



Mercury Pollution in Northern California
Delta Tributaries Mercury Council



DELTA TRIBUTARIES MERCURY COUNCIL

Monday, May 20, 2019; 12:30 p.m. – 4:30 p.m.

DWR's West Sac. Conf. Room 106

3500 Industrial Blvd., West Sacramento, CA 95691

Facilitator: Stephen McCord, McCord Environmental, Inc. (MEI)

Meeting Summary by: Stephen McCord, MEI

Attendees

In Person

Stephen McCord, MEI
Greg Reller, Burlison Consulting
Kirt Sandhu, Delta Conservancy
Kent Parrish, Wood E&IS
Shannon Murphy, OEHHA
Priya Ganguli, CSU Northridge
Bob Schneider, unaffiliated

Jennie Fuller, RWQCB
Molly Nilsson, BLM
Toby McBride, USFWS
Ted Donn, Tetra Tech
Vic Claassen, UC Davis
Matthew Blackwell, MEI

Via Teleconference

Yumiko Henneberry, Delta Science Program
Heidi Oriol, Regional San
Lindsay Whalin, SF Bay RWQCB
Maia Singer, Stillwater Sciences
Bianca Handley, USEPA

Patrick Morris, RWQCB
Dimitri Vlassopoulos, Anchor QEA
Jacob Fleck, USGS
Jay Davis, SFEI
Stefanie Helmrich, UC Merced

I. Introductions and Agenda Review

No comments on the summary of the February 6, 2019 meeting.

II. Project Updates & Upcoming Events

Announcements are attributed to Stephen McCord (MEI) unless otherwise noted.

Mine Site Cleanups

- A Prop. 68 grant application to further work at the Corona Twin Peaks Mine site was not awarded. The project team continues to seek funding while road improvements proceed this year.
- The Brownfields Coalition Assessment Project remains in progress, preparing cleanup plans for two mine sites, supporting a Phase II ESA by others, and drafting an area-wide plan. For more information: <http://www.westsideirwmbrownfields.org/>.

Mercury Studies and Monitoring Activities

- The Delta Regional Monitoring Program continues to sample fish annually, water 8x/year and sediments 4x/yr at 8 sites throughout the Delta. The Steering Committee will decide in late May on the scale of monitoring next fiscal year and whether to add a component for monitoring fish mercury accumulation in restored wetlands.

Regional and Statewide Mercury Regulation

- Patrick Morris, Jennie Fuller (Regional Water Board): Nine Delta MeHg control study reports are undergoing review now; DWR's two study reports are due in late 2019. Staff are compiling data for analysis and will draft the Phase 2 TMDL in 2020.
- Yumiko Henneberry (Delta Stewardship Council): The DSC has formed a Technical Review Panel. This Panel will conduct a "letter" review of the control and characterization study reports to assess compliance with approved work plans and evaluate the scientific validity of the studies' findings. The letter is due in early June 2019. A second review phase will address forthcoming study reports by DWR on open water modeling and tidal wetlands methylmercury production. The review web page is <http://deltacouncil.ca.gov/science-program/2019-independent-science-review-and-advice-delta-mercury-control-program>. A separate Advisory Panel will support development of Phase 2 of the TMDL starting in 2021.

Recent & Upcoming Conferences

- The American Society of Mining and Reclamation (ASMR) will host their 36th Annual Meeting, June 3-7, 2019, at the Big Sky Resort in Montana. This conference will focus on the research, technical, and regulatory issues associated with the land and water implications of anthropogenic land disturbances. <https://www.asmr.us/Meetings/2019-Annual-Meeting>.
- The 14th International Conference on Mercury as a Global Pollutant (ICMGP 2019) will be held in Krakow, Poland, September 8-13, 2019. <https://www.mercury2019krakow.com/gb/>
- The CALMS conference will be held Oct. 10-11 in San Diego. Presentation abstracts, including topics on mercury control studies, are being solicited. For more information: <https://www.california-lakes.org/calms-conference>.
- The Sierra Fund's conference "Sierra 2019: Headwater Mercury Source Reduction" will be held October 17-18 in Grass Valley.
- The State of the Estuary Conference will be held in Oakland, Oct. 21-22. <https://www.sfestuary.org/state-of-the-estuary-conference/>.

