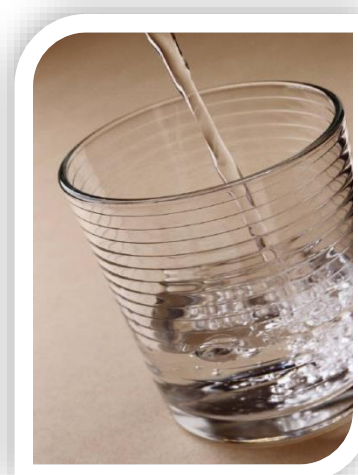
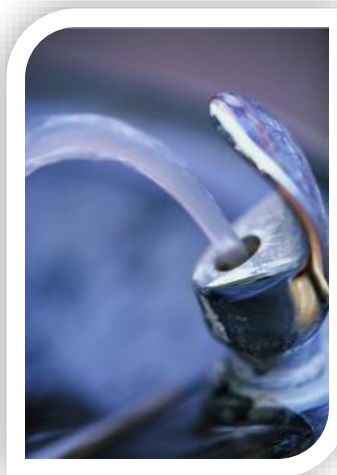




Regulatory & Related Updates

National Drinking Water Advisory Council

December 6, 2016



Eric Burneson

Director

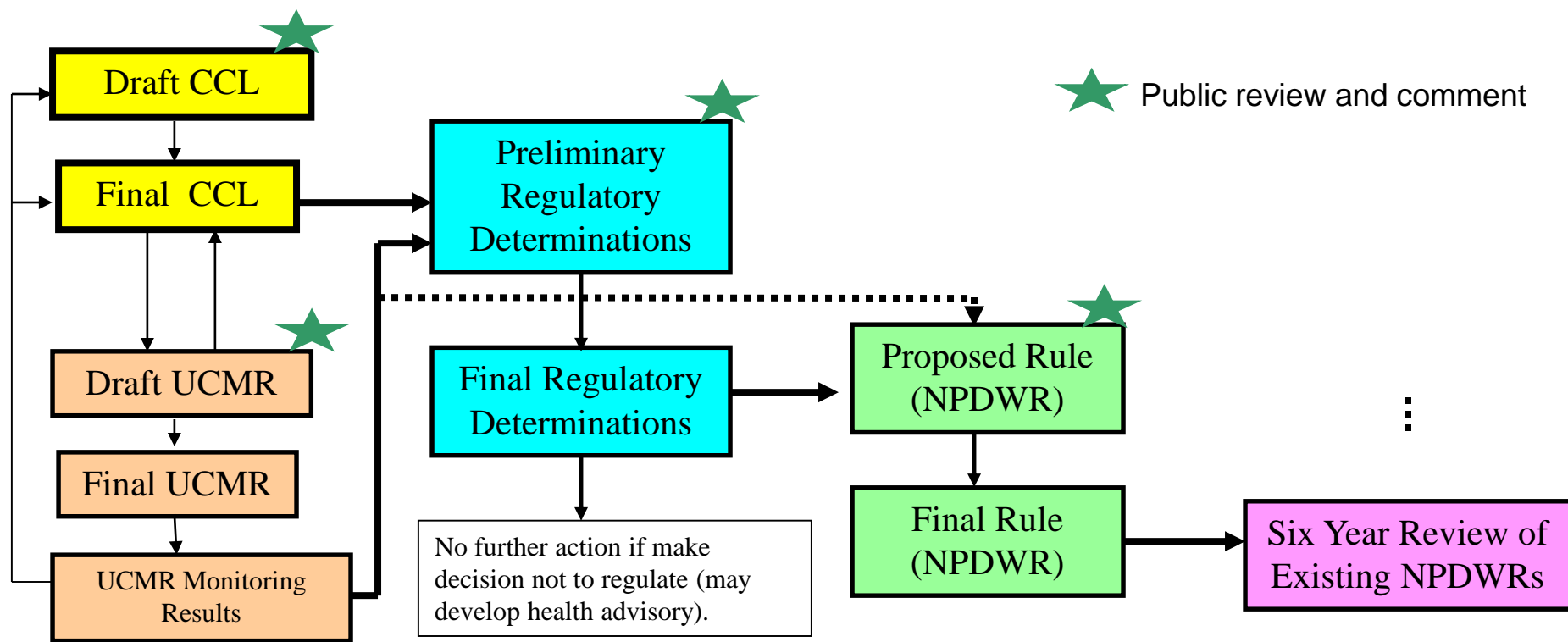
**Standards and Risk Management Division
Office of Ground Water and Drinking Water**



Regulatory Analysis, Rule Development, and Stakeholder Support

- Regulatory Analysis
 - Contaminant Candidate List (CCL)
 - Unregulated Contaminant Monitoring (UCMR)
 - Six Year Review of Regulations
- Rule Development/Revision
 - Perchlorate
 - Reduction of Lead in Pipes and Fittings
 - Lead and Copper Rule Revisions
- Stakeholder Support/Guidance (non-regulatory)
 - Cyanotoxins
 - DW Protective Action Guide
 - Legionella

General Flow of SDWA Regulatory Processes



At each stage, need increased specificity and confidence in the type of supporting data used (e.g. health, occurrence, treatment).



