



Drinking Water *Opportunities and Challenges*

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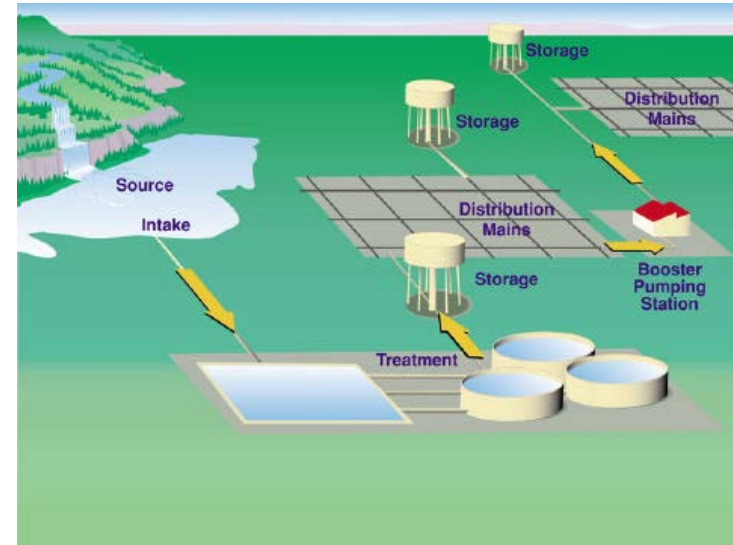
EPA Region 2

New York, New Jersey,

Puerto Rico and the U.S. Virgin Islands

Overview

- SDWA and Regulatory Process
 - CCL
 - UCMR
 - Regulatory Determinations



- Regulations and MCLs
- Six Year Review
- Health Advisories
- Emerging Contaminant Updates

1974 Safe Drinking Water Act (SDWA)

- 1974 federal law established to protect quality of drinking water in U.S

- Expanded focus from water system planning and prevention of contamination to include:
 - developing standards
 - monitoring for contaminants
 - taking enforcement action.



1986 Safe Drinking Water Act (SDWA)

- Required EPA to regulate 83 contaminants by 1989 (only about 22 had been regulated so far)
- Required EPA to regulate 25 new contaminants every 3 years
- Required EPA to set requirements for filtration and disinfection of water supplies
- Banned the use of lead pipes and solder
- Established the voluntary wellhead protection program

