

**CALFED  
Bay-Delta Program**

Water Quality Program Element  
Status Report



**Water Quality Program  
Status**

- Water Quality Program Plan Revision
  - Six Work Teams - Team Reports
  - Revision of WQPP nearly complete
  - Draft to WQ Technical Group in Sept.
  - Agency Review Draft about October 1
- Bromide Expert Panel



**Bromide Expert Panel  
Primary Objective**

Provide the CALFED Policy Group with information to help them understand the significance of bromide in Delta drinking water supplies, relative to selection of a Preferred Alternative.



**Stakeholder Perspectives**

- Requires Systems Approach - Investigate all alternatives, source to tap
- Near Term - New regulations over the next decade must be met with current Delta configuration. Need a strategy.
- Long Term - Durable solutions for 20-30 years must integrate:
  - Improvement in Delta Water Quality
  - Treatment advances
  - Operational alternatives



**Panel Formation**

- Expertise
  - Chemistry of Disinfection Byproduct Formation
  - Health Effects of Disinfection Byproducts
  - Source Control
  - Regulation Development
  - Treatment
- Water Quality Technical Group Nominations Based on:
  - Nationally Recognized Expertise
  - Reputation for Independence



**Bromide Expert Panel**

- Professor Gary Amy, Univ. Colorado
  - Chemistry of Disinfection Byproduct Formation
- Dr. Richard Bull, Battelle NW Pacific Lab
  - Health Effects of Disinfection Byproducts
- Professor Kenneth Kerri, Calif. State Univ.(Ret)
  - Source Control
- Mr. Stig Regli USEPA
  - Regulation Development
- Professor Philip Singer, Univ. No. Carolina
  - Treatment



### ***Panel Tasks***

- Fourteen tasks identified by Water Quality Technical Group members
- Task refinement - in collaboration with panelists and stakeholders
- Result: Eight subject areas recommended for deliberation by panel



### ***Topics for Deliberation***

- Nationwide occurrence of bromide, as compared to Delta
- Health concerns, available health effects information, directions of health effects research.
- Capabilities of Treatment Plants to meet current and prospective future standards
- Trends in treatment process research and development



### ***Topics for Deliberation (cont)***

- Development of drinking water regulations for disinfection byproducts
- Capabilities of Existing Treatment plants to meet current and future regulations
- Source control options and feasibility of operational changes
- Specific activities CALFED should undertake during first implementation phase



### ***Findings***

- 90 % of water supplies in the nation have bromide concentrations less than 300 ppb
- Banks Pumping Plant - Avg. 270 ppb
- CCWD - Averages 460 ppb
- North Bay Aqueduct - Averages 51 ppb



### ***Findings (Cont.)***

- Organic Carbon is also important (affects formation of bromine-containing chemicals)
- Some treatment technologies appear promising
- Membranes can remove bromide, organic carbon, and pathogens (could cost consumers about \$10/month)
- Need to develop near-term approaches to meet Stage II regulations in 2002, in the absence of physical changes to Delta



### ***Findings (cont.)***

- But, bromide is likely to remain of health concern. Also need to focus on long term.
- Hundreds of new disinfection byproducts have been identified. 18 bromine-containing compounds may have significance.
- Next regulatory phase will not be the last.



***Near Term  
Recommendations***

- Help to develop and provide information for regulation setting process
- Evaluate relative importance of bromide recycling in San Joaquin River versus other sources. Evaluate operational options.
- Refine models and conduct more specific model studies using specific compounds
- Evaluate new treatment processes (ferrous iron reduction)



***Recommendations (cont.)***

- Work with utilities to develop "common metric", to describe plant performance, develop exposure data, look at total loads of brominated compounds
- Research into refined risk assessments
- Develop additional data on Delta island drainage (flows particularly)
- Monitor parameters of potential future concern (such as total organic bromine)



***Looking to the Future***

CALFED should recognize that addressing the bromide problem will be a process, requiring an evolving strategy.



***Panel Report***

Due October 1, 1998

