FINAL DECISION

Denial of Alternative Closure Deadline for General James M. Gavin Plant, Cheshire, Ohio

SUMMARY:

Gavin Power, LLC (Gavin) submitted a demonstration (the "Demonstration") to the Environmental Protection Agency (EPA) seeking an extension pursuant to 40 Code of Federal Regulations (C.F.R.) § 257.103(f)(1) to allow a coal combustion residuals (CCR) surface impoundment, the Bottom Ash Pond (BAP), to continue to receive CCR and non-CCR wastestreams after April 11, 2021, at the General James M. Gavin Plant located in Cheshire, Ohio. EPA is taking final action to deny the request for an extension based on a determination that Gavin has failed to demonstrate that the facility meets the requirements for an extension pursuant to 40 C.F.R. § 257.103(f)(1). Based on this determination, EPA is requiring Gavin to cease receipt of CCR and non-CCR wastestreams to the BAP no later than 135 days after the effective date of this decision. EPA is also taking final action on a process for Gavin to seek an extension of this revised deadline, if needed to address demonstrated reliability issues.

DATES: Gavin must cease receipt of CCR and non-CCR wastestreams into the BAP no later than 135 days after the effective date of this decision.

SUPPLEMENTARY INFORMATION:

Table of Contents

List of Acronyms and Abbreviations

AHE	Ash handling equipment
AMSL	Above mean sea level
ASD	Alternative source demonstration
BAP	Bottom Ash Pond
CCP	Coal combustion product
CCR	Coal combustion residuals
C.F.R.	Code of Federal Regulations
cm	Centimeter
D.C. Circuit	United States Court of Appeals for the District of Columbia Circuit
EPA	United States Environmental Protection Agency
EPRI	Electric Power Research Institute
FAR	Fly Ash Reservoir
Fed. Reg.	Federal Register
Gavin	Gavin Power, LLC
GIS	Geographic information system
GWMCA	Groundwater monitoring and corrective action
IDEM	Indiana Department of Environmental Management
MSHA	Mine Safety and Health Administration (U.S. Department of Labor)
NFAP	North Fly Ash Pond at Kyger Creek Station
OSWER	Office of Solid Waste and Emergency Response (US EPA)
P.E.	Professional engineer
PJM	PJM Interconnection LLC

Q&A	Question and answer
RCRA	Resource Conservation and Recovery Act
RTC	Response to Comments
RTO	Regional transmission organization
RWL	Residual Waste Landfill
sec	Second
SSI	Statistically significant increase
SSL	Statistically significant level
SRFAP	Stingy Run Fly Ash Pond (aka "Fly Ash Reservoir" in this document)
s.u.	Standard units
TDS	Total dissolved solids
TSDF	Treatment, storage, or disposal facility
UPL	Upper prediction limit
U.S.C.	United States Code
USWAG	Utility Solid Waste Activities Group
WIIN Act	Water Infrastructure Improvements for the Nation Act

I. General Information

A. Summary of this Decision.

EPA is taking final action to deny the request for an extension to cease receipt of waste for the BAP pursuant to the authority in 40 C.F.R. § 257.103(f). EPA is denying the extension based on its determination that Gavin has not demonstrated compliance with the requirements of 40 C.F.R. part 257, subpart D, as required in 40 C.F.R. § 257.103(f)(1)(iii). Specifically, as discussed further below in Section III of this final action, EPA is denying the request for an

extension based on findings that: 1) Gavin has failed to demonstrate that the unlined CCR impoundment known as the Fly Ash Reservoir (FAR) was closed consistent with 40 C.F.R. § 257.102(d); 2) the written closure plan does not adequately document the steps that will be taken to complete closure of the FAR as required by 40 C.F.R. § 257.102(b)(1); 3) Gavin has not demonstrated that the groundwater monitoring system for the BAP is in compliance with the requirements of 40 C.F.R. §§ 257.93(a), 257.93(f)(3), or 257.94(c) regarding statistical analyses of data, or of 40 C.F.R. § 257.94(e)(2) for alternative source demonstrations (ASDs); 4) Gavin has not demonstrated that the groundwater monitoring system(s) for the FAR and Residual Waste Landfill (RWL) comply with the requirements in 40 C.F.R. §§ 257.91, 257.93(a), 257.93(f)(3), 257.94(c), or 257.94(e)(2); and 5) Gavin failed to present a detailed plan of the fastest technically feasible schedule to complete its alternative capacity for non-CCR wastestreams in accordance with 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*iii*).

In addition, EPA is not exercising its discretion to grant a conditional approval of the extension request because the noncompliance EPA has identified involves highly complicated technical issues, such that the specific actions necessary to address the noncompliance cannot be identified or addressed before the requested extension date. Finally, EPA is requiring Gavin to cease receipt of both CCR and non-CCR wastestreams into the BAP no later than 135 days from the effective date of this decision unless EPA determines additional time is necessary to address demonstrated grid reliability issues.

B. Judicial Review.

Because this final action promulgates requirements under the Resource Conservation and Recovery Act (RCRA), pursuant to RCRA section 7006(a), petitions for review of this final action must be filed in in the United States Court of Appeals for the District of Columbia Circuit

(D.C. Circuit) within ninety days of the date this final action is published in the Federal Register. 42 U.S.C. § 6976(a)(1).

II. Background

A. *Summary of 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 Fed. Reg. 21,302 (April 17, 2015). In 2020, EPA issued revisions to that rule, "Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; A Holistic Approach to Closure Part A: Deadline to Initiate Closure rule" 85 Fed. Reg. 53,516 (Aug. 28, 2020) (the "Part A Rule"). The Part A Rule established April 11, 2021, as the date that electric utilities must generally cease receiving waste into all unlined CCR surface impoundments. The Part A Rule also revised the alternative closure provisions of the CCR regulations (40 C.F.R. § 257.103) by allowing owners or operators to request an extension to continue to receive CCR and/or non-CCR wastestreams in unlined CCR surface impoundments after April 11, 2021, provided that certain criteria are met. EPA established two site-specific alternatives to initiate closure of unlined CCR surface impoundments (40 C.F.R. § 257.103(f)).

The first alternative is for a facility that must continue to use an unlined CCR surface impoundment after April 11, 2021, because no alternative capacity is available either on-site or off-site, and it was technically infeasible to develop alternative capacity by that date. 40 C.F.R. § 257.103(f)(1) (titled *Development of Alternative Capacity is Technically Infeasible*). The second alternative is for coal-fired boiler(s) that are going to permanently shut down by a date certain after April 11, 2021, but there is no alternative capacity either on- or off-site that is available to

accept the CCR and non-CCR wastestreams between April 11, 2021, and the permanent closure date of the coal-fired boiler. 40 C.F.R. § 257.103(f)(2) (titled *Permanent Cessation of Coal-Fired Boiler(s) by a Date Certain*).

In this case, Gavin requested an extension under the first Part A alternative. Under this alternative, an owner or operator may submit a demonstration seeking EPA approval to continue using its unlined CCR surface impoundment for the specific amount of time needed to develop alternative disposal capacity for its CCR and/or non-CCR wastestreams. EPA may grant an extension of the deadline to cease receipt of waste if the facility demonstrates that the requirements of 40 C.F.R. § 257.103(f)(1) are met. Specifically, 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. part 257, subpart D. 40 C.F.R. § 257.103(f)(1)(i)-(iii).

Under the first requirement, 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)(i). 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)(iv)(A)(*1*). 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).

In addition, 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 timeframe during which potential capacity could be implemented, and the reason 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*). Further, EPA required an analysis of the adverse impacts to the operation of the power plant if the CCR surface impoundment could not be used after April 11, 2021. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*ii*). Finally, facilities must include a narrative on the progress made towards the development of alternative capacity as of the time the demonstration was compiled. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*4*).

Under the third requirement, a facility must be in compliance with all of the requirements in 40 C.F.R. part 257, subpart D in order to be approved for an extension. 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, the information presented in the narrative of the demonstration and information posted on the facility's website relating to the closure or retrofit of the impoundment and the development of the new alternative disposal capacities are considered by EPA to allow for an adequate analysis of the facility's compliance with the CCR regulations. The regulation further provides that it is the facility's burden to demonstrate compliance with the regulations. 40 C.F.R. § 257.103(f)(1)(viii).

The first group of compliance documents required to be included in the demonstration relate to documentation of the facility's compliance with the requirements governing the design, construction, and installation of the groundwater monitoring systems. The rule specifically requires copies of the following documents: 1) map(s) of groundwater monitoring well locations (that also identify the CCR units); 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 required under the regulations are those necessary to demonstrate compliance with the corrective action regulations, if applicable. To comply with this requirement, a facility that triggered corrective action must submit at least the following documentation: the corrective measures assessment required at 40 C.F.R. § 257.96; progress reports on remedy selection and design; and the report of final remedy selection required at 40 C.F.R. § 257.97(a). 40 C.F.R. § 257.103(f)(1)(iv)(B)(*5*)-(*6*).

Finally, the regulations require facilities to submit 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)(*7*) and (*8*).

B. Description of General James M. Gavin Plant and Summary of Request for an Extension.

Gavin Power, LLC ("Gavin") is the owner and operator of the General James M. Gavin Plant in Cheshire, Ohio. The Gavin Plant is a coal-fired electric generation facility that generates and manages CCR on-site and is subject to the federal standards for the disposal of CCR in

surface impoundments and landfills codified under 40 C.F.R. part 257, subpart D ("regulations" or "CCR regulations").

Under the CCR regulations, owners and operators of unlined CCR surface impoundments were required to cease placing CCR and non-CCR wastestreams into unlined impoundments and initiate the closure (or retrofit) of the unit no later than April 11, 2021. 40 C.F.R. § 257.101(a)(1). However, the regulations also include procedures by which an owner or operator of an unlined impoundment can request additional time to cease the receipt of waste and initiate closure of the unit. 40 C.F.R. § 257.103(f). On November 30, 2020, Gavin submitted a timely Demonstration pursuant to 40 C.F.R. § 257.103(f)(1) requesting additional time to develop alternative capacity to manage CCR and non-CCR wastestreams in its BAP, an unlined CCR surface impoundment under the regulations. EPA determined the Demonstration was complete on January 11, 2022, and, consequently, the date that Gavin must cease sending CCR and non-CCR wastestreams to the BAP has been tolled. This means that, as of today, Gavin has been allowed to send waste to the BAP for approximately one and a half years beyond the date unlined CCR surface impoundments were required to cease receiving waste. 40 C.F.R. § 257.103(f)(3)(ii).

In the Demonstration, Gavin sought approval from EPA of an alternative site-specific deadline to initiate closure of the BAP. Gavin specifically requested an alternative deadline of May 4, 2023, by which date Gavin projected it would cease routing all non-CCR wastestreams to the BAP and would initiate closure of the impoundment. Gavin also projected in its Demonstration that it would cease routing CCR wastestreams to the BAP by March 2023, which coincides with a scheduled outage of coal-fired generating Unit 2. As described in the Demonstration, Gavin planned to obtain alternative capacity for the CCR and non-CCR

wastestreams being managed in the BAP by converting to dry bottom ash handling to eliminate the wet handling of CCR wastestreams and constructing a new surface impoundment to manage the non-CCR wastestreams.

In addition to the BAP, two other CCR units are located at the Gavin Plant. The FAR, also known as the Stingy Run Fly Ash Pond, was approximately a 300-acre inactive unlined impoundment. Gavin completed closing the FAR on July 30, 2021, by leaving CCR in place.[1] Gavin also operates a CCR landfill named the RWL that predominately receives flue gas desulfurization materials. Additional information on the Gavin Plant can be found in Section II.B of the Proposed Decision.

C. Summary of Proposal and Public Participation.

On January 11, 2022, EPA proposed to deny Gavin's request for additional time to develop alternative capacity to manage CCR and non-CCR wastestreams in its BAP ("Proposed Decision"). The Agency's proposed denial of the extension request was based on a preliminary determination that Gavin's Demonstration did not meet the requirements of 40 C.F.R. § 257.103(f)(1) because Gavin failed to demonstrate that 1) there is no alternative capacity for its non-CCR wastestreams and 2) that the requested timeframe is the fastest technically feasible amount of time in which to complete the measures necessary to obtain alternative capacity. EPA also proposed to deny the extension request because Gavin had not demonstrated that the facility is in compliance with all the requirements of part 257, subpart D, as required by 40 C.F.R. § 257.103(f)(1)(iii). The areas of potential noncompliance EPA identified related to the groundwater monitoring at the facility, the ongoing closure of the FAR, and the planned closure

[1] Notification of Closure (July 30, 2021).

of the BAP. EPA proposed that Gavin cease receipt of waste and initiate closure no later than 135 days after the effective date of EPA's final decision.

EPA sought comments on the Proposed Decision during a comment period that began on January 25, 2022, and closed on March 25, 2022.

In response to the Proposed Decision, the Agency received approximately 30 comment letters from the public. All comment letters can be accessed in the docket for this action at *www.regulations.gov* under Docket ID EPA-HQ-OLEM-2021-0590. EPA's responses to public comments are either in this final decision or the Response to Comments (RTC) document available in the docket.

III. Basis for EPA's Final Decision

After considering the comments submitted on the proposal, EPA is denying the request for an extension of the deadline for the BAP to cease receipt of waste on two grounds. The first is that Gavin has not demonstrated that the facility is in compliance with all of the requirements of 40 C.F.R. part 257, subpart D, as required in § 257.103(f)(1)(iii).[2] First, EPA finds that Gavin has not demonstrated that it complied with the closure performance standards in 40 C.F.R. § 257.102(d) when it closed the FAR. Second, Gavin did not develop a closure plan for the FAR consistent with 40 C.F.R. § 257.102(b). Third, Gavin has not demonstrated that the groundwater monitoring system for the BAP is in compliance with the requirements of 40 C.F.R. §§ 257.93(a), 257.93(f)(3), or 257.94(c) regarding statistical analyses of data, or of 40 C.F.R. § 257.94(e)(2) for alternative source demonstrations (ASDs). Finally, Gavin has not demonstrated

[2] The proposed action included additional bases in support of denying the request for an extension. For example, EPA proposed to deny the request based on the closure plan for the BAP and on the failure to adequately demonstrate that no alternative disposal capacity was available before the proposed extension date. After reviewing the comments, EPA is not relying on those additional bases to support this final action. EPA explains its decision with respect to these additional issues in the RTC document in the docket for this final action.

that the groundwater monitoring system(s) for the FAR and RWL comply with the requirements in 40 C.F.R. §§ 257.91, 257.93(a), 257.93(f)(3), 257.94(c), or 257.94(e)(2).

The second basis for EPA's decision is that Gavin's workplan for obtaining alternative capacity does not meet the requirements of 40 C.F.R. § 257.103(f)(1)(iv)(A). Specifically, Gavin failed to present a detailed plan of the fastest technically feasible schedule to complete its alternative capacity for non-CCR wastestreams. 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*)(*iii*).

A. EPA's Evaluation of Gavin's Compliance with the Regulations.

To qualify for an extension, a facility must be in compliance with all of the requirements in 40 C.F.R. part 257, subpart D. 40 C.F.R. § 257.103(f)(1)(iii). Consequently, EPA required applicants to submit compliance documentation for the entire facility, not just for the CCR surface impoundment in question. 40 C.F.R. § 257.103(f)(1)(iv)(B). EPA evaluated the submitted compliance documentation, along with all other available information, such as information posted on the facility's publicly available compliance website, to determine whether this criterion had been met. *See*, 85 Fed. Reg. 53,553 (August 28, 2020). In this case, for example, the Agency reviewed the information in the Demonstration, as well as all information relating to the closure of the impoundments posted on the facility's website, such as the 2016 closure plan, the 2016 History of Construction, and the information provided in comments. To assess compliance with groundwater monitoring requirements, EPA reviewed Annual Groundwater Monitoring and Corrective Action (GWMCA) Reports, as well as information provided in the Demonstration and in comments.

The regulation places the burden of demonstrating compliance with Part 257 to support its application on the facility. 40 C.F.R. § 257.103(f)(1)(viii) ("The owner or operator at all times bears responsibility for demonstrating qualification under this section."). As a consequence, if

EPA cannot affirmatively conclude that the facility is in compliance - either due to an absence of information or because the available information is inconclusive - this criterion has not been met.

1. Gavin Has Not Demonstrated that the FAR is in Compliance with the Closure Performance Standards.

As stated above, EPA is denying the request to allow the BAP to continue receiving waste. After considering all the information provided by the commenters, based on the available evidence, EPA concludes that at least a portion of the CCR in the closed FAR remains in contact with groundwater. Based on these findings and the absence of any information in the record to document that measures were taken to address the groundwater migrating into and out of the impoundment from the bottom and the sides, EPA concludes that Gavin has failed to demonstrate compliance with the performance standards for closure with waste in place in 40 C.F.R. § 257.102(d). These facts also support a conclusion that closure of the FAR has not met the performance standards in 40 C.F.R. § 257.102(d). Finally, based on these same facts, EPA concludes that Gavin also failed to comply with 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. *See*, 40 C.F.R. § 257.103(f)(1)(iii).

In the Proposed Decision EPA presented at length the factual basis for its conclusion that at least a portion of the FAR is in contact with groundwater at levels high enough to saturate the CCR in the unit. Proposed Decision at 41-44. No commenter disputed any of the facts presented or provided evidence to demonstrate that EPA was mistaken. Nor did any commenter otherwise provide a factual basis for concluding that the performance standards in 40 C.F.R. § 257.102(d) had been met; for example, by documenting that engineering measures had been taken to address the continued contact between the groundwater and the CCR in the closed impoundment. It is therefore undisputed that at least a portion of the CCR in the FAR remains in contact with

groundwater. Although EPA acknowledges that the quantity and quality of the available data are limited, taking the data in the record at face value, EPA estimates that at least a portion of the closed FAR could be sitting in groundwater as much as 64 feet deep, which would mean that as much as 40% of the CCR in the unit would still be saturated—and would remain so indefinitely. This means that the waste in the unit will continue to be saturated by the groundwater that flows into and out of the unlined impoundment, essentially allowing contaminants to leak out of the closed unit indefinitely. Yet, neither Gavin's closure plan nor any other document in the record provides any explanation of how Gavin accounted for these conditions as part of the closure.

