Frequent Questions on the Implementation of the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule

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Scope and Purpose

What is EPA's legal authority to regulate inactive surface impoundments under Subtitle D of RCRA?

RESPONSE: The final rule discusses in depth the specific legal authority on which the EPA is relying to support the regulation of inactive CCR surface impoundments under subtitle D of RCRA. See 80 FR 21342-21347.

Is CCR from a closed fossil fuel power plant that is sent for off-site waste management covered by the rule?

RESPONSE: Any disposal unit that receives CCR from an off-site electric utility or independent power producer, including from a closed fossil fuel power plant, is covered by the rule unless it is a municipal solid waste landfill. See 40 CFR 257.50(b).

Is CCR generated at an active facility (i.e., part of the NAICS code 221112) but then sent for management at a facility no longer producing power regulated under the CCR rule?

RESPONSE: CCR generated at an active facility but then sent off-site for management at a facility no longer producing power is regulated under the rule. The rule at 40 CFR 257.50(b) specifies that "this subpart applies to owners and operators of new and existing landfills and surface impoundments, including lateral expansions of such units, that dispose or otherwise engage in solid waste management of CCR generated from the combustion of

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coal at electric utilities and independent power producers." Even though the facility that owns the disposal unit may no longer be producing power, it owns and/or is operating an off-site CCR disposal unit. 40 CFR 257.50(b) expressly clarifies that the requirements also apply to CCR disposal units located off-site of the electric utility or independent power producer.

If an inactive utility begins to generate electricity by starting up a natural gas peaker plant that is located on-site, will the on-site CCR surface impoundments containing fly ash from previous coal-burning activities become subject to the rule?

RESPONSE: Yes. If the utility restarts the boilers to generate electricity, regardless of the fossil fuel used, any CCR surface impoundments at the facility can become subject to the rule.

Is CCR from a facility that is no longer part of the NAICS code 221112 (Fossil Fuel Electric Power Generation) because the fossil fuel power plant has closed regulated under the rule if the CCR is sent for off-site management?

RESPONSE: Yes. The rule applies to the solid waste management and/or disposal of CCR generated by electric utilities and independent power producers. 40 CFR 257.50(b). This includes disposal that occurs at (1) all electric utilities and independent power producers that produce electricity after the effective date of the rule, irrespective of the fuel used to produce the electricity; and (2) disposal that occurs off-site of the electric utility, except for disposal at a municipal solid waste landfill. 40 CFR 257.50(e) applies to the electric utilities and independent power producers that have entirely ceased generating electricity (i.e., have closed) prior to the effective date of the rule, not to the CCR generated by such facilities.

What requirements apply when CCR from an existing impoundment at an active power plant is dredged (i.e., pursuant to state legislation or other legal requirement) and the CCR is moved to a different unlined impoundment at the same site?

RESPONSE: In the situation described, both units would be defined as existing CCR surface impoundments subject to all the applicable provisions of the rule. The rule does not prohibit placement of the dredged material (CCR) in another existing unlined surface impoundment, provided the other unlined unit has not triggered closure by one of three specific provisions: (1) groundwater monitoring shows an exceedance of a groundwater protection standard; (2) the facility fails to demonstrate compliance with the minimum factors of safety to ensure structural stability of the unit; (3) the facility fails to demonstrate compliance with the location criteria. See 40 CFR 257.101.

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Does the final rule address the status of non-slurried non-impounded coal ash that was formally and remains landfilled?

RESPONSE: CCR landfills that are "active" (i.e., receive CCR on or after the effective date) are subject to the requirements of the final CCR rule, and must comply with the requirements for "existing" CCR landfills. However, CCR landfills that do not receive any CCR on or after the effective date are considered to be "inactive" CCR landfills, and are not subject to the requirements of the final CCR rule.

If a state-permitted Subtitle D solid waste landfill wants to permit an ash monofill cell to receive CCR waste as part of their state-permitted area, would the site also need to meet the CCR rules for that cell from a design, groundwater monitoring, and data publishing standpoint? Even if the ash cell would fall within the scope of the state permit and state regulations for a municipal solid waste landfill?

RESPONSE: If the landfill is a permitted municipal solid waste landfill, it is not subject to the requirements of the CCR rule. All other landfills that accept or manage CCR (e.g., an industrial solid waste landfill) are subject to all of the landfill requirements of the CCR rule, whether or not it has a state solid waste landfill permit.

Do the regulations cover CCR landfills only onsite of an existing power plant, or does it regulate all CCR landfills, regardless if they are onsite of a power plant?

RESPONSE: With one exception, all operating or active CCR landfills are subject to the requirements of the rule whether they are on-site or off-site of the utility. See 40 CFR 257.50(b). The sole exception is municipal solid waste landfills, which the regulation specifies are not subject to the rule. See 40 CFR 257.50(i).

Are small ponds containing CCR from uniquely associated wastes such as boiler washes, air preheater washes, or precipitator washes covered by the rule? If they are uniquely associated wastes, does that mean they cannot be CCR?

RESPONSE: Uniquely associated wastes, as defined in the revised 40 CFR 261.4 (see pages 21500 and 21501 of the April 17, 2015 Federal Register Notice) are not CCR but are solid wastes covered by the Bevill exemption for fossil fuel combustion wastes at 40 CFR 261.4(b)(4). Small ponds or impoundments that meet the definition of a CCR surface impoundment would be subject to the rule even if the CCR is co-disposed with other solid wastes, such as the uniquely associated wastes.

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Beneficial Use

How does the CCR rule impact CCR that are beneficially used?

RESPONSE: The CCR final rule provides criteria that support and encourage the appropriate beneficial use of CCR. The final rule retains the Bevill Determination without revision and does not regulate CCR that are beneficially used. This rule provides a definition of beneficial use to distinguish between beneficial use and disposal. The rule clarifies that a use of a CCR that does not meet the definition of a beneficial use is disposal.

