


Unregulated Contaminant Monitoring Rule 3

Overview of New Jersey Data

January 1, 2013 – December 31, 2015



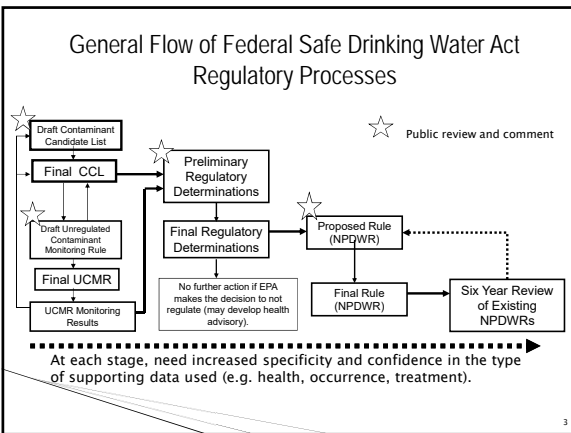
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UCMR: Unregulated Contaminant Monitoring Rule

- ▶ U.S. Environmental Protection Agency
 - New list of up to 30 unregulated contaminants every 5 years
 - 2013–2015
- ▶ To provide baseline occurrence data
 - Drinking water contaminants that do not have health-based standards under the SDWA
 - USEPA can combine with toxicological research to make decisions about potential future drinking water regulations



UCMR3 System Applicability

Assessment Monitoring (List 1 Contaminants) = 14 contaminants		
System Type	Systems serving >10,000	Systems serving ≤10,000
CWS & NTNCWS	All systems (4200) NJ = 160	800 randomly selected systems NJ = 15
TNCWS	No requirements	No requirements
Screening Survey (List 2 Contaminants) = 7 contaminants		
System Type	Systems serving >10,000	Systems serving ≤10,000
CWS & NTNCWS	All systems (410) serving more than 100,000, and 320 randomly selected systems serving 10,0001 to 100,000 NJ = 21	480 randomly selected systems NJ = 6
TNCWS	No requirements	No requirements
Pre-Screen Testing (List 3 Contaminants): viruses = 2 contaminants		
System Type	Systems serving >1,000	Systems serving ≤1,000
CWS, TNCWS & NTNCWS	No requirements	800 randomly selected systems NJ = 3

NJ = 175 systems
NJ = 27 systems
NJ = 160 systems
NJ = 21 systems

UCMR Data: 2016 Release

1,045,484 samples nationwide

- ▶ **36,665 NJ samples – 181 systems**
 - **PWS > 10,000: 160 systems; 34,557 samples**
 - PWS < 10,000: 21 systems, 2108 samples
 - [Very small systems for micro: 3 systems, 33 samples]
- ▶ **Monitoring type**
 - **Assessment monitoring: 34,629 samples**
 - Screening survey: 2036
 - Prescreening: 33 in April 2016 data release
- ▶ **Facility type**
 - **GW = 25,111 samples (140 systems)**
 - SW = 9502 samples (86 systems)
 - Mixed = 1856 samples (52 systems)
 - GUDI = 196 samples (2 systems)

UCMR Data: 2016 Release

- ▶ **36,665 samples analyzed in New Jersey**
 - **15,603 first samples**
 - 15,187 second
 - 3011 third
 - 2864 fourth
- ▶ **Sample locations**
 - **Entry point = 32,615**
 - Maximum residence time = 4050
- ▶ **Collection year**
 - 2013 = 11,620
 - **2014 = 13,660**
 - 2015 = 11,351
 - 2016 = 34

UCMR Data

- ▶ MRLs lower than in previous UCMRs, more detections than in past UCMRs
- ▶ Reference concentrations posted for most contaminants
 - http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/upload/UCMR3_FactSheet_List1.pdf
 - DrinkTap.org
 - NJ specific "reference concentrations"

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Assessment Monitoring: List 1

- ▶ Volatile Organic Compounds (7)
 - 174 systems; 1430 samples
 - **1,2,3-Trichloropropane**
 - 1,3-Butadiene
 - Chloromethane (Methyl chloride)
 - 1,1-Dichloroethane
 - Bromomethane (Methyl bromide)
 - Chlorodifluoromethane (HCFC-22)*
 - Bromochloromethane (Halon 1011)
 - USEPA Method 524.3

*No reference concentration

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Assessment Monitoring: List 1 VOCs – cont.

- ▶ 1,2,3 – Trichloropropane
 - DWQI Recommended MCL (2009) = 0.03 ug/L
 - MRL = 0.03 ug/L
 - 2/174 systems > MRL
- ▶ 1,1-Dichloroethane
 - NJ MCL = 50 ug/L
 - EPA ref. conc. = 6/600 ug/L ($10^{-6}/10^{-4}$)
 - MRL = 0.03 ug/L
 - 27/174 systems > MRL

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Assessment Monitoring: List 1

- ▶ Synthetic Organic Compounds (1)
 - 174 systems; 1430 samples
 - **1,4-dioxane**
 - Detected in 339/1430 samples in NJ (24%)
 - POL modified 11/25/2015; Interim Specific Ground Water Quality Criteria (ISGWQC) became the Groundwater Standard = 0.4 ug/L
 - 27/174 systems > Groundwater Standard = 16% of systems that sampled
 - DEP issued letters to these systems: monitoring
 - EPA Method 522; MRL = 0.07 ug/L