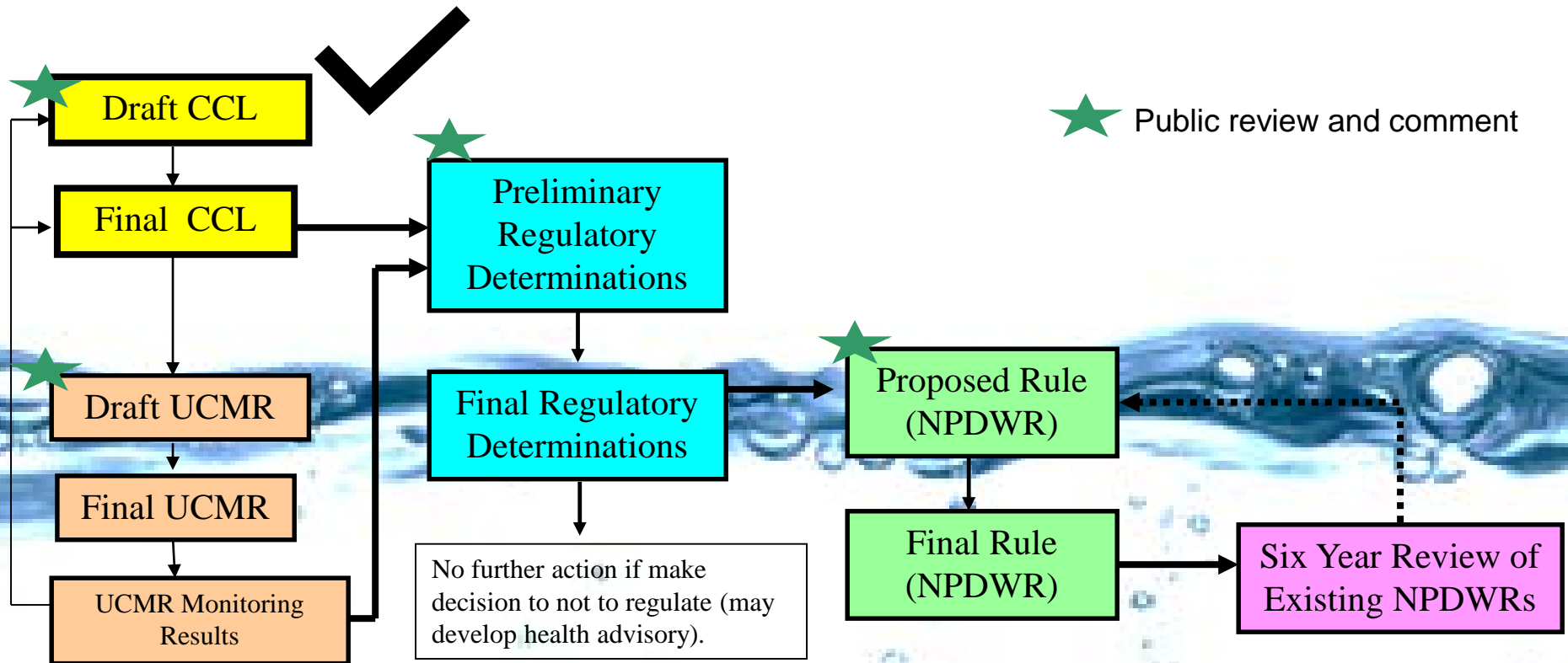
1996 Amendments to SDWA

- Eliminated the “25 new contaminants every 3 years” requirement
- Required EPA to conduct cost-benefit analysis in setting standards

- Expanded consumer information
- Increased source water protection
- Strengthened enforcement



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).

How do contaminants become regulated under SDWA?

- https://www.epa.gov/sites/production/files/2017-12/documents/epa-regulate_drinking_water_contaminants-final-508.pdf

Understanding how EPA DEVELOPS NEW DRINKING WATER REGULATIONS



EPA works to ensure that drinking water is safe by developing National Primary Drinking Water Regulations (NPDWRs) for new contaminants under the Safe Drinking Water Act. Below demonstrates the steps EPA takes when developing new drinking water regulations.

STEP 01 IDENTIFICATION



IDENTIFY
unregulated contaminants.



PUBLISH
a list of unregulated contaminants in a Contaminant Candidate List (CCL).



PRIORITIZE
the contaminants using monitoring data, risk assessments, and other relevant information.

STEP 02 EVALUATION



EPA then makes a decision on whether they should start the rulemaking process to develop a national primary drinking water regulation (NPDWR) for a specific contaminant based on **three criteria**:

1

HEALTH RISK
The contaminant may have an adverse effect on a person's health.

2

HIGH OCCURRENCE
The contaminant is known to occur or there is a high chance that the contaminant will occur in public water systems often enough and at levels of public health concern.

3

REDUCTION OF RISK
In the sole judgment of the Administrator, regulation of the contaminant provides a meaningful opportunity for health risk reductions served by public water systems.

THEN EPA:



Publishes a preliminary regulatory determination report in the Federal Register.



Allows the public to comment and consults with states and other federal agencies.



Reviews and considers comments and recommendations.



Publishes a final notice in the Federal Register.

STEP 03 REGULATION



YES TO REGULATING THE CONTAMINANT



Starts the rulemaking process to establish the NPDWR.



EPA reviews all NPDWRs every six years to determine whether changes are needed.



NO TO REGULATING THE CONTAMINANT

May develop a health advisory, as appropriate, or take no additional action.

For more information, visit: epa.gov/safewater

Contaminant Candidate List

- SDWA requires EPA to publish the **Contaminant Candidate List (CCL)** every five years, which is a list of contaminants that aren't currently under regulation, but are *known or anticipated to occur in water systems*.

- EPA uses this list to find out which contaminants are priorities for information collection and, perhaps eventually, regulation
- List does not impose any requirements on PWS.