How will EPA work with state beneficial use programs and/or end users or generators of byproducts regarding interpreting the beneficial use criteria? Secondly, will EPA review evaluations of the criteria or offer opinions?

RESPONSE: EPA can provide assistance to state beneficial use programs and end users about how to interpret the beneficial use criteria. The Agency is working to provide tools to assist states and beneficial users with their beneficial use evaluations. EPA does not review or approve evaluations of the criteria conducted by others.

Where can the "Engineering and Environmental Guidance on the Beneficial Use of Coal Combustion Products in Engineered Structural Fill Projects" be obtained?

RESPONSE: The Utility Solid Waste Activities Group (USWAG) document, "Engineering and Environmental Guidance on the Beneficial Use of Coal Combustion Products in Engineered Structural Fill Projects," referenced in the preamble can be found in the docket to the rule at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-RCRA-2009-0640-11969.

The preamble to the rule mentions that the EPA is developing a framework for assessing the risks associated with the beneficial use of unencapsulated CCR. When does the Agency anticipate completion of this framework?

RESPONSE: The Agency expects to complete the framework for assessing the risks associated with beneficial use of industrial materials, including unencapsulated uses of CCR by April 15, 2016.

Would a facility that stores piles of FGD on the ground for ultimate beneficial use as wallboard greater than the 12,400 ton CCR rule threshold have to meet the unencapsulated use requirements?

RESPONSE: As EPA noted on pages 21347-21348 of the final rule, in order to be subject to RCRA, the material must be a solid waste. The statute defines a solid waste as "any garbage, refuse….and other discarded material…" 42 U.S.C. 6903 (27). As EPA noted in the proposed and final rule:

"For some beneficial uses, CCR is a raw material used as an ingredient in a manufacturing process that have never been "discarded," and thus, would not be considered solid wastes under the existing RCRA regulations. For example, synthetic gypsum is a product of the FGD process at coal-fired power plants. In this case, the utility designs and operates its air pollution control devices to produce an optimal product, including the oxidation of the FGD to produce synthetic gypsum. In this example, after its production, the utility treats FGD as a valuable input into a production process, i.e., as a product, rather than as something that is intended to be discarded. Wallboard plants are sited in close proximity to power plants for access to raw material, with a considerable investment involved. Thus, FGD gypsum used for wallboard manufacture is a product rather than a waste or discarded material. This use and similar uses of CCR that meet product specifications would not be regulated under the final rule."

Note that whether the FGD gypsum is being managed as a "waste" or a "product" is a fact-specific determination. Indications that the FGD gypsum is being managed as a waste or a product by the utility include the rate at which the material is being used versus being added, and whether it is being managed as a valuable product (i.e., stored or protected in the same way virgin products are managed). For example, if more FGD gypsum is being added to a pile than can actually be used, and if the material is not being managed as a valuable product, then that would be an indication that it is it not being treated as a product; and would therefore be a "waste."

For those materials that are "wastes," a power-generating facility that stores piles of FGD on the ground on-site at the facility for ultimate beneficial use as wallboard greater than the 12,400 ton threshold would not have to meet the unencapsulated use requirements; however, the FGD piles must be "containerized" in order to not be considered a CCR Pile (and by definition, a CCR landfill). The use of the phrase "containerized" is not intended to require that all activities occur within tanks or containment structures, but merely that specific measures have been adopted to control exposures to human health and the environment. This could include placement of the CCR on an impervious base such as asphalt, concrete, or a geomembrane; leachate and run-off collection; and walls or wind barriers (see p. 21356 of the final rule).

What if the facility storing the flue gas desulfurization (FGD) gypsum on the ground is not an electric utility?

RESPONSE: In this case, if the facility treats the FGD gypsum as a valuable input into a production process, i.e., as a product, rather than as something that is intended to be discarded, the use would not be regulated under the final rule (see above response). For those materials that are "wastes," FGD gypsum that is currently being used in compliance with the definition of beneficial use, including FGD gypsum stored in a temporary pile prior to being beneficially used, would not be subject to the CCR disposal regulations. As noted at 80 FR 21356 in the final rule preamble,

> *"CCR that is currently being used beneficially—for example, fly ash that has been transferred to a cement manufacturer and that is stored off-site in a "temporary pile," and that complies with all of the criteria in the definition to be considered a beneficial use including the fourth criterion relating to the placement of large quantities of unconsolidated CCR on the land— would not be subject to the regulations applicable to CCR disposal."*

Although ultimately intended for encapsulated use in wallboard, a pile of FGD gypsum that is a "waste" is still considered an unencapsulated CCR until it is actually incorporated into the wallboard; therefore, if the amount of FGD gypsum in a pile awaiting beneficial use exceeds 12,400 tons, the facility also must comply with the fourth criterion pertaining to unencapsulated non-roadway uses. One way to ensure the fourth criterion is met is to containerize the pile; that is, adopt specific measures to control exposures to human health and the environment, such as placement of FGD gypsum on an impervious base, such as asphalt, concrete, or a geomembrane; leachate and run-off collection; and/or use of walls or wind barriers.

Effective Date

What is the effective date of the rule? Some requirements state October 14, 2015 and others state October 19, 2015.

RESPONSE: The effective date of the rule is October 19, 2015. A technical correction was published in the Federal Register on July 2, 2015 (80 FR 37988) correcting the effective date and other associated dates.

Will all CCR disposal sites be subject to the rule equally, or will there be a transition policy for some sites?

RESPONSE: There is no transition policy or any kind of "grandfathering" for particular sites or units. All CCR disposal units that are subject to the rule will be subject to the requirements on the effective date of the rule.

Applicability of Other Regulations (including tribal issues)

A state has a CCR disposal facility that is located within a valley that was strip mined. The facility is regulated under a state wastewater collection, storage or treatment system permit and an NPDES Permit. The state will continue to regulate the facility. Will the CCR regulations apply to this site?

