



Mercury Pollution in Northern California
Delta Tributaries Mercury Council



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~ Meeting Minutes ~

Tuesday, 3 March 2009

12:30 p.m. – 4:15 p.m.

Federal Building, 2800 Cottage Way, Sacramento, CA 95825

Room W-2620 (BIA's Large Conference Room)

Facilitator: Stephen McCord, LWA

Meeting Minutes by: Stephen McCord, LWA

Attendees

In Person

Joel Herr, Systech Water Resources

Janis Cooke, CVRWQCB

Patrick Morris, CVRWQCB

Lysa Voight, SRCSD

Jason Lofton, SRCSD

Greg Marquis, CA DOC

Cy Oggins, DOC

Sarah Reeves, DOC

Dave Lawler, BLM – CASO

G. Fred Lee, G. Fred Lee & Associates

Eric Ringelberg, YoloTAC – Wallace-Kuhl

Chris Foe, CVRWQCB

Greg Reller, Burdeson Consulting

Tim Stevens, CA DFG

Hong Lin, City of Sacramento

Mark Marvin-diPasquale, USGS

Melinda Montano, Shaw Environmental

Bill Whiteside, Blue Sky Water Technologies

Peter Halpin, Caltest

Becky Wood, ATS

Michelle Wood, CVRWQCB

Via Teleconference

Carol Perkins, Butte Enviro. Council

Andrea Ventura, Clean Water Action

I. Introductions and Agenda Review

II. Project Updates

- USGS studies in Bear/Yuba—no update on this study, although current research on hobby-scale suction dredge mining is imminent
- Misc studies in Yolo Bypass—one study will be presented today, final reports are due late this year
- BLM mine site clean ups—making an effort to outreach to local Indian communities regarding the effects of mercury contamination
- State Board policy (offsets, MeHg criteria)—status quo, no progress
- AML Forum—next meeting is May 3

- Delta Mercury TMDL—The CCP and Regional Board staff have been hosting several stakeholder meetings over the past several months and anticipate many more over through May. The goal is to produce a Basin Plan Amendment this summer, for approval by the Board by October 2009.
- SF Bay RMP Hg Coordination Meeting—The meeting, held on February 5, was well attended. One particularly interesting talk showed progress in a new monitoring tool using stable isotopes to characterize mercury sources. Most presentations are available at <http://www.sfei.org/rmp/mercurymeeting/>.

III. Presentations

“The Role of California’s Abandoned Mine Lands Unit (AMLU)” by Sarah Reeves and Greg Marquis (CA Dept. of Conservation)

Sarah discussed the role of California’s Abandoned Mine Lands Unit, inventorying physical and chemical hazards, prioritizing, remediating and outreaching about California’s abandoned mine lands since 1997. Among the state’s estimated 47,000 abandoned mines, they have surveyed nearly 2800 (~5%) mines (with over 24,000 “features”) to date and continue to add to the inventory. Surveying is primarily done on public lands owing to access issues.

Remediation goals are to protect humans and wildlife, cultural resources, and other concerns. AMLU applies a variety of remediation technologies, depending on each site’s conditions and needs. Fees collected on gold and silver mined in California (\$5/ounce of gold & 10¢/ounce of silver) provides some of the program’s budget. In addition, AMLU partners with many state and federal agencies as well as non-profit organizations to implement remediation projects.

Greg presented cleanup efforts at Bodie State Historic Park. AMLU is coordinating the chemical remediation of this site north of Mono Lake. The site is owned and managed by the State Department of Parks and Recreation, USEPA is implementing the remediation, and other agencies are providing review. The site is contaminated by lead, arsenic and PCBs, in addition to mercury. Most of the remediation is complete, but the tailings have not been remediated yet.

For more information or to request the presentation, contact Sarah Reeves (Sarah.Reeves@conservation.ca.gov), Greg Marquis (Greg.Marquis@conservation.ca.gov), or Cy Oggins: (Cy.Oggins@conservation.ca.gov).

“Simulation of Mercury Transport, Transformation, and Bioaccumulation with WARMF” by Joel Herr (Systech Engineering)

WARMF, developed and applied by Systech, is a GIS-based watershed model that simulates hydrology plus the fate and transport of non-conservative compounds from land, into water, biota in the water, and groundwater. Ease of use and availability in the public domain make it particularly useful for developing TMDLs.

WARMF includes a mercury submodel that has been applied to Minnesota’s portion of the Lake Superior Basin. The model accounts for three forms of mercury—gaseous Hg(0), ionic Hg(II) and methyl mercury MeHg—from sources through water and sediment to fish tissue. In this application, WARMF explained 93% of variances in fish-Hg of all fishes, ages, and lakes in Lake Superior Basin.

