Refresher on the CCR Rule

CIBO

Technical Focus Group, Environmental and Energy Meeting

Arlington, VA

December 5th and 6th, 2016

Two Drivers

- USWAG pushing for legislation that would allow the States to develop a program for regulating coal combustions residuals.
 - S. 612 Bill has been amended to become the Water Infrastructure Improvements for the Nation Act (WINN Act); specifically Section 2301Subtitle C—Control of Coal Combustion Residuals SEC. 2301. APPROVAL OF STATE PROGRAMS FOR CONTROL 19 OF COAL COMBUSTION RESIDUALS
 - State submits their program to EPA following the CCR rule, EPA would sign off if the rule was the same or as effective as the EPA rule.
 - This would provide EPA enforcement capability and hopefully lessen law suits from Citizens Group
 - The State could go beyond what EPA's rules covered
- Some States are in the process of developing implementing regulations for the EPA CCR Rule.
 However, these States are planning on regulating CCRs from all sources not just EGUs!

BACKGROUND

- This subpart establishes minimum national criteria for purposes of determining which solid waste disposal facilities and solid waste management practices do not pose a reasonable probability of adverse effects on health or the environment under sections 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act.
- (b) This subpart applies to owners and operators of new and existing landfills and surface impoundments, including any lateral expansions of such units that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. Unless otherwise provided in this subpart, these requirements also apply to disposal units located off-site of the electric utility or independent power producer. This subpart also applies to any practice that does not meet the definition of a beneficial use of CCR.
- (c) This subpart also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.

- (d) This subpart does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015.
- (e) This subpart does not apply to electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015.

• (f) This subpart does not apply to wastes, including fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated at facilities that <u>are not part</u> of an electric utility or independent power producer, <u>such as manufacturing facilities</u>, <u>universities</u>, <u>and hospitals</u>. This subpart also does not apply to fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, generated primarily from the combustion of fuels (including other fossil fuels) other than coal, for the purpose of generating electricity unless the fuel burned consists of more than fifty percent (50%) coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.

- (g) This subpart does not apply to practices that meet the definition of a beneficial use of CCR.
- (h) This subpart does not apply to CCR placement at active or abandoned underground or surface coal mines.
- (i) This subpart does not apply to municipal so id waste landfills that receive CCR.

Applicability of 40 CFR Subpart D Part 257 Continued

- The implementation of the CCR rule is described as a State Function. Is it?
- The rule is also self-implementing, meaning that while utilities must comply with the standards, the federal government cannot enforce the regulations itself. Is it?
- The rule simply sets minimum requirements on how to manage the CCRs.
 Does it?
- If the minimum requirements are not met the utility or the site could face legal action. How and who?

Two paths of legal action

- The "CITIZEN'S SUIT" which the environmental community has used on a rather consistent basis but have limited their recent efforts to CCRs stored or disposed in impoundments.
- The other legal aspect of the rule not utilized at this point is taking legal action against "OPEN DUMPS".
- "Citizens Suit can also be brought against an OPEN DUMP!"

What is an OPEN DUMP as it relates to CCRs?

- It would be a site that does not meet the various criteria set forth in the rule.
- The rule has both technical criteria regarding sitting, design, operations and monitoring as well as a built in compliance schedules.
- Last but not lease, water quality and air quality are key aspects of the rule.

EPA's Enforcement CapabilitiesRelative to CCR sites

- If a CCR site is classified as an "OPEN DUMP", EPA has enforcement capabilities
- If an air quality problem exists (fugitive dust or other), EPA has enforcement capabilities.
- IF there are Clean Water Act violations, EPA has enforcement capabilities.
- If an abandon site and there are water quality or air quality problems, EPA has enforcement capabilities per CERCLA.

The New Problem

- States are developing CCR regulations that expand beyond Electric
 Utilities and Independent Power Producers to other Industry Sectors and
 Institutional Sectors.
- As part of this effort, the States will most likely update their Solid Waste Management Plan under Subtitle D.
- States already have delegated water quality and air quality programs.