RESPONSE: If the facility is managing CCR in an active or inactive coal mine, it is not covered by the CCR rule. Placement in active or inactive underground or surface coal mines will be addressed under regulations being developed by the Office of Surface Mining of the Department of the Interior. However, placement of CCR or other management activities in any other mine would be considered to be disposal subject to the CCR requirements of part 257 unless the placement meets the criteria for defining beneficial use of CCR.

How will the rule be implemented on tribal lands (i.e., at CCR disposal facilities located on tribal lands) or are there any differences in implementation?

RESPONSE: The requirements of part 257 apply directly to the facilities regardless of whether the facility is on state or tribal lands, so there will be few differences. Tribes, like states, can sue to enforce the rules by filing a citizen suit under RCRA 7002. In cases where notification is required, facility owners/operators should notify the tribal authorities. EPA's authority to oversee implementation of subtitle D regulations on tribal lands is limited; for example, EPA cannot approve a tribal Solid Waste Management Plan in the same manner as a state Solid Waste Management Plan, and therefore, compliance schedule adjustments under 4005(a) will not be available to facilities on tribal lands.

EPA recognizes that there may be arrangements among tribal and state authorities and utility managers regarding oversight of utilities. Utility managers should work within these arrangements on CCR rule implementation.

How do these "self-implementing" regulations fit within existing state permitting programs for these materials?

RESPONSE: The CCR rule applies directly to the facilities, and the facilities must be in compliance with those standards on the effective date, irrespective of state requirements. States may choose to adopt the federal requirements into their existing program or to impose more stringent standards, but the federal rule does not itself affect states' permitting programs. As part of their own programs under state law, states may choose to require permits for CCR disposal units, and may choose to adopt the federal requirements into their permits as permit conditions. However, a facility must still comply with the CCR rule requirements, even if the state has issued a permit that contains less stringent conditions or requirements than those in the CCR rule.

Definitions

Does the rule apply to CCRs that are land applied outside a landfill or impoundment? If so, how does it apply?

RESPONSE: If the land application does not meet the criteria for beneficial use defined in 40 CFR 257.53, the land application constitutes disposal and would be considered a landfill,

subject to all of the requirements for CCR landfills. (See definition of CCR landfill in 40 CFR 257.53).

If a state has issued a construction permit for a CCR landfill prior to the effective date of the federal rule and this landfill has cells that are permitted for construction, but remain unconstructed after 180 days from the publication of the federal rule, are the unconstructed cells still considered to fall within the definition of "Existing CCR Landfill"?

RESPONSE: No. CCR landfill cells constructed after the effective date of the rule are considered to be new CCR landfills subject to the requirements for new CCR landfills.

Do the new CCR landfill requirements apply to yet-to-be constructed cells of an existing multi-cell CCR landfill that have already been approved by a State regulatory agency but have yet to be constructed? Will the new CCR landfill requirements apply to the next new cell to be constructed, even if those future cells were approved as part of an overall plan of operation with defined design criteria?

RESPONSE: Yes. If continuous on-site, physical construction begins on a unit after the effective date of the rule, these are considered new CCR units (in this case, landfills) and will be subject to the requirements for new CCR units (here, those for new CCR landfills).

The preamble of the CCR rule identifies certain impoundments as not being CCR surface impoundments – i.e., cooling water ponds, wastewater treatment ponds, storm water holding ponds, and aeration ponds. Are other types of ponds not specifically identified in the preamble but that similarly are not used to impound "significant quantities" of CCR considered not to be CCR surface impoundments?

RESPONSE: The final rule defines CCR surface impoundments as units that are designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR. Units that are not designed to hold an accumulation of CCR, and that do not treat, store, or dispose of CCR are not CCR surface impoundments. EPA provided examples in the preamble to the final rule of units that, in EPA's experience, typically would be expected to fall outside of that definition. These examples were not intended to be exclusive or definitive. There may well be additional units that do not meet the definition of a CCR surface impoundment. Similarly, there may be instances in which a particular "wastewater treatment pond" is in fact functioning as a CCR unit (e.g., a facility uses an existing CCR disposal unit for wastewater treatment without dredging the CCR out of the impoundment). Ultimately, the critical determinant of whether a unit is subject to the rule is whether it meets the criteria in the regulatory definition, rather than whether it was included as an example in the final rule preamble.

Are coal ash leachate ponds subject to this rule?

RESPONSE: No. The rule regulates CCR landfills and CCR surface impoundments. CCR surface impoundments are defined as impoundments that are designed to hold an accumulation of CCR and liquids, and that treat, store, or dispose of CCR. A CCR leachate pond, or impoundment; i.e., an impoundment that only holds leachate from CCR landfills and not CCR, does not meet this definition.

Are landfill stormwater run-off ponds outside the rule? We do not consider these to be CCR impoundments since they are not designed to hold an accumulation of CCR.

RESPONSE: The rule only regulates CCR landfills and CCR surface impoundments. CCR surface impoundments are defined as impoundments which are designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR. "Stormwater run-off ponds" would not generally be expected to meet the definition of CCR surface impoundment because CCR landfills, if designed in accordance with the requirements of 40 CFR 257.81, should not contribute CCR material in stormwater run-off to CCR landfill stormwater ponds. CCR landfills must be designed to prevent the erosion and excessive volume of run-off to CCR stormwater ponds. If designed in accordance with the requirements of the final rule and if the only inflow to the unit is in fact stormwater run-off or direct precipitation, stormwater run-off from CCR landfills retained or detained by a CCR landfill stormwater pond should not include any CCR material.

Are the following units subject to the CCR surface impoundment requirements?

- **Ponds that receive leachate and surface runoff and leachate from dry fly ash landfills,**
- **Coal pile runoff ponds,**
- **Impoundments that receive small amounts of CCR but whose primary function is not storage or disposal of CCR,**
- **Evaporation ponds, or**
- **Stormwater impoundments impacted by some CCR as runoff.**

RESPONSE: To be covered by the CCR rule, an impoundment must meet both of the following criteria: (1) was designed to hold an accumulation of CCR and liquid, and (2) treats, stores, or disposes of CCR. Surface runoff, coal pile runoff, CCR landfill leachate, stormwater and evaporation ponds would not generally be expected to meet the definition of a CCR surface impoundment, because based on their typical design and function, such units are not usually designed primarily to hold an accumulation of CCR and liquid and would not be expected to treat, store, or dispose of CCR. However, it is the responsibility of the owner/operator to evaluate the impoundments at his facility to determine whether or not they meet the definition of a CCR surface impoundment.

