Florida Section A&WMA
54th Annual Conference and Exhibition

October 24, 2017

Coal Combustion Residuals Update

Hopping Green & Sams

Rule Update - Phase One Part One

- Effective August 29, 2018:
  - Extended closure deadline for unlined CCR Surface Impoundments with exceedance of a groundwater protection standard and/or inability to demonstrate 5 feet of vertical separation from the uppermost aquifer
  - Must still meet other location restrictions (wetlands, unstable areas, seismic impact zones and faults)
  - Established groundwater protection standards for four constituents that did not have EPA maximum contaminant levels (Cobalt, Molybdenum, Lithium, Lead)
  - Harmonized CCR and ELG implementation timelines

Rule Update - Phase One Part One

- Rule did not address several issues contained in the proposed rule:
  - Four changes resulting from EPA remand settlement in April 16, 2016, including addition of Boron as Appendix IV constituent
  - Use of alternative risk based groundwater protection standards
  - Alternate risk based corrective action
  - Use of CCR in closure process
  - Streamlined process for non-groundwater releases that can be addressed within 6 months
- Environmental Groups filed a petition Challenging the rule on October 22, 2018

CCR Rule Challenge

- D.C. Circuit Court issued its opinion August 21, 2018.
- Remanded Industry challenges to:
  - the regulation of on-site CCR piles destined for beneficial use
  - the 12,400 ton beneficial use threshold.
- Denied relief for Industry's remaining claims, including the challenge to EPA's authority to regulate inactive surface impoundments
- Found for the environmental groups on
  - the ability of unlined impoundments to continue operating
  - the classification of unlined impoundments with two feet of compacted clay as "lined" units
  - EPA's failure to regulate legacy ponds.
- Vacatur of these provisions will require further rulemaking

Future Rulemaking

- D.C. Circuit Court's vacatur will require further rulemaking
- Anticipated that EPA will move quickly to regulate legacy impoundments and require closure of unlined impoundments
- Phase One Part Two addressing remaining proposed provisions, particularly the remand issues, by June 2019?
- Phase Two? EPA previously stated it would issue a proposal by September 30, 2018, and would take final action by December 2019.

CWA Litigation Update Overview

- To date, few RCRA cases have been filed asserting violations of the CCR Rule
- Environmental groups have focused on CWA cases
- Cases generally allege that ash ponds and landfills are discharging to groundwater that is hydrologically connected to a nearby surface water
- Also claim that any such discharge is a discharge from a point source that is subject to regulation under the CWA
- This hydrologic connection theory is being used as a basis to seek injunctive relief and closure by removal

CWA Litigation Update Overview

- Environmental groups
  - Congress intended for the CWA to protect our nations surface waters.
  - That intent would be frustrated if discharges to groundwater that flow directly to surface waters are not regulated under the CWA
- Industry
  - Congress specifically considered this and determined that the regulation of groundwater should be left to the states
  - Any alleged discharge would have to be from a point source to a surface water to be regulated as alleged
  - Ash ponds, landfills and groundwater are not point sources
  - CWA does not regulate discharges to groundwater hydrologically connected to a surface water

Sierra Club v. Virginia Electric and Power Company d/b/a Dominion Virginia Power

- Chesapeake Energy Center
- Located on a peninsula surrounded by the Elizabeth River, Deep Creek, and a man-made cooling water discharge channel
- Ash stored in unlined settling ponds (Historic Pond)
- In 1984, a lined ash landfill was constructed on top of the Historic Pond, and a bottom ash pond created.

Chesapeake Energy Center

Southern Environmental Law Center

Legend

Coal Combustion Waste Pond or Landfill

N

0 0.075 0.15 0.3 Miles

Claims

- Sierra Club alleged the unpermitted discharge of arsenic from the ponds and landfill through groundwater to surrounding surface water violated the CWA and Dominion's NPDES permit
- Dominion argued that the CWA does not regulate groundwater and that the ponds and landfill are not point sources