Contaminant Candidate List Dates

Agency has created four such lists so far:

- CCL 1: 1998
- CCL 2: 2003
- CCL 3: 2009
- CCL 4: 2016. EPA carried over CCL 3 contaminants (minus those with regulatory determinations) to this list.

Contaminant Candidate List 4

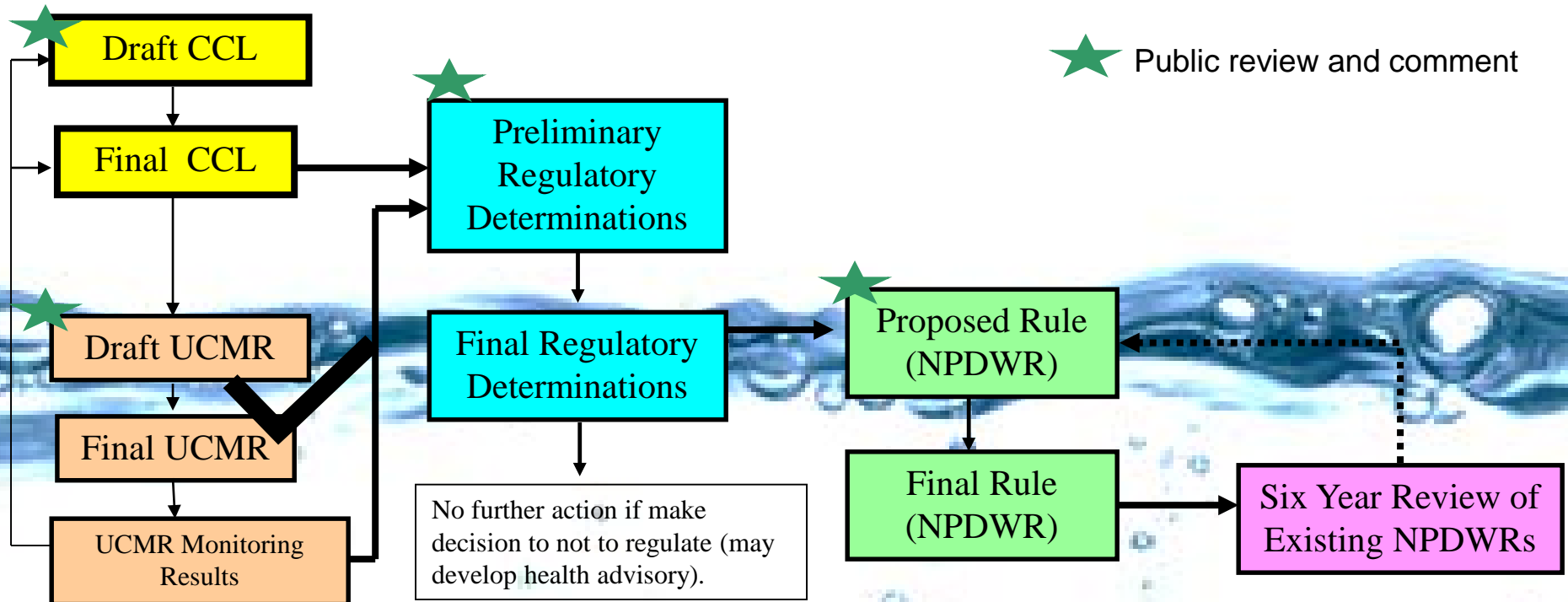
- To select contaminants for 4th CCL, EPA:
 1. carried forward contaminants without regulatory determinations from the third CCL;
 2. sought and evaluated public nominations;
 3. evaluated new data from contaminants from CCL1 and CCL2 with previously negative regulatory determinations; considered Science Advisory Board comments

Contaminant Candidate List 4

- In total, the CCL 4 has **97 chemicals/chemical groups** and **12 microbial contaminants**.
- CCL 4 includes chemicals used in commerce, pesticides, biological toxins, disinfection byproducts, pharmaceuticals, and waterborne pathogens.

- (full list can be found at <https://www.epa.gov/ccl/chemical-contaminants-ccl-4>)

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).

