

**EPA Arsenic Web Cast**  
**Arsenic Implementation in NH**

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# NH Overview- Where The Need Is

- **Typical System with Arsenic - very small**
  - 300-700' bedrock well
  - Average: 50-75+- customers
- **700 Community Systems**
  - 10 with arsenic treatment
  - 100 systems between 10-49 ppb
- **425 NTNC Systems**
  - 7 with arsenic treatment
  - 30 systems between 10-49 ppb
- **Competing ions: No silica, phosphate, vanadium, sulfate**
- **Assumption: Adsorptive Media for Most Systems**

# NH Policies

- **Professional Engineer Not Required**
  - Unless over 1,000 people
- **Pilot Study Not Required**
  - We are cautiously confident that adsorptive medias will work.
  - If empty bed contact time (EBCT) chosen is under 4-5 minutes, the utility is limiting itself to a very few media suppliers.
- **V & E**
  - No Variances
  - Possible Exemption, but unlikely
- **Radon Floor Space Evaluation - Future**

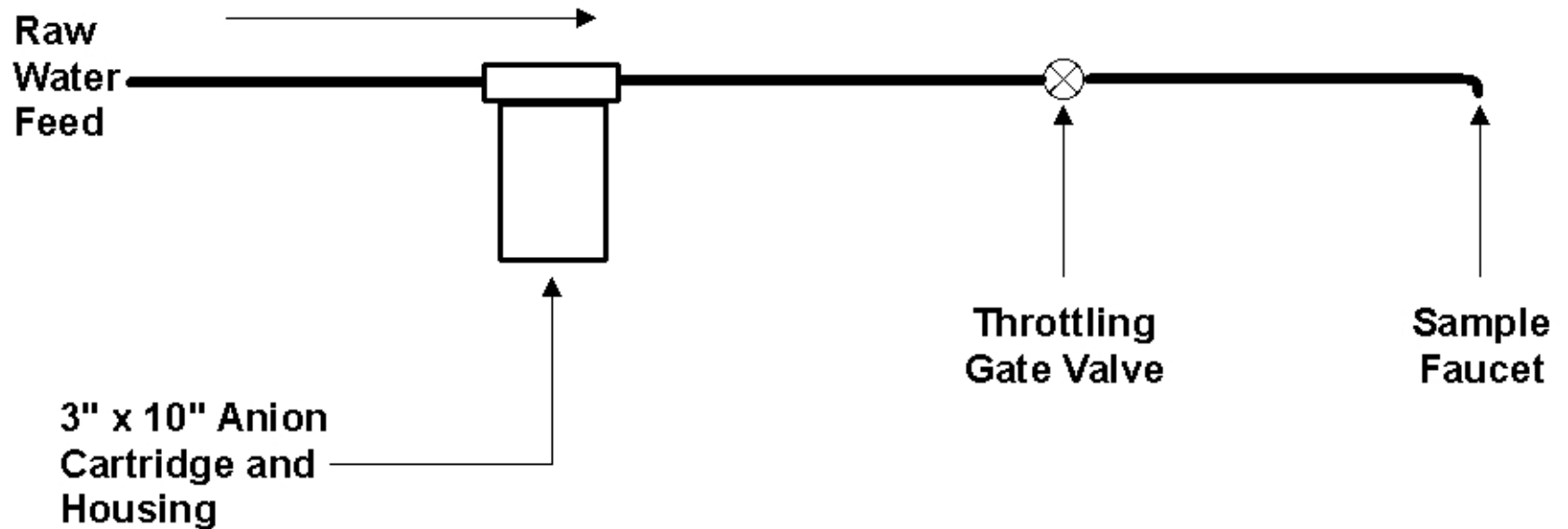
# Cooperated with Media Companies

- **Pre-identified those systems with likely arsenic compliance problem**
  - Developed arsenic mailing list.
  - Shared list with media sales reps. & pump companies
    - Private sector sales efforts help to insure that utilities know the problem and have been exposed to at least one solution.
- **Agency used mailing list to advertise**
  - Our own numerous education programs.
  - US EPA Demo Treatment project availability