Hydrologic Connection

- Court summarily found that the CWA regulated the discharge of arsenic into WOTUS through hydrologically connected groundwater
- Congress intended the CWA to protect surface water quality, and that goal would be defeated if the CWA did not extend to discharges to hydrologically connected groundwater
- Court referenced Dominion's own reports as proof that groundwater under the pond and landfill is hydrologically connected to surface water

Point Source

- Defined as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit…from which pollutants are or may be discharged.”
- Court concluded that the ponds and landfill were built to concentrate coal ash in one location, and that location channels and conveys arsenic directly into the groundwater
- As such, they were found to be point sources because they are discrete conveyances of pollutants discharged into surface waters
- Dominion had no permit for these discharges and thus was found to have violated the CWA

Remedy

- Sierra Club's request for closure by removal not appropriate and not in the public's interest
- Dominion estimated it would cost over $600 million to excavate and dispose of the 66 acres (over 3 million tons) of coal ash at the site
- This would result in higher electricity costs and impacts from transporting ash on public roads
- Dominion's proposed monitored natural attenuation remedy was considered an ineffective solution.
- Court ordered extensive monitoring of the site and sediment, and development of a remedial plan
- No Penalties were assessed

On Appeal - Fourth Circuit Court

- Court unanimously ***reversed*** district court's finding of liability under the CWA
- The landfill and ponds are not point sources because the are not discernible, confined, or discrete conveyances
  - "the actual means of conveyance of the arsenic was the rainwater and groundwater flowing *diffusely* through the soil."
  - As a result, "the landfill and settling ponds could not be characterized as discrete 'points,' nor did they function as conveyances." Instead, "they were ... static recipients of the precipitation and groundwater that flowed through them."
  - In regulating discharges from point sources, "Congress clearly intended to target the *measurable* discharge of pollutants," not "diffuse" discharges that are "not the product of a discrete conveyance." Regulating such "diffuse" pollution under the NPDES program is incompatible with the effluent limitation scheme that lies at the heart of the CWA.

Kentucky Waterways Alliance v. Kentucky Utilities Company

- E.W. Brown Generating Station
- Located west of Kentucky's Dix River and adjacent to Herrington Lake
- Two CCR Impoundments:
  - Main Ash Pond - 114 acres, 6 million cubic yards of CCR
  - Auxiliary Ash Pond - 30 acres
  - Built on top of Karts terrain
- Plaintiff's claimed that:
  - Groundwater is a point source that deposits pollutants into Herrington Lake
  - Ponds are point sources, and are discharging to navigable waters through hydrologically connected groundwaters
- District court dismissed Plaintiffs claims, generally finding that the CWA does not regulate discharges to groundwaters

On Appeal - Sixth Circuit Court

- Court ***affirmed*** the district court's dismissal of the CWA claims
- Groundwater is not a Point Source
  - Point source is a "discernible, confined and discrete conveyance."
  - "Groundwater is none of those things. By its very nature, groundwater is a diffuse medium that seeps in all directions, guided only by the general pull of gravity… Thus, it is neither confined nor discrete."
- CWA does not regulate discharges through hydrologically connected groundwater
  - CWA requires that (1) the pollutant must make its way to a navigable water (2) by virtue of a point-source conveyance
  - Found that "when the pollutants are discharged to the lake, they are not coming *from* a point source; they are coming from groundwater, which is a nonpoint-source conveyance. The CWA has no say over that conduct."

Tennessee Clean Water Network v. TVA

- The Gallatin Plant
- 1956-1970 – sluiced CCR to an unlined complex now referred to as the Non-Registered Site. Closure completed in 1998
- 1970 to present – sluiced CCR to unlined Ash Pond Complex
- Plant located in karst area, described as "colander like"
- Various historic reports stated that there were from 59, 101, and 111 sinkholes.
- TVA report entitled "Magnitude of Ash Disposal Pond Leakage Problem – Gallatin Steam Plant", 1977
- "Actual number of sinkholes that are presently leaking to the subsurface cannot be determined without extensive field studies…plugging the presently leaking sinkholes would give no assurance that other sinkholes would not being to leak."