Unregulated Contaminant Monitoring Rule (UCMR)

- The next step of the regulatory process, also known as the **UCMR program**, EPA must monitor up to 30 contaminants from the CCL to determine their occurrence in DW systems.

- UCMR 4 will monitor **30 chemical contaminants** between now and 2020. Those contaminants include ten cyanotoxins and 20 other contaminants, including manganese, different haloacetic acids groups, etc.

UCMR 3: Summary Results in R2


- In EPA Region 2 (NY, NJ, PR, USVI), 365 large and 91 small systems were sampled for contaminants
- 95,588 samples collected
- Slightly greater than 20,000 (20.7%) of those samples were found to be above the minimum reporting level (MRL) for their respective contaminants.

UCMR 3: Summary Results in R2

- Health Advisory exceedances for 1,2,3-trichloropropane, 1,4-dioxane, chlorate, cobalt, PFOA and PFOS (individually or combined), strontium, vanadium were reported at:
 - 129 PWSs in New Jersey
 - 106 PWSs in New York
 - 25 PWSs in Puerto Rico
 - 2 PWSs in the USVI
- <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule>

UCMR 4

- Contaminants being evaluated for UCMR 4 include:
- <https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule>

- 
- Cyanotoxins (e.g., microcystins, anatoxin-a, cylindrospermopsin)
 - Semivolatile Organic Chemicals (pesticides, others)
 - Alcohols
 - Brominated HAAs
 - Metals (e.g., Mn, Ge)
 - Microbes (e.g., Legionella)

How did EPA select the UCMR 4 contaminants?

- CCL 4 primary source of priority contaminants.
Prioritized by identifying contaminants that:
 - were not monitored under UCMR 2 or UCMR 3;
 - may have significant occurrence nationally;
 - have a completed, validated drinking water method.

Unregulated Contaminant Monitoring Rule (UCMR) 4

- 6,000 PWSs are participating in UCMR4.

- All large surface water and GWUDI systems serving over 10,000 required to monitor for all 30 contaminants.

Unregulated Contaminant Monitoring Rule (UCMR) 4

- All large ground water systems must monitor for the 20 non-cyanotoxins.

- For smaller systems, a nationally representative set of 800 randomly selected systems will monitor for cyanotoxins, while a different set of 800 will monitor for the other 20 contaminants.

UCMR 4 Timeline

2017	2018	2019	2020	2021
<p>Pre-monitoring Implementation</p> <ul style="list-style-type: none"> Continuation of Lab Approval PWS SDWARS registration/notification/inventory PAs, SMPs, SSIs, LSIs GWRMP submittal Outreach/trainings 	<p style="text-align: center;">Assessment Monitoring List 1 Contaminants</p> <p style="text-align: center;">Implementation Activities</p> <ul style="list-style-type: none"> Assist PWSs with compliance Implement small system monitoring Post data quarterly to NCOD <p style="text-align: center;">Reporting and analysis of data</p> <ul style="list-style-type: none"> All large systems serving more than 10,000 people 800 SW and GWUDI small systems serving 10,000 or fewer people for cyanotoxins 800 small systems serving 10,000 or fewer people for the 20 additional contaminants 			<p>Post-monitoring Phase</p> <ul style="list-style-type: none"> Complete resampling Conclude data reporting Finalize NCOD Continued enforcement

Sampling Frequency and Timing under UCMR 4

Contaminant Type	Water Source	Time Frame	Frequency
List 1 Contaminants - Cyanotoxins	SW or GWUDI	March – November*	Systems must monitor twice a month for 4 consecutive months (total of 8 sampling events) Sample events must occur 2 weeks apart
List 1 Contaminants – Additional Chemicals	SW or GWUDI	Year-Round	Systems must monitor 4 times during a consecutive 12-month monitoring period Sample events must occur 3 months apart
	GW		Systems must monitor 2 times during a consecutive 12-month monitoring period Sample events must occur 5-7 months apart

*Reflects the warmer months when harmful algal blooms are more likely to occur

UCMR 4 Results

- Within 120 days from sample collection: Laboratories post monitoring results to EPA's electronic reporting system, Safe Drinking Water Accession and Review System (SDWARS)
- Within 60 days from lab posting of data: PWSs serving more than 10,000 people review and approve data.

