

March 20, 2017

**Via Email**

Barnes Johnson  
Director, Office of Resource Conservation & Recovery  
United States Environmental Protection Agency  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460-0001  
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Re: Closure-in-Place Option under the CCR Rule

Dear Barnes:

I write because it has come to my attention that certain environmental organizations are erroneously alleging that the performance standard for the closure-in-place option under the coal combustion residuals (“CCR”) rule cannot be achieved when CCR in the impoundment undergoing closure is in contact with groundwater. This position is not only incorrect from a technical perspective, but is flatly inconsistent with the plain language of the regulations and prior EPA pronouncements that both of the rule’s closure options are equally protective and that there are no particular set of circumstances that mandates the use of one option over the other. Nonetheless, environmental organizations are alleging that, in certain circumstances, the rule effectively compels the use of the closure-by-removal option, which as you know can have adverse off-site environmental impacts and can be far more costly than the closure-in-place option.

As EPA contemplated in developing the rule’s Regulatory Impact Analysis, and as the Agency stated explicitly in the preamble to the final rule, EPA fully expects most owners/operators to select the closure-in-place option when closing their CCR surface impoundments. Therefore, USWAG intends to remain vigilant in responding to the misleading arguments being advanced by environmental organizations attempting to limit the use of the closure-in-place option and seeking to compel facilities to close-by-removal. Set forth below are arguments rebutting environmental groups’ assertions that the closure-in-place option cannot be used in circumstances where CCR is in contact with groundwater.

Overview of CCR Rule Closure Options

The CCR rule authorizes owners/operators of CCR surface impoundments to close their impoundments by either (1) leaving the CCR in place after dewatering and/or stabilizing the wastes sufficient to support a final cover system and conducting 30-years of post-closure groundwater monitoring (referred to as “closure-in-place”) or (2) removing the CCR and decontaminating the CCR unit and releases from the unit (referred to as “closure-by-removal”). Impoundments that undergo closure-by-removal are exempt from undertaking post-closure care.

The CCR rule does not mandate the use of the closure-by-removal option in any particular set of circumstances, but, rather, leaves to the owner/operator the choice of using either option. Indeed, the closure-in-place option specifically contemplates that CCR will remain in the unit and that any potential releases from the unit following closure—including any releases from CCR in contact with groundwater—will be addressed, as necessary, through the rule’s post-closure care groundwater monitoring and corrective action requirements. Therefore, the suggestion by environmental organizations that the closure-by-removal option must be used when CCR is in contact with groundwater water is inconsistent with the plain text and structure of the CCR rule.

#### 1. The Closure-in-Place & Closure-by-Removal Performance Standards

The CCR rule sets forth a number of requirements that must be met when the closure-in-place option is selected, including a closure-in-place performance standard directing that the impoundment be 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.

40 C.F.R. § 257.102(d)(1).

In addition, free liquids in the impoundment must be eliminated by either removing liquid wastes or solidifying the remaining wastes and waste residues so that the remaining wastes are stabilized sufficiently to support a final cover system. *Id.* at § 257.102(d)(2). Further, a final cover system must be installed over the closed unit meeting specified design standards that minimize infiltration and erosion. *Id.* at § 257.102(d)(3).

Because CCR remains in the impoundment when closure-in-place is completed, the CCR rule also requires that the owner/operator continue to maintain the unit’s groundwater monitoring program (under 40 C.F.R. §§ 257.90 through 257.98) for not less than 30-years (referred to as “post-closure care groundwater monitoring”), in addition to continuing to maintain the effectiveness and integrity of the unit’s final cover system for 30-years. *See* 40 C.F.R. § 257.104(b)-(c). If at any time during this 30-year period a release from CCR remaining in the unit is confirmed at a statistically significant level above an applicable groundwater protection standard, the owner/operator must initiate and undertake corrective action to address the release. Corrective action and groundwater monitoring must continue until the applicable groundwater protection standards are met, even if this time period extends beyond the 30-year post-closure care period. *Id.* at §§257.98(c), 257.104(c)(2).

