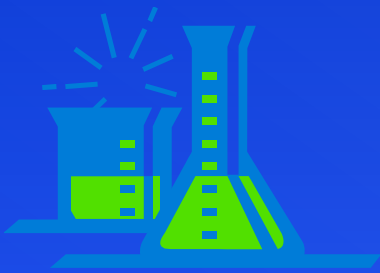# Unregulated Contaminant Monitoring Rule 3

January 1, 2013 – June 30, 2015

Sandra Krietzman, M.S.
Bureau Chief
Bureau of Safe Drinking Water

DWQI Meeting September 30, 2015

UCMR: What is it?
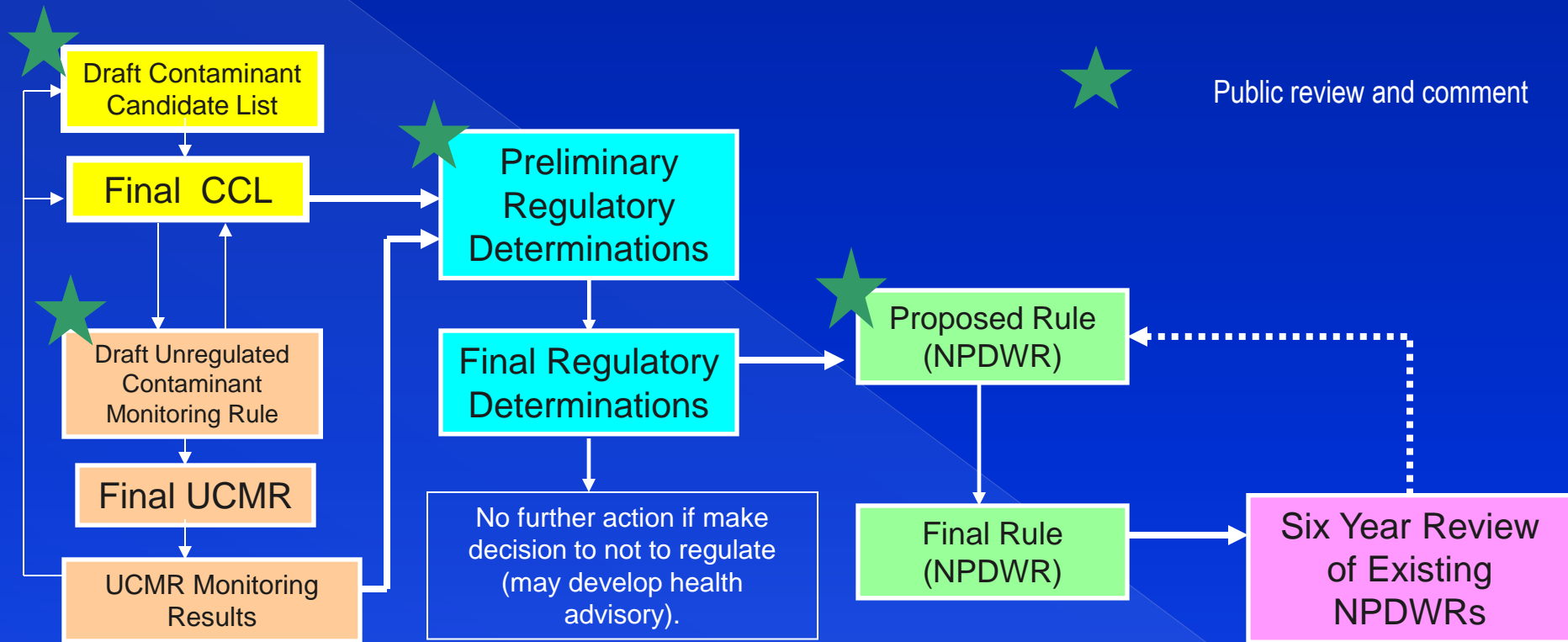## Unregulated Contaminant Monitoring Rule

- **U.S. Environmental Protection Agency**
  - New list of up to <u>30 unregulated contaminants</u> every 5 years
  - Public water systems > 10,000 must monitor
  - 800 small systems nationwide
  - Few very small systems for micro

- **To provide baseline <u>occurrence data </u>that the USEPA can combine with toxicological research to make decisions about potential future drinking water regulations.**

Unregulated Contaminant Monitoring Rule 3

› UCMR 1: 2001-2005
› UCMR 2: 2008-2010
› **UCMR 3: 2013-2015** (Effective April 16, 2012)

◉ The USEPA, the states, laboratories and public water systems are all participating in the testing for UCMR3 in various ways.

