



2011 World of Coal Ash (WOCA) Conference – May 9-12, 2011 in Denver, CO, USA
<http://www.flyash.info/>

Coal Combustion Product (CCP) Management – Weathering the Storm of Change

Important Changes in CCP Management
Certain to Impact The Power Industry...
Where Are We Now?

Presented by

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May 10, 2011

Business as usual will no longer be business as usual!





Overview

- Introduction
- Trace a brief history of the regulatory actions for CCR materials
- Discuss the current regulatory atmosphere and events that changed "business as usual"
- Present an overview of the draft regulations
- Questions



Before the Storm – CCR Management

- All aspects of CCR management performed by the states
 - No federal programs in place
 - **1980 Bevill Amendment** – CCR not hazardous waste!
 - The ‘Bevill exclusion’ excludes CCR from regulation as hazardous waste under Subtitle C.
 - **1993 report**
 - Subtitle D designation upheld from Bevill Amendment.
 - **2000 report**
 - Final Rule - the agency concluded that CCR are nonhazardous (maintains exemption); also the report calls for federal disposal and reuse guidelines.
 - **2002 report**
 - EPA sponsored beneficial use summits focused on barriers to utilization of CCR within the states...Beneficial reuse (or recycling) is now on the rise.





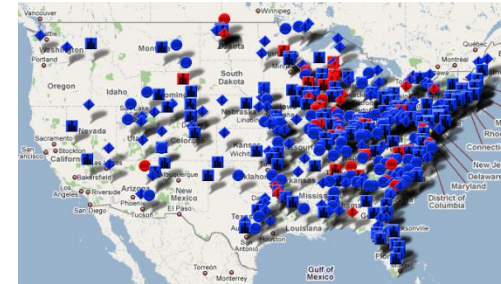
Approaching Storm – *Lightning Strikes*

- December 22, 2008
 - Failure at TVA's Kingston Plant
 - Ash dike ruptured-largest fly ash release in U.S. history
 - 5.4 million cubic yards of fly ash sludge into the Emory River and surrounding land
 - Clean up costs approaching \$1.2 billion



Weathering the Storm – *The First/Second Front*

- Politics push EPA
 - SR 64 - U.S. Senator Boxer (D-CA)
 - HR 493 – Representative Rahall II (D-WV)
- EPA pushes politics
 - Drafting regulations based on Surface Mining Control and Reclamation Act of 1977 (SMCRA)
 - Congress agrees to wait for EPA action and new programs
- March 9, 2009 – EPA issues RFI letters to compile, prioritize, and improve existing ash impoundments
 - Led to announcement of the **49 High Hazard sites**
 - EPA released collection of ash pond data for **629 impoundments at 228 plants in 35 states** and final reports for dam inspection site visits
 - **February 11, 2011:** Report issued - None of the 69 coal ash impoundments studied for structural deficiencies failed to meet rigorous standards set by the EPA.





Proposed Rule – *Draft and Comment Timeline*

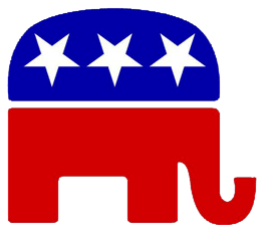
- **May 4, 2010** – EPA issues Proposed Rule
- **May 18, 2010** – EPA issues a correction memorandum to Proposed Rule
- **June 21, 2010** – Rules are published in the Federal Register, comment period begins
- 90 Day Comment Period was extended 60 days to **November 19, 2010**.
- **Eight public hearings** held across the country to collect comments
- **Unprecedented comments received**
 - Over 450,000 comments
 - 10,000 significant comments





Latest Front – Where Are We Now?

- **November 2, 2010** – Elections lead to Republican control of the House of Representatives
- **January 25, 2011** – Resignation of Carol Browner, Obama's Climate and Energy Czar and former EPA Administrator under Clinton
- **February 19, 2011** – House votes 239-183 to cut off funding for EPA actions labeling coal ash a hazardous waste (HR 1391 and HR 1405)
 - Does not prevent EPA from moving forward with rules, but may signal a shift in political pressure





Latest Front – Where Are We Now?