In contrast, the closure-by-removal performance standard requires removal of all CCR from the unit and decontamination of all areas affected by releases of CCR from the unit. 40 C.F.R. § 257.102(c). Closure is complete when the CCR contamination is removed and groundwater monitoring concentrations do not exceed applicable groundwater protection standards. *Id.* Because the closure-by-removal option requires removal of all CCR from the unit and remediation of CCR releases from the unit, impoundments closed under this option are exempt from post-closure care requirements (*id.* at § 257.104(a)(2)) and are not subject to further regulation under the CCR rule.

EPA has made clear that if the relevant performance standard is met, both closure options are equally protective and that the rule does not mandate the use of one option over the other. However, because the costs of closure-by-removal (commonly referred to by EPA as “clean closure”) can be far greater than closure-in-place, the Agency expects most facilities to close CCR surface impoundments under the closure-in-place option. EPA stated in the final rule that “most facilities will likely *not* clean close their CCR units given the expense and difficulty of such an operation.” 80 Fed. Reg. 21302, 21412 (April 17, 2015) (emphasis added). This conclusion is consistent with the assumptions in the Regulatory Impact Analysis underlying the rule where EPA “assume[d] that *all* surface impoundments undergo closure as landfills [*i.e.*, utilize the closure-in-place option], meaning that surface impoundments are not excavated [*i.e.*, do not utilize the closure-by-removal option], nor is their ash trucked off site.”<sup>1</sup> Thus, EPA clearly contemplates most owner/operators closing their impoundments under the closure-in-place option. Nonetheless, the Agency included the closure-by-removal option in the rule because EPA believed it is “generally preferable from the standpoint of land re-use and redevelopment” and therefore “explicitly identified this as an acceptable means of closing a unit.” 80 Fed. Reg. at 21412. Critically, however, EPA explained that “both methods of closure (*i.e.*, clean closure and closure with waste in place) can be equally protective, provided they are conducted properly.” *Id.* EPA also made clear that “[t]he final rule allows the owner or operator to determine whether clean closure or closure with the waste in place is appropriate for their particular unit.” *Id.*

Thus, nothing in the plain text of the CCR rule mandates that a particular closure option be employed in any particular set of circumstances. In fact, EPA explicitly states that it “did not propose to require clean closure *nor to establish restrictions on the situations in which clean closure would be appropriate.*” *Id.* at 21412 (emphasis added). Nonetheless, environmental groups contend that the closure-by-removal option *must* be selected in circumstances where CCR is in contact with the groundwater. This argument is without merit and, among other things, misreads the plain text and structure of the CCR rule.

## 2. Environmental Group’s Position is at Odds with the Plain Language and Structure of the CCR Rule

The notion that the closure-by-removal option must be used in circumstances where CCR is in contact with groundwater was raised recently in a December 21, 2016, letter from the

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<sup>1</sup> Regulatory Impact Analysis,” EPA’s 2015 RCRA Final Rule Regulating Coal Combustion Residual (CCR) Landfills and Surface Impoundments at Coal-Fired Electric Utility Power Plants,” December 2014, at 4-24 (emphasis added).

Southern Environmental Law Center (“SELC”) to the Tennessee Department of Environment and Conservation alleging that the Tennessee Valley Authority cannot close certain of its surface impoundments under the closure-in-place option because of the presence of CCR in groundwater. In these circumstances, SELC argued the closure-in-place performance standard could not be met because it:

will not control or minimize releases “to the maximum extent feasible,” as required by the Rule, because the waste will be left perpetually submerged in groundwater that is hydrologically connected to the nearby creek and Cumberland River. Nor will the proposal minimize or eliminate “the infiltration of liquids into the waste.” In fact, it is obvious that water will constantly enter and exit the saturated ash, leaching contaminants into the environment, indefinitely.

SELC Letter at 13-14. While it is difficult to ascertain the precise logic of this position, SELC appears to be arguing that the closure-in-place performance standard to control or minimize infiltration into the unit cannot be met as long as CCR in the impoundment is in contact with the groundwater. This position misreads the plain meaning and structure of the CCR rule and effectively reads into the CCR rule a restriction on using the closure-in-place option when the rule says nothing of the sort. In fact, the CCR rule expressly contemplates CCR remaining in place under the closure-in-place option, with no distinction regarding whether or not the CCR is in contact with groundwater.

