



Emerging Contaminants and Drinking Water Health Advisories

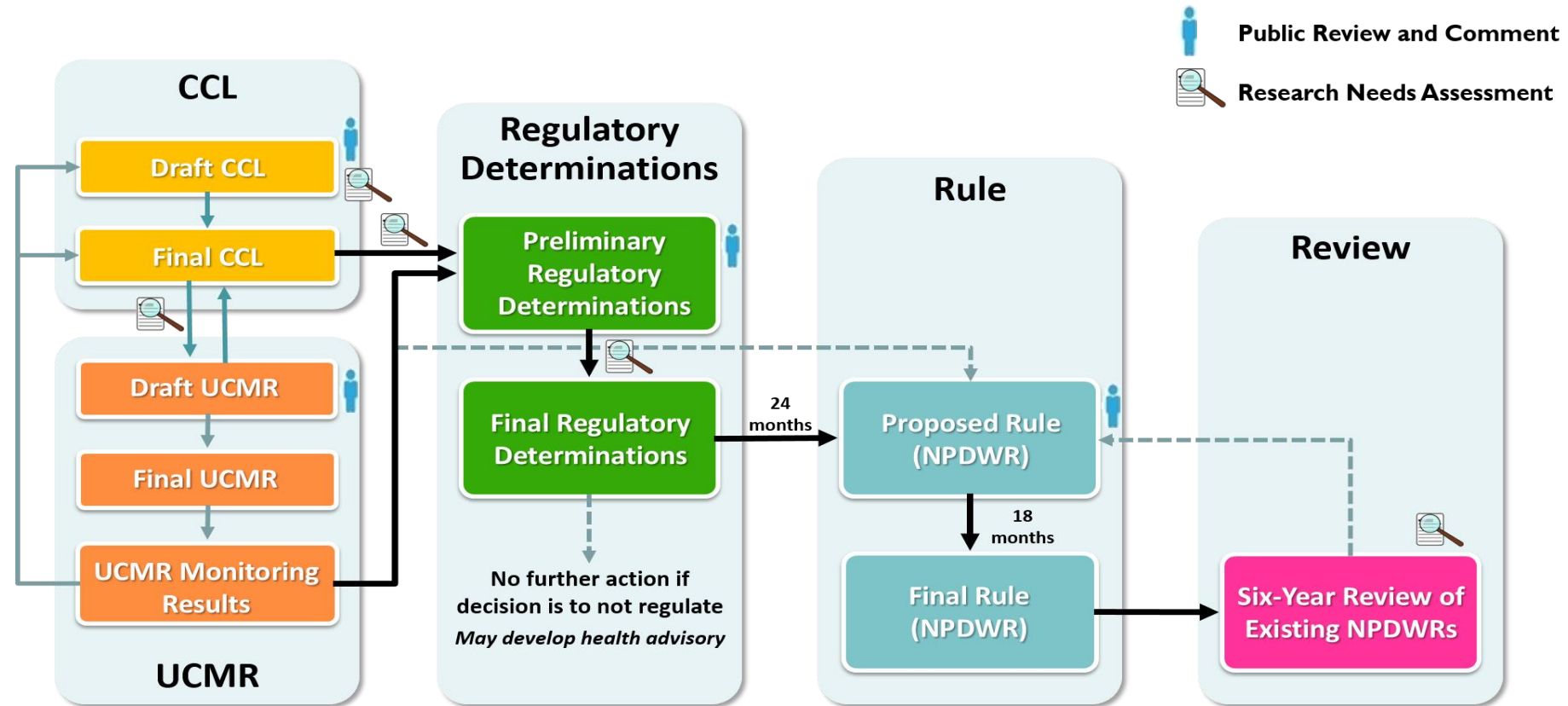
National Drinking Water Advisory Council
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Presentation Overview

- General Flow of SDWA Regulatory Processes
- Risk Assessment in SDWA Regulatory Processes
- Drinking Water Health Advisories
- Health Advisory Drivers
- Health Advisory Development Process
- Example Health Advisories
- State Recommendations
- Charge Questions

General Flow of SDWA Regulatory Analysis Processes



Increased specificity and confidence in the type of supporting data used (e.g., health, occurrence, treatment) is needed at each stage.



Drinking Water Health Advisories (HA)

- There continue to be drinking water contaminants of emerging public concern.
- Public officials need information to make decisions about how best to address public concerns and take actions to protect public health.
- Drinking Water HAs are an established method of providing scientific information to public health officials.



