

2008 Expert Panel Feedback to South River Science Team

October 6, 2009

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2008 Questions to Expert Panel

Condensed Version

1. Best approaches for closing Hg mass balance on South River?
2. How do we manage uncertainty?
3. Where should we allocate our limited resources?

Closing the Mass Balance

- Increased emphasis on
 - near-bank areas
 - close-interval sampling
 - both total & filter-passing Hg
 - improved discharge measurements
 - advective flow contribution
- Benthic flux chambers for manipulative research & relative loading estimates
- Rule bedrock GW in or out as Hg source
- Recognize 30% error propagation simply due to analytical & measurement uncertainties
- Consider tracer studies over limited reaches

Closing the Mass Balance (cont'd)

SRST Response

- Phase II Eco Study Program
 - close-interval sampling
 - increased focus on near-bank areas
 - targeting specific habitat study areas
 - localized discharge measurements
- Framework developed for estimating mass transfer rates due to both diffusion & advection
- Improved "syringe" method for pore water measurements
- Simplified pathways & exposure diagrams
- Thermal survey

How Do We Manage Uncertainty?

- Mass balance approach satisfactory for Hg loading
 - "minimum essential design," e.g., simple box models with probabilistic distributions adequate
 - don't ignore partitioning to TSS & sediments
 - field measurement + first principles modeling good combo
- Good time to pause & revisit conceptual models
 - document overall characterization
 - identify key insights & hypotheses
 - summary graphs/tables for both water column & sediment with confidence intervals for sources & sinks
 - Monte Carlo simulations, where appropriate

How Do We Manage Uncertainty? (cont'd)

SRST Response

- Condensed extensive data sets & key learnings into set of 17 briefing papers
- Simplified pathways & exposure diagrams (80/20 rule)
- Statistical model developed by John Green
- Focus on small number of habitat areas for Phase II Eco Study

Resource Allocation

- More resources focused on innovative remedial options
 - doubts expressed about impact of reducing THg particulate load on MeHg in fish
 - more attention on understanding & reducing MeHg production
 - delivery of THg to sites of methylation
 - what can be done to block this conversion
 - better understanding of MeHg transfer to lower food web
- Increased project coordination--essential studies, no redundancies, no gaps
- Integrate results into consensus interpretation
- Experts time better spent meeting with subset of larger SRST charged with integration role

Resource Allocation (cont'd)

SRST Response

- Innovative Remedial Options Task Team
- Redesigned Expert Panel Meeting
- Restructuring of SRST--Work groups consisting of task teams with accountability to work group leader
- Simplified pathways & exposure diagrams