- **March 3, 2011 – No rules in 2011!** During a House appropriations subcommittee hearing, Lisa Jackson says, “...[new regulations] would not be ready this calendar year.”
- **March 30, 2011 – US EPA Inspector General** questions the EPA’s completeness of the testing program to verify CCPs are acceptable in beneficial reuse applications (report issued March 23) and later gives 90 days to EPA to respond.



Latest Front – Where Are We Now?

- **April 14, 2011 – “We have not directly taken a look at jobs in the proposal,” Stanislaus said...**

During an Environment and Energy subcommittee meeting, the EPA (Mathy Stanislaus) stated that jobs had not been considered in the development of the draft rules for coal ash

- NOTE: this is in direct contradiction to Executive Order 13563, which President Obama signed in January requiring rules to take job creation into account when federal agencies issue new rules.



Proposed Rule – *Possible Timeline*

- Should take a minimum of one year for EPA to issue final – **anticipate in 2012**
- Final rule subject to judicial review in US Court of Appeals (could last 2 years)
 - Rules will become effective during judicial review process
 - May or may not change significantly
- **Anticipate completion mid to late 2014**





Proposed Rule- *Implementation*

- The proposed rule for the Disposal of Coal Combustion Residuals (CCRs) from Electric Utilities presents **two possible approaches** for managing CCRs:
 - Subtitle C Regulations (Hazardous)
 - Subtitle D Regulations (Nonhazardous)
 - Including “D Prime” Option
- Proposed rule is not typical for regulations
 - Provides more commentary than rulemaking



An Overview- *No Longer Business as Usual!*

Hazardous Waste



Nonhazardous Waste





Subtitle C- Overview

- Bevill Amendment reversed
- “Special Waste” - A new category of waste will be created
- CCRs managed from point of generation to disposal
- Compliance will be enforced by Federal and authorized State regulations
- Existing landfills will not require retrofitting, but will operate as a Subtitle C unit (ground water monitoring, corrective action, etc.)
- Existing surface impoundments must stop receipt of CCRs within 5 years and close within 2 yrs after that
- New landfills will be upgraded to engineered systems
- No new surface impoundments



.....But Wait, There's More



- Challenges with Subtitle C
 - All water that contacts CCRs is now hazardous
 - LDRs and treatment standards apply
 - Plants will need to convert to dry systems...manage wastewaters
 - CCRs disposed in sand and gravel pits, and other large fill operations also regulated as landfills
 - All employees and craftspersons will need to be trained with 40 hour HAZWOPR training, etc.
 - Manage ubiquitous releases
 - Federal standards are Minimums, authorized states can add more





Subtitle D- Overview

- Bevill Amendment upheld
- CCRs managed at point of disposal
- Compliance will not be enforced Federally
- Requirements are self implementing
- Existing landfills will continue operation but be subject to wetlands and unstable area restrictions
- Existing surface impoundments must install composite liner systems, and meet location standards, or close within 5 years
- New landfills will be upgraded to composite liner systems
- New surface impoundments must adhere to composite liner system and stability requirements



.....But Wait, There's More



- Challenges with Subtitle D
 - Required to establish a company website, and post all site data and reports
 - All design, monitoring, and operations reports must be verified by an independent registered Professional Engineer ...AND... increased frequency and standards
 - The regulations are self implementing
 - CCRs disposed in sand and gravel pits, and other large fill operations also regulated
 - No federal enforcement (instead enforcement through citizen suits)





Subtitle "D Prime"- Overview

- Same regulations as Subtitle D, with one major exception:
 - Existing surface impoundments may continue to operate without modifications to the liner systems for the remainder of their useful life



Existing Ponds Summary Subtitle C

Monitoring and Inspection

- GW Monitoring
- Site Inspection

- Report to EPA



Time Line

- Stop receipt of CCRs, 5 years
 - Closure, 2 years later
- } 7 yrs.