Further, while EPA has made clear the CCR rule allows an owner or operator to determine which closure option is appropriate for its particular units, a recent EPA guidance document has caused some confusion because it could be construed as stating that the closure-by-removal option should be employed when CCR is in contact with the groundwater. Specifically, when discussing the performance standards for the rule’s two closure options, the Agency explained that:

[w]hether any particular unit or facility can meet the performance standards for closure with waste in place is a site-specific determination that will depend on a number of factual and engineering considerations, such as the hydrogeology of the site, the engineering of the unit, and the kinds of engineering measures available. For example, if a small corner of a unit is submerged in the underlying aquifer, a facility might be able to meet the performance standard for closure with waste in place for the majority of the unit, by “clean closing” the submerged portion of the unit, and installing the necessary engineering measures to ensure that the rest of the unit meets the [closure-in-place] performance standards in § 257.102(d).<sup>2</sup>

There have been concerns that this example implies that a CCR surface impoundment may not be able to meet the CCR rule’s closure-in-place performance standard where a portion

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<sup>2</sup> This example was provided by EPA in a “Question and Answer” document released by EPA in December 2016 discussing the relationship between the CCR rule and EPA’s Clean Water Act NPDES requirements.

of the CCR in the impoundment is “submerged in the underlying aquifer,” and that in such circumstances this portion of the impoundment must be closed through the closure-by-removal option. While closing an impoundment under the closure-by-removal option in these circumstances may be an option, EPA also has made clear that the CCR rule does not mandate the use of either closure option in any particular set of circumstances. 80 Fed. Reg. at 21412. Indeed, there may be circumstances, given the regulatory timelines for closure under the rule, where it may not be possible to meet the closure-by-removal standard within the rule’s prescribed timeframes. *See* 40 C.F.R. § 257.102(f)(1)-(2). This could be due to any number of site-specific geological or unit-specific factors, including, for example, the volume of CCR in the unit and the time necessary to safely and effectively dewater and excavate the CCR from the unit, as required under the closure-by-removal option. In these cases, the owner/operator would, as a practical matter, have little option but to select the closure-in-place option to ensure compliance with the rule’s prescribed closure deadlines. Therefore, EPA’s example should not be improperly construed as compelling use of the closure-by-removal option when CCR in the unit is in contact with groundwater.

SELCO, however, is doing just that by arguing that the closure-in-place performance standard cannot be met when CCR is in contact with groundwater. This argument is fundamentally flawed because it reads into the rule a limitation on the use of the closure-in-place option that does not exist and ignores the rule’s post-closure care program that works in conjunction with the closure-in-place option to address any potential contamination from CCR that remains in place. This position also is directly at odds with EPA’s position that the rule does not mandate use of a particular closure method and that the Agency in fact expects the majority of CCR surface impoundments to be closed under the closure-in-place option. To pinpoint the flaws in SELCO’s position, it is important to understand how the rule’s two closure options address CCR that may be in contact with groundwater at the time of closure.

The CCR rule is clear that if an impoundment undergoing closure has CCR in contact with groundwater, the CCR in the groundwater must be removed, as necessary, *only if* the owner/operator chooses to utilize the closure-by-removal option. This option requires removal of all wastes from the unit and the decontamination of any areas affected by releases from the unit, including the removal or decontamination “of the underlying and surrounding soils and flushing, pumping, and/or treating the aquifer.” *Id.* at 21412. EPA “interprets the term ‘soil’ broadly to include both unsaturated soils and soils containing groundwater.” *Id.* (emphasis added). Therefore, CCR in contact with groundwater must be addressed as a condition of closing-by-removal.

If a unit closes under this standard, the sources of potential contamination are removed and the unit is not subject to post-closure care. EPA included the exemption from post-closure care to incentivize owners and operators to “clean close” their units. *Id.* at 21412. The fact that EPA offered this exemption as an incentive for units closing-by-removal underscores that this closure method *is an option* and not mandatory under any particular set of circumstances, including where CCR is in contact with groundwater.

