 2 W

Snapshots

General Observation at 000.0 ft | end inspection

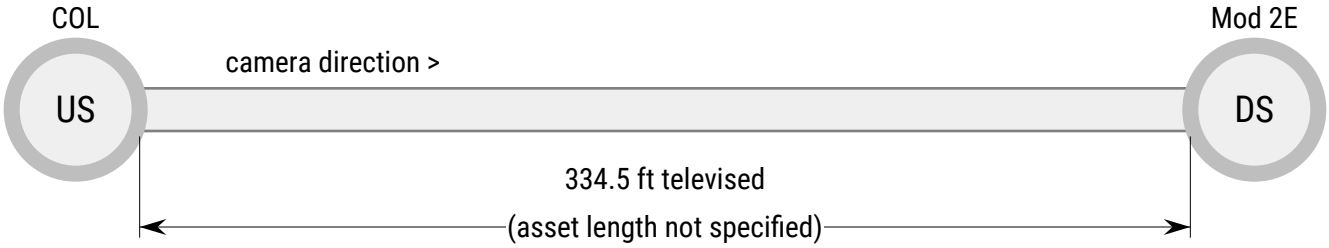


General Observation at 335.9 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

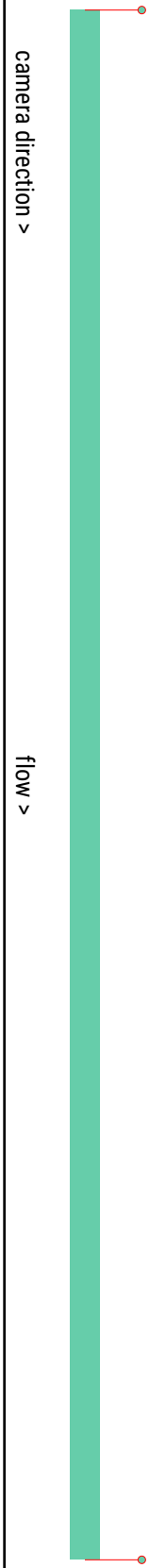
Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 10:27
Comments:	

Observations

COL

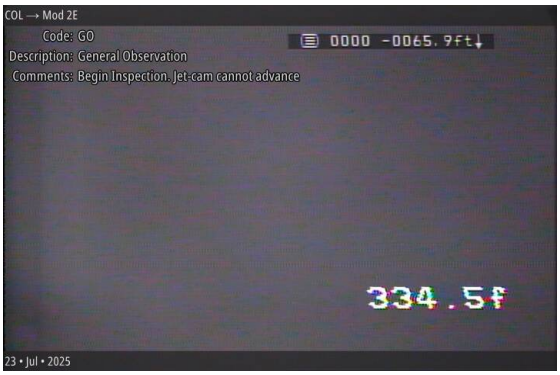


Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End Inspection
334.5	GO	General Observation					Begin Inspection. Jet-cam cannot advance

Mod 2E

Snapshots

General Observation at 000.0 ft | End Inspection

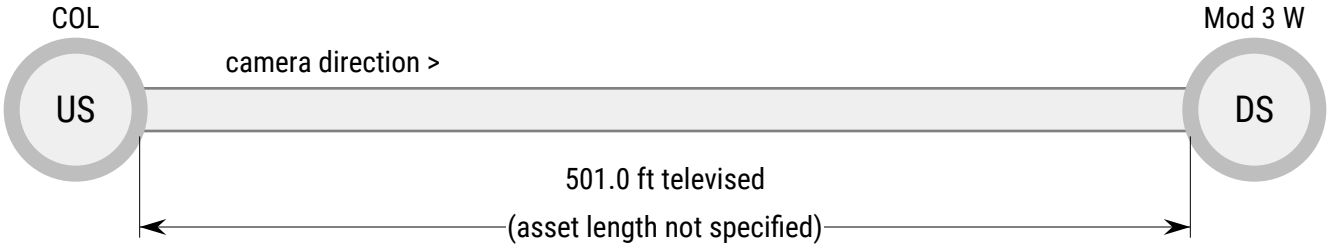


General Observation at 334.5 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 09:00
Comments:	