Claims & Issues

- Plaintiffs claimed that TVA unlawfully discharged pollutants into WOTUS from a point source through hydrologic flow from the ash ponds to the Cumberland River
- Main issues before the court:
  - Does the CWA regulate discharges to groundwater hydrologically connected to WOTUS?
  - Are the Non-Registered Site and the Ash Pond Complex point sources?
  - Were there ongoing discharges to the WOTUS?

Hydrologic Connection

- Court recognized that groundwater is not WOTUS, but discharges to them are regulated because such discharges are effectively discharges to the directly connected surface waters.
- Concluded that violation may occur if the hydrologic connection between the source of the pollutants and the WOTUS is direct, immediate, and can generally be traced.

Point Source

- Point Source - "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit…from which pollutants are or may be discharged."
- Concluded that the Ash Pond Complex and Non-Registered Site are point sources:
  - Ash Complex - a series of discernible, confined and discrete ponds that receive wastewater, treat that wastewater, and ultimately convey it to the Cumberland River.
  - Non-Registered Site – the entire abandoned ash pond system itself is a point source because TVA has channeled the flow of pollutants by forming a discrete, unlined concentration of coal ash.

Ongoing Discharges

- History of leaks
- Karst terrain – “it is simply implausible that the Complex has not continued to and will not continue to suffer at least some leaking through karst features”
- No evidence of any reason that ponds would have stopped leaking
- Evidence of coal ash pollution in the Cumberland River near the pond complex indicative of ongoing or intermittent leaks
- Continued leaks to groundwater through rainwater vertically penetrating the site and/or groundwater laterally penetrating the site.

Remedy – Closure in Place vs. Closure by Removal

- Court Ordered Closure by Removal despite testimony that it would take 50 to 100 trucks per day for 20 years to dispose the removed ash in an offsite landfill
- "As long as the ash remains in place, the dangers, uncertainties and conflicts giving rise to the case will survive another twenty years, forty-five years, or more. While the process of closure by removal would not be swift, it would, at least, end."
- No Penalties were assessed

On Appeal - Sixth Circuit Court

- Court ***reversed*** the District Court's imposition of liability under the CWA
- CWA does not regulate discharges through hydrologically connected groundwater
  - CWA requires that (1) the pollutant must make its way to a navigable water (2) by virtue of a point-source conveyance
  - TVA "is discharging pollutants into the groundwater and the groundwater is adding pollutants" to the Cumberland River.
  - "But groundwater is not a point source. Thus, when the pollutants are discharged to the river, they are not coming from a point source; they are coming from groundwater which is a nonpoint-source conveyance. The CWA has no say over that conduct."
  - Discharge must be direct into navigable waters. It is not sufficient for pollutants to travel from a point source *through* nonpoint sources en route to navigable waters.

On Appeal - Sixth Circuit Court

- "As the district court rightly concluded, "an unlined [coal] ash waste pond in karst terrain immediately adjacent to a river" that leaks pollutants into the groundwater is a major environmental problem that the Permit does not adequately address. But the CWA is not the proper legal tool of correction. Fortunately, other environmental laws have been enacted to remedy these concerns."

Hawaii Wildlife Fund v. County of Maui

- County of Maui operates four deep injection wells
- Wastewater from 2 wells enters the Pacific Ocean
- District Court granted summary judgment for Plaintiffs
  - The County indirectly discharged a pollutant to the ocean through a groundwater conduit
  - Groundwater is a point source
  - Groundwater is a navigable water

On Appeal - Ninth Circuit Court

- *Court **affirmed*** district court's summary judgment rulings
- CWA liability is triggered because the wells, a point source, discharged "pollutants [that] are fairly traceable from the point source to the navigable water such that the discharge is the functional equivalent of a discharge to a navigable water."
- Point sources need not convey the pollutants "directly" to the navigable water
- "This case is about preventing the County from doing indirectly that which it cannot do directly. The County could not under the CWA build an ocean outfall to dispose of pollutants directly into the Pacific Ocean without an NPDES permit. It cannot do so indirectly either to avoid CWA liability. To hold otherwise would make a mockery of the CWA's prohibitions."