On the other hand, the closure-in-place option is specifically designed to allow for closure with wastes remaining in the closed unit, including in the unsaturated soils and soils containing groundwater (hence the name “Closure performance standard when leaving CCR in place”). 40 C.F.R. § 257.102(d). This is precisely why units that close-in-place are subject to a

minimum of 30 years of post-closure care groundwater monitoring to monitor and undertake corrective action, as necessary, if any releases are confirmed from the closed unit above the applicable groundwater protection standards. EPA included the post-closure care requirements in the rule precisely because it recognized that controls were necessary “to ensure that there would be no reasonable probability of adverse effect from the wastes that remain after a CCR unit has closed.” 80 Fed. Reg. at 21409. If CCR in an impoundment undergoing closure-in-place is in contact with groundwater, releases from the unit—including any potential releases from CCR contained in groundwater—will be detected by the unit’s groundwater monitoring system and addressed, as necessary, through the rule’s corrective action program. The critical point is that this closure option recognizes that CCR may remain in contact with groundwater when closure is complete, and that releases from such CCR will be addressed, as necessary, by virtue of the rule’s post-closure care requirements.<sup>3</sup>

In short, owners and operators of CCR units have two equally acceptable closure options under the rule with respect to addressing CCR that may be in contact with groundwater: either excavate the CCR and remediate other areas of related contamination, including the CCR in contact with groundwater, demonstrate attainment of the applicable groundwater protection standard, and essentially “walk away” from the unit; or close with CCR in place, conduct no less than 30 years of post-closure care, and, if required, implement corrective action measures if CCR releases are detected, including those from CCR in contact with groundwater, until such time as the rule’s groundwater protection standards are met. In either case, if CCR is in contact with the groundwater at the time of closure, both closure options will ensure that any releases from the CCR will not exceed the rule’s groundwater protection standards.

### 3. Environmental Group’s Argument Misreads the Closure-in-Place Performance Standard

Apart from ignoring the fundamental structure of the CCR rule, SELC’s position misreads the purpose and plain text of the closure-in-place performance standard, which provides that facilities utilizing the closure-in-place option:

Control, minimize or eliminate, to the maximum extent feasible, *post-closure infiltration of liquids into the waste* and releases of CCR, leachate, or contaminated run-off *to the ground or surface waters or to the atmosphere*.

40 C.F.R. § 257.102(d)(i) (emphasis added). SELC reads this standard as somehow precluding any CCR in the closed unit from contacting groundwater at the completion of closure. The regulatory text, however, says nothing of the sort, and instead speaks to preventing to the “maximum extent feasible” the post-closure infiltration of liquids *into the waste* (i.e., through the final cover system) to prevent releases of CCR or contaminated runoff “to the ground or surface waters or the atmosphere.” In other words the performance standard is speaking to the performance of the final cover system—which is the central feature of the closure-in-place option (*see id.* at § 257.102(d)(3))—and its effectiveness in preventing liquids from infiltrating

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<sup>3</sup> In fact, in preparing its risk assessment underlying the CCR rule, EPA specifically considered the potential implication of groundwater-saturated CCR and concluded that “this uncertainty is unlikely to have an appreciable effect” on its risk assessment. Human and Ecological Risk Assessment of Coal Combustion Residuals, EPA 5-10 to 5-11 (December 2014). Thus, despite specifically acknowledging this groundwater scenario, EPA still concluded in the final rule that both closure options, if properly performed, were equally protective.

the cover and causing CCR contained in the closed unit from being released or leaching to the ground, surface waters or the atmosphere.

Given this, it is not surprising the standard does not mention groundwater, let alone suggest that the standard cannot be met if CCR is in contact with groundwater. Indeed, when EPA refers to the term groundwater elsewhere in the rule, it specifically uses the single word – “groundwater.”<sup>4</sup> Here, the rule’s use of the definite article “the” before “ground” only underscores that the standard is referring to releases—such as contaminated runoff from the cover system—to the ground. This makes complete sense given, as explained above, that any releases to “groundwater” from CCR remaining in the closed unit are addressed, as necessary during the minimum of 30-years of post-closure care groundwater monitoring and associated corrective action. Not only does the performance standard not mention groundwater, but SELC’s argument ignores the rule’s express reliance on the post-closure care groundwater monitoring and corrective action program to address potential releases to “groundwater” from units that close-in-place.