Location Restrictions

When EPA proposed the application of location restrictions to existing surface impoundments, you acknowledged that these location restrictions would force a majority of the current impoundments to close. Do you have an estimate of how many will close?

RESPONSE: The final CCR rule contains five location restrictions that apply to new CCR units and selectively to existing CCR units. These restrictions include: (1) disposal within five feet of the uppermost aquifer; (2) disposal in wetlands; (3) disposal in unstable areas, including karst areas; (4) disposal near active fault zones; and (5) disposal in seismic impact zones. In addition, the current subtitle D regulation (40 CFR 257.3-1) that applied to these units before the final rule was issued already restricts facilities that dispose of wastes in floodplains. For fault areas, seismic impact zones, and unstable areas (using karst areas as a proxy) the EPA's Regulatory Impact Analysis (RIA) projected that 51 of the 1045 waste management units would be subject to the location restrictions resulting in an estimated 26 waste management units closing and safely relocating off-site. The remaining waste management units are expected to make certifications either that they are not subject to these three location restrictions or that their continued operation in these areas is protective.

EPA did not have sufficient data to evaluate the number of waste management units subject to the restrictions against disposal units located within five feet of the uppermost aquifer or in wetlands. However, in contrast to the proposed rule, the final rule allows owners or operators to certify that a waste management unit meets an alternate performance standard, even if it cannot meet the requirement in the proposed rule to demonstrate that it is five feet above the water table. Similarly, EPA notes that under the wetlands criterion, owners or operators have the option of purchasing offsets instead of closing existing units. Both the depth to groundwater and wetland location standards offer protective workable alternatives that facilities will have the option to consider. For these reasons, EPA does not believe that many (if any) facilities will close their waste management units in response to the location restrictions.

What sort of reliability issues could be imposed on the electric grid as a result of the CCR final rule?

RESPONSE: Electricity market impacts presented in Appendix X of EPA's Regulatory Impact Analysis(RIA) were conducted using the Integrated Planning Model (IPM) and include the location restriction costs of the rule as discussed above. The results of this analysis show that there will be a negligible impact to the electric market.

Design Criteria

If plans for a vertical expansion over an existing CCR landfill are approved after the 180 day deadline for defining new CCR landfills, would the vertical expansion be subject to the requirements for new CCR landfills?

RESPONSE: No. Vertical expansions of existing CCR landfills are not subject to the requirements for new CCR landfills.

Groundwater Monitoring and Corrective Action

What does the Agency mean by "background" in title 40 of the Code of Federal Regulations (CFR) section 257.91(a)(1)?

RESPONSE: The owner/operator (O/O) must select wells for the determination of background levels of constituents that not have been affected by leakage from any CCR unit. 40 CFR section 257.91(a)(1).

Two points are relevant here:

1. The onus remains on the O/O to demonstrate that this performance standard has been met.
2. This includes leakage from any source of CCRs, including from any CCR that may have been located on the facility. Consequently, if the levels of regulated constituents are higher than would normally expected to be found in uncontaminated aquifers, the onus is on the O/O to demonstrate that the contamination has not come from the CCR unit. See also, e.g., 40 CFR sections 257.91(f), 257.105(h)(3).

Generally, in groundwater monitoring, the objective of background monitoring is to develop levels that represent groundwater that has not been contaminated by CCR while at the same time taking into consideration that both naturally occurring and anthropogenic sources of contamination if not considered could be misinterpreted as arising from CCRs. Some further guidance is discussed in the preamble to the final rule at volume 80 of the Federal Register (FR) pages 21,400-21,401, along with references to more detailed technical guidance. As described in the "Technical Manual Solid Waste Disposal Facility Criteria", EPA530-R-93-017, U.S. EPA, November 1993, Chapter 5, Subpart E, Ground-Water Monitoring and Corrective Action, "The most important quality of background is that it reflects the historical conditions unaffected by the activities it is designed to be compared to. These conditions could range from an uncontaminated aquifer to an historically contaminated site baseline unaffected by recent RCRA-actionable contaminant releases.

Representative background data will therefore have numerical characteristics closely matching those arising from the site-specific aquifer being evaluated."

The Unified Guidance also includes the following definition: Background - Natural or baseline groundwater quality at a site; can be characterized by upgradient, historical, or sometimes sidegradient water quality.

Further, the Unified Guidance recommends that upgradient background wells be located beyond the upgradient extent of potential contamination. Where hydrologic conditions do not allow identification of wells which are hydraulically upgradient (e.g., floodplains, where nearby surface water can influence groundwater), background groundwater quality may be determined from wells that are not upgradient as long as they provide samples as representative or more representative of background than the upgradient wells.

Determining background groundwater quality by sampling wells that are not hydraulically upgradient may be necessary where hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient (e.g., floodplains, where nearby surface water can influence groundwater). In such cases, the rule allows the owner or operator to establish groundwater quality at existing units by locating wells that are not upgradient under certain conditions (section 257.91(a)(1)). This provision may be used when hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient and when sampling at other wells will provide data establishing background groundwater quality that is equally or more representative than that provided by upgradient wells. These conditions could include one or more of the following:

- The facility is located above an aquifer in which groundwater flow directions change seasonally.
- The facility is located near production wells that influence the direction of groundwater flow.
- The proposed or existing CCR disposal unit overlies a groundwater divide or local source of recharge.
- Geologic units present at downgradient locations are absent at upgradient locations.
- Karst terrain or fault zones modify flow.
- Nearby surface water (i.e., river) influences groundwater flow directions.