Observations

COL

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
501.0	GO	General Observation					Begin Inpsection

Mod 3 W

Snapshots

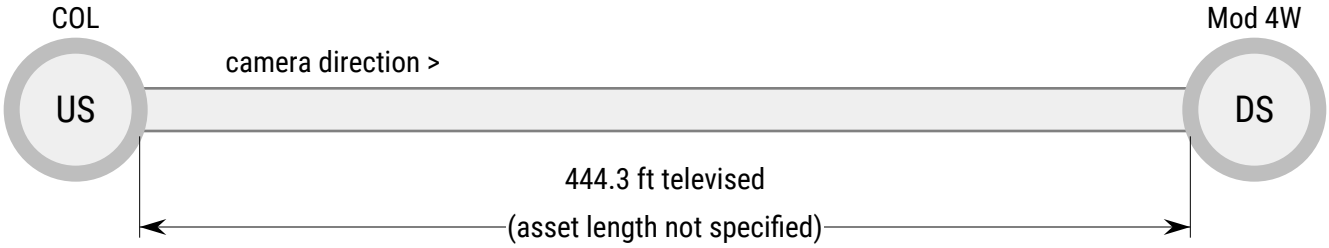
General Observation at 000.0 ft | end inspection

General Observation at 501.0 ft | Begin Inpsection

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

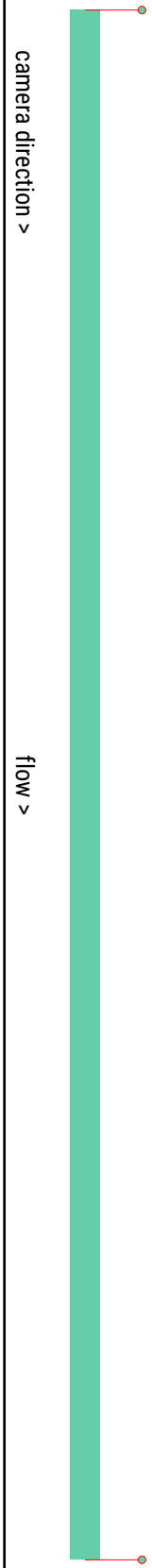
Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 09:32
Comments:	

Observations

COL



Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
444.3	GO	General Observation					Begin Inspection. Jet-cam cannot advance

Mod 4W

Snapshots

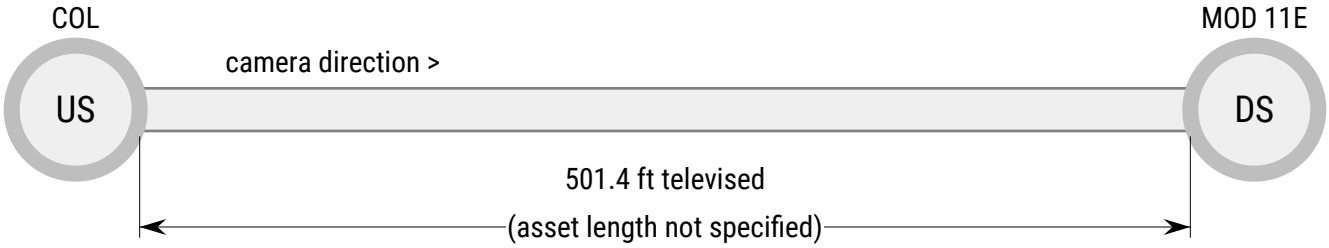
General Observation at 000.0 ft | end inspection

General Observation at 444.3 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	23-Jul-2025 11:18
Comments:	

Observations

COL

camera direction >

flow >

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					end inspection
082.1	GO	General Observation					camera out of liquid
501.4	GO	General Observation					Begin Inspection, camera submerged

