PROPOSED DECISION

Proposed Denial of Alternative Closure Deadline for Ottumwa Generating Station

SUMMARY:

The Environmental Protection Agency (EPA) is proposing to deny the Demonstration submitted by Interstate Power and Light Company (IPL), for a coal combustion residuals (CCR) surface impoundment, the Ottumwa Generating Station (OGS) Ash Pond, located at the OGS near Ottumwa, Iowa. IPL submitted a Demonstration to EPA for approval seeking an extension pursuant to 40 C.F.R § 257.103(f)(1) to allow the impoundment to continue to receive CCR and non-CCR wastestreams after April 11, 2021. In the Demonstration, IPL requested an alternative closure deadline of December 31, 2022, for the OGS Ash Pond. EPA is proposing to deny the request for an extension based on a proposed determination that the Demonstration does not meet the requirements of § 257.103(f)(1) and a proposed determination that Ottumwa Generating Station has failed to demonstrate that the facility is in compliance with the requirements of 40 C.F.R. § 257 Subpart D.

DATES: *Comments.* Comments must be received on or before February 23, 2022.

ADDRESSES AND PUBLIC PARTICIPATION: The EPA has established a docket for this notice under Docket ID No. EPA-HQ-OLEM-2021-0593. EPA established a docket for the August 28, 2020, CCR Part A final rule under Docket ID No. EPA-HQ-OLEM-2019-0172. All documents in the docket are listed in the https://www.regulations.gov index. Publicly available docket materials are available either electronically at https://www.regulations.gov or in hard copy at the EPA Docket Center. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding holidays. The telephone number for the Public Reading

Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742. You may send comments, identified by Docket ID. No. EPA-HQ-OLEM-2021-0593, by any of the following methods:

- Federal e-Rulemaking Portal: https://www.regulations.gov/ (our preferred method). Follow the online instructions for submitting comments.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Office of Land and Emergency Management, Docket ID No. EPA-HQ-OLEM-2021-0593, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- Hand Delivery or Courier (by scheduled appointment only): EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m. – 4:30 p.m., Monday – Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to https://www.regulations.gov/, including any personal information provided. Once submitted, comments cannot be edited or removed from the docket. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia

submissions, and general guidance on making effective comments, please visit https://www.epa.gov/dockets/commenting-epa-dockets.

Due to public health concerns related to COVID-19, the EPA Docket Center and Reading Room are open to the public by appointment only. Our Docket Center staff also continues to provide remote customer service via email, phone, and webform. Hand deliveries or couriers will be received by scheduled appointment only. For further information and updates on EPA Docket Center services, please visit us online at https://www.epa.gov/dockets.

The EPA continues to carefully and continuously monitor information from the Centers for Disease Control and Prevention (CDC), local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

FOR FURTHER INFORMATION CONTACT: For information concerning this proposed decision, contact:

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- For more information on this rulemaking please visit https://www.epa.gov/coalash.

SUPPLEMENTARY INFORMATION:

Table of Contents

I. General Information

A. What decision is the Agency making?

B. What is the Agency's authority for making this decision?

II. Background

A. Part A Final Rule

B. Ottumwa Generating Station

III. EPA Analysis of Demonstration

A. Evaluation of IPL's Claim of No Alternative Disposal Capacity On or Off-site

B. Evaluation of IPL's Analysis of Adverse Impacts to Plant Operations

C. Evaluation of IPL's Site-Specific Analysis for the Alternative Capacity Selected

D. Evaluation of IPL's Justification for Time Requested

E. Evaluation of IPL's Compliance Documentation

IV. Proposed Date to Cease Receipt of Waste

V. Conclusion

VI. Effective Date

List of Acronyms

ACM – Assessment of Corrective Measures

ASD – Alternate Source Demonstration

CBI – Confidential Business Information

CCR – Coal Combustion Residuals

C.F.R. – Code of Federal Regulations

ELG – Effluent Limit Guidelines

EPA – Environmental Protection Agency

FGD – Flue gas desulfurization

GWMCA – Groundwater Monitoring Corrective Action

IDNR – Iowa Department of Natural Resources

IPL – Interstate Power and Light Company

LVWTP – Low Volume Wastewater Treatment Pond

MGD – Million gallons per day

MISO – Midcontinent Independent System Operator, Inc.

MNA – Monitored Natural Attenuation

mV – millivolts

MW – megawatts

NPDES – National pollutant discharge elimination system

OGS – Ottumwa Generating Station

OML – Ottumwa Midland Landfill

P.E. – Professional Engineer

PEM – palustrine emergent wetlands

POTW – Publicly Owned Treatment Works

PUB – palustrine unconsolidated bottom wetlands

RTO – Regional Transmission Organization

RCRA – Resource Conservation and Recovery Act

S&L – Sargent and Lundy

SSL – Statically significant level

ZLD – Ottumwa Zero Liquid Discharge Pond

I. General Information

A. What decision is the agency making?

The Environmental Protection Agency (EPA) is proposing to deny the Demonstration submitted by Interstate Power and Light Company (IPL) for a coal combustion residuals (CCR) surface impoundment, the Ottumwa Generating Station (OGS) Ash Pond, located at the OGS

near Ottumwa, Iowa. IPL submitted a Demonstration to EPA for approval seeking an extension pursuant to 40 C.F.R § 257.103(f)(1) to allow the OGS Ash Pond surface impoundment to continue to receive CCR and non-CCR wastestreams after April 11, 2021. EPA is proposing that IPL cease receipt of waste into the CCR surface impoundment no later than 135 days from the date of EPA's final decision.

B. What is the agency's authority for taking this decision?

This proposal is being issued pursuant to the authority in 40 C.F.R. § 257.103(f).

II. Background

A. Part A Final Rule

In April 2015, EPA issued its first set of regulations establishing requirements for CCR surface impoundments and landfills. (Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities,80 FR 21301) (the "CCR Rule"). In 2020, EPA issued the CCR A Holistic Approach to Closure Part A: Deadline to Initiate Closure rule (85 FR 53516 (Aug. 28, 2020)) (the "Part A Rule"). The Part A Rule established April 11, 2021, as the date that electric utilities must cease placing waste into all unlined CCR surface impoundments. The Part A Rule also revised the alternative closure provisions of the CCR Rule (40 C.F.R. § 257.103) by allowing owners or operators to request an extension to continue to receive both CCR and non-CCR wastestreams in an unlined CCR surface impoundment after April 11, 2021 provided that certain criteria are met. EPA established two site-specific alternatives to initiate closure of CCR surface impoundments (40 C.F.R. § 257.103(f)), commonly known as extensions to the date to cease receipt of waste: (1) development of alternative capacity by the April 11, 2021 deadline is technically infeasible (40 C.F.R. §

257.103(f)(1)), and (2) permanent cessation of a coal-fired boiler(s) by a date certain (40 C.F.R. § 257.103(f)(2)).

The first site-specific alternative to initiate closure of CCR surface impoundments is *Development of Alternative Capacity is Technically Infeasible* (40 C.F.R. § 257.103(f)(1)). Under this alternative, an owner or operator may submit a demonstration seeking EPA approval to continue using its unlined surface impoundment for the specific amount of time needed to develop alternative disposal capacity for its CCR and non-CCR wastestreams. The demonstration must meet the requirements at 40 C.F.R. § 257.103(f)(1). To have an alternative deadline approved, the regulation requires the facility to demonstrate that: (1) no alternative disposal capacity is currently available on- or off-site of the facility; (2) the CCR and/or non-CCR waste stream must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to obtain alternative disposal capacity either on or off-site at the facility by April 11, 2021; and (3) the facility is in compliance with all the requirements of 40 C.F.R. subpart D. 40 C.F.R. § 257.103(f)(1)(i)-(iii). To support the requested alternative deadline, the facility must submit detailed information demonstrating that the amount of time requested is the fastest technically feasible time to complete development of alternative disposal capacity. 40 C.F.R. § 257.103(f)(1)(iv)(A).

The second site-specific alternative to initiate closure of CCR surface impoundments is for the owner or operator to demonstrate that it will permanently cease operation of coal-fired boilers at the facility. *Permanent Cessation of Coal-Fired Boiler(s) by a Date Certain*, (40 C.F.R. § 257.103(f)(2)). Under this alternative an owner or operator may submit a demonstration seeking EPA approval to continue using an unlined CCR surface impoundment in the interim period prior to permanently stopping operation of coal-fired boiler(s) at the facility. The

demonstration must meet the requirements at 40 C.F.R. § 257.103(f)(2). The owner or operator must show that (1) the facility will cease operation of coal-fired boiler(s) and complete closure of the CCR surface impoundment(s) by the specified deadlines (no later than October 17, 2023 for impoundments 40 acres or smaller and no later than October 17, 2028 for impoundments larger than 40 acres); and (2) in the interim period prior to the closure of the coal-fired boiler, the facility must continue to use the CCR surface impoundment due to the absence of alternative disposal capacity both on-site or off-site. *Id*. Unlike the requirements for the first alternative, the owner or operator does not need to develop alternative disposal capacity. The regulations require a demonstration that: (1) no alternative disposal capacity is available on or off-site of the facility; (2) the risks from continued use of the impoundment have been adequately mitigated; (3) the facility is in compliance with all other requirements of 40 C.F.R. part 257 subpart D; and (4) closure of both the impoundment and the coal-fired boiler(s) will be completed in the allowed time. 40 C.F.R. § 257.103(f)(2)(i)-(iv).

B. Ottumwa Generating Station

On November 30, 2020, the Interstate Power and Light Company submitted a Demonstration (referred to as the "Demonstration" in this document) pursuant to 40 C.F.R. § 257.103(f)(1) requesting additional time to develop alternative capacity to manage CCR and non-CCR wastestreams at OGS near Ottumwa, Iowa. IPL, a subsidiary of Alliant Energy, is the co-owner and operator of the OGS. The other co-owner is MidAmerican Energy Company. The Demonstration submitted by IPL seeks approval of an alternative site-specific deadline to initiate closure of its OGS Ash Pond. Specifically, IPL requests an alternative deadline of December 31, 2022, by which date IPL would cease routing all CCR and non-CCR wastestreams to the OGS Ash Pond and initiate closure of the impoundment. IPL plans to obtain alternative capacity to the

Ottumwa Ash Pond by (1) converting wet handling systems to dry handling systems for certain boiler ash; (2) constructing a new non-CCR wastestream basin for non-CCR flows; and (3) rerouting at least one non-CCR wastestream to a new Iowa Department of Natural Resources (IDNR)–permitted outfall.

To assist the readers' review, EPA provides additional details below on the Ottumwa facility, including information on the generation capacity of the Ottumwa Generating Station, information on its CCR surface impoundments, and information on other non-CCR impoundments. This summary is based on information extracted from the Demonstration.

1. Coal-fired boilers and generation capacity.

The Demonstration states that Ottumwa Generating Station operates one coal-fired unit with a total generation capacity of 726 megawatts (MW).

2. CCR units and CCR wastestreams.

The Demonstration identifies two CCR units at OGS that are subject to the federal CCR regulations. One unit is a surface impoundment named the Ottumwa Generating Station Ash Pond (and also referred to as the "Surface Impoundment" in the Demonstration and hereafter in this document as the "OGS Ash Pond"). The OGS Ash Pond is the CCR unit for which an alternative deadline is sought. The Demonstration states that the approximate surface area of the OGS Ash Pond is 39 acres. The other unit is an inactive, unlined CCR surface impoundment of approximately 19 acres called the Ottumwa Zero Liquid Discharge Pond (ZLD Pond). According to the Demonstration, the ZLD has not received waste since October 2015, however, it contains water and CCR materials. IPL intends to close the ZLD by removal of CCR. Basic information about the OGS CCR units is summarized below in **Table 1.**

The OGS Ash Pond is an unlined CCR surface impoundment and subject to closure pursuant to 40 C.F.R. § 257.101(a)(1). This provision provides that IPL must cease placing CCR and non-CCR wastestreams into the unit and either retrofit or close it as soon as technically feasible, but not later than April 11, 2021. IPL intends to close the OGS Ash Pond by capping CCR materials in place. The Demonstration states that the OGS Ash Pond and ZLD are in compliance with the CCR Rule.

IPL is requesting an alternative site-specific deadline of December 31, 2022, to cease receipt of CCR and non-CCR wastestreams to the OGS Ash Pond. According to the Demonstration, the basis for this request is the infeasibility of developing alternative capacity by April 11, 2021. According to the Demonstration IPL's approach to developing alternative capacity must facilitate the management of the plant's CCR and non-CCR wastestreams throughout construction in a way that allows the plant to meet the National Pollutant Discharge Elimination System (NPDES) discharge limits.

According to the Demonstration, during its past operation IPL sluiced bottom ash and economizer ash generated at OGS to its on-site Ash Pond. The Demonstration explains that, as of November 30, 2020 (the date IPL submitted the Demonstration to EPA), IPL was in an outage (initiated in September 2020) of its OGS boiler unit for the purpose of installing the dry ash handling system. According to the Demonstration, the result of the outage would be the elimination of continuous flows of bottom ash transport water to the OGS Ash Pond. It is expected therefore that the sluicing of CCR to the OGS Ash Pond ceased in September 2020. The Demonstration also explains that the dry bottom ash handling conversion for the boiler unit would be completed in December 2020.

Even though IPL will no longer manage actively generated wastestreams in the OGS Ash Pond, it intends to place CCR in the OGS Ash Pond after April 11, 2021. The following quote is from Section 2.1.1 of the Demonstration (EPA inserted "OGS Ash Pond" in brackets for clarity):

> "IPL is currently completing installation of a dry bottom ash handling system and no longer discharges bottom ash to the Surface Impoundment [OGS Ash Pond]. There are currently no other CCR wastestreams to the Surface Impoundment [OGS Ash Pond]. However, the Surface Impoundment [OGS Ash Pond] will receive CCR material from the ZLD Pond when it is closed by removal of CCR and repurposed as a new lined wastewater treatment basin."