# Arsenic Speciation Equipment

- **Agency purchased two 3”x10” anion exchange cartridges, cartridge housings, and valves to allow utilities to do speciation sample collection on each source.**
  - Utilities appreciate the help
  - Identifies the importance of speciation.
- **Speciation: Two arsenic samples processed**
  - 1. Total arsenic
  - 2. Arsenic after anion treatment =  $Ar^{+3}$   
 $T. \text{ Arsenic} - \text{Arsenic}^{+3} = \text{Arsenic}^{+5}$   
Ex. 35 -- 15 = 20

# Speciation Sample Equipment



# Reducing The Fear Factor, Adsorptive Media

- Developed a comprehensive list of adsorptive media. Recently expanded list to include meaningful media characteristics (Capacity<sub>(relative)</sub>, pH dependence, EBCT etc).
  - See list in the appendix.

# **Reducing The Fear Factor, Tours of Existing Arsenic Systems**

- **Developed a description of each arsenic treatment installation.**
  - Conducted group field tours
  - Facilitated individual visits to existing facilities



# **Interaction With EPA**

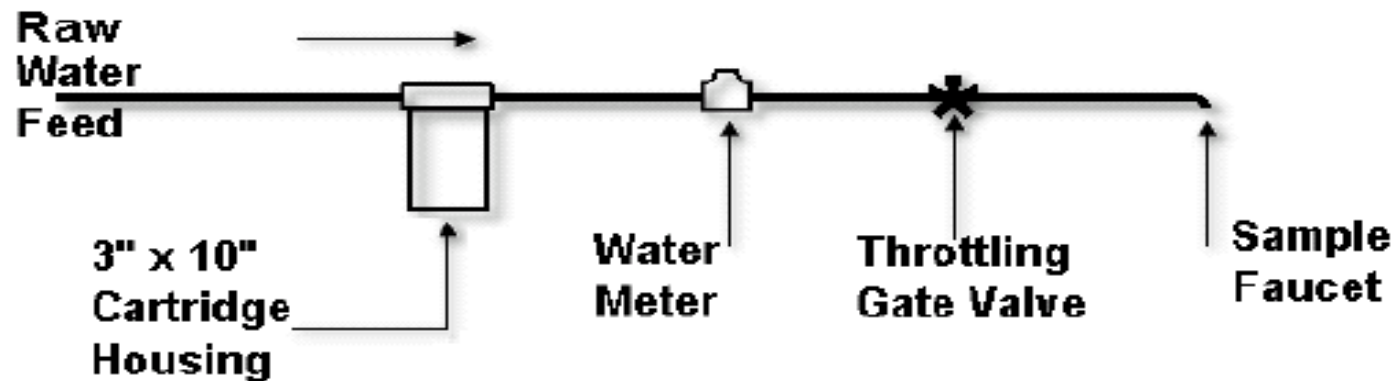
- **Provided Critique of Arsenic Treatment Design Manual**
- **EPA Arsenic Treatment Demo Projects**
  - Good staff training
  - Good position to counteract utility resistance

# Evaluating Media

- Provided detailed description to operators of how to conduct a small, 3”x10” cartridge scale, pilot study to determine the cost effectiveness of other adsorptive medias.
  - Careful record keeping
  - Breakthrough monitoring

# Media Evaluation

## Mini Pilot Plant for Evaluating Other Adsorptive Media



Note: Sequence is not important.

# Design Criteria -Policy

- 1. Develop an Alternative Supply**
- 2. Bureau Suggests Series Equipt. Configuration**  
To achieve lowest long term media cost
- 3. Bureau Suggests Preoxidation**  
Extends media life
- 4. Spent Media Removal**  
Sidewall port  
Extra head room above tank if no sidewall outlet
- 5. For Highly Varying TDH - Flow constrictor or size media tank on initial pump flow**
- 6. Place Arsenic T. Before Aeration—CO<sub>2</sub> beneficial**

# **Arsenic Enforcement**

- **Periodic Enforcement Letters:**
  - Identifying new MCL
  - System likely in violation
  - Effective date
- **October 2005, Status Survey**
- **Orders / Penalties in January 2006**

# Private Well

- **News Sidebar. Always mention the importance of arsenic testing for private wells in all newspaper or TV stories.**
  - Lessens the focus on the PWS violation
  - Aids the private well owner

- Comments on media
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- Any Questions.