What is a Health Advisory?

- Non regulatory technical guidance for drinking water contaminants to assist federal, state and local officials, and managers of public or community water systems in protecting public health.
- HAs provide concentrations at which adverse health effects are not anticipated to occur over specific exposure durations.



Categories of Health Advisories

$$\text{Lifetime HA} = \frac{\text{RfD} \times \text{RSC}}{\text{DWI/BW}}$$

Exposure Durations

One-Day

10-Day

Lifetime

Carcinogenic Effect

RfD = Reference Dose
RSC = Relative Source Contribution
DWI = Drinking Water Intake
BW = Body Weight



Example Table of Contents for a Health Advisory

- Introduction and Background
- Nature of the Stressor (Including occurrence and sources of exposure; environmental fate and toxicokinetics)
- Problem Formulation (Including conceptual model and analysis plan)
- Effects Assessment
- Dose-Response Assessment
- Health Advisory Value Derivation
- Quantification of Cancer Risk*
- Effects Characterization
- Analytical Methods
- Treatment Technologies
- References

**Cancer information is not always available.*



Currently Available Health Advisories

Organics: 175

Inorganics: 32

Radionuclides: 5

All Chemicals: 214

[2012 Edition of the Drinking Water Standards and Health Advisories](#)

- HAs are part of a broader effort to communicate risk and provide guidance as early as possible.
- Each HA must be supported by robust science and the agency cannot develop HAs for poorly characterized contaminants (i.e. those lacking peer reviewed health and or occurrence data).



Health Advisory Drivers:

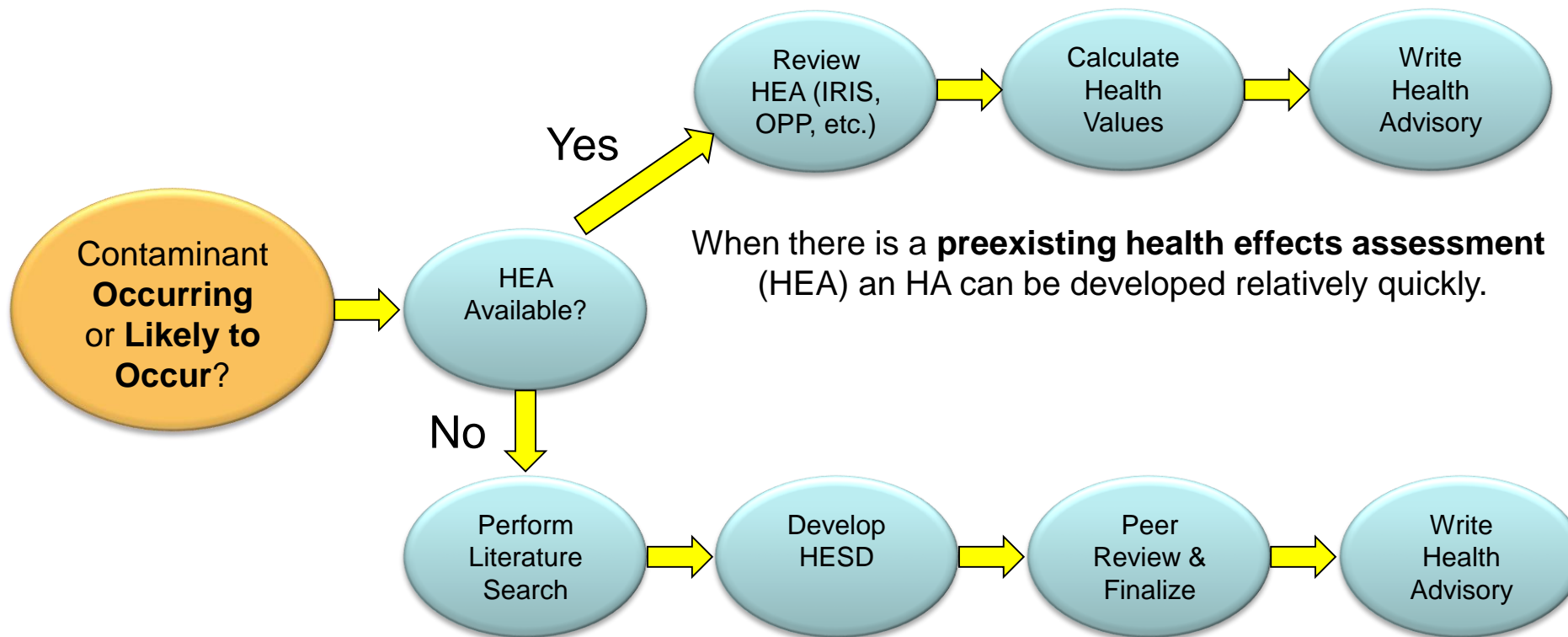
- Since the 1996 SDWA Amendments, EPA has completed regulatory determinations for 25 unregulated contaminants from the first three Contaminant Candidate Lists using the 3 criteria specified in SDWA:
 - **May have an adverse effect on the health of persons**
 - **Known or substantial likelihood to occur in** PWSs with a frequency and at levels of concern
 - **In the sole judgement of the Administrator there is a meaningful opportunity** for health risk reduction for persons served by public water systems.