This means that IPL intends to dispose of at least one CCR wastestream in the OGS Ash Pond after April 11, 2021: the CCR materials stored in the ZLD. Additionally, based on the closure plan, it appears IPL is planning to place the contents of the hydrated fly ash stockpile in the OGS Ash Pond after April 11, 2021 (further discussed below).

IPL also owns and operates a nearby off-site CCR landfill, the Ottumwa Midland Landfill (OML). Section 3.0 of the Demonstration states that this unit is about 12 miles away from OGS but Appendix A of the Demonstration states that approximately 5 miles separates the OML from OGS. One wastestream that the OML receives is the portion of precipitator fly ash from the station's flue gas desulfurization (FGD) control process that is not collected by the electrostatic precipitators. After being collected in a bag house, this precipitator fly ash is disposed of in the landfill. Because this landfill is off-site, IPL was not required to demonstrate that it is in compliance with the CCR Rule to be approved for its alternative closure provision request for the OGS Ash Pond.

In addition to CCR surface impoundments, OGS has what appears to be an inactive[1] on-site CCR pile, the hydrated fly ash stockpile. IPL did not discuss this pile in the Demonstration narrative; EPA's information about this pile is based on the Agency's review of the Updated Closure Plan (November 2020) and the attachments submitted with the Demonstration. The hydrated fly ash stockpile is located along the western boundary of the ZLD. Appendix C8 of the Demonstration provides a general overview of the history of this pile and several details regarding its normal operation. Before October 2015, the hydrated fly ash stockpile received the generated precipitator fly ash after it had been processed by OGS's fly ash reclamation processing area. The result of this process was a "very hard, cement-like material" that was stored on-site or transported off-site. According to IPL's Updated Closure Plan, the hydrated fly ash stockpile currently contains approximately 440,000 cubic yards of material.

The Demonstration states that OGS recycles the outflow (effluent) from the OGS Ash Pond throughout the plant or discharges it through permitted outfalls. IPL provided an existing water balance diagram in Appendix A of the Demonstration.

3. Non-CCR units and non-CCR wastestreams

According to the Demonstration, there is one existing non-CCR surface impoundment on-site at OGS, the Coal Pile Runoff Pond. This is a small pond located on the northern border of the ZLD and the hydrated fly ash stockpile. The current NPDES permit suggests that this pond has an outfall that discharges the effluent from this pond to a tributary of the Des Moines River. Appendix C8 of the Demonstration indicates that, occasionally, excess stormwater runoff from the Coal Pile Runoff Pond is routed to the ZLD via a culvert which connects the two ponds.

[1] The Demonstration states that the hydrated fly ash stockpile has not received waste after October 19, 2015. See Appendix C8, section 2

A non-CCR Pond at OGS, which will be called a Low Volume Wastewater Treatment Pond (LVWTP), will be constructed to treat the non-CCR wastestreams that are currently routed to the OGS Ash Pond. The LVWTP will be constructed in the footprint of the existing ZLD after it has been closed by removal of CCR. The approximately 165,000 cubic yards[2] of CCR material in the ZLD Pond will be excavated and consolidated in the OGS Ash Pond. Once the ZLD Pond is dewatered and dredged and the subgrade and earthwork are complete, it will receive a new liner system and be repurposed as the LVWTP. IPL explained that once installation of the dry handling system is complete, construction of the LVWTP is complete and ready to receive waste, and the remaining non-CCR flows are rerouted to the LVWTP, the OGS Ash Pond will cease receipt of all waste.

IPL explained that the facility's generated non-CCR wastestreams must continue to be managed in the OGS Ash Pond until the projected, new non-CCR basin, the LVWTP, can receive them. According to the visual timeline included in Appendix B of the Demonstration, the piping reroutes to the new LVWTP are scheduled to be completed by November 4, 2022. The OGS Ash Pond would cease receiving waste and begin closure on December 31, 2022.

The Demonstration identifies over ten non-CCR flows that are currently managed in the OGS Ash Pond (summarized below in **Table 1**). The OGS Ash Pond receives a total of approximately 1.54 million gallons per day (MGD) of commingled non-CCR waste. From the OGS Ash Pond, the facility's commingled wastestreams are recycled for reuse in the plant or discharged through the facility's NPDES Outfall 001.

Table 1. Summary of on-site impoundments and affected wastestreams

CCR Units	Unit	Type	Area (acres)	Capacity (million gallons)	Affected Unit?

[2] Updated Closure Plan, November 2020, Appendix A, Section 4, Table 1

	Zero Liquid Discharge Pond	Impoundment	19	Unspecified	Yes, inactive
	Surface Impoundment (OGS Ash Pond)	Impoundment	39	Unspecified	Yes

Non-CCR Impoundments	Coal pile runoff pond-surface area and capacity unspecified		
Affected Wastestreams- currently handled or projected to be handled in OGS Ash Pond	**Type**	**Description**	**Generation Rate (MGD)**
	CCR	CCR materials excavated from ZLD	Approx. 165,000 cubic yards total [CP]
		Hydrated fly ash stockpile [CP]	Approx. 440,000 cubic yards total [CP]
	Non-CCR	Clarifier Sludge	0.0936
		Cooling Tower Blowdown	0.641
		Ultrafilter Backwash	0.026
		Gravity Filter Backwash	0.132
		Reverse Osmosis Reject	0.161
		Condensate Polisher Wastewater	0.0058
		Boiler Blowdown	0.183
		Misc. Oily Plant Drains	0.194
		Misc. Plant Drains (intermittent)	< 0.072
		Stormwater	1.44
		Air Heater Wash Water	Intermittent
		Water currently impounded in ZLD	Volume contained in ZLD is unknown
		On-site Sewage Treatment Wastestreams	0.004

CP= Information extracted from IPL's Updated Closure Plan (November 2020)

Based on information in the OGS NPDES permit (Iowa NPDES #9000101, amended on August 1, 2020), it appears there is at least one additional non-CCR wastestream that the OGS Ash Pond receives that was not included in the Demonstration. It appears that the "combustion residual landfill leachate" wastestream discharges via Outfall 001 from the OGS Ash Pond. The Demonstration and its attachments do not provide discussion of this wastestream or any technical information about it, such as rate of generation.

When it is completed, IPL plans to handle all its non-CCR flows in the LVWTP, except for the cooling tower blowdown and the air heater wash. IPL plans to seek a permit for a new

Outfall 007 that will discharge into the Des Moines River and reroute the cooling tower blowdown wastestream directly to this new outfall. The air heater wash is generated intermittently, only during outages. For any outages after April 11, 2021, IPL stated in the Demonstration that it plans to collect this wastestream and process it through temporary treatment before discharging to Outfall 001. It appears that IPL plans to manage this wastestream in the LVWTP once it is operational.

III. EPA Analysis of Demonstration

EPA has determined that the Demonstration IPL submitted pursuant to 40 C.F.R § 257.103(f)(1) for the CCR surface impoundment, the OGS Ash Pond, at the Ottumwa Generating Station was complete. While EPA did determine the Demonstration to be complete, EPA is proposing to deny the extension request based on a proposed determination that the OGS has not demonstrated that it is in compliance with all the requirements of 40 C.F.R. part 257 subpart D. This is based on concerns with the groundwater monitoring at the facility, with the corrective measures assessment, and because it appears that the OGS Ash Pond will not meet the closure performance standards for CCR surface impoundments. EPA is proposing that IPL cease placement of all CCR and non-CCR wastestreams into the OGS Ash Pond no later than 135 days from the date of EPA's final decision.

A. Evaluation of IPL's Claim of No Alternative Disposal Capacity On- or Off-Site

To obtain an extension of the cease receipt of waste deadline, the owner or operator must demonstrate that there is no alternative disposal capacity available on- or off-site. 40 C.F.R. § 257.103(f)(1)(iv)(A). As part of this, facilities must evaluate all potentially available disposal options to determine whether any are technically feasible. 40 C.F.R. § 257.103(f)(1)(i). The owner or operator must also evaluate the site-specific conditions that affected the options

considered. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*i*). Additionally, the regulations prohibit the owner or operator from relying on an increase of cost or inconvenience of existing capacity as a basis for meeting this criterion. 40 C.F.R. § 257.103(f)(1)(i).

The Demonstration must substantiate the absence of alternative capacity for each wastestream that the facility is requesting to continue placing in the CCR surface impoundment beyond April 11, 2021. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*). As soon as alternative capacity is available for any wastestream, the owner or operator must use that capacity instead of the unlined CCR surface impoundment. 40 C.F.R. § 257.103(f)(1)(v). This means that, if there is a technically feasible option to reroute any of the wastestreams away from the surface impoundment, the owner or operator must do so. 40 C.F.R. § 257.103(f)(1)(ii), (v). In the CCR Part A Rule preamble, EPA acknowledged that some of these wastestreams are very large and will be challenging to relocate, especially for those that are sluiced. However, the smaller volume wastestreams have the potential to be rerouted to temporary storage tanks. In such cases, the owner or operator must evaluate this option, and, if it is determined to be technically feasible, must implement it. 85 Fed. Reg. 53,541.

1. Lack of Alternative On- or Off-site Capacity for CCR wastestreams.

CCR within the ZLD Pond

According to the Demonstration, IPL intends to remove the CCR from the ZLD Pond and place them in the OGS Ash Pond after April 11, 2021. The Demonstration included no analysis of the off-site or on-site alternatives available for disposing of these wastes, as required by 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*).

Further, it appears that alternative capacity may exist for this wastestream. Specifically, the off-site OML is a potential disposal option for the CCR and subgrade material that will be

excavated from the ZLD Pond. The OML is a CCR unit that has previously received at least some of the OGS's precipitator fly ash. IPL did not consider this option. IPL was required to provide a written narrative of the alternative capacity options available on- and off-site for the planned placement of any CCR in the OGS Ash Pond that will occur after April 11, 2021. 40 C.F.R. § 257.103(f)(1)(iv)(A)(1). Accordingly, EPA is proposing to determine that IPL has not met the criteria in 40 C.F.R. § 257.103(f)(1)(i) and (ii)(A).

Hydrated Fly Ash Stockpile

Based on information in IPL's Updated Closure Plan, it appears that the company plans to place the contents of the hydrated fly ash stockpile in the OGS Ash Pond after April 11, 2021. This wastestream is not mentioned in the Demonstration. It appears that IPL intends to use the hydrated fly ash as part of its plan to close the OGS Ash Pond by capping with "waste in place." For further discussion, see Section E. Compliance Documentation. If IPL intends to place this wastestream in the OGS Ash Pond, then it is a CCR wastestream for which IPL was required to provide an analysis of the potential on-site and off-site alternatives. 40 C.F.R. § 257.103(f)(1)(iv)(A)(1).

Additionally, it appears that alternative disposal capacity may exist for the hydrated fly ash because Appendix C8 of the Demonstration explains that the hydrated fly ash was typically transported off-site during past operations. IPL did not justify why the OML or the other previously used off-site disposal alternative capacities are not available to receive the hydrated fly ash.

For these reasons, EPA is proposing to determine that IPL has not demonstrated that there is no existing on- or off-site capacity for the hydrated fly ash, as required by 40 C.F.R. § 257.103(f)(1)(i) and (ii)(A).

2. Lack of Alternative On-site Capacity: Non-CCR wastestreams

IPL concluded that there is no alternative capacity available on-site for any of the non-CCR wastestreams currently managed in the OGS Ash Pond. EPA is proposing to conclude that IPL has sufficiently justified this determination for three non-CCR wastestreams but that it has not adequately justified this determination for nine of its non-CCR wastestreams.

Three of the non-CCR wastestreams currently managed in the OGS Ash Pond are of high solids content: the clarifier sludge, the reverse osmosis reject, and the ultrafilter backwash. IPL stated in Table 2-1 of the Demonstration that these wastestreams cannot be directly discharged and require treatment in the OGS Ash Pond until they can be routed to the future LVWTP Additionally, IPL sized its future LVWTP to achieve the necessary solids settling to meet NPDES discharge limits. EPA is proposing to agree with IPL that these wastestreams cannot be directly discharged and require a large impoundment to achieve the necessary gravitational solids settling. Until the future 19-acre LVWTP is available to receive the flows, EPA is proposing to determine that there is no existing alternative on-site capacity for these three wastestreams.

However, for eight of the non-CCR wastestreams currently treated in the OGS Ash Pond (i.e., cooling tower blowdown, gravity filter backwash, condensate polisher wastewater, boiler blowdown, misc. oily plant drains, misc. plant drains, stormwater, and on-site sewage treatment wastewaters), Table 2-1 provides the following explanation: "There is currently no infrastructure on-site to discharge this wastestream directly or manage at another location on site." And as noted earlier, IPL included no discussion of the "combustion residual landfill leachate" wastestream that is currently discharged via Outfall 001 from the OGS Ash Pond. To demonstrate that there is no alternative disposal capacity available on- or off-site, IPL was

required to evaluate all potentially available disposal options to determine whether any are technically feasible. 40 C.F.R. § 257.103(f)(1)(i).

Further, IPL failed to adequately address potential alternatives that exist on-site. The Coal Pile Runoff Pond is an existing on-site non-CCR surface impoundment. IPL states in the Demonstration[3] that the Coal Pile Runoff Pond is not large enough to treat the facility's non-CCR wastestreams; however, IPL did not provide technical supporting details, such as the pond capacity. The Demonstration also provides no analysis of whether the Coal Pile Runoff Pond could treat individual non-CCR wastestreams, which does not meet the requirements of 40 C.F.R. §§ 257.103(f)(1)(iv)(A)(*I*); (v). Considering that IPL plans to reroute at least one wastestream (cooling tower blowdown) directly to an outfall, it appears that intensive solids settling is not needed for some non-CCR wastestreams.