Regulatory Analysis:

Fourth Contaminant Candidate List (CCL 4)

- **Published Final CCL 4 – November 17, 2016**
 - Lists 97 chemicals or chemical groups and 12 microbial contaminants
 - CCL 4 info at- <http://www2.epa.gov/cct/draft-contaminant-candidate-list-4-ccl-4>
- **Next Steps -**
 - Compile and evaluate additional data on the CCL 4 contaminants.
 - Make regulatory determinations for the CCL 4 contaminants for which there is sufficient health effects and occurrence data and which present the greatest public health concern.
 - Continue to collect information and support research to fill data and information gaps



Regulatory Analysis: UCMR 3

- The final rule was published on May 2, 2012
- Information about UCMR 3 can be found at: <https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule>
- Scheduled *monitoring* was completed in December 2015
- Data *reporting* is complete, with the exception of a small number of large systems engaged in repeat/rescheduled monitoring.
- Monitored 28 chemicals and 2 viruses
- Contaminants included hormones, perfluorinated compounds (e.g., PFOS/PFOA), VOCs, metals (including Cr⁺⁶ and total Cr), 1,4-dioxane, chlorate and pathogens
- Data are posted to the web ~quarterly (<http://www2.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3>)



Regulatory Analysis: UCMR 4

- The UCMR 4 Proposed Rule was published in the *Federal Register* on Dec 11, 2015, followed by a 60-day public comment period.
- EPA held a UCMR 4 stakeholder webinar on Jan 13, 2016.
- We anticipate publishing the final UCMR 4 soon.
- The expected monitoring period is Jan 2018 through Dec 2020.
- Information about UCMR 4 can be found at:
<https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule>



Regulatory Analysis: Six-Year Review

- Requirement
 - EPA must review existing National Primary Drinking Water Regulations (NPDWRs) every six years and, if appropriate, revise.
- Background
 - Completed the **1st** Six Year Review of 69 NPDWRs (2003);
 - Completed the **2nd** Six Year Review of 71 NPDWRs (2010) and
- Status
 - Will complete the **3rd** Six Year Review by 2016.
 - Six Year 3, will be the first review to address microbial and disinfection byproduct regulations.



Rule Development: Perchlorate

- Developing a proposed perchlorate standard
 - Perchlorate is of particular concern to infant and fetal nervous system development.
 - Evaluating occurrence data.
 - Evaluating the feasibility of analytical methods and treatment technologies to remove perchlorate.
 - Examining the costs and benefits of potential standards.
- Following up on SAB recommendations (May 2013) to develop a perchlorate MCLG using Physiologically Based Pharmacokinetic (PBPK) modeling.
 - EPA and FDA scientists have developed a PBPK (also known as a biologically-based dose response (BBDR)) model that can be used to derive an MCLG.
 - EPA intends to conduct an expert peer review of the model, model report and a report of the application of the model to inform the development of an MCLG.



Rule Development: Perchlorate

- Peer Review – undertaking an independent, external, panel peer review.
 - The Peer review panel will meet in January to discuss the BBDR model and model report
 - The Agency has solicited comment on:
 - A list of peer reviewers
 - The peer review charge questions; and
 - The BBDR model and report
 - Following review of the BBDR Model and Report, EPA will undertake peer review of methodologies to derive an MCLG for perchlorate



Rule Development: Reduction of Lead in Drinking Water Act

- The RLDWA amended § 1417 of the SDWA respecting the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder and flux.
- The effective date was January 4, 2014.
- EPA published a summary of the RLDWA requirements and answers to some frequently asked questions related to the RLDWA to assist manufacturers, retailers, plumbers and consumers in understanding the changes to the law (2013)
(<http://water.epa.gov/drink/info/lead/upload/epa815s13003.pdf>)
- EPA plans to propose regulations for these lead free requirements in 2016