Another Point

- There is a bill passed by the Senate entitle: "The Water Resources Development Act of 2016 (S. 2848)"
- There is a different version passed by the House.
- The unknown question is "will a conference committee be formed to finalize the bill?" or will it be reintroduced (most likely)?
- In S. 2848, there is a Section 8001 entitled "APPROVAL OF STATE PROGRAMS FOR CONTROL OF COAL COMBUSTION RESIDUALS"
- The Section is designed to allow EPA to approve a State Program, which is believed will reduce the number of citizens suits.
- While this may not be passed this year, most likely their will be a similar version passed in 2017.

Overview of CCR Regulation

(Revisiting in light of State Initiatives)

Compliance Time-Lines

October 19, 2015

- Fugitive dust control plan
- Initial weekly inspection of CCR unit
- Conduct required recordkeeping
- Provide required notifications
 Establish CCR website

January 18, 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 postclosure 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

October 17, 2018

 Complete demonstration for unstable areas

Existing 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

December 17, 2015

Install permanent marker

January 18, 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

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

The timelines reflect the schedule as encapsulated as part of the implementation of the CCR Rule.

- If a State is developing its regulations, the timelines have significant impact.
- How the State establishes the time lines for compliance could be significant requiring one to insure that any timeline is reasonable.

Impoundment

Overview from a report entitled:

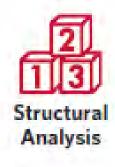
"The Ultimate Guide: Navigating EPA's Coal Combustion Residuals (CCR) Ruling" by HDR Inc.

Requirements At A Glance By Facility Type EXISTING

EXISTING CCR LANDFILLS **NEW LANDFILLS** Placement above the uppermost aquifer Wetlands Unstable areas Fault areas Location Restrictions · Seismic impact zones Unstable areas Leachate collection & removal system Not required Two component liner Design Requirements

Existing CCR Landfills

New CCR Landfill



Not required

Not required



- · Fugitive dust controls
- Run on, run off control
- · Surface water protection
- Inspection requirements for landfills

- Fugitive dust controls
- "Wetting" of CCR
- · Run on, run off control
- Surface water protection
- Inspection requirements for landfills

Existing CCR Landfills

New CCR Landfills





- Groundwater monitoring program
- Groundwater monitoring wells
- 8 rounds of sampling data (by October 17, 2017)
- · Calculate background levels
- Equivalent to liner system
- Alternative designs if infiltration criteria is met
- 30 years landfill cap & leachate collection maintenance
- 30 years of groundwater monitoring

- · Groundwater monitoring program
- Groundwater monitoring wells
- 8 rounds of sampling data (within 6 months & before accepting CCR)
- Equivalent to liner system
- Alternative designs if infiltration criteria is met
- 30 years landfill cap & leachate collection maintenance
- 30 years of groundwater monitoring

Existing CCR Landfills

New CCR

Landfills



Unstable areas



Not required

- Placement above the uppermost aquifer
- Wetlands
- Fault areas
- Seismic impact zones
- Unstable areas
- Leachate collection & removal system
- · Two component liner

Criteria for Impoundments

EXISTING CCR SURFACE IMPOUNDMENTS

NEW CCR IMPOUNDMENTS UNITS & LATERAL EXPANSIONS

INACTIVE SURFACE IMPOUNDMENTS

- Placement above the uppermost aquifer
- Wetlands
- Fault Areas
- Seismic impact zones
- Unstable Areas

Unlined impoundments must:

- Meet groundwater protection standards
- Retrofit with a composite liner system or be closed

- Placement above the uppermost aquifer
- Wetlands
- Fault areas
- Seismic impact zones
- Unstable areas

Two component liner

- None if closed by April 17, 2018
- If not, same as existing CCR surface impoundments

The April 17,2018 date is being eliminated.