Other News & Updates

- OEHHA has recently issued new fish advisories with safe eating advice for several lakes statewide.
- Yocha Dehe has prioritized mercury improvement projects in the Cache Creek watershed for funding, including cleanup of two mine sites on private property and monitoring

stratification and associated dissolved oxygen dynamics in Indian Valley Reservoir. No decisions have been made.

III. Presentations

Five presentations were given:

1. Corona / Twin Peaks Mines update, by Stephen McCord (MEI), Greg Reller (Burlson Cons.), and Vic Claassen (UC Davis)
2. Hg mine site investigations and cleanups update, by Molly Nilsson (BLM, Ukiah)
3. Fish Consumption Advisories Update, by Shannon Murphy (OEHHA)
4. Mercury research at New Idria Mine, by Priya Ganguli (CSU Northridge)
5. DTMC Strategic Plan 2020 update, by Stephen McCord (MEI)

1 – Corona / Twin Peaks Mines update, by Stephen McCord (MEI), Greg Reller (Burlson Cons.), and Vic Claassen (UC Davis)

The project which began in 2011, halted for two years, and then restarted, was recently closed and completed. Funding was primarily from the state's Ecosystem Restoration Program. The mercury mine site provides a great example of three mining eras, and the project provides a great example of collaboration among a non-profit lead, state funding program, diverse consultant team, private landowner, and agency representatives at all levels of government. Project objectives were to treat drainage water, minimize leaching/mobilization of contaminants, and address physical hazards.

Drainage treatment included run-on diversion away from collapse features, filtration of adit drainage, precipitate isolation in an on-site repository, and in situ treatment with sulfate-reducing bacteria inoculant (supported by pH adjustment with NaOH and liquid food supply of milk and ethanol). Adit drainage is now contained and treated in filtration basins and infiltration ditches. Accumulated precipitate is now stored securely in an on-site repository. Metal concentrations and loadings were reduced by 50 percent.

Soil regeneration and stabilization work focused on developing protocols applicable to the many other sites on steep terrain with thin, erosive soils. Soils with a wide range of conditions were often amended with lime, fine soils and organic material, and recontoured to enhance rainfall infiltration and moisture retention. Local plants were propagated and planted to establish a native vegetative cover. Plant success rates were on the order of 80%.

Future funding is being sought to improve work done to date, maintain treatment systems, and construct a treatment system for the drain tunnel.

For more information: Stephen McCord, 530-220-3165, sam@mccenv.com.

2 – Hg mine site investigations and cleanups update, by Molly Nilsson (BLM, Ukiah)

The US Bureau of Land Management (BLM) Abandoned Mine Lands program addresses both environmental and physical hazards on over 21,000 sites statewide. The Ukiah office tends to focus on environmental hazards because most sites in the Coast Range pose fewer physical hazards (and are remote) than sites elsewhere. One focus area is around Walker Ridge, in the Cache Creek watershed. The Clyde, Elgin, and Rathburn-Petray mines are current priorities.

For Clyde Mine, a bat gate and fencing will hinder human physical hazards. A Remedial Site Investigation is currently being drafted to address environmental hazards. For Elgin Mine, BLM will collaborate with work planned on the adjacent private property to address hydrothermal spring drainage and mercury-rich soils. The property boundary warrants re-surveying. Rathburn-Petray Mine is much larger than the other two, having produced over 100 flasks of Hg⁰ by surface mining operations which occurred from the late 1800s until early 1970s. Reclamation is planned in three phases, and the first two have been initiated. The site has no adits or springs; thus, the site improvements focus on erosion and sediment control measures. Phase 3 work would be on the adjacent private parcel, but the landowner of record has been non-responsive.

For more information: Molly Nilsson, 707-468-4098, mmilsson@blm.gov.