Additionally, there is nothing in the rule that would prevent the owner or operator from monitoring multiple aquifers in addition to the uppermost significant aquifer. Certain site conditions warrant more extensive monitoring requirements, as discussed in "Technical Manual Solid Waste Disposal Facility Criteria", EPA530-R-93-017, U.S. EPA, November 1993, Chapter 5, Subpart E, Ground-Water Monitoring and Corrective Action.

Finally, the Agency recognizes that there are situations where intra-well analyses are appropriate. Intra-well comparisons, including the use of trend graphs, where data of one

well are evaluated over time, are useful in evaluating trends in individual wells and for identifying seasonal effects in the data. The intra-well comparison methods do not compare background data to compliance data and if the wells being used for the intra-well comparisons are already substantially contaminated by CCR releases or other sources they may not show a trend of getting worse over time. However, if an existing facility does not have valid background data, intra-well comparisons may represent the only comparison available. Thus, the rules provide for this situation. However, in the absence of a true background well, several monitoring events may be required to determine trends and seasonal fluctuations in ground-water quality. More detail can be found in the "Technical Manual Solid Waste Disposal Facility Criteria," EPA530-R-93-017, U.S. EPA, November 1993, Chapter 5, Subpart E, Ground-Water Monitoring and Corrective Action, and the "Unified Guidance Document: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities," March 2009, EPA 530/R-09-007.

The final rule requires that if a constituent of concern is detected above a statistically significant level, that the groundwater protection standard must be set at either the Maximum Contaminant Level (MCL) or at the background concentration. Whereas, the proposed rule, like the municipal solid waste program, would have allowed the owner or operator to establish an alternative groundwater protection standard based on site-specific conditions. Has EPA considered whether this will impact future and on-going corrective action at coal ash disposal units in states that utilize risk-based decision making?

RESPONSE: If the Safe Drinking Water Act MCL or background-based cleanup levels are lower than a risk-based level the state has used, the federal regulations would require that the corrective action include treating the groundwater in the uppermost aquifer to a level lower than the risk-based level. If, however, the MCL or background-based cleanup levels in the federal rules are higher than a risk-based level the state has used, the state regulations would require that the corrective action achieve a level lower than the federal levels. In some cases, it is possible that the corrective action provisions in the final rule would require a more rigorous treatment than required under state law, and in other cases, less rigorous treatment than required under state law. The potential number of these scenarios occurring at corrective actions related to coal ash disposal units is unknown.

If a state decides that there is no human receptor for the groundwater and that a cleanup standard above the MCL or background is appropriate, would that meet the minimum requirements of the rule?

RESPONSE: The rule requires that the groundwater protection standard (either the MCL or the background level, whichever is higher) must be met by the chosen corrective action remedy, in order to preserve the groundwater as a natural resource and for its potential future use as a source of drinking water.

Closure and Post-Closure

Can an owner/operator construct a new non-CCR surface impoundment in the location of a CCR surface impoundment that is in the process of being closed by removal – after all CCRs and areas that may have been contaminated by CCRs have been removed, however ground water monitoring concentrations exceed the GWPS?

RESPONSE: Assuming all areas that have been affected by releases of CCRs have been removed and decontaminated, the CCR rule does not prohibit the construction of a non-CCR surface impoundment in the location, while closure by removal is progressing. However, as part of the process of conducting the closure by removal the facility must still comply with the requirement to meet the ground water protection standards within the timeframes prescribed in title 40 of the Code of Federal Regulations (CFR) in section 257.102(f). Consequently, the owner/operator must ensure that construction of the new non-CCR unit does not impact the ability to meet the closure requirements for the CCR surface impoundment.

Would this action be considered a retrofit under 40 CFR section 257.102(k)?

RESPONSE: Because they do not intend to construct or operate a CCR unit, this action would not be considered a retrofit under 40 CFR section 257.102(k). If the unit is retrofitted, per the requirements under 40 CFR section 257.102(k), the new unit would need to be designed as a new CCR surface impoundment and all aspects of the rule would apply to the new unit, including the full post closure care period.

Can closure by removal of CCRs for an existing surface impoundment be certified, as required by 40 CFR section 257.102(f)(3), without confirmation that the ground water monitoring concentrations do not exceed the groundwater protection standard for constituents in Appendix IV?

RESPONSE: No, the performance standard for closure by removal requires that groundwater monitoring indicates that the concentrations of constituents do not exceed the groundwater protection standard for constituents listed in Appendix IV. According to 40 CFR section 257.102(f)(2), the maximum time an owner/operator has to complete closure and meet the ground water protection standard is 7 years for surface impoundments 40 acres or smaller and 15 years for surface impoundments larger than 40 acres. Closure is not considered complete until all CCR in the unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring demonstrates that all concentrations of the assessment monitoring constituents listed in appendix IV to 40 CFR part 257 do not exceed the groundwater protection standards. 40 CFR section 257.102(c); Volume 80 of the Federal Register (FR) page 21412, April 17, 2015.

In clean closing, does the owner/operator (O/O) have to certify that any soil affected by releases from the CCR unit have been removed?

RESPONSE: Yes. The regulation specifies that "An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit." 40 CFR section 257.102(c). As part of attaining the performance standard for clean closure, the O/O will need to document that CCR has been removed and that decontamination is complete. 40 CFR section 257.102(f)(3). The regulation also specifies that decontamination is complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standards. 40 CFR section 257.102(c). While part 257 does not require any particular documentation of soil testing, the state can require soil testing as part of the required documentation. Upon completion of closure activities, the O/O of the CCR unit must obtain a certification from a qualified PE verifying that closure has been completed in accordance with the closure plan and the requirements of 40 CFR section 257.102.

What does the Agency mean by "infiltration" in 40 CFR section 257.102(d), the performance standard for CCR units closing with waste in place?

RESPONSE: The word "infiltration" in 40 CFR section 257.102(d)(1)(i) is a general term that refers to any kind of movement of liquids into the waste unit. That would include any liquid passing into or through the CCR unit by filtering or permeating from any direction, including the bottom of the unit.