Upstate Forever v. Kinder Morgan Energy Partners

- Large gasoline spill from a ruptured pipeline in 2014 which had been repaired
- Plaintiffs alleged that the gasoline continued to seep 1000 ft via groundwater to navigable waters
- KM moved to dismiss the complaint:
  - Plaintiffs failed to state a claim
  - The court lacked subject matter jurisdiction
- District Court dismissed the complaint:
  - Plaintiffs failed to state a claim because there was no ongoing violation since the pipeline had been repaired and was no longer discharging pollutants "directly" into navigable waters
  - Court lacked subject matter jurisdiction because the CWA does not encompass the movement of pollutants through groundwater that is hydrologically connected to navigable waters

On Appeal- Fourth Circuit

- A divided panel ***reversed*** the district court's dismissal of the CWA citizen suit and remanded the case for further proceedings
- The CWA is not limited to "direct" discharges from a point source and plaintiffs alleged the continued addition of pollutants to navigable waters.
- An indirect discharge to from a point source through groundwater that has a direct hydrologic connection to surface water may support a CWA claim.
- The allegations in the complaint were sufficient to state a claim under the CWA: "an alleged discharge of pollutants … reaching navigable waters located 1000 feet or less from the point source by means of ground water … falls within the scope of the CWA."
- Polluters could avoid liability under the CWA by discharging through soil and groundwater before reaching surface waters.

Supreme Court Review

- Clear Circuit Split
- County of Maui and Kinder Morgan each filed Petitions for Writ of Certiorari August 27 & 28, 2018, respectively

Questions?

Florida Section A&WMA Conference October 2018

Current Status of EPA's CCR Rule

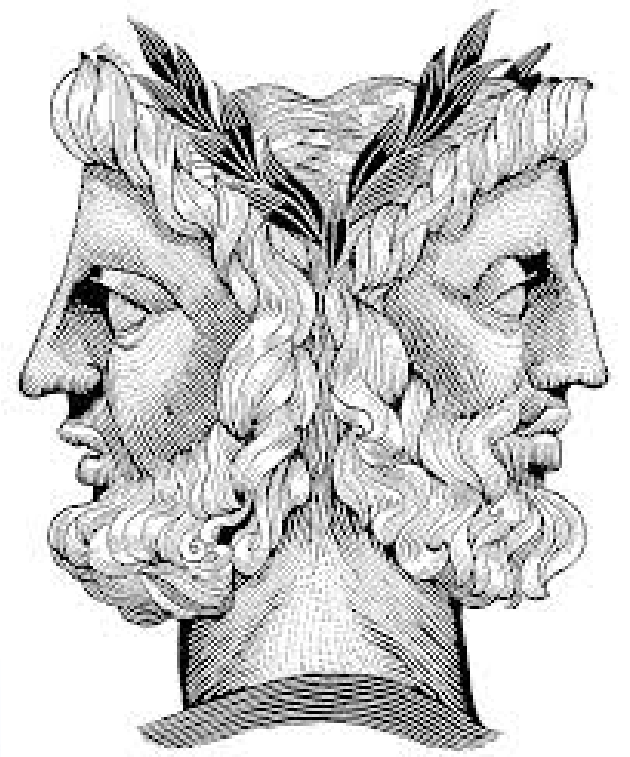
Michael Lodato, P.G.
Principal

Geosyntec consultants

engineers | scientists | innovators

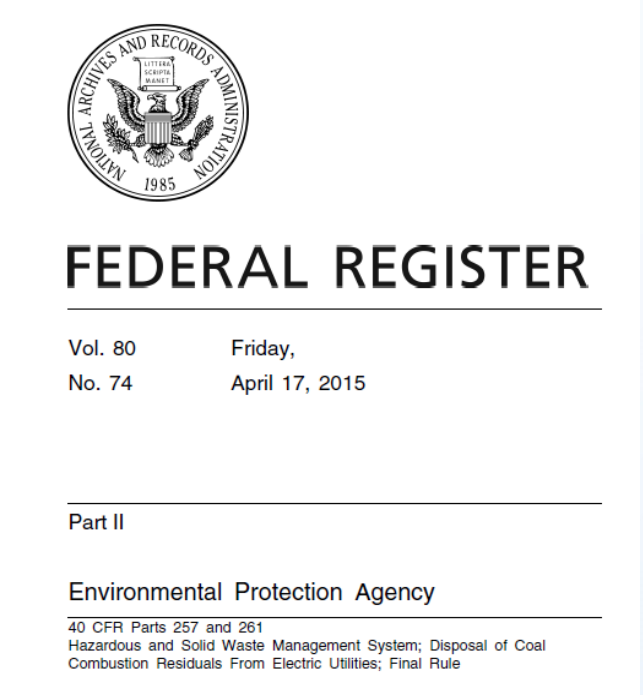
EPA CCR Rule Status

- Where have we been?
- Where are we going?



