

## MEMORANDUM

### Dan Cloak Environmental Consulting

To: Andria Ventura, Clean Water Action  
From: Dan Cloak  
Environmental Technical Representative to the Clean Estuary Program  
Subject: **Update on Environmental Technical Representative Activities**  
Date: 31 May 2005

#### **Background: Where the Action Is (or Isn't)**

TMDLs have two parts: a Staff Report (“technical TMDL”) and an implementation plan. The Staff Report includes a calculation of pollutant load reductions needed to bring the Bay back to water quality standards. The implementation plan—which becomes codified in an amendment to the Water Board’s Basin Plan—describes how those loading reductions will actually be achieved.

Most Clean Estuary Program (CEP) projects aim to help Water Board staff develop Staff Reports. Implementation plans have received less considerably less attention.

San Francisco Bay Water Board staff completed a Staff Report and implementation plan for mercury last September. Not surprisingly, dischargers and environmental advocates alike focused their review on the proposed amendments to the Basin Plan—that’s where the “action” is.

Or where the action should have been. Unfortunately, there isn’t really much “action” in the mercury Basin Plan Amendment (BPA). Under the Water Board’s plan, wastewater and industrial discharges stay about the same. Urban runoff programs continue to implement the same Best Management Practices (BMPs). And we wait for forthcoming Guadalupe River and Central Valley TMDLs to learn how those mercury inputs to the Bay might be reduced.

So how will the mandated loading reductions—about 50% for urban runoff—actually be achieved? And who is responsible for coming up with a plan for those reductions?

Instead of mandating new urban runoff controls, the BPA requires urban runoff agencies to guess how much mercury they are discharging now and to guess again 10 and 20 years from now. Runoff loads can’t be measured precisely or verified, so the BPA could allow urban runoff dischargers to simply “guess” that they are making progress.

The outcome of the forthcoming PCB TMDL may be similar, despite significant, but very belated, efforts to devise an implementation scheme.

What's missing in this process is an appropriate sense of urgency about finding new ways to control sources and effects of mercury, PCBs, and other pollutants.

The mercury TMDL's flawed technical analysis contributes to this lack of urgency. The TMDL Staff Report includes the assumption that all mercury, regardless of source, is equally likely to end up in Bay fish. Available scientific evidence and opinion discounts this assumption, but San Francisco Bay Water Board staff nonetheless use it—in a recent response to concerns raised by the State Water Resources Control Board—to justify their TMDL's lax and dilatory implementation plan.

We know it will take many decades, at least, to clean Bay sediments sufficiently that Bay fish can be eaten without health concerns. However, there are many actions that could be implemented now to reduce the loads of the most bioavailable mercury, to reduce human exposure, and to reduce health risks. Appropriately targeted research could identify more actions.

Meanwhile, the CEP and its sister program, the Regional Monitoring Program for Trace Substances (RMP), puzzle over how to allocate more than \$4 million in annual funding. A portion of the RMP goes for routine monitoring; administrative costs eat up quite a bit, and there is some left over for "special studies."

For each of these programs, the annual budget process prompts broad-ranging discussions of purposes and priorities. Lists of "Management Needs" and "Management Questions" are produced, along with invitations to professional researchers to submit proposals, rank others' proposals, and generally vie to fund their pet projects.

Reviewing some of these proposals, I am struck by *déjà vu*. Many of them seem too much like studies conducted five, ten, or more years ago—to characterize water and sediment concentrations, quantify loadings, and model transport of sediment in and out of the Bay.

For TMDLs to "succeed"—be adopted without legal challenge by dischargers or the environmental community—they must make a convincing case that all possible actions are being taken to reduce pollutant impacts and hasten attainment of water quality standards.

As I'll continue to point whenever given the opportunity, a substantial portion of these research monies should be redirected toward answering, with regard to controlling pollutants and reducing or mitigating pollutant impacts:

- Have we identified all the potential options?
- Are we doing everything we can?

### **More on Mercury**

The CEP contracted Tetra Tech, Inc., to prepare a Conceptual Model report on mercury in San Francisco Bay. After many delays, a draft report was distributed for technical review in March.

Unlike the Water Board's TMDL Project Report, the Tetra Tech report emphasizes differences in bioavailability between different sources of mercury. Some forms of mercury—such as cinnabar in mine sediments—are tightly bound to other minerals, and are not easily converted to methylmercury. Mercury deposited from the air as fine dust—which falls on the Bay directly and also falls on impervious surfaces and is subsequently transported to the Bay—is thought to be more easily converted to methylmercury and thence taken up into the food web.