Cap System

- Minimize Infiltration

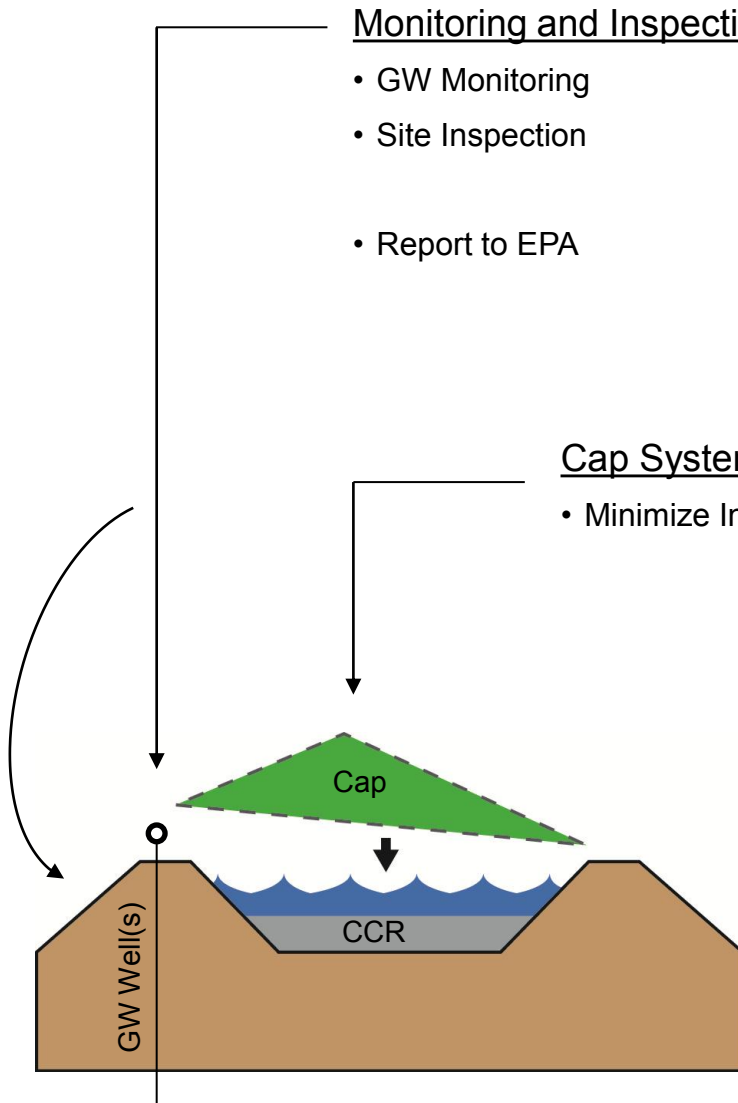


Reporting / Long-Term Care

- Annual Reporting
- Financial Assurance
- Closure / Post-Closure Care
- Land Disposal Restrictions

Applies To (at time of closure)

- Active Ponds
- Inactive Ponds
- Closed Ponds



Existing Ponds Summary Subtitle ~~X~~ D

Monitoring and Inspection

- GW Monitoring
- Site Inspection
- Report ~~X~~ to EPA

*SAME
(specifics different)*

Post to Public Internet Site



Time Line

- Stop receipt of CCRs, 5 years
 - Closure, 2 years later
- } 7 yrs.
- Closure in 5 years unless 2 year extension

Cap System

- Minimize Infiltration

Yes, but...