EPA is also proposing to conclude that IPL did not demonstrate that it was technically infeasible to provide alternative on-site capacity for the cooling tower blowdown before April 11, 2021. In Table 2-1, IPL states, "This wastestream [cooling tower blowdown] will be routed and pumped around the LVWTP to a new Outfall 007 to the Des Moines River. The infrastructure not currently available to discharge this wastestream directly or manage at another location on site and the site discharge permit must be modified before this could occur." IPL stated that it expects the approval of the new permitted Outfall 007 by spring 2022[4] and it anticipates completing the reroute of the cooling tower blowdown to this outfall by October 2022.[5] However, IPL failed to explain why these activities could not have been completed prior to April 11, 2021. And as discussed below in *Section D. Justification of Time Requested*, IPL

[3] Section 2.1.3
[4] Demonstration, section 2.3
[5] Demonstration, Table 2-1

failed to provide a detailed schedule of the time needed to complete this process in the Demonstration. Accordingly, EPA is proposing to determine that IPL has not demonstrated that it was technically infeasible to divert this wastestream before April 11, 2021, and therefore has not demonstrated that there is no existing on-site capacity, as required by 40 C.F.R. §§ 257.103(f)(1)(iv)(A)(*1*); (v).

IPL considered implementing temporary storage as alternative capacity for the OGS non-CCR wastestreams. IPL concluded that there is not sufficient footprint within the OGS property boundary to accommodate temporary storage for the combined volume of the facility's non-CCR wastestreams. Figure 2 in Appendix A of the Demonstration shows an aerial map of the site, including the existing OGS, the surrounding floodplains, and sensitive drainage areas that could be impacted by construction. IPL estimated that 140 frac tanks per day would be needed to manage the combined volume of the facility's non-CCR wastestreams. EPA has reviewed the information provided and is proposing to conclude that there is not sufficient available footprint on-site at OGS to implement temporary storage to treat and store the combined volume of the facility's non-CCR flows.

However, IPL did not consider whether there is enough available footprint on-site to implement a temporary storage solution for one or more of the other, smaller OGS wastestreams. OGS produces four non-CCR wastestreams that are small (of generation rates of 2,600 gal/day or less). These are the ultrafilter backwash, condensate polisher wastewater, miscellaneous plant drains, and on-site sewage treatment. IPL estimated that the ultrafilter backwash could be stored in approximately two frac tanks per day, the condensate polisher could be stored in one frac tank per day, the miscellaneous plant drains in four frac tanks per day, and the on-site sewage in one frac tanks per day, respectively. These would have a significantly lower footprint than would be

required to store the total volume of non-CCR wastestreams. However based on the available information, EPA cannot determine how many frac tanks could be stored on-site at OGS.

In sum, IPL did not evaluate existing on-site alternative capacity options for each wastestream, as required by 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*). For this reason, EPA is proposing to conclude that IPL has not adequately justified that there is no existing alternative capacity on-site for its non-CCR wastestreams

3. Lack of Alternative Off-site Capacity: Non-CCR wastestreams

IPL concluded that off-site disposal of the OGS non-CCR wastestreams is not technically feasible. The reasons presented in support of IPL's conclusion that there is no off-site capacity for its non-CCR wastestreams are (1) the challenges associated with transporting large volumes of wastestreams off-site and (2) that there is no known publicly owned treatment works (POTW) that could receive the wastestreams. EPA is proposing to conclude that IPL has failed to demonstrate that transportation of each wastestream is technically infeasible because IPL did not provide evidence that off-site alternative capacity is not available for each individual wastestream.

Transporting Wastestreams Off-site

IPL explained that there is no existing infrastructure that could transport its combined non-CCR wastestreams to an off-site treatment facility and that constructing this infrastructure would further delay the final receipt of waste to the OGS Ash Pond. *See section 2.1.5 of the Demonstration.* IPL determined that off-site transport by trucking is infeasible for the combined volume of its wastestreams because of several factors, including the large number of frac tanks required for temporary storage, significant daily tanker truck traffic, potential safety and noise

impacts, and greenhouse gas emissions. IPL estimated that at least 300 trucks per day would be required to transport the total non-CCR wastestream volume off-site.

However, IPL did not evaluate whether trucking individual wastestreams to an off-site disposal facility is technically feasible. The failure to evaluate the potential for each individual wastestream to be sent off-site for disposal alone would be a basis for denial. As stated in the Part A final rule preamble, "[T]he final rule requires owners and operators to cease using the CCR surface impoundment as soon as feasible, to document the lack of both on and off-site capacity for each individual wastestream, and expressly requires that as capacity for an individual wastestream becomes available, owners or operators are required to use that capacity…" (85 FR 53541). See, 40 C.F.R. §§ 257.101(a)(1); 257.103(f)(1)(iv)(A)(1); (v).

In addition, IPL provided an estimate of the number of frac tanks and trucks that would be required to transport each of its wastestreams off-site. See section 2.1.2 of the Demonstration. Using these estimates it appears that there are a few wastestreams that based on volume alone could potentially have been trucked to an off-site POTW. IPL found that off-site transportation for the following wastestreams would require at most ten trucks per wastestream per day:

- Ultrafilter backwash: two frac tanks on-site and four daily trucks
- Condensate polisher wastewater: one frac tank on-site and one daily truck
- Miscellaneous plant drains: four frac tanks and ten daily tanker trucks
- On-site sewage: one frac tank on-site and one daily tanker truck

EPA considers it reasonable for a facility to divert a wastestream using ten or fewer trucks per day. Accordingly, EPA is proposing to conclude that IPL has not met 40 C.F.R. § 257.103(f)(1)(iv)(A)(1).

Lack of POTW

IPL stated in the Demonstration that it has, "not yet identified a publicly owned treatment works (POTW) or alternate wastewater treatment facility that will accept these wastestreams." However, the Demonstration provides no evidence that IPL attempted to find a POTW that could accept any of the individual wastestreams. Such an analysis fails to meet the requirements of 40 C.F.R. § 257.103(f)(1)(iv)(A)(1).

Further, it appears that there are POTWs that could accept some of the individual wastestreams. As part of analyzing the Demonstration, EPA evaluated facilities within a 50-mile radius of OGS that could potentially receive at least some of the OGS non-CCR wastestreams. Using the IDNR's publicly available database, EPA identified 170 domestic and industrial wastewater facilities within a 50-mile radius of OGS. One hundred of the facilities within the 50-mile radius are reported to have an average wet weather flow rate (proxy for peak flow rate) of less than 0.1 MGD. Based on flowrate, it may be possible for these 100 facilities to receive OGS's smaller wastestreams: the ultrafilter backwash, condensate polisher wastewater, miscellaneous plant drains, and on-site sewage treatment wastestreams. Further, several of these facilities appear to be designed to treat domestic wastewater and appear suitable to treat (at least) the sewage treatment wastestream from OGS.

According to the IDNR's publicly available database, eight facilities within a 50-mile radius of OGS are reported to have an average wet weather flow of more than 3 MGD. Based on flowrate, these are off-site capacity options that could potentially receive at least some of the OGS wastestreams. The Demonstration does not provide the required assessment of whether these facilities could treat some or all of the non-CCR wastestreams from OGS.

Additionally, Google Earth satellite images suggest that there are two impoundments located around the OML, which is located off-site within 12 miles of the plant. The written narrative provided in the Demonstration does not mention these impoundments or provide details such as their capacity or possible liner system. Figure 4 of the OML 2020 Annual Groundwater Monitoring and Corrective Action (GWMCA) report[6] labels a pond immediately to the west as, "Temporary Contact Water Basin No 1/2." Figure 4 also labels a pond immediately to the south of the OML, "Existing Sedimentation Basin No. 1." In its review of the Demonstration and OGS compliance documents, EPA could not discover further information about these ponds, such as their capacity, influent wastestreams, and the possible existence of a liner system. The Demonstration did not consider these ponds as potential alternative off-site capacity for the OGS non-CCR wastestreams.

In sum, EPA is proposing to conclude that IPL did not demonstrate that there is no off-site capacity for its non-CCR wastestreams because it did not evaluate existing potential alternative capacity options and provided no evidence that it attempted to find off-site alternative capacity for its individual wastestreams. EPA is also proposing to conclude there may be existing off-site capacity for at least some of the non-CCR wastestreams because (1) there are potential off-site facilities that IPL did not consider and (2) the number of frac tanks and tanker trucks required to transport the facility's smallest non-CCR wastestreams is not prohibitive.

B. Evaluation of IPL's Analysis of Adverse Impacts to Plant Operations

In the Part A Rule, EPA stated that it is important for the facility to include an analysis of the adverse impacts to the operation of the power plant if the CCR surface impoundment could

[6] 2020 Annual GWMCA Report, Ottumwa Midland Landfill, Figure 4 "Potentiometric Surface Map October 5-6, 2020"

not be used after April 11, 2021. EPA stated that this is an important factor in determining whether the disposal capacity of the CCR surface impoundment in question is truly needed by the facility. EPA required that a facility provide analysis of the adverse impacts that would occur to plant operations if the CCR surface impoundment in question were no longer available. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*I*)(*ii*). EPA is proposing to find that there would be adverse impacts to the power plant if the CCR impoundment could not be used after April 11, 2021.

IPL states in the Demonstration that "to continue to operate, generate electricity, and comply with both the CCR Rule and the IDNR permit conditions, OGS must continue to use the Surface Impoundment for treatment of non-CCR wastestreams until alternate disposal capacity can be developed." It further explains that if the OGS Ash Pond were unable to receive the facility's non-CCR wastestreams before construction of the LVWTP is complete, OGS would have to cease generating power.

EPA is proposing to determine that if IPL were unable to continue using the OGS Ash Pond, and if no other on- or off-site alternative capacity were available, there would be adverse impacts on IPL's ability to run the associated boiler(s) such that a planned temporary outage would likely be required. But as discussed in Unit IV, EPA disagrees that there will be any broader impacts of such an outage.

C. Evaluation of IPL's Site-Specific Analysis for the Alternative Capacity Selected

To support the alternative deadline requested in the demonstration, the facility must submit a workplan that contains a detailed explanation and justification for the amount of time requested. 40 C.F.R. § 257.103(f)(1)(iv)(A). The written workplan narrative must describe each option that was considered for the new alternative capacity selected, the time frame under which each potential capacity could be implemented, and why the facility selected the option that it did.

Id. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*). The discussion must include an in-depth analysis of the site and any site-specific conditions that led to the decision to implement the selected alternative capacity. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*i*).

In this section, EPA explains why it is proposing to agree with IPL's determination that certain alternate capacity options were not feasible or would further delay the OGS Ash Pond's final receipt of waste and summarizes the option selected by IPL.

IPL reviewed the alternative capacity options in the Part A final rule and conducted an analysis of their feasibility at Ottumwa Generating Station. See Table 2-2 of the Demonstration. IPL used the average development time[7] for each technology listed in the Part A final rule and discussed whether implementing each alternative would be feasible at OGS. The following alternative capacity options were evaluated: conversion to dry handling, non-CCR wastewater basin, wastewater treatment facility, new CCR surface impoundment, retrofit of a CCR surface impoundment, multiple technology system, and a temporary treatment system. IPL projected to complete its dry ash handling system by December 2020, therefore the technologies that IPL evaluated are related to obtaining alternative capacity for the OGS's non-CCR flows.

IPL did not elect to build a wastewater treatment plant. Table 2-2 of the Demonstration indicates that this technology is feasible at OGS, however IPL stated that designing and permitting the new facility would add an additional six months to what it has currently projected. IPL did not choose to construct a new CCR surface impoundment because there is insufficient footprint readily available for development and this option would not alone facilitate compliance

[7] 85 Fed. Reg at 53543

with the Effluent Limitation Guidelines (ELG). As discussed below in this section, IPL provided evidence that it does not have this land available on-site.

IPL justified its decision to implement its chosen alternative capacity because it will facilitate compliance with the ELG regulations. Because the direct discharge of bottom ash will not be allowed, IPL chose to convert its ash handling systems from wet to dry. At the time of the Demonstration submittal, IPL had projected to complete its dry handling conversion by December 2020. IPL stated that as of September 2020, it ceased sluicing all ash to the OGS Ash Pond. Therefore, at the time of the publication of this proposal, it is expected that this conversion has been completed and that all regularly generated CCR flows to the OGS Ash Pond have ceased.

IPL elected to construct a non-CCR basin to handle the facility's non-CCR flows in the future. It justified its decision to construct the LVWTP in the footprint of the existing ZLD because of the lack of available space at OGS. There is land outside OGS but within the plant boundary, but IPL explained that there is not sufficient available footprint on which to build a basin large enough to manage OGS's non-CCR wastestreams. Further, IPL discussed the permitting challenges that would extend the timeline of developing this land. IPL explained that the sizing of the LVWTP was calculated to provide adequate residence time for the solids settling of its wastestreams and volume storage for stormwater runoff surges. To provide adequate residence time, IPL stated that the LVWTP will have a capacity of 18 million gallons and a surface area of 19 acres.

Figure 2 in Appendix A of the Demonstration illustrates the on-site constraints that limit the possibility of developing new infrastructure at OGS, including the Des Moines River, Middle Avery Creek, floodplains, wetlands, and existing infrastructure. IPL explained that it does own

land outside the developed portion of the site on the south side of Middle Avery Creek, but that construction of a 19-acre non-CCR basin might detrimentally impact U.S. waters, so it does not consider this area to be suitable for new infrastructure. IPL explained that development of this area would involve clearing of forested areas, changes in wetland function, acquisition of water rights, and destroying habitat that may be occupied by protected bat species.

IPL has released its construction contracts for bid for the new LVWTP and closure of the OGS Surface Impoundment in October 2020 (and it was expected to be awarded in March 2021). EPA is proposing to conclude that IPL has sufficiently justified its chosen alternative.