Specifically, the narrative description in the closure plan entirely fails to discuss the groundwater infiltrating into the impoundment, and to describe how, despite those continuous flows into the unit, the facility eliminated free liquids as required by 40 C.F.R. § 257.102(d)(2)(i). The closure plan also fails to describe any engineering measures taken to "control, minimize, or eliminate to maximum extent feasible" either the post-closure infiltration of liquids from either the side or base of the units into the waste, or the post-closure releases of CCR or leachate to the groundwater. 40 C.F.R. § 257.102(d)(1)(i). Finally, the closure plan narrative includes no discussion of how Gavin has "preclude[d] the probability of future impoundment of water, sediment, or slurry." 40 C.F.R. § 257.102(d)(1)(ii).

None of the above information was provided in the Demonstration. Gavin also failed to provide any of this information in its comments in response to the proposal. Nor did Gavin (or any other commenter) submit information to demonstrate that the waste in the closed FAR no longer remains in contact with the groundwater.

Given that there are reasonably available engineering measures that can prevent, or at least control, the flow of groundwater into an unlined impoundment (and consequently the

releases out), EPA could not reasonably conclude that such a continuously leaking unit meets all of the requirements in 40 C.F.R. § 257.102(d). All the more is this true, given that the record contains no information to support a conclusion that the risks from the closed FAR are any lower than the risks from the unlined, but not yet leaking, surface impoundments that the D.C. Circuit found were unacceptable under RCRA § 4004(a). *See*, *Utility Solid Waste Activities Group (USWAG) v. EPA*, 901 F.3d 414, 427-428 (D.C. Cir. 2018) (finding that "[i]t is inadequate under RCRA for the EPA to conclude that a major category of impoundments that the agency's own data show are prone to leak pose 'no reasonable probability of adverse effects on human health or the environment,' 42 U.S.C. §6944(a), simply because they do not already leak.")

As noted, commenters neither disputed EPA's factual findings nor otherwise demonstrated that the closure requirements were satisfied; rather several commenters simply argued that EPA had misinterpreted the regulations. The primary argument these commenters raise is that the regulations allow an unlined CCR surface impoundment to be closed with waste in place even if water is entering and exiting the CCR unit from the bottom and sides, thereby allowing for continued releases of CCR leachate from the closed unit. However, this interpretation is inconsistent with the regulations' plain language. It is also inconsistent with RCRA as the record demonstrates it does not protect human health and the environment. *See*, *USWAG*, *supra*, at 427-428. And as demonstrated throughout this section, the commenters' interpretation is inconsistent with EPA's long-standing positions governing the closure of surface impoundments under RCRA.

a. Intersection between FAR and Groundwater.

The FAR was created in 1974 by constructing an earth fill dam across a valley creating an approximately 300-acre impoundment. When closure of the FAR started in 2015, the dam was

approximately 145 feet above the valley floor, which has largely been filled by CCR upstream of the dam; at its crest, the dam was 1,800 feet long and 30 feet wide.[3] Upstream of the dam, the FAR is comprised of three valleys, designated as the North Valley, the Middle Valley, and the South Valley.[4] It is important to note that since the FAR was created by infilling an existing network of interconnected stream valleys, the base elevation of the waste closely mimics the original ground surface topography. This means that the base of the waste near the dam (approximately 600 feet above mean sea level (AMSL)) is lower in elevation than the base of the waste in the upstream fingers of the three valleys. For example, in the three separate, distinct valleys the elevations of the base of the waste generally range from 620 feet to 680 feet AMSL and sometimes higher depending on location. As a result, while saturated ash thicknesses are greatest near the FAR dam, given the incised nature of the preexisting streams, thick deposits of saturated waste persist for significant distances upstream of the dam, particularly in the central portions of the preexisting valleys where pre-waste elevations are relatively low. While waste deposits do indeed thin in the upstream portions of the valleys, thick deposits continue for long distances, and given that water table elevations also generally rise with topographic elevations, thick regions of saturated waste persist at great distances from the FAR dam, even extending into the fingered regions.

In the proposal, EPA relied on several lines of evidence derived from information in the Demonstration and in several compliance documents posted to Gavin's CCR website to determine that at least a portion of the CCR in the FAR is saturated with groundwater.

First, EPA documented that groundwater elevations were measured at levels ranging from approximately 3-64 feet above the bottom elevation of the FAR at some locations along the

[3] History of Construction (October 2016), PDF p. 6.
[4] *Id* at PDF p. 4.

crest of the FAR dam or on the downstream edge of the dam and is therefore high enough to be in contact with CCR in the unit.[5] Specifically, EPA showed that the elevation of the base of the FAR (i.e., where the sluiced ash is stored) ranges from approximately 600 to 657 feet AMSL, and that ground water elevations ranging between 640 and 660 feet AMSL were consistently observed in seven of the eight piezometers near the FAR dam. The proposal also discussed Gavin's 2016 History of Construction and Dam & Dike Inspection reports showing that groundwater levels near and across the dam are consistently high enough to be in contact with CCR. Proposed Decision at 41-42.

Second, EPA described information from a number of facility documents indicating that there is a high groundwater table in the vicinity of the FAR, and that the groundwater level is higher than the bottom of the FAR unit in some areas. The FAR was constructed in the Stingy Run stream valley where the presence of surface water may indicate a high groundwater table. Often, ground and surface water are hydrologically connected, and groundwater may directly supply (recharge) surface water. Further, EPA relied on facility documents that described groundwater levels as "high in both the valley floor and in the reservoir rim. These levels are generally higher than the proposed maximum operating pool of el. 726 ft." Proposed Decision at 43. Additionally, EPA described information from the facility's construction reports documenting that during construction operations, water had to be managed using pumps and a coffer dam, which means that at the time of construction, naturally occurring water was present in the stream valley above where the ash is currently stored.

[5] This conclusion was based on information contained in several of Gavin's compliance documents posted on its CCR webpage, including the History of Construction (October 2016), Dam & Dike Inspection Report (November 2016), and Closure Plan (October 2016).

Finally, EPA presented information indicating a possible hydraulic connection between groundwater from the uppermost aquifer and the bottom of the FAR unit. Gavin's History of Construction Report notes that the clay shales in the reservoir area are relatively impermeable, however, "[t]hin beds of sandstone found in two rock units (5 and 7) contain open joints and are permeable, especially when the units are found at the bedrock surface. These may provide a path for potential seepage from the reservoir particularly in the areas of thin divides." Proposed Decision at 43-44.

No commenters submitted any information refuting even one of EPA's proposed bases for concluding that groundwater intersects at least a portion of the FAR at levels high enough that CCR in the unit would be saturated. Based on the undisputed facts in the record, therefore, EPA concludes that at least a portion of the CCR in the FAR remains in contact with groundwater. These facts alone support the conclusion that Gavin has failed to demonstrate that the closure of the FAR meets the performance standards in 40 C.F.R. § 257.102(d).

However, since the publication of the proposal, the closure of the FAR has been completed, which has the potential to affect the groundwater levels surrounding the unit. As a consequence, even though EPA could legitimately continue to rely exclusively on the record from the proposal to support its decision, EPA re-evaluated all of the data and information in the record to try to estimate the effect of the closure on groundwater elevations and determine the extent to which the closed unit remains in contact with groundwater.

The record contains slightly different information regarding groundwater elevations before and after the closure was completed. First, the groundwater elevations EPA cited in the proposal were measured before closure had been completed and had been taken at observation wells that were removed as part of the closure process. Because those wells no longer exist, EPA

has no more recent measurements from those wells that could be compared to the earlier measurements to confirm whether groundwater elevations have changed as a consequence of completing the closure. In addition, at an unlined surface impoundment with a hydraulic connection to groundwater, such as the FAR, EPA would normally expect that groundwater elevations after closure would decrease to some extent as a consequence of dewatering. At such a unit that has not been drained, the hydraulic head from the water in the unit drives leachate into underlying soils—and in this case into the underlying aquifer—and as a consequence would elevate groundwater levels in some parts of the underlying groundwater system. But once the unit has been dewatered, the hydraulic head in the impoundment would decrease, thereby decreasing the amount of liquid flowing into the groundwater. Consequently, EPA evaluated additional data from Gavin's Demonstration and compliance documents posted on its website in order to provide an updated check on water levels.

To be clear, EPA is confident, based on the information cited in the proposal as well as the additional data in the record, that a significant portion of the CCR in the unit remains in contact with groundwater; what is less clear is the extent of the saturation. In an attempt to answer that question, EPA reviewed the data and information in Gavin's Demonstration and on Gavin's compliance website to evaluate the extent to which the CCR in the closed unit remains in contact with groundwater. Although EPA has significant reservations about the quantity and quality of the available data, taking Gavin's data at face value EPA estimates that the closed FAR could be sitting in groundwater as high as 64 feet deep in some locations and that as much as 8.2 million cubic yards (or as much as 40% of CCR in the FAR) could still be saturated—and would remain so indefinitely. The analysis that supports this conclusion is summarized below.

There is a strong technical basis indicating the sustained presence of a significant volume of saturated waste beneath the cover system. In the 2020 Annual Inspection report, Gavin stated that "the [FAR] has been undergoing closure, which is anticipated to be completed by the end of March 2021."[6] The same report further stated, "[a]t the time of the 2020 inspection, the [FAR] has been almost completely dewatered."[7] Based on Figure C-2 provided in this same report, water elevations in 2020, as measured at the FAR pond surface, were reported consistently at 664 feet AMSL between June and September of 2020. Prior to this time, the graph shows higher water levels, up to 674 feet AMSL (May 2020) were reported, with typical water levels in the range of 666 feet AMSL from January to April 2020. It is further stated in the same report, "[d]uring the inspection, the average surface water elevation, in the [FAR] was approximately 664.0 feet, which is nearly negligible and less than 1 foot in depth, as maintained by the pumps."[8]

There are several points to be drawn from this. First, the 2020 Annual Inspection Report acknowledges that the water levels in the unit of 664 feet AMSL are the product of continued pumping. But the pumping appears to only remove ponded surface water; it does not eliminate the free liquids from the underlying CCR that is continuously saturated by groundwater flows. Although this report states that the FAR has been almost completely dewatered, Gavin has presented no discussion of any other measures taken to remove free liquids from unit. The fact that pumping is required to maintain surface water levels at 664 feet AMSL strongly suggests that pumping alone has not been effective at meeting the performance standard. Nor did Gavin provide any data to demonstrate that pumping has been effective at eliminating free liquids in the

[6] 2020 Annual Inspection Report – Bottom Ash Pond and Stingy Run Fly Ash Reservoir (Jan. 8, 2021), p 4.
[7] *Id* at 5.
[8] *Id*.

CCR below an elevation of 664 feet AMSL. The only pumping discussed in the record is surficial pumping, which would have stopped at closure. No other pumping (i.e., groundwater extraction) or other measures to remove free liquids from CCR in the unit were discussed in the record. As such, EPA can only conclude that a significant volume of saturated CCR exists and will continue to exist at the site based on reported conditions.

Second, EPA believes the presence of significant volumes of saturated CCR will persist post closure as groundwater will continue to flow into and out of the unit in perpetuity from the sides and bottom of the unit. Based on a Figure C-2 in the 2020 Annual Inspection Report, water levels higher than 664 feet AMSL can be expected even with ongoing pumping. The limited information provided strongly corroborates the existence of continued inputs of groundwater into the FAR from the sides and underlying areas. It is therefore an unavoidable conclusion that CCR will remain saturated below the groundwater levels absent any further engineering measures.

All of these things taken together give EPA great confidence that the CCR in the FAR remains in contact with groundwater, and that groundwater is continuously flowing in and out of the FAR. These facts alone provide a sufficient basis for EPA to conclude not only that Gavin has failed to demonstrate that its closure of the FAR complies with 40 C.F.R. § 257.102(d), but also that the closure of the FAR fails to meet all of the performance standards. Nevertheless, in order to better understand the potential magnitude of the issue, EPA developed estimates of the potential amount of saturated waste remaining in the closed FAR.

To estimate the amount of saturated CCR remaining in the closed unit, EPA evaluated the available information using two different analytical approaches. In the first approach, EPA used Geographic Information System (GIS) methods to estimate the volume of existing waste. This was done by comparing pre-existing topography from before waste was introduced to the current

configuration of the capped waste. Then EPA estimated groundwater levels using reported measurements of pond elevations in the vicinity of the FAR dam. These were taken from reported values of pond elevation in the vicinity of the dam reported in the 2020 Annual Inspection Report, dated January 8, 2021. Finally, EPA compared the volume of existing waste with the estimated water tables to determine the volume of saturated waste. Using this analysis, EPA estimated that approximately 8.2 million cubic yards of saturated waste are present, or 40% of the total volume of CCR in FAR, and approximately 49% of the capped surface area is underlain by saturated ash. Thickness of saturated ash following this method indicate a range of 0-64 feet, or an average of approximately 42 feet, with thicker areas of saturated ash closer to the dam and thinner zones in peripheral areas away from the dam.

Under the second approach, water table conditions were estimated using average values from the only four available monitoring points in reasonable proximity to the ash. Each of these wells was used to estimate groundwater levels beneath the waste most proximate to each well. Using this approach, EPA calculated that approximately 8.1 million cubic yards of saturated waste are present, or 40% of the total volume of CCR in the FAR. In addition, these calculations indicate that the entire 314-acre impoundment is in contact with some level of groundwater; and therefore, that there is some amount of saturated CCR throughout the impoundment. Using this approach, while the total volume of saturated waste is similar to the first approach, it is notable that saturated waste is estimated to occur beneath 100% of the covered unit area, and thicknesses of saturated waste varies from less than a foot to 30.1 feet. The second approach indicates a more

evenly distributed thickness of saturated waste, whereas the first approach indicates the greatest concentration of saturated CCR is in areas more proximal to the dam.[9]

b. Compliance with the Performance Standards for Closure with Waste in Place

Summary of proposal

After reviewing the Demonstration and closure-related information on Gavin's CCR website, EPA proposed that there was insufficient evidence in the record to determine whether the closure of the FAR would meet the performance standards in 40 C.F.R. § 257.102(d) in light of the evidence that at least a portion of the impoundment appears to be in contact with groundwater. Accordingly, EPA proposed to determine that Gavin had failed to develop an adequate closure plan and to demonstrate that the performance standards will be achieved during closure of the FAR. 40 C.F.R. § 257.102(b), (d)(1)-(2).[10]

EPA explained that the record contained no information on how Gavin intended to address the groundwater flowing into the FAR as part of complying with the various performance standards in 40 C.F.R. § 257.102(d) and highlighted two specific examples. EPA first explained that if the base of the impoundment intersected with groundwater, the closure plan would need to discuss the engineering measures taken to eliminate the groundwater that was migrating into the unit before installing the final cover system, as required by 40 C.F.R. § 257.102(d)(2)(i) (requiring that "Free liquids must be eliminated"). EPA explained that this

[9] To be clear, the precise values resulting from EPA's analyses are intended to illustrate the potential magnitude of the issue. It is not critical to EPA's conclusions whether exactly 40% or a lower percentage of the CCR in the FAR remains saturated.

[10] When EPA developed the proposal, Gavin had not yet completed closure of the FAR; EPA therefore also proposed to deny the extension on the grounds that, based on Gavin's plans, the closure would not meet the performance standards to close with waste in place. EPA explained that the basis for this proposal was the plain language of the requirement that to obtain approval, a facility must demonstrate that it will maintain compliance with all the requirements of subpart D. 40 C.F.R. § 257.103(f)(1)(viii). However, now that Gavin has completed closure of the FAR, this ground is no longer relevant.

provision requires the elimination of the freestanding liquid and all separable porewater in the impoundment, whether the porewater was derived from sluiced water or groundwater that intersects the impoundment. However, the only information Gavin provided was the following: "As part of closure of the CCR unit, all free water will be removed." Gavin Proposed Decision at 46 (quoting Gavin 2016 Closure Plan).

Second, EPA explained that neither the Demonstration nor the closure plan described how Gavin planned to meet the requirements in 40 C.F.R. § 257.102(d)(1) to "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." EPA further explained that under the standard dictionary definition, "infiltration" refers to any kind of movement of liquid into a CCR unit from any direction, including the top, sides, and bottom of the unit. Consequently, because it appeared that water was infiltrating into the FAR from the sides and/or bottom of the unit, Gavin was required to take measures to address those flows in designing the closure. This could include for example, the installation of engineering controls that would address the post-closure infiltration of liquids into the waste from all directions, as well as post-closure releases to the groundwater from the sides and bottom of the unit. However, Gavin only provided information that addressed the permeability characteristics of the final cover system (i.e., addressing only infiltration from the top of the FAR).

EPA received several comments agreeing with the Agency's proposed determinations. But Gavin and a number of other commenters argued that EPA had fundamentally misinterpreted the terms "infiltration" and "free liquids," and that EPA's interpretations of those terms effectively amended key provisions of the closure performance standards in 40 C.F.R. § 257.102(d). These commenters claimed that EPA was not simply applying the existing

regulations as written to a specific situation, but instead had announced new substantive standards and requirements that it is directing all facilities subject to the regulations to follow.

EPA's application of the plain language of the regulation in this case in no way amends the performance standards in 40 C.F.R. § 257.102(d). As discussed throughout the next section, EPA's application of the terms "infiltration" and "free liquids" relies on straightforward constructions of the plain language of those terms, in context with the language and structure of the provisions in which they appear. By contrast, the commenters' arguments focus exclusively on a subset of the regulations, ignoring the unambiguous requirement to control "to the maximum extent feasible" releases of CCR and leachate to the groundwater, and offering no explanation for how the closure of the FAR has met this requirement. 40 C.F.R. § 257.102(d)(1)(i). Consequently, even if EPA were to adopt the commenters' interpretation of "infiltration" and "free liquids," the record would contain no basis for EPA to conclude that the closure of the FAR had complied with 40 C.F.R. § 257.102(d).

In addition, far from being new, EPA's positions are consistent with interpretations EPA has taken under RCRA since 1982. Finally, EPA's application of the regulation directly advances RCRA's statutory requirements and stated regulatory purpose and is consistent with applicable case law. *See, USWAG,* 901 F.3d at 429-434 (criticizing EPA decisions for failing to "fulfill the EPA's statutory duty to ensure 'no reasonable probability of adverse effects' to environmental and human well-being.") (citation omitted).

