


## Unregulated Contaminant Monitoring Rule 3

Overview of New Jersey Data

January 1, 2013 – December 31, 2015



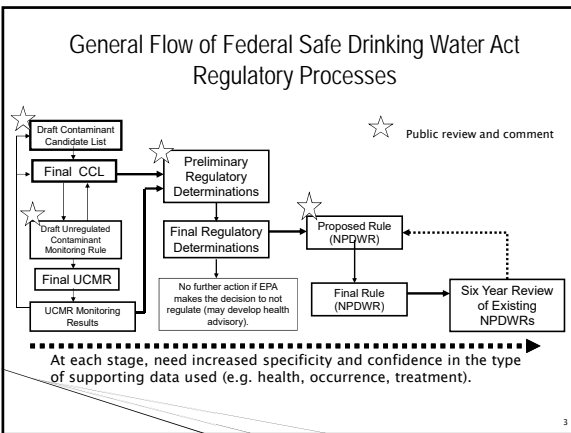
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### UCMR: Unregulated Contaminant Monitoring Rule

- ▶ 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](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; 2<sup>nd</sup> sample low)
  - Molybdenum
  - **Cobalt** (1 sample; 2<sup>nd</sup> 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- $\beta$ -estradiol
  - 17- $\alpha$ -ethynylestradiol (ethinyl estradiol)
  - 16- $\alpha$ -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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