D. Evaluation of IPL's Justification for Time Requested

Facilities must justify the amount of time requested in the demonstration as the fastest technically feasible time to develop the selected alternative disposal capacity. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*iii*). The workplan must contain a visual timeline and narrative discussion to justify the time request. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*3*). The visual timeline must clearly indicate how each phase and the steps within that phase interact with or are dependent on each other and the other phases. Additionally, any possible overlap of the steps and phases that can be completed concurrently must be included. This visual timeline must show the total time needed to obtain the alternative capacity and how long each phase and step is expected to take. The detailed narrative of the schedule must discuss all the necessary phases and steps in the workplan, in addition to the overall time frame that will be required to obtain capacity and cease receipt of waste. The discussion must include (1) why the length of time for each phase and step is needed, (2) why each phase and step must happen in the order it is occurring, (3) a discussion of the tasks that occur during the specific step, and (4) the tasks that occur during each of the steps within the phase. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*3*). This overall discussion of the

schedule assists EPA in understanding whether the time requested is warranted. Finally, facilities must include a narrative on the progress made towards the development of alternative capacity s of the time the demonstration was compiled. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*4*). This section of the Demonstration is intended to show the progress and efforts the facility has undertaken to work towards ceasing placement of waste in the CCR surface impoundment and to determine whether the submitted schedule for obtaining alternative capacity was adequately justified at the time of submission.

IPL requested a date of December 31, 2022, to cease receipt of all waste to its OGS Ash Pond. IPL's visual timeline and accompanying written Demonstration narrative present its plan to complete the closure of the ZLD and the construction of its new non-CCR basin, the LVWTP. The visual timeline (Appendix B of the Demonstration) was included with the Demonstration submittal. The presented information indicates the construction of the LVWTP is on a track that will allow the OGS Ash Pond to cease receipt of waste.

IPL concludes that the presented plans are the "fastest technically feasible" to achieve compliance at OGS. However, EPA's evaluation indicates that (1) the requested date to cease receipt of waste is not the fastest technically feasible, and (2) the presented workplan does not provide the sequence of steps required to reroute the cooling tower blowdown. For these reasons, EPA is proposing to determine that IPL has not met the standards in 40 C.F.R. § 257.103(f)(1)(A)(1)(iii) and 257.103(f)(1)(A)(2).

IPL's construction schedule projects a 50-hour work week with weekend work allowed as needed to make up time for weather delays. IPL assumes minimal construction activities will be possible in the winter. IPL included the following reasons that could postpone construction of the LVWTP: weather delays in dewatering and removal of CCR, contractor efficiency, changes to

the amount of CCR that is required to be removed, and COVID-19 pandemic impacts. IPL stated that it did not include time in its schedule for these potential delays. *See section 2.3 of the Demonstration and the visual timeline in Appendix B.*

EPA's analysis of the presented information indicates that if IPL would have initiated dewatering of the ZLD earlier, it would have been possible to complete construction of the LVWTP at least two and a half months sooner than it has projected. EPA also identified that IPL could save between two and three weeks by concurrently excavating CCR from the ZLD while executing the subgrade preparation activity. Additionally, the Agency could not identify why IPL requested December 31, 2022, as the OGS Ash Pond's final receipt of waste, considering that November 4, 2022, is when it has projected to complete rerouting the non-CCR wastestreams to the new LVWTP. In total, it appears that it IPL could cease receipt of waste to the OGS Ash Pond around five months sooner than it has planned. Readers may reference the visual timeline in Appendix B and the written narrative in 2.1.8 and 2.3 of the Demonstration.

At the time when the Demonstration was submitted, IPL's plan was to award the contract for dewatering the ZLD and constructing the LVWTP by March 1, 2021 (visual timeline activity ID 24). However, the chosen contractor will not mobilize the site until May 3, 2021 (activity ID 29). The first critical task the contractor needs to perform is dewatering the ZLD. This must be done before it can excavate and relocate ash from the ZLD Pond to the OGS Ash Pond. IPL plans to dewater the ZLD by pumping the liquids currently stored in the ZLD into the Ash Pond using diesel dewatering pumps. These pumps are readily available and do not require specialized personnel to operate. IPL did not justify why it did not start dewatering even before the LVWTP contract was awarded. If IPL themselves had dewatered with sufficient time before the LVWTP contract was awarded, it may have been possible for the contractor to begin excavating the ash

by the second quarter of 2021. Regardless, EPA could not determine why IPL's contractor is not projected to start dewatering sooner than May 31, 2021 (activity ID 31). The contractor is not scheduled to perform any duties in between the award of the contract and mobilization of the site. Therefore, EPA believes it may have been possible for the contractor to mobilize the site soon after award of the contract; dewatering potentially could have begun by March 15, 2021, which is two and half months earlier than planned.

Additionally, IPL did not explain why it could not execute activity IDs 36 and 37 concurrently with activity ID 35. In a pond the size of the ZLD (19 acres), overlapping these activities most likely is feasible, and would save two to three weeks.

Finally, IPL has projected that it can complete the activity of rerouting OGS's non-CCR wastestreams to the LVWTP by November 4, 2022 (activity ID 41 on the visual timeline). A final date of December 31, 2022, to cease receipt of waste therefore has not been justified. The only activity that the December 31, 2022 date is associated with on the visual timeline is activity ID 44, "Initiate closure of OGS Ash Pond." IPL did not justify why the time from November 4 to December 31, 2022, is needed to complete the measures necessary to cease receipt of waste to the OGS Ash Pond.

In sum, IPL did not justify why the contractor cannot begin to mobilize the site before May 3, 2021. If the contractor would have started dewatering on March 15, 2021, and ZLD excavation and subgrade were executed concurrently, it appears that IPL could have saved around three months. Considering that IPL has projected that excavation will extend 45 days into Season 2, saving these three months might have allowed IPL to begin liner installation in the second construction season. The Agency also believes IPL itself could have initiated dewatering before the contract was awarded, which likely would have allowed the contractor to begin

excavating the CCR as soon as the second quarter of 2021. Notwithstanding, if IPL overlaps subgrade and excavation activities in the ZLD, it should be possible to cease receipt of waste by October 13, 2022, which is approximately two and a half months sooner than IPL's requested date of December 31, 2022.

Date to divert cooling tower blowdown from OGS Ash Pond

The cooling tower blowdown is unique among the OGS non-CCR wastestreams in that, in the future, it will not be managed in the LVWTP. IPL intends to route and pump this wastestream around the projected LVWTP to a new Outfall 007, which would discharge into the Des Moines River. IPL plans that Outfall 007 will also be the outfall through which the LVWTP discharges. IPL anticipates that it can complete this reroute by October 2022. EPA could not evaluate whether October 2022 is the fastest technically feasible to complete the measures necessary for the OGS Ash Pond to cease receipt of the cooling tower blowdown because IPL's workplan did not provide activities and the associated schedule for this task, other than the expected approval date of its application with IDNR for permitting Outfall 007 (expected by no later than spring 2022).[8] EPA was therefore unable to evaluate whether IPL's requested date of October 2022 is justifiable because of the lack of detail provided. IPL's ability to achieve its projected date to cease receipt of waste is contingent, for example, on the approval of the permit for Outfall 007. To be approved for an alternate closure provision, IPL was required by 40 C.F.R. § 257.103(f)(1)(A)(*2*) to provide a detailed schedule of the fastest technically feasible time to complete the measures necessary for alternative capacity to be available. EPA is proposing to determine that the IPL's Demonstration does not meet this requirement.

[8] Demonstration, section 2.3

In conclusion, the presented work plan does not appear to be the fastest technically feasible for the OGS Ash Pond to cease receipt of waste because it appears the LVWTP could be operational nearly 5 months sooner than IPL's requested date. Additionally, no detailed workplan is provided for the steps required to achieve alternative capacity for the cooling tower blowdown. For these reasons, EPA is proposing to determine that IPL has not met the requirements of 40 C.F.R. § 257.103(f)(1)(A)(*2*).

The date on which the OGS Ash Pond ceases receipt of waste of the cooling tower blowdown poses a potential environmental impact. The cooling tower blowdown is a large wastestream of 0.641 MGD on average. The greater the volume of water the OGS Ash Pond receives, the higher the pond water level is, and the more water pressure (hydraulic head) will push down on the unit's base. Greater water pressure increases the risk of CCR constituents migrating downward into the groundwater. Considering that the OGS Ash Pond has triggered corrective action and is unlined, this risk presents greater concern.

1. Narrative of progress towards obtaining alternative capacity

In section 2.1.6 of the Demonstration, IPL described the efforts it has undertaken to develop alternative capacity to come into compliance with the CCR Rule. Sargent and Lundy (S&L) investigated alternative capacity technology options for IPL in 2016. After this study was completed, IPL chose to replace its wet ash sluicing system with a dry ash handling system. IPL hired Burns & McDonnell to "develop a design basis for the treatment of non-CCR wastestreams. The design basis for the treatment system included a new lined LVWTP, constructed within the footprint of the existing ZLD Pond, to treat non-CCR wastestreams generated at OGS..." IPL stated that its current NPDES permit requires that OGS cease the discharge of ash transport water by June 1, 2022.

IPL stated that construction of its ash handling system began in the fall of 2018, ultimately allowing the plant to cease sluicing bottom ash in September 2020. Thus, it is expected that, as of September 2020, IPL no longer sluiced actively generated CCR wastestreams to its OGS Ash Pond.

IPL stated that in October 2020 it released the construction contract for the LVWTP and closure of the OGS Ash Pond. IPL expects that it will award the contract in March 2021. IPL stated that it has completed the design of the LVWTP and that it is in the process of permitting the construction of the LVWTP and the closure of the OGS Ash Pond (through the IDNR). There are currently no wastestreams going to the ZLD and IPL stated that it expects the contractor can begin dewatering this CCR unit in the second quarter of 2021.

E. Compliance Documentation

The Part A Rule requires that a facility must be in compliance with all the requirements in 40 C.F.R. part 257 subpart D in order to be approved for an extension to the cease receipt of waste deadline. 40 C.F.R. § 257.103(f)(1)(iii). Various compliance documentation must be submitted with the demonstration for the entire facility, not just for the CCR surface impoundment in question. 40 C.F.R. § 257.103(f)(1)(iv)(B). Additionally, EPA evaluated the information presented in the narrative relating to the closure or retrofit of the impoundment and the development of the new alternative disposal capacities to ensure compliance with the CCR regulations.

The first group of compliance documents required to be included in the Demonstration are related to documentation of the facility's current compliance with the requirements governing groundwater monitoring systems. The Agency required copies of the following documents: (1) Map(s) of groundwater monitoring well locations (these maps should identify the CCR units as

well); (2) Well construction diagrams and drilling logs for all groundwater monitoring wells; (3) Maps that characterize the direction of groundwater flow accounting for seasonal variation; (4) Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event; and (5) Description of site hydrogeology including stratigraphic cross-sections. 40 C.F.R. § 257.103(f)(1)(iv)(B)(*2*)-(*4*).

The second group of documents EPA required was the facility's corrective action documentation, if applicable, and the structural stability assessments. A facility must submit the following documentation: the corrective measures assessment required at 40 C.F.R. § 257.96, progress reports on remedy selection and design; the report of final remedy selection required at 40 C.F.R. § 257.97(a); the most recent structural stability assessment required at 40 C.F.R. § 257.73(d), and the most recent safety factor assessment required at 40 C.F.R. § 257.73(e). 40 C.F.R. § 257.103(f)(1)(iv)(B)(*5*) through (*8*).

1. CCR Pile

The CCR Rule prohibits placing CCR in a unit that is required to close; considering this placement a "beneficial use" is irrelevant

Based on information provided in IPL's Updated Closure Plan, it appears that IPL intends to place CCR materials in the OGS Ash Pond during closure. IPL considers this placement a "beneficial use" of CCR. The following quote from IPL's Updated Closure Plan is an overview of the steps that will be taken to close the OGS Ash Pond by capping with "waste in place:"

"Bottom Ash [BA] Pond:

- Dewatering of BA Pond (following completion of bottom ash handling system and diversion of low volume wastewater flows to LVWTP),
- Fly ash stockpile is to be used as beneficial use and CCR removed from ZLD Pond as fill in BA Pond,

- CCR material will be spread throughout the footprint of the BA Pond,
- Grading of CCR material to final slopes for drainage,
- Installation of cover system materials,
- Installation of drainage control features and,
- Implementing required groundwater monitoring program."

In the preamble to EPA's March 15, 2018 Phase 1 Proposed Amendments[9] to the CCR Rule EPA discusses the use of CCR in closure in units that are required to close:

> "The current CCR rules require that certain units must close for cause, as laid forth in § 257.101(a)–(c). As written, the regulation expressly prohibits ''placing CCR'' in any units required to close for-cause pursuant to § 257.101…. Note that the rule does not distinguish between placement that might be considered beneficial use and placement that might be considered disposal. All further placement of CCR into the unit is prohibited once the provisions of § 257.101 are triggered."

IPL's claim that the placement of CCR in the OGS Ash Pond is a beneficial use is irrelevant because the regulation does not distinguish between placement that might be considered beneficial use and placement that might be considered disposal for units that are required to close.[10] Therefore, EPA is proposing to conclude that IPL's Closure Plan is not compliant with 40 C.F.R. § 257.101(a), and that consequently, IPL has failed to meet the requirement to develop an adequate closure plan. 40 C.F.R. § 257.102(b).

2. Closure of OGS Ash Pond

The regulations provide two options for closing a CCR unit: closure by removal and closure with waste in place. 40 C.F.R. § 257.102(a). Both options establish specific performance standards. 40 C.F.R. § 257.102(c)-(d). IPL intends to close the OGS Ash Pond by closing with

[9] 83 FR 11605

[10] Even though it is not relevant for purposes of determining compliance with 40 C.F.R. § 257.101(a), EPA notes that IPL has not documented that the proposed activity meets the definition of a beneficial use at 40 C.F.R. § 257. 53.

waste in place. EPA evaluated the information provided in the Demonstration, as well as in the written closure plans and other documents posted on IPL's publicly accessible CCR website for the OGS Ash Pond. After review of this information, EPA is proposing to determine that IPL has not documented how the closure performance standards will be achieved. There are no details in the closure plan posted on IPL's CCR website or any other document provided as part of the Demonstration that will allow EPA to determine that the closure performance standards will be met, in light of site conditions, at the impoundment. Therefore, EPA is proposing to conclude that IPL has not adequately demonstrated compliance with the closure regulations at 40 C.F.R. §§ 257.102(b) and (d), as required by 40 C.F.R. § 257.103(f)(1)(iii).