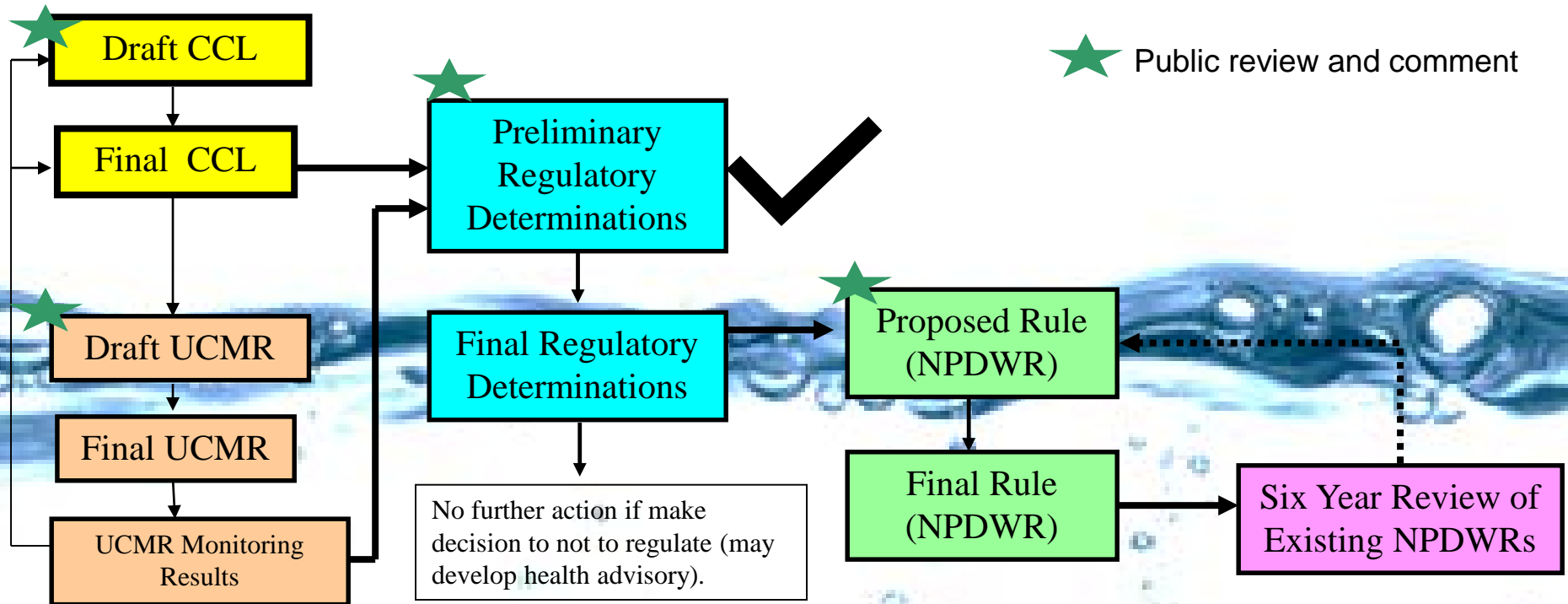
UCMR 4 Results

- Data will be available to the public in the National Contaminant Occurrence Database (NCOD)

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

- Occurrence Data will be collected from January 2018 through 2020
- Full results will be made available in 2021.

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 Determination 4

- In this part of the process, the agency will decide whether or not to regulate at least 5 contaminants from the CCL/UCMR lists in a separate process called Regulatory Determination 4.

- <https://www.epa.gov/ccl/basic-information-ccl-and-regulatory-determination>

Regulatory Determination 4

EPA must determine whether these 5+ contaminants:

1. Have an adverse effect on human health

1. Are known to occur or there is a substantial likelihood they will occur in PWSs with a frequency and at levels of public health concern; and
2. In the sole judgment of the Administrator, regulation of contaminant presents a meaningful opportunity for health risk reductions for persons served by PWSs.