Closure performance standards

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). Each option establishes specific performance standards that must be met in their entirety. 40 C.F.R. §§ 257.102(c)-(d). If the

performance standards for each option can both be met, the regulations allow a facility to select either of the options. However, a facility must meet all of the performance standards for the closure option it has selected, and if it cannot meet all of the performance standards for one option, then it must select the other option and meet all of the performance standards for that option. 40 C,F.R. § 257.102(a).

Gavin closed the FAR under the second option by leaving the CCR in place. The standards applicable to closing a surface impoundment with waste in place are found at 40 C.F.R. § 257.102(d), which provides:

> (d) *Closure performance standard when leaving CCR in place –*
>
> > (1) The owner or operator of a CCR unit must 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;
> > > (ii) Preclude the probability of future impoundment of water, sediment, or slurry;
> > > (iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;
> > > (iv) Minimize the need for further maintenance of the CCR unit; and
> > > (v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.
> >
> > (2) *Drainage and stabilization of CCR surface impoundments.* The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of paragraphs (d)(2)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.
> >
> > > (i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.
> > > (ii) Remaining wastes must be stabilized sufficient to support the final cover system.
> >
> > (3) *Final cover system.* If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph

(d)(3)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.

(i) The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.

(A) The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less.

(B) The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.

(C) The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.

(D) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

Whether any particular unit can meet these performance standards is a fact and site-specific determination that will depend on a number of considerations, such as the hydrogeology of the site, the engineering of the unit, and the kinds of engineering measures implemented at the unit. Accordingly, the fact that prior to closure the base of a unit intersects with groundwater does not mean that the unit may not ultimately be able to meet the performance standards in 40 C.F.R. §257.102(d) for closure with waste in place. Depending on the site conditions a facility may be able to meet these performance standards by demonstrating that a combination of engineering measures and site-specific circumstances will ensure that, after closure of the unit has been completed, the groundwater is no longer in contact with the waste in the closed unit. One example of this would be where groundwater intersects with only a portion of an impoundment. In such a case, the facility could close that portion of the unit by removing the CCR from that area of the unit, but leaving waste in place in other areas, as EPA explains in a

Q&A available on EPA's CCR website since 2017.[11] As another example, if the entire unit sits several feet deep within the water table, engineering controls can potentially be implemented to stop the continued flow of groundwater into and out of the waste. As EPA explained in the 1982 guidance on the closure of hazardous waste surface impoundments,

> Where local geological and hydrological conditions require it, various types of ground water controls can be implemented. ***The following controls function to prevent the subsurface flow of ground water into the impounded waste***.
>
> > • Diversion -- Groundwater can be directed around an impoundment site by several means. The effectiveness of diversion is controlled by local soils and the volume of ground water flow. Diversion dams of polymer membranes or sheeting can be effective but will require construction of a high permeability diversion path to guide the accumulated ground water around the site. Slurry-trench cutoff walls or grout curtains can also be used to divert ground water away from a waste site.
> >
> > • Interception -- Ground water can be intercepted either by wells or collector underdrain systems. Wells require pumping and a discharge point. Depending on regional topography, collector underdrains may also require pumping. Any system depending on pumping has an inherent failure potential and an annual maintenance cost.

EPA Office of Solid Waste, Closure of Hazardous Waste Surface Impoundments, SW-873, p 81 (September 1982), Revised Edition (emphasis added).

However, where the closed, unlined impoundment sits in groundwater several feet deep, the waste in the unit will continue to be saturated by the groundwater that flows into and out of the unlined impoundment. In essence this means the closed unit will continue leaking indefinitely. Given that reasonably available engineering measures exist that can prevent, or at least control, the flow of groundwater into the unit (and consequently the releases out of the unit) EPA could not reasonably conclude that such a continuously leaking unit meets the requirement to "control, minimize, or eliminate to maximum extent feasible" post-closure infiltration into the

[11] https://www.epa.gov/coalash/relationship-between-resource-conservation-and-recovery-acts-coal-combustion-residuals-rule#Closure

unit or post-closure releases of CCR or leachate to the groundwater. 40 C.F.R. § 257.102(d)(1)(i). Nor is it clear how such a unit meets the requirement to "eliminate free liquids" or to preclude the probability of future impoundment of water, sediment, or slurry. 40 C.F.R. § 257.102 (d)(1)(ii), (2)(i).

The circumstances at Gavin illustrate this further. The narrative description in the closure plan entirely fails to account for the groundwater flowing into and out of the impoundment, and to describe how, despite the continuous flow through the unit, Gavin eliminated free liquids (or even that they have), as required by 40 C.F.R. § 257.102(d)(2)(i). See 40 C.F.R. § 257.102(b)(1)(i). The closure plan also fails to describe any engineering measures taken to "control, minimize, or eliminate to maximum extent feasible" either post-closure infiltration of groundwater into the waste or post-closure releases of CCR or leachate to the groundwater. 40 C.F.R. § 257.102(d)(2)(i). Finally, the closure plan narrative includes no discussion of how Gavin has "preclude[d] the probability of future impoundment of water, sediment, or slurry." 40 C.F.R. § 257.102(d)(1)(ii). Consequently, the record does not support a finding that Gavin has demonstrated compliance with the closure requirement or that the closure of the FAR meets all of the performance standards in 40 C.F.R. § 257.102(d).

EPA's application of the CCR regulations reflects the same approach EPA has taken to the closure of surface impoundments since 1982, when EPA issued RCRA standards for both permitted and interim status hazardous waste facilities. EPA explicitly relied on those regulations when it promulgated the CCR closure standards. *See*, 75 Fed. Reg. 35,208; 80 Fed. Reg. 21,413 (explaining that the CCR regulations were based on the hazardous waste requirements applicable to interim status facilities). Although the CCR and hazardous waste regulations are not identical, both adopt the same overall approach to closure of surface impoundments: requiring facilities to

minimize the formation and migration of leachate in the unit that could be released to the environment by 1) removing free liquids to eliminate any existing leachate that could migrate from the unit, and 2) preventing water/liquid from entering a closed unit and preventing or controlling releases from the closed unit. This is explained in several places in the preamble to the 1982 interim final hazardous wastes rule. *See, e.g.,* 47 Fed. Reg. 32,278, 32,284, 32,318-32,319.

Several commenters cite to various documents from 40 years of RCRA implementation, claiming that EPA's application of the CCR regulations to Gavin is inconsistent with one or more of these documents or with previously articulated positions. None of the statements they identify address the specific circumstances at hand: how the requirements for closing with waste in place apply to an unlined surface impoundment several feet deep in groundwater. And commenters identify no document in which EPA has ever interpreted the closure regulations to allow a facility to put a cover on an unlined impoundment sitting several feet deep in groundwater, without taking any further measures to prevent the continued formation of leachate in the closed unit or the continued releases of that leachate into the surrounding groundwater. Simply put, this is because allowing groundwater to continue flowing through the waste would not protect human health and the environment.[12] The Electric Power Research Institute (EPRI), a coal industry analytical group, made similar conclusions in a report issued in 2016, finding that "[c]aps are not effective when CCP[13] is filled below the water table, because groundwater

[12] See, e.g., EPA 2014 Risk Assessment, pg. 133. EPA explained if CCR had been disposed in a unit below the water table, the contamination could be greater (and therefore the risks could be higher) than those modeled in the nationwide risk assessment; Aquilogic, "2022 Review of Coal Combustion residuals (CCR) Impoundments in the Southeast USA with Coal Ash Waste in Contact with Groundwater." March 2022. The report summarizes the failures, pollution, risks, and harms to communities that have been experienced at coal ash sites when coal ash has been stored in contact with groundwater.

[13] CCP refers to "coal combustion products," and are the same materials as CCR.

flowing through the CCP will generate leachate even in the absence of vertical infiltration through the CCP." *See, e.g.,* Groundwater Remediation of Inorganic Constituents at Coal Combustion Product Management Sites, EPRI Technical Report 2016, 3-6.[14] And it is telling that not one of the commenters submitted a single piece of evidence to demonstrate that it is protective.

EPA's conclusions are based on a straightforward reading of the plain language of 40 C.F.R. § 257.102(d). The regulations consist of 1) a set of general performance standards in 40 C.F.R. § 257.102(d)(1) that apply to all aspects of a unit's closure, and 2) two sets of process-specific technical standards that lay out more precise requirements applicable to individual aspects of unit closure at 40 C.F.R. § 257.102(d)(2)-(3) (standards for draining and stabilizing the waste in the unit, and standards for the cover system placed over the unit at the end of the process, respectively). These provisions, which must be met at every unit, collectively operate to prevent liquids from migrating into the unit and to prevent contaminants from migrating out of the unit after closure. Specifically, the regulations establish four requirements relevant to this issue: a CCR unit must be closed in a manner that will 1) "control, minimize or eliminate, to the maximum extent feasible," post-closure **infiltration of liquids into** the waste; 2) "control, minimize or eliminate, to the maximum extent feasible," **post-closure releases** of CCR or leachate out of the unit to the ground or surface waters; 3) preclude the probability of future

[14] Other studies have reached the same conclusion. For example, an earlier EPRI study examined the dewatering of three sites, two with ash situated above the water table and one with ash in contact with groundwater. The study concluded: "[T]he existence of saturated ash will greatly reduce the effectiveness of any cap design when the facility is underlain by geologic materials with high hydraulic conductivity, because groundwater will continue to leach ash constituents." The fact that coal ash is in contact with groundwater can reduce the effectiveness of dewatering as well: "[W]hen ash remains below the water table, dewatering may be less effective because groundwater continues to leach constituents from the saturated ash, particularly if the impoundment is underlain by geologic media with relatively high rates of groundwater flow. In the case of [the studied site], concentrations increased because groundwater contact time with the saturated ash increased when the hydraulic gradient of the pond was removed."

impoundment of water, sediment, or slurry; and 4) free liquids must be eliminated either by removing liquid wastes or solidifying the remaining wastes and waste residues, prior to installation of the cover system. 40 C.F.R. § 257.102(d). EPA is unaware of a circumstance where these standards could be, or have been, met when the waste in a closed, unlined impoundment remains in contact with groundwater that freely migrates in and out of the CCR remaining in the closed unit.

As originally designed, in many cases under the hazardous waste regulations, compliance with the process-specific technical standards would be sufficient to minimize the formation and release of leachate and constituents to the surrounding environment. This would be accomplished by the removal of liquids from the impoundment, the stabilization of the remaining wastes, and the installation of a cover system to prevent the future migration of water into the closed impoundment. *See, e.g*., 47 Fed. Reg. at 32,312-32,313. But in situations where these measures are insufficient to prevent the creation of further leachate and potentially the further release of constituents, the general performance standard compels the facility to take additional measures to control the creation and release of leachate. *E.g.,* 50 Fed. Reg. 11,068, 11,070 (March 19, 1985), ("The amendment explicitly requires owners or operators of TSDFs to comply with both the general performance standard and the applicable process-specific standards."). EPA adopted this same structure in crafting the CCR closure regulations. *See*, 80 Fed. Reg. 21,412-21,414.

When closing with waste in place, the first step in the process of closing a surface impoundment under the CCR regulations is to dewater the impoundment. 40 C.F.R. § 257.102(d)(2)(i). Once that is done, the facility must stabilize the wastes that will remain in the unit so that the wastes will continue to support the cover system without substantial differential settlement over time. 40 C.F.R. § 257.102(d)(2)(ii).

The process-specific technical standard that governs dewatering provides that "free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues." 40 C.F.R. § 257.102(d)(2)(i). Free liquids are defined as 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. 40 C.F.R. § 257.53. Consequently, the directive applies to both the freestanding liquid in the impoundment and to all separable porewater in the impoundment, whether the porewater was derived from sluiced water, stormwater runoff, or groundwater that migrates into the impoundment.

Section 257.102(d)(2)(i) establishes a clear standard to be met: "free liquids must be eliminated." The regulation further specifies how this standard is to be met: by "removing liquid wastes or solidifying the remaining wastes and waste residues." *Id*. In situations where the waste in the unit is inundated with groundwater, the requirement to eliminate free liquids thus obligates the facility to take engineering measures necessary to ensure that the groundwater, along with the other free liquids, has been permanently removed from the unit prior to installing the final cover system. *See*, 40 C.F.R. § 257.102(d)(2)(i). These requirements were adopted verbatim[15] from the hazardous waste regulations at 40 C.F.R. § 265.228. *See, e.g.,* 75 Fed. Reg. 35,208; 80 Fed. Reg. 21,413. See also 40 C.F.R. § 264.228.

In addition to the process-specific technical requirements, all closures must meet the requirements in the general performance standard to "control, minimize or eliminate, to the maximum extent feasible," both post-closure infiltration of liquids into the waste and releases of CCR or leachate out of the unit to the ground or surface waters. EPA construes the word "infiltration" as a general term that refers to the migration or movement of liquid into or through

[15] The sole difference is that EPA replaced the phrase "hazardous wastes" with "CCR."

a CCR unit from any direction, including the top, 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." Similarly, the Cambridge English Dictionary defines infiltration as "the process of moving slowly into a substance, place, system, or organization," and provides the following example "It is important to manage moisture infiltration into buildings."
https://dictionary.cambridge.org/us/dictionary/english/infiltration (website visited 10/22/2022). None of these definitions limits the source or direction by which the infiltration occurs.

Reliance on the general usage definition here is supported by both the text and structure of the regulation, as well as the factual context in which it is to be applied. First, nothing in the general performance standard imposes any limitations on the direction by which the infiltration must occur, but simply directs facilities to control "infiltration into the waste," without limitation. 40 C.F.R. § 257.102(d)(1)(i) ("must ensure that, at a minimum, the CCR unit is closed in a manner that will…"). This provision by its terms applies to all aspects of the closure, not merely to an individual component or subset of the activities necessary to conduct the closure, as liquid can migrate into a closed unit from many directions. As explained in 1982 guidance on conducting the closure of hazardous waste surface impoundments, there are several means by which water can migrate into (and out of) a closing/closed unit, and the facility must account for all of them during the closure process.

> Seven principal input and output components of a hypothetical closed surface impoundment include: (1) precipitation, (2) surface runoff onto the impoundment, (3) surface runoff from the impoundment area, (4) evapotranspiration, (5) ground water underflow in, (6) ground water underflow out, and (7) infiltration or seepage. These are illustrated in Figure 3-1

Closure of Hazardous Waste Surface Impoundments, SW—873, p 24. *See also* p 15 under the heading 3.l LEACHING POTENTIAL OF WASTES ("Solids in impoundments may be leached by liquid added to the impoundment by precipitation, by fluids already present in the waste, or by other flowing or infiltrating fluids."); pp 78-82 ("Where local geological and hydrological conditions require it, various types of ground water controls can be implemented. The following controls function to prevent the subsurface flow of ground water into the impounded waste….").

This construction of the general performance standard is reinforced by comparison with the text of the process-specific technical standard in 40 C.F.R. § 257.102(d)(3). Paragraph (d)(3) establishes several detailed performance standards that are exclusively applicable to the "cover system" installed on top of the closed unit. Each time the word "infiltration" appears in this provision, the context makes clear that the "infiltration" with which EPA is concerned in this provision is infiltration through the cover system. *See, e.g.,* 40 C.F.R. § 257.102(d)(3), ("install a cover system that is designed to minimize infiltration"); § 257.102(d)(3)(ii)(A)("Design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (d)(3)(i)(A) and (B) of this section"). This context would not be necessary if, as the commenters claim, infiltration can only ever mean infiltration vertically from the surface into the unit. No similar reference to a cover system appears in the general performance standard. Had EPA intended to limit the general performance standard to the scope of the technical standard in paragraph (d)(3), the general performance standard would have required facilities to control "infiltration through the cover system into the waste."

Additionally, the plain language definition is consistent with the context of both the general and the process-specific technical standards. The general performance standard in 40

C.F.R. § 257.102(d)(1) serves the same purpose as the general performance standard in the hazardous waste closure regulations, on which the CCR regulations are modeled: to require facilities to take further measures to address risks that are not adequately addressed by compliance with the process-specific technical standards. As EPA explained in proposing to include the general performance standard in the part 264 closure requirements:

> The amendment explicitly requires owners or operators of TSDFs to comply with both the general performance standard and the applicable process-specific standards. Owners or operators must close their facilities in a manner that complies with applicable process specific requirements where specified; ***the general performance standards apply to activities that are not otherwise addressed by the process-specific standards but are necessary to ensure that the facility is closed in a manner that will ensure protection of human health and the environment.***

50 Fed. Reg. at 11,070 (***emphasis added***). See also, Regulatory Interpretation of the Closure Performance Standard, OSWER Directive # 9476.00-13 (Feb. 8, 1988), (General performance standard authorizes additional restrictions to prevent hazardous constituents from migrating into groundwater after closure, where water table contacts the base of the unit and the problem is not addressed by compliance with the process-specific technical standards); *See,* 80 Fed. Reg. at 21,413. The dictionary definition of infiltration achieves the purpose of the general performance standard by capturing a wider range of circumstances, and in no way changes the meaning of the process-specific technical standard, as the entire surrounding context of (d)(3) limits the infiltration of concern to infiltration through the cover system. By contrast, the commenter's narrow definition would make the general performance standard largely duplicative of paragraph (d)(3).

Third, EPA's interpretation achieves its statutory mandate. In situations such as this, where the FAR sits in groundwater that could be as much as 64 feet deep, water infiltrates into

the unit from the sides and/or bottom of the unit. Because the FAR is unlined, the CCR in the impoundment is in continuous contact with water. This contact between the waste and groundwater provides a potential for waste constituents to be dissolved, suspended, or otherwise transported in the groundwater to migrate out of the closed unit. In such a case, the performance standard requires the facility to take measures, such as the engineering controls described in the 1982 guidance, to "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. Not so under the commenter's construction of the regulations, where Gavin may simply leave the FAR as is, deferring the cleanup of any potential contamination until some future date. This is precisely what the D.C. Circuit said is not permitted under RCRA or its implementing regulations. *See USWAG, supra,* at 431.

