

Testimony for Subcommittee on Energy and Mineral Resources Oversight Field Hearings

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Introduction:

My name is Bob Schneider. I am a Board member and the Senior Policy Director of Tuleyome, a regional conservation organization based in Woodland. Tuleyome is a Lake Miwok word meaning *Deep Home Place*. Our mission is to protect our wild heritage and our agricultural heritage in the Northern Inner Coast Range and Western Sacramento Valley. Tuleyome is deeply involved in many of the environmental, water quality, and equity issues concerned with mercury in the region.

I served for 5 years (2002–2006) as the Chair of the Central Valley Regional Water Quality Control Board (the primary state regulatory agency in this region implementing the state Porter-Cologne Act and the federal Clean Water Act), during which time we developed the Clear Lake Mercury Total Maximum Daily Load (TMDL) plan setting requirements for the Sulphur Bank Mercury Mine and other sources, and the Cache Creek-Harley Gulch-Bear Creek mercury TMDL. I currently attend the Delta Tributary Mercury Council meetings and am a member of the Delta Methyl Mercury TMDL Stakeholder Group. I work with community, non-governmental organizations, other groups, and agencies throughout the region and have contacts with Tribes in the region.

I want to focus my testimony primarily on the Cache Creek watershed west of Sacramento, which encompasses approximately 1,095 square miles and drains the Coast Range mountains on the western edge of the Sacramento Valley. It flows out of Clear Lake and Indian Valley Reservoir and includes the Bear Creek and Sulphur Creek drainages,

The geology of the Coast Range here is vastly different from that of the granitic Sierra and is a case study for plate tectonics. Currently, the Pacific plate is grinding northward along the edge of the North American plate, but formerly the San Andreas transform fault system was a subduction zone that resulted in the deposition of seafloor crustal materials along the continental margin, some of which mixed with water and became serpentine. Ancestral springs associated with these myriad fault systems in the serpentine areas deposited mercury ore in the Inner Coast Range. The region was extensively mined for mercury that was used in the gold mines of the Sierra.

The region is also an area of incredible biological diversity and is enjoyed by hikers, birders, hunters, ranchers, horse riders, anglers, boaters and others.

Background:

The pathways that link abandoned mines, mercury, and mercury methylation to public and wildlife health are complex. Remediation of mercury impacts and clean-up involves

consideration of source reduction or remediation on both public and private lands, efforts to prevent or reduce mercury methylation, public health, wetland restoration, flood management, Delta restoration, ongoing monitoring feedback, and the Bay Delta Conservation Plan. Methylation is a process in which mercury becomes biologically active and is then caught up in the ecological food chain, resulting in contaminated fish. A myriad of state and federal agencies are involved and a balancing is required of sometimes conflicting goals, including, for example, the necessity to limit mercury methylation while also having a need to restore wetlands and riparian habitat in the Central Valley. Culture and economic issues are of concern in regards to Tribes throughout the region; and subsistence fishers and their families estimated at upwards of 75,000 people in the Delta region who are eating fish with mercury levels that may result in health problems.

There are an estimated 40 abandoned mercury mines in the upper Cache Creek watershed, and another 40 in the upper Putah Creek watershed. Mercury from the Putah Creek watershed flows into Lake Berryessa. Abandoned mines occur on both publicly owned and private land. Other mercury sources in the region include natural springs (such as the Fountain of Life geyser on Sulphur Creek), soil erosion, and erosion from poorly constructed roads that often contain mine waste or mercury laden soil.

Mercury from the mine tailings, waste rock, mine cuts, road cuts, and contaminated soils is leached and eroded at these sources; flows downstream to the Cache Creek Settling Basin; and though the Yolo Bypass to the Delta. One-half of the mercury that moves into the Sacramento River system comes from the headwaters of Cache Creek. The Delta Total Maximum Daily Load Report estimated a 20-year average of 520 pounds of mercury per year flowing down Cache Creek. Of this amount, about one-half settles out in the Cache Creek Settling Basin east of Woodland. The other 260 pounds flows through the Yolo Bypass to the Sacramento River. (The 5-year average discussed in the Cache Creek TMDL shows twice this amount of mercury loading from the Cache Creek watershed.) This load comes from a watershed that provides 2 % of the water and is 4.3 % of the acreage in the Sacramento River Basin, illustrating the seriousness of mercury contamination in the Cache Creek basin.

