

REINHOLD ENVIRONMENTAL Ltd.



**2014 Wastewater-Ash Round Table
& Expo Presentation**

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WorleyParsons

resources & energy

Update on Coal Combustion Residual Rule (CCR)

Wastewater-Ash / PCUG Conference

By Greg Nadeau, WorleyParsons



Agenda

History / Timeline of Coal Combustion
Residual (CCR) Regulations

EPA Approaches for Regulating CCRs

Effluent Limit Guidelines - Effect on CCRs

Facility Assessments

History / Timeline of CCR Regulations

Resource
Conservation and
Recovery Act
(RCRA) – October
1976

EPA determined
states best to
regulate CCRs –
1980

EPA determined that
CCRs were non-
hazardous – 1993

EPA reaffirmed that
CCRs were non-
hazardous – May
2000

- However recommended that they be regulated under Subtitle D, but never published regulations

History / Timeline of CCR Regulations (continued)

Ash Spill at
TVA's Kingston
Plant –
December 22,
2008

Coal
Combustion
Residuals –
Proposed Rule
– June 21,
2010

Technical
Corrections
Notice –
August 20,
2010

Notice of Data
Availability –
Surface
Impoundments
– October 21,
2010

End of First
Comment
Period –
November 19,
2010



History / Timeline of CCR Regulations (continued)

Notice of Data Availability (NODA) – October 12, 2011

- Chemical constituent data from coal combustion residuals
- Facility and waste management unit data
- Information on additional alleged damage cases
- Adequacy of State programs
- Beneficial use
- Comment period closed on November 14, 2011

Notice of Data Availability (NODA) – August 2, 2013

- Additional data to supplement the Regulatory Impact Analysis and risk assessment
- Information on large scale fill
- Data on the surface impoundment structural integrity assessments
- Solicit comments on alternative closure time periods and new CCR overfills constructed over closed CCR surface impoundments or landfills
- Comment period closed on September 3, 2013

History / Timeline of CCR Regulations (continued)

422,974 Comments received by EPA

EPA Agrees to Deadline for CCR Regulation – January 30, 2014

- Lawsuit originally brought in 2012
- Settlement does not dictate content of the final regulation

CCR Regulations Finalized – December 19, 2014 ?

Coal Combustion Residuals

- ▶ CCRs include the following:
 - Fly ash
 - Bottom ash
 - Boiler slag
 - Flue gas desulfurized gypsum (FGD Gypsum)



Approaches for Regulating Disposal of CCR's

- ▶ Resource Conservation and Recovery Act (RCRA)
 - Subtitle C Approach
 - Subtitle D Approach
- ▶ Proposal covers CCRs generated from the combustion of coal at electric utilities and independent power producers
- ▶ Engineering requirements (liner, groundwater monitoring, etc.) of the two options are similar
- ▶ Differences are primarily in enforcement and implementation
- ▶ Bevill exemption for beneficial uses of CCR's remains
- ▶ Mine filling is not covered by the proposal

Regulations under Subtitle C

- ▶ Listed as a “special waste subject to subtitle C”
- ▶ Subject to existing Subtitle C requirements, e.g., transport, permitting, groundwater monitoring, corrective action, and financial assurance. Land Disposal Restrictions (LDRs) and treatment standards apply.
 - Single Composite Liner
 - Structural Stability Requirements
 - Existing Landfills – 1 year for groundwater monitoring, but do not need to install composite liner
 - New Landfills or Lateral Expansion – groundwater monitoring and composite liners
 - Surface Impoundments – Must meet LDRs and liner requirements within 5 years or close within another 2 years – LDRs effectively phase out surface impoundments

Regulations under Subtitle D

- ▶ CCRs would remain classified as a “non-hazardous” waste
- ▶ National minimum criteria governing facilities disposing of CCRs
- ▶ Many of the engineering requirements are very similar to Subtitle C, e.g., groundwater monitoring, liner, and structural requirements
- ▶ Requirements are self implementing
- ▶ Owner / Operator required to:
 - Obtain certifications by independent professional engineers
 - Document how various standards are met and notify State
 - Maintain a web site, open to the public, that contains documentation that all the standards are met