- None if closed by April 17, 2018
- If not, same as existing CCR surface impoundments

EXISTING CCR SURFACE IMPOUNDMENTS

NEW CCR IMPOUNDMENTS UNITS & LATERAL EXPANSIONS

INACTIVE SURFACE IMPOUNDMENTS

- Hazard potential classification assessments
- · Spillway adequacy assessments
- Structural stability assessments
- Safety factor assessments
- Emergency action plan
- Weekly & annual inspections
- Fugitive dust controls
- Inflow control
- Surface water protection
- Inspection requirements for CCR surface impoundments

- Hazard potential classification assessments
- Spillway adequacy assessments
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NEW CCR IMPOUNDMENTS UNITS & LATERAL EXPANSIONS

INACTIVE SURFACE

- Groundwater monitoring program
- Groundwater monitoring wells
- 8 rounds of sampling data (by October 17, 2017)

- Equivalent to liner system
- Alternative designs if infiltration criteria is met
- · 30 years landfill cap maintenance
- 30 years of groundwater monitoring

- · Groundwater monitoring program
- Groundwater monitoring wells
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EXISTING CCR SURFACE IMPOUNDMENTS

NEW CCR IMPOUNDMENTS UNITS & LATERAL EXPANSIONS

INACTIVE SURFACE IMPOUNDMENTS

- Compliance documents maintained for 5 years
- State agency notification of comprehensive list of actions
- All unit documentation publically available on website, titled "CCR Rule Compliance Data and Information"

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Above Summary Slides Source

The Ultimate Guide: Navigating EPA's Coal Combustion Residuals (CCR)
 Ruling

Website: http://www.hdrinc.com/sites/all/files/assets/markets/hdr-ultimate-ccr-quide-042315.pdf

The Impoundment

- The Impoundment is addressed under the CCR rule.
- The Impoundment is an integral part of the water handling
- The ELG for Steam Electric Generation Facilities Rule is designed to have more stringent effluent limitations directed discharges from impoundments as part of the effort to eliminate impoundments for CCR management.

The CCR Landfill and Storage Areas

- There are effluent limits for runoff from ash storage and disposal areas.
- There are effluent limits for leachate from the CCR disposal areas.

Take-Aways

- As such, the State Regulations need to be monitored closely, in terms of their applicability, their regulatory requirements, their COMPLIANCE SCHEDULE for when the rule applies to facilities not covered by the federal rule.
- This is especially true for beneficial use of CCRs. Also, in the case where the CCRs are used in mine land reclamation with the rules to regulate this aspect of CCR management is to be proposed and implemented by the Federal Office of Surface Mining Reclamation and Enforcement.
- Also, if a state goes this route and submits its rules and plans to regulate CCRs to EPA for their approval, does this make it a Federally Enforceable Program if EPA approves as part of the State Solid Waste Management Plan?
- The ELGs are applicable to Electric Utilities and Independent Power Producers. However, the State NPDES
 Program Permit Writers will do BPJ analysis and most likely rely of the ELG for Steam Electric Generating
 Facilities.

The following 5 slides are provide for reference.

HALEY & ALDRICH

(www.haleyaldrich.com)

Report Entitled:

REGULATORY UPDATE: USEPA Issues Final Coal Combustion Residuals Rule

The next 5 slides were copied from this report and provide a good overview of the rule as of EPA's CCR rule.