Notably, the commenters' arguments focus exclusively on one-half of the requirements in § 257.102(d)(1)(i)—the requirement to address "infiltration" into the unit. But that provision also unambiguously requires the facility "control, minimize or eliminate, to the maximum extent practicable, releases of CCR [and] leachate…to the ground or surface water." 40 C.F.R. § 257.102(d)(1)(i). Yet the commenters provide no explanation for how the FAR has met this requirement. Consequently, even if EPA were to interpret the terms "infiltration" and "free liquids" as the commenters suggest, the record would contain no basis for EPA to conclude that the closure of the FAR had met the general performance standard.

This language has been incorporated essentially verbatim from the hazardous waste closure regulations at 40 C.F.R. § 265.111(a).[16] EPA has long interpreted that provision to

[16]A detailed explanation of the differences between the two provisions is presented in Unit IV.

provide broad authority to impose measures not specifically required under the process-specific closure provisions in 40 C.F.R. § 265.228, if necessary to ensure that closing units will not leak. *E.g.*, 63 Fed. Reg. 56,709, 56,711 (October 22, 1998) ("As part of the closure plan approval process, the Agency has the authority to require owners and operators to remove some or all of the waste from any type of unit at the time of closure, if doing so is necessary for the closure to meet the performance standard of §264.111 or §265.111."). There is no argument that a closed unlined CCR surface impoundment that continues to be inundated with groundwater flowing in and out of the unit has met this standard—and indeed no commenter has attempted to do so.

Finally, the general performance standard requires a facility to ensure the CCR unit will be closed in a manner that will "[p]reclude the probability of future impoundment of water, settlement, or slurry." 40 C.F.R. § 257.102(d)(1)(ii). EPA interprets the definition of impoundment consistent with the dictionary definition of "impound" - "to confine within an enclosure or within limits." Here as well no commenter has argued that the FAR, or any other unlined CCR impoundment that continues to be inundated with groundwater, has met this standard.

As discussed throughout the various responses to comments in this final decision and in the RTC document, EPA's construction of 40 C.F.R. § 257.102(d) and its application to the circumstances at Gavin's facility are consistent with the interpretation that EPA has held since 1982 under the regulations for the closure of hazardous waste surface impoundments. *See, e.g.,* 47 Fed. Reg. 32,284, 32,312-32,313, 32,318-32,321 (July 26, 1982). See also 1982 Closure of Hazardous Waste Surface Impoundment Guidance; Regulatory Interpretation of the Closure Performance Standard, OSWER Directive # 9476.00-13 (Feb. 8, 1988).

Moreover, EPA's application of the regulation "directly advances RCRA's stated regulatory purpose, which directs EPA to develop standards that limit permissible waste sites "'[a]t a minimum' to those with 'no reasonable probability of adverse effects on health or the environment from disposal of solid waste[.]'" *USWAG*, 901 F.3d at 420, 424 (citation omitted). The record from the 2015 rulemaking is clear that a leaking surface impoundment does not meet the standard for a sanitary landfill in RCRA § 4004(a) *See, Id.* at 429 – 431. Neither Gavin nor any other commenter has presented any evidence to supplement that record, or to otherwise demonstrate that leaving the FAR in groundwater potentially as high as 64 feet deep—having taken only insufficient measures to prevent or eliminate the ongoing leaking—complies with either the regulatory or statutory standards.

The D.C. Circuit has already held that continued operation of unlined surface impoundments—even those that were not yet leaking—was inconsistent with RCRA § 4004(a). *USWAG* 901 F.3d at 427-30. The court faulted EPA for failing to account for the risks, both before and after the unit began leaking—based on the substantial risks that such units would eventually leak and contaminate groundwater. *USWAG* 901 F.3d at 427-428. It is entirely unclear how the commenter's alternative interpretation, which would allow an unlined impoundment to continue leaking indefinitely, is consistent with either RCRA section 4004(a) or the D.C. Circuit's holding. There is nothing in the record to demonstrate that the risks from a closed unlined CCR impoundment leaking directly and indefinitely into the groundwater are lower than the risks from the unlined, but not yet leaking, impoundments that the D.C. Circuit found were unacceptable under RCRA. Neither Gavin nor any other commenter has provided any evidence to demonstrate that under their construction of the regulation, "there will be no reasonable probability of adverse effects on health or the environment." 42 U.S.C. § 6944(a). All that the

commenters have offered are the installation of a cap to control the entry of rain into the closed unit and subsequent "corrective action" to clean up the contamination—which available data concludes are not effective at addressing leakage from CCR sitting in groundwater [17] and which the D.C. Circuit has already rejected as a viable alternative under the statute. *USWAG, supra,* at 429-430, 431 ("But here, too, the EPA has failed to show how unstaunched leakage while a response is pending comports with the 'no reasonable probability' standard."). And if the mere operation of an unlined CCR surface impoundment that may eventually leak does not meet RCRA's requirements for sanitary landfills and prohibition on open dumping, *USWAG* 901 F.3d at 427-30, an actively leaking one certainly cannot.

Several comments disputed the proposed determination that Gavin failed to demonstrate compliance with 40 C.F.R. § 257.102(d) because the waste in the closed FAR remains saturated by levels of groundwater potentially as high as 64 feet deep. All of these commenters argued only that EPA had misinterpreted two provisions of the regulation: 1) the requirement in the general performance standard to "control, minimize or eliminate, to the maximum extent feasible," post-closure infiltration of liquids into the waste; and 2) the requirements in the technical standard that "free liquids must be eliminated either by removing liquid wastes or solidifying the remaining wastes and waste residues, prior to installation of the cover system." The commenters' claims are not accurate, but in any event, these are only half of the four requirements on which EPA based its proposed determination. Proposed Decision at 45-48. Consequently, even if EPA had misinterpreted these two provisions, the commenters have failed to explain how the FAR has complied with the remaining requirements to control releases from

[17] See, e.g., Groundwater Remediation of Inorganic Constituents at Coal Combustion Product Management Sites, EPRI Technical Report 2016, 3-6.

the unit to the groundwater and to preclude the probability of future impoundment of water, given that it is undisputed that the waste in the closed unit remains saturated with several feet of water.

2. Adequacy of the FAR Closure Plan.

As discussed above, EPA is also denying Gavin's application on the ground that its closure plan for the FAR does not meet the requirements in 40 C.F.R. § 257.102(b)(1).

EPA proposed to deny Gavin's application on the grounds that the available information was insufficient to allow EPA to determine whether the closure performance standards will be met. Proposed Decision at 45-48. EPA explained that this violated 40 C.F.R. § 257.102(b), which requires facilities to develop a written closure plan documenting the steps that will be taken to complete closure and to ensure the performance standards are met. EPA specifically criticized Gavin's lack of a description of how free liquids were to be eliminated from the FAR in compliance with § 257.102(d)(2)(i), as the October 2016 closure plan only states that, "[a]s part of closure of the CCR unit, all free water will be removed." *Id*. The proposal further noted that if EPA was correct that the base of the impoundment intersects with groundwater, the closure plan would need to include 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). EPA also explained that the closure plan for the FAR only addressed the permeability characteristics of the final cover system with respect to the general performance standard, failing to address the contact between the waste and groundwater and the potential for waste constituents to be dissolved and to migrate out of (or away from) the closed unit. EPA further explained that in this case the general 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. 40 C.F.R. § 257.102(d)(1)(i).

EPA received several comments in response to EPA's proposal alleging that EPA had overstated what is required for a closure plan by interpreting the regulations to require that a facility must describe in detail *how* it will meet each specific closure performance standard in the future. The commenters claimed that 40 C.F.R. § 257.102(b) only requires a specific discussion on meeting the closure performance standard for the final cover system. The commenters are correct that EPA interprets the regulation to require a facility "to describe…*how* it will meet each specific closure performance standard." (emphasis in original).[18] Subsection (b)(1)(i) expressly requires the facility to provide "A narrative description of how the CCR unit will be closed in accordance with this section." The phrase "narrative description of how" means that this cannot be satisfied merely by saying that they will close "with waste in place," or by reiterating the regulatory text. Nor is it satisfied by stating, as Gavan did, "[a]s part of closure of the CCR unit, all free water will be removed," which may actually be less than a restatement of the regulation, depending on how Gavin defines "free water." See, Closure Plan, C.F.R. § 257.102(b), Stingy Run Flyash Pond, Gavin Plant, Cheshire, Ohio." October 2016, p 6. Similarly, the Demonstration does not discuss how any performance standard will be achieved for the FAR, and the October 2016 closure plan for the FAR only addresses the permeability characteristics of the final cover system with respect to this performance standard. Closure Plan, p. 5. As EPA explained in the proposal, this kind of summary statement is insufficient. Proposed Decision at 47. Rather, the

[18] USWAG Comments, p. 9, Docket item No. EPA-HQ-OLEM-2021-0590-0054.

narrative description must actually describe the means by which the general and specific performance standards will be met.

EPA's interpretation is further confirmed by other provisions in this regulation. Paragraph (b) requires facilities to develop a written closure plan "that describes the steps necessary to close the CCR unit," and that includes "a narrative description of how the CCR unit will be closed in accordance with [section 257.102]" no later than October 2016. 40 C.F.R. § 257.102(b)(1)(i). In addition, the closure plan must also include "[a] schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed." 40 C.F.R. § 257.102(b)(1)(vi). The regulation further specifies that the schedule is to "provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure." *Id*.

Accordingly, in the absence of any new information provided in comments, EPA is denying Gavin's application because its closure plan for the FAR does not comply with 40 C.F.R. § 257.102(b)(1). The narrative description in the closure plan entirely fails to discuss the groundwater infiltrating into the impoundment, and to describe how, despite those continuous flows into the unit, they eliminated free liquids as required by 40 C.F.R. § 257.102(d)(2)(i). The closure plan also fails to describe any engineering measures taken to "control, minimize, or eliminate, to maximum extent feasible" either post-closure infiltration of liquids into the waste or post-closure releases of CCR or leachate to the groundwater. 40 C.F.R. § 257.102(d)(1)(i).

Neither has Gavin documented that it was not feasible to control, minimize, or eliminate infiltration into or releases out of the FAR. Further, the closure plan narrative includes no discussion of how Gavin has "preclude[d] the probability of future impoundment of water, sediment, or slurry." 40 C.F.R. § 257.102(d)(1)(ii). Finally, in response to the requirement in section 257.102(b)(1)(vi), Gavin stated "Closure of the pond has already started in 2015. Based on the current closure schedule, the pond should be closed by 2020."[19] There is no argument that this complies with the requirement to include "[a] schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed." 40 C.F.R. § 257.102(b)(1)(vi).

3. Groundwater Monitoring Compliance at the BAP, FAR, and RWL.

EPA is denying the request for an extension for the BAP based on its determination that Gavin has failed to demonstrate that the groundwater monitoring programs for the BAP, the FAR, or the RWL are compliant with the regulations in multiple respects as discussed below. First, the statistical comparisons between background and compliance well data at the BAP, FAR and RWL have not been conducted in accordance with 40 C.F.R. §§ 257.93(a), 257.93(f)(3), or 257.94(c). Second, the ASDs in the Annual GWMCA Reports for all three units fail to demonstrate that a source other than the CCR units caused the detections of statistically significant increases (SSIs). 40 C.F.R. § 257.94(e)(2). Finally, the design of the current multiunit system at the FAR and RWL, as well as the designs of the previous individual groundwater monitoring systems for those units, is not adequately supported by thorough characterization of groundwater flow direction around these units and does not have a sufficient number of monitoring wells at the downgradient waste boundary. 40 C.F.R. §§ 257.91(a)(2), (b)(1).

[19] 2016 Closure Plan, p. 8.

a. Summary of CCR Groundwater Monitoring Program

The CCR regulations require facilities to design and implement a groundwater monitoring system that will characterize the background levels of constituents in the uppermost aquifer upgradient of a CCR unit, so that those levels can be compared with the constituent levels downgradient of the CCR unit after the groundwater has flowed beneath it. *See*, 80 Fed. Reg. 21,302, 21,399-21,400. The objective of a groundwater monitoring system is to characterize groundwater to determine whether it has been contaminated by the CCR unit being monitored. This begins in detection monitoring, by conducting statistical comparisons between 1) the background level of a constituent measured in one or more upgradient wells and 2) the level of that same constituent in a downgradient well. If the concentration of the constituent in the downgradient well is higher than the background concentration by a statistically significant amount, (i.e., a statistically significant increase (SSI) over background has been detected), this provides evidence of a potential release from the unit. After an SSI, assessment monitoring is required for additional constituents, and the concentrations of each of those constituents at downgradient wells are compared to a groundwater protection standard established for each constituent (either background level or a regulatory limit). Prompt contaminant detection is important in order for corrective measures to be developed to stop migration of contaminants as soon as possible.

To ensure detection of a release, the regulations establish a general performance standard that all groundwater monitoring systems must meet: all groundwater monitoring systems must consist of a sufficient number of appropriately located wells that will yield groundwater samples in the uppermost aquifer that represent the quality of the background groundwater and the quality of groundwater passing the downgradient waste boundary, monitoring all potential contaminant

pathways. 40 C.F.R. § 257.91(a)(1)-(2). Because hydrogeologic conditions vary so widely from one site to another, the regulations do not prescribe the exact number, location, and depth of monitoring wells needed to achieve the general performance standard. Rather the regulation requires installation of a minimum of one upgradient and three downgradient wells, as well as any additional monitoring wells necessary to achieve the general performance standard of accurately representing the quality of the background groundwater and the groundwater passing the downgradient waste boundary, monitoring all potential contaminant pathways. 40 C.F.R. § 257.91(c)(1)-(2). The number, spacing, and depths of the monitoring wells must be determined based on a thorough characterization of the site, including a number of specifically identified factors relating to the hydrogeology of the site (e.g., aquifer thickness, groundwater flow rates and direction). 40 C.F.R. § 257.91(b). Groundwater elevation measurements must be obtained around the unit(s) at sampling events over time to characterize groundwater flow direction and identify seasonal and temporal fluctuations. 40 C.F.R. § 257.91(b). Further, any facility that determines that the regulatory minimum number of wells is adequate to meet the performance standard must document the factual basis supporting that determination. 40 C.F.R. § 257.91(f). In essence, the regulation establishes a presumption that the minimum of one upgradient and three downgradient wells is not sufficient, and it requires the facility to rebut the presumption in order to install only this minimum. *See,* 80 Fed. Reg. 21,399. The number and placement of the monitoring wells is critical to proper characterization of the groundwater.

The regulations establish a phased approach to monitoring. The first phase is detection monitoring where "indicator" constituents are monitored to determine whether groundwater is potentially being contaminated. In selecting the parameters for detection monitoring, EPA chose constituents that are present in CCR and would rapidly move through the subsurface, and thus

provide an early indication of other contaminants that may be migrating from the CCR units. *See,* 80 Fed. Reg. 21,397. The constituents that are monitored in detection monitoring are listed in Appendix III to 40 C.F.R. part 257.

After groundwater samples are collected during each monitoring event, the samples are sent to a laboratory for analysis to determine constituent concentrations. Once the facility has the analytical results, it must conduct statistical analyses to determine the background level of each constituent in upgradient groundwater for comparison with data from downgradient compliance wells. This stage is also critical, as even a sufficient number of properly placed wells will not provide adequate characterization if the sampling and analysis of data are not properly conducted. In order for upgradient groundwater quality to be accurately characterized, the statistical approach must be appropriate for site conditions and the data sets obtained. To this end, the regulations require an owner or operator to select a statistical approach and meet the performance standards applicable to that approach when analyzing the data. 40 C.F.R. § 257.95(f)-(g).

If a facility determines that there is an SSI over background levels for one or more of the constituents in Appendix III at a monitoring well at the downgradient waste boundary, there is an opportunity to complete an alternative source demonstration, or an ASD, showing that a source other than the unit (i.e., an alternative source) was the cause of the SSI. 40 C.F.R. § 257.94(e)(2). A successful ASD must be sufficient to rebut the presumption that the CCR unit is the source of the SSI in a downgradient well of a properly designed groundwater monitoring network by demonstrating that a source other than the CCR unit is responsible for the SSI. An ASD requires conclusions that are supported by site-specific facts and analytical data in order to rebut the site-specific monitoring data and analysis that resulted in an SSI. Speculative or theoretical bases for

the conclusions are insufficient. If a successful ASD for an SSI is not completed within 90 days, an assessment monitoring program must be initiated. *Id*.

In assessment monitoring, facilities are required to monitor for additional constituents of concern, which are listed in Appendix IV to Part 257. Whenever assessment monitoring results indicate a statistically significant level (SSL) exceeding the groundwater protection standard has been detected at a downgradient well for any of the Appendix IV constituents, the facility must start the process for cleaning up the contamination, by characterizing the nature and extent of the release and of site conditions that may affect the cleanup, and by initiating an assessment of corrective measures.

b. Statistical Analyses Were Not Conducted in Compliance with the Regulations

As described in more detail below, Gavin did not include all representative groundwater data when conducting statistical analyses, as required by the regulations. The CCR regulations require that during each sampling event, at least one sample must be collected and analyzed from each background and downgradient compliance well. 40 C.F.R. § 257.94(c). The analyses required by this section includes both the analysis by a laboratory to determine the concentrations of the constituents present in each sample, as well as statistical analysis to determine whether an SSI or SSL has been detected. The regulations allow Gavin to choose from among the statistical methods listed in the regulation, or another method that meets the performance requirements in 40 C.F.R. § 257.93(g), based on a determination that the test is appropriate for evaluating groundwater at that site—i.e., it is appropriate for the data set and is compliant with requirements in 40 C.F.R. § 257.93. Gavin selected a prediction interval method, which uses background data to identify a range of possible results (i.e., the prediction interval) that the next sample from each compliance well is expected to fall within, assuming that the

compliance well is unimpacted by the CCR unit. If the next sample from any compliance well exceeds the top of the range[20] (i.e., the upper prediction limit, or UPL) then the exceedance indicates the CCR unit may be contaminating the groundwater (i.e., an SSI). An interval for each constituent must be established from the distribution of background data. 40 C.F.R. § 257.93(f)(3).

