

California Regional Water Quality Control Board
San Francisco Bay Region
EXECUTIVE OFFICER'S REPORT

A Monthly Report to the Board and Public

June 2006

The next regular scheduled Board meeting is June 14, 2006.

See <http://www.waterboards.ca.gov/sanfranciscobay/> for latest details and agenda

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Gary Wolff Appointed to the State Water Board (Bruce Wolfe)

Congratulations to Board member Gary Wolff on his recent appointment by the Governor to the Professional Engineer’s position on the State Water Board. Unfortunately, he cannot legally serve on both boards, so the June Board meeting will be his last as a member of this Board. State Board Chair Tam Doduc plans to designate Gary as the State Board’s liaison to our Board, so he still intends to regularly attend our Board meetings.

Hookston Station Site Cleanup “Open House” (Mary Rose Cassa)

Water Board staff hosted a community open house on May 25, to provide an opportunity for community members to be updated the status of cleanup at the Hookston Station site and adjacent areas in Pleasant Hill. A release of trichloroethylene (TCE) in the 1970s has impacted groundwater both onsite and offsite in a residential neighborhood. Indoor air testing has indicated that concentrations of TCE are present in some homes at concentrations above health-based screening levels. The responsible parties have installed crawl-space ventilation systems in some affected homes. Over the years, residents have installed backyard wells for irrigation and filling swimming pools. The responsible parties have arranged to have these wells properly sealed and abandoned for any homeowner who requests it.

The May 25 open house focused on two topics: the recently-approved baseline risk assessment and the upcoming cleanup plan. Board staff prepared posters and PowerPoint presentations for the open house, which was attended by more than 50 people. Residents and other interested persons had an opportunity for informal discussions with staff on topics including local geology and contaminant distribution, results of indoor air sampling, risk assessment, potential cleanup technologies, and public participation. Following brief Board staff presentations on the risk assessment and pending cleanup plan, attendees engaged in a lively question and answer session. Feedback on the open house indicates the community members are pleased with the efforts Board staff is making to expand our public outreach efforts through community meetings, stakeholder interviews, contact with other agencies and elected officials, and through our website. A number of Board staff played a role in this successful open house: Mary Rose Cassa, Chuck Headlee, Stephen Hill, Steve Morse, Sandi Potter, and Jeff Kapellas, as well as independent consultant Steve Drew. Dr. Marilyn Underwood, the Department of Health Services' toxicologist advising staff was also on-hand and addressed several questions from the audience.

The Hookston Station responsible parties will submit a draft cleanup plan in mid-July, pursuant to the Board's existing site cleanup order. We will provide opportunities for public comment and public participation during our review of the draft plan. We will keep you informed about this case as we proceed into the cleanup phase.

Sanitary Sewer Overflow Reduction Program Progress (Michael Chee)

In 2003, this Water Board initiated a Sanitary Sewer Overflow (SSO) reduction program. This program involves several elements: collaboration with the regional discharger association, Bay Area Clean Water Agencies (BACWA), outreach and education of sewage collection system agencies, and imposition of reporting requirements and sewer system management plans. We are happy to report that this program is progressing well with good compliance and acceptance of the requirements thus far. Currently, 107 sewer collection agencies are registered, and have thus far reported 1,224 spills. Our goal with this program is to reduce these spills over time. But first, good data must be collected, information disseminated, and both incentives and disincentives provided.

Among the program's successes is a web-based electronic spill reporting system, which was demonstrated to the Board at its January 2006 meeting. Another recent success is the fact that 95% of the agencies submitted their first required annual report. These annual reports are important because the agencies must address SSO trends in their systems and progress made towards improving their systems to reduce SSOs. After calling non-responders and sending notices of violation, Board staff increased the level of submittals to 99% compliance. The only holdout is Travis Air Force Base, which has claimed sovereign immunity. We have asked for U.S. EPA's assistance with the Air Force's compliance in this program.

On a state level, last month the State Water Board adopted Statewide General Waste Discharge Requirements (General WDR) for Sanitary Sewer Systems. This General WDR imposes similar requirements to those we've already prescribed for our Region. One major difference is that our requirements establish earlier dates for development of sewer system

management plans. With the agreement of BACWA, the sewage collection agencies in our Region will adhere to our more aggressive schedule. Another difference is the various timeframes for when an individual SSO must be reported depending on volume. For consistency, we will require our agencies to comply with the General WDR's timeframes. Additionally, as part of their effort, the State Water Board will establish a web-based overflow reporting system. This system is modeled after our system. The plan is for our agencies to transition to the State Water Board's system after it is up and running in this Region, now expected to be sometime in May 2007.

One of the cornerstones of this program has been our collaboration with BACWA, which continues today. Because of limited Board staff resources, this collaboration has been helpful, productive, and effective. They have assisted with both leadership and resources through outreach to their constituency, holding workshops, and developing information material. For example, BACWA will develop informational material to help the agencies understand changes to their requirements in light of the General WDR. We look forward to collaborating with BACWA on development of metrics for establishing what constitutes good and/or bad SSO programs so as to help further focus our efforts to reduