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AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

WORKING WITH ATSDR TO PROTECT COMMUNITIES FROM HAZARDOUS SUBSTANCES

NIEHS Superfund Research Program Webinar

November 10, 2015

Today's Speakers

Ben Gerhardstein, MPH
Public Health Advisor

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Toxicologist

Division of Community Health Investigations
Agency for Toxic Substances and Disease Registry

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The Beginning of ATSDR (and SRP)

Love Canal Started It All

"I visited the canal area at that time. Corroding waste-disposal drums could be seen breaking up through the grounds of backyards. Trees and gardens were turning black and dying. One entire swimming pool had been popped up from its foundation, afloat now on a small sea of chemicals….Everywhere the air had faint, choking smell. Children returned from play with burns on their hands and faces."

-Eckardt C Beck

EPA Regional Administrator

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CERCLA/SARA Legislation—aka Superfund Law

Comprehensive Environmental Response, Compensation, and Liability Act

Superfund Amendments and Reauthorization Act

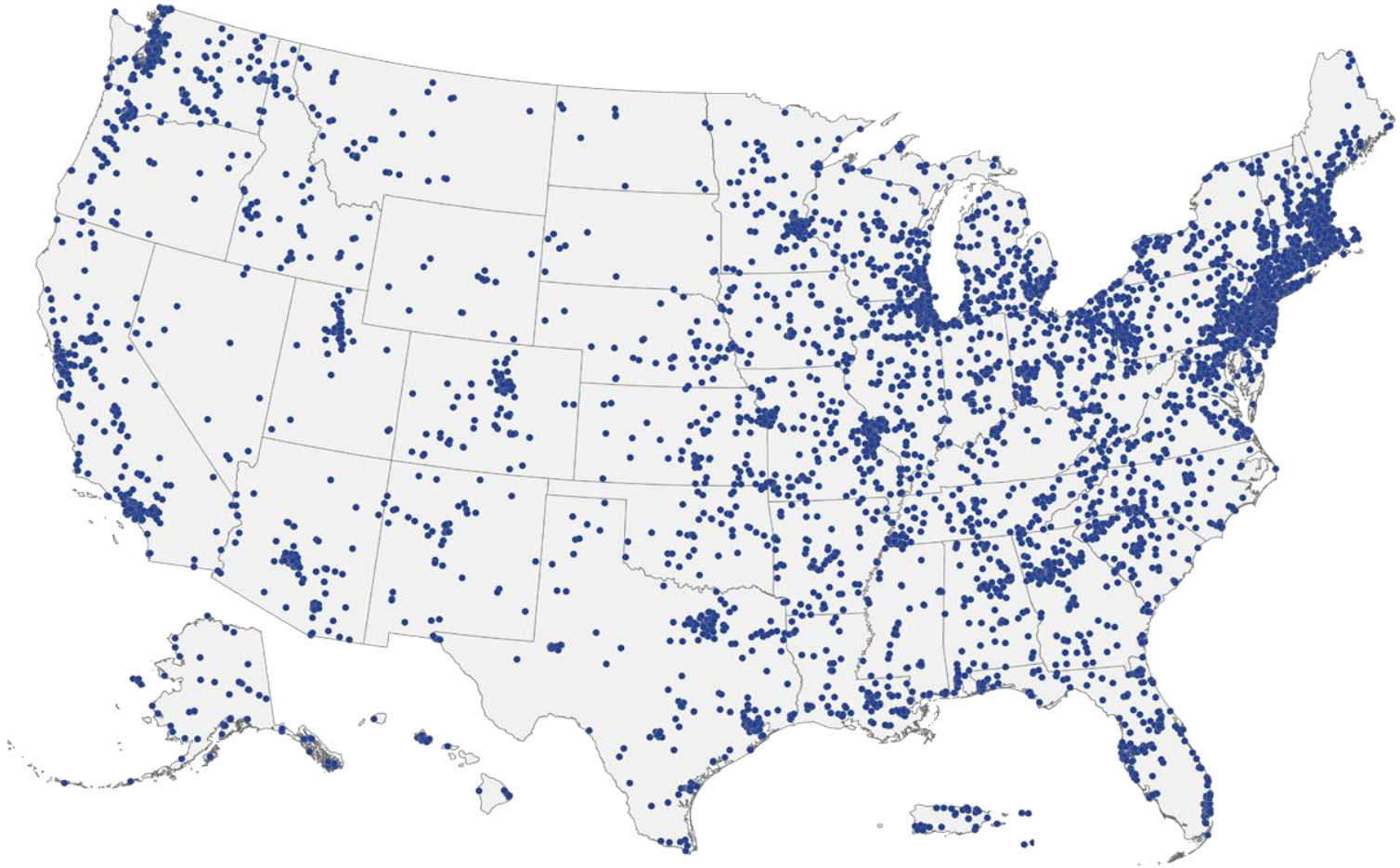
Gave **EPA** responsibility for identifying, investigating and cleaning up hazardous waste sites

Created the **Agency for Toxic Substances and Disease Registry** (ATSDR) to:

- Perform health assessments at hazardous waste sites
- Develop toxicological profiles on harmful substances
- Conduct epidemiological health studies
- Maintain health registries and conduct medical surveillance

Established the NIEHS **Superfund Research Program**

Serving Americans, Community by Community
ATSDR's 30 Year History



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Protecting Communities: What it takes

ATSDR Regional Offices States Funded by Cooperative Agreement Pediatric Environmental Health Specialty Units (PEHSUs)

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Protecting Communities: What it takes

Extensive Staff Expertise:

- Toxicology
- Environmental Science
- Environmental Medicine
- Health Education and Community Engagement
- Public Health
- Physical Science and Engineering (radiation, hydrology, modeling, etc.)
- Epidemiology

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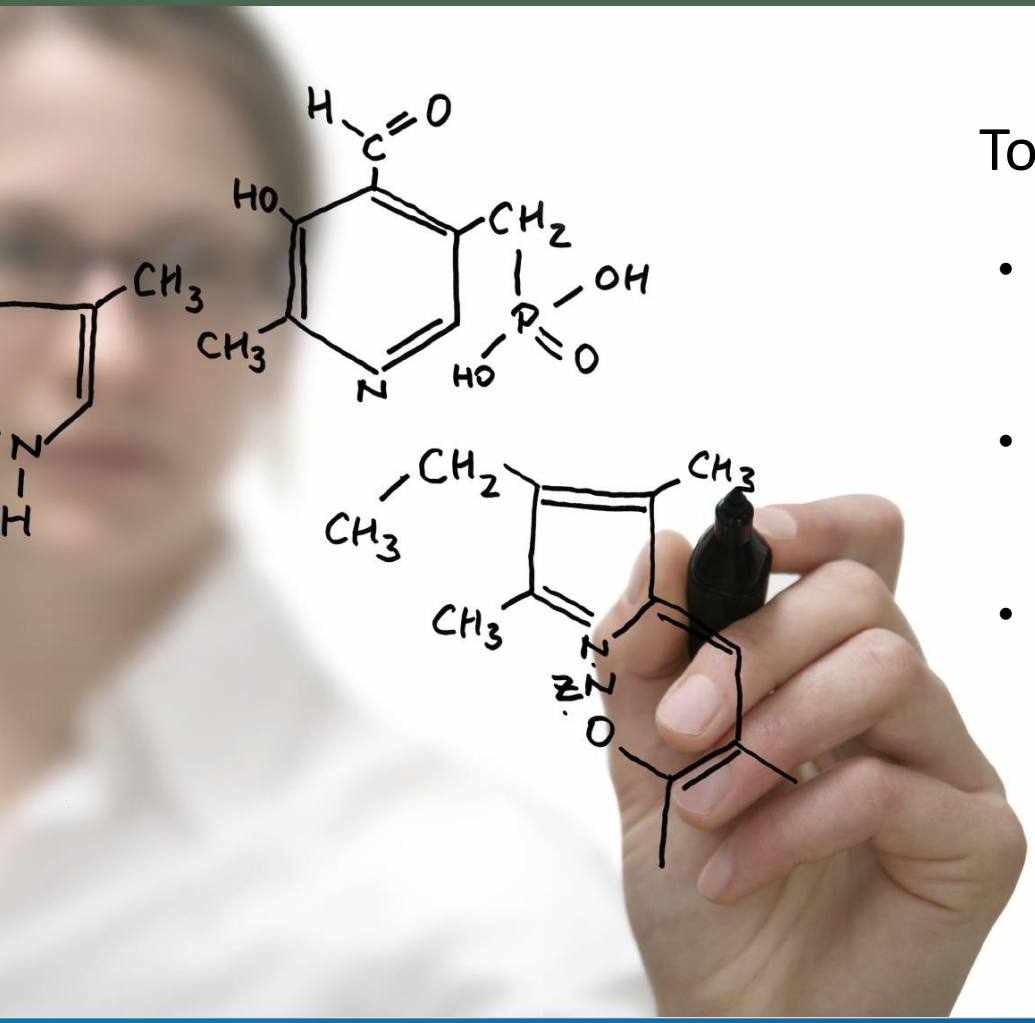
Advancing Environmental Science and Medicine



ToxProfiles™

- Summarize the health effects of toxic substances found at waste sites
- 177 ToxProfiles™ covering 350 substances
- Include 400 human health minimal risk levels (MRLs)—screening levels used to identify whether exposures can harm health

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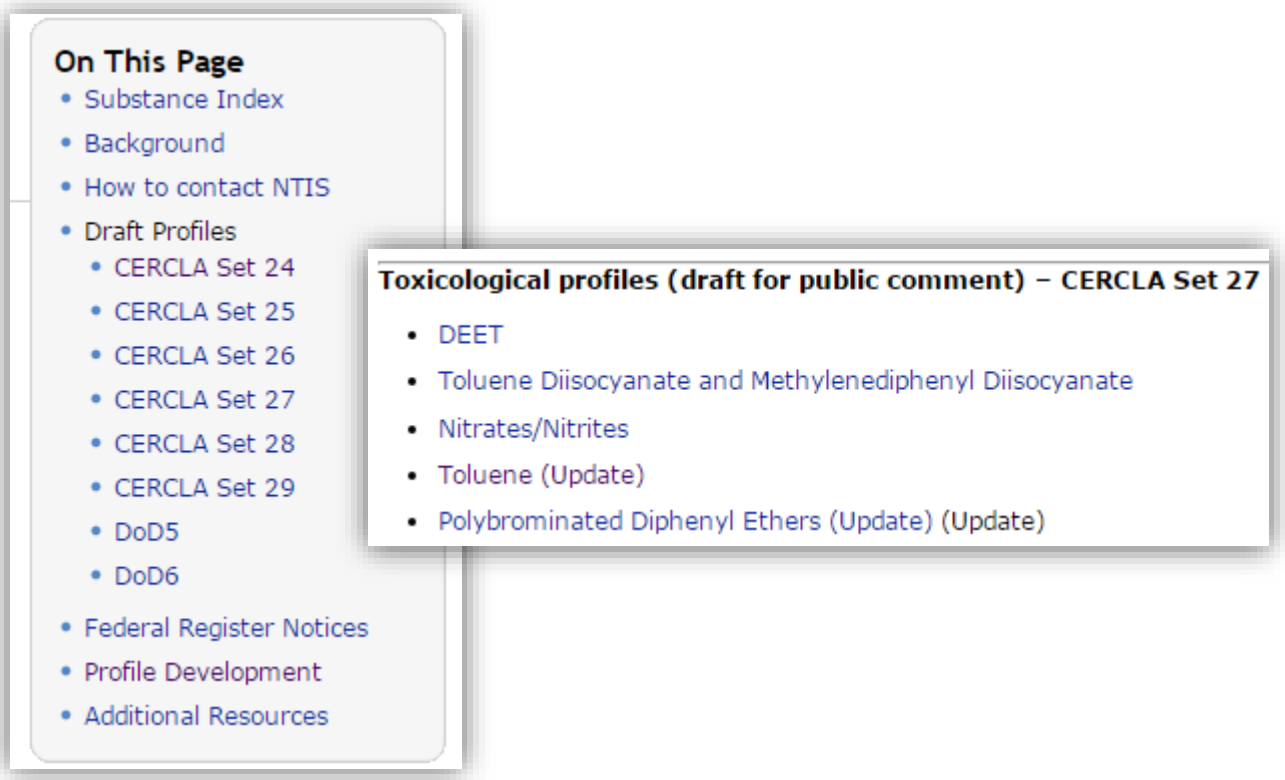
ToxProfiles: Opportunities for Input

http://www.atsdr.cdc.gov/toxprofiles/

- During nomination process of substances for profile development
- During development process
- During public comment period



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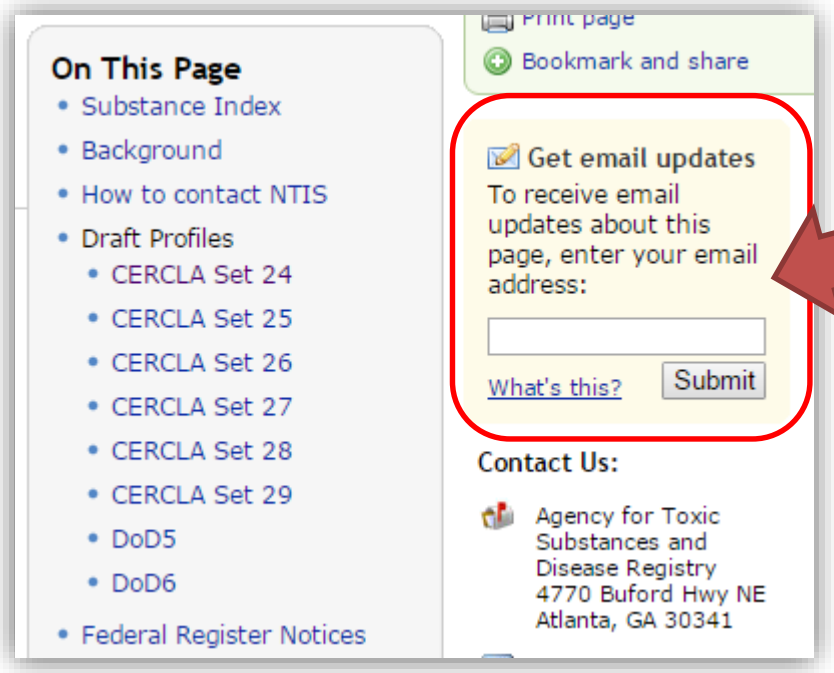
ToxProfiles – How to Stay Informed



- **ToxProfiles**
  - Sign up for email updates www.atsdr.cdc.gov/toxprofiles
  - Specific questions: contact ATSDR chemical manager

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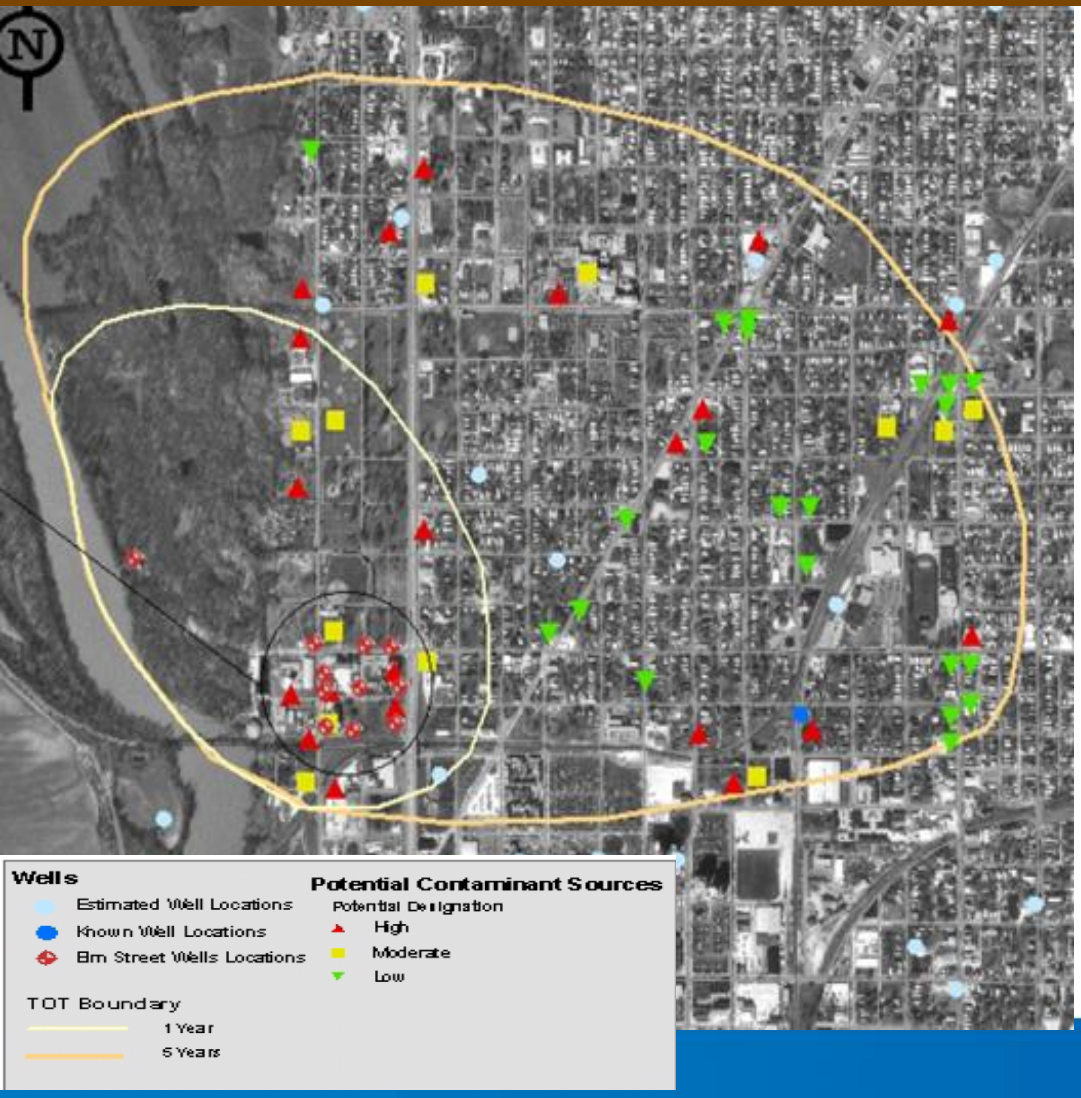
Advancing Environmental Health Science and Medicine

Environmental Medicine

Helping health care providers better diagnose, treat, and prevent environmentally-linked health concerns

- 11 Pediatric Environmental Health Specialty Units (PEHSUs)
- Case Studies in Environmental Medicine
- Medical Management Guidelines

Advancing Environmental Health Science and Medicine



Using Technology and Tools to better answer community questions:

- Mapping and Geospatial Analysis
- Computational Toxicology
- Exposure Modeling
- Biomonitoring Capacity

Map Source: Health Consultation: Elm Street Groundwater Contamination, ATSDR (2008). 1: Panterra (1999).

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Advancing Environmental Health Science and Medicine

Studies

Better understand linkages and associations between exposures and health outcomes

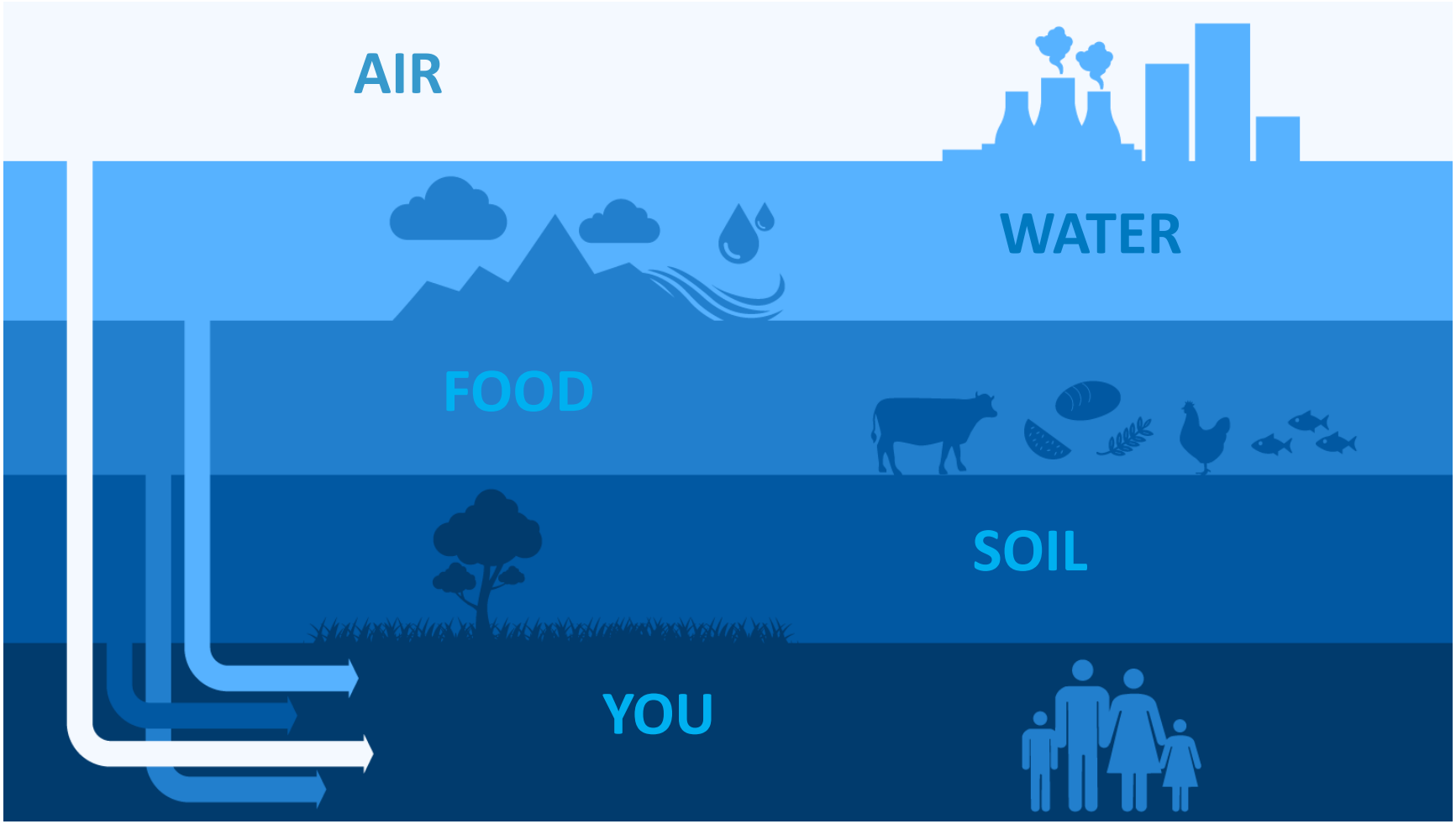
Some Examples:

- Camp Lejeune, NC
- Navajo Nation - Birth Outcomes

Enabling Data-Driven Decision Making

ATSDR's Health Assessment Process

ATSDR's Core Work in Communities: Understanding Exposures



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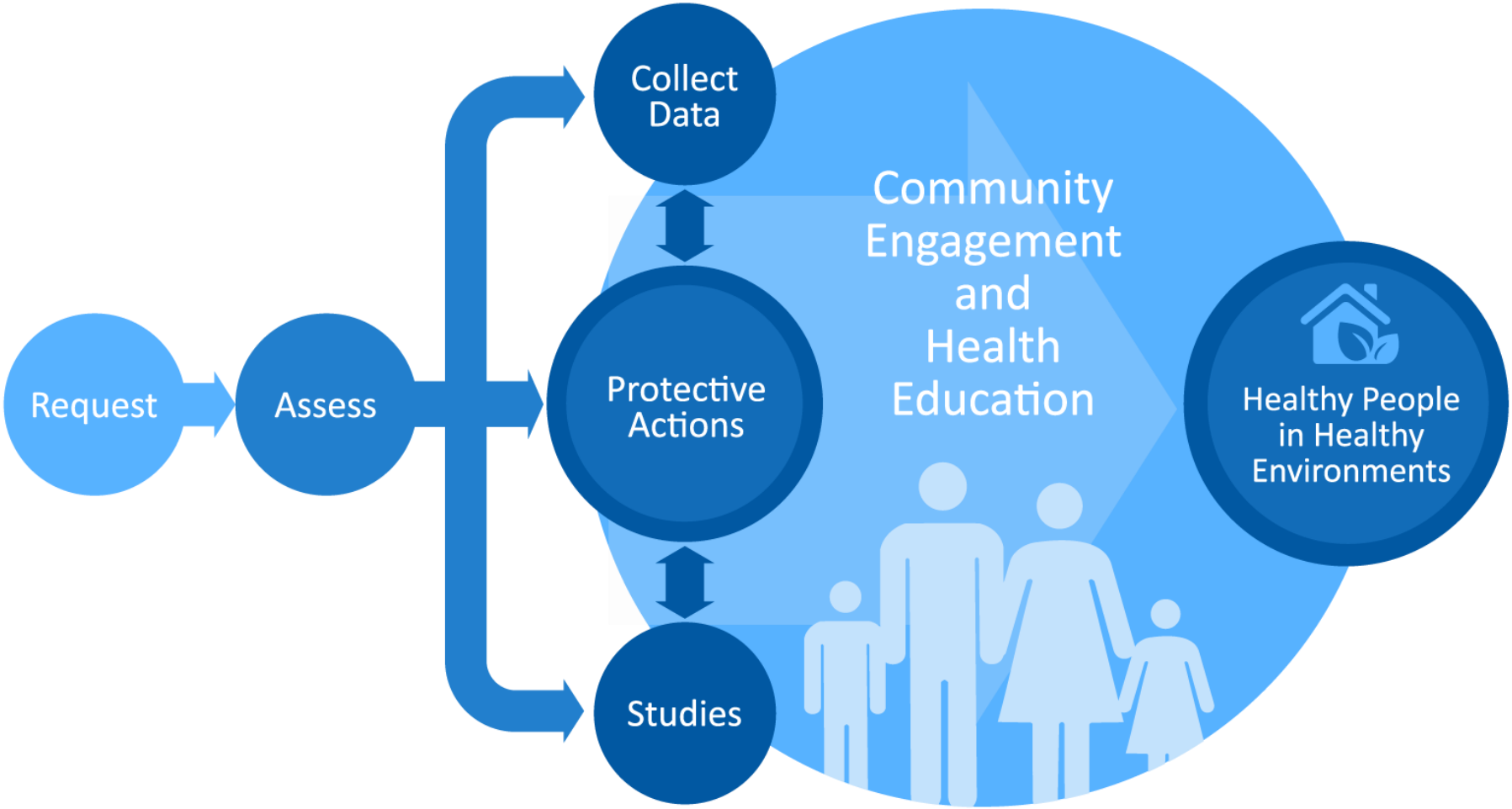
Protecting Communities



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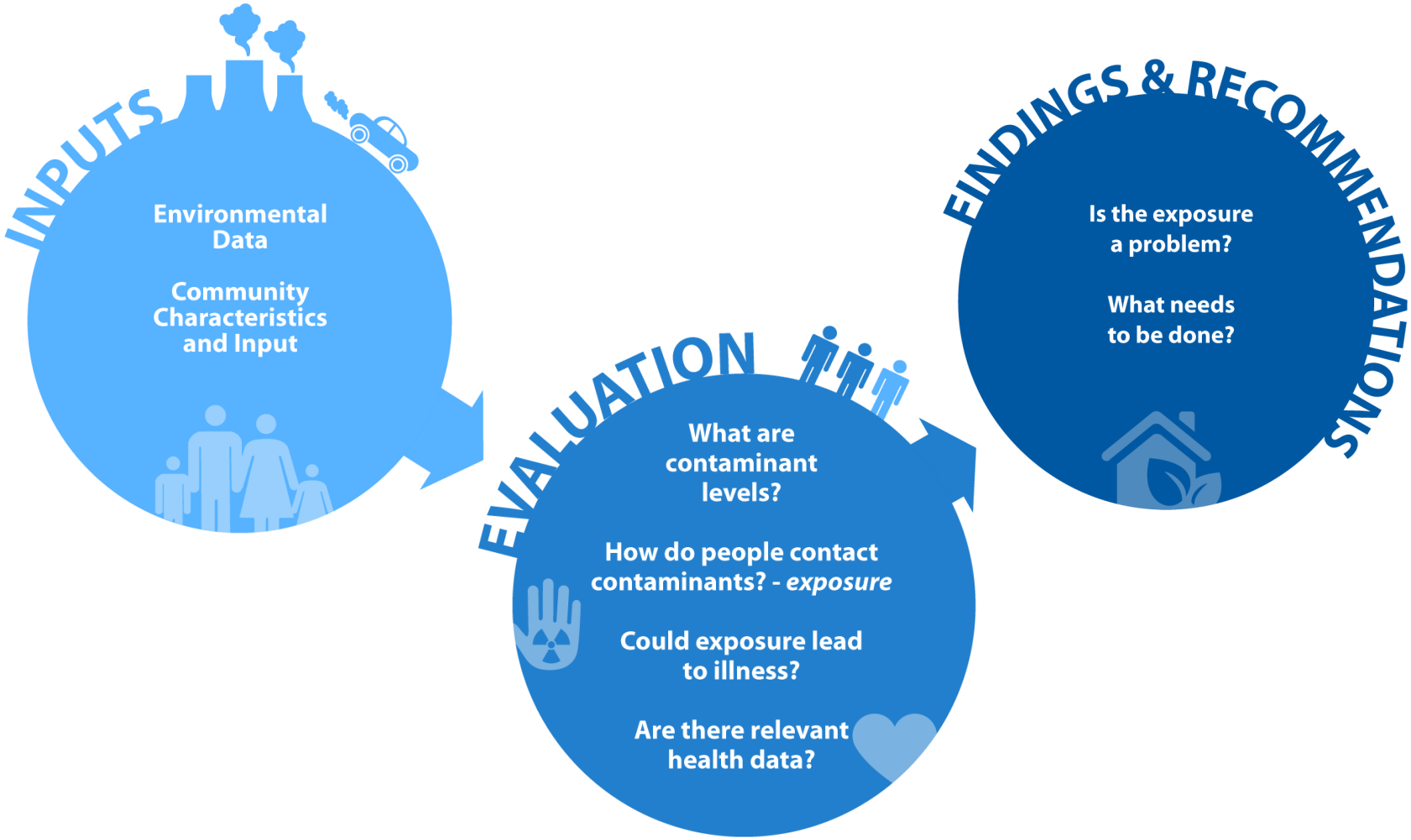
Public Health Assessment Process



Inputs: Environmental Data

Data collected by regulatory agencies

- Soil, air, water, and/or food concentration data collected through site investigation
- Releases reported by operating companies to regulatory agencies – TRI, permits, NPDES

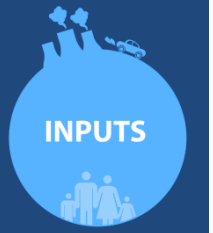
Data collected by others

- Data from company records or reports
- Sample results from individuals, community groups, or other stakeholders

ATSDR assesses quality of data received and discusses data with appropriate caveats.

Inputs: Community Characteristics and Insights

- Gathered throughout our involvement
- E-mail, telephone, public availability sessions, or public meetings
- Why?
  - Learn community health concerns
  - Address community concerns
  - Understand potential exposure pathway and perceptions of exposure
  - Develop relationships, build trust



Evaluation: Screening Steps

Screen contaminants using ATSDR Comparison Values (CVs)

- Use highest values detected for each contaminant
- Use cancer and non-cancer CVs

Calculate estimated daily dose using conservative exposure assumptions

Screen dose using health guidelines (Minimal Risk Levels)

Evaluation: Exposure Assessment and Toxicological Evaluation

Refine dose to reflect site-specific exposure

- Information from community on exposure frequency, duration
- Knowledge of site demographics
- Account for site-specific environmental characteristics and previous actions taken

Examine toxicological literature to determine potential for harm

- Harmful effect levels in animal or human health studies
- Target organs, sensitive populations, etc.
- Potential mixture effects

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Conclusions and Recommendations

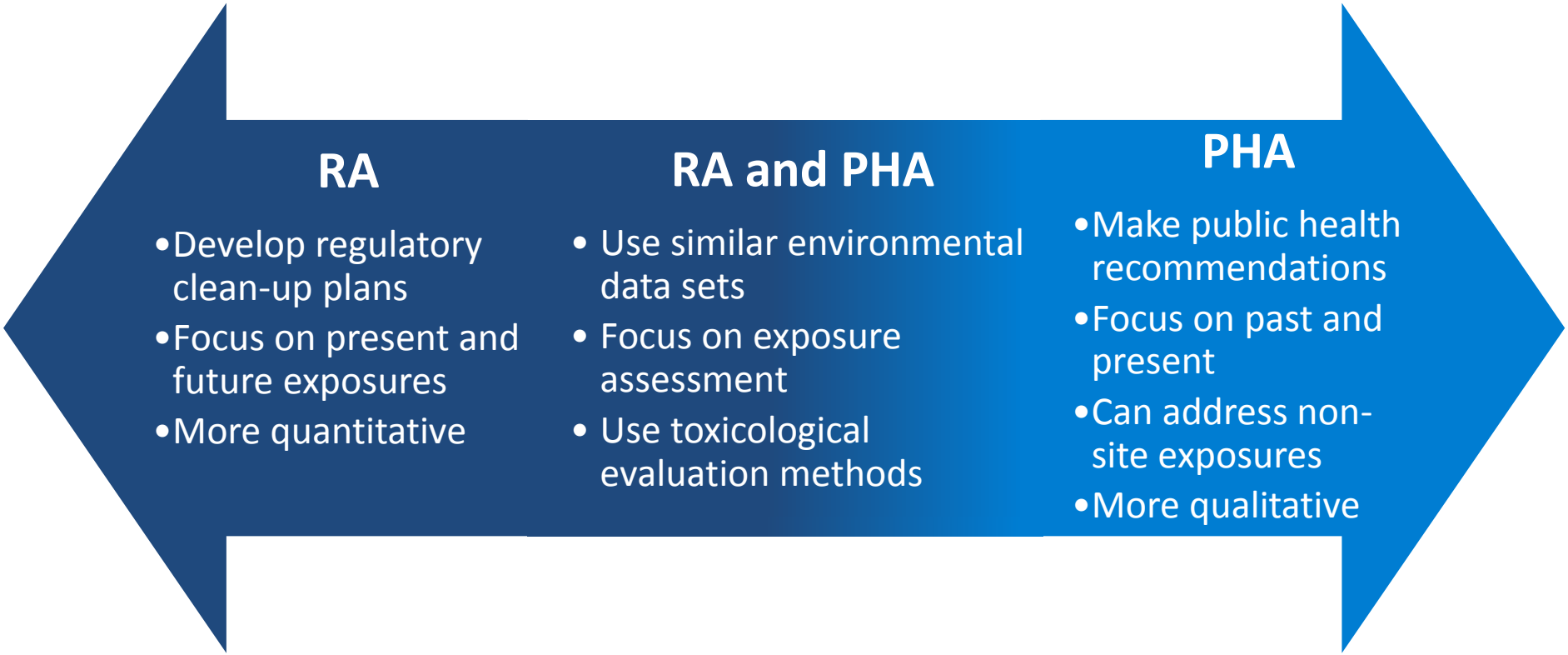
Conclusions

- ☐ Can the exposure cause harm?
- ☐ To whom?

Recommendations

- ☐ Should exposures be reduced?
- ☐ Do we need more information?
- ☐ Do we need to educate the community about what exposures (past or current) mean to them?
- ☐ Are other actions needed?

EPA Risk Assessment (RA) vs. Public Health Assessment (PHA)



Health Assessment Process - Impacts

Support need for ***cleanup*** actions	Allow ***early*** response to public health issues		Identify potential ***exposure*** pathways to be characterized	Identify ***new sites*** or situations of health concern not under regulatory authority
Engage local and state health departments		Give ***advice*** to residents and community leaders		Provide physician ***education*** and community ***outreach***

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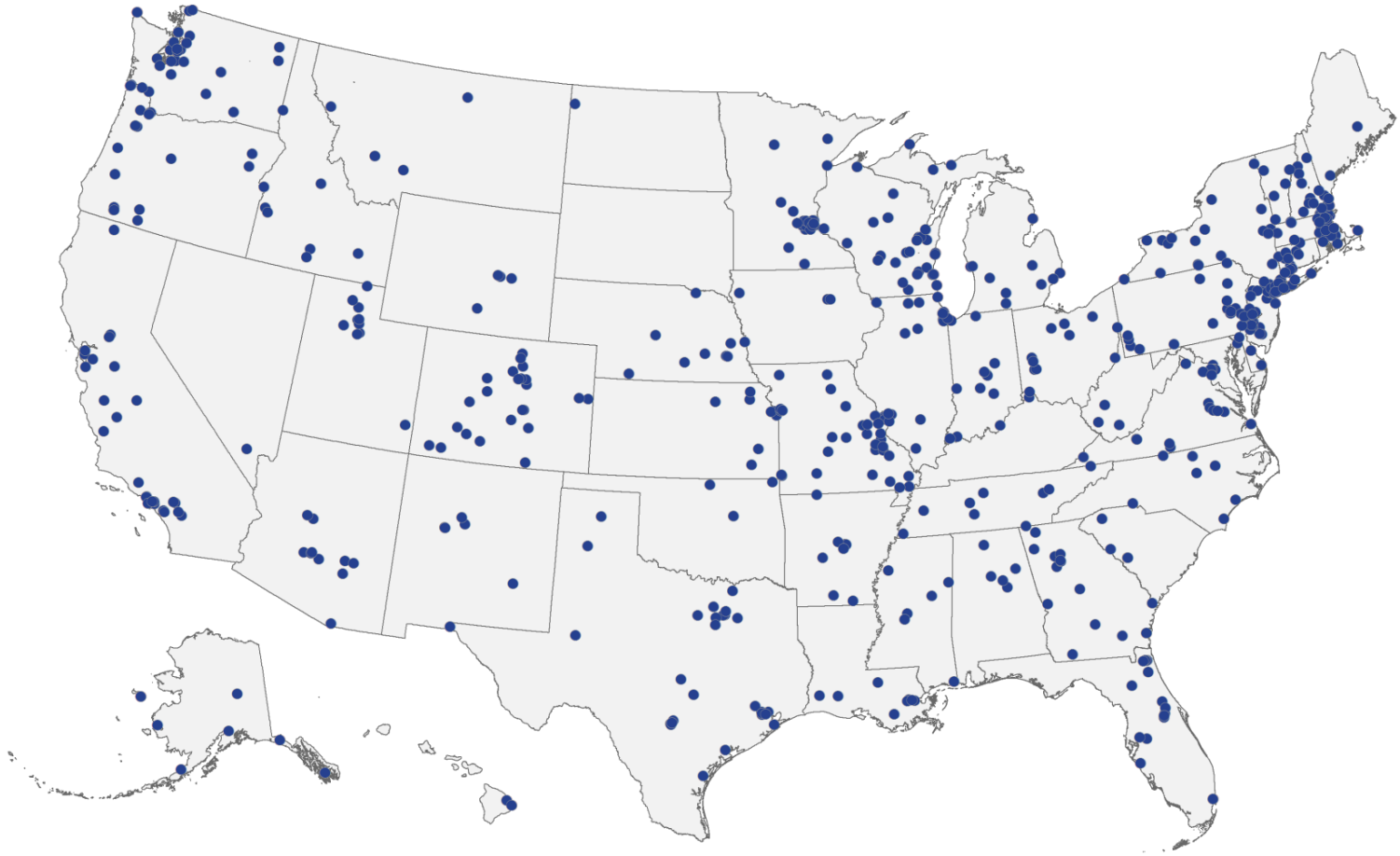
ATSDR in Action (FY 2014)

Assessments: http://www.atsdr.cdc.gov/HAC/PHA



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Partnering to Protect Public Health

"Efforts to address and resolve local environmental issues are most effective when scientists from various disciplines, regulatory officials, industry, and the affected community are fully engaged working towards a unified solution."

Ramirez-Andreotta MD, Brusseau ML, Artiola JF, Maier RM , Gandolfi JG. Environmental Research Translation: Enhancing interactions with communities at contaminated sites. Science of The Total Environment, Volumes 497–498, 2014, 651 – 664. http://dx.doi.org/10.1016/j.scitotenv.2014.08.021

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Partnering to Protect Public Health

ATSDR and SRP Collaboration

ATSDR and SRPs: Learning from each other

- ATSDR Seminar Series
- 2012 Dialogue "Connecting Research and Practice"

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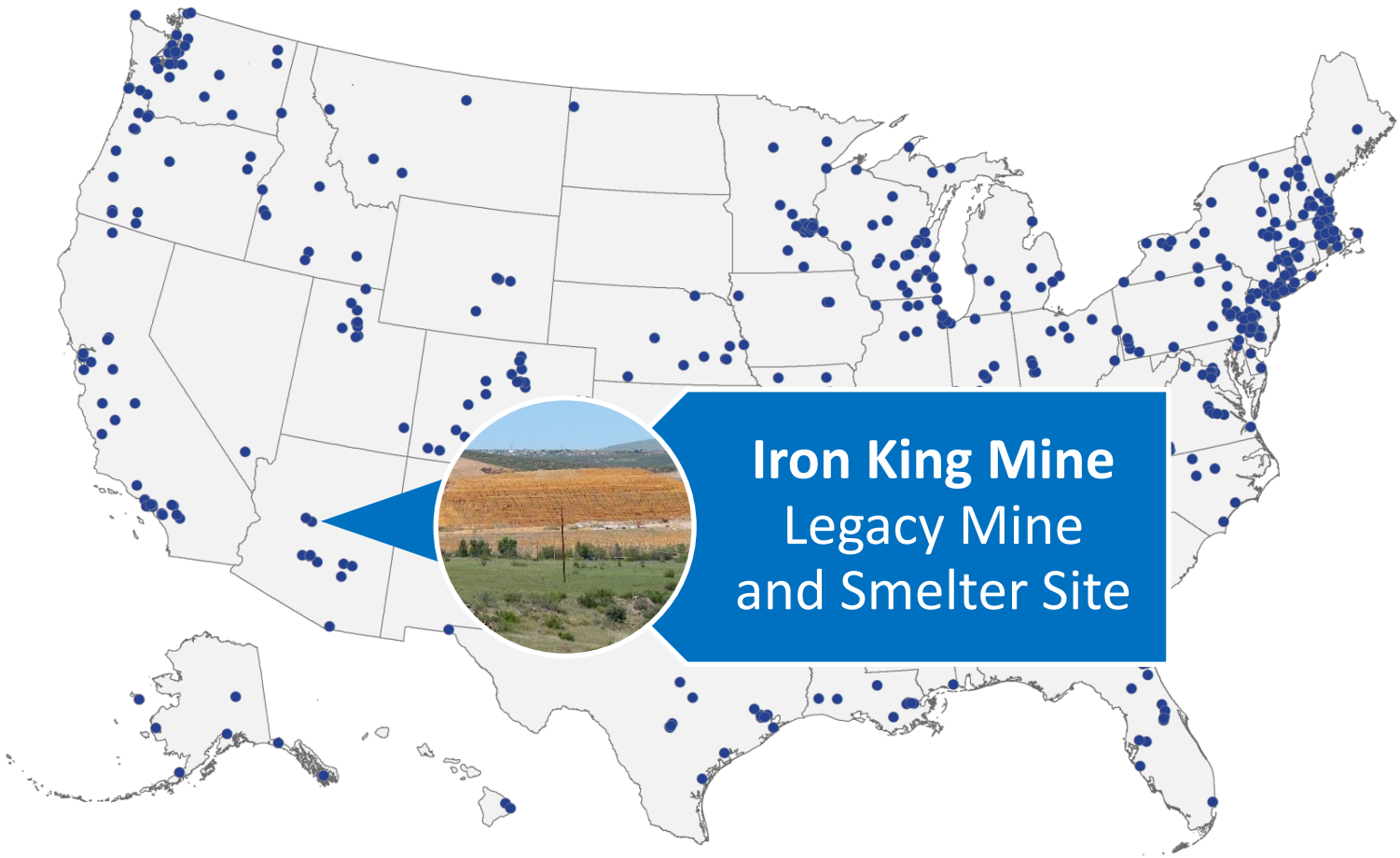
ATSDR & SRPs in Action



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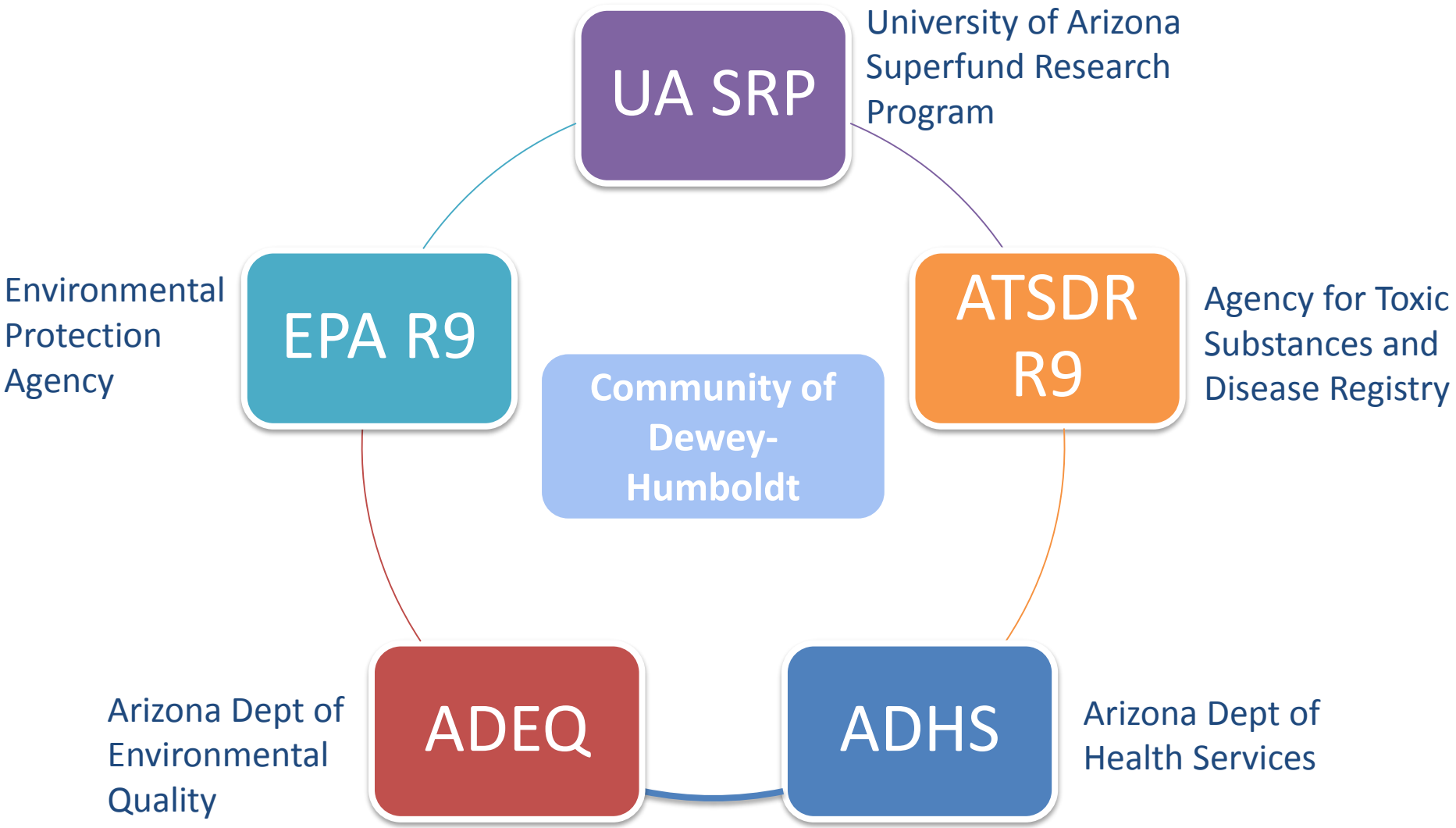
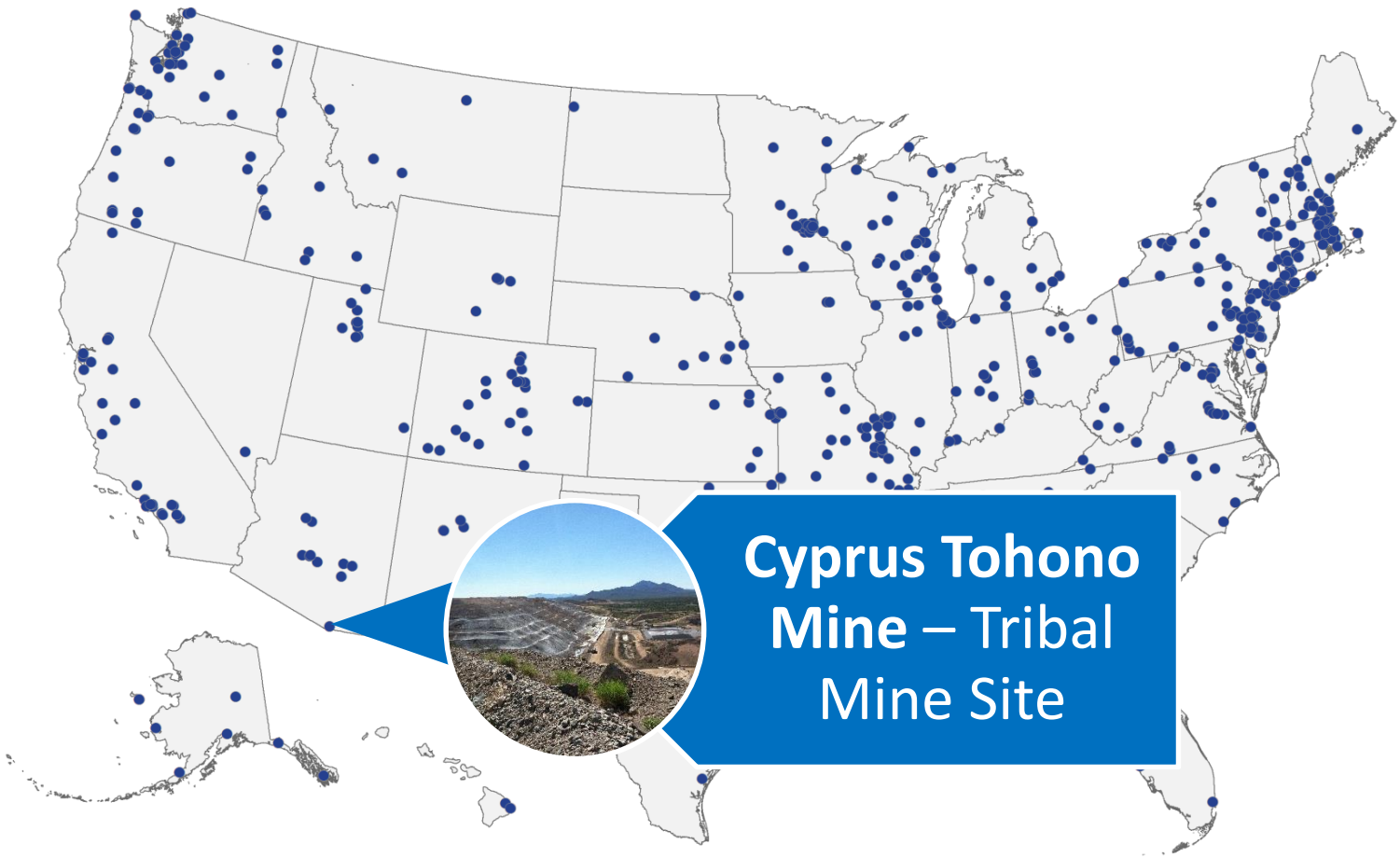
Iron King Transdisciplinary Team



ATSDR & SRPs in Action



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ATSDR & SRPs in Action

North Carolina Projects

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ATSDR & SRP Collaboration – Why?

- Improve communication
- Address community needs
  - Meet SRP RT/CE goals
- Build professional relationships
- Develop trainee skills

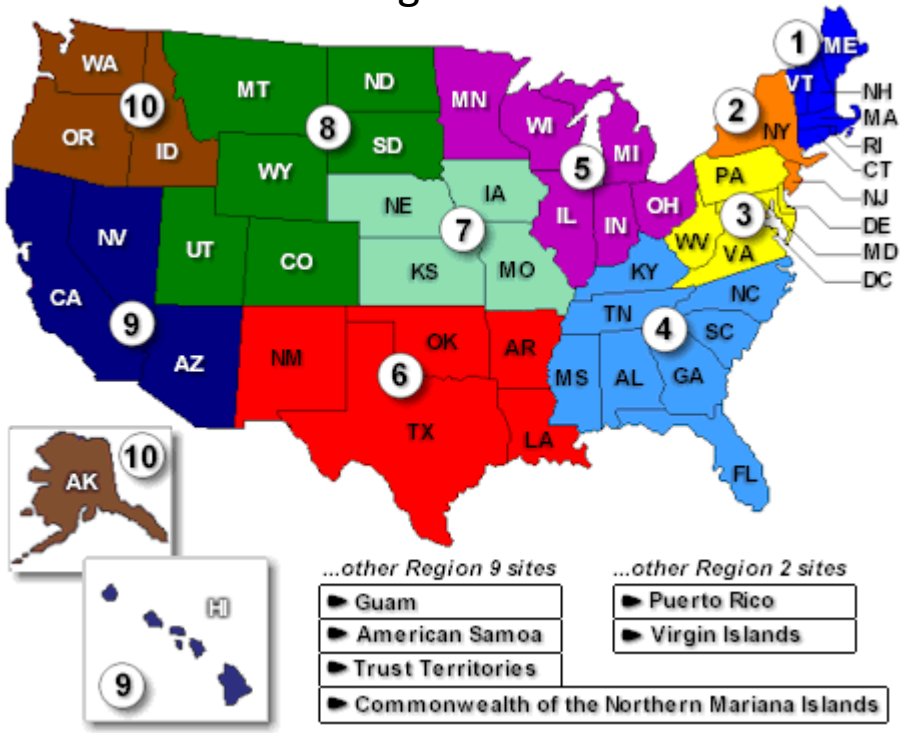
ATSDR & SRP – Areas of Opportunity

- **Engage communities**
  - Understand and address community health concerns
- **Translate research**
  - Build community & stakeholder capacity
  - Inform ATSDR and state partners
- **Fill data gaps**
  - At sites
  - In literature

ATSDR & SRP Collaboration – How?

- Community and site level engagement
  - Contact ATSDR regional office staff
    www.atsdr.cdc.gov/dro
  - Contact ATSDR funded states
    http://www.atsdr.cdc.gov/states

ATSDR Regional Offices



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Moving Forward

Contacts

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