Rule Development: Revisions to the Lead and Copper Rule

- EPA requested the NDWAC to form a working group to provide stakeholder input on several key rule revision issues
- In December 2015 the NDWAC provided the following recommendations:
 - Proactive Lead Service Line Replacement programs
 - More robust public education requirements for lead and LSLs
 - Strengthening Corrosion Control Treatment requirements
 - Modify monitoring requirements to provide for consumer requested tap samples for lead
 - Tailor water quality parameters for each system and increase frequency of monitoring
 - Establish a health based household action level
 - Separate copper requirements focused on water corrosive to copper
 - Establish appropriate compliance and enforcement mechanisms



Rule Development:

Revisions to the Lead and Copper Rule

- October 2016, EPA released a LCR Revisions White Paper
 - Lead service line replacement
 - Improved optimal corrosion control treatment
 - Health based benchmark for lead
 - Potential role for point of use filters
 - Clarify and strengthen sampling requirements
 - Increased transparency and information sharing
 - Public Education
 - Copper
 - Relationship with broader lead issues
- Our current expectation is that revisions to the rule will be proposed in 2017.



Stakeholder Support: Cyanotoxins

- Progress:
 - Health Advisories - Microcystins and Cylindrospermopsin (June 2015)
 - Health Effects Support Documents for Microcystins, Cylindrospermopsin, and Anatoxin-a
 - Developed and published improved analytical methods for algal toxins - EPA Methods 544, 545, and 546 (2015, 2016)
 - Published *Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water* (June 2015)
 - Developed the *Algal Risk Assessment and Management Strategic Plan for Drinking Water* (November 2015)
 - Held a public meeting/listening session to seek stakeholder input on continuing cyanotoxin support needed (April 2016)
 - Developing additional support tools based on feedback from stakeholders
 - Supported HAB regional workshops – more upcoming in 2016
 - Website - <https://www.epa.gov/nutrient-policy-data/cyanoahabs>



Stakeholder Support:

Proposed Drinking Water Protective Action Guide (PAG) for Radiological Emergencies

- A DW PAG is a health-based value that can be used in the event of an emergency to determine when alternative drinking water should be provided and the use of contaminated water restricted.
- A DW PAG defines doses of radiation that should be avoided during an emergency event. They do not represent acceptable routine exposures.
- A PAG is guidance, not a regulation.
- The public comment period ended July 25, 2016
- EPA expects to finalize the drinking water PAG in 2016
- Information on the proposed DW PAG can be found at the following website: <https://www.epa.gov/radiation/information-public-drinking-water-systems-proposed-drinking-water-protective-action-guide>



Stakeholder Support:

Legionella Treatment Technology Document

- Characterizes the effectiveness of treatment technologies to control for Legionella in premise plumbing based on findings from peer reviewed literature.
- Provides information to State and local agencies, and facility and system owners and operators.
- It was developed and drafted by a multi-agency taskforce (EPA, CDC, ASDWA, state primacy agencies).
- Process:
 - Draft published, public comments solicited – October 2015
 - Public meeting convened to present draft and take comments – November 2015
 - Underwent independent external peer review – 2016
 - Final document published – September 21, 2016
- It can be found at the following website:
https://www.epa.gov/sites/production/files/2016-09/documents/legionella_document_master_september_2016_final.pdf