MOD 11E

Snapshots

General Observation at 000.0 ft | end inspection

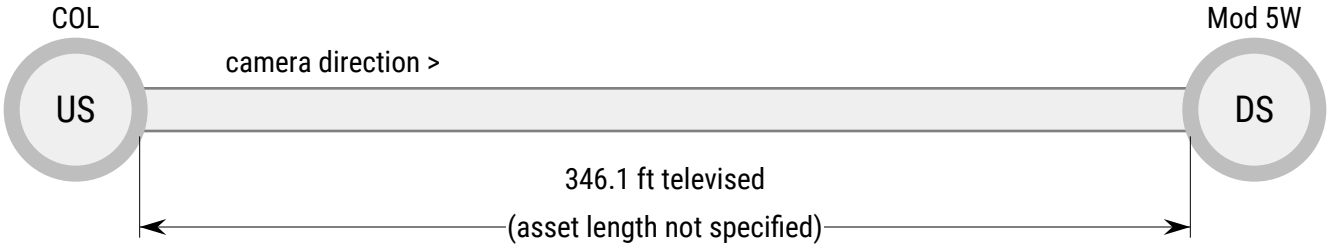
General Observation at 082.1 ft | camera out of liquid

General Observation at 501.4 ft | Begin Inspection, camera submerged

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

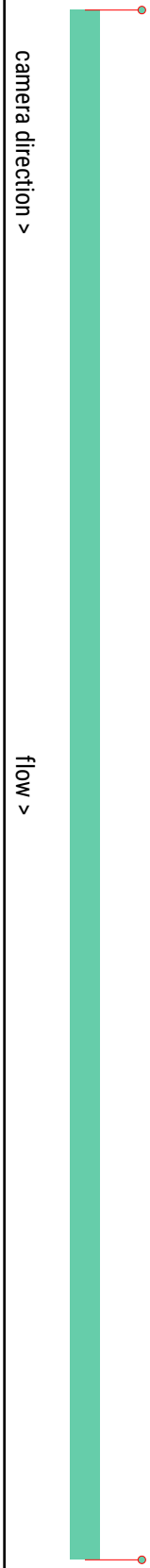
Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	24-Jul-2025 09:26
Comments:	

Observations

COL

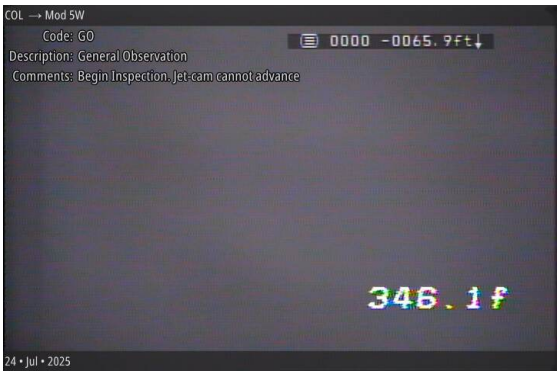
Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End inspection
346.1	GO	General Observation					Begin Inspection. Jet-cam cannot advance



Mod 5W

Snapshots

General Observation at 000.0 ft | End inspection

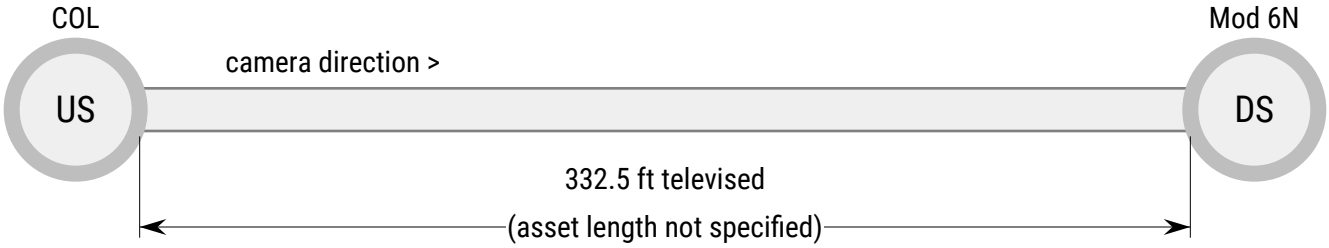


General Observation at 346.1 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