The statistical analyses Gavin used to establish the background levels of constituents did not rely on the entire distribution of representative background data because Gavin excluded some properly obtained background data. The regulations at 40 C.F.R. § 257.94(c) require that the number of samples collected and analyzed during each sampling event include at least one sample from each background and downgradient compliance well. In addition, 40 C.F.R. § 257.93(f)(3) requires that, when prediction limit or confidence interval procedures are used, an interval for each constituent must be established from the distribution of background data. Despite these clear requirements, Gavin excluded properly obtained groundwater data that appear to be representative of background groundwater quality from the statistical analyses to calculate the background levels of constituents at the BAP, FAR and RWL.

In the Proposed Decision, EPA identified concerns that the BAP, FAR and RWL Annual GWMCA Reports[21] indicate that the distribution of data from all background wells was not used to establish the UPLs used to characterize background levels for statistical comparisons. Instead, a UPL was calculated for each background well, and only the well with the highest UPL was used to establish background levels. Gavin then compared the data from this one background well to the data from the downgradient compliance wells to determine whether an SSI above

[20] For pH, a lower predictions limit (LPL) is also established

[21] Section 3.3.1 of the 2017 BAP, FAR and RWL Annual GWMCA Report describes this approach, and Section 3.2 of the 2018 through 2021 BAP, FAR and RWL Annual GWMCA Reports confirms this same approach was used in those years.

background had occurred; however, excluding some of the properly obtained, representative background data from the statistical analysis simply because it is lower than other background data could artificially elevate background levels of Appendix III constituents, potentially masking SSIs in downgradient wells.

As EPA explained in the proposal, the phrase "the distribution of the background data" includes all properly obtained and analyzed samples that accurately represent background groundwater quality; nothing in the text of the regulation supports the exclusion of validly collected and representative data from these analyses. See 40 C.F.R. § 257.93(f)(3). In addition, 40 C.F.R. § 257.93(a) requires facilities to use "sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells[.]" EPA does not agree that eliminating representative data will allow for an "accurate representation of groundwater" as required. To support its approach, Gavin cites to nothing in the regulation, but contends that its approach was recommended by the "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance," U.S. EPA, March 2009, ("Unified Guidance"). The Unified Guidance is a useful resource for the application of statistics to groundwater data, but it does not establish regulatory requirements and cannot amend or replace requirements in the CCR regulations. Therefore, even if the Unified Guidance did recommend removing data from the analysis where the CCR regulations require that data to be included, the CCR regulations must be followed. But in any event, the Unified Guidance does not recommend calculating background levels at individual wells and then selecting the well with the highest background level for comparisons in a prediction interval method to calculate a UPL. Gavin points to no such statement in the Unified Guidance in its comments, and EPA could not find such an assertion. For the reasons described

above, an approach that eliminates valid background data from calculation of background levels is not compliant with 40 C.F.R. §§ 257.93(a), (f)(3) and 257.94(c), and the improper elimination of these data is a basis for denying the requested extension.

While Gavin also commented that pooling of background data was not viable due to spatial variability among background wells, Gavin did not demonstrate that other approaches to address the variability, which would not exclude properly obtained background data, were explored. These approaches include verifying that all background wells are upgradient of the units and meet the criteria in 40 C.F.R. § 257.91(a)(1); analyzing to identify seasonal or temporal patterns in the data; transforming the data through logarithms or other methods to achieve normality; or selecting another statistical approach. One attempt made is in the Annual GWMCA Reports submitted in January 2018 and 2019, which included some analysis for seasonal and temporal trends and some indication that certain data sets were transformed. However, these Annual GWMCA Reports do not indicate that seasonal or temporal trends resulted in an effective way to address variability in the background data sets, and instead Gavin used the unsupported approach of eliminating background data from individual wells with lower background levels. No statistical analyses were included in Annual GWMCA Reports after January 2019 for any of the three units, but the BAP, FAR and RWL Annual GWMCA Reports[22] for all years indicate that data from the background wells with the highest UPLs was excluded from the determination of background levels for statistical comparisons.

Analytical data reported for the BAP indicate significantly lower variability across background wells than at the FAR and RWL, where data for the same constituent in different

[22] Section 3.3.1 of the 2017 BAP, FAR and RWL Annual GWMCA Report describes this approach, and Section 3.2 of the 2018 through 2021 BAP, FAR and RWL Annual GWMCA Reports confirms this same approach was used in those years.

background wells may vary by orders of magnitude, and the highest values exceed levels at downgradient wells. This indicates that an appropriate approach to address spatial variability at the BAP (e.g., transforming a data set) may not be the same as for the FAR and RWL (e.g., verifying upgradient and downgradient status of groundwater wells).

The decision to eliminate valid background data from the calculation of background levels is not compliant with 40 C.F.R. §§ 257.93(a), (f)(3) and 257.94(c), and the improper elimination of these data is a basis for denying the requested extension. In addition, based on the available data, it is possible that spatial variability is due to poor well network design, rather than true variation in upgradient groundwater quality. For example, monitoring well 2016-09 in the FAR groundwater monitoring network routinely detects pH above 12. Such an elevated pH is unlikely to occur naturally. The lack of groundwater elevation measurements at the northwest side of the FAR makes it impossible to determine where groundwater at 2016-09 is flowing from. However, since there is no other potential source of such high pH identified nearby, the high pH detected is evidence that monitoring well 2016-09 may not be upgradient of the CCR unit. If data from 2016-09 are statistically different than background data from other upgradient monitoring wells, this may be because well 2016-09 has been contaminated by the CCR units and therefore may not meet the requirements in § 257.91(a)(1) to be a background well. However, Gavin attributes this to naturally occurring spatial variability and, on this basis, has improperly established elevated background levels of pH and other constituents through its statistical approach.

Additionally, in the proposal, EPA raised concerns that Annual GWMCA Reports did not include statistical analyses or results of the data from alluvium compliance wells 9802 and 94137. Gavin did not provide this analysis in its comments on the Proposed Decision. Therefore,

EPA has no basis to alter its proposed determination that statistical comparisons were not conducted for data from these compliance wells, as required by 40 C.F.R. § 257.93(h). As a consequence, EPA is determining that Gavin's failure to statistically analyze such data is inconsistent with the CCR regulations and is a basis to deny the request for an extension.

c. Gavin's Alternative Source Demonstrations (ASDs) Do Not Demonstrate an Alternative Source Caused the SSIs

Gavin has not conducted assessment monitoring in response to numerous SSIs at the BAP, FAR or the RWL, based on ASDs that purport to show that sources other than Gavin's CCR units caused the contamination. However, based on review of the available information, EPA is concluding that the ASDs conducted for multiple SSIs detected at the BAP, the FAR and the RWL were not adequately supported with site-specific data to meet the requirements of the regulations to demonstrate that a source other than the monitored CCR units caused the SSIs.

Over several years of monitoring, Gavin has detected multiple SSIs during each sampling event at the BAP for each of the following constituents: boron, pH, sulfate, calcium, chloride, fluoride, and total dissolved solids (TDS). Gavin has also detected multiple SSIs at the FAR for each of the following constituents: boron, calcium, chlorides, fluoride, pH and TDS. And Gavin has detected SSIs at the RWL for calcium, fluoride, pH, sulfates and TDS.[23] Each time an SSI was detected, an ASD was conducted that concluded the SSI was from a source other than the BAP, FAR or RWL.[24]

As an initial matter, Gavin contends in its comments that, in the proposal, EPA incorrectly cited 40 C.F.R. § 257.95(g)(3)(ii), rather than 40 C.F.R. § 257.94(e)(2), which Gavin

[23] For all units, this is found in the 2017 Annual GWMCA Report, Table 5 and Tables 3-1, 3-2, 3-3 and 3-4 in the 2018 through 2020 Annual GWMCA Reports.

[24] SSIs are listed in Section 3 of the Annual GWMCA Reports, ASDs are provided in Appendices A and B to the Annual GWMCA Reports.

claims does not require that conclusions in an ASD be supported by either facts or evidence. To support its claim, Gavin relies on the fact that § 257.94(e)(2) does not include the language requiring an ASD to be "supported by a report that includes the factual or evidentiary basis for any conclusions…" that appears in 40 C.F.R § 257.95. *Compare,* 40 C.F.R. §§ 257.94(e)(2) *and* 257.95(g)(3)(ii). EPA acknowledges that 40 C.F.R. § 257.94(e)(2) is the correct regulatory citation but disagrees with Gavin's assertion that the provision does not require evidence to support an ASD for an SSI.

Section 257.94(e)(2) does not use the same language as § 257.95(g)(3)(ii) but it does require a facility to "demonstrate" that one of the alternative sources identified by Gavin was responsible for the SSI. The provision does not direct a facility merely to certify that an alternate source exists. The regulation further requires a facility to complete a "written demonstration," which must include a certification from a qualified P.E. verifying "the accuracy of the information contained in the report." *Id.* In other words, the written demonstration must contain information to support the conclusion that an alternative source exists, and this must be verified by a qualified P.E. Thus, a P.E. certification that an alternative source exists without a written demonstration, does not satisfy the regulatory requirement.

Any other construction of § 257.94(e)(2) would not be reasonable. In a properly designed groundwater monitoring network (i.e., one that meets the performance standards in § 257.91) the point of the comparison of data from downgradient monitoring wells to background levels is to determine whether contaminants are migrating from the CCR unit. *See*, 40 C.F.R. §§ 257.91(a), 257.93(h). The detection of an SSI in a downgradient compliance well therefore creates a presumption that the source of the detected constituent is the CCR unit that is being monitored. In order to rebut this presumption, a facility would need to have factual information to support a

conclusion that another source is responsible for the elevated levels of the constituent present in the aquifer. This is the "information" that § 257.94(e)(2) requires to be included in a report and certified by a qualified P.E. Under Gavin's interpretation there would be nothing for the P.E. to certify.

ASDs conducted for the BAP identify three alternative sources of the contaminants detected in the downgradient compliance wells.[25] ASDs for SSIs of pH and boron claim a CCR unit located at an adjacent facility owned by Indiana-Kentucky Electric Corporation, the Kyger Creek North Fly Ash Pond (NFAP), is the source of the SSIs. ASDs for SSIs of pH also claim some contribution from the Ohio River. ASDs for SSIs of calcium, chloride, fluoride, sulfate, and TDS claim that the regional bedrock formation is the source of those SSIs.

For the FAR and the RWL, Gavin identified regional geology, regional brine, and/or anthropogenic sources (e.g., agricultural runoff, drilling of oil and gas wells) as alternative sources of the SSIs of calcium, chloride, fluoride, and TDS. ASDs for SSIs of TDS at the FAR claim that the regional bedrock formation is the source of those SSIs. In addition, Gavin identified grout contamination due to poor well construction as an alternative source of the pH SSIs at the FAR and RWL.

Multiple SSIs have been detected in various wells and sampling events at both the FAR and the RWL. Each time an SSI was detected, an ASD concluded the SSI was from a source other than the FAR or RWL. EPA is finalizing its determination that the ASDs do not provide sufficient evidence that alternative sources exist and caused the SSIs in accordance with 40 C.F.R. § 257.94(e). The inadequacy of the ASDs provides a basis to deny the request for an extension.

[25] See Appendices A and B in the 2018, 2019, 2020, and 2021 BAP Annual Groundwater Monitoring and Corrective Action Reports.

i. ASDs for SSIs of boron and pH at the BAP

ASDs for SSIs of boron and pH at the BAP claim that contaminated groundwater from the NFAP is impacting the BAP's downgradient wells. In order to show that the NFAP is the source of the contamination, Gavin must establish that the NFAP is a source of the constituents with SSIs, that groundwater from the NFAP migrates to the BAP's downgradient wells (i.e., they are hydraulically connected), and that the BAP makes no contribution to the SSIs. There is a well between the NFAP and the BAP, B-0904, which is older and is not part of the ground water monitoring system established under 40 C.F.R. § 257.91. The ASD relies upon groundwater quality data obtained from well B-0904, which detected boron and pH at elevated levels. Because the NFAP and B-0904 are upgradient of the BAP and its downgradient compliance wells, Gavin claims the NFAP is hydraulically connected to the downgradient compliance wells.[26] The 2019 Annual GWMCA Report (revised October 2020)[27] suggests that groundwater from the NFAP is mixing with river water at the downgradient BAP wells, but without any contribution from the BAP, as evidenced by the fact that pH at the BAP downgradient wells is higher than at B-0904 and lower than the Ohio River water. This suggested conclusion would mean that somehow water from the Ohio River, which is downgradient of the BAP, mixes directly with groundwater from the NFAP, which is upgradient of the BAP, in the BAP downgradient compliance wells without any contribution from groundwater flowing under the BAP. Because the BAP lies physically between these locations (see Figure A, "GW Mixing Scenario in ASD for pH and boron at the BAP" in the docket), EPA believes this mixing scenario is not possible, and Gavin has not supported this assertion with site-specific data

[26] 2019 Annual GWMCA (Revised October 2020), in section 3.3 of Appendix A

[27] 2019 BAP Annual GWMCA Report, Section 4.1, p.6 "…the hydrogeologic data indicate that water from the Ohio River mixes with groundwater from the alluvium underlying the BAP. When these waters mix under the BAP, the result is an intermediate pH (i.e., between the pH of the Ohio River and the pH of the NFAP)."

sufficient to rebut the presumption that the BAP is the likely source of SSIs in downgradient wells in a groundwater monitoring network designed to monitor the BAP.

In addition, the preponderance of available data supports a conclusion that the BAP is the source of the SSIs. The P.E. certification claims that the downgradient compliance wells in the groundwater monitoring network characterize the quality of groundwater that has flowed beneath the BAP from the upgradient wells in the same aquifer. Groundwater elevation measurements and flow characterization since the addition of background wells in the groundwater system between the NFAP and the BAP (BAC-06 and BAC-07) shows groundwater flowing from the southern facility border near the NFAP, under the BAP, to downgradient compliance wells. This contradicts the idea that somehow groundwater characterized at those wells only comes from the Ohio River and the NFAP without encountering groundwater affected by the BAP.

Additionally, no data are presented in Gavin's comments about when the river stage was high, to support its claims about correlation between high river stage and SSIs of pH due to changing groundwater flow direction. Finally, the new background wells BAC-06 and BAC-07, located between the NFAP and the BAP, do not detect pH or boron impacts flowing onto the BAP from the NFAP. These wells are screened at elevations in the aquifer comparable to the downgradient wells. Well B-0904 has a 30-foot long well screen that extends across multiple geologic formations. The data from BAC-06 and BAC-07 are therefore more appropriate for characterizing flow from the NFAP towards the BAP, and then to the downgradient wells, than well B-0904. For these reasons, EPA finds the assertion that the pH and boron SSIs are due to groundwater from the NFAP and Ohio River mixing at compliance wells at the downgradient boundary of the BAP, without any contribution from the BAP, to be unsupported by the site data.

For these reasons, EPA finds that Gavin failed to demonstrate that a source other than the BAP caused the SSIs as required by the regulations when conducting ASDs.

ii. Regional bedrock as an alternative source of SSIs at the BAP and the FAR

Regarding SSIs of calcium, chloride, fluoride, sulfate, and TDS at the BAP, [28] and of TDS at the FAR,[29] the ASDs claim that regional bedrock is discharging elevated concentrations of these constituents into the uppermost aquifer and is the source of the SSIs. In essence, Gavin postulates that the regional bedrock is discharging at a location somewhere beneath the BAP and the FAR. However, no site-specific data were provided to substantiate the existence of bedrock discharges of these constituents. In the proposal, EPA stated that regional groundwater data were from locations too far away to rebut groundwater monitoring data obtained at the CCR units, and that a hydraulic connection between the bedrock and the downgradient compliance wells is improbable and undemonstrated by the data. Nor was any clear explanation provided regarding why regional groundwater would only impact the downgradient compliance wells at the BAP and the FAR and not the background wells, which are closer to the features that Gavin claims are the sources of the SSIs than the downgradient compliance wells are.

In the proposal, EPA noted that regional groundwater data obtained from the United States Geological Survey National Water Information System database are cited as evidence of regional background levels of these constituents in groundwater. The maximum concentrations of calcium, chloride, sulfate, and TDS (regional fluoride data were not cited) within 50 miles of the Gavin Plant were found to be higher than the concentrations of these constituents detected in the BAP's downgradient wells. Regional characterization of groundwater from as far as 50 miles away is not sufficient to rebut the groundwater monitoring data from the on-site compliance

[28] See Appendices A and B in the 2017 and 2019 Annual GWMCA Reports
[29] 2019 FAR Annual GWMCA Report, Appendix A, p. 5.

wells located upgradient and downgradient of the CCR units that indicate that the BAP and the FAR caused the SSIs. EPA also noted in the proposal that no samples of on-site bedrock were analyzed, and no other site-specific evidence (e.g., installation and sampling of groundwater wells screened in the bedrock layer) was provided to demonstrate that the bedrock on-site or below the BAP or the FAR contains elevated levels of the five constituents and is the source of SSIs.