40 CFR Part 257.102(d) states that:

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.

Reading further in the regulation, you can see that 40 CFR section 257.102(d)(3) goes on to provide more specific information about the requirements for the final cover system. That

paragraph (i.e., 40 CFR section 257.102(d)(3) is specifically referring to infiltration from the top of the unit, which is to be prevented by an adequate final cover system.

Does "ground" in 40 CFR section 257.102(d)(1)(i) mean ground or ground water?

RESPONSE: In 40 CFR section 257.102(d)(1)(i), "contaminated run-off to the ground or surface waters…" means contaminated run-off to the ground water or surface waters. The phrase is "to the ground or surface waters or to the atmosphere….;" in other words, EPA grouped "ground or surface water" as one item.

Can the Agency give an example of what factors should be taken into account in determining "the maximum extent feasible"?

RESPONSE: The regulation does not dictate a particular method by which a facility must demonstrate that the facility has "controlled, minimized or eliminated, to the maximum extent feasible…" One example would be a CCR surface impoundment that extends into the ground water table will face the challenge of addressing infiltration of both surface water and ground water. One engineering set of solutions that may meet the standard of controlling and minimizing to the maximum extent feasible would be to 1) dewater the surficial impounded water sufficient to support an adequate cover system; and 2) for the groundwater infiltration into the bottom of the unit, isolate the waste management unit from the groundwater system with a slurry wall and maintain groundwater gradients away from the waste through a pump and treat system. The simplest way for an O/O to document that they have "controlled, minimized or eliminated, to the maximum extent feasible…" would be for the facility to present an analysis of different closure options and different techniques to achieve this standard. At a minimum the facility would need to document the measures they had taken to meet the performance standard and explain why these measures met the regulatory standard, based on the site and unit characteristics.

A facility employs a wastewater treatment system design using multiple CCR surface impoundments configured in a series. Water and wastewater that enters the system moves by gravity and/or pumping from one impoundment to the next in the treatment system before being discharged from a National Pollutant Discharge Elimination System (NPDES) permitted outfall. The facility identified the surface impoundments separately under the CCR regulations because each has its own dam, but operated them collectively as a single wastewater treatment system. The facility intends to close all of the units within that system through closure by removal ("clean closure"), within the applicable time frames mandated in the CCR regulations.

After initiating closure and after initial dewatering has been completed, the impoundments will continue to be used to manage stormwater on site throughout the closure process, until closure is completed. Rainwater and non-contact stormwater from precipitation events, which will come into contact with the CCR

that still remains in the units, will be pumped through the system (e.g., Impoundment 1 to Impoundment 2 to Impoundment 3, etc.). The material will be pumped from last impoundment in the series and treated in a wastewater treatment plant (WWTP) located near the outfall of the last impoundment in the series. The WWTP will discharge into the river in accordance with the terms and conditions of a NPDES permit. Do the CCR regulations allow the facility to continue to operate in this fashion throughout the closure process?

RESPONSE: This question pertains to a situation where closure of multiple surface impoundments will be accomplished by removal of CCR from the surface impoundments, so EPA's response is limited to this situation. In addition, the response only addresses the situation in which the facility chooses to close all units within the system; the analysis would differ if the facility chose to close only some of the units within the system.

The Title 40 Code of Federal Regulations (CFR) Part 257, Subpart D regulations do not contemplate a circumstance in which a unit would continue to receive wastes after closure has been initiated. See 40 CFR section 257.102(e)(1)(i); (e)(3). Moreover, a CCR unit that must close for cause, pursuant to 40 CFR section 257.101, is expressly prohibited from placing additional waste in the unit after a specified time. For example, an unlined CCR surface impoundment whose groundwater monitoring shows a statistically significant exceedance of a groundwater protection standard must "cease placing CCR and non-CCR wastestreams into such CCR surface impoundment and either retrofit or close the CCR unit" within six (6) months of making this determination. 40 CFR section 257.101(a)(1).

Normally EPA would consider that when a facility pumped wastewaters (i.e., the rainwater and non-contact stormwater from precipitation events, along with any CCR remaining in the unit) into subsequent impoundments, the facility would be "placing wastes" into the downstream units. However, in the situation described in the question, EPA would consider multiple impoundments that operate in a series to be a single "multi-unit system," and would consider the entire multi-unit system to be one CCR unit for purposes of closure. As a consequence, the pumping of the wastewaters from the first impoundment into subsequent impoundments that are configured in a series would be better characterized as the movement of waste within a disposal unit, which is generally not regulated under RCRA, rather than the movement between disposal units, which is typically regulated. Although the facility originally identified each surface impoundment in the series separately under the CCR regulations, they operated them collectively as a single wastewater treatment system, and most critically for purposes of this question, is in the process of closing them as a single unit (e.g., under the same time frames).

EPA's regulations already expressly provide for the situation in which a series of CCR units is considered to be a multi-unit system. See, e.g., 40 CFR section 257.53 (defining CCR unit to include a combination of more than one CCR unit); 40 CFR section 257.91(d)(multi-unit system for purposes of groundwater monitoring). While the closure regulations do not include specific requirements for such situations, they do not prohibit a facility from

closing their multi-unit system as a single CCR unit, provided all applicable requirements and deadlines for closure are followed for the designated single CCR unit—i.e., all CCR units comprising the multi-unit wastewater treatment system. Thus, should the owner or operator elect to use this approach, for example, they would need to prepare a written closure plan that describes the steps necessary to close all of the impoundments that comprise the multi-unit system. After the CCR units comprising the multi-unit system are designated as a single CCR unit, the requirements specifying when closure activities must commence must be met for the entire multi-unit system. Similarly, closure of the entire system would need to be completed within the regulatory deadline for a single unit (40 CFR section 257.102(f)) (i.e., five years for a CCR surface impoundment); to qualify for any extensions of the closure time frames, the owner or operator would also need to make the necessary demonstration(s) for the entire unit, and the total amount of time available would be based on the aggregate size of the impoundments comprising the multi-unit system (e.g., if the aggregate size was greater than 40 acres, the time frames in 40 CFR section 257.102(f)(2)(ii)(B) would apply).

