

Group #1

Small System Research Priorities

POU and Small Package Plants

Monitoring

Media Development

Priority #1

- Development of better tools to predict capacity of adsorptive media
 - Theoretical
 - Validation protocols

Priority #2

- Development of Better Sorptive Media
 - Higher As capacity
 - Better (more consistent) physical properties
 - Optimize flow (less head loss)
 - More contact – shorter required EBCT
 - Better co-contaminant removal
 - V, U, Sb, ClO₄, F
 - Better performance in presence of interfering anions
 - PO₄, Si(OH)₄,
 - Wider pH range

Priority #3

- Development of mobile water treatment plant
 - Capable of serving multiple communities
 - Requires 7 day community water storage capacity

Priority #4

- Sorptive media with faster sorption kinetics

Priority # 5

- More selective ion exchange resins
 - Less selective for sulfate

Priority #6

- More complete automation of small systems
 - Improved sensor alarms
 - Automated shutdown

Applicable to both package plants and POU devices

Group 1

Improved sorption media and
Innovative Processes

Develop new media for arsenic removal

- Q: Can media be developed that exceeds performance and FeOx or IX resins
- Proposal Evaluation Criteria:
 - Evaluate performance for arsenic removal in representative waters (NSF challenge water or representative regional water)
 - Evaluate potential to have high capacity, good selectivity, fast kinetics, manageable residuals
 - Assess scalability
 - Identify potential economic factors for using the media
- Will consider sorptive media including IX resins, chelating resins, inorganic adsorbents, or other material medias that may be disposal or regenerable
- Packed-bed media are presumed here
- Powdered materials may be best considered under next solicitation

Develop Innovative Treatment Processes for Arsenic Removal

- Q: Can new technologies be developed for arsenic removal
- Preproposal Evaluation Criteria:
 - Performance of arsenic removal in representative waters (e.g., NSF challenge water, region specific water)
 - Assess changes in water quality during treatment (pH, TDS, etc)
 - Identify wastestreams, residuals, and disposal issues
 - Identify potential economic factors of technology
 - Identify intended application (I.e., population size served)
 - Intent: succesful projects would move to demonstration scale with/by Sandia

RFP Approach

- Preproposal (~ 4 pages using unsolicited guidelines)
- Short-list of preproposers for full proposal requests (~2x number of expected projects to fund)
- Full proposals
- Select up to 3 projects per year (repeat announcement in 2003 and 2004)