Key Differences C versus D

	SUBTITLE C	SUBTITLE D
Effective Date	Timing will vary from state to state, as each state must adopt the rule individually-can take 1 – 2 years or more	Six months after final rule is promulgated for most provisions.
Enforcement	State and Federal	Enforcement through citizen suits; States can act as citizens.
Corrective Action	Monitored by authorized States and EPA	Self-implementing
Financial Assurance	Yes	Considering subsequent rule using CERCLA 108 (b) Authority
Permit Issuance	Federal requirement for permit issuance by States (or EPA)	No
Requirements for Storage, Including Containers, Tanks, and Containment Buildings	Yes	No
Surface Impoundments Built Before Rule is Finalized	Remove solids and meet land disposal restrictions; retrofit with a liner within five years of effective date. Would effectively phase out use of existing surface impoundments	Must remove solids and retrofit with a composite liner or cease receiving CCRs within 5 years of effective date and close the unit
Surface Impoundments Built After Rule is Finalized	Must meet Land Disposal Restrictions and liner requirements. Would effectively phase out use of new surface impoundments.	Must install composite liners. No Land Disposal Restrictions
Landfills Built Before Rule is Finalized	No liner requirements, but require groundwater monitoring	No liner requirements, but require groundwater monitoring
Landfills Built After Rule is Finalized	Liner requirements and groundwater monitoring	Liner requirements and groundwater monitoring
Requirements for Closure and Post-Closure Care	Yes; monitored by States and EPA	Yes; self-implementing

Other Options Discussed in Preamble

- ▶ D Prime
 - Existing impoundments allowed to operate until end of useful life
 - Other requirements the same as D
- ▶ Wet-handled CCRs – Subtitle C; Dry-handled – Subtitle D
- ▶ Issue Subtitle C regulations, that would only be effective if the State **does not**:
 - Develop enforceable Subtitle D regulations and submitted and approved by EPA
 - If State fails to develop a program within 2 years or EPA does not approve with 1 year, the Federal Subtitle C rule becomes effective in that state



Other Options Discussed in Preamble (continued)

- ▶ “Cement Kiln Dust” Approach
 - Establish detailed management standards under Subtitle D
 - If CCR management was in egregious violation of the requirements, the CCRs would be considered “special wastes” under Subtitle C
- ▶ Rely on NPDES Permits for structural integrity requirements

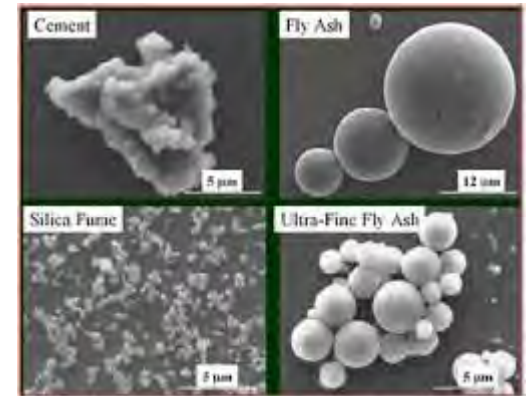
Potential Issues Under Subtitle D

- ▶ States can set stricter criteria
- ▶ Different criteria from state to state
- ▶ Enforcement through citizen suits (non stop litigation?)
- ▶ Independent engineers and scientists determine compliance and equivalency