The regulations also specify that, in this situation, if the facility has installed a multi-unit groundwater monitoring system, all of the unlined impoundments in the system must close or retrofit under section 257.101(a). 40 CFR section 257.90(d)(2). Similarly, if the facility has decided to close its units as a multi-unit system as discussed above, in the event that closure for cause has been triggered under 40 CFR section 257.101(a) for one or more impoundments in the mulit-unit system, all CCR units within the multi-unit system (i.e., the designated single CCR unit) would be subject to the 6-month prohibition on receiving CCR and non-CCR wastestreams. This is because, as noted above, the entire multi-unit system would be considered one CCR unit for purposes of closure. Note that the regulations do not compel a facility to treat "connected" units as a single multi-unit system; rather this falls within the facility's discretion.

As a designated single CCR unit, however, the movement of CCR and other wastes between the individual units that make up that system would be permissible throughout the closure period during closure activities under 40 CFR section 257.101(a)(1); as noted previously, the movement of waste within a unit is generally not considered to be the "placement" of waste into a unit. For example, movement of CCR between impoundments within the multi-unit system to facilitate CCR dewatering and removal activities, even after the 6-month period would be permissible under this closure approach. Similarly, the continued pumping of the wastewaters through the multi-CCR unit system toward the NPDES-permitted outfall during closure (e.g., generated by precipitation or the release of interstitial water during CCR excavation) would also not be inconsistent with the placement prohibition under 40 CFR section 257.101(a)(1). However, the addition of CCR or other wastes from locations external to the multi-unit system would not be permissible, as this would constitute the placement of waste within the multi-unit system.

Implementation and Solid Waste Management Plans

How long does EPA anticipate it will take to approve a state solid waste management plan (SWMP)?

RESPONSE: The requirements at 40 CFR Part 256 state that the EPA has six months from the time of the submittal of the revised plan to either approve or disapprove the SWMP.

Please describe in detail the process that will be followed for approving the state plans.

RESPONSE: EPA has been working to develop materials and an efficient process (consistent with the requirements of the 40 CFR Part 256 regulations) for the review/approval of state plans. The Agency has developed a checklist of relevant sections of 40 CFR Part 256 (Guidelines for the Development & Implementation of State Solid Waste Management Plans) that states will be able to consult.

EPA will review the state's plan to determine how it intends to regulate CCR facilities in the state. EPA has also developed a checklist of the technical requirements included in the CCR final rule that will be available for the states to consult in developing their revised plans. In order to approve a revised state SWMP, EPA must, among other things, determine that the state plan provides enforceable regulatory requirements for the closing or upgrading of CCR disposal facilities that constitute open dumps. If the state SWMP incorporates the federal requirements verbatim, it will be straightforward to approve. If the state requirements for CCR facilities are different from the federal regulations, EPA will compare them and determine if the alternative requirements are at least as protective of public health and the environment as the federal minimum requirements.

Does EPA intend to delegate the authority to approve the revisions to the state plans to the Regional offices?

RESPONSE: EPA regional administrators have the authority to approve the revisions to SWMPs. Regions will consult with EPA headquarters to help ensure national consistency.

Many states will need statutory or regulatory changes in order to open the SWMP to incorporate the final rule. How does EPA anticipate that states will be able to incorporate the requirements in time to meet the six month effective date of the final rule?

RESPONSE: EPA does not necessarily expect the revised plans to be submitted by states before the effective date of the rule which is October 19, 2015. The technical requirements of the rule that facilities must meet have varying timelines; and many of the most complex requirements are not immediately effective. For example, the groundwater monitoring requirements must be met within two years of the effective date. In addition, the EPA's

current regulations do not preclude a state from submitting a SWMP for conditional approval based on anticipated regulatory or statutory revisions, or a partial SWMP to gain authority to extend compliance deadlines. However, note that where a partial SWMP is submitted, the regulations require EPA to establish a timetable for completion of the final plan in order to grant partial approval. 40 CFR 256.04(f).

The preamble to the final rule states that once "EPA has approved a SWMP that incorporates or goes beyond the minimum federal requirements, EPA expects that facilities will operate in compliance with that plan and the underlying state regulations." However, isn't it true that the federal requirements remain independently enforceable through federal citizen suits?

RESPONSE: Once a SWMP that incorporates or goes beyond the minimum federal requirements is approved, EPA believes that compliance with the state program would be considered as compliance with the federal CCR rule criteria. In addition, EPA anticipates that a facility that operates in accordance with an approved SWMP will be able to beneficially use that fact in a citizen suit brought to enforce the federal criteria. EPA believes a court will accord substantial weight to the fact that a facility is operating in accordance with an EPA-approved SWMP. Finally, we note that RCRA section 7002 requires a citizen group to provide 60 days notification to the EPA and the state prior to filing a suit to enforce the requirements of the CCR rule. States can take a number of actions in response to this notification, including: (a) intervening in the suit; or (b) filing their own action to enforce compliance with the rule, which would preempt the citizen's action.

How will the experience of states implementing the final rule inform EPA's future analysis? The final rule also identified the possibility that concentrations of hazardous contaminants in coal ash may rise in the near future.

RESPONSE: EPA recognizes the critical role that our state partners play in the implementation and ensuring compliance with the regulations, and the Agency expects that states will be active partners in overseeing the regulation of CC R landfills and CCR surface impoundments. Any future analysis will account for the states' implementation of the final rule, including any revisions to state programs adopted in response to the final rule. In this regard, EPA is strongly encouraging states to adopt these federal minimum criteria into their regulations and revise their SWMPs to incorporate these federal requirements. For those states that choose to submit revised SWMPs, EPA will review and approve those revised SWMPs, provided they demonstrate that the minimum federal requirements have been met. EPA expects that the information developed as part of this process will help the Agency better understand the full extent of a state's regulatory authority over the disposal of CCR and the manner in which states will implement this oversight.