EPA reviewed available information to determine whether any portion of the OGS Ash Pond is in contact with groundwater and, if so, whether IPL has explained how the closure performance standards will be achieved for the impoundment. EPA also considered information in the Demonstration and its appendices, as well as the History of Construction, the 2020 Closure Plan, the Location Restriction Compliance Demonstration (October 2020), and the 2019 Annual GWMCA Report. After reviewing this information, EPA is preliminarily determining that the OGS Ash Pond is in contact with groundwater.

(a) Intersection between OGS Ash Pond and Groundwater

The following information corroborates the conclusion that the CCR in the OGS Ash Pond intersects with groundwater. First, groundwater elevations have been measured above the bottom of the OGS Ash Pond, at levels high enough to intersect with the CCR in the impoundment. Second, although clay is present beneath the unit, it is unlikely to act as a confining layer that would prevent groundwater from rising to the level of the CCR. Thus, there is a possible means of hydraulic connectivity between the ash in the unit and the uppermost

aquifer. Third, characterizations of on-site wetlands indicate that there is a high water table in the vicinity of the OGS Ash Pond.

First, groundwater elevations have been measured above the base of the OGS Ash Pond and therefore, unless prevented by a constructed or natural barrier, groundwater could rise to the level of the ash. IPL's compliance documents indicate that the elevation of the base of the OGS Ash Pond ranges from about 656 feet to 675 feet. Groundwater flow maps included in the Demonstration indicate that the groundwater elevations measured across the OGS Ash Pond range from about 655 feet to 675 feet.[11] Additionally, in April 2019, the groundwater elevation in MW-304 was measured at 659 feet and the groundwater elevation in MW-305 was measured at 664 feet.[12] Because these elevations are higher than the base of the unit, these data indicate that, at least in some areas, ash is likely saturated with groundwater. These data also suggest that there is a high water table beneath the unit. This is consistent with Geologic Cross-Section A-A' provided in Appendix C6 to the Demonstration, which depicts the elevation of the base of the Ash Pond at about 656 feet and the groundwater potentiometric surface across the impoundment at about 664 feet.

Second, although clay is present beneath the unit, site-specific data indicate that it is unlikely to act as a confining layer that would prevent groundwater from rising to the level of the CCR. Based on the boring logs, the natural clay layer is not continuous in and around the OGS Ash Pond. The site boring logs indicate that clay does exist beneath the unit in some places around the unit. However, it is not present in MW-301 and MW-303.[13] Additionally, sieve analysis results show that boring 20, which is within the footprint of the OGS Ash Pond, is

[11] Demonstration, Appendix C3, Figures 1-4
[12] 2019 Annual GWMCA Report, January 2020, Appendix A1
[13] Demonstration, Appendix C6, Appendix B, Table F-1

comprised of 95% sand and 5% silt and clay.[14] These data suggest that the clay layer is not present in all locations in and around the OGS Ash Pond. If the clay layer is not continuous in the vicinity of the OGS Ash Pond, it cannot act as a confining layer that would prevent groundwater from rising to the level of the ash. Additionally, site data indicate that where it is present, the clay layer is thin. Figure 4, Geologic Cross Section A-A' indicates that the clay layer beneath the bottom of the ash pond is less than a foot thick.[15] This suggests that the clay beneath the CCR unit, if present, is thin and not likely to prevent groundwater from rising to the level of the ash.

Third, characterizations of the wetlands on-site in the October 2020 Location Restrictions Compliance Demonstration indicate that there is a high water table and saturated bottom ash within and surrounding the OGS Ash Pond unit boundary. The OGS Ash Pond is underlain by palustrine emergent wetlands (PEM) and palustrine unconsolidated bottom (PUB) wetlands.[16] The report describes the hydrology of the PEM wetlands as, "standing water, a high water table, saturation…" The underlying material (substrate) of the PUB wetland is described as, "bottom ash or silt." The presence of these wetlands has been documented within the boundary of the OGS Ash Pond and the surrounding area.[17]

The presence of a high water table within and around the OGS Ash Pond is consistent with field observations.[18] Three sampling points within the OGS Ash Pond (SP-7, SP-13, SP-20) and two points near the unit boundary (SP-1, SP-16) found a high water table and soil saturation

[14] History of Construction, September 2016, Appendix D
[15] Assessment of Corrective Measures, September 2019, Figure 4, Geologic Cross-section A-A'
[16] Location Restriction Compliance Demonstration, October 2020, Appendix A, Appendix A, Figure A-4
[17] Location Restriction Compliance Demonstration, October 2020, Appendix A, Table 1 and Figure A-4.
[18] Location Restriction Compliance Demonstration, October 2020, Appendices A and B

at a depth of between 3 and 8 inches. Additionally, bottom ash is an underlying material of the PUB wetland, indicating that some of the bottom ash is saturated.

For these reasons, it appears that the high groundwater levels measured in wells surrounding the Ash Pond represent a high water table and that some CCR in the unit is in contact with groundwater.

(b) Compliance with the Closure Performance Standard

EPA evaluated the Demonstration and closure-related information on IPL's CCR website to determine whether IPL has adequately explained how the closure performance standards will be achieved during closure of the OGS Ash Pond in light of the evidence that at least a portion of the impoundment appears to be in contact with groundwater. EPA's preliminary determination is that the explanation is inadequate. EPA is therefore proposing to determine that IPL has failed to meet the requirement to develop an adequate closure plan and to demonstrate that the performance standards will be achieved during closure of the OGS Ash Pond. 40 C.F.R. § 257.102(b), (d)(1)-(2).

The CCR closure requirements applicable to impoundments closing with waste in place include general performance standards and specific technical standards that set forth individual engineering requirements related to the drainage and stabilization of the waste and to the final cover system. The general performance standards and the technical standards complement each other, and both must be met at every site. 40 C.F.R. § 257.102(d). The general performance standards under 40 C.F.R. § 257.102(d)(1) require that the owner or operator of a CCR unit "ensure that, at a minimum, the CCR unit is closed in a manner that will: (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the

atmosphere; and (ii) Preclude the probability of future impoundment of water, sediment, or slurry." The specific technical standards related to the drainage of the waste in the unit require that "free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues" prior to installing the final cover system. 40 C.F.R. § 257.102(d)(2)(i). Finally, the regulations require facilities to develop a written closure plan that describes the steps necessary to close the CCR unit, consistent with recognized and generally accepted good engineering practices. 40 C.F.R. § 257.102(b)(1). The plan must also include a written narrative describing how the unit will be closed in accordance with the section, or in other words how the closure will meet the performance standards in the regulation. 40 C.F.R. § 257.102(b)(1)(i).

Neither the closure plan posted on IPL's website nor the Demonstration describe the steps that will be taken to close the unit consistent with generally recognized good engineering practices, as required by 40 C.F.R. § 257.102(b). Nor do either document that the closure of the OGS Ash Pond meets the requirements of 40 C.F.R. § 257.102. For example, the Demonstration provides insufficient details on how free liquids were to be eliminated from the OGS Ash Pond and the November 2020 closure plan for the OGS Ash Pond only states that the impoundment will be dewatered.[19] Such a summary discussion does not meet the requirements for a closure plan as laid out in 40 C.F.R. § 257.102(b). And if EPA is correct that the base of the OGS Ash Pond intersects with groundwater, the closure plan would need to have discussed the engineering measures taken to ensure that the groundwater had been removed from the unit prior to the start of installing the final cover system, as required by 40 C.F.R. § 257.102(d)(2)(i). This provision applies both to the freestanding liquid in the impoundment and to all separable porewater in the

[19] "Closure Plan for CCR Surface Impoundments – Amendment No. 1." November 16, 2020. Page 2-1.

impoundment, whether the porewater was derived from sluiced water or groundwater that intersects the impoundment. The definition of free liquids in 40 C.F.R. § 257.53 encompasses all "liquids that readily separate from the solid portion of a waste under ambient temperature and pressure," regardless of whether the source of the liquids is from sluiced water or groundwater.

Similarly, neither the Demonstration nor the closure plan document how the OGS Ash Pond will be closed in a manner that will "control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere." 40 C.F.R. § 257.102(d)(1). EPA views the word "infiltration" as a general term that refers to any kind of movement of liquids into a CCR unit. That would include, for example, any liquid passing into or through the CCR unit by filtering or permeating from any direction, including the sides and bottom of the unit. This is consistent with the plain meaning of the term. For example, Merriam-Webster defines infiltration to mean "to pass into or through (a substance) by filtering or permeating" or "to cause (something, such as a liquid) to permeate something by penetrating its pores or interstices." Neither definition limits the source or direction by which the infiltration occurs. In situations where the groundwater intersects the CCR unit, water may infiltrate into the unit from the sides and/or bottom of the unit because the base of the unit is below the water table. In this scenario, the CCR will be in continuous contact with water. This contact between the waste and groundwater provides a similar potential for waste constituents to be dissolved and to migrate out of (or away from) the closed unit. In this case, the performance standard requires the facility to take measures, such as engineering controls that will "control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste" as well as "post-closure releases to the groundwater" from the sides and bottom of the unit. The

Demonstration does not discuss how this performance standard will be achieved for the OGS Ash Pond and the November 2020 closure plan for the impoundment only addresses the permeability characteristics of the final cover system with respect to this performance standard.[20]

In summary, EPA cannot determine based on information available whether the closure performance standards for the OGS Ash Pond will be met. This is a violation of 40 C.F.R. § 257.102(b), which requires facilities to develop a written closure plan that documents the steps that will be taken to complete closure and to ensure the performance standards are met. It may also demonstrate that IPL has failed to comply with the performance standards for closure with waste in place in 40 C.F.R. § 257.102(d). EPA is therefore proposing to determine that IPL has failed to comply with 40 C.F.R. § 257.102(b), and that IPL has not demonstrated compliance with the performance standards applicable to the closure of the OGS Ash Pond in 40 C.F.R. § 257.102(d)(1) and (2).

3. Groundwater monitoring compliance

The regulations require facilities to submit several groundwater monitoring compliance documents as part of their Demonstration so that EPA can thoroughly evaluate the groundwater monitoring network and the site hydrogeology for every CCR unit at the facility. EPA evaluated the documentation provided in the Demonstration and reviewed the 2017 through 2019 Annual GWMCA Reports and the September 2016 History of Construction for the OGS Ash Pond and for the ZLD Pond.

EPA is proposing to determine that the groundwater monitoring system at the downgradient boundary of the ZLD Pond does not meet the requirements of 40 C.F.R. § 257.91(a)(2), and that the Professional Engineer (P.E.) certification for the ZLD Pond

[20] *Id*. Page 3-1.

groundwater monitoring system fails to meet the requirements of 40 C.F.R. § 257.91(f). EPA is also proposing to determine that the Annual GWMCA Reports do not contain all information required by 40 C.F.R. § 257.90(e)(3), including groundwater elevation measurements, flow rate and direction, and statistical analyses. Finally, EPA is proposing to determine that the Alternative Source Demonstration (ASD) fails to meet the requirements of 40 C.F.R. § 257.95(g)(3)(ii).

(a) Characterization of Downgradient Groundwater and P.E. Certification

40 C.F.R. § 257.91(a)(2) requires that a groundwater monitoring system be installed at the downgradient waste boundary that ensures detection of contamination, and that all potential contaminant pathways be monitored. The number, spacing, and depth of groundwater monitoring systems must be determined based upon site-specific technical information listed in 40 C.F.R. § 257.91(b). EPA is proposing to determine that the groundwater monitoring system at the ZLD Pond fails to monitor all potential pathways at the downgradient waste boundary, and that the number and spacing of wells is not supported by site-specific data. Additionally, EPA is proposing to determine that the P.E. certification obtained to comply with 40 C.F.R. § 257.91(f) fails to meet those requirements because it does not provide the basis for determining that one upgradient and three downgradient wells are sufficient to meet the requirements of 40 C.F.R. § 257.91.

Groundwater flow direction across the ZLD Pond is depicted as generally west to east, becoming slightly radial outward to the river at the downgradient boundary of the unit. The northeastern boundary is identified as downgradient. The ZLD Pond groundwater monitoring system consists of one upgradient background well (MW-301, the same well used for the OGS Ash Pond) and three downgradient wells (MW-307, MW-308 and MW-309).

EPA is proposing to determine that three downgradient wells are not sufficient to meet the requirements of 40 C.F.R. § 257.91(a)(2) at the ZLD Pond. It appears the downgradient boundary of the ZLD Pond is more than 2,000 feet in length. The groundwater monitoring wells located on the downgradient boundary are not evenly spaced; the distance between MW-308 and MW-309 appears to be approximately 1,000 feet. Even if it is determined that subsurface geology and groundwater flow conditions are extremely consistent, for the reasons discussed below, EPA is proposing to determine that IPL failed to demonstrate that the number and spacing of wells at the downgradient boundary of the ZLD Pond are sufficient to monitor all potential contaminant pathways in accordance with 40 C.F.R. § 257.91(a)(2).

The following explanation is provided in the groundwater system P.E. certification to support the determination that that the system meets the requirements of 40 C.F.R. § 257.91:

> "The minimum number of monitoring wells is appropriate at the OGS ZLDP for the following reasons:
>
> • Groundwater flow in the uppermost aquifer at the downgradient margin of the ZLDP is generally to the northeast.
>
> • Site geology is consistent along the downgradient edge of the ZLDP, based on the boring logs for the three downgradient wells.
>
> • The three downgradient monitoring wells are sufficient to reflect groundwater quality at the downgradient margin of the ZLDP."