◉ The Laboratory Approval Program requires laboratories to have USEPA approval to analyze samples for UCMR 3.

◉ The data collected through the UCMR program are stored in National Contaminant Occurrence Database for analysis and review of contaminant occurrence, guide the conduct of the Contaminant Candidate List (CCL) process and support the regulatory decisions for contaminants in the interest of protecting public health, as required under SDWA Section 1412(b)(1).

◉ https://www.federalregister.gov/articles/2012/05/02/2012-9978/revisions-to-the-unregulated-contaminant-monitoring-regulation-ucmr-3-for-public-water-systems

General Flow of Federal Safe Drinking Water Act Regulatory Processes

Draft Contaminant Candidate List

Final CCL

Draft Unregulated Contaminant Monitoring Rule

Final UCMR

UCMR Monitoring Results

Preliminary Regulatory Determinations

Final Regulatory Determinations

No further action if make decision to not to regulate (may develop health advisory).

Public review and comment

Proposed Rule (NPDWR)

Final Rule (NPDWR)

Six Year Review of Existing NPDWRs

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

Exhibit 3: Timeline of UCMR 3 Activities

2012	2013	2014	2015	2016
After proposed rule publication: Lab approval program begins *After applicability date:* EPA/State partnership agreements and State monitoring plans developed (inc. national representative sample) *After final rule publication*: Inform PWSs/establish monitoring plans	◄———— **Assessment Monitoring** ————► List 1 Contaminants + Total Chromium All systems serving more than 10,000; 800 systems serving 10,000 or fewer ◄———— **Screening Survey** ————► List 2 Contaminants All systems serving more than 100,000; 320 systems serving 10,001 through 100,000; 480 systems serving 10,000 or fewer ◄———— **Pre-Screen Testing** ————► List 3 Contaminants + Indicator Organisms 800 non-disinfecting ground water systems in vulnerable areas serving 1,000 or fewer			Complete reporting and analysis of data

Monitoring Frequency by Contaminant and Water Source Types

Contaminant type	Water source type	Time frame	Frequency
Chemical	Surface water or ground water under the direct influence of surface water (GWUDI)	12 months	4 consecutive quarters 3 months apart.
	Ground water	12 months	Twice in a consecutive 12-month period. 5-7 months apart.
Microbiological	Ground water	12 months	Twice in a consecutive 12-month period. 5-7 months apart.

UCMR 3 Data

- UCMR periodically released data, June 2015
- MRLs lower than in previous UCMRs
- Reference concentrations posted for most contaminants
  - http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/upload/UCMR3_Data-Summary_June-2015_508.pdf
  - DrinkTap.org
- 831,908 data points nationwide
- 28,686 in New Jersey
  - 14,673 first samples, remaining are repeat

Assessment Monitoring: List 1

- Volatile Organic Compounds (7)

  - 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

Summary of NJ UCMR VOC Data

- **Detected in UCMR3, not in NJ**
  - 1,3-Butadiene
  - Choromethane
  - Bromomethane

- **Detected in UCMR3, not detected above ref. conc. in NJ**
  - 1,1-Dichloroethane* (54/1134 samples)
  - Halon 1011 (5/1134; ref .conc. = 90 ug/L)
  - HCFC-22 (12/1134; no reference concentration listed)

- **Detected in UCMR3 in NJ above reference concentration**
  - 1,2,3-Trichloropropane
  - Ref. conc. 0.0004/0.04 ug/L ($10^{-6}/10^{-4}$)
  - Results range from 0.03 - 0.051 ug/L
  - GW

* NJ adopted a MCL for 1,1-dichloroethane of 50 ug/L in 1996. The UCMR3 results for 1,1-dichloroethane did not exceed the NJ MCL.

Assessment Monitoring: List 1(cont.)