		0: !!	2015 FEERING CORRECTIONS		
Category	997) Subtitle D - 49 CFR 257				
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Endangered Species (s)	Shall not cause or contribute to the taking of any analysis of the satural special of plant, but, or wildlife and Shall not result in destruction or advantament/listetion of their critical hebitat.	Shall not cause or contribute to the taking of any embrogand or threatment specimen plant, fall, or wild huand, shall not result to destruct any or adverse, modification of their critical labelly.	Shall not counsely contribute to the taking of any section plant for the external species of plant, fair, or width a soid alphanet must in destruction or witheres are discontinual their critical habitat.	Small not cause or contribute to the taking of any endanger action the entered speciment plant; fail, or which and shall not result in destruction or adverse modification of their critical hebital.	40(797975-2
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Placement Above the Upperment Agents	Base located min of 5 feet above upper limit of uppermost squifer, or demonstrate to intermittent, recurring, or sustained hydraulic connection between the base of the CCS unit and the uppermost squifer due to normal fluctuations in groundwater alexations [including the assessmal high water table]	Bus a located min of 5 feet above appear limit of appearment equifier, or demonstrate no intermittent, recurring, or sustained hydraulic connection between the buse of the CCR unit and the appearment equifier due to normal fluctuations in groundwater elevations (including the seasonal high mater table)	KO.	Base located minor's feet above apper limit of apper most squifer, or dismons trate no intermittant, or connection between the base of the CCR unit and the opper most squifer due to normal fluctuations in groundester size attentions; the seasonal high water table)	40 DR 24700
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Facilities	Must not be because within 2000 lest of the outst most demand some of a fault that had had deplacement in Relocuse time unlesses demon- stration to made purposed to this section.	Must not belocated within 2000 fact of the outer most demand process of a fault that have been despised and of links of the uniform of demonstrations made pursuent to the section.	No.	Must not be located within 200 heat of the outermost damage core of a fault that has had displacement in Holocate time unlesses demonstration is made pursuant to this section.	ADDRESSES.
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Unutable Areas	Montroot be incerted in an implicit learner unless, a structural integrity described at less is made pursuant to the section	Must not be located in enumbable sens arises a structural indepthy denomina- tion is made pursuant to this anchor.	Must not be located in an unstable area unless extructional integrity demonstration is made pursuent to this rection.	Must not be located in an unstable area unless a structural integrity demonstration is made pursuant to this section.	40/07875764
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Composite Liner-Lower Composited	2 ft. thick completed as with \$ < 1.6 (D-7 cm/s, or expendent a harmation	2 ft. thick compact of soil with k < 1 s. 10-7 cm/s, or equivalent afternative.	N/A	It estocktook them at it it tack transpacked and within < 1 x 10-7 cm/s acceptant, or equivalent alternative.	40 DTR 25770 (b) 40 DTR 25771 40 DTR 25772
Companie Liner-Lower Component - equivalent Attenuative	Anaberostve missional with k < 1 x 10-3 cm/s that is NET agreement rane	Anabernative material with k < 1 x 10-7 cm/s that a NOT a geometric re-	K0	An alternative material with k < 1 x 101-7 cm/ethat is MIT's geometricisms	40 DR25770(d) 40 DR25772 40 DR25772

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Table 2: Summary of Groundwater Monitoring Requirements