Regulatory Determination 4

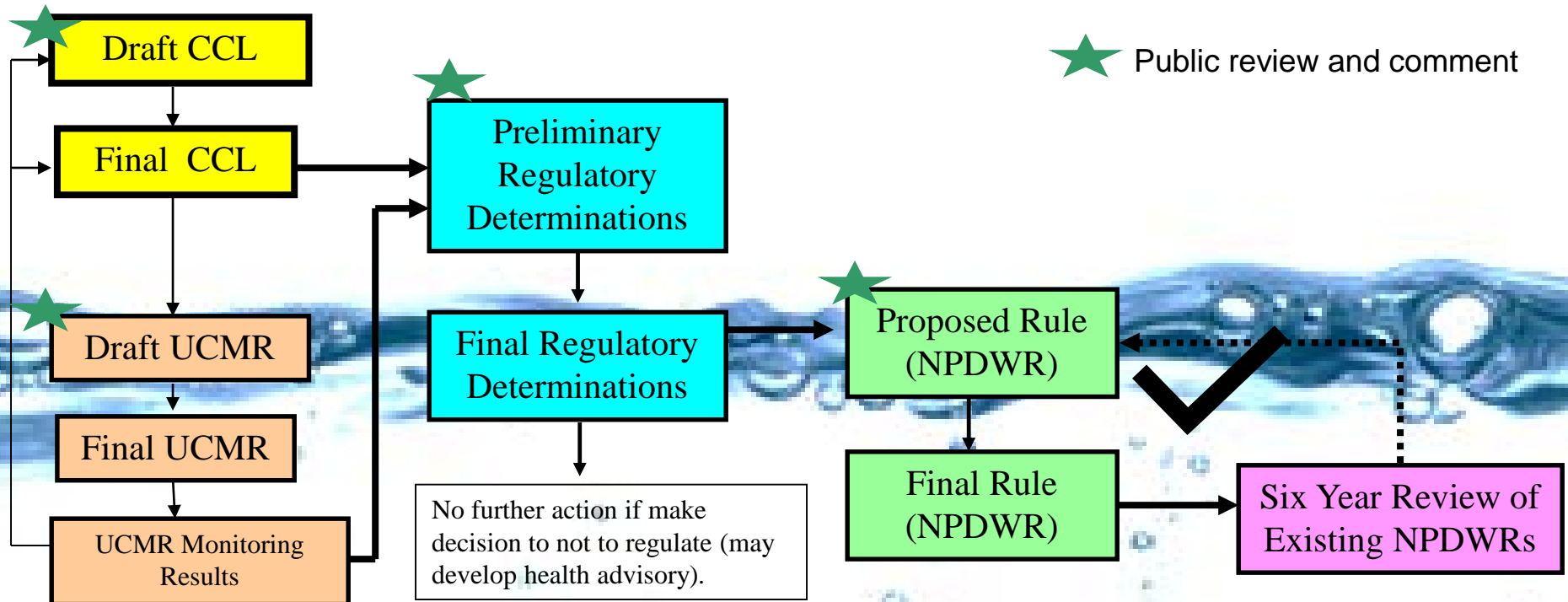
Once the agency has completed its evaluation, EPA:

- Publishes preliminary regulatory determination report in Federal Register.
- Allows public to comment; consults with states and other federal agencies.
- Reviews and considers comments and recommendations.
- Publishes a final notice in Federal Register.

Last Regulatory Determinations for CCL 3

- EPA made its final regulatory determination for CCL 3 on January 4, 2016.
- <https://www.epa.gov/ccl/regulatory-determination-3>
- Decided not to regulate four of 116 CCL 3 contaminants – dimethoate, 1,3-dinitrobenzene, terbufos, and terbufos sulfone.
- Delayed final regulatory determination on strontium

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).

Setting a Maximum Contaminant Level

If a decision is made to regulate the contaminant...

- EPA first sets a **maximum contaminant level goal (MCLG)**, or the level at which no known or anticipated adverse health effect on persons would occur.
- These are non-enforceable public health goals, and are sometimes set at levels which water systems can't meet because of technological limitations.