A P.E. certification for a groundwater monitoring system with only one upgradient and three downgradient wells must explain how it meets requirements of 40 C.F.R. § 257.91. 40 C.F.R. § 257.91(f). EPA considers the above explanation to be insufficient for multiple reasons. First, it does not consider the size of the ZLD Pond, the length of the downgradient boundary, or any information about construction of the ZLD Pond (e.g., lined or unlined). It does not consider any of the site-specific data required under 40 C.F.R. § 257.91(b) (e.g., groundwater flow rate, hydraulic conductivities, geologic unit and fill materials, stratigraphy, or porosities and effective

porosities), except for noting the general direction of groundwater flow. These criteria are required to be considered in design of a groundwater monitoring system. 40 C.F.R. § 257.91(b).

Second, it does not discuss any specific requirements of 40 C.F.R. § 257.91, such as the requirement to accurately characterize the quality of groundwater passing the waste boundary of the unit and monitor all potential contaminant pathways. 40 C.F.R. §§ 257.91(a)(2), (c)(2). The P.E. certification for the ZLD Pond says only that three wells will "reflect groundwater quality at the downgradient margin." The basis for this determination is not provided in the P.E. certification, nor is any basis for the conclusion that all potential contaminant pathways are monitored. Therefore, this P.E. certification lacks the explanation required by 40 C.F.R. § 257.91(f).

Third, the conclusion in the P.E. certification that site geology is consistent along the downgradient edge of the ZLD Pond is not supported by site-specific data. To support this certification, well construction diagrams and boring information are provided in the Demonstration for three wells: MW-307, MW-308, and MW-309.[21] Three borings are not sufficient information to draw conclusions about the subsurface geology along a unit boundary that is 2,000 feet long. Even if it were true that geology is consistent along the downgradient boundary, this fact would not support the determination that three downgradient wells are sufficient to meet the performance standard in 40 C.F.R. § 257.91(a)(2), including to monitor all potential contaminant pathways along the 2,000-foot downgradient ZLD Pond boundary.

(b) Annual GWMCA Reports

[21] Demonstration, PDF p. 108

40 C.F.R § 257.90(e)(3) requires that the Annual GWMCA Report contain "all the monitoring data obtained under [40 C.F.R.] §§ 257.90 through 257.98." 40 C.F.R. § 257.93(e) requires the measurement of groundwater elevation in each well, each time it is sampled. It also requires calculation of groundwater flow rate and direction during each sampling event. While groundwater flow maps were provided in the Demonstration for data collected during sampling events in 2019 and 2020, the required information was not included in any Annual Groundwater Reports for those years or years prior. EPA is proposing to determine that the 2017 through 2019 Annual GWMCA Reports for all CCR units failed to meet this requirement.

Additionally, IPL has not provided statistical analyses or any detailed discussion of the statistical analyses (e.g., statistical method applied, confidence levels, normality test results) in the Annual GWMCA Reports for either the OGS Ash Pond or the ZLD Pond. As a result, these reports fail to include all the monitoring data obtained under 40 C.F.R. §§ 257.90 through 257.98 as required by 40 C.F.R. § 257.90(e)(3). It is IPL's responsibility to demonstrate that it is in compliance with the regulations, and the failure to provide this information in the Annual GWMCA Reports prevents EPA, the state, or other stakeholders from evaluating compliance. EPA cannot determine whether the approach used by IPL complied with the requirements of 40 C.F.R. §§ 257.93 and 257.95 because the statistical analysis conducted is not included in the Annual GWMCA Reports.

(c) Alternative Source Demonstration (ASD)

If it is determined that there was a statistically significant level (SSL) above a groundwater protection standard for one or more of the constituents in Appendix IV to 40 C.F.R. part 257 at a monitoring well at the downgradient waste boundary, there is an opportunity to complete an ASD to show that a source other than the unit was the cause of the SSL. 40 C.F.R. §

257.95(g)(3). If a successful ASD for an SSL is not completed within 90 days, an assessment of corrective measures must be initiated. A successful ASD will demonstrate that a source other than the CCR unit is responsible for the SSL. In order to rebut the site-specific monitoring data and analysis that resulted in an SSL, an ASD requires conclusions that are supported by site-specific facts and analytical data. Merely speculative or theoretical bases for the conclusions are insufficient.

At the ZLD Pond, cobalt was detected at MW-307 at an SSL above the groundwater protection standard in December 2019, February 2020, and April 2020. An ASD was completed in October 2020 and concluded that the OGS Ash Pond was the source of the cobalt SSLs. The reasons provided for this conclusion include groundwater flow direction, spatial distribution of detected cobalt concentrations, and types of wastes historically discharged to the Ash Pond and the ZLD Pond. EPA is proposing to determine that IPL failed to conduct an ASD for SSLs detected in December 2019 and February 2020 within the deadline in 40 C.F.R. § 257.95(g)(3)(i) and is therefore subject to corrective action requirements at the ZLD Pond and has failed to complete an Assessment of Corrective Measures (ACM). EPA is also proposing to determine that the ASD ultimately conducted for cobalt SSLs at the ZLD Pond failed to meet the requirement of 40 C.F.R. § 257.95(g)(3)(ii).

Laboratory analysis for the groundwater sampling event in December 2019 were reported to IPL on December 23, 2019. Statistical analysis of the results to determine whether an SSL occurred was required within 90 days, or no later than March 23, 2020, in accordance with 40 C.F.R. § 257.93(h)(2). If the statistical analysis was completed on the last day allowed by the regulations, IPL would have been required to complete an ASD or initiate an ACM within 90 days, no later than June 21, 2020, in accordance with 40 C.F.R. § 257.95(g)(3). No ASD was

conducted by that date to demonstrate the SSL from the December 2019 were from a source other than the ZLD Pond. 40 C.F.R. § 257.96(a) allows 90 days to complete an ACM, which would result in a deadline of September 19, 2020; however, no ACM was completed for the ZLD Pond. Thus, EPA is proposing to determine that the ZLD Pond is subject to corrective action requirements and has failed to complete an ACM for this unit in accordance with 40 C.F.R. §§ 257.95(g)(3) and 257.96(a).

Ultimately, an ASD was completed on October 12, 2020, to address SSLs that occurred in December 2019, February 2020, and April 2020. The ASD claims that, while MW-307 is downgradient from a small portion of the ZLD Pond, it is primarily downgradient from a portion of the OGS Ash Pond. The ASD states that Figure 3[22] depicts MW-307 as downgradient from OGS Ash Pond monitoring wells MW-305 and MW-306, where cobalt has also been detected at SSLs. In fact, Figure 3 does not depict MW-307 as primarily downgradient from the Ash Pond instead of the ZLD Pond. Figure 3 also does not depict MW-307 as downgradient from MW-305, based on depicted groundwater flow direction. It does depict MW-307 as downgradient of MW-306, with a portion of the ZLD Pond between them. However, cobalt detections at MW-307 from December 2019 through April 2020 ranged from 10 to 20 µg/L. This is higher than the cobalt detections at MW-306 during this time, which ranged from 5.5 to 6.2 µg/L. Therefore, cobalt levels at MW-306 could not have been the primary cause of the SSL at MW-307. The ASD does not discuss contributions among different sources of contamination. It appears cobalt levels at MW-307 were high enough that an SSL would have been detected, demonstrating a release from the ZLD Pond, regardless of any contribution from MW-306.

[22] Demonstration, Appendix C, PDF p. 436

The ASD further contends that a lack of cobalt SSLs from other downgradient monitoring wells at the ZLD Pond is evidence that the SSL detected in MW-307 must come from an alternative source and not the ZLD Pond. This is not evidence of an alternative source. Wells located at the downgradient boundary monitor different contaminant pathways and there is no reason to believe the results at one downgradient well necessarily predict the results in a different downgradient well. Moreover, the regulations require that corrective action must be conducted when an SSL is detected at a single downgradient well. 40 C.F.R. § 257.95(g).

Finally, the ASD claims that historical use of the CCR units indicate that a cobalt exceedance is more likely to come from the Ash Pond than the ZLD Pond due to the types of waste streams disposed in each unit and the cobalt content of those waste streams. No data or information are provided to substantiate which waste streams were disposed of in which CCR unit, or the chemicals contained in those waste streams. Even if that information had been provided and the cobalt contained in each unit could be theoretically calculated, and potential cobalt releases calculated, this theoretical information would not be sufficient to rebut the site-specific monitoring data and analysis that resulted in detection of an SSL.

EPA is proposing to determine that the ASD conducted for the ZLD Pond did not demonstrate the SSL of cobalt at MW-307 was from an alternative source, because the lines of evidence provided are not sufficient to support the ASD. Because of this, and because the December 2019 SSL triggered corrective action requirements before an ASD was completed, EPA is also proposing to determine that corrective action requirements apply to the ZLD Pond. The Demonstration indicates that the ZLD Pond was scheduled to begin closure in spring 2021. However, this does not relieve IPL of the obligation to characterize the nature and extent of the

release and site conditions, sufficient to assess corrective measures that may be needed to comply with 40 C.F.R. § 257.97.

4. Corrective action compliance

Cobalt was detected at SSLs at MW-306 in April and October 2019, and in April, June, and October 2020. For this reason, IPL is subject to corrective action requirements at the OGS Ash Pond. An ACM was completed in September 2019, a public meeting was held in June 2020 and a Remedy Selection Report was completed in September 2020. However, the ACM was revised in November 2020, because "[n]ew information was received following issuance of the Selection of Remedy report, resulting in this addendum to the ACM (Addendum No. 1)."[23] This was included as Appendix C to the Demonstration. The Addendum No. 1 to the ACM ("revised ACM") states that another public meeting will be held, and a revised Remedy Selection Report will be issued. The Agency has reviewed the revised ACM for the purposes of this compliance review.

EPA is proposing to determine that IPL has failed to comply with several corrective action requirements at the OGS Ash Pond. First, characterization of the release and of relevant site conditions that may affect the remedy ultimately selected is insufficient to support an ACM, as required by 40 C.F.R. § 257.95(g) and 40 C.F.R. § 257.96(a). Second, the assessment that was conducted does not consider all of the criteria in 40 C.F.R. § 257.96(c). Third, portions of the assessment contain inaccurate statements, lack supporting data, or apply assessment criteria inconsistently. This results in an assessment that does not seem to accurately reflect the corrective measure's "effectiveness in meeting all of the requirements and objectives" in 40

[23] Revised ACM, p. iii

C.F.R. § 257.97(b), as required by 40 C.F.R. § 257.96(c). Finally, the discussion of schedule in section 4 of the revised ACM is inaccurate and conflicts with information in other parts of the report.

(a) Characterization of the release and relevant site conditions

The ACM must include site-specific data to characterize the nature and extent of the release and any relevant site conditions that may ultimately affect the remedy selected. 40 C.F.R. § 257.95(g)(1). The characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up releases from the CCR unit. Id. See also, 40 C.F.R. § 257.96 (a), (c). This characterization requires gathering of data, laterally and vertically, to quantify the levels at which constituents are present, quantifying the estimated mass of the release and installing at least one well at the facility boundary in the direction of contaminant migration. Id.

Cobalt has been detected at an SSL at MW-305, which indicates a release has occurred from the OGS Ash Pond. Additional wells were installed to characterize the release laterally (MW-310, MW-311) and vertically (MW-305A, MW-310A, MW-311A). However, based on depicted flow direction, MW-310 and MW-310A do not appear to be directly in a groundwater flow path downgradient from MW-305, and are only likely to monitor a small fraction of any contamination flowing downgradient from MW-305.[24] MW-311 and MW-311A are even farther away and less directly downgradient; they are also separated from the CCR units by Middle Avery Creek, which could influence groundwater flow direction or create a groundwater flow divide. There are no groundwater elevation data to characterize groundwater flow direction

[24] Demonstration, Addendum No. 1, Figures 5 and 6.

between MW-311/MW-311A and the ash pond, so the influence of Middle Avery Creek on groundwater flow direction is unknown. Wells MW-311 and MW-311A are not placed in locations that are effective to adequately characterize groundwater downgradient from MW-305, because the groundwater flow direction depicted does not indicate there is a flow path from MW-305 to MW-311 and MW-311A. Two additional wells are planned to be installed between MW-305 and MW-310, at 400-foot spacing, to improve lateral characterization of the release and site conditions in this area; these wells are needed to characterize the nature and extent of the release.

The revised ACM does not contain data to characterize relevant site conditions that may ultimately affect the remedy selected, in accordance with 40 C.F.R. § 257.95(g)(1), but it does identify such data yet to be gathered and explains how that data will be used to assess corrective measures. These include geochemical parameters obtained through field measurements (e.g., specific electrical conductance, turbidity, ferrous iron and sulfide) as well as laboratory analyses (e.g., alkalinity, chlorides, sulfates, and filtered geochemical parameters) that will provide a better understanding of groundwater chemistry affecting cobalt. Samples of saturated sand from within the plume will be collected for analysis of iron and manganese, as well as for cobalt to determine whether adsorption of cobalt is occurring and assess the potential for its adsorption in the aquifer matrix.[25] The revised ACM also details plans to analyze groundwater samples filtered at different filter sizes, as well as to analyze the filtrate. This will provide a better understanding of the nature of the cobalt released and identify whether chemicals are present in the aquifer that could react with it to result in compounds that will remain immobilized in the sand, unable to

[25] Revised ACM, pp. 7-8

travel in groundwater to downstream receptors. EPA believes this investigation is appropriate to characterize site conditions that may affect the remedy ultimately selected.