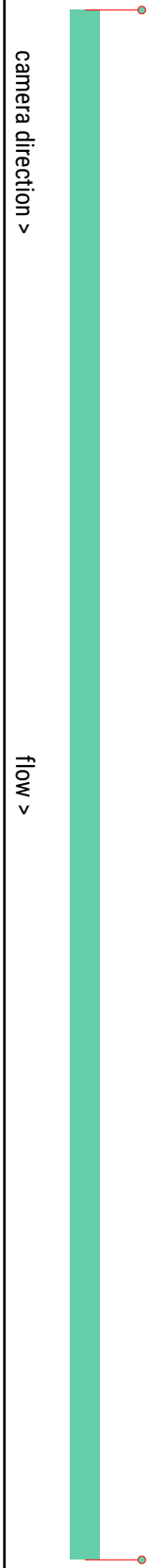
Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	24-Jul-2025 08:35
Comments:	

Observations

COL

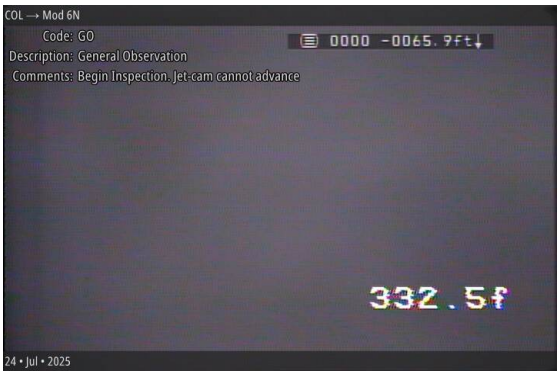
Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End Inspection
332.5	GO	General Observation					Begin Inspection. Jet-cam cannot advance



Mod 6N

Snapshots

General Observation at 000.0 ft | End Inspection

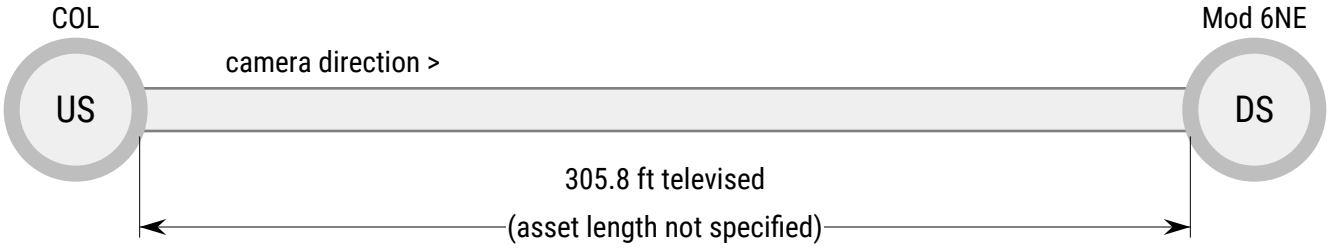


General Observation at 332.5 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

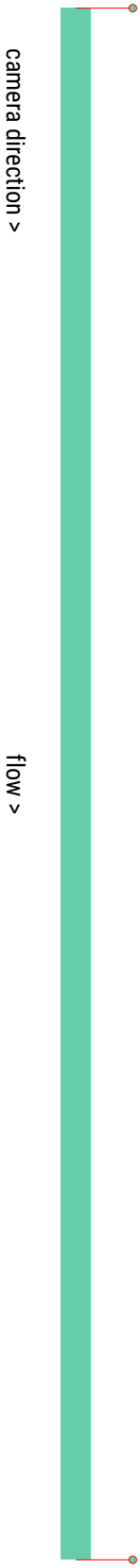
Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	24-Jul-2025 09:02
Comments:	