- Less Permeable Than Liner
- 1×10^{-5} CM/Sec Max
- 6 inch Vegative Cover

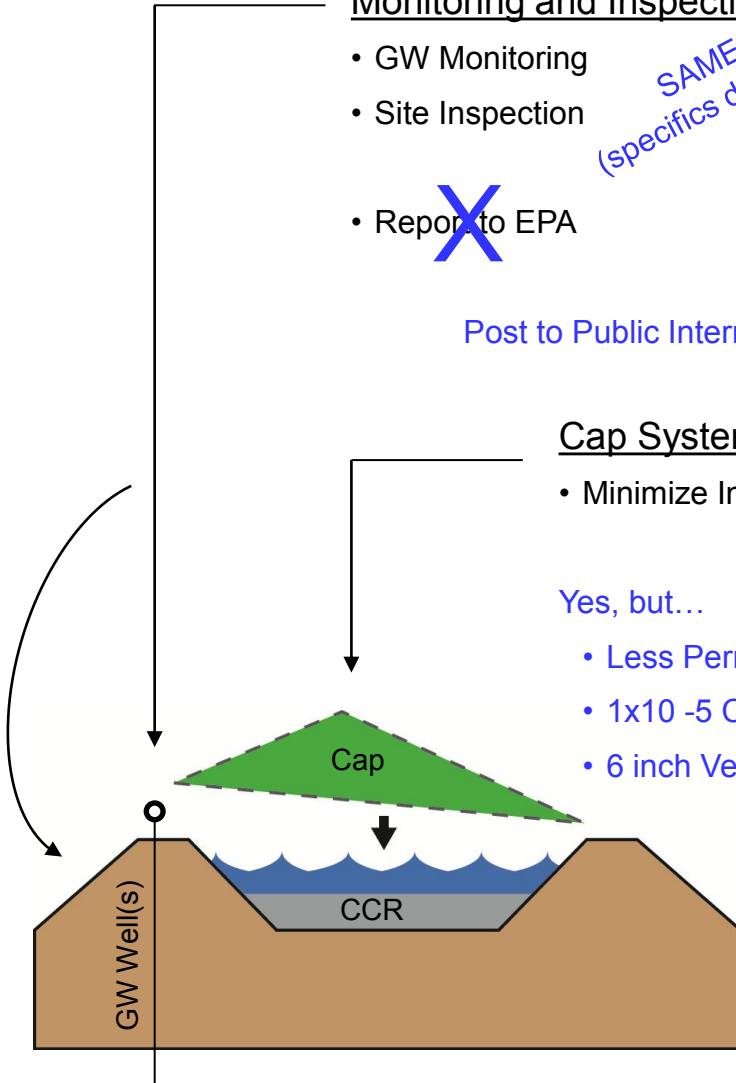


Reporting / Long-Term Care

- ✓ Annual Reporting
- ✓ Financial Assurance
- ✓ Closure / Post-Closure Care
- ~~X~~ Land Disposal Restrictions
- Location Restrictions

Applies To (at time of closure)