Section 3.3.1 of the ACM states that lithium and fluoride were detected above groundwater protection standards at new groundwater monitoring wells (MW-310, MW-310A, and MW-311) installed in accordance with 40 C.F.R. § 257.95(g) (i.e., nature and extent wells). The ACM states that these values have not yet been determined to be statistically significant. However, statistical analyses of the results from nature and extent wells are not required to characterize the release. The references in 40 C.F.R. § 257.95(g)(1)(iii) and (iv) to 40 C.F.R. § 257.95(d)(1) regarding the number of samples required during each semiannual sampling event only apply to groundwater monitoring wells installed in accordance with 40 C.F.R. § 257.91, not nature and extent wells. An SSL in assessment monitoring serves as statistical confirmation that a release from the CCR unit has occurred; reconfirming this at each downgradient monitoring point monitored within the groundwater contamination plume would unnecessarily delay the corrective action process. Therefore, statistical analysis for Appendix IV constituents in the characterization of the nature and extent of the release is not required or necessary. Additionally, it would not likely be feasible within the time frame allowed by the CCR regulations to complete the ACM.

Finally, the revised ACM evaluates the stability of the cobalt plume using a Mann-Kendall trend test. The stability of a contaminant plume must be demonstrated by site-specific data. Modeling may complement site-specific data, but it cannot replace it. The revised ACM goes on to say that additional investigation is warranted to increase the understanding of

contributing factors to attenuation and to provide the basis for a long-term corrective action monitoring program[26].

EPA expects that the data planned to be gathered, discussed previously, should be sufficient to support assessment of the alternatives according to the criteria in 40 C.F.R. § 257.96(c). However, the data are required to be included in the ACM and considered in the assessment of corrective measures. 40 C.F.R. §§ 257.95(g)(1), 257.96 (a), (c). Because it is not, the ACM fails to comply with these requirements.

(b) Assessment criteria

The revised ACM assesses the ability of alternatives to meet the requirements in 40 C.F.R. § 257.97(b) according to criteria in 40 C.F.R. § 257.97(c), rather than 40 C.F.R. § 257.96(c). Although these criteria are similar, the assessment[27] lacks an evaluation of cross-media impacts of the alternatives, as required by 40 C.F.R. § 257.97(c)(1).

(c) Quality of assessment

The revised ACM contains conclusions that are unsupported by data, that result from inconsistent application of the criteria, or that are based on inaccurate statements. These portions of the assessment do not seem to accurately reflect the control measure's "effectiveness in meeting all of the requirements and objectives" in 40 C.F.R. § 257.97(b) based on information in the ACM. Conclusions without supporting data do not constitute an analysis of this effectiveness. Further, inaccurate assessments in an ACM can ultimately result in selection of a remedy that will not meet the requirements of 40 C.F.R. § 257.97(b).

[26] Revised ACM, p. 7
[27] Revised ACM, section 6.2 through 6.7 and Table 5

(i) Lack of data to support conclusions about monitored natural attenuation (MNA)

MNA refers to reliance on natural attenuation processes to achieve corrective action objectives within a time frame that is reasonable compared to that offered by other, more active methods. The "natural attenuation processes" at work in such a remediation approach generally include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater.[28]

Mass reduction through degradation generally is not a viable process for most inorganic contaminants in groundwater, except for radioactive decay. Constituents in Appendix IV to part 257 are atoms, and atoms do not break down or degrade through any naturally occurring process unless they are radioactive. Thus, while MNA can reduce the aqueous concentration or mobility of inorganic contaminants in groundwater if immobilization occurs through adsorption or absorption to subsurface soils, it does not remove the contaminants from the environment. MNA, therefore, would not be assessed favorably in either the ACM or any remedy selection report with respect to 40 C.F.R. § 257.97(b)(4), which requires that remedies "remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible."

Inorganic contaminants persist in the subsurface because, except for radioactive decay, they are not degraded by the other natural attenuation processes.[29] However, inorganic contaminants may exist in forms that have low mobility, toxicity, or bioavailability such that

[28] "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," April 1999, p. 3

[29] This is in contrast to organic compounds, comprised of multiple elements, which may react or degrade to its constituent elements or to form other, less harmful compounds.

they pose a relatively low level of risk. Therefore, natural attenuation of inorganic contaminants is most applicable to sites where immobilization is demonstrated to be in effect and the process/mechanism is irreversible.[30] In this way, MNA can reduce the aqueous concentration or mobility of inorganic contaminants in groundwater if immobilization occurs through adsorption or absorption to subsurface soils. Immobilization that is not permanent would require ongoing monitoring in accordance with 40 C.F.R. § 257.98(a)(1) as long as immobilized constituents remain in the aquifer matrix.

Dilution and dispersion reduce concentrations through dispersal of contaminant mass rather than destruction or immobilization of contaminant mass.[31] Consequently, these mechanisms do not meet the requirement at 40 C.F.R. § 257.97(b)(4) to remove from the environment as much of the contaminated material as is feasible, and they may not meet the requirement at 40 C.F.R. § 257.97(b)(1) to be protective of human health and the environment. Note that this is consistent with EPA's long-standing policy that dilution and dispersion are generally not appropriate as primary MNA mechanisms.[32]

In order to conduct the assessment required by 40 C.F.R. § 257.96(c), evaluation of MNA as a corrective measure requires analysis of site-specific data and characteristics that control and sustain naturally occurring attenuation. "It is necessary to know what specific mechanism (e.g., what type of sorption or reduction and oxidation reaction) is responsible for the attenuation of inorganics so that the stability of the mechanism can be evaluated. [...] Changes in a

[30] "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," April 1999, p. 9
[31] "Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater at Superfund Sites," August 2015, p. 14
[32] "Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater at Superfund Sites," August 2015, p. 14

contaminant's concentration, pH, oxidation and reduction potential (ORP), and chemical speciation may reduce a contaminant's stability at a site and release it into the environment."[33] Determining the existence, and demonstrating the irreversibility, of MNA mechanisms is necessary to evaluate the performance, reliability, ease of implementation, and the time required to begin and complete the remedy. See 40 C.F.R. § 257.96 (c)(1) and (c)(2). This information would ultimately be necessary to show that MNA meets the requirements of 40 C.F.R. § 257.97(b).

MNA is included in alternatives 2 through 5 of the revised ACM. The assessment of MNA is based on possible immobilization of cobalt through adsorption onto sand in the aquifer. As discussed above, the ACM does not include site-specific evidence that supports a conclusion that cobalt is adsorbing to the aquifer matrix at this site. In the absence of such data, MNA through immobilization should necessarily be assessed poorly with respect to certain criteria (e.g., performance, reliability.)

The revised ACM does not contain sufficient site-specific evidence to support the assessment on MNA through immobilization. The revised ACM[34] cites as evidence the fact that if cobalt were not attenuated, it would be detected in MW-310, based on the rate of groundwater movement from the OGS Ash Pond to well MW-310 and the approximate 40-year operational history of the OGS Ash Pond. The revised ACM claims that the significant decrease in cobalt concentration from MW-305 to MW-310 supports the conclusion that attenuation is occurring.

[33] "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites," April 1999, p. 8
[34] Revised ACM, p. 6 and p. 1 of Appendix C

The revised ACM also notes that dilution by mixing with an upward flow of deep groundwater at MW-310 may be a factor in the decrease of cobalt concentrations beyond MW-305.

Even if it were correct to assume that the OGS Ash Pond has been leaking since it began operation, this analysis does not support a favorable assessment of MNA. As discussed previously, MW-310 does not appear to be located on a groundwater flow path directly downgradient of MW-305, and so it may not be properly placed to delineate the release of cobalt. Additional wells are needed. This fact, combined with the possibility that some of the reduction in cobalt results from dilution due to an upward vertical groundwater flow gradient[35] and a lack of site-specific data to support the discussion of MNA through immobilization,[36] means it is not clear whether any decrease in cobalt concentration is due to immobilization, dilution and dispersion, or poor characterization of the release.

Appendix C of the revised ACM contains discussion of MNA that is not based on site-specific data. For example, a literature value for the typical ionic state of cobalt found in nature (2+) is noted, and it is explained that in this state, cobalt could react and precipitate in conditions with oxidation reduction potential between -100 and -400 millivolts (mV). The monitoring data presented[37] indicate these conditions have only been detected at MW-304. Additionally, it is not reasonable to assume that conditions at a CCR unit with a detected release are the same as naturally occurring conditions, because released constituents may cause chemical reactions to occur that change groundwater chemistry. In another example, the discussion of hydrogeology[38]

[35] Revised ACM, p. 7
[36] Revised ACM, Appendix C
[37] Demonstration, Appendix C, Table 2
[38] Demonstration, Appendix C, p. 1

relies on estimated groundwater flow rates based on porosity, rather than the calculated groundwater flow rates based on site-specific measurements required by 40 C.F.R. § 257.93(c).

To assess MNA, attenuation mechanisms (i.e., immobilization vs. dilution and dispersion) must be identified in order to assess ability to meet the requirements of 40 C.F.R. § 257.97(b). Different mechanisms would be assessed differently according to criteria in 40 C.F.R. § 257.96(c). For example, dilution and dispersion would be assessed poorly with respect to cross-media impacts, because it would result in migration of the release to the Des Moines River. For these reasons, decreasing concentration between MW-305 and MW-310 is not, by itself, sufficient data to support a favorable assessment of MNA.

(ii) Inconsistent application of criteria

As discussed in Section E.2 of this document, EPA has preliminarily determined that the base of the OGS Ash Pond at least partially intersects with groundwater; therefore, EPA preliminarily concludes that lateral migration of the groundwater into the ash, in addition to the vertical migration from precipitation, is occurring.[39] This infiltration allows contaminants in the CCR to leach into the groundwater, causing releases from the unit. Despite this, all alternatives that include on-site disposal are assessed generally the same, regardless whether the CCR remains in contact with groundwater. Source control alternatives that will remove CCR from groundwater (alternatives 4, 5) must be assessed more favorably than alternatives that fail to do so (alternatives 1, 2, 3, 6, 7, 8) with respect to performance, reliability, and control of exposure to residual contamination (i.e., CCR left in the ground). 40 C.F.R. § 257.96(c)(1), 40 C.F.R. § 257.97(c)(1)(ii).

[39] Revised ACM, Figure 3.

The assessment in Table 5 of the revised ACM attributes equal reduction of risks under criteria in 40 C.F.R. § 257.97(c)(1)(i) to alternatives 2, 3, and 4. However, alternative 4 achieves a significantly greater reduction of risk by removing CCR from the aquifer and placing it in a lined disposal unit above the aquifer, compared to alternatives 2 and 3, which allow CCR to remain in contact with groundwater in an unlined disposal unit. Therefore, alternative 4 must be assessed more favorably than alternatives 2 and 3 under this criterion. Additionally, alternative 7 is assessed less favorably than alternative 2 because it is claimed that a pump-and-treat system brings contaminated groundwater to the surface, increasing the potential for exposure.[40] This assessment underestimates the risk reduction achieved by alternative 7 for two reasons. First, consolidation of CCR prior to closure reduces the footprint of CCR in the water table, making alternative 7 at least slightly more protective. Second, it ignores the risk reduction achieved by the groundwater pump-and-treat system when it removes cobalt from the environment. Since cobalt does not degrade naturally, as explained above, this removal prevents its migration to the river and ultimately to downgradient receptors. Alternative 7 should be assessed more favorably than alternative 2 under this criterion.

Alternatives with significantly different source control approaches were assessed similarly in Table 5 with respect to criteria in 40 C.F.R. § 257.97(c)(1)(ii), "The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of…Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy…" The assessment in Table 5 appears to be based upon the assumption that because no receptors have been identified, there is no risk from continued releases of inorganic metals to

[40] See revised ACM Table 5, 40 C.F.R. § 257.97(c)(1)(i).

the aquifer and ultimately to the Des Moines River, so all alternatives are equivalent. As discussed previously, the release has not been sufficiently characterized and the impacts of contaminated groundwater on the Des Moines River have not been characterized. Also, cobalt will persist in the environment because it will not degrade. Alternatives that are likely to prevent future releases can be distinguished from those that are not and assessed accordingly. The requirement to assess their relative performance under this criterion is not negated by an unsubstantiated claim that no receptors are or will be impacted by the release. The presence or absence of immediate receptors is not a valid criterion for remedy selection.

Performance of corrective measures based on their potential need for replacement, the criterion in 40 C.F.R. § 257.97(c)(1)(viii), is not assessed consistently across alternatives and the assessments are unsupported or contradicted by information in the ACM. All alternatives except 1 and 5 are assessed similarly, despite significant differences. Barrier walls and groundwater extraction and treatment are proven technologies, therefore, alternatives 7 and 8 should be assessed significantly more favorably than alternatives 2 through 4, for which there is a lack of supporting data to demonstrate that MNA is occurring at this site for cobalt. This makes MNA an unproven technology at this site for cobalt.

The assessment of expected operational reliability of alternatives 2 through 5 according to 40 C.F.R. § 257.97(c)(3)(ii) is unsupported by data or analysis. The reliability of alternatives 2 through 5, which include MNA as a primary element, must be assessed less favorably than for approaches that are known to be reliable. This is because no data or analysis is provided to demonstrate immobilization mechanisms are occurring for cobalt at the site or how permanent they may be. While the reliability of the source control portion of alternative 7 may be low to moderate, given the uncertainty about whether CCR will remain in the water table, a properly

maintained and operated pump-and-treat system is a reliable technology compared to unconfirmed MNA through immobilization. The relative assessments must reflect that.

(iii) Inaccurate statements

The ACM contains inaccurate statements that affect conclusions regarding the effectiveness of corrective measures. For example, the discussion of alternatives in Section 5 states, "With the exception of the No Action alternative, each of the corrective measure alternatives meet the requirements in 40 C.F.R. § 257.97(b)(1) through (5) based on the information available at the current time." This statement is inconsistent with facts presented in other sections of the ACM. For example, alternative 2 would leave CCR in continued contact with groundwater,[41] allowing constituents to continue to leach from the CCR into groundwater. This would not control the source of the release(s) to reduce or eliminate, to the maximum extent feasible, further releases, as required by 40 C.F.R. § 257.97(b)(3).