The Central Valley Water Board has set Cache Creek as a priority by adopting the Clear Lake Mercury TMDL, including the Sulphur Bank mine; the Cache Creek-Harley Gulch-Bear Creek TMDL; and, the Sulphur Creek TMDL and Basin Plan Amendment. Water Board staff are currently working on the Delta Methyl Mercury (MeHg) TMDL, which is focused on controlling elemental mercury as well as limiting the mercury methylation process. It is anticipated that TMDL plans will also be developed for the Upper Putah Creek Watershed, Stony Creek, Black Butte Reservoir, and Indian Valley Reservoir.

Development of the Delta MeHG TMDL has focused additional attention on the Cache Creek Watershed as a primary mercury and methyl mercury source. An estimated 15,000 subsistence fishers and their families (an estimated 75,000 folks) in the Delta region are eating mercury-laden fish with levels that may result in health problems. In the Cache Creek watershed attention has been focused on developing methods to limit the

methylation process in the Yolo Bypass, as well as to capture as much mercury as possible in the Cache Creek Settling Basin (CCSB).

The CCSB is a 4 square mile leveed structure designed to capture sediment before it is transported into the Yolo Bypass. It is an efficient trap for mercury that has already left the actual mine sites, contaminated creek beds and banks, and is continuing to erode. Contamination of stream beds and banks by mercury is common to most areas downstream of inactive gold and mercury mines. Structures like the CCSB might be the most efficient, least disruptive way to remove the mercury and as such should be recognized for the direct role it plays in remediating the impacts of abandoned mercury mines.

This is complicated in that the US Army Corp of Engineers, CA Department of Water Resources, and the Central Valley Flood Protection Board share authority over various aspects of the Basin. This context is further complicated because past expansion of the Basin has exacerbated the flood potential in Woodland; and, now riparian habitat has developed in the Basin important to rare species in the context of federal and state conservation planning.

EPA and BLM Clean-Up Efforts in the Inner Coast Region:

Significant clean-up efforts have begun in the Cache Creek watershed and demonstrates the potential for remediation.

The recent Associated Press article about mercury in California focused on the Sulphur Bank Mine and the Elem Tribe. While early EPA Superfund clean-up efforts at Sulphur Bank have not been as timely as one might hope, more recent efforts have succeeded in rectifying problems, in particular the remediation of the Elem Tribe roads and community that were constructed on mercury laden mine tailings. Efforts to prevent mass erosion of mercury-containing rock from the waste rock dam into the lake by regrading and revegetating the dam were successful. But, EPA hasn't addressed the waste rock already in Clear Lake and the seepage of low pH water from the Bradley Pit to Clear Lake that carries dissolved mercury.

Mine tailings and waste rock at the Turkey Run and Abbott Mines, located on Harley Gulch just north of Highway 20, have been relocated and sealed, thus remediating a major mercury and methyl mercury source into Cache Creek.

The BLM is now working to remediate the Contact and Sonoma Mines that are in Sonoma County in the Russian River drainage, and the Helen Mine at the headwaters of Putah Creek in Lake County. Funding is committed and bids are going out. It is expected that contracts will be let by the end of the year.

The Rathburn-Petray Mine in the Bear Creek drainage is "shovel-ready" and \$1.2 million is committed to clean up. But, another \$1 million is needed to complete this project.

Solutions- Moving Forward:

A comprehensive Abandoned Mine and Toxic Mercury Clean-up Plan for the Cache Creek, Putah Creek, and larger Inner Coast Range region is required. The plan should identify overall clean up goals for the region as well as specific annual and 5-year goals. The plan requires a definitive time line, cost estimates, meaningful progress assessments, and adequate funding. Much of the background information on Cache Creek for this effort is contained in the 2008 Tetra Tech report on Regional Mercury Load Reduction Evaluation Central Valley, California.