- ✓ Active Ponds
- ✓ Inactive Ponds
- Closed ~~X~~ Ponds



Existing Landfills Summary Subtitle C



Monitoring and Inspection

- GW Monitoring
- Site Inspection

- Report to EPA

Developed Existing Area

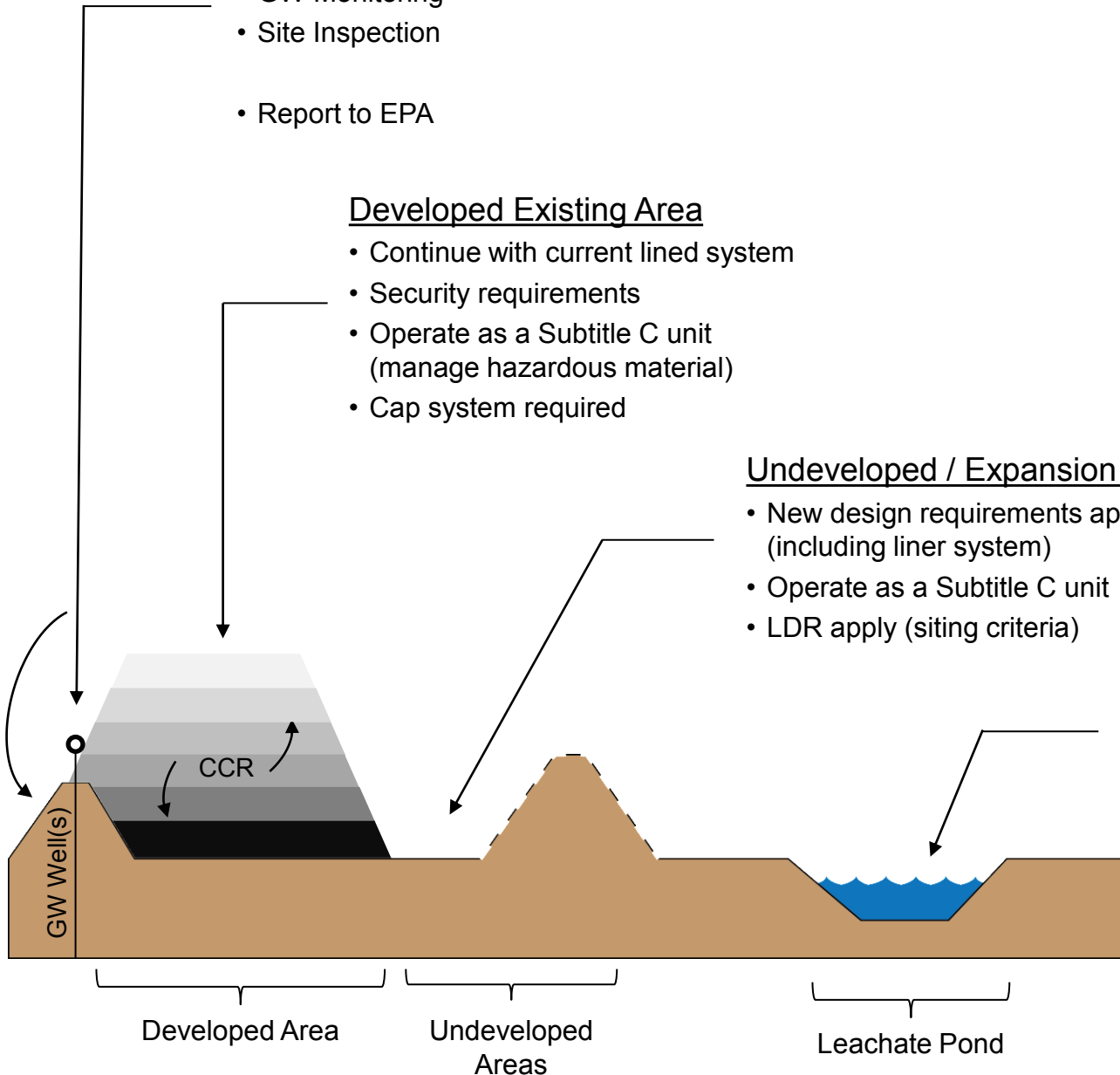
- Continue with current lined system
- Security requirements
- Operate as a Subtitle C unit (manage hazardous material)
- Cap system required

Undeveloped / Expansion Area

- New design requirements apply (including liner system)
- Operate as a Subtitle C unit
- LDR apply (siting criteria)

Leachate Management

- CCR pond closure (tanks, other)



Existing Landfills Summary Subtitle ~~C~~ D



Monitoring and Inspection

- GW Monitoring
- Site Inspection
- Report to EPA

SAME (specifics different)