		FIRM 2015 FEDERAL CCE GEGILATIONS	A CONTRACTOR OF THE PARTY OF TH
Catagory		Subtitle D	Regulatory Reference
	Groundwater Monitoring System - Existing COR Landfills and Impoundments	1) install groundwater monitoring system as described in 257.91, 2) develop groundwater sampling and analysis program, which includes solection of statistical procedures to be used for evaluating the groundwater monitoring data; 3) initiate detection monitoring which includes measuring water levels and collecting a minimum of eight independent samples from each upgradient and downgradient well and analyze for both Appendix III and Appendix IV constituents, and, 4) begin evaluating the groundwater monitoring data for statistically significant increases over background levels for Appendix III constituents.	49 CFR 25/90 (b)
	Stream dwarfer Monitoring System - New CCR Landfills and Impound- ments and Lateral Extensions	Prior to receipt of CCR, 1) develop groundwater monitoring system and sampling and analysis program as above, 2) collect eight independent samples from each background well, and, 3) analyze each sample for Appendix III and Appendix IV constituents for the first six months.	40 GR 25780 and 40 GR 25794(b)
	Groundwater Monitoring System. Certification	Existing CCR tandfills and existing CCR surface impoundments must certify a groundwater monitoring system within 24 months of effective date (30 months from publication) and update operating record, then update website within 30 days after operating record update.	40 DFR 25/50 (b)
	Upgradient Wells	Drie minimum	40 CFR 2573H (d)
Detaction	Downgradient Walls	Throominimum (st waste boundary)	40 CFR 25 7.91. (c)
Monitoring Program	Sampling and Analysis Godanier- tation	Propers sampling and analysis program documentation: place it in operating record and on publicly accessible website	40 CFR 2575E (a)
	Appendix III Constituents	Boron, calcium, chloride, fluoride, pii, sulfate, TOS	40 CFR 257.94 (a), Appendix III
	Establish Background	For existing DCR landfills and surface impoundments: establish background for Appendix III 6 W constituents; for new CCR landfills, new surface impoundments, and all lateral exten- sions, establish background concentration for both Appendix III and IV constituents.	40.0FR 25.790 (b) 40.0FR 257.94 (b)
	Sampling	At least one sample from each background and downgradient well must be collected during each sami-annual sampling event	40 (FR 25/194 (c)
	Statistical Analysis	Conduct statestical analysis according to sampling 6 analysis program	40 CFR 257.9E (fr)
	Wedstion Conditions	One or more Appendix III constituents detected at statistically significant level above back- ground	40 CFR 25/94 (c)
	Violation Notification	Initiate assessment monitoring and place notification in operating record, post to website within 30 days of operating record entry, or demonstrate other source of contamination within 90 days:	40 CFE 257.94 (s)(18-2), 257.105 (h), 257.106 (h), and 257.107 (h)
	Bocordecoping	Update operating record, and then post to website within 30 days	40 CFR 2575E(f)
	Appendix IV Constituents	Antimony, arsenic, bankin, berytkum, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, radium 226 and 228 combined	40 CFR 25/195 (b), Appendix N
Assessment/ Compliance Monitoring Program	Inttal Assessment Sampling	Minimum of one sample from each well within 90 days analyzed for Appendix IV constitu- onts; background was established with initial certification per 40 CFR 25794 (b)	40 CFR 257.95 (b)
	Sampling Notification	Place in operating record—which must then be posted to the website within 30 days: and the state notified when website is updated.	40 CFR 257.95 (d)(1)
	Sampling - Continuing Action	Resample all wells within 90 days, and on at least a some annual basis theregifer, for Appendix Bland Appendix IV constituents:	40 (FR 25 7.95 (d)(1)

		FINAL 2015 FEDERAL COR REGULATIONS	
Category		Subtitle D	Regulatory Reference
Assessment/ Complance Monitoring Frogram	Establish Background	Background established when groundwater monitoring system was certified	40 CFR 257.94 (b)
	Establish GMPS	Establish groundwater protection standards (GWPS) for any Appendix IV constituents detected, these are the higher of the Maximum Contaminant Lovel (MCL), where available, or fackground.	40 CFR 25/95 (b)
	Accessment Monitoring Clusters	If constituents are below background for two consecutive events, return to detection monitoring	40 GFR 257.95 (e)
	Assessment Monitoring Contin- uation	If constituents are above background but below groundwater protection standard, continue assessment monitoring	40 (SFR 257.96 (F)
	GWPS Exceedence During Assessment Monitoring	Characterize the nature and extent of the release and any relevant site conditions that may affect the remody ultimately selected.	40 (FR 257.95 (g)(1)
	Install Additional Worls	During assessment monitoring, install monitoring wells as needed to find extent of contam- ination, including at least one at the facility boundary in the direction of contaminant, migration	40 CFE 25/7.95 (g)(1)
	Notification	During assessment mentioring, notify all property owners/residents determined to be affected by the contamination and place in operating record	40 CFR 25795 (g)(2)
	GWPS Excaedance Notification and Corrective Action Intestion	Place notice in operating record and characterize. Begin assessment of corrective actions within 90 days - or demonstrate other source within 90 days.	40 CFR 257.95 (g) and 257.105 (h), 257.106 (h), and 257.107 (h).
	Constituents/Sampling Hinquistry	During assessment of corrective measures, sample semi-arready (minimum) for constitu- ents detected at statistically significant levels above background	40 CFR 257.96 (b) and 40 CFR 257.95
	Assessment of Corrective Measures	Analyze of factiveness, performance, time, permitting, and cost of remody options; assess- ment must be completed within 50 days	40 CFR 257.96 (a) and (c)
	Selection of Blamedy	Select remedy that attars GWPS and provents further contamination, and specify schedule for notation and completion of remedial activities, make notifications	40 CFR 257.97
	Implement Remody	Initiate remedial activities within 90 days of selecting a remedy	40 (FR 257.98 (a)
Corrective Action Program	Corrective Action Groundwater Monitoring Plan	Establish and implement (based on emedy schedule) corrective action monitoring plan that mosts requirements of an assessment monitoring program and indicates effective mass of remedy	40 CFR 257.98 (a)(1)
	Interim Massatus	Take any interim measures to protect human health and environment, if required	40 CFR 257.98 (a)(3)
	Alternative Measures	If the selected remedy will not reach compliance, alternative methods must be imple- mented.	40 CFR 257.98 (b)
	Completion of Remody	Compliance demonstrated when Appendix IV constituents meet groundwater protection standards for 3 consecutive years	40 CFR 25798 (c)(2)
	Notification	Update Operating Record, post Operating Record to the website within 30 days, notify State that website has been updated.	40 CFR 25/198 (f), 257, 105 (f), 257,106 (fi), and 257,107 (fi)