Good communication between all of the entities involved working on mercury issues in the watershed is needed. The Delta Tributaries Mercury Council could serve as the coordinating stakeholder organization for the plan's development and implementation oversight. Tuleyome will participate in this effort. This would help to remediate the approximate 80 mines in the Putah and Cache Creek watersheds.

We need to prioritize clean up actions based upon likely and measurable ecological and health outcomes. We need to complete the accountability process by demonstrating the effectiveness of the clean up actions in reducing impacts to human and wildlife health. Sensitive biological monitoring techniques have been developed, with State funding, to accurately track mercury exposure levels—they should be utilized.

We need to expeditiously develop TMDL plans for mercury-impaired water bodies. A small staff at the Water Board is only able to move forward on various plans in a sequential manner because of resource limitations, whereas increased staffing and funding could speed this process, allowing multiple plans to move forward at the same time.

We need to address Good Samaritan efforts to aid work on private lands. This is complex and not an easy issue. Still, there are opportunities to move forward on some mine sites if we can provide the “good-actor” landowners with some assurances with respect to liability.

We need to enable underserved constituency participation including subsistence fishers and Tribes. Impacted communities are the main human stakeholders of concern for mercury clean-up, but rarely have access to research, planning, decision-making, and resource sharing. Fish-eating wildlife have no say in the matter, but also have no choice but to eat fish as their only food.

The development of an offsets program would help to maximize clean up efforts across the landscape. Such an approach involves investments in clean-up actions in high-mercury source areas by regulated agencies lower in the watershed. While an offset program cannot allow “hot-spots” to remain in the lower reaches of the watershed, there are opportunities to combine “hot-spot” downstream remediation (e.g., in the Delta and San Francisco Bay) with improvements further upstream in the watershed. Such an approach will improve overall clean-up efforts for the Sacramento River basin, benefiting many millions of people in this region in a timely way.

We need to focus attention on the Cache Creek Settling Basin to increase mercury capture, resolve flood-management issues, and protect habitat and habitat restoration. Yolo County, the City of Woodland, and the Yolo County Flood Control Water Conservation District are working on solutions to the flooding issue through the FloodSafe Yolo pilot program, and the Central Valley Water Board is actively seeking answers for means to increase sediment capture in the basin. This is a ground-up approach for locally generated solutions, but the USACE must also be actively engaged in this process.

Solutions to mercury and methyl mercury issues in the Yolo Bypass and Delta involve substantial natural and environmental resources concerns. Agriculture (particularly rice farming) and wetlands increase mercury methylation, exacerbating concerns identified above, but we also need increased wetlands and shallow-water fishery habitats to protect the plants, waterfowl, and fish of the region. At the present time many agencies and other interested parties are engaged in habitat planning in the Delta, and these planning efforts must be able to incorporate mercury issues, while still allowing for enhancements and restoration of wetland areas and habitat values in order to address long-term water-supply concerns in the Delta.

We need adequate, ongoing funding to move forward the planning and implementation of programs in the Cache Creek region to clean up mines and to remediate mercury and methyl mercury issues. We need a meaningful fraction of those funds to go to effective feedback monitoring that will guide remediation efforts.

Conclusion:

The Cache Creek watershed is a primary source of mercury that contributes one-half of the mercury in the Sacramento system. We need to clean up the sources at the abandoned mines both on public lands and private lands.

Downstream mercury contamination including sediment contamination, mercury methylation, human health impacts of mercury from eating contaminated fish, and impacts to wildlife and habitat are direct affects of mining and must a component of abandoned mine clean up.

HR 699 will provide an ongoing funding source for abandoned mine and toxic mercury clean up reducing harm to both people and wildlife. We strongly support this bill and thank you, Representative Costa, for your co-sponsorship. Thank you members of this subcommittee and your staff for attention to this important issue here in California. And, we are certainly available to lead a tour of the region if that might be helpful in your work.