In another example, the assessment of alternative 8 in Table 5 incorrectly identifies the requirement in 40 C.F.R. § 257.97(b)(4) as "not applicable." Section 3.3.2 of the revised ACM explains that "No releases of CCR have been identified from the OGS ash pond." In fact, the SSLs of cobalt are evidence of a release from the OGS Ash Pond, therefore, the requirement in 40 C.F.R. § 257.97(b)(4) is applicable. This is particularly relevant for alternative 8, because a barrier wall would not typically remove contamination from the environment, it would only serve to keep contamination from migrating beyond the property.

Because the revised ACM contains conclusions that result from inconsistent application of the criteria, that are based on inaccurate statements, and that are unsupported by data about

[41] Revised ACM, Figure 3

MNA, EPA is proposing that IPL has failed to comply with the requirements in 40 C.F.R. § 257.96. The revised ACM does not assess the corrective measures in a manner that provides an appropriate basis to select a remedy. The assessment of control measures must be based on accurate characterization of the requirements of 40 C.F.R. § 257.97 and consistent application of, at a minimum, the criteria in 40 C.F.R. § 257.96(c) to all control measures. The assessment of all control measures, including MNA, must be based on site-specific data that support conclusions about their performance.

IV. Proposed Date to Cease Receipt of Waste

EPA is proposing that Ottumwa must cease receipt of waste within 135 days of the date of the Agency's final decision establishing the revised deadline (i.e., the date on which the decision is signed). EPA is further proposing that, under certain circumstances described below, EPA could authorize additional time for Ottumwa to continue to use the impoundment to the extent necessary to address demonstrated grid reliability issues, if any, provided that Ottumwa submits a planned outage or suspension request to Midcontinent Independent System Operator, Inc.(MISO) within 15 days of the date of EPA's final decision and Ottumwa provides the MISO request to reschedule the planned outage or suspension and the formal reliability assessment upon which it is based to EPA within 10 days of receiving them.

The regulations state that when EPA denies an application for an extension, the final decision will include the facility's deadline to cease receipt of waste, but they do not provide direction on what the new deadline should be. 40 C.F.R. § 257.103(f)(3). EPA is proposing to set a new deadline for Ottumwa to cease receipt of waste that would be 135 days from the date of the final decision on Ottumwa's Demonstration. This would provide Ottumwa the same amount of time that would have been available to the facility had EPA issued a denial immediately upon

the regulatory deadline for receipt of the Demonstration (i.e., from November 30, 2020, to April 11, 2021, the regulatory deadline to cease receipt of waste). This amount of time thus puts the facility in the same place it would have been had EPA immediately acted on the Demonstration and therefore adequately accounts for any equitable reliance interest Ottumwa may have had after submitting its Demonstration. Moreover, as discussed further below, this date should provide Ottumwa with adequate time to coordinate with MISO for any outage or suspension of the coal-fired boiler that may be necessary.

Given that this proposed deadline (135 days from the date of EPA's final decision) is sooner than the deadline requested by Ottumwa, it is likely that the coal-fired boiler associated with the CCR unit will temporarily need to stop producing waste (and therefore power) until either construction of an alternative disposal option is completed and commercially operational or some other arrangements are made to manage its CCR and/or non-CCR wastestreams.

In Ottumwa's Demonstration it is noted that "to continue to operate, generate electricity, and comply with both the CCR Rule and the IDNR permit conditions, OGS must continue to use the Surface Impoundment for treatment of non-CCR wastestreams until alternate disposal capacity can be developed." It further explains that if the OGS Ash Pond were unable to receive the facility's non-CCR wastestreams before construction of the LVWTP is complete, OGS would have to cease generating power. EPA does not have independent evidence showing that the temporary outage of the coal-fired boiler at this facility would affect the reliability of the grid.

This facility operates as part of the MISO system. MISO is a regional transmission organization (RTO) that is part of the Eastern Interconnection grid. MISO currently has excess generating capacity, and consequently, an adequate reserve margin. A reserve margin is a

measure of the system's generating capability above the amount required to meet the system's peak load.[42] MISO's target reserve margin[43] for the region for 2021 is 18.3%.[44] The anticipated reserve margin for 2021 is projected to be 21.6%.

The exceedance of MISO's existing target reserve margin, combined with scheduled new capacity coming online into the market and the ability to purchase electricity from facilities outside MISO, suggests that the temporary outage at Ottumwa Generating Station would not adversely affect resource adequacy requirements. EPA has not seen any information to indicate that an extended planned outage or suspension at Ottumwa Generating Station would trigger local reliability violations.[45] Additionally, especially with the advance notice, there are a wide array of tools available to utilities, system operators, and state and federal regulators to address situations where the outage or suspension of a generating unit might otherwise affect local electric reliability conditions.

Nonetheless, EPA is sensitive to the importance of maintaining enough electricity generating capacity to meet the region's energy needs, including meeting specific, localized issues. EPA understands that it is possible that in some instances temporarily taking any large generating units (including coal-fired units) offline could have an adverse, localized impact on

[42] Reserve margin is defined as the difference between total dependable capacity and annual system peak load (net internal demand) divided by annual system peak load.

[43] The target reserve margin, also known as the Installed Reserve Margin or the Reference Reserve Margin, is the "metric…used by system planners to quantify the amount of reserve capacity in the system above the forecasted peak demand that is needed to ensure sufficient supply to meet peak loads." The term used to describe this metric varies by assessment area. North American Electric Reliability Corporation, Summer 2021 Reliability Assessment, page 41, https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC%20SRA%202021.pdf.

[44] North American Electric Reliability Corporation, Summer 2021 Reliability Assessment, page 42 (where "Reference" Reserve Margin Level refers to MISO's Installed Reserve Margin), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC%20SRA%202021.pdf.

[45] A local reliability violation might occur, for example, if transmission line constraints limit the amount of power that can get to an area from plants outside that area.

electric reliability (e.g., voltage support, local resource adequacy), although Ottumwa has presented no evidence that such is the case with this facility.

If a generating asset were needed for local reliability requirements, the grid operator (e.g., MISO) might request the generator to reschedule the planned outage or suspension and offer a suggested alternative schedule. In such instances, the owners/operators of the generating unit could find themselves in the position of either operating in noncompliance with the Resource Conservation and Recovery Act (RCRA) or halting operations and thereby potentially causing adverse reliability conditions.

EPA is obligated to ensure compliance with RCRA to protect human health and the environment. Where there is a conflict between timely compliance and electric reliability, EPA intends to carefully exercise its authorities to ensure compliance with RCRA while taking into account any genuine, demonstrated risks to grid reliability identified through the process established by MISO that governs owner/operator requests for planned outages and/or suspension requests.[46] Accordingly, EPA is proposing to rely on established processes and authorities used by MISO to determine whether a planned outage or suspension necessary to meet the new deadline would cause a demonstrated reliability issue.

MISO is responsible for coordinating and approving requests for planned outages of generation and transmission facilities, as necessary, for the reliable operation of the MISO RTO.[47] In MISO, power plants are normally to submit a request at least 120 days in advance of a planned outage or 26 weeks in advance of a planned suspension to allow MISO to evaluate

[46] See, e.g., MISO Tariff, Module C, Energy and Operating Reserve Markets, Effective On: November 19, 2013 (Sections 38.2.5 and 38.2.7), available for download at https://www.misoenergy.org/legal/tariff/.
[47] See, MISO Outage Operations Business Practices Manual, BPM-008-r19, Effective Date: September 21, 2021, page 14, available for download at https://www.misoenergy.org/legal/business-practice-manuals/.

whether the resource is needed to maintain grid reliability, among other scheduling considerations. MISO will request the event be rescheduled if it determines that the planned outage or suspension would adversely affect reliability. If MISO approves a planned outage or suspension request, the outage may proceed and there would be no reason to expect that the outage would affect reliability. However, if a request would cause reliability issues, MISO will work with the generation owner to implement appropriate solutions. The MISO member may also request MISO's assistance in scheduling a planned outage.

MISO may rely on different bases in determining whether to request the generating facility to reschedule a planned outage. For example, a reschedule request may be issued because of timing considerations taking into account previously approved planned outage requests, in which case EPA would expect the plant owner to work with MISO to plan an outage schedule that can be approved by MISO and also satisfies the plant owner's RCRA obligations, without regard to any cost implications (e.g., in meeting any contractual obligations with third parties) that may result for the plant owner under a revised proposed outage schedule.

Alternatively, however, in some cases, MISO might determine that the planned outage or suspension could not occur without triggering operational reliability violations. In such cases, the system operator might determine that the generating unit would need to remain in operation until remedies are implemented. As set forth above, Ottumwa has presented no evidence that such is the case with this facility.

For Ottumwa, EPA is proposing to rely on MISO's procedures for reviewing planned maintenance outage and similar requests. Accordingly, EPA is proposing that, if MISO approves Ottumwa's request, EPA would not grant any further extension of the deadline to cease receipt of waste (i.e., the deadline would be 135 days from the date of EPA's final decision). If, however,

MISO requests that Ottumwa move its planned outage or requires alternative solutions to be implemented prior to an outage or suspension that exceeds the compliance timeline allowable under RCRA based on a technical demonstration of operational reliability issues, EPA is proposing that, based on its review of that decision and its bases, EPA could grant a further CCR extension (i.e., beyond 135 days from the date of EPA's final decision).

EPA is further proposing that such a request could only be granted if it were supported by the results of the formal reliability assessment(s) conducted by MISO that established that the temporary outage of the boiler during the period needed to complete construction of alternative disposal capacity would have an adverse impact on reliability. In such a case EPA is proposing that, without additional notice and comment, it could authorize continued use of the impoundment for either the amount of time provided in an alternative schedule proposed by MISO or the amount of time EPA determines is needed to complete construction of alternative disposal capacity based on its review of the Demonstration, whichever is shorter. EPA is further proposing that a request from MISO to move a requested outage or delay a suspension until other solutions are in place without a finding of technical infeasibility for demonstrated reliability concerns would not support EPA's approval of an extension of the date to cease receipt of waste because any concern about outage schedules and their implications for plant economics could be resolved without an extension of RCRA compliance deadlines (e.g., through provision of replacement power and/or capacity; rearranging plant maintenance schedules; reconfiguration of equipment).

To obtain an extension, EPA is proposing that Ottumwa must submit a request for an outage or suspension to MISO within 15 days of the date of EPA's final decision. To avoid the need for serial requests and submissions to MISO, EPA is proposing to require Ottumwa to

contact MISO and request assistance in scheduling the planned outage so that Ottumwa and MISO can determine the shortest period of time during an overall planned outage or suspension period in which the generating unit must be online to avoid a reliability violation. EPA expects that the plant owner and MISO would plan the outage(s) and return-to-service periods – and any other needed accommodations – in ways that minimize the period of actual plant operations.

Finally, to obtain an extension from EPA, Ottumwa must submit a copy of the request to MISO and the MISO determination (including the formal reliability assessment) to EPA within 10 days of receiving the response from MISO. EPA would review the request and, without further notice and comment, issue a decision.

One hundred and thirty-five days should normally provide adequate time to schedule a planned outage of a generating unit in coordination with MISO. According to the MISO Tariff, section 38.2.5 (at PDF page 628), the normal process for obtaining approval for a planned outage occurs within three months.[48] If a suspension is necessary, EPA expects the facility to work with MISO during the 135 days to try to obtain a decision. If the facility is unable to obtain a decision before the end of this period, upon a showing that the facility submitted a timely request to MISO, EPA would grant the additional time necessary for MISO to reach a decision. However, EPA solicits comment on whether 135 days from the date of the final decision provides sufficient time to accommodate the normal process of obtaining approval for a planned outage.

V. Conclusion

In conclusion EPA is proposing to deny IPL's request for an alternative compliance date for the OGS Ash Pond surface impoundment, located at the Ottumwa Generating Station near

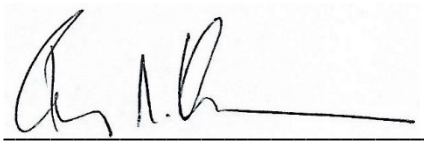
[48] MISO Tariff, Effective On: November 19, 2013, available for download at https://www.misoenergy.org/legal/tariff/.

Ottumwa, Iowa. EPA is proposing to deny the extension request because IPL has not demonstrated that the facility is in compliance with all the requirements of 257 subpart D, based on concerns with the groundwater monitoring at the facility, with the facility's corrective action, and with the facility's closure plans. EPA is proposing that IPL cease receipt of waste and initiate closure no later than 135 days from the date of EPA's final decision.

Finally, due to the nature of the noncompliance EPA has preliminarily identified at IPL, EPA is proposing to issue a denial rather than a conditional approval. As discussed in greater detail in the proposed H.L. Spurlock Power Station decision, EPA is proposing that a conditional approval may be appropriate in situations where the actions necessary to bring the facility into compliance are straightforward and the facility could take the actions well before its requested deadline (or the alternative deadline that EPA has determined to be warranted). But in the case of IPL, the noncompliance EPA has identified involves more complicated technical issues, where the specific actions necessary to come into compliance cannot be easily identified and/or cannot be implemented quickly. Specifically, if EPA is correct that the base of the OGS Ash Pond intersects with groundwater, the determination of whether the closure of these units meets the performance standards in 40 C.F.R. § 257.102(d) is highly technical and extremely complicated. As explained in unit III.E.2, IPL provided insufficient information for EPA identify specific actions that would need to be taken at the site. Nor could EPA conclude that IPL could implement the necessary measures before its requested deadline. Finally, EPA continues to believe that where there is affirmative evidence of harm at the site, such as where a facility has delayed corrective action, EPA cannot grant additional time for the impoundment to operate without some evidence that these risks are mitigated.

VI. Effective Date

EPA is proposing to establish an effective date for the final decision on IPL's demonstration of 135 days after the date of the final decision (i.e., the date that the final decision is signed). EPA is proposing to align the effective date with the new deadline that EPA is proposing to establish for IPL to cease receipt of waste. EPA is doing so for all of the reasons discussed as the basis for proposing to establish the new deadline to cease receipt of waste discussed in Section IV of this document.



January 11, 2022
Date

Barry N. Breen
Acting Assistant Administrator