Where Have We Been…..

- CCR Rule became effective 14 October 2015…..and has undergone several revisions
- Identification of “regulated units”
- Installed groundwater monitoring networks
- Implemented “Detection Monitoring” - collected a minimum of “8 rounds” of data for Appendix III and IV constituents
- Selected appropriate statistics and calculated background levels for Appendix III constituents



NATIONAL ARCHIVES AND RECORDS ADMINISTRATION 1985

FEDERAL REGISTER

Vol. 80 Friday,
No. 74 April 17, 2015

Part II

Environmental Protection Agency

40 CFR Parts 257 and 261
Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule

Where Have We Been…..

- Determined if statistically significant increases over background (SSIs) were present in down gradient wells
- Completed “Alternate Source Demonstrations” (ASDs) for Appendix III constituents when possible
- Some site stayed in detection monitoring due to absence of SSIs or successful ASD
- Implemented assessment monitoring for Appendix IV constituents at units that failed detection monitoring

Where Have We Been…..

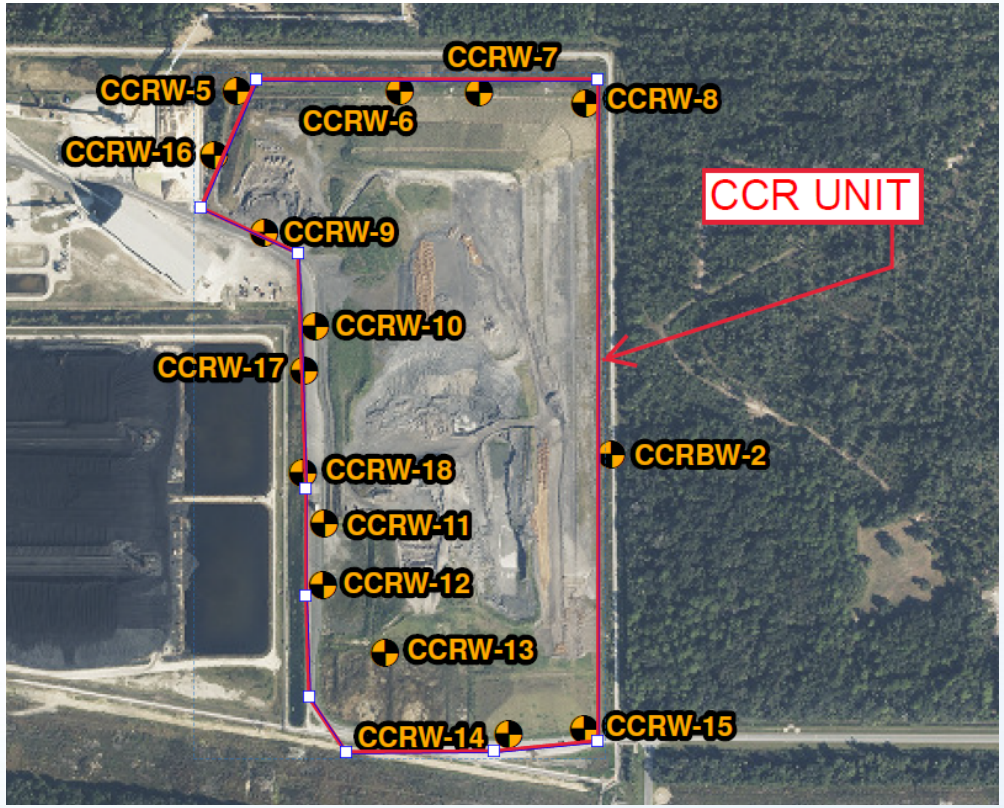
- Completed statistical analysis of Appendix IV data to evaluate statistically significant levels (SSLs)
- Calculated groundwater protection standards
- Evaluating ASDs for Appendix IV constituents
- Performing nature and extent assessment of groundwater impacts associated with the CCR unit

Where Are We Going…..