That the closure-in-place performance standard in 40 C.F.R. § 257.102(d)(i) is addressing the prevention of liquids through the unit’s cover system—as opposed to addressing CCR in contact with groundwater—is further confirmed by the related regulatory text detailing how this performance standard is to be met. First, the written closure plan for impoundments closing-in-place requires a “description of the final cover system” and “*how the final cover system will achieve the performance standards specified in paragraph (d) [i.e., the closure-in-place performance standard].*” 40 C.F.R. 257.102(b)(1)(iii) (emphasis added). Thus, the rule on its face ties achievement of the closure-in-place performance standard to the proper installation of the final cover system. Second, the rule directs that the final cover system meet a specified “permeability” standard and ensure that “[t]he *infiltration of liquids* through the closed CCR unit must be minimized by the use of an infiltration layer” meeting specified criteria. *Id.* at § 257.102(d)(3)(A)-(B) (emphasis added). Here too, the regulatory text makes clear that the performance standard’s direction to prevent “the post-closure infiltration of liquids into the waste” is tied directly to the implementation of a final cover system meeting specified permeability criteria and the use of an infiltration system designed to minimize such infiltration.

EPA itself in the preamble to the final rule confirms that the closure-in-place performance standard is tied to the performance of the final cover system:

To address the commenters’ concerns that the final cover system may not function effectively as designed over the long term under certain circumstances, the rule also includes a performance standard that any final cover system must meet. . . . The final rule requires that any final cover system *control, minimize or eliminate, to the maximum extent practicable*, post-closure infiltration of liquids into the waste and releases of leachate (in addition to CCR or contaminated runoff) to the ground or surface waters. Thus, a facility must ensure that in designing a final cover for a CCR unit they account for any condition that may cause the final cover system not to perform as designed. Under this performance

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<sup>4</sup> In fact, “groundwater” is a defined term in the CCR rule. See 40 C.F.R. § 257.53.

standard [i.e., the closure-in-place performance standard], if the cover system results in liquids infiltration or releases of leachate from the CCR unit, the final cover would not be an appropriate cover.

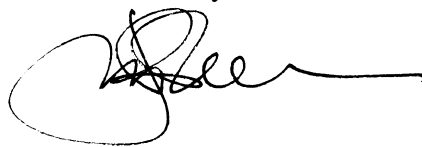
80 Fed. Reg. at 21413 (emphasis added). EPA’s explanation references the precise regulatory text used in the rule’s closure-in-place performance standard, underscoring that the standard is referring to preventing the penetration of liquids through the cover system and achievement of this standard through the implementation of a proper cover system. Indeed, the proposed CCR rule would have required, *inter alia*, that the final cover for all CCR units “be designed to minimize, over the long-term, the migration of liquids through the closed impoundment . . . so that the cover’s integrity is maintained.” 75 Fed. Reg. 35127, 35208 (June 21, 2010). Thus, in both the proposed and final rules, the text of the closure-in-place performance standard speaks to preventing the infiltration of liquids through the final cover system through the implementation of a specified cover system, not to the remediation of CCR that may be in contact with the groundwater.

Even assuming, for purposes of argument, the performance standard could be read as extending beyond the effectiveness of the final cover system to encompass CCR in contact with groundwater, the standard does not require the total elimination of CCR from the groundwater as SELC contends. SELC’s position ignores the plain language in the standard providing that the “infiltration of liquids into the waste and releases of CCR” be “[c]ontrol[ed], minimize[d] or eliminate[d], to the maximum extent feasible.” 40 C.F.R. § 257.102(d)(i) (emphasis added.) Controlling or minimizing, to the maximum extent feasible, releases of CCR from the unit also meets the standard and could be achieved in any number of ways. Thus, even under SELC’s incorrect reading of the closure-in-place performance standard, the standard does not mandate the complete removal of CCR that may be in contact with groundwater.

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As the above discussion makes clear, nothing in the CCR rule mandates the use of the closure-by-removal option in any particular set of circumstances, but rather leaves to the owner/operator the choice of using either option. The closure-in-place option specifically contemplates that CCR will remain in the unit and that any potential releases from the unit following closure—including any releases from CCR in contact with groundwater—will be addressed, as necessary, through the rule’s post-closure care groundwater monitoring and corrective action requirements. The suggestion by environmental organizations that the closure-by-removal option must be used when CCR is in contact with groundwater water is inconsistent with the plain text and structure of the rule.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Roewer', with a long horizontal flourish extending to the right.

James Roewer  
USWAG Executive Director