Setting a MCL

- Once the MCLG is determined, EPA sets an enforceable standard. In most cases, the standard is a **maximum contaminant level (MCL)**.

- The MCL is the maximum level allowed of a contaminant in water which is delivered to any user of a public water system.

Setting a MCL

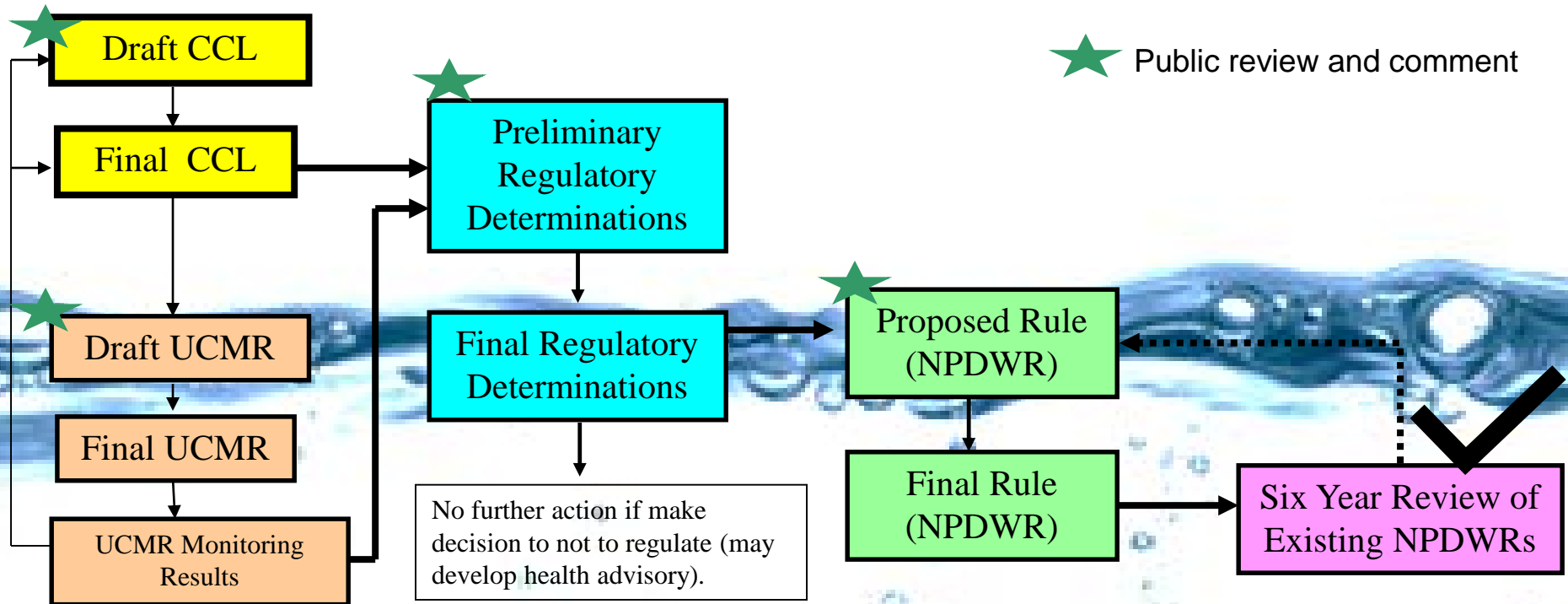
Under SDWA, EPA must realistically assess capabilities of and resources available to those who could be affected by drinking water rulemaking. In addition:

- EPA must measure quantifiable and non-quantifiable benefits of a proposed rule against its cost
- Administrator, in certain circumstances, allowed to set a contaminant level that maximizes health risk reduction benefits at a cost justified by the benefits

Setting a MCL

- If there is no reliable method that is economically and technically feasible to measure a contaminant at concentrations to indicate there is not a public health concern, EPA sets a “treatment technique” (TT) rather than an MCL
- A TT is an enforceable procedure or level of technological performance which PWS must follow to ensure control of a contaminant.
- The lead action level (15 ppb) is one example of a regulation that is not health-based.

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).