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Assessment Monitoring: List 1

- ▶ Oxyhalide Anion (1)
 - 174 systems; 1993 samples
 - **Chlorate**
 - Detected in 1503/1993 samples (75%)
 - Detected above EPA ref. conc. (210 ug/L) in 14% of samples; 45% of systems
 - EPA 300.1, ASTM D6581-08, Standard Methods 4110D (1997)

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Assessment Monitoring: List 1

- ▶ Metals (6)
 - 175 systems; approx. 2020 samples
 - **Vanadium** (1 sample; 2nd sample low)
 - Molybdenum
 - **Cobalt** (1 sample; 2nd low)
 - **Strontium**
 - Chromium
 - Hexavalent chromium*
 - EPA 200.8 Rev 5.4, ASTM D5673-10, Standard Methods 3125 (1997)

*No reference concentration

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Assessment Monitoring: List 1 Metals – cont.

- ▶ Strontium
 - Detected in 2009/2015 samples (>99%)
 - NJ Groundwater standard = 2000 ug/L
 - 11/2015 samples and 6/174 systems > NJ Groundwater standard
- ▶ DEP notified one system

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Assessment Monitoring: List 1

- ▶ Perfluorinated Compounds (6)
 - 175 systems; 1456 samples
 - perfluorooctane sulfonate (PFOS)
 - **perfluorooctanoic acid (PFOA)**
 - **perfluorononanoic acid (PFNA)**
 - perfluorohexane sulfonic acid (PFHxS)
 - perfluoroheptanoic acid (PFHpA)
 - perfluorobutane sulfonic acid (PFBS)
- EPA 537 Rev 1.1

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Assessment Monitoring: List 1 Perfluorinated Compounds (cont.)

- ▶ PFOA
 - EPA MRL = 0.020 ug/L or 20 ng/L
 - Detected in 81/1456 samples (5.6%); 18/175 systems (10%)
 - EPA Draft HA = 70 ng/L (combined PFOA+ PFOS)
 - 1 sample above 70 ug/L; 6 systems PFOA+PFOS>70 ug/L
 - DEP Draft Guidance (2007) = 40 ng/L
 - 13 samples, 7 systems
 - DWQI Draft HB recommendation (2016)= 14 ng/L
 - 81 samples, 18 systems

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Assessment Monitoring: List 1 Perfluorinated Compounds (cont.)

- ▶ PFOS
 - EPA MRL = 0.040 ug/L or 40 ng/L
 - Detected in 12/1456 samples (0.8%); 5/175 systems > MRL (3%)
 - EPA Draft HA = 70 ng/L (combined PFOA+ PFOS)
 - 1 sample

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Assessment Monitoring: List 1 Perfluorinated Compounds (cont.)

- ▶ PFNA
 - EPA MRL = 0.020 ug/L or 20 ng/L
 - Detected in 7/1456 samples (0.5%); 4/175 systems (2%)
 - No EPA Reference concentration
 - Groundwater standard = 0.01 ug/L
 - DWQI MCL recommendation (2015)= 13 ng/L
 - 7 samples, 4 systems

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Screening Survey: List 2

- ▶ Hormones (7)
 - 27 systems; 291 samples
 - 17-β-estradiol
 - 17-α-ethynylestradiol (ethinyl estradiol)
 - 16-α-hydroxyestradiol (estriol)
 - Equilin
 - Estrone
 - Testosterone: 1 sample in 2013; 3 other samples ND
 - 4-androstene-3,17-dione: 1 sample in 2015, 3 other samples ND
- USEPA Method 539

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Pre-Screening Testing: List 3

▶ List 3 Contaminants

- Enteroviruses
- Noroviruses
 - USEPA Method 1615, developed by USEPA and USGS
 - Aerobic spores
 - Enterococcus
 - Enterovirus (cell culture)
 - Enterovirus (RT-qPCR)
 - E. coli
 - Male specific phage
 - Norovirus GI/A
 - Norovirus GI/B
 - Norovirus GI/I
 - Somatic phage
 - Total coliform

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Summary of NJ UCMR Data

- ▶ **Not detected in UCMR3 in NJ (10)**
 - 1,3-Butadiene
 - Bromomethane
 - Perfluorobutane sulfonic acid (PFBS)
 - 17- β -estradiol
 - 17- α -ethynylestradiol (ethinyl estradiol)
 - 16- α -hydroxyestradiol (estriol)
 - Equilin
 - Estrone
 - Noroviruses
 - Enteroviruses

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Summary of NJ UCMR Data

- ▶ NJ MCL (2)
 - 1,1-Dichloroethane
 - Chromium
- ▶ ISGWQC (3)
 - 1,4-Dioxane
 - PFNA
 - Strontium
- ▶ Under review by DWQI (2)
 - PFOA
 - 1,2,3-Trichloropropane

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Summary

- ▶ In NJ, some of UCMR3 contaminants were detected above reference concentrations
- ▶ EPA regulatory determination
- ▶ Future UCMR4



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UCMR4

- ▶ **Proposed UCMR4 Analytes**
 - **Monitoring 2018-2020**
 - 10 cyanotoxins
 - 2 metals
 - 8 pesticides
 - 1 pesticide manufacturing by-product
 - 3 brominated haloacetic acid groups
 - 3 alcohols
 - 3 semivolatile chemicals

<https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule>

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