Table 3: Appendix III and IV Constituents and MCLs

CONSTITUENTS FOR DETECTION AND ASSESSM	MENT
MONITORING UNDER THE NEW CCR RULE	

Constituent	MCLs (a) (mg/L)	
Appendix III to Part 257 - Constituent	s for Detection Monitoring	
Boron		
Calcium	44	
Chloride	1 50 1	
Fluoride	4	
Sulfate	(:	
pH (std)	(-1	
Total Dissolved Solids	- L	
Appendix IV to Part 257 - Constituents for Assessment Monitori	ng	
Antimony	0.006	
Arsenic	0.01	
Barium	2	
Beryllium	0.004	
Cadmium	0.005	
Chromium	0.1 (b)	
Cobalt		
Fluoride	4	
Lead	0.015 (c)	
Lithium		
Mercury	0.002 (d)	
Molybdenum		
Radium 226 and 228 combined	5 pCi/L	
Selenium	0.05	
Thallium	0.002	

EPA obtained a Court Order in terms of a remand to add Boron MCLs to the list.

Notes:

CCR - Coal Combustion Residuals

MCL - Maximum Contaminant Level

mg/L - milligram/liter

pCi/L - picoCurie/liter

 (a) - USEPA 2012 Edition of the Drinking Water Standards and Health Advisories, Spring 2012 http://water.epa.gov/drink/contaminants/index.cfm

Values in mg/L except where noted

- (b) Value for Total Chromium
- (c) Lead Treatment Technology Action Level is 0.015 mg/L
- (d) Value for Inorganic Mercury

Another Long-Term Issue To Monitor as the potential goes beyond hard-rock mining

- EPA Administrator, Gina McCarthy on December 1, 2016 sign the following proposed rule: Financial Responsibility Requirements under CERCLA § 108(b) for Classes of Facilities in the Hardrock Mining Industry.
- This proposed rule would create Part 320 in the CERCLA regulations at 40 CFR to require financial responsibility under CERCLA § 108(b), define requirements for demonstration of financial responsibility, define requirements for maintenance of financial responsibility instruments, and establish criteria for owners and operators to be released from financial responsibility requirements.

Why Monitor?

- The concept of long-term financial guarantees is part of the bonding program for coal mining dealing with the need to have financial guarantees in place with the regulatory agency to insure long-term water treatment on-top of reclamation bonds.
- This has the potential to be applied to landfills, impoundment, water cleanup and remediation projects, and to ultimate site restoration if Industrial Operations Cease.

Questions?