Post to Public Internet Site

Reporting / Long Term Care

- ✓ Annual reporting
- ✓ Financial assurance
- ✓ Closure / post-closure care

Developed Existing Area

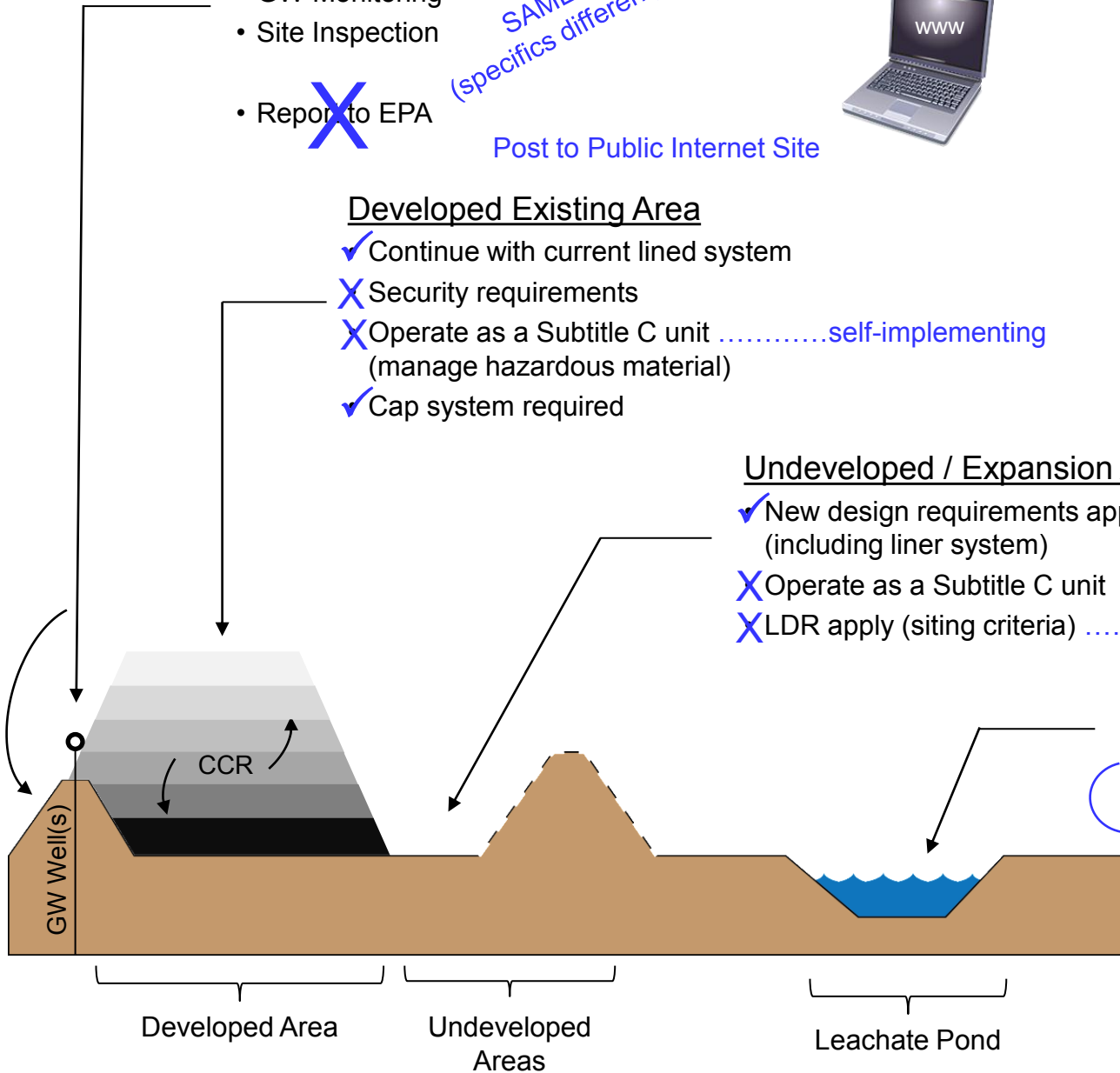
- ✓ Continue with current lined system
- ✗ Security requirements
- ✗ Operate as a Subtitle C unitself-implementing (manage hazardous material)
- ✓ Cap system required

Undeveloped / Expansion Area

- ✓ New design requirements apply (including liner system)
- ✗ Operate as a Subtitle C unit
- ✗ LDR apply (siting criteria)other location restrictions