In its comments, Gavin presents Figure 4 as evidence to support its position that regional bedrock is an alternative source of SSIs. Figure 4 shows elevated measurements of Appendix III constituents in Cow Run and Morgantown wells at the FAR/RWL system. However, the upgradient wells at the BAP and the FAR are as likely to be impacted by these constituents as the downgradient compliance wells at these units, and no evidence of a specific hydraulic connection between the wells identified in Figure 4 and the BAP or FAR downgradient compliance wells is presented. Absent evidence of such a direct hydraulic connection that bypasses the BAP and FAR upgradient wells, Gavin has not demonstrated that regional bedrock is an alternative source, and it is therefore reasonable for EPA to conclude that those units are contributing to the increased contaminant levels.

iii. Evidence that the BAP is the source of SSIs

The record contains significant information supporting the conclusion that the BAP is the source of the SSIs. EPA stated in its Proposed Decision that the BAP unit is unlined and allows water to infiltrate through ash into the groundwater. In its comments, Gavin claims that the BAP is not a likely source of SSIs because a geologic layer with low hydraulic conductivity underlies the BAP and prevents water in the BAP from migrating into the groundwater. To support this claim, Gavin provides a new hydraulic conductivity value in the 2021 BAP Investigation Report

for the geologic layer under the BAP,[30] which Gavin now asserts is a silty clay layer. This characterization of the layer underlying the pond is different than previous hydraulic conductivity values calculated or estimated for the geology under the BAP, which have consistently been for a silty clay with embedded sand.[31] The majority of site data presented, both old and new, indicate the presence of sand in the geologic layer below the BAP. Gavin did not explain why the new hydraulic conductivity value no longer considers embedded sand to be present, and this failure to explain is important because embedded sand in a silty clay layer would increase hydraulic conductivity more than a silty clay layer with no sand because groundwater flows more easily through sand than through silty clay. The embedded sand could also create potential preferential pathways for contaminants to migrate from the BAP to the uppermost aquifer. The 2021 BAP Investigation Report confirms the presence of sand in three (B3, D4, G3) of eight soil borings. Further, dissipation test results[32] show that observed porosity of site geology varies, which also confirms the presence of sand lenses in the silty clay layer. Therefore, the majority of site information in the 2021 BAP Investigation Report does not support using the hydraulic conductivity value for a silty clay layer in Table 8 in the 2021 BAP Investigation Report. This hydraulic conductivity value is inappropriately low absent evidence that the entire layer below the BAP is silty clay without sand, because even if sand is present in only some locations beneath the BAP, that sand will allow for a greater flow of contaminants (i.e., by creating preferential pathways).

In its comments, Gavin cites a sample of surface water taken from the BAP that had a lower boron concentration than a groundwater sample taken from a compliance well as evidence

[30] 2021 BAP Investigation Report, Table 8 (EPA-HQ-OLEM-2021-0590-0076)
[31] 2020 History of Construction and Figures 4-1 and 5-1 in the 2018 and subsequent Annual GWMCA Reports
[32] 2021 BAP Investigation Report, Section 4.1

the BAP is not the source of the SSIs for boron. Surface water is open to the atmosphere and groundwater is a closed system, and these types of waters are not chemically similar. Therefore, comparisons between surface water and groundwater concentrations are not meaningful. Additionally, multiple wastestreams are discharged to the BAP, which may have varying boron concentrations over time. The concentration of an Appendix III or IV constituent in a grab sample of surface water from a CCR unit does not constitute evidence that an SSI detected in a downgradient compliance well came from an alternative source.

iv. There is no evidence that poor well construction caused pH SSIs at the FAR and RWL

The 2018 and 2019 ASDs claim that poor construction of monitoring well 2016-01 is the source of the pH SSIs detected at this well at the FAR. Specifically, the ASDs claim elevated pH was caused by cement used to construct the well and contact between the screened interval and the cement-bentonite grout. Similarly, the 2018 and 2019 ASDs claim that poor well construction is the source of the pH SSIs at monitoring well 2016-21 at the RWL.

In the proposal, EPA stated that no evidence was provided to substantiate these claims and, at that time, monitoring well 2016-01 remained a part of the groundwater monitoring system at the FAR and monitoring well 2016-21 remained a part of the groundwater monitoring system at the RWL. If poor well construction resulted in groundwater samples that fail to accurately characterize groundwater quality at the downgradient waste boundary of the FAR and the RWL as required by 40 C.F.R. § 257.91(a)(2), then it is not clear why Gavin would continue to include these wells in the groundwater monitoring systems. Due to a lack of supporting evidence of poor well construction and the fact that monitoring wells 2016-01 at the FAR and 2016-21 at the RWL had consistently detected SSIs for pH and had not been replaced, EPA proposed that these ASDs do not meet the requirements of the regulations. 40 C.F.R. § 257.94(e)(2).

In its comments, Gavin did not provide any data about the construction of these wells specifically, but provided information about well construction generally, which includes, "placement of a bentonite seal above the filter sand at the well screen, followed by sealing of the borehole around the well (i.e., annulus) to the ground surface. Sealing the annulus is typically completed by emplacing a cement-bentonite slurry by tremie pipe."[33] No field notes or data are provided that describe construction of these particular wells, and the information provided does not explain why these particular wells would have elevated pH due to this construction method, but other wells would not. Monitoring wells 2016-01 and 2016-21 were ultimately removed from the FAR and RWL groundwater monitoring systems.

Additionally, other evidence indicates that pH of groundwater at the units may be elevated. Other groundwater monitoring wells at the FAR and RWL have detected elevated pH, but they were not removed from the monitoring system. For example, at the FAR, upgradient well 2016-09 consistently detected pH above 10 s.u. from 2017 through 2021, and at the RWL, downgradient monitoring well 2018-01 detected pH above 10 s.u. from 2019 through 2021.[34] Well 2018-01 is located at the southeast border of the RWL, near the location of former 2016-21. These data indicate that elevated pH detections at the FAR in 2016-01 and at the RWL in 2016-21, which resulted in the SSIs, may not have been due to improper well construction, but may have characterized groundwater quality accurately.

Because of the lack of supporting evidence to demonstrate that the construction of monitoring wells 2016-01 and 2016-21 caused the SSIs, and because of elevated pH detected at other wells that remain in service, EPA has no reason to change the position in the proposal, that

[33] Gavin's comments, p. 78.
[34] 2021 FAR and RWL Annual GWMCA Report, Appendix B, p. 10 of 23.

these ASDs are unsupported by evidence and that this finding supports denial of the request for an extension.

v. No ASDs were conducted for boron SSIs at the FAR or for sulfate SSIs at the RWL

EPA noted in the proposal that, according to Table 6 of the 2017 FAR Annual GWMCA Report, SSIs of boron occurred in four wells (2016-02, 2016-06, 2016-10 and 96147). However, during the following year Gavin reinterpreted groundwater flow and changed the status of three of the monitoring wells (2016-06, 2016-10 and 96147) from downgradient to upgradient. In addition, monitoring well 2016-02 was removed from the monitoring system. No ASDs were conducted for these SSIs.

In the 2017 Annual GWMCA Report for the RWL, SSIs of calcium were initially detected in well 2016-21 and SSIs of sulfates were detected in wells 2000, 2003, 2016-20, 2016-21, 93108, 94136 and 9806. However, during the following year Gavin reinterpreted groundwater flow and changed the status of wells 2000, 2003, 94136, and 9806 from downgradient to upgradient. This resulted in changes to the calculated UPLs, and consequently resulted in no future SSIs of calcium and sulfate. No ASDs were completed for the SSIs detected in 2017.

In the proposal, EPA did not raise the lack of ASDs as an independent compliance issue, aside from noting concerns about the characterization of groundwater flow direction and whether unit boundaries were correctly identified as upgradient or downgradient. EPA proposed that, once groundwater flow conditions are characterized and supported by sufficient data, it could be determined that the SSIs in the 2017 Annual GWMCA Report are representative of conditions at the unit. If that is the case, assessment monitoring would be required. As discussed in other sections, EPA is determining that the ground water flow conditions are not characterized and

supported by sufficient data at the FAR and RWL. As such, the position held by EPA in the proposal that once this characterization is complete, these SSIs should be reviewed for accuracy, has not changed. However, redesignation of wells in a groundwater monitoring system(s) does not relieve Gavin from the requirements to analyze samples collected from those wells. Nor would removal of wells that accurately detect SSIs satisfy requirements in the CCR regulations triggered by an SSI, such as establishing an assessment monitoring program.

vi. Anthropogenic sources at the FAR and RWL are not demonstrated to cause SSIs

Gavin depicts the presence of underground mines, oil and gas wells, and brine, as well as fractured bedrock, on figures in the ASDs and in the comments,[35] and it asserts these features are alternative sources that caused the SSIs of calcium, chloride, fluoride and TDS detected at the FAR and of fluoride and TDS detected at the RWL.[36,37] In the proposal, EPA stated these ASDs were speculative, because "No evidence is provided to show that any of these sources exist, are hydraulically connected to the FAR or RWL downgradient compliance wells, or are the cause of the SSIs."

While Gavin provided depictions of mines, wells, brine and fractured rock in its comments, the underlying data supporting those depictions were not provided. For example, to support the depiction of fractured bedrock Gavin could have provided boring logs that identify specific locations and depths where fractured geology exists.

Additionally, even if the depictions were accepted as evidence of the presence of these features, they would not support a conclusion that the fractured bedrock provides a hydraulic connection from these identified alternative sources to downgradient wells, but not to upgradient

[35] See Figures 15 and 16 in Gavin's comments on the proposal.
[36] 2018 RWL Annual GWMCA Report Appendix A p. 10, 2020 RWL Annual GWMCA Report, Appendix A p. 6
[37] 2018 RWL Annual GWMCA Report, Figures 3-2, 4-1, 4-2, and 5-1.

wells, at the FAR and RWL (see Figure B, "Proximity of Identified Alternative Sources to Upgradient and Downgradient Wells" in the docket). Nothing in the information provided indicates any impacts would be unique to downgradient wells, which would be necessary to explain SSIs that show increases in constituent concentrations occurring between upgradient and downgradient wells.

The information provided by Gavin does not constitute sufficient evidence to support the ASDs and rebut the site-specific data that these SSIs are from the FAR and RWL.

vii. Piper plots do not demonstrate that groundwater at compliance wells comes from other locations

In ASDs at the BAP, FAR and RWL, Gavin presents chemical information about different ground and surface waters at the site on charts called Piper plots. Piper plots are a visual representation of the relative proportions of certain chemicals in different water samples. A Piper plot consists of three graphs: two triangular graphs, one that plots concentrations of dissolved chemicals in groundwater that are negatively charged (anions) and another that plots concentrations of dissolved chemicals in groundwater that are positively charged (cations). A third diamond-shaped graph combines information from the two triangular plots.[38]

EPA proposed that Piper plots are not appropriate to analyze groundwater at CCR units, in part because releases of Appendix III or Appendix IV constituents could cause chemical reactions below the CCR units that would affect concentrations of ions in the groundwater and would therefore invalidate the plot comparisons. Gavin responded in its comments that the impacts from any release from a CCR unit would be so low in concentration compared to the concentrations of major ions in the ground water plotted that it would not affect the ability of the

[38] Piper, A.M. (1953). A Graphic Procedure in the Geochemical Interpretation of Water Analysis. Washington D.C.: United States Geological Survey.

Piper plot to assess their chemical similarities or differences in water quality. Even if true, this would only mean that the chemical concentrations considered in the Piper plots are too high and lack sufficient detail to examine whether a release has occurred from a CCR unit.

Instead, the Piper plots are used to assess whether groundwater in the compliance wells could have come from the CCR unit in the first place, or whether it somehow flowed directly to the compliance wells from another location, either upgradient or downgradient, without passing below the CCR unit and encountering any constituents that may have been released from it. This is a question that cannot be answered by an analysis based solely on chemistry. In fact, it is worth noting that, because it does not consider hydrology, theoretically a Piper plot analysis could wrongly conclude that waters located hundreds of miles apart and flowing in opposite directions are mixing together, as long as their chemistries align with the chemistry of a third water source at any other location.

The CCR regulations require facilities to rely upon geology and hydrology to characterize flow conditions at a CCR unit. They include requirements to collect groundwater elevation data in order to determine where groundwater is flowing from and where it is flowing to. 40 C.F.R § 257.93(c). Similarly, the requirements for site data to support the design of the groundwater monitoring network focus on geology and hydrology (e.g., lithology, aquifer thickness). 40 C.F.R. § 257.91(b). Owners and operators are also required to measure groundwater elevation and calculate flow rate and direction during each monitoring event. 40 C.F.R. § 257.93(c). Gavin's approach to using Piper plots as a line of evidence in an ASD seeks to set aside the information about site geology and hydrology that has been used to characterize the direction of groundwater flow, and instead to determine where groundwater sampled from compliance wells came from based solely on chemistry. EPA is determining, in the context of the CCR regulations,

it is inappropriate as part of the ASD to use Piper plots to determine from where groundwater at compliance wells is coming.

In addition, Gavin's assertion is internally inconsistent. The CCR regulations require that Gavin install a groundwater monitoring system capable of detecting releases of constituents from a CCR unit. Gavin states that it has done so and has obtained a P.E. certification attesting to that. However, the Piper plot analysis in the ASDs asserts that groundwater does not flow from the BAP to the compliance wells; rather the groundwater detected at those wells comes from the NFAP and the Ohio River mixed together, without contribution from the BAP. If this were true, the monitoring system would not be monitoring the BAP, as required by 40 C.F.R. § 257.91.

Gavin's Piper plots also do not support Gavin's assertions. To the contrary, they are consistent with the presumption that each of the CCR units are the source of contaminants found in their respective downgradient compliance wells. In the proposed decision, EPA contended that Gavin's use of Piper plots did not satisfy certain underlying assumptions and conditions fundamental to their application, including ionic charge equilibrium. Gavin responded in its comments that most samples had a charge balance less than an acceptable level of 10%, and that second rank constituents need not be considered because potassium was the one with the highest concentration, and it was an order of magnitude lower in concentration than the major ions. These statements are not supported by evidence, as Gavin did not provide relevant groundwater quality data or modeling runs used to calculate charge balance.

Prior to 2018, Gavin's analytical reports of groundwater data included additional constituents, including iron and manganese at significant levels. Charge balances reported by Gavin were only based on samples collected since 2018, when data on iron and manganese were not provided. In order to review Gavin's claims by using an example, EPA calculated the charge

balance for a sample taken on June 13, 2017, from BAC-05 using reported analytical data. When iron and manganese were included in the charge balance calculation, the error in charge balance was 15%, as opposed to the 5% Gavin calculated without iron and manganese. This means that the underlying assumption of a maximum acceptable level of 10% error in charge balance, which is necessary for the use of Piper plots, has not been met at the BAP in this example, when adequate data about second rank constituents (i.e., iron and manganese) were collected and included in the calculations to thoroughly analyze charge balance.

Additionally, the waters included in the Piper plots are both surface waters and groundwater. Since surface water is open to the atmosphere and groundwater is a closed system, these types of waters are not chemically similar. Mixing chemically different waters can result in reactions that may affect concentrations of major ions. Lumping these different waters together in one plot, without considering TDS, redox and pH, is not a sufficiently refined analysis. The use of Piper plots in an ASD is particularly problematic without consideration of these important water quality parameters when both surface and groundwater data are included in the Piper plots.

As discussed previously, the CCR regulations require the use of geology and hydrology to characterize flow conditions at a CCR unit, including where groundwater is flowing from to where it is flowing to. The CCR regulations require that Gavin install a groundwater monitoring system capable of detecting releases of constituents from a CCR unit. Gavin states that it has done so and has obtained a P.E. certification attesting to that. The conclusions of the Piper plot analyses at the BAP, FAR and RWL contradict those certifications. Gavin's approach to using Piper plots as a line of evidence in an ASD seeks to set aside the information about site geology and hydrology that has been used to characterize the direction of groundwater flow, and instead

to determine where groundwater sampled from compliance wells came from based solely on chemistry. EPA is determining this approach is insufficient under the regulations.

Because of the lack of site-specific evidence and inconclusive analyses provided in the ASDs, and the site-specific evidence that indicate the SSIs come from the CCR units themselves, EPA finds that Gavin has failed to demonstrate that the ASDs for all SSIs meet the requirements of 40 C.F.R. § 257.94(e)(2) and EPA is denying the request for an extension for this reason.

4. Groundwater Monitoring Networks at the FAR and RWL Are Not in Compliance with the Regulations

EPA is finalizing its Proposed Decision that Gavin has not demonstrated that the groundwater monitoring system(s) at the FAR and RWL are adequate for multiple reasons. First, the design of the groundwater monitoring system is not adequately supported by thorough characterization of groundwater flow direction, as required in 40 C.F.R. § 257.91(b)(1). Second, there is an insufficient number of monitoring wells along the downgradient waste boundary to accurately represent the quality of groundwater passing the downgradient waste boundary and monitor all potential contaminant pathways in accordance with 40 C.F.R. § 257.91(a)(2).

In its comments on the Proposed Decision, Gavin explained that it revised the groundwater monitoring systems at the FAR and RWL in 2021, to combine them into a multiunit system, and refers EPA to that system. This is the fifth groundwater monitoring system configuration presented by Gavin at the FAR and RWL. A multiunit system must be equally as capable of detecting constituents at the waste boundary as the individual groundwater monitoring systems required in 40 C.F.R. §§ 257.91(a)-(c). 40 C.F.R. § 257.91(d).

The FAR and RWL groundwater monitoring systems include wells installed in multiple geologic formations, because at different locations and times the uppermost aquifer is present in those various geologic formations. The alluvial formation appears to be present only to the east

of both units and at the southeastern boundary of the RWL, but at those locations it is the uppermost aquifer. Where the alluvial formation is not present, the Morgantown formation is the uppermost aquifer; however, reports indicate that wells screened in the Morgantown formation do not yield sufficient groundwater to sample during every sampling event. Where neither the alluvial formation nor the Morgantown formation is present, or where neither yields sufficient water for sampling, the Cow Run formation is the uppermost aquifer. Gavin presents groundwater flow maps separately for each aquifer, and although the statistical analyses themselves are not provided in Annual GWMCA Reports, the results of the analyses are reported separately for each aquifer.

The FAR is located northwest of the RWL; these units are both large. The FAR is described as 300 acres in the Demonstration; the acreage of the RWL was not provided, but it is depicted as similar in size to the FAR in maps. Each unit was monitored by distinct groundwater monitoring systems until 2021. As noted above, 40 C.F.R. § 257.91(b) requires that the number, spacing, and depth of monitoring wells be determined based upon site-specific technical information that includes thorough characterization of groundwater flow and other aquifer properties. The number, spacing, and locations of wells at both the FAR and the RWL are unsupported by site-specific technical data. In addition, the groundwater contours and flow directions depicted in maps provided in the Demonstration and in Annual GWMCA Reports are not supported by groundwater elevation measurements that are sufficient in number and spacing. As a consequence, EPA is determining that Gavin failed to demonstrate compliance with 40 C.F.R. § 257.91(b) and with 40 C.F.R. § 257.91(a).