- Evaluating current data
- Groundwater protection standards (GPS) exceeded?
- ASD successful/unsuccessful?
- Is an assessment of corrective measures (ACM) required?
- Does the unit remain in assessment monitoring?

Groundwater Monitoring

- Assessment monitoring continues as long as there are Appendix IV GPS Exceedances
- Can return to detection monitoring with no GPS exceedances and no SSI over background



Assessment of Corrective Measures

- GPS exceeded and no ASD
- Implement ACM – due by April/June 2019
- The ACM will evaluate the performance of various corrective measures but not select one

The ACM Will Include the Following

- Performance
- Reliability
- Implementability
- Potential Impacts of Remedy
- Safety Impacts
- Cross Media Impacts
- Exposure Control
- Schedule
- Institutional Requirements

Remedy Selection

- Utility required to discuss ACM results in a public meeting
- Remedy selection must:
  - Be protective of human health & the environment
  - Mitigate groundwater impacts
  - Provide source control
  - Remediate CCR release
- Remedy has to be selected within 90 days from completion of ACM – but actual implementation could be to 2 to 3 yrs? out

Remedy Selection

Groundwater:

- Monitoring Natural Attenuation
- Hydraulic containment/pump & treat
- Permeable reactive barriers
- In-situ geochemical treatment/fixation/mobilization
- Phytoremediation
- Barrier walls
- Grouting/in-situ stabilization
- Combination of technologies

Remedy Selection

- Source Control:
  - Surface impoundment dewatering
  - Cap and Close of landfills and ponds
  - Retrofit of existing units
  - Clean closure with offsite/onsite disposal
  - Construction of new lined storage facilities
  - Offsite disposal
  - Re-power with natural gas