Health Advisory Drivers:

- **For some CCL contaminants, EPA has found the contaminant:**
 - May have an adverse health effect
 - **Is known to occur, but not with frequency at levels of concern**
 - **Does not present a meaningful opportunity** for Health Risk Reduction through a National Primary Drinking Water Regulation
- For several of these contaminants EPA has decided to issue Health Advisory
- In some cases EPA has issued Health Advisories prior to the Agency making a regulatory determination to assist officials addressing regional drinking water contamination

Health Advisory Development Process



OW develops **Health Effects Support Documents (HESDs)** for HAs that do not have other Agency or external HEAs.



HA Development Example: Dacthal (DCPA) & Degradates

- **What triggered the initiation of HA activity?**
 - The HA activity was initiated after EPA decided not to regulate Dacthal Mono-Acid (MTP) and Di-Acid (TPA) Degradates in 2008
- **What process did EPA follow?**
 - Dacthal degradates (combined) were monitored under UCMR 1.
 - One of the 3,868 PWSs (0.03%) sampled had a detection of the DCPA degradates at levels greater than 70 µg/L, affecting less than 0.01% of the population served (Regulatory Determinations 2 (2008)).
 - An HESD was written for Dacthal and Dacthal Degradates: TPA and MTP.
 - EPA developed the HAs for Dacthal based on the OPP risk assessment.



HA Development Example: **Cyanotoxins**

- **What triggered the initiation of HA activity?**
 - The HA activity was initiated in 2012 when the increased frequency of Harmful Algal blooms was creating concerns for Great Lakes drinking water systems
 - Health Canada was also updating their 2002 DW Guideline for microcystins.
- **What process did EPA follow?**
 - EPA performed a literature review and developed HESDs for 3 cyanotoxins (microcystin, cylindrospermopsin and anatoxin-a).
 - The HESD documents were peer reviewed on three occasions.
 - EPA developed HAs for microcystin and cylindrospermopsin. Peer reviewers concluded, at the time, that there was inadequate information to develop an HA for anatoxin-a.



HA Development Example: **Cyanotoxins**

- **How did EPA engage the public and stakeholders?**
 - After the 2014 Toledo Harmful Algal Bloom event, the public and stakeholders expressed a need for public health information regarding HABs and impact to drinking water.
 - EPA engaged in discussions with state drinking water administrators on status of health advisories and other public health information, analytical methods, and treatment technologies.
 - EPA held a public stakeholder meeting in May 2015 to present the information that had been shared with the state drinking water administrators and solicit input.
- **How did EPA roll-out the HAs?**
 - EPA published the HAs on EPA's website and a companion document focused on recommendations for managing cyanotoxins in drinking waters (June 2015).
 - EPA published a risk communication document on EPA's website (November 2016).



State Recommendations

from ASTHO/ASDWA/ECOS Workgroup

Process Related

- States need to be involved earlier
- States need to be aware of HAs in development in order to prepare for local implementation and risk communication
- Need for Federal Agency coordination

Tailoring Messages for Different Audiences

- Information should be presented for each audience (state officials, public water systems, and consumers)
- The differences between HAs and MCLs should be clarified

Approaches to Communication

- Fact sheets, information graphics, conveying uncertainty and a risk continuum

Special Challenges/Partnering

- Acute and chronic impacts must be carefully articulated
- Sensitive populations also require unique messaging
- Caution against appearing too similar to an NPDWR



Charge Questions

1. What factors should we consider when prioritizing contaminants for health advisories?
2. How can EPA best involve federal, state, and local partners in identifying and prioritizing contaminants for HAs?
3. How can EPA enhance collaboration with states, other federal agencies, and external stakeholders to support local communities with developing risk management strategies?