Maps in the Demonstration depict a groundwater divide on the eastern sides of the FAR and RWL. Groundwater flow is depicted both to the west and to the east (i.e., inward toward the

units to the west and outward away from the units to the east) at the groundwater divide. However, as EPA explained in the proposal, the groundwater elevation measurements lie along the divide itself; there are no groundwater elevation measurements to the west or the east of the depicted divide to support the depiction. If the groundwater divide is not located as depicted or does not exist, an entire downgradient boundary on the east side of the FAR and the RWL could be unmonitored. As EPA also explained in the proposal, there is a lack of adequate groundwater elevation measurements surrounding the units, particularly on the east and west sides of the units (see Figure C "Areas With Inadequate Groundwater Elevation Measurements" in the docket). Gavin's failure to define groundwater flow direction makes further assessment of the adequacy of the groundwater monitoring network to comply with 40 C.F.R. § 257.91(a)(2) difficult. The revised network in the 2021 Annual GWMCA Report does not address EPA's concern that groundwater flow arrows have been interpreted or predicted rather than determined based on site-specific data, because that report did not include additional groundwater elevation measurements beyond the perimeters of the units. Without adequate characterization of groundwater flow direction, it is not possible to sufficiently assess which unit boundaries are downgradient and, therefore, whether all potential contaminant pathways at all downgradient boundaries are monitored, as required by 40 C.F.R. § 257.91(a)(2). It is also not possible to definitively determine whether the wells identified as upgradient are actually upgradient of the unit, or whether established background levels of constituents could reflect leakage from the unit, as discussed in the previous section.

In its comments, Gavin discusses the modeling that was used to predict the groundwater flow direction at the units. Gavin implies that modeling based on factors that influence groundwater elevations is somehow equivalent to or better than collecting actual data measuring

groundwater elevations. EPA disagrees. The design of a groundwater monitoring system must be based on site-specific technical information. 40 C.F.R. § 257.91(b). Modeling, estimation, and calculation are not appropriate replacements for collecting an adequate number of actual groundwater elevation measurements from locations with sufficient spacing, which can then be used to characterize groundwater flow direction surrounding the CCR units. To correct this deficiency and enable a thorough characterization of groundwater flow, additional water elevation measurements at sufficient spacing will be needed in areas outside the unit boundaries.

EPA is also concluding that Gavin has failed to demonstrate that the FAR and RWL groundwater monitoring systems meet the various performance standards in 40 C.F.R. § 257.91. The regulations at 40 C.F.R. § 257.91(a)(2) require installation of a groundwater monitoring system that accurately represents the quality of groundwater passing the waste boundary of each unit and that will monitor all potential contaminant pathways. 40 C.F.R. § 257.91(c) further specifies that a facility must install a sufficient number of wells to meet the performance standards in 40 C.F.R. § 257.91(a). In addition, 40 C.F.R. § 257.91(b) requires the facility to thoroughly characterize site-specific technical information to support the number, spacing and depths of the groundwater monitoring network(s). Without such data a facility cannot demonstrate compliance with the regulations. Finally, 40 C.F.R. § 257.91(d)(1) requires that a multiunit system be equally capable of detecting constituents at the waste boundary as an individual groundwater monitoring system specified at 40 C.F.R. §§ 257.91(a) through (c). Based on the information provided by Gavin, and as explained below, EPA finds that Gavin has not demonstrated that the multiunit system at the FAR and the RWL has a sufficient number of downgradient monitoring wells to meet these requirements.

First, the multiunit monitoring system, as were previous individual monitoring systems, is inadequate in light of the geologic complexity of the area encompassing the FAR and RWL, which contains at least three different aquifer units, as well as the large size of the FAR and RWL. The three geologic formations (alluvium, Morgantown, and Cow Run aquifers) have been treated separately, with separately established flow directions, background levels of constituents, and statistical analyses. Therefore, the number and spacing of wells at the downgradient waste boundary must be sufficient to monitor all potential contaminant pathways in each formation. Gavin states in its comments that the most recent iteration of the groundwater monitoring system (the multiunit system) has 39 wells. However, 24 of those wells are designated as upgradient. That leaves only 15 downgradient monitoring wells, divided among three aquifers, to monitor the entire downgradient boundary of both units, which are each hundreds of acres in size (see Figure D "Distances of Unmonitored Downgradient Boundary" in the docket). EPA is determining that Gavin has not demonstrated that 15 downgradient wells in the three aquifers are adequate in number, spacing and depths to meet the requirements to accurately represent the quality of groundwater passing the waste boundary and to monitor all potential contaminant pathways.

In comments, Gavin states that it has studied historical hydrogeologic reports, replaced abandoned or nonfunctioning wells, and collected additional water level data, including information about the drainage and capping of the FAR and the installation of additional liner materials associated with the RWL expansion, to understand groundwater flow direction at the FAR and RWL. No names of reports or identification of wells abandoned or replaced were provided, and such information is necessary for EPA to evaluate the changes. Also, it is not clear

why replacing existing wells would address concerns that there are an insufficient number of wells.

Gavin further comments that "[t]he combined groundwater monitoring system complies with 40 C.F.R. § 257.91, as follows…" and provides a bulleted list that paraphrases each paragraph in 40 C.F.R. § 257.91, and then states that Gavin is in compliance with it. However, no information, data or reports are provided or referenced to demonstrate how Gavin is in compliance. A simple statement that Gavin is in compliance with these requirements is not sufficient to address the detailed technical concerns EPA raised in the Proposed Decision about the lack of groundwater elevation measurements beyond the unit boundaries. These measurements are needed to characterize flow direction to support upgradient or downgradient boundary determinations and to demonstrate all potential contaminant pathways at downgradient boundaries of such large units are being monitored. In its comments, Gavin did not provide specific reasons or data to show that the Proposed Decision was in error.

EPA proposed that, while the Demonstration was determined to be complete, the Annual GWMCA Reports for all units failed to include monitoring data obtained under 40 C.F.R. §§ 257.90 through 257.98, as required by 40 C.F.R. § 257.90(e)(3). Gavin did not provide laboratory analytical reports or information about statistical analyses in these reports for the BAP, FAR or RWL. Gavin did not respond to this aspect of the proposal and did not amend past reports to include this information or provide it in its comments. The Annual GWMCA Reports prepared in January 2022 included laboratory analytical data but did not include statistical runs, assumptions, and other information used to calculate UPLs. 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).

In its comments, Gavin states that it provided all the information required by 40 C.F.R. § 257.103(f)(1)(iv)(B) and provides a table, which identifies each element in this subparagraph and where it can be found in the Demonstration. EPA does not agree that Gavin provided all the information required and for the Agency to adequately evaluate compliance with all of the CCR regulations. The table in Gavin's comments identifies locations of required documents, but that does mean the information was provided. For example, the table indicates that Appendix J contains boring logs and construction diagrams for wells at the FAR and the RWL, but boring logs and construction diagrams are not provided for wells added to the network in 2021.

In this example, Gavin referred EPA to the 2021 groundwater monitoring system and included groundwater quality and elevation measurement data from these new wells in its comments. Gavin is asking EPA to consider the groundwater data from these wells in its final decision without providing information needed to assess which aquifer(s) the wells were installed in and whether construction methods (e.g., screen depths and length) ensure that data from these wells are appropriately compared with data from other wells. The lack of construction data for the new wells provided an incomplete record for EPA to review and fails to meet requirements in 40 C.F.R. § 257.103(f)(1)(iv)(B)(*2*)(*ii*).

B. EPA's Evaluation of Gavin's Justification for Time Requested.

EPA proposed to determine that Gavin failed to present a detailed plan of the fastest technically feasible schedule to complete its alternative capacity for non-CCR wastestreams. In its Demonstration, Gavin stated that it would cease placing non-CCR wastestreams in the BAP by May 4, 2023; however, Gavin had not yet determined how it would divert certain non-CCR wastestreams from the BAP during construction of alternative capacity. EPA further noted that the Demonstration contains no explanation for failing to complete the necessary engineering and

design calculations to support its requested date of May 4, 2023. Consequently, EPA proposed to determine that Gavin did not demonstrate that the amount of time requested to obtain alternative capacity is the fastest technically feasible as required by 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*). Proposed Decision at 36-37.

Gavin stated in its comments that its analysis of potential options for on-site non-CCR wastewater treatment is ongoing and that a final option has not been selected:

> The options generally vary by the types and degrees of treatment of the different wastestreams and the positions along the path of the wastewater where those treatments would occur. Gavin started off with six options and has narrowed it to three. Preliminary diagrams showing those three options are attached as Attachment B. Option 1 is currently the preferred approach but additional analysis is necessary before Gavin can finalize its selection. Should Gavin identify an obstacle in the preferred approach that would render it slower or not viable, Gavin would likely revert to one of the other two options. … Whichever approach is taken, Gavin will expedite procurement of all required equipment to allow for rerouting of non-CCR wastestreams, and dewatering of the BAP, as quickly as possible.

Comments of Gavin Power, LLC, p 18-19 (March 25, 2022), EPA-HQ-OLEM-2021-0590-0076.

EPA continues to believe that Gavin has not met the requirement to present a detailed plan of the fastest technically feasible schedule to complete the measures necessary for its alternative capacity technology, and EPA continues to rely on this deficiency as a basis to deny the request. EPA acknowledges that Gavin intends to accelerate the schedule to cease placement of all CCR and non-CCR wastestreams in the BAP by at least two months (i.e., March 2, 2023, instead of May 4, 2023, for non-CCR wastestreams); however, Gavin's comments state that its analysis of potential options for on-site non-CCR wastewater treatment is still ongoing. This is not consistent with 40 C.F.R. § 257.103(f)(1)(iv)(A)(*1*), which required Gavin to select and justify an alternative capacity option.

C. Conditional Approval is Not Appropriate for Gavin.

EPA received no comments from Gavin alleging that a conditional approval rather than a denial, would be appropriate for Gavin, although EPA did receive comments stating that conditional approvals should be granted. Accordingly, EPA continues to believe that a conditional approval is not appropriate for Gavin. EPA proposed 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 neither of these factors are present at Gavin.

The noncompliance EPA has identified with respect to the closure of the FAR involves 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 FAR intersects with groundwater and that there is a lack of engineering controls in the FAR to prevent infiltration into the consolidated CCR, EPA cannot readily determine the measures that would be necessary to ensure the closure of these units meets the performance standards in 40 C.F.R. 257.102(d). Although EPA can identify a range of engineering measures that are generally available to address the groundwater infiltrating into the unit from the sides and the bottom, substantial site-specific information is needed to determine whether those measures can be effectively implemented at the FAR. Unfortunately, Gavin provided none of the information EPA would need to be able to identify the specific actions that would need to be taken at the site. For example, as discussed above, EPA lacks a reliable characterization of groundwater flow for the site, which directly impacts EPA's ability to identify the areas in the subsurface where groundwater is flowing into the unit and out of the unit

along the sides and base. This information would be necessary to determine whether, for example, a slurry wall could be effective, and if so, where a slurry wall could be installed, and to identify its design parameters. This information could not be provided to EPA soon enough that the Agency could identify the necessary measures in sufficient time for Gavin to implement them before its requested deadline. Finally, for the same reasons, EPA could not identify any measures to effectively mitigate the potential release of contaminants from the FAR, such as passive or active engineering controls to address groundwater. Nor could EPA conclude that Gavin could implement the necessary measures before its requested deadline. Finally, for the same reasons, EPA could not identify any measures to effectively mitigate the potential release of contaminants from the FAR.

D. Date to Cease Receipt of Waste

EPA is denying the request for an extension and requiring Gavin to cease receipt of waste no later than 135 days after the effective date of this decision. In addition, after considering comments, EPA is adopting a process whereby EPA may authorize additional time for Gavin to continue to use the BAP to the extent necessary to address demonstrated grid reliability issues.

EPA noted in the Proposed Decision that the regulations do not prescribe a new deadline when a request for an extension is denied and that EPA would establish one when it issued a final decision. 40 C.F.R. § 257.103(f)(3). EPA has determined that a reasonable deadline for Gavin to cease receipt of waste is 135 days from the effective date of this final action, as proposed. This deadline provides Gavin with the same amount of time to prepare to cease placing CCR in the BAP that would have been available to the facility had it not submitted a Demonstration (i.e., from November 30, 2020, the Demonstration submission deadline, to April 11, 2021, the regulatory deadline to cease receipt of waste). This deadline thus puts the facility in

the same place it would have been if it did not submit a Demonstration and therefore adequately accounts for any equitable reliance interest Gavin may have had after submitting its Demonstration. Moreover, this date provides Gavin with adequate time to coordinate with and obtain any necessary approvals from PJM, Gavin's Regional Transmission Organization (RTO), for any outage of the coal-fired boiler that may be necessary.

Given that this final deadline is sooner than the May 4, 2023, deadline requested by Gavin, EPA understands that it is likely that the coal-fired boiler associated with the BAP will temporarily need to stop producing waste (and therefore power) until either construction of the ash handling equipment (AHE) dry handling system and the Process Water Pond is completed and commercially operational or some other arrangements are made to manage its CCR and/or non-CCR wastestreams. EPA understands that it is possible that temporarily taking Gavin offline could have an adverse impact on electric reliability (e.g., voltage support, local resource adequacy) and we are establishing a process by which Gavin can work with PJM to quickly evaluate the reliability impact of closing Gavin and investigate potential alternatives to address reliability impacts that are identified. Neither Gavin nor any other commenter argued that the proposed deadline was unreasonable or would cause a reliability issue.

The PJM system is the largest competitive market for electric power in the United States. PJM is an RTO that is part of the Eastern Interconnection grid, and it is charged with, among other things, ensuring sufficient power is available to maintain reliability for the part of the grid for which it is responsible. PJM has a wide array of tools available to it to address situations where the outage of a generating unit might otherwise affect local electric reliability conditions. For example, if a generating asset is needed for local reliability requirements, PJM might not approve a request for a planned outage. In such instances, the owners/operators of the generating

unit could find themselves in the position of either operating in noncompliance with RCRA or halting operations and thereby potentially causing adverse reliability conditions.

RCRA prohibits open dumping and EPA is obligated to ensure compliance with sanitary landfills requirements pose no reasonable probability of adverse effects on health or the environment and protect human health and the environment. *See* 42 U.S.C. §§ 6941, 6942(b), 6943(a), 6944(a), 6945(a). 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 PJM that governs owner/operator requests for planned outages and/or deactivation.[39] Accordingly, EPA is relying on PJM's established processes and authorities to determine whether a planned outage necessary to meet the new deadline will cause a grid reliability issue.

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 PJM that governs owner/operator requests for planned outages and/or deactivation.[40] Accordingly, EPA is relying on PJM's established processes and authorities to determine whether a planned outage necessary to meet the new deadline will cause a grid reliability issue.

[39] *See, e.g.*, PJM Manual 10: Pre-Scheduling Operations, Revision: 39, Effective Date: November 19, 2020 (Section II), available at https://www.pjm.com/~/media/documents/manuals/m10.ashx.
[40] *See, e.g.*, PJM Manual 10: Pre-Scheduling Operations, Revision: 39, Effective Date: November 19, 2020 (Section II), available at https://www.pjm.com/~/media/documents/manuals/m10.ashx.

PJM is responsible for coordinating and approving requests for planned outages of generation and transmission facilities, as necessary, for the reliable operation of the PJM RTO.[41] In PJM, power plants are to submit a request at least 30 days in advance of a planned outage to allow PJM time to evaluate whether the resource is needed to maintain grid reliability. PJM will grant the request unless it determines that the planned outage would adversely affect reliability. If PJM approves a planned outage request, the outage may proceed and there would be no reason to expect that the outage would affect reliability. However, if PJM disapproves a planned outage, the procedure is for the PJM member to submit a new planned outage request for PJM to evaluate (with potential proposals to mitigate previously indicated reliability violations with the prior request). This process is repeated until the generating facility submits an acceptable request. The PJM member may also request PJM's assistance in scheduling a planned outage.

PJM may rely on different bases in determining whether to deny a request for a planned outage. For example, a denial may be issued because of timing considerations taking into account previously approved planned outage requests, in which case the EPA would expect the plant owner to work with PJM to plan an outage schedule that can be approved by PJM 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, PJM might deny a request should it determine that the planned outage 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.

[41] *See*, PJM Manual 10: Pre-Scheduling Operations, Revision: 39, Effective Date: November 19, 2020 (Section II), available at https://www.pjm.com/~/media/documents/manuals/m10.ashx.

For the Gavin Power Plant, EPA is establishing a process that will allow sufficient time for PJM to determine whether the outage necessary to comply with Gavin's new deadline to cease receipt of waste will cause a reliability issue. Accordingly, EPA is concluding that, if PJM approves Gavin's outage request, EPA will not grant any further extension of the deadline to cease receipt of waste (i.e., the deadline would be 135 days from the effective date of this decision). If, however, PJM disapproves Gavin's outage request based on a technical demonstration of operational reliability issues, EPA will, based on its review of that disapproval and its bases, determine whether it is reasonable to grant a further extension (i.e., beyond 135 days after the effective date of this decision). EPA is further concluding that such a request will only be granted if it is supported by the results of the formal reliability assessment conducted by PJM that establishes that the temporary outage of the boiler during the period needed to complete construction of alternative disposal capacity will have an adverse impact on reliability. In such a case EPA concludes that, without additional notice and comment, it may authorize continued use of the BAP for either the amount of time provided in an alternative schedule proposed by PJM 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 further concludes that a disapproval from PJM without a finding of technical infeasibility for demonstrated reliability concerns will not be sufficient to support EPA's approval of an extension of the date to cease receipt of waste. EPA believes any concern about outage schedules and their implications for plant economics can 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).

EPA concludes that 135 days is adequate time for Gavin to obtain a decision from PJM after considering comments from and discussions with PJM and reviewing other comments on the Proposed Decision. For example, the normal PJM process for obtaining approval for a long-term "planned outage" is 30 days; thus, 135 days not only provides sufficient time to accommodate a planned outage request, but it also allows time for any back and forth between Gavin and PJM that may be necessary to ensure Gavin can cease receipt of waste while the reliability of PJM's electrical grid is maintained.[42] To ensure a timely decision is made, EPA is requiring Gavin to submit a request for an outage to PJM within 15 days of the effective date of EPA's final decision. To avoid the need for serial requests and submissions to PJM, EPA is also requiring Gavin to engage with PJM within 5 days of submitting the request for an outage to PJM to request assistance in scheduling the planned outage so that Gavin and PJM can determine the shortest period of time, if any, in which the generating unit must be online to avoid a reliability violation. EPA expects that Gavin and PJM will plan the outage and return-to-service periods - and any other needed accommodations - in ways that minimize any period of actual plant operations after the deadline to cease receipt of waste established in this decision.