Treated sewage contains some readily bioavailable methylmercury. However, other forms of mercury in treated sewage *may* be bound in organic or inorganic complexes, greatly slowing potential conversion to methylmercury.

Tetra Tech's observations point to a radically different control strategy, and different outcomes, than does the Water Board's mercury TMDL report. Air sources, for example, are a minor portion of all mercury in the Bay, but if they are the most bioavailable portion, their control is urgent.

Tetra Tech proposed an expansive research agenda of new and mostly unaffordable studies to investigate mercury bioaccumulation.

A better option would be to focus on controlling air deposition and urban runoff sources to the "maximum extent practicable" now, while supporting broad-based efforts to increase our understanding of how mercury bioaccumulates.

### **Risk Reduction Work Group**

Sometimes it's hard to tell whether you're making progress or just spinning your wheels.

Last August, I proposed a project to develop options for mitigating risks of public health impacts due to pollutants (primarily mercury and PCBs) in fish. I proposed the CEP convene a project team with combined experience in epidemiology, public health outreach, neurology, provision of family care to disadvantaged communities, toxicology, and dietary science and ask them to investigate and analyze various actions which could mitigate risks—including health screening at primary care clinics, examination of dietary habits and options available to potentially exposed people, and possibly reducing other, non-fish-related sources of exposure.

In response, the Bay Area Clean Water Agencies (BACWA, representing municipal wastewater dischargers) proposed creating a Risk Reduction Work Group to discuss and evaluate options for reducing health risks.

The Work Group got organized in late January. In addition to representatives from BACWA, the Water Board, and me (as Environmental Technical Representative), the Work Group now includes representatives from the Bay Area Stormwater Management Agencies Association (BASMAA), California Department of Health Services Environmental Health Investigations Branch (DHS-EHIB), and Office of Environmental Health Hazard Assessment (OEHHA). Whitney Dodson (Environmental Justice Coalition for Water) and LaDonna Williams

(People for Children's Health and Environmental Justice) joined the most recent meeting.

Here's my take on the Work Group's progress to date:

- BASMAA and BACWA are willing participants because risk reduction activities are mandated in the mercury Basin Plan amendment. The dischargers are, of course, wary of commitments to new expenditures.
- In 2001-2002, DHS-EHIB—following up publication of their *San Francisco Bay Seafood Consumption Report*, which they prepared jointly with the San Francisco Estuary Institute—solicited grant funds and began community education and outreach programs in collaboration with community based organizations (CBOs). The work culminated in a May 2002 one-day public forum where potential partnerships and activities were identified. However, grant funding ran out and few of the identified activities were implemented.
- OEHHA tends to see this work in the context of their role of identifying and issuing health advisories. DHS is comfortable promoting education and outreach; they view the problem of Bay fish contamination in the context of mercury exposure to the whole population from seafood generally (including commercially caught seafood). The concept of mitigation targeted to most-affected communities is outside their current comfort zone, but they are willing to engage the idea.
- CBO representatives are eager to conduct education and outreach in their communities. They are concerned that grant funds be adequate so their programs can be effective.
- The participation of representatives of most-affected communities is essential to understanding the routes and extent of potential exposure and to developing and evaluating means to mitigate risk. One important observation was that fish may be sold or given away in a variety of community contexts, including through extended families, churches, and street sales. Another observation was that—put simply—many people will continue to fish, and to consume fish, despite warnings. A third observation: it was noted that Medi-Cal reimbursements pay for mercury amalgam dental fillings, but not for the more expensive composite fillings. People with private dental insurance have a choice; mothers and children on TANF do not.
- It was agreed to take the first steps toward convening a project team to develop and assess options for reducing and mitigating health risks, as was proposed last August. CEP staff will need to take the lead—but they don't have a public health background, and the CEP hasn't been focused on developing implementation options.
- There is agreement on the need to establish a source of funds to pursue health risk reduction and mitigation over the long term. The RMP and CEP provide models (i.e. broad-based regional sources of funds with representative bodies to provide technical and management direction).