Six Year Review

- The SDWA requires EPA to review each National Primary Drinking Water Regulation (NPDWR) at least once every six years and revise them, if appropriate.

- Six Year Review 3 completed in 2016
- Six Year Review 2 completed in 2010
- Six Year Review 1 completed in 2003
- <https://www.epa.gov/dwsixyearreview>

Health Advisories

- If a determination is made to not regulate a contaminant, EPA will sometimes set a non-enforceable Health Advisory (HA).

- HAs provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water.

Health Advisories Example: PFAS

EPA studied poly- and perfluoroalkyl substances (PFAS) as part of UCMR 3 process

- Issued HA in Nov 2016, for 70 parts per trillion for PFOA and PFOS (individually or combined)
- Provides information about treatment and monitoring to states and local officials

Other Updates on PFAS

- EPA recently hosted a national leadership summit in May 2018 with federal, state, and local stakeholders to identify near term actions to address challenges with PFAS.
- Announced four actions the Agency will take following the Summit (next slide)

PFAS Summit Outcome

EPA will:

1. Initiate steps to evaluate the need for an MCL for PFOA and PFOS.
2. Begin the necessary steps to propose designating PFOA and PFOS as “hazardous substances” through one of the available statutory mechanisms
3. Continue to develop groundwater cleanup recommendations for PFOA and PFOS at contaminated sites and will complete this task by fall 2018
4. Take action in close collaboration with our federal and state partners to develop toxicity values for GenX and PFBS

PFAS Community Engagement Sessions

- EPA conducted events in communities impacted by PFAS this summer to hear thoughts on how to best help states and communities facing this issue.
- [Exeter, New Hampshire](#) (June 25-26, 2018)
- [Horsham, Pennsylvania](#) (July 25, 2018)
- [Colorado Springs, Colorado](#) (August 7-8, 2018)
- [Fayetteville, North Carolina](#) (August 14, 2018)
- [Leavenworth, Kansas](#) (September 5, 2018)

Provide your own input to help shape the PFAS Management Plan at <http://www.regulations.gov> and enter Docket ID No. EPA-OW-2018-0270 until 9/28/18

Update on Perchlorate

- In Regulatory Determination 2 (2011), **EPA decided that perchlorate meets SDWA requirements for regulation as a contaminant.**

- Interim health advisory issued in January 2009

Update on Perchlorate

EPA now reviewing the best available scientific data on perchlorate-related issues in drinking water including:

- health effects,
- occurrence, treatment technologies,
- analytical methods
- costs and benefits of potential standards.

More Detail:

<https://www.epa.gov/dwstandardsregulations/perchlorate-drinking-water>

Updates on 1,4 Dioxane

- The concentration of 1,4-dioxane in water that corresponds to an estimated lifetime cancer risk of 1 in a million (10^{-6} lifetime risk) is 0.35 parts per billion

- additional information on this topic can be found at the following URL: :

https://www.epa.gov/sites/production/files/2014-03/documents/ffrro_factsheet_contaminant_14-dioxane_january2014_final.pdf

Harmful Algal Blooms (HABs) Update

- EPA resources and toolkits available at

<https://www.epa.gov/nutrient-policy-data/cyanobacterial-harmful-algal-blooms-water>

**Health
Advisories set
by EPA**

10-DAY HEALTH ADVISORIES	LEVEL
Microcystins	
Children pre-school age and younger (under 6 years old)	0.3 µg/L
School-age children (6 years and older)	1.6 µg/L
Cylindrospermopsin	
Children pre-school age and younger (under 6 years old)	0.7 µg/L
School-age children (6 years and older)	3.0 µg/L

Water infrastructure Improvement for the Nation (WIIN) Act—Grant Opportunities

- Assistance for Small and Disadvantaged Communities (\$20M in FY19)

- Reducing Lead in Drinking Water (\$10M in FY19) -
- Lead Testing in School And Child Care Program Drinking Water (\$20M in FY19)

For More Information...

- On MCLs: <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>
- On Health Advisories: <https://www.epa.gov/dwstandardsregulations/drinking-water-contaminant-human-health-effects-information>
- On PFAS: <https://www.epa.gov/pfas>