WARMF is currently being applied to the San Joaquin River and Sacramento River (including Cache Creek) basins downstream of major dams to simulate flow, suspended sediment, organic carbon and DO—all key elements for mercury transport. Thus, simulating mercury using WARMF would be a relatively minor add-on effort (<1 year and \$100K) that could be useful for future TMDLs and other remediation strategy analyses.

“Methylmercury Production Associated With Agricultural and Nonagricultural Wetlands of the Yolo Bypass Wildlife Area, California” by Mark Marvin-DiPasquale (USGS)

Mark summarized a recent study of mercury methylation potential and bioaccumulation in a set of managed wetlands and agricultural (rice growing) fields in the Yolo Bypass, just South of I-80. The study aimed to answer the question “How do different wetland types vary with respect to Hg-methylation, MeHg export and MeHg bioaccumulation?” The study components included sediments, water column, plant-mercury interactions, and bioaccumulation in small fish.

Key findings were that:

- Microbial activity associated with Hg(II)-methylation seems to be positively related to the transition from microbial iron-reducing to sulfate reducing conditions and with live plant root density. The presence of plants enhanced net MeHg production.
- The availability of inorganic Hg(II) for microbial methylation was negatively correlated with the concentration of solid phase total reduced sulfur.
- Among wetland types, the largest increase in MeHg concentrations occurred in rice fields during post-harvest when the rice straw was decomposing on the fields. This increase suggests that MeHg production is carbon limited.
- Essentially all fish, both native and transplanted (caged), had tissue MeHg levels exceeding the proposed Delta TMDL objective, but lowest in permanently flooded wetlands. Concentrations in tissue were, positively related to concurrent concentrations of unfiltered MeHg in the water column.

There will be just one final report, due later this year, that brings together all of the work. The draft final report that is in Regional Board staff's hands has not been reviewed internally by USGS staff nor has it been approved by USGS for public release. Questions now can be referred to USGS or Mark Stephenson (CA Dept of Fish & Game).

IV. Discussion Item: DTMC Future

Stephen McCord reviewed two DTMC fact sheets (DTMC and Strategic Plan) as a basis for discussing the future direction of the DTMC. Participants made the following comments and suggestions:

- The fact sheets needs updating. In particular, the language regarding “current efforts” should be changed to “potential” or “areas of interest”.
- The two fact sheets should be shortened, formatted more, and consolidated into a single two-page document.
- The DTMC provides a valuable service to stakeholders. The Sacramento Regional County Sanitation District recognizes that service and is considering continuing to fund baseline services of meeting facilitation.

319 grant funds may be available to support the DTMC for special projects. Special project identified as potential candidates include:

- Apply Systech's WARMF model to the Sacramento River Watershed to simulate fate and transport of mercury.
- Update the DTMC's Strategic Plan and fund key projects that implement the Plan.
- Provide additional outreach to disadvantaged communities and Native American communities that may be more at risk of mercury exposure.
- Provide a stakeholder role in mercury TMDLs in the watershed, including (1) implementing Phase 1 of the Delta TMDL, (2) participate in the development of tributary TMDLs.

V. SRWP Update

SRWP (like many other NGOs) has been severely impacted by the freeze on bond-funded projects. Although a budget deal has been reached, it will still take some time for things to get back to normal. Meanwhile, none of SRWP's direct contractors are working on projects and Mary Lee Knecht is working on a very part-time basis. Contact Mary Lee with any questions or concerns.

One of the things I am working on is planning for the State of the Sacramento River Watershed Conference in downtown Sacramento. Please mark your calendars for Thursday, May 14, Dr. Jeff Mount from UC Davis will be speaking along with top agency representatives, elected officials, and others.

VI. Other Updates

- [None given]

VII. Meeting Wrap-Up

The next meeting is tentatively set for Tuesday, May 19, 2009, 12:30-4:30pm, at the California Department of Fish and Game Yolo Bypass Wildlife Area Headquarters, 45211 County Rd 32B (Chiles Rd), Davis, CA 95618.

Agenda items to consider for the next meeting include:

- BLM mine remediation projects in the upper Putah Creek watershed
- Synthesis of CALFED-funded research
- USGS mercury hot spots investigations in Sierran streams

Action items to be tracked are:

- Stephen will make an effort to outreach to the Bureau of Indian Affairs to get their input on how to engage the Indian community in the DTMC.
- Stephen will revise the two DTMC fact sheets per comments and post the single document on the DTMC web site.