Finally, to obtain an extension from EPA, Gavin must submit a copy of the request to PJM and the PJM determination (including the formal reliability assessment) to EPA within 10

[42] PJM's comments include a request for EPA to provide PJM with information about planned outages when we make decisions, and PJM indicated it would try to provide EPA an analysis of the outage(s) and recommendations concerning timing within 60 days of receiving the information from EPA. (PJM comments pgs. 12-13). The comments indicate that this coordination is necessary because planned outages cannot be scheduled in the summer, multiple requests at the same time may require some staggering of outages, and there may need to be coordination with other RTOs. In subsequent discussions, PJM explained that the 60-day review period in its comments is separate from the planned outage process that Gavin will follow. PJM further explained that the request for a 60-day review period was included in their comments primarily on the belief that EPA would require multiple closures in multiple RTO regions at the same time and that the closures would include closures during peak periods. Thus, PJM's need for a separate 60-day review period does not arise in this situation where EPA is requiring only one unit to cease receipt of waste and the temporary shutdown will not occur during peak periods. Notwithstanding, EPA will continue to have discussions with PJM as it considers Gavin's request for a planned outage and the Agency intends to have similar discussions with other RTOs as we implement the CCR rule.

days of receiving the response from PJM and no later than 120 days after the effective date of this decision. EPA will review the request and, without further notice and comment, issue a decision.

IV. Responses to Other Significant Comments

Fair Notice. A number of commenters raised the concern that EPA failed to provide notice of the legal interpretations that underly the Proposed Decision. Specifically, the commenters believe that the Agency was required to provide advance notice of its positions that infiltration of liquids into the unit includes infiltration beyond precipitation, and that the requirement to eliminate free liquids from the unit is not restricted to removing just the surficial ponded water. To support their claim, the commenters rely on caselaw which is based on the Due Process clause of the Constitution.

As a preliminary point, the commenters' assertion is misplaced because the action they challenge is a proposal on which the Agency explicitly sought comment. To be clear, the commenters are alleging that they lacked fair notice because EPA only requested comment on its application of the regulations to Gavin in the Proposed Decision, rather than at some point before the Proposed Decision was published. But there is no way for the Agency to have provided such notice that would not give rise to these same complaints. In other words, even if the commenters were correct that even further notice was required in this case, it would have been accomplished by the exact actions EPA has already taken: by soliciting comment on a Proposed Decision in advance of any enforcement action. Fair notice does not require offering parties multiple bites at the same apple.

Beyond the process-related shortcomings of this comment, the commenters' fair notice concerns are without merit. First, the positions underlying the Proposed Decision come directly

from the regulations and provide more than adequate notice as explained in detail in response to other comments. *See Gen. Elec. Co. v. EPA,* 53 F.3d 1324, 1329 (D.C. Cir.1995) ("[W]e must ask whether the regulated party received, or should have received, notice of the agency's interpretation in the most obvious way of all: by reading the regulations.") Second, in addition to the regulations themselves, the Agency has provided such notice through multiple published statements and interpretations.

The commenters are incorrect that the positions published in the Proposed Decision on Gavin's request for an extension are "newly articulated" or that they represent new Agency interpretations. To be clear, the position about which petitioners complain consists of the wholly unexceptional position that if a surface impoundment sits in 64 feet of ground water, the facility cannot close the unit without actually dewatering the unit and without taking measures to control all liquids flowing into and out of the unit. Or in other words, the facility cannot simply slap a cover on it and walk away, creating conditions that will indefinitely allow the contaminants in the unit to dissipate into the nearby ground and surface waters. This should have come as no surprise to the commenters, as it is a position that EPA has held since 1982 when EPA adopted the closure requirements for permitted and interim status surface impoundments under subtitle C. *See, e.g*., 47 Fed. Reg. 32,278, 32,284, 32,318-319; EPA Office of Solid Waste, Closure of Hazardous Waste Surface Impoundments, SW-873, 24, 61-63, 78-82., (September 1982), Revised Edition; 50 Fed. Reg. 11,068, 11,070 (March 19, 1985); Regulatory Interpretation of the Closure Performance Standard, OSWER Directive # 9476.00-13 (February 8, 1988).

Nor did the commenters have any reason to expect EPA would treat CCR impoundments any differently. In 2010, EPA proposed to incorporate the subtitle C closure standards applicable to hazardous waste surface impoundments into the rule for CCR surface impoundments. See,

e.g., 75 Fed. Reg. 35,193, 35,208 (June 21, 2010) ("For closure of surface impoundments with CCRs in place, EPA has developed substantive requirements modeled on a combination of the existing 40 CFR part 265 interim status requirements for surface impoundments, and the longstanding MSHA standards. At closure, the owner or operator of a surface impoundment would be required to either drain the unit, or solidify the remaining wastes.")

It was made clear again in 2015 when EPA adopted the part 265 hazardous waste standards with minor changes, none of which made the performance standards less stringent. 80 Fed. Reg. 21,409, 21,414. EPA made the most changes in the general closure performance standard, the most significant of which were to include additional obligations. But the core of the part 265 standard was adopted with minimal changes; specifically, EPA 1) substituted the word CCR for the words hazardous waste and hazardous constituents; 2) substituted the phrase "to the maximum extent feasible" for the phrase "to the extent necessary to protect human health and the environment;" 3) EPA substituted the word "releases" for the word "escape;" and 4) added the word "infiltration." *Compare* 40 C.F.R. §§ 265. 111 *with* 257.102 (d)(1)(i). And the requirement to eliminate free liquids in both the hazardous waste and CCR regulations are essentially identical. *Compare* § 257.102(d)(2)(i) ("Free liquids must be eliminated by removing liquid waste or solidifying the remaining wastes and waste residues") *with* § 265.228(a)(2)(i) ("Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues"). Finally, the definitions of "free liquids" in parts 265 and 257 are completely identical. *See*, 40 C.F.R. § 257.53,260.10. None of these changes could reasonably be taken to suggest that a CCR facility would not be required to fully dewater the unit or to address groundwater flowing in and out of the impoundment.

This was made clear again in a 2020 preamble, in which EPA explained that where the base of the surface impoundments intersects with groundwater the facility will need to include further measures to comply with § 257.102(d). 85 Fed. Reg. 12,456, 12,464 (March 3, 2020). Note that EPA did not propose to revise § 257.102(d) to address the situation where an impoundment extended into the water table, but only proposed to require facilities to provide additional documentation of how the closure of such units would meet the existing standards. *Id* at 12,464–12,465.

Ultimately, EPA's position should have come as no surprise given that, as discussed above, the regulated industry's own research institute published a report in 2006 that set forth the deficiencies involved in relying solely on surface water infiltration considerations in closing a unit where groundwater infiltrates the CCR in that unit.[43]

Nor is the commenters' confusion universal. For example, in recent testimony on behalf of Duke Energy, one of America's largest energy holding companies,[44] Duke Energy acknowledged that EPA's CCR "closure performance standards prohibit closure-in-place where groundwater is in actual or likely contact with the CCR unless effective engineering measures can be installed to control, minimize, or eliminate such conditions."[45]

The commenters rely heavily on two documents issued after the rule to support their claim that they lacked notice. The first is a letter that was sent to EPA by one of the commenters in March 2017. According to the commenter,

> USWAG wrote to EPA to alert the Agency to and to counter arguments of the Southern Environmental Law Center ("SELC")

[43] Groundwater Remediation of Inorganic Constituents at Coal Combustion Product Management Sites: Overview of Technologies, Focusing on Permeable Reactive Barriers. EPRI, Palo Alto, CA: 2006. 1012584.
[44] https://www.duke-energy.com/our-company/about-us
[45] Testimony Before The Public Service Commission of South Carolina, Docket No. 2022-254-E (9/1/22), p. 16

> that the option of closing CCR impoundments under the rule's closure-in-place option under § 257.102(d) was prohibited when CCR was in contact with groundwater. USWAG set forth a detailed explanation as to why this position was inconsistent with the regulations and made clear that the regulated community was not interpreting the rule in the manner espoused by SELC. EPA never responded to the letter, let alone suggested that this interpretation was at odds with EPA's views, though the letter made clear how the regulated community was implementing the rule.

It is true that EPA never sent a letter responding to that request, but silence is not agreement or acquiescence.[46] Moreover, EPA did take the opportunity in a 2020 preamble to a proposed rule (on which parties could submit comments) to explain that when the base of a surface impoundment intersects with groundwater the facility would need to include further measures to comply with the various performances standards in § 257.102(d). 85 Fed. Reg. at 12,464. If EPA had agreed with USWAG's interpretation, there would have been no need to have made that statement.

The commenters' second document is EPA's response to a question from the Indiana Department of Environmental Management requesting EPA to provide guidance on whether the Department was correctly interpreting the closure performance standards, and in particular, the term "infiltration" in § 257.102(d)(1)(i).[47] In response EPA explained that

> EPA's CCR regulations are designed so that the hazardous constituents in the wastes remain in the unit, away from potential receptors, and are not released into the environment. A key method for achieving this is to control, minimize or eliminate to the maximum extent feasible infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters.

[46] And in any event, based on the commenters' arguments it seems likely that had EPA issued a letter responding to USWAG's interpretation, the commenters would have argued that EPA should have provided notice and comment before issuing its response.
[47] USWAG comments, p.28.

Note that EPA did not say that the only infiltration covered by the general performance standard is infiltration through the cover system. Further, EPA's description of the concerns regarding liquid infiltration cannot be reasonably read to be limited to infiltration through the cover system.[48] EPA also did not suggest that the state was free to ignore any kind of infiltration (or release) currently occurring on-site, or to otherwise exempt facilities from any of the provisions of § 257.102(d). Instead, EPA agreed with Indiana that compliance with the general performance was key and directed the state to evaluate the adequacy of the closure plan in light of site conditions (without limitation), and available monitoring data (which would reveal, for example any horizontal or lateral movement of liquids into the unit).

Third, contrary to the commenters' assertion, "ascertainable certainty" does not mean that there is no other possible reading of the regulation; it means that the behavior expected by the regulations was discernible from either the text of the regulations and/or other Agency statements. *Diamond Roofing Co. v. OSHRC,* 528 F.2d 645, 649 (5th Cir.1976). Lack of fair notice cannot be shown merely by pointing to some theoretical alternative reading; words and phrases can often have more than one meaning, but that does not make every regulation ambiguous. Rather the alternative reading must make sense in the context of the regulation and not be contradictory or frustrating to the purpose of the regulation; at a minimum it must be reasonable. *Gates & Fox Company, Inc., v. OSHRC,* 790 F.2d 154, 156 (D.C. Cir.1986) (in considering fair notice issue, court looked at whether the regulation "would reasonably be read" to include alternative interpretation put forth by the party claiming lack of notice).

[48] In 1988, EPA clarified that similar language appearing in the closure performance standards in 40 C.F.R. § 264.111 (and 40 C.F.R. § 265.111) required unit closures to address ground water infiltration in addition to surface water infiltration and that closure, together with required corrective action, could involve removal of the waste material in contact with the ground water. OSWER Directive #9476.00-13 (2/8/88).

As discussed at length above, the commenters' unduly restrictive reading of the closure-in-place performance standards simply is not reasonable. It contradicts the purposes of RCRA and the CCR regulatory program and fails to accomplish even the most basic goals of unit closure—establishing the long-term disposition of CCR in a manner which minimizes or eliminates future impacts from the closed unit (i.e., releases of contaminants into ground or surface water). If, as the commenters urge, there are other ways to read the regulations, those alternatives must be consistent with the goals of the underlying statute and regulations at issue. Any reading that ignores or contravenes the purpose of the regulations is not reasonable and cannot be legitimately considered a realistic alternative reading. Where, as here, the available data indicate that the CCR in the unit remains in contact with groundwater flowing in and out of the unit—and will remain so indefinitely—the commenters' alternative interpretation would perpetuate the conditions that allow contaminants to leach and partition into the groundwater. Simply put, it is not reasonable to interpret the regulations to allow such a closure because it would permit the indefinite continuation of conditions that present unacceptable risks to human health and the environment, when the primary purpose of the closure requirements is to eliminate such releases "to the maximum extent feasible." 40 C.F.R. § 257.102(d)(1)(i).

P.E. Certifications. Commenters assert that EPA must accept the P.E. certifications as a sufficient demonstration of compliance with the CCR regulations. EPA does not agree, and as the regulations intend, EPA did not defer to the certifications of compliance by P.E.s when evaluating compliance with the CCR regulations to determine whether to extend the date by which Gavin must cease sending waste to the BAP. Instead, EPA conducted its own, independent review, which included a review of the P.E. certifications. Where information in the record indicates the facility or a CCR unit is not in compliance with the regulations, EPA

discussed its preliminary findings in the proposal and commenters had the opportunity to rebut those findings. EPA is determining in this decision that Gavin is not in compliance with and has failed to demonstrate compliance with certain CCR requirements. In some instances, EPA's determination contradicts a certification by a P.E. that these requirements have been met.

Contrary to the contentions of some commenters, the regulations clearly mandate EPA to independently review an applicant's compliance rather than defer to a P.E. certification. Specifically, the regulations require submission of numerous documents to demonstrate compliance, most of which would not be necessary if EPA intended to rely solely on the P.E. certification. 40 C.F.R. § 257.103(f)(1)(iv)(B)(*2*)-(*8*). The final rule preamble also clearly explained that EPA would independently evaluate a facility's compliance. 85 Fed. Reg. 53,542-53,544. And commenters on the Part A Rule—many of whom are the same entities now asserting that EPA is bound by the P.E. certification—understood that EPA would conduct an independent review and did not argue that EPA was precluded from conducting an independent review if a P.E. certified compliance. *Id*. at 53,543. One commenter has previously acknowledged EPA's role in reviewing P.E. certifications in previous stakeholder comments. USWAG itself, in a 2017 petition for reconsideration of the 2015 regulations, has acknowledged the ability of EPA to review the P.E. certifications and that any disagreement about the accuracy of a P.E. certification is a challenge to the facility's compliance status, rather than a dispute between EPA and the P.E., "The QPE's certification is then subject to review by EPA, the states, and citizen groups and, if there is disagreement, the facility's compliance with the Rule can be challenged by EPA..."[49]

[49] Utility Solid Waste Activities Group Petition for Rulemaking to Reconsider Provisions of the Coal Combustion Residuals Rule, 80 Fed. Reg. 21,302 (April 17, 2015), and Request to Hold in Abeyance Challenge to Coal Combustion Residual Rule, No. 15-1219, et al. (D.C. Cir.)

Further, the CCR regulations do not prohibit EPA from reviewing required P.E. certifications, and performance standards established in the regulations are independent requirements and are enforceable regardless of whether a P.E. certification was obtained. In addition, information the P.E. uses to assess compliance is required to be publicly posted on a website[50] specifically to allow for interested parties to evaluate the accuracy of the P.E. certifications. 80 Fed. Reg. 21,339. Requirements in the CCR regulations can be enforced through RCRA section 7002 by citizens, including state regulatory agencies. 80 Fed. Reg. 21,335. In 2016, Congress amended RCRA through the WIIN Act to provide EPA with investigation and enforcement authorities in RCRA Sections 3007 and 3008 for the CCR regulations, which apply to all regulatory requirements without any exception for those that have P.E. certifications. 42 U.S.C. § 6945(d)(4). When EPA established the Part A Rule, it included provisions that require the submittal of detailed compliance information in a Demonstration, including information that has already been reviewed by a P.E. to certify compliance. EPA cannot delegate its regulatory responsibilities under RCRA to a P.E. and must conduct an independent review of compliance before determining whether to approve or deny a request for an extension of the date to cease sending waste to the unlined surface impoundment. 85 Fed. Reg. 53,543. In fact, it would be arbitrary for EPA to accept a P.E. certification without reviewing the underlying data, particularly where, as here, the available data indicate that Gavin is not in compliance with the regulations and the P.E. certification does not describe how it reached the conclusions concerning compliance.

[50] For example, groundwater flow rates and direction must be determined using measured groundwater elevations (40 C.F.R. § 257.93(c)), included in the Annual GWMCA Report (40 C.F.R § 257.90(e)(3)) and posted (40 C.F.R § 257.107(h)(1)).

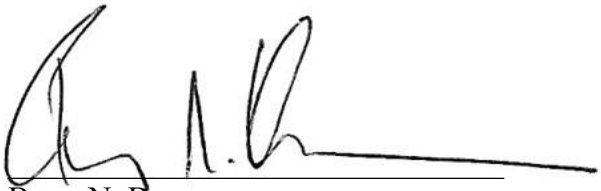
V. Conclusion

In conclusion, EPA is denying Gavin's request for an alternative compliance date for its BAP CCR surface impoundment, located at the General James M. Gavin Plant in Cheshire, Ohio. EPA is denying Gavin's request for an alternative compliance deadline for the BAP because Gavin failed to demonstrate that the facility is in compliance with all the requirements of part 257, subpart D, based on concerns with the groundwater monitoring at the facility and with the closure plan for the FAR. EPA is requiring that Gavin cease receipt of waste and initiate closure of the BAP no later than 135 days after the effective date of EPA's final decision.

Finally, due to the nature of the noncompliance EPA identified at Gavin, EPA is issuing a denial rather than a conditional approval for the reasons discussed above in Section III.C.

IV. Effective Date

EPA is establishing the date that notice of this final action is published in the Federal Register as the effective date for this final decision, with a compliance date of no later than 135 days after the effective date of this decision. EPA proposed to align the effective date with the new compliance deadline that EPA is establishing for Gavin to cease receipt of waste to the BAP, but has concluded that aligning the effective date with the date that notice of this final action is published in the Federal Register will reduce confusion concerning the timing for filing petitions for review. We did not receive comments on this issue.



11/18/2022

Date

Barry N. Breen

Office of Land and Emergency Management