3 – Fish Consumption Advisories Update, by Shannon Murphy (OEHHA)

Cal EPA's Office of Environmental Health Hazard Assessment (OEHHA) Fish Advisory Program issues consumption advisories for recreationally-caught fish from water bodies statewide. Advisories are developed following a complex process of data collection/filtering and analysis, comparison to chemical-specific Advisory Tissue Levels, and best professional judgement. Advisories are set for the sensitive population (1) women 18-49 and children 1-17 years old, and the general population (2) women 50 years and older and men 18 years and older. There are both site-specific and statewide advisories.

Almost all fish consumption advisories (108 out of 110) are because of mercury bioaccumulation. The program's website (www.oehha.ca.gov/fish/advisories) was recently revamped to improve viewing on smart phones and tablets. The printed advisory layout template has also been improved and all advisories are translated into two or more languages. Fact sheets and videos are also available.

The presentation file is not available for posting. For more information: Shannon Murphy, 916-322-8365, shannon.murphy@oehha.ca.gov.

4 – Mercury research at New Idria Mine, by Priya Ganguli (CSU Northridge)

New Idria Mine in the western San Joaquin River watershed was the second-largest Hg producer in North America. Operated 1854-1972, miners extracted cinnabar and crushed, vaporized, and condensed it to produce elemental mercury (Hg⁰). Today, the mine adit discharges acidic water to San Carlos Creek that downstream turns bright orange from precipitating iron oxides.

Limited site remediation has been performed, mainly controlling some surface runoff. Downstream alongside vast tailings piles, total Hg concentrations can be as high as 3,000 ng/L (compared to the statewide standard of 50 ng/L). Methylmercury concentrations downstream can be over 2 ng/L (compared to standards applied elsewhere on the order of 0.06 ng/L).

The site was added to the Superfund List in 2011, and a Responsible Party was identified in late 2018. Buckhorn, Inc., is now planning a \$2 million site investigation to determine the best approach to remediation. Sampling to date has been hampered by some difficult local landowners, widely variable climate and mercury conditions, and limited time/budget. Recent sampling indicates lower mercury concentrations than previously, although there are several potential reasons, such as increased particulate trapping, higher seasonal dilution, or remediation benefits. Sediments in the Mendota Pool downstream do not indicate contamination from the mine site, suggesting such sediments have been buried or diluted with other sediment sources.

Additional work is needed to characterize seasonal variability, filtered/total ratios, ancillary parameters and groundwater.

For more information: Priya Ganguli, Priya.Ganguli@csun.edu.

5 – DTMC Strategic Plan 2020 update – Discussion of how to update the DTMC’s 2002 strategic plan, by Stephen McCord (MEI)

The objectives for the strategic plan were clarified in the previous meeting: produce a concise plan applicable to the entire Delta and its watershed, for DTMC members but supporting other efforts. The strategic plan working group includes: Carrie Monohan, Greg Reller, Patrick Morris, Dennis Geiser, Peter Graves, Jacob Fleck, and Joe Domagalski. The plan development process calls for clarifying the DTMC’s role, tracking relevant projects, and drafting specific recommendations. The schedule calls for the plan to be completed by early 2020.

The DTMC and its interests are described on the DTMC website, as well as in two fact sheets (mercury issues and DTMC). Members contributed to a Strengths-Weaknesses-Opportunities-Threats worksheet to add context to the DTMC’s character. Next steps are to draft edits to past recommendations and to track the implementation of relevant projects.

For more information: Stephen McCord, 530-220-3165, sam@mccenv.com.

IV. Meeting Wrap-Up

Future agenda item suggestions:

- Lake Mercury improvement projects—Klau & Buena Vista Mines Superfund site, and Sulphur Bank Mercury Mine Superfund site (Carter Jessup, USEPA)
- Combie Reservoir sediment removal—sediment treatment for Hg removal (Jason Muir, NVS)
- US Forest Service mine remediation projects (Rick Weaver, USFS)
- USEPA Brownfields Area-wide Plan (Stephen McCord, MEI, and other project team members)
- Reservoir mercury research (Marc Beutel and students, UC Merced)
- MeHg control via low-impact development features (Lester McKee, SFEI)
- DTMC Strategic Plan project tracking (Stephen McCord, MEI, and other Working Group members)

Next Meeting

- **Date:** Looking at Tuesday, September 17 (or 24 as backup), 2019.
- **Location:** DWR in West Sacramento, Room 106