Observations

COL



Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End inspection
305.8	GO	General Observation					Begin Inspection. Jet-cam cannot advance

Mod 6NE

Snapshots

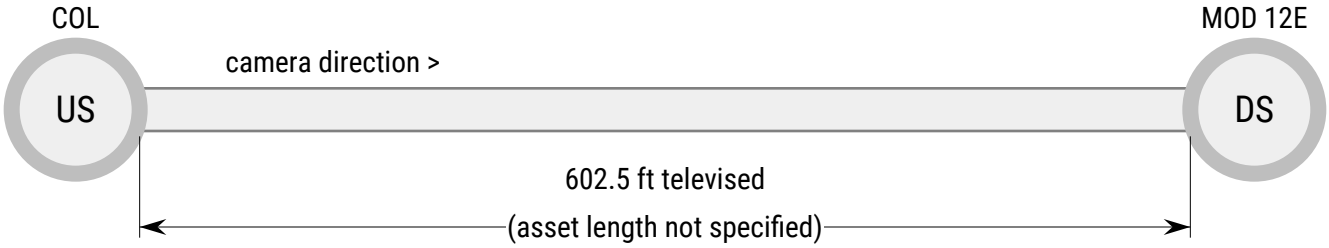
General Observation at 000.0 ft | End inspection

General Observation at 305.8 ft | Begin Inspection. Jet-cam cannot advance

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	24-Jul-2025 07:19
Comments:	

Observations

COL

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End Inspection
602.5	GO	General Observation					Begin Inspection

MOD 12E

Snapshots

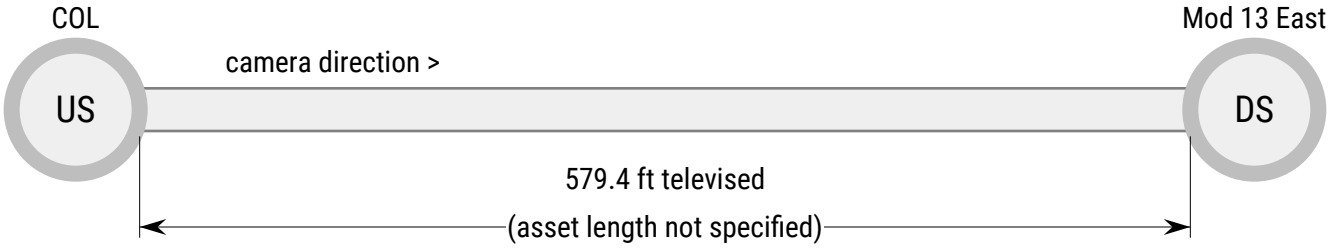
General Observation at 000.0 ft | End Inspection

General Observation at 602.5 ft | Begin Inspection

Superior Jetting, Inc.
PO Box 357
Zimmerman, MN 55398

Pipeline Inspection Report

Overview



Asset

Owner:	Alliant Energy
Upstream MH Depth:	
Downstream MH Depth:	
Size:	6 in
Material:	Plastic – HDPE
Lined:	
Sewer Use:	
Asset Comments:	

Location

Street Name:	
City:	

Inspection

Customer:	
Project:	
Work Order:	na
Surveyed By:	Superior Jetting
Purpose:	
Pre-Cleaning:	
Ground Saturation:	
Media Date/Time:	24-Jul-2025 11:48
Comments:	

Observations

COL

camera direction >

flow >

Feet	Code	Description	Severity	Clock	Measurements	⚠	Comments
000.0	GO	General Observation					End Inspection
316.0	GO	General Observation					camera submerged
566.1	GO	General Observation					Intersection of pipes
579.4	GO	General Observation					Begin Inspection

Mod 13 East

Snapshots

General Observation at 000.0 ft | End Inspection

General Observation at 316.0 ft | camera submerged

General Observation at 566.1 ft | Intersection of pipes

General Observation at 579.4 ft | Begin Inspection