

# South River Science Team

May 29, 2014

## Minutes

- **Remedial Options**
  - **Update of Ongoing Studies: Nancy Grosso, DuPont**
    - JR Flanders is leading efforts looking at adding Biochar to floodplain soils. Wildlife International in Maryland is the contract lab doing the analysis looking at responses of worms and plants to Biochar. Preliminary findings: No toxic effects of biochar on worms or plants and actually reduced toxicity to earthworms possibly due to sorption of other metals such as MN. The biochar reduced MeHg concentration in juvenile worms, but not in adults, and there was no effect on THg concentrations.
    - Mike Newman is continuing work on feeding responses of amphipods in response to carbon. Very fine Sedimite appears to create a physical barrier to feeding, however Sedimite is better than other carbons at lowering THg. Mike will be continuing experiments with different particle sized carbons
    - Will Clements is working with Biochar and macroinvertebrates in mesocosms.
  - **Recap of Carbon Treatment Workshop: Robert Brent, JMU**
    - Yesterday the ROPs team met to discuss the pros and cons of adding carbon to bank stabilization sites. Recent work suggests original estimation of Hg contribution from bank leaching in conceptual model may be higher (up to 15-20%) and carbon could be used to help address this contribution. Differing applications of carbon have been used successfully in contaminated areas around the world. Consensus was reached to move ahead with incorporation of carbon into bank stabilization designs noting that location specific engineering designs will address most of the cons identified. VA DEQ approval of remediation design will be required.
- **Human Exposure Task Team: Annette Guiseppi-Elie, DuPont**
  - 6<sup>th</sup> factsheet "Eating Waterfowl, Game, and Other Animals from the South River Watershed" is complete.
  - The poultry study at the Augusta Forestry Center is underway. First batch of chickens arrived yesterday and survived a hail storm, 2 inches of rain and a downed electric fence. Second batch will arrive next week.
- **Monitoring Task Team: Ralph Stahl, DuPont; JR Flanders, URS**
  - Ralph gave recap of previous day's meeting. 4 presentations given; 3 having to do with modeling and one was an update on the monitoring plan.
    - John Green – South River Statistical Modeling of Bank Stabilization Project
      - All currently available South River data relevant to surface water and sediment was used to fit a model estimating SW and sediment Hg at every temporal and spatial location.
      - Bass model also used diet information
      - Time period covered: 2001 – 2010
      - Basic Conclusions from Models

- Riverbank Hg loading extremely important predictor of surface water (THg and MeHg), sediment (THg and MeHg) and fish tissue (THg) levels.
  - No other factor consistently predicts greatly reduced Hg
  - Floodplain Hg, associated with rainfall, also important
  - Sediment and porewater Hg, associated with discharge and rainfall, somewhat important.
  - Dietary items important for fish tissue Hg
- Comments
  - The bass model can be improved by using the estimated surface water and diet reductions.
  - The sediment model can be improved by using the estimated surface water reductions
  - The models do not indicate a time frame to realize predicted reductions
  - Depuration rate of Hg in fish is around 3 years: only young of year likely to show change over a shorter time.
  - John also gave a framework of sampling (# samples, time of sampling, frequency, etc) that if followed should be able to see reduction in Hg loading.
- Clay Patmont – Status of Modeling Efforts to Identify Bank Management Areas
  - To determine bank management areas in RRM 0-2, they are taking bank erosion rates (calculated using LiDAR and exposed tree root analysis), refining hydrodynamic model, creating bank erosion rate regression relationships and then calculating bank mercury loading rates.
  - Schedule/Path Forward
    - June 4 – submit draft IM Work Plan to VADEQ and SRST
    - Summer/Fall – Interim measures design and permitting
      - Potentially continuing into mid-2015
- Jim Dyer – tasked with finding other models to determine if remedies are successful.
  - Looking at “off the shelf” models – work in progress.
- Monitoring Plan- being driven by NRDC settlement- hope it will work for regulatory programs. Work has started, but is somewhat behind schedule due to high-water event.
- Other
  - Data Base Project – trying to put all data into platform everyone can use and access.
    - Access with GIS capabilities
    - Need scope for budget
  - SETAC – November in Vancouver. There will be South River session.
    - Many manuscripts coming out
    - Landis – multi-stressor ecorisk linking adaptive management with relative risk model
- **Status and Update on RCRA Activities**
  - **Plant Site: Ron Wesley, URS**
    - RFI complete

- Interim Measures Overview
      - Objectives
        - Reduce Hg at Outfall 001
        - Prevent Hg migration during remediation
      - Plan
        - Downstream filtration units
        - Isolate, abandon, repair and re-route sewers
        - Clean and re-line sewers
        - PHS Sump cleaning
      - After testing various treatment media, it was concluded particulate filtration was best approach. Various filter sizes were evaluated in the field with results ranging from 65-99% Hg reduction.
      - .5 micron filter will need to be replaced twice a day.
      - Using mayflies and epiphytes to monitor outfall and water
      - Sump was last cleaned out early 90's
      - Schedule
        - Construction activities start week of June 16
        - Startup filtration approximately June 30
        - Begin cleaning, jetting, abandonments, approximately June 30
        - Lining begins approximately July 18
        - PHS Sump cleaning starts approximately August 25
        - Decon and Decmob by end of September
- **Offsite: Mike Liberati, DuPont; Vince Maiden, VADEQ**
  - AOC-4 addresses "river," basically all points in and along the river downstream of the former DuPont plant site.
  - DuPont providing financial support to DEQ to pay for oversight, employees, project coordinator
    - Techlaw hired to help with risk assessment reviews
    - HDR hired to help with engineering review
  - Documents to be submitted
    - June 4<sup>th</sup> – Interim Measures, Design, Implementation and Monitoring Work Plan: Deals with bank stabilization work in first 2 miles.
    - July 4<sup>th</sup> – Community Relations Plan
    - August 4<sup>th</sup> – RCRA Facility Investigation and Human Health and Ecological Risk Assessment
  - RCRA Reality
    - SRST vs RCRA
      - Gain agency approval for past, current and pending activities
      - Work plans, lab approvals, QAPP, HASPs, etc.
    - Want to keep ball rolling
      - Bank sampling
      - Short and Long-term monitoring plans
      - Surface water and floodplain soil sampling
      - Retrospective data quality assessment
      - Poultry study
      - Pond and floodplain pilot studies
      - Research programs

- Schedule and deliverables
  - 2014-15: Report, Reviews and Approvals
  - 2015: Permitting and Design
  - 2015-16: Implementation
- **Outreach, Public Info, Announcements: Mike Liberati, DuPont**
  - Environment Virginia Symposium – presentation on collaborative process by Mike Liberati and Vince Maiden
  - Riverfest 2014
  - Website
    - Fact Sheet #6
    - Brochure and fact sheet updates
    - Local events listings
    - Newsletter redesign
  - Others
    - Amendment to consent order with NRDC has been filed
    - Documents compliance with the 2005 CO
    - Eco-study and Remediation Proposal approvals
    - Recognizes remedial implementation under RCRA
    - Final RCRA submittals to be provided to NRDC