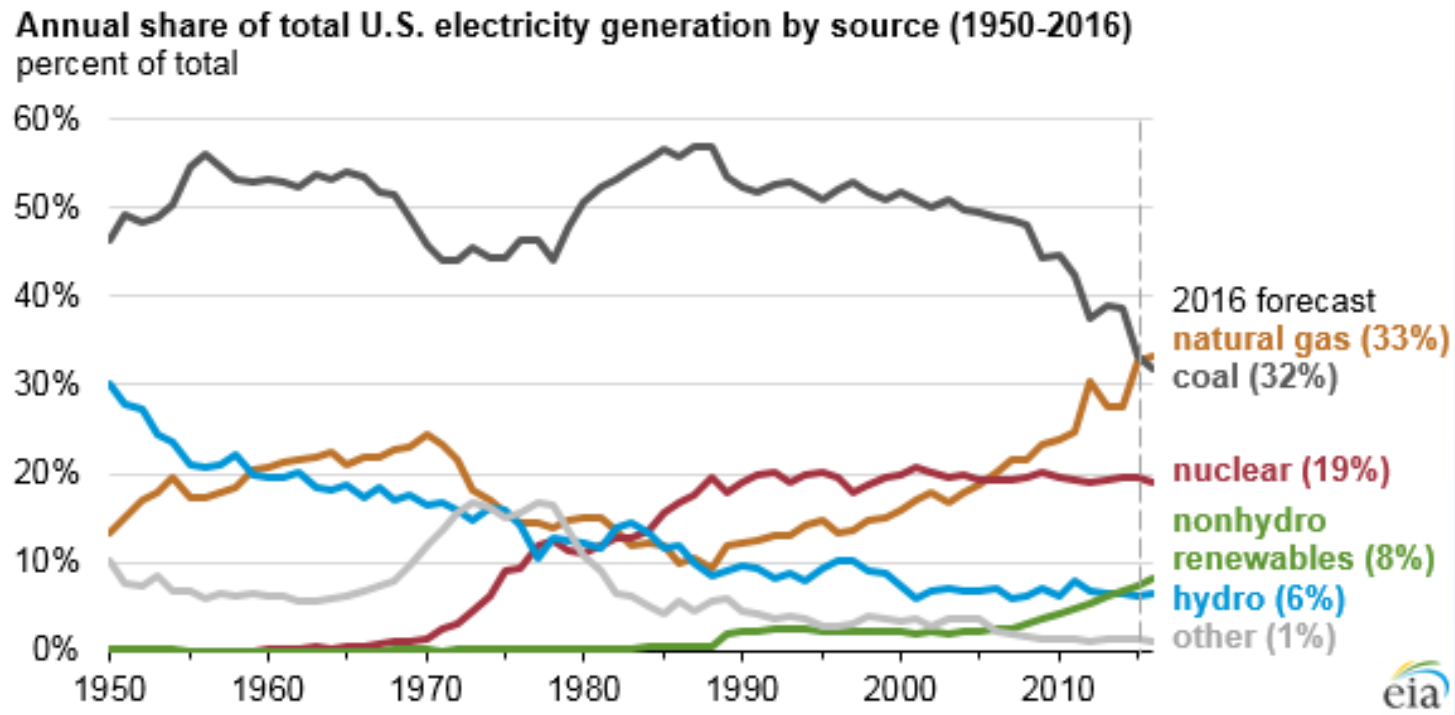
Closure Requirements

- Post closure care required for 30 years
  - Maintaining the integrity and effectiveness of the final cover system
  - Leachate collection as needed
  - Continuation of assessment monitoring

- Closure is not complete until GPS are achieved

Remediation of CCR Units

- By the mid-20th century, coal had become the leading fuel for generating electricity in the US
- Industry generates about 110 MM tons of CCR/yr – about 8 billion tons since 1940.



Remediation of CCR Units

- EPA estimates:
  - 310 active on-site CCR landfills averaging 120 acres and over 40 ft deep
  - 735 on-site surface impoundments with average size of 50 acres and 20 ft deep
  - Numerous unregulated legacy disposal areas
- Largest CCR unit in the U.S. is 1,900 acres – a valley fill held in place by a 400 ft tall earthen dam

Geosyntec consultants

Remediation of CCR Units

TABLE XII–A—ESTIMATED COST OF POLLUTION CONTROLS REQUIRED BY THE CCR FINAL RULE

[Millions 2013$]

CCR pollution control	@ 3% discount rate		@ 7% discount rate	
	Annualized values	Present values	Annualized values	Present values
1. Groundwater monitoring	$4.79	$151	$2.80	$39.9
2. Bottom liners	491	15,500	297	4,230
3. Leachate collection system (landfills only)	51.6	1,630	18.4	263
4. Fugitive CCR dust controls	7.09	224	3.36	48.0
5. Stormwater run-on/run-off controls	18.8	594	13.0	186
6. Location restrictions	43.6	1,380	20.0	285
7. Closure capping	20.1	630	12.0	171
8. Post-closure groundwater monitoring (30 years)	0.08	2.40	0.04	0.61
9. Impoundment structural integrity requirements	10.9	344	11.1	158
10. Corrective action (CCR contaminated groundwater cleanup)	19.0	600	19.1	273
11. Reporting and recordkeeping	26.3	831	27.3	389
12. Conversion to dry CCR handling	29.0	916	57.3	818
13. Inactive impoundments (dewater and closure cap)	12.0	380	26.7	381
14. Subtotal industry costs (1+...+13)	734	23,200	508	7,240
State Agency Burden Costs				
15. Impoundment structural integrity requirements	0.22	6.88	0.22	3.16
16. Corrective action	0.38	12.0	0.38	5.45
17. Reporting and recordkeeping	0.53	16.6	0.55	7.78
18. Subtotal State agency burden costs (15+16+17)	1.12	35.5	1.15	16.4
19. Total cost (14+18)	735	23,200	509	7,260

Next 30 years:

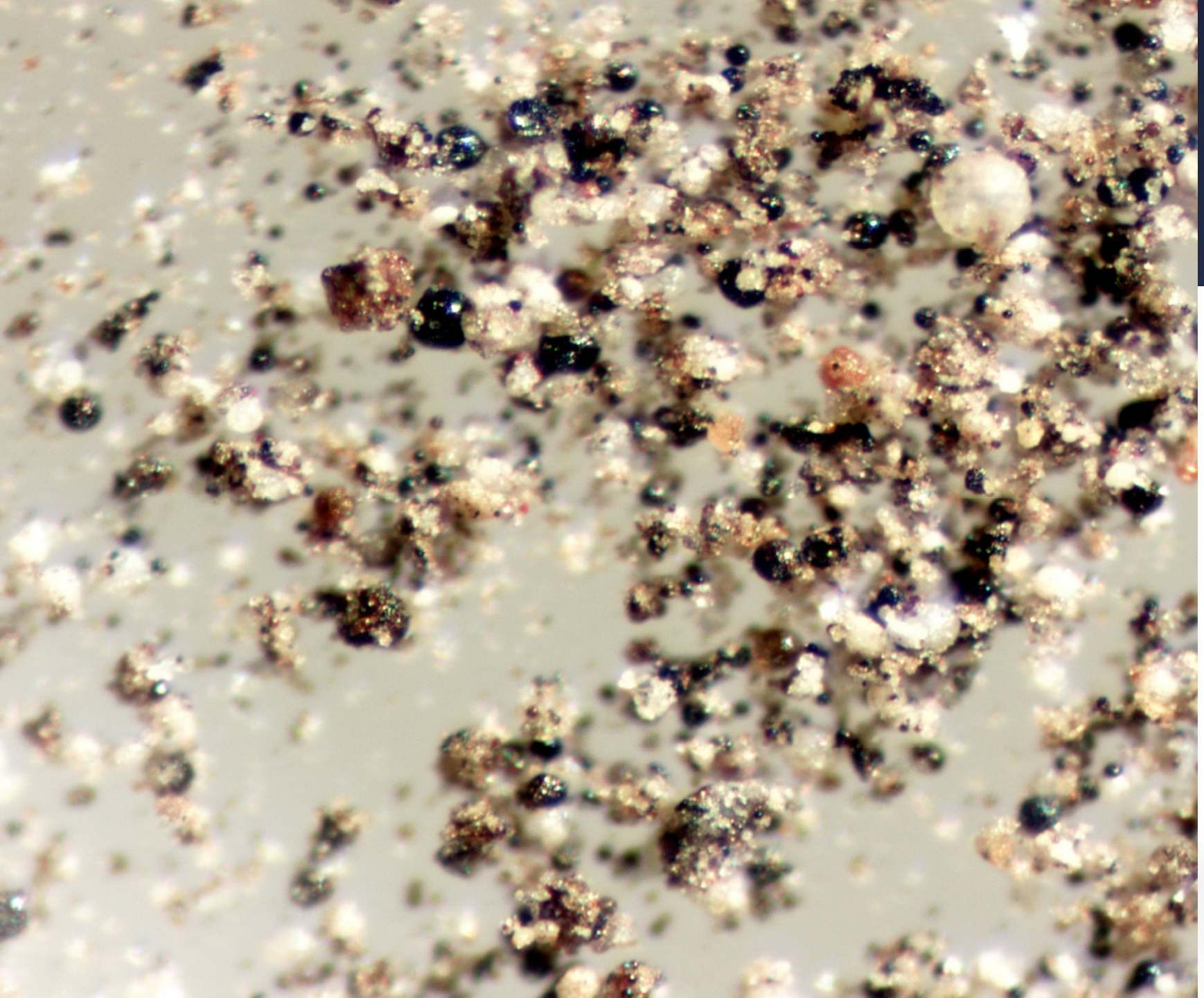
- $734 MM/yr
- $23.2 Bil

Other Issues

- Clean Water Act
  - Are CCR Units point sources regulated under RCRA only?
  - Does a discharge from a CCR Unit to groundwater that ultimately discharges to surface water constitute a CWA violation?
- Recent District and Circuit Court decisions have been ambiguous
- Probably going to the SCOTUS for final deliberation

Geosyntec consultants

The End Is Not in Sight



Questions?