

# Implementing Your CCR Compliance Plan





## EPA's CCR Ruling

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the final rule for the regulation and management of coal combustion residuals (CCR) under the Resource Conservation and Recovery Act (RCRA).

The rule—effective on October 19, 2015—applies to electric utilities and independent power producers that fall within NAICS code 221112, and the facility produces or stores CCR materials in impoundments or landfills.

In June 2016, the early closure provisions for inactive surface impoundments were cancelled, making them subject to the requirements for existing CCR surface impoundments. The EPA published the direct final rule—effective October 4, 2016—extending deadlines for owners and operators of inactive surface impoundments, who took advantage of the early closure requirements.

## How We Can Help

The dust has settled since the EPA published the final CCR ruling. At this point you've decided how to manage ash, and your plant's CCR compliance plans are in place. As you work to implement your plans, we're here to help guide you to the best possible outcome.

### Our Solutions

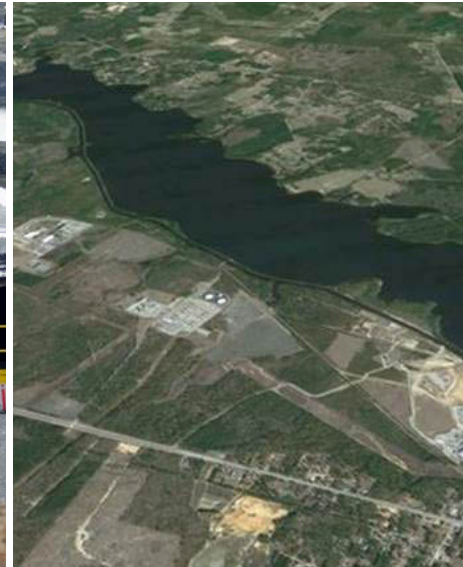
**Groundwater Assessment & Remediation:** Detection monitoring results will be compiled in 2017 and 2018. We can evaluate the resulting data, and consider background and alternative sources to determine if corrective actions will be required as well as identify cost-effective solutions.

**Dewatering:** This is a significant hurdle for impoundment closures. Several options are available, and we can work with you to determine the best option based on site-specific conditions.

**Effluent Limitation Guidelines (ELG):** If you currently discharge ash transport waters, flue gas mercury control system waters, wet flue gas desulfurization scrubber purge, or CCR leachate, we can help investigate the impact the rule may have on your facility and implement corrective actions.

**Alternative Closure Methods & Caps Technology:** Consider an alternative cover material that has the potential for cost savings and greater design flexibility. The ultimate use of CCR impoundments or landfills provides multiple opportunities for solar power production and revenue generation.

# Our Experience



## Ash Basin Groundwater Assessment Program for 7 Plants

*Duke Energy*

- Groundwater assessment and modeling
- Groundwater compliance monitoring
- Seepage identification, evaluation, and discharge reports
- Final reporting

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## Landfill Expansion

*Confidential Client*

- CCR used as an on-site beneficial building material to construct mechanically stabilized (MS) wall to optimize landfill capacity
- MS wall used to extend site life and increase airspace capacity without expanding the area of the existing permitted footprint
- Design meets Subtitle D criteria
- Can be constructed as CCR is generated

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## CCR and ELG Consulting, Engineering, and Design for Multiple Sites

*TVA*

- Wastewater treatment consulting and design
- Waste and by-product management for wet or dry coal combustion conversion and decommissioning
- Ash landfill siting and studies
- CCR Intelligent Compaction field studies
- Groundwater data review and consultation

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## CCR Compliance at 5 Power Plants

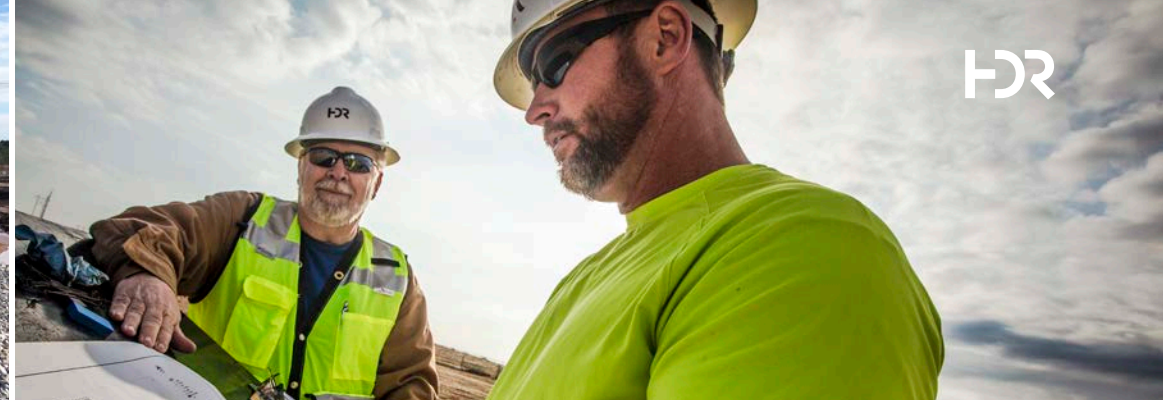
*Confidential Client*

- Fugitive dust, civil engineering, project management, groundwater assessment, and annual inspections
- CCR-compliant design and construction engineering oversight of impoundment clean closure plans, landfill expansions, and new landfills and impoundments
- 25 CCR compliance reports

## Requirements At A Glance By Facility Type

	EXISTING CCR LANDFILLS	NEW LANDFILLS	EXISTING CCR SURFACE IMPOUNDMENTS	NEW CCR IMPOUNDMENTS UNITS & LATERAL EXPANSIONS	INACTIVE SURFACE IMPOUNDMENTS*
<p><b>Location Restrictions</b></p>	<ul style="list-style-type: none"> <li>Unstable areas</li> </ul>	<ul style="list-style-type: none"> <li>Placement above the uppermost aquifer</li> <li>Wetlands</li> <li>Fault areas</li> <li>Seismic impact zones</li> <li>Unstable areas</li> </ul>	<ul style="list-style-type: none"> <li>Placement above the uppermost aquifer</li> <li>Wetlands</li> <li>Fault Areas</li> <li>Seismic impact zones</li> <li>Unstable Areas</li> </ul>	<ul style="list-style-type: none"> <li>Placement above the uppermost aquifer</li> <li>Wetlands</li> <li>Fault areas</li> <li>Seismic impact zones</li> <li>Unstable areas</li> </ul>	<ul style="list-style-type: none"> <li>Placement above the uppermost aquifer</li> <li>Wetlands</li> <li>Fault Areas</li> <li>Seismic impact zones</li> <li>Unstable Areas</li> </ul>
<p><b>Design Requirements</b></p>	<ul style="list-style-type: none"> <li>Not required</li> </ul>	<ul style="list-style-type: none"> <li>Leachate collection &amp; removal system</li> <li>Two component liner</li> </ul>	<ul style="list-style-type: none"> <li>Unlined impoundments must: <ul style="list-style-type: none"> <li>Meet groundwater protection standards</li> <li>Retrofit with a composite liner system or be closed</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Two component liner</li> </ul>	<ul style="list-style-type: none"> <li>Unlined impoundments must: <ul style="list-style-type: none"> <li>Meet groundwater protection standards</li> <li>Retrofit with a composite liner system or be closed</li> </ul> </li> </ul>
<p><b>Structural Analysis</b></p>	<ul style="list-style-type: none"> <li>Not required</li> </ul>	<ul style="list-style-type: none"> <li>Not required</li> </ul>	<ul style="list-style-type: none"> <li>Hazard potential classification assessments</li> <li>Spillway adequacy assessments</li> <li>Structural stability assessments</li> <li>Safety factor assessments</li> <li>Emergency action plan</li> <li>Weekly &amp; annual inspections</li> </ul>	<ul style="list-style-type: none"> <li>Hazard potential classification assessments</li> <li>Spillway adequacy assessments</li> <li>Structural stability assessments</li> <li>Safety factor assessments</li> <li>Emergency action plan</li> <li>Weekly &amp; annual inspections</li> </ul>	<ul style="list-style-type: none"> <li>Hazard potential classification assessments</li> <li>Spillway adequacy assessments</li> <li>Structural stability assessments</li> <li>Safety factor assessments</li> <li>Emergency action plan</li> <li>Weekly &amp; annual inspections</li> </ul>
<p><b>Operating Criteria</b></p>	<ul style="list-style-type: none"> <li>Fugitive dust controls</li> <li>Run on, run off control</li> <li>Surface water protection</li> <li>Inspection requirements for landfills</li> </ul>	<ul style="list-style-type: none"> <li>Fugitive dust controls</li> <li>"Wetting" of CCR</li> <li>Run on, run off control</li> <li>Surface water protection</li> <li>Inspection requirements for landfills</li> </ul>	<ul style="list-style-type: none"> <li>Fugitive dust controls</li> <li>Inflow control</li> <li>Surface water protection</li> <li>Inspection requirements for CCR surface impoundments</li> </ul>	<ul style="list-style-type: none"> <li>Fugitive dust controls</li> <li>"Wetting" of CCR</li> <li>Inflow control</li> <li>Surface water protection</li> <li>Inspection requirements for CCR surface impoundments</li> </ul>	<ul style="list-style-type: none"> <li>Fugitive dust controls</li> <li>Inflow control</li> <li>Surface water protection</li> <li>Inspection requirements for CCR surface impoundments</li> </ul>
<p><b>Groundwater Monitoring Systems</b></p>	<ul style="list-style-type: none"> <li>Groundwater monitoring program</li> <li>Groundwater monitoring wells</li> <li>8 rounds of sampling data (by October 17, 2017)</li> <li>Calculate background levels</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater monitoring program</li> <li>Groundwater monitoring wells</li> <li>8 rounds of sampling data (within 6 months &amp; before accepting CCR)</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater monitoring program</li> <li>Groundwater monitoring wells</li> <li>8 rounds of sampling data (by October 17, 2017)</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater monitoring program</li> <li>Groundwater monitoring wells</li> <li>8 rounds of sampling data (within 6 months &amp; before accepting CCR)</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater monitoring program</li> <li>Groundwater monitoring wells</li> <li>8 rounds of sampling data (by April 17, 2019)</li> </ul>
<p><b>Closure &amp; Post Closure Requirements</b></p>	<ul style="list-style-type: none"> <li>Equivalent to liner system</li> <li>Alternative designs if infiltration criteria is met</li> <li>30 years landfill cap &amp; leachate collection maintenance</li> <li>30 years of groundwater monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent to liner system</li> <li>Alternative designs if infiltration criteria is met</li> <li>30 years landfill cap &amp; leachate collection maintenance</li> <li>30 years of groundwater monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent to liner system</li> <li>Alternative designs if infiltration criteria is met</li> <li>30 years landfill cap maintenance</li> <li>30 years of groundwater monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent to liner system</li> <li>Alternative designs if infiltration criteria is met</li> <li>30 years landfill cap maintenance</li> <li>30 years of groundwater monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent to liner system</li> <li>Alternative designs if infiltration criteria is met</li> <li>30 years landfill cap maintenance</li> <li>30 years of groundwater monitoring</li> </ul>
<p><b>Recordkeeping, Reporting &amp; Communication</b></p>	<ul style="list-style-type: none"> <li>Compliance documents maintained for 5 years</li> <li>State agency notification of comprehensive list of actions</li> <li>All unit documentation publicly available on website, titled "CCR Rule Compliance Data and Information"</li> </ul>	<ul style="list-style-type: none"> <li>Compliance documents maintained for 5 years</li> <li>State agency notification of comprehensive list of actions</li> <li>All unit documentation publicly available on website, titled "CCR Rule Compliance Data and Information"</li> </ul>	<ul style="list-style-type: none"> <li>Compliance documents maintained for 5 years</li> <li>State agency notification of comprehensive list of actions</li> <li>All unit documentation publicly available on website, titled "CCR Rule Compliance Data and Information"</li> </ul>	<ul style="list-style-type: none"> <li>Compliance documents maintained for 5 years</li> <li>State agency notification of comprehensive list of actions</li> <li>All unit documentation publicly available on website, titled "CCR Rule Compliance Data and Information"</li> </ul>	<ul style="list-style-type: none"> <li>Compliance documents maintained for 5 years</li> <li>State agency notification of comprehensive list of actions</li> <li>All unit documentation publicly available on website, titled "CCR Rule Compliance Data and Information"</li> </ul>

\*Must meet direct final rule criteria. See next page.



## Does the direct final rule apply to me?

This direct final rule applies only to those owners or operators of inactive CCR surface impoundments that complied with the requirement at 40 CFR 257.105(i)(1) by:

1. Placing in their facility's written operating record a notification of intent to initiate closure of the CCR unit no later than December 17, 2015
2. Providing notification to the relevant State Director and/or appropriate Tribal authority by January 19, 2016, of the intent to initiate closure of the CCR unit
3. Placing the notification of intent to initiate closure of the CCR unit on the owner or operator's publicly accessible CCR website no later than January 19, 2016

## CCR Compliance Milestones

### Checklist for Inactive CCR Surface Impoundments Compliance

#### April 18, 2017

- Prepare fugitive dust control plan
- Initiate weekly inspections of the CCR unit
- Initiate monthly monitoring of CCR unit instrumentation

#### June 16, 2017

- Install permanent marker

#### July 19, 2017

- Complete the initial annual inspection of the CCR unit

#### April 17, 2018

- Document whether CCR unit is either a lined or unlined CCR surface impoundment
- Compile a history of construction
- Complete initial hazard potential classification assessment

- Complete initial structural stability assessment

- Complete initial safety factor assessment

- Prepare initial inflow design flood control system plan

- Prepare written closure and post-closure care plans

#### October 16, 2018

- Prepare emergency action plan

#### April 17, 2019

- Install the groundwater monitoring system

- Develop the groundwater sampling and analysis program

- Initiate the detection monitoring program

- Begin evaluating the groundwater monitoring data for statistically significant increases over background levels

#### August 1, 2019

- Prepare initial groundwater monitoring and corrective action report

#### April 16, 2020

- Complete demonstration for placement above the uppermost aquifer

- Complete demonstrations for wetlands

- Complete demonstrations for fault areas

- Complete demonstrations for seismic impact zones

- Complete demonstrations for unstable areas



## CCR Compliance Milestones

### Checklist for Active CCR Surface Impoundments Compliance

#### October 19, 2015

- Prepare fugitive dust control plan
- Conduct required recordkeeping
- Provide required notifications
- Establish CCR website
- Initiate weekly inspections of the CCR unit
- Initiate monthly monitoring of CCR unit instrumentation

#### December 17, 2015

- Install permanent marker

#### January 19, 2016

- Complete the initial annual inspection of the CCR unit

#### October 17, 2016

- Document whether CCR unit is either a lined or unlined CCR surface impoundment
- Compile a history of construction
- Complete initial hazard potential classification assessment
- Complete initial structural stability assessment
- Complete initial safety factor assessment
- Prepare initial inflow design flood control system plan

- Prepare written closure and post-closure care plans

#### April 17, 2017

- Prepare emergency action plan

#### October 17, 2017

- Install the groundwater monitoring system
- Develop the groundwater sampling and analysis program
- Initiate the detection monitoring program
- Begin evaluating the groundwater monitoring data for statistically significant increases over background levels

#### January 31, 2018

- Prepare initial groundwater monitoring and corrective action report

#### October 17, 2018

- Complete demonstration for placement above the uppermost aquifer
- Complete demonstrations for wetlands
- Complete demonstrations for fault areas
- Complete demonstrations for seismic impact zones
- Complete demonstrations for unstable areas

### Checklist for Existing CCR Landfill Compliance

#### October 19, 2015

- Prepare fugitive dust control plan
- Initiate weekly inspections of the CCR unit
- Conduct required recordkeeping
- Provide required notifications
- Establish CCR website

#### January 19, 2016

- Complete the initial annual inspection of the CCR unit

#### October 17, 2016

- Prepare initial run-on and run-off control system plan
- Prepare written closure and post-closure care plans

#### October 17, 2017

- Install the groundwater monitoring system
- Develop the groundwater sampling and analysis program
- Initiate the detection monitoring program
- Begin evaluating the groundwater monitoring data for statistically significant increases over background levels

#### January 31, 2018

- Prepare initial groundwater monitoring and corrective action report

#### October 17, 2018

- Complete demonstration for unstable areas

## Contact Us



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