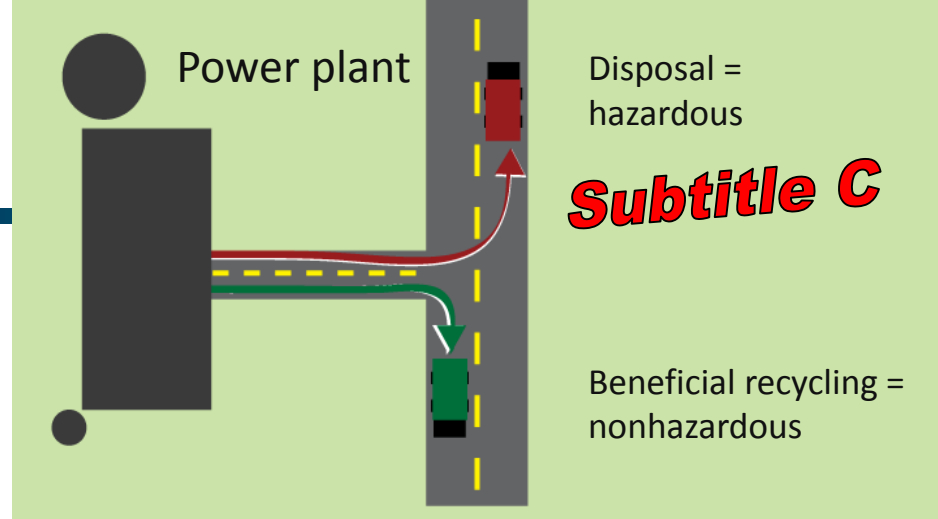
Leachate Management

- ✓ CCR pond closure (tanks, other)
- ...But could line or build lined ponds
- Meet LDR
- GW monitoring
- Closure / Post-closure
- Stability requirements





Beneficial Reuse



- The Bevill determination would remain in place and only encapsulated reuse applications will be allowed (no definition is provided)





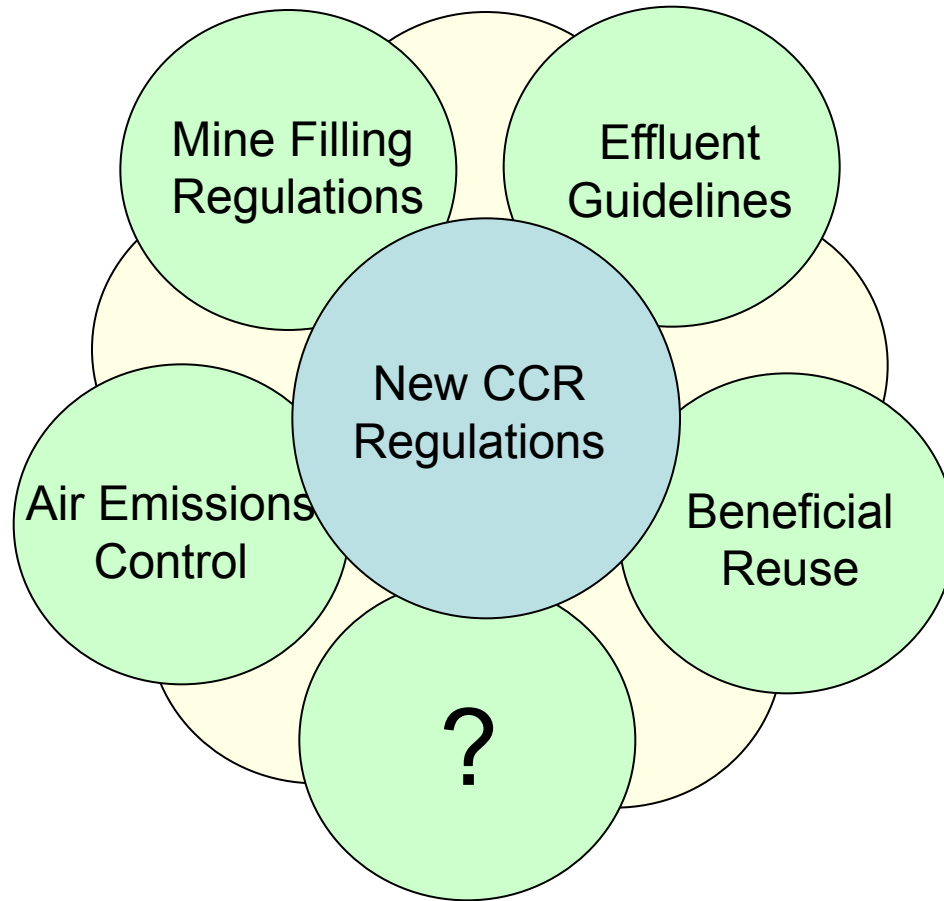
...And Don't Forget!