Appendix

- CCL 4 Contaminants
- UCMR 3 Contaminants
- UCMR 4 Proposed Contaminants



CCL 4 Contaminants

97 Chemicals and 12 Microbes

1,1,1,2-Tetrachloroethane	Cyanotoxins (3)	Molybdenum	Tribufos
1,1-Dichloroethane	Dicrotophos	Nitrobenzene	Triethylamine
1,2,3-Trichloropropane	Dimethipin	Nitroglycerin	Triphenyltin hydroxide (TPTH)
1,3-Butadiene	Diuron	N-Methyl-2-pyrrolidone	Urethane
1,4-Dioxane	Equilenin	N-Nitrosodiethylamine (NDEA)	Vanadium
17 alpha-Estradiol	Equilin	N-nitrosodimethylamine (NDMA)	Vinclozolin
1-Butanol	Erythromycin	N-Nitroso-di-n-propylamine (NDPA)	Ziram
2-Methoxyethanol	Estradiol (17-beta)	N-Nitrosodiphenylamine	
2-Propen-1-ol	Estriol	N-Nitrosopyrrolidine (NPYR)	
3-Hydroxycarbofuran	Estrone	Nonylphenol	Adenovirus
4,4'-Methylenedianiline	Ethinyl Estradiol (17-alpha)	Norethindrone (19-Norethisterone)	Caliciviruses
Acephate	Ethoprop	n-Propylbenzene	<i>Campylobacter jejuni</i>
Acetaldehyde	Ethylene glycol	o-Toluidine	Enterovirus
Acetamide	Ethylene oxide	Oxirane, methyl-	<i>Escherichia coli (0157)</i>
Acetochlor	Ethylene thiourea	Oxydemeton-methyl	<i>Helicobacter pylori</i>
Acetochlor ethanesulfonic acid (ESA)	Formaldehyde	Oxyfluorfen	Hepatitis A virus
Acetochlor oxanilic acid (OA)	Germanium	Perfluorooctane sulfonic acid (PFOS)	<i>Legionella pneumophila</i>
Acrolein	Halon 1011 (Bromochloromethane)	Perfluorooctanoic acid (PFOA)	<i>Mycobacterium avium</i>
Alachlor ethanesulfonic acid (ESA)	HCFC-22	Permethrin	<i>Naegleria fowleri</i>
Alachlor oxanilic acid (OA)	Hexane	Profenofos	<i>Salmonella enterica</i>
alpha-Hexachlorocyclohexane	Hydrazine	Quinoline	<i>Shigella sonnei</i>
Aniline	Manganese	RDX	
Bensulide	Mestranol	sec-Butylbenzene	
Benzyl chloride	Methanol	Tebuconazole	
Butylated hydroxyanisole	Methamidophos	Tebufenozide	
Captan	Methyl bromide (Bromomethane)	Tellurium	
Chlorate	Methyl tert-butyl ether	Thiodicarb	
Chloromethane (Methyl chloride)	Metolachlor	Thiophanate-methyl	
Clethodim	Metolachlor ethanesulfonic acid (ESA)	Toluene diisocyanate	
Cobalt	Metolachlor oxanilic acid (OA)		
Cumene hydroperoxide			



UCMR 3 – Contaminants

- Pharmaceuticals (EPA Method 539)
 - 17- α -ethynylestradiol
 - 17- β -estradiol
 - equilin
 - estriol
 - estrone
 - testosterone
 - 4-androstene-3,17-dione
- Metals (EPA Method 200.8)
 - cobalt
 - molybdenum
 - strontium
 - vanadium
 - (total) chromium
- Hexavalent chromium (EPA Method 218.7)
- Volatile Organic Compounds (EPA Method 524.3)
 - 1,1-dichloroethane
 - 1,2,3-trichloropropane
 - 1,3-butadiene
 - bromochloromethane
 - chlorodifluoromethane
 - chloromethane
 - methyl bromide
- 1,4-dioxane (EPA Method 522)
- chlorate (EPA Method 300.1)



UCMR 3 – Contaminants (cont.)

- Perfluorinated Chemicals (EPA Method 537)
 - Perfluorooctane sulfonate (PFOS)
 - Perfluorooctanoic acid (PFOA)
 - Perfluoroheptanoic acid (PFHpA)
 - Perfluorononanoic acid (PFNA)
 - Perfluorobutane sulfonic acid (PFBS)
 - Perfluorohexane sulfonic acid (PFHxS)
- Microbials
 - 2 viruses
 - enterovirus (qPCR & cell culture)
 - norovirus (qPCR)
 - “Indicator organisms”
 - Total coliform
 - *E. coli*
 - enterococci
 - coliphage
 - aerobic spores



UCMR 4 – 30 Proposed Contaminants

- **10 Cyanotoxins/Groups**
 - “total microcystins” by ELISA
 - 6 microcystin congeners (MC-LA, MC-LF, MC-LR, MC-LY, MC-RR, MC-YR) and nodularin by EPA Method 544
 - anatoxin-a and cylindrospermopsin **UFHOWW** by EPA Method 545
- **2 Metals** (EPA Method 200.8 or equivalent SM, ASTM method)
 - germanium
 - manganese
- **3 Brominated HAA groups** (EPA Method 552.3 or 557)
 - HAA5
 - HAA6-Br
 - HAA9
- **9 pesticides** (EPA Method 525.3)
 - alpha-hexachlorocyclohexane
 - chlorpyrifos
 - dimethipin
 - ethoprop
 - oxyfluorfen
 - profenofos
 - tebuconazole
 - total permethrin (cis- & trans-)
 - tribufos
- **3 Alcohols** (EPA Method 541)
 - 1-butanol
 - 2-methoxyethanol
 - 2-propen-1-ol
- **3 Semivolatile Organic Chemicals** (EPA Method 530)
 - butylated hydroxyanisole
 - o-toluidine
 - quinolone