In Risk Reduction Work Group meetings, I have emphasized the limitations of outreach and education in reducing health risks. In my opinion, an exclusive focus on education and outreach is of limited

effectiveness and raises environmental justice concerns. Education and outreach encourage consumers to change their choices regarding when, where, and how much fish they consume. But some people, and some communities, have fewer choices than others. Education and outreach are most effective for people who have the most choices and are least effective for those whose choices are most constrained. Further, education and outreach put the primary burden of reducing health risks on the individual consumer. This burden should also be borne by dischargers, government, and other community institutions.

The Risk Reduction Work Group has some nascent potential to foster the inter-agency collaboration and projects that will be needed to begin reducing and mitigating health risks of mercury and PCBs in Bay fish. The work group's further progress depends, I think, on the commitment of the whole CEP to developing options for actions (rather than continuing studies) and on the commitment of the Water Board and dischargers to the concept of "doing everything we can."

### **Pesticide-Related Toxicity and Diazinon**

There's big news on the pesticide front.

The Urban Pesticide Pollution Prevention Project ([www.up3project.org](http://www.up3project.org)), funded by a grant to the San Francisco Estuary Project, tracks trends in pesticide use. As diazinon and chlorpyrifos are being phased out, use of other pesticides has increased. Pyrethroids, which may be derived from natural sources or synthesized, are increasingly popular.

As UP3 coordinator Kelly Moran recently explained to the statewide Urban Pesticide Committee, licensed pesticide control operators (PCOs) spray pyrethroids around the exterior of buildings for control of ants.

Recent work by UC-Berkeley researchers revealed acutely toxic pyrethroid concentrations in some Bay area creek sediments.

This new information arrives as Water Board staff is completing a staff report and Basin Plan Amendment for the Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL.

Will the TMDL include effective actions to eliminate discharges of pyrethroids? Consider that the Clean Water Act, the Federal stormwater regulations, existing municipal stormwater NPDES permits, and municipalities' own ordinances all strictly prohibit non-stormwater discharges to storm drains. Storing or using toxic materials in a manner that allows them to enter storm drains is likewise strictly prohibited. Do these laws, regulations, permits, and ordinances also prohibit PCOs from spraying toxic pyrethroids on sidewalks?

San Francisco Bay Water Board staff's position seems to be "no." Their reasoning seems to be that applicable Federal and state law and regulation, and local ordinances, are trumped by a state law that prohibits local government from regulating pesticides.

This should make for an interesting debate during this TMDL's upcoming public review.

## **PCBs**

The PCB TMDL has been delayed again. The latest estimate for completion is September.

There is a CEP project to refine an implementation scheme for the PCB TMDL. After some extensive discussions, a scope was completed in February. In response to some pointed comments on the scope, I received assurances that the project would go beyond outlining an “approach to an approach” and would actually evaluate, initially, the feasibility of some control strategies.

Meanwhile, separate from the CEP, the San Francisco Estuary Institute is pursuing a pilot project to evaluate cleanup strategies in the catchment of the Ettie Street Pump Station in Oakland. Anecdotes are circulating that high PCB concentrations have been found in the dirt of parkway strips and that a 55-gallon barrel containing PCBs was found in an abandoned industrial yard.

The obvious significance of these findings is: There may be concentrated, uncontrolled sources of PCBs in the urban watershed. The obvious question is: Why haven't they been cleaned up already?

## **Selenium, Legacy Pesticides, and Diazinon in the Bay**

The CEP has retained consultants to prepare a Water Quality Attainment Strategy—which could be a TMDL or could be another process leading to removal from the 303(d) list—for each of these three pollutants.

## **Conclusions**

- Because mercury, PCBs, and other pollutants permeate the Bay's watersheds and sediments, the federally mandated cleanups of mercury, PCBs, and other Bay pollutants cannot be achieved within a reasonable period—if at all.
- The CEP has focused most of its resources on refining a model which predict the rate at which the Bay may recovers from legacy pollution. However, it doesn't matter so much whether it will take 100, 200, or more years for the Bay to “fix itself.” The CEP should commit to developing and investigating control and cleanup actions, and doing everything reasonable to reduce pollutant sources and effects on human health and wildlife.
- With three TMDLs up for public review this year, and more scheduled, the Board needs to explain how their “adaptive implementation” solution—it begins to look like a panacea—is going to work. “Adaptive implementation” requires a starting set of planned actions, a commitment to perform, a means of evaluation, and a mechanism for adapting actions based on evaluation results. As of now, the Water Board is way short on each.