Additional Challenges:

- In order to close existing ponds, many plants must also:
 - Convert to dry CCR handling systems
 - Site, design, and construct new landfills
 - Manage non-CCR wastewaters without existing ponds
- Two year closure of ponds may not be possible due to large size
- CCRs disposed in sand and gravel pits and other large fill operations will also be regulated as landfills
- Only encapsulated Beneficial Reuse Applications will be allowed
- **In addition to the CCR proposed rule, plants are facing other regulatory changes at the same time...**



Welcome to Storm Season



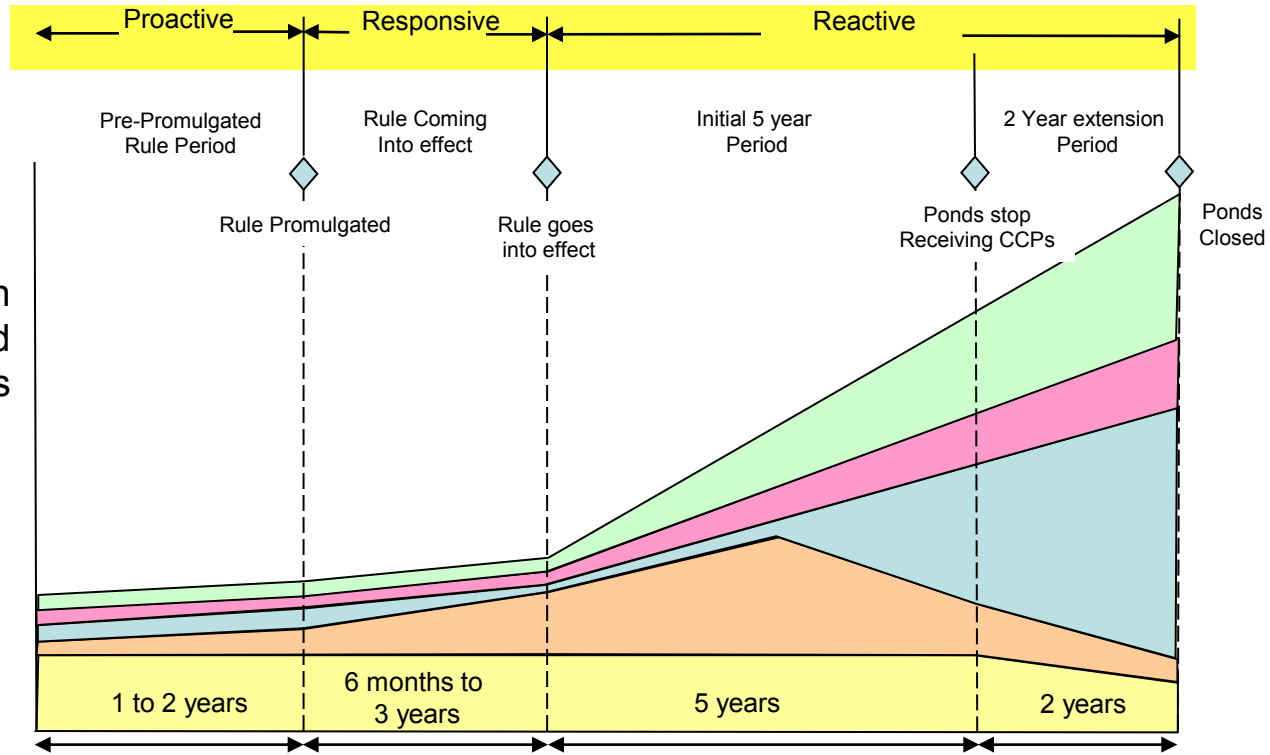
Market Discussion – Implications & Trends

Proactive Behavior – Begin projects now because it is right/necessary

Responsive Behavior – Begin projects when directions are provided (i.e., rules are draft)

Reactive Behavior – Begin when the regulations require action

Efforts on CCP related projects



Standard Operating Procedure(s) – Routine tasks due to normal operations



Strategic and Planning – Strategic and planning tasks to prepare



Pond Closures – Pond closures



Instrumentation and Monitoring – Inspection and monitoring



New Capital Project(s) – New capital projects





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