- Synthetic Organic Compounds (1)
  - 1,4-dioxane
    - EPA Method 522
- Oxyhalide Anion (1)
  - Chlorate
    - EPA 300.1, ASTM D6581-08, Standard Methods 4110D (1997)
- Metals (6)
  - Vanadium
  - Molybdenum
  - Cobalt
  - Strontium
  - Chromium
  - Hexavalent chromium

    - EPA 200.8 Rev 5.4, ASTM D5673-10, Standard Methods 3125 (1997)

Summary of NJ UCMR SOC Data

- ◉ 1,4 - Dioxane
- ◉ Detected in UCMR3, in NJ above reference concentration
  - › Detected nationally (12% of samples)
  - › Detected in NJ (22% of samples)
  - › 57/1134 (5%) samples above reference conc. (10^{-6})
  - › No results above 10^{-4} reference concentration
  - › Results ranged from 0.07-5.83 ug/L
  - › Ref. conc. = 0.35/35 ug/L ($10^{-6}/10^{-4}$)

Summary of NJ UCMR Chlorate Data

- Chlorate
- Detected in UCMR3, in NJ above reference concentration
  - Detected nationally (56% samples)
  - Detected in NJ (76% samples)
  - MRL is 20 ug/L
  - 237/1564 (15%) samples above reference conc.
  - Ref. conc. = 210 ug/L
  - Results ranged from 20 - 5756 ug/L

Summary of NJ UCMR Metals Data

◉ All Metals were detected in UCMR3 and in NJ UCMR3

◉ **Detected in UCMR3, not detected above ref. conc. in NJ**
   › Molybdenum – 141/1566 (9%) of samples
      · Range 1 – 20 ug/L (40 ug/L)
   › Chromium 725/1563 (46%) of samples; MRL = 0.2 ug/L
      · Range 0.2 - 58 ug/L (100 ug/L)
   › Hexavalent Chromium 1086/1575 (69%) of samples; MRL = 0.03 ug/L
      · Range 0.03 – 3.8 ug/L (NA)

◉ **Detected in UCMR3 in NJ above reference concentration**
   › Cobalt – 121/1566 of samples (8%)
      · 1 result > RC (70 ug/L)
      · Range 1.01 - 1097 ug/L
   › Vanadium – 475/1567 (30%) of samples
      · 2 results > RC (21 ug/L)
      · Range 0.2 – 22.4 ug/L
   › Strontium – 1563/1566 (99+%) of samples
      · Range 2.8 – 7756 ug/L (1500 ug/L)

Assessment Monitoring: List 1 (cont.)

- Perfluorinated Compounds (6)
  - 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

Summary of NJ UCMR PFC Data

- Detected in UCMR3, not in NJ
  - PFBS
- Detected in UCMR3, not detected above ref. conc. in NJ
  - PFOS (5 /1146 samples) ref. conc. = 0.2 ug/L
  - PFHpA (3/1146), no reference concentration available
  - PFHxS (3/1146), no reference concentration available
- Detected in UCMR3 above reference concentration
  - PFOA (60/1146 samples, 5%)
    - Six samples above NJ guidance number (0.04 ug/L)
  - PFNA (6/1146 samples)
    - Six samples above interim specific groundwater criteria 0.010 ug/L

Screening Survey: List 2

- ⊙ Hormones (7)
  - › 17-β-estradiol
  - › 17-α-ethynylestradiol (ethinyl estradiol)
  - › 16-α-hydroxyestradiol (estriol)
  - › Equilin
  - › Estrone
  - › Testosterone
  - › 4-androstene-3,17-dione
    - • USEPA Method 539

Summary of NJ UCMR3 Hormone Data

- Not Detected in UCMR3
  - Equilin
  - Estrone

- Detected in UCMR3, not in NJ
  - 17-beta – estradiol
  - 17-alpha-ethynylestradiol
  - Estriol
  - 4-androstene-3,17-dione

- Detected in UCMR3 in NJ
  - Testosterone
  - 1/215 samples (0.00097 ug/L)
  - No reference concentration
  - SW

Pre-Screening Testing

- ◉ <u>List 3 Contaminants</u>
  - › Enteroviruses
  - › Noroviruses

  - › USEPA Method 1615
  - › Developed by USEPA and USGS

    - • E. coli
    - • Total coliform
    - • Aerobic spores
    - • Enterococcus
    - • Etc.

Summary

- In NJ, some of UCMR3 contaminants were detected above reference concentrations

- UCMR data must be reported in the CCR