What is the relationship between the EPA and the states in regard to implementation of the CCR rule?

RESPONSE: The final rule establishes self-implementing requirements -- primarily performance standards -- that owners or operators of regulated units can implement without any interaction with regulatory officials. These requirements apply directly to the facilities, and facilities must be in compliance with the rule on its effective date, irrespective of state requirements. States may choose to adopt the federal requirements into their existing program or to impose more stringent standards, but they are not required to adopt or implement these regulations, develop a permit program, or submit a program covering these units to EPA for approval and there is no mechanism for EPA to officially approve or authorize a State program to operate "in lieu of" the federal regulations.

In order to ease implementation the regulatory requirements for CCR landfills and CCR surface impoundments, EPA strongly encourages the States to adopt at least the federal minimum criteria into their regulations.

The federal requirements are independent of state requirements and do not preempt them. EPA recognizes that some states have already adopted requirements that go beyond the minimum federal requirements; for example, some states currently impose financial assurance requirements for CCR units, and require a permit for some or all of these units. This rule will not affect these state requirements. The federal criteria are minimum requirements and do not preclude states' from adopting more stringent requirements where they deem to be appropriate.

Is there any incentive for states to adopt the rule?

RESPONSE: If a state adopts the rule and EPA approves the state's solid waste management plan, the state may extend compliance times for "open dumps" that meet the criteria in RCRA 4005; e.g., times to complete structural stability measures.

What are the consequences if a state does not adopt the rule?

RESPONSE: None. Owners and operators of CCR disposal units are required to comply with the EPA's CCR rule irrespective of state action or requirements.

Miscellaneous

EPA is required, under the Bevill Amendment, to consider specific factors in determining whether to regulate coal ash under subtitle C of RCRA: (1) the source and volumes of material generated per year; (2) present disposal and utilization practices; (3) potential danger, if any, to human health and the environment from the disposal and reuse of such materials; (4) documented cases in which danger to human health or the environment from surface run-off or leachate has been proved; (5) alternatives to current disposal methods; (6) the costs of such alternatives; (7) the impact of those alternatives on the use of coal and other natural resources; and

(8) the current and potential utilization of such materials (42 U.S.C. § 6982(n)). EPA revisited these eight study factors in the coal ash final rule. What process did EPA use to gather this information and what did EPA find?

RESPONSE: In the proposed rule, EPA re-examined the eight Bevill study factors in section 8002(n) of RCRA, and solicited comment on its analysis. As discussed in both the proposed and final rules, the key elements (i.e., factors) of the analysis were EPA's risk assessment, the assessment of state programs and EPA's compilation of CCR damage cases. In response to the proposed rule, the Agency received significant comments on the various elements of the analysis and consequently published several Notices of Data Availability (NODAs) presenting new data and possible revisions to the analysis.

However, as discussed at length in the preamble to the final rule, critical information necessary to a final Regulatory Determination is still lacking on a number of key technical and policy questions. This includes information needed to quantify the risks of CCR disposal, and the potential impacts of recent Agency regulations on the chemical composition of CCR. The Agency also needs further information on the adequacy of the state programs.

In the absence of this information, EPA is unable to reach a conclusion on the issue that is central to a Bevill Determination: whether the risks presented by the management of CCR waste streams can only be adequately mitigated through regulation under RCRA subtitle C. Therefore, EPA deferred a final Regulatory Determination for these wastes. It is worth noting however that CCRs, both those disposed and beneficially used, remain Bevill exempt from RCRA subtitle C regulation and will remain so until EPA changes this determination. EPA will provide the public with an additional opportunity to comment on any proposed Regulatory Determination prior to issuing a final Regulatory Determination. (See 80 FR at 21327, April 17, 2015.)

What factors weighed most heavily on EPA's decision? The final rule identified technical uncertainties that cannot be resolved, including the extent to which risks are managed sufficiently under the final rule.

RESPONSE: Of the eight statutory Bevill study factors assessed, three weighed the most heavily in the Agency's decision to defer a final Regulatory Determination: (1) the extent of the risks posed by mismanagement of CCR; (2) the adequacy of state programs to ensure proper management of CCR; and (3) the extent and nature of damage cases.

What information will EPA gather over the next several years to resolve these technical uncertainties?

RESPONSE: Over the next several years, electric utilities will be moving forward in the implementation of this rule as well as the Effluent Limitations Guidelines and Standards for

the Steam Electric Power Generating Point Source Category (the ELG rule) and the Carbon Pollution Emission Guidelines for Existing Stationary Sources; Electric Utility Generating Units Clean Power Plant rules.

Until these regulatory requirements are implemented, it is premature to define a path forward for resolving the technical uncertainties identified in the final rule. A reasonable course, however, would be to follow the groundwater monitoring data and other information being posted to companies' websites to see what facilities, CCR landfills, and CCR surface impoundments continue operating, whether liners are leaking, and what concentration of contaminants we are observing. Any information that the EPA gathers in the future will be announced to the public and offered for public comment.

The final rule identified the possibility that concentrations of hazardous contaminants in coal ash may rise in the near future. Why might that happen? What actions might be necessary if that happens?

RESPONSE: In the final rule, EPA specifically noted that there were uncertainties regarding the evolving characterization and composition of CCR due to electric utility upgrades and retrofits of multi-pollutant control technologies and raised concern that these advances in human health and environmental protection could present new or otherwise unforeseen changes in CCR. Therefore, if the Agency determines at some future time that significant changes have occurred in the characterization or composition of CCR as a result of these increased air pollution control efforts, EPA will then make a determination on how state programs are addressing those risks and whether additional risk analyses are warranted. This determination may be strongly influenced by the monitoring of facility groundwater data to determine if the controls the Agency has put in place as a result of this rule are providing the necessary environmental protections. Any action that the Agency may consider in the future will be announced to the public and offered for public comment.