Beneficial Use

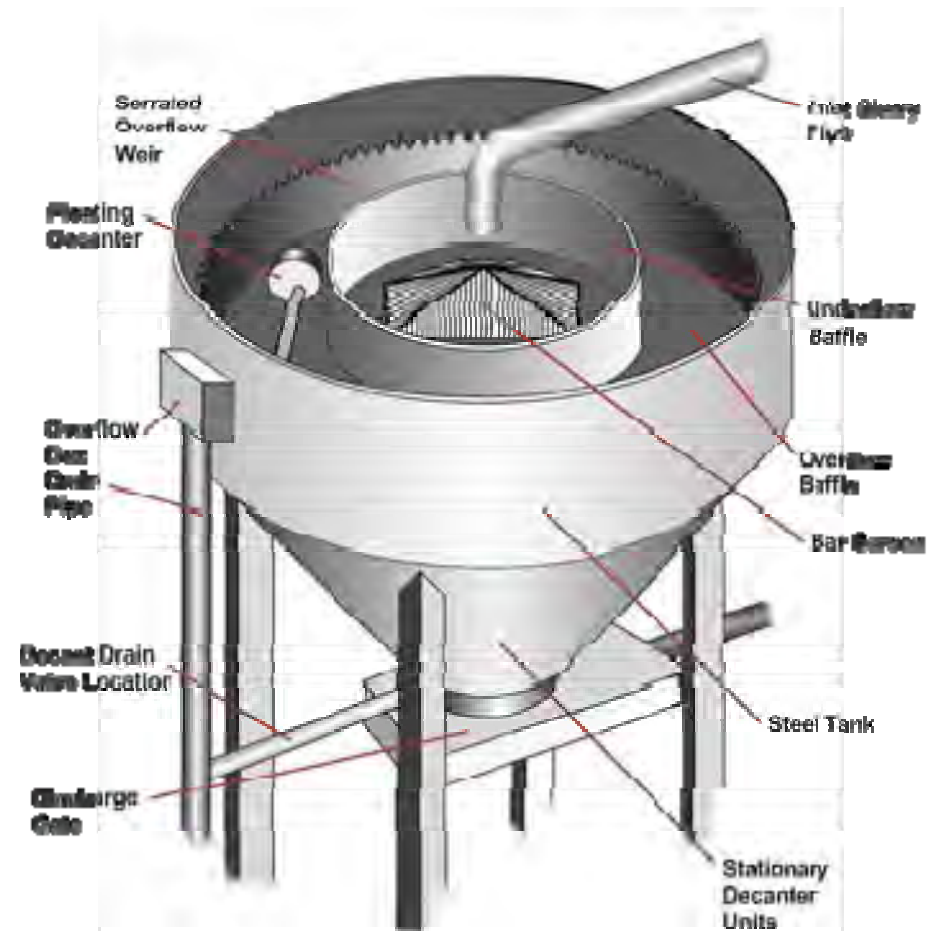
- ▶ EPA – examples of beneficial uses include: wall board and concrete – both encapsulated uses
 - Approved use on February 10, 2014
 - Has developed methodology to evaluate beneficial use of encapsulated CCRs
- ▶ Bevill exemption retained for beneficial uses
- ▶ EPA does **NOT** consider placement in sand and gravel pits or large scale fill operations to be beneficial use
- ▶ EPA has concerns about composition of CCRs changing with air pollution controls



Effluent Limit Guidelines Rule (ELG)

► The following are some of the items and options in the proposed regulations that may effect CCRs

- Dry fly ash conversion
- Dry bottom ash conversion
- Separate treatment requirements for ash leachate
- MSHA (Mine Safety and Health Administration) requirements for inspections and construction of impoundments



Facility Assessment

- ▶ Assessments Provide Forward Looking Platform
 - Facility Risk Assessment
 - Risk Management Decisions
 - Risk Mitigation Identification
 - Prioritize Capital Outlays
 - Develop Compliance Strategy
 - Identify Data Gaps
- ▶ Three Potential Crucial Areas:
 - Existing Ash Disposal Site Assessments
 - Ash Pond Closures
 - New Ash Landfill Development



Existing Ash Disposal Assessment

- ▶ Physical Conditions
 - Site
 - Ash
 - Embankments
 - Infrastructure
- ▶ Regulatory Conditions
 - Permit
 - Compliance
 - Environmental Monitoring
- ▶ Operation Conditions
 - Materials Handling
 - Assets



Ash Pond Closures

- ▶ Options Studies
 - Cap-in-place
 - Clean Closure
 - Cap and Expand
- ▶ Facility Characterization
- ▶ Permitting
- ▶ Environmental Impacts Studies
- ▶ Engineering / Design
- ▶ Construction Support
- ▶ Long Term Monitoring and Reporting



New Ash Landfill Development

- ▶ Facility Siting
- ▶ Site Characterization
- ▶ Facility Master Planning
- ▶ Environmental Impact Studies
- ▶ Permitting
- ▶ Engineering / Design
- ▶ Construction Support
- ▶ Environmental Monitoring Systems

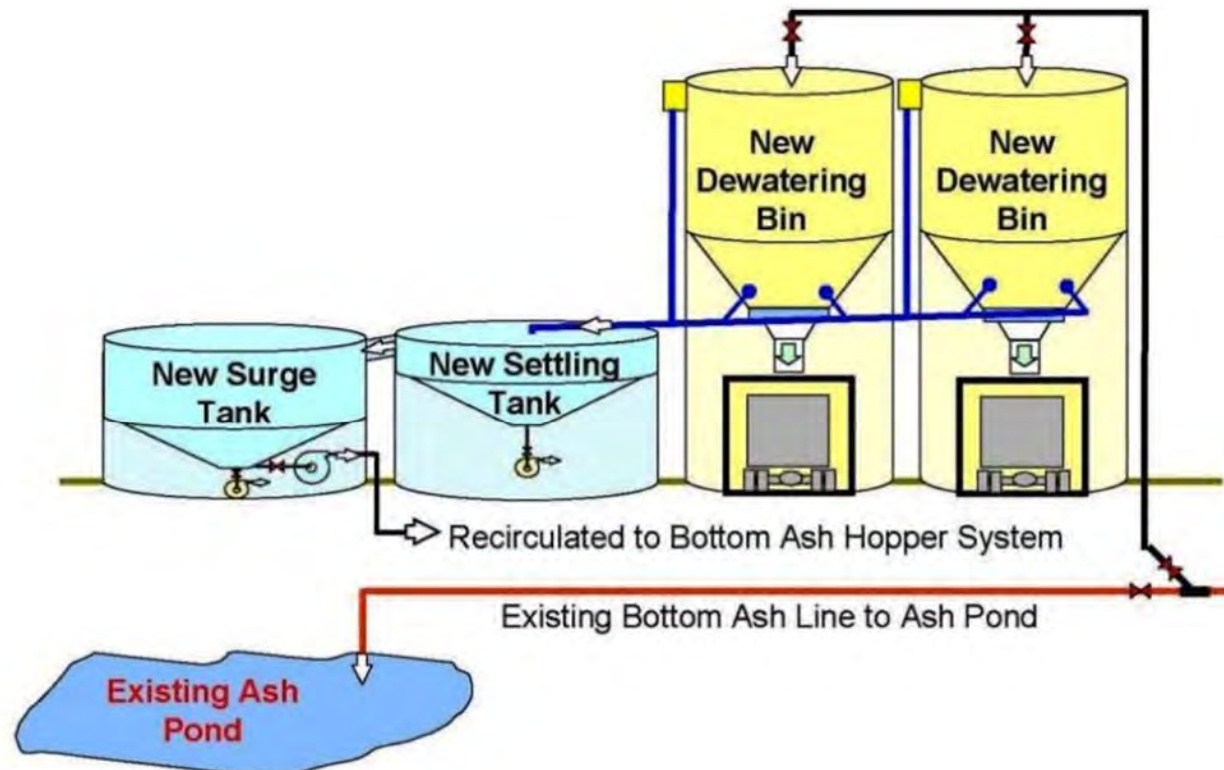


Dry Bottom Ash Conversion Options

1. Divert the flow of the existing bottom ash slurry piping to new dewatering bin system – Traditional Recirculation System
2. Replace the bottom ash hopper system with a submerged chain conveyor
3. Divert the flow of the existing bottom ash slurry piping to a remote submerged chain conveyor – Continuous Dewatering & Recirculation System (CB ASHCON™, UCC CDR™).
4. Replace the bottom ash hopper system with a dry mechanical conveying system – (CB Drycon^R, A-S-H MAC™, UCC VAX™).
5. Replace the bottom ash hopper system with new dry hopper, pneumatic conveying system, storage silos & associated equipment - (UCC PAX™).

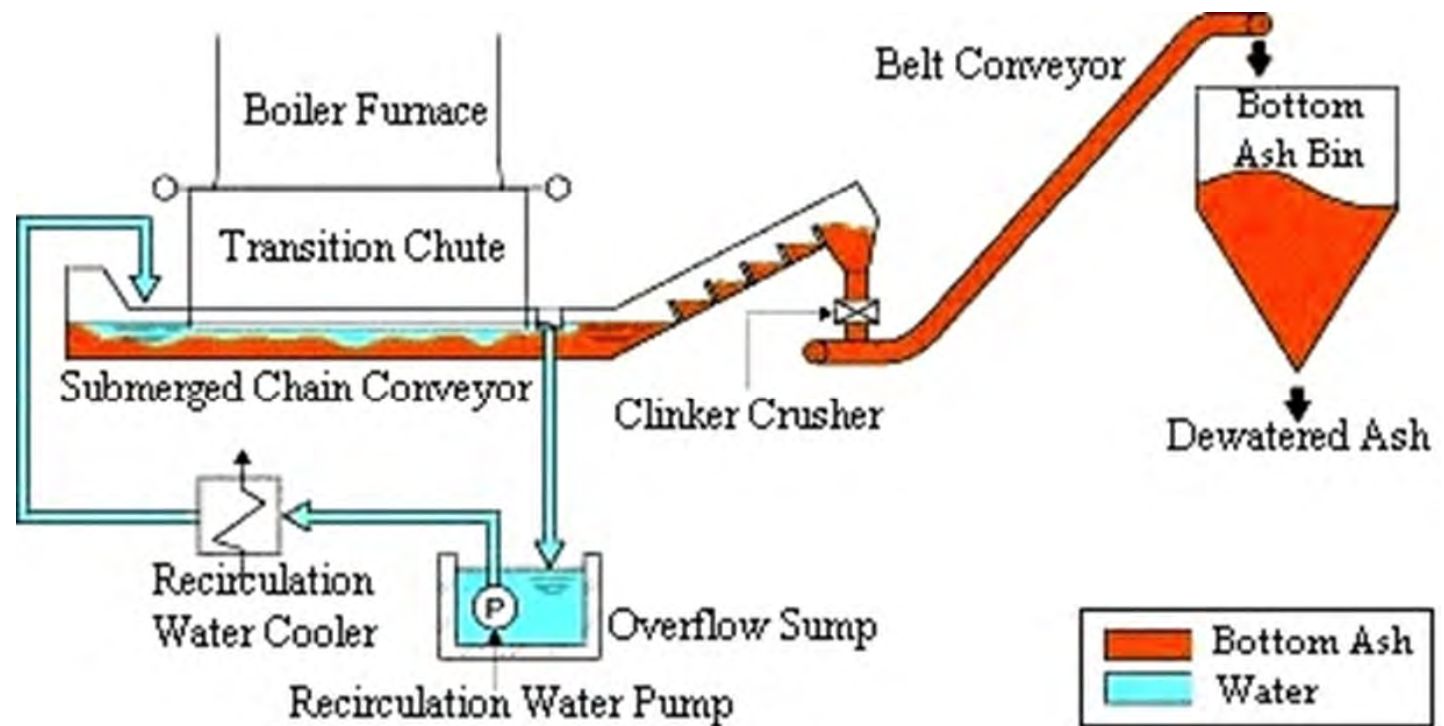
Dry Bottom Ash Conversion – Option 1

- ▶ Divert the flow of the existing bottom ash slurry piping to new dewatering bin system – Traditional Recirculation System



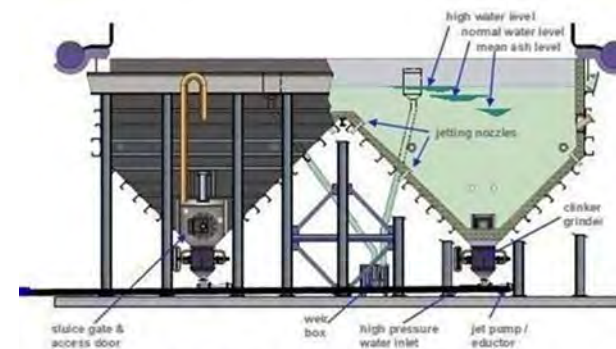
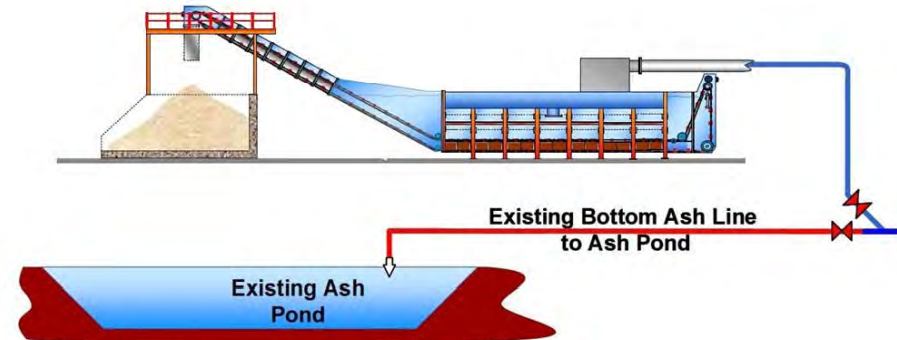
Dry Bottom Ash Conversion – Option 2

- ▶ Replace the bottom ash hopper system with a submerged chain conveyor



Dry Bottom Ash Conversion – Option 3

- ▶ Divert the flow of the existing bottom ash slurry piping to a remote submerged chain conveyor – Continuous Dewatering & Recirculation System (CB ASHCON™, UCC CDR™).



Existing Bottom Ash Hopper

Dry Bottom Ash Conversion – Option 4

- ▶ Replace the bottom ash hopper system with a dry mechanical conveying system – (CB DryconR, A-S-H MAC™, UCC VAX™).



Dry Bottom Ash Conversion – Option 5

- ▶ Replace the bottom ash hopper system with new dry hopper, pneumatic conveying system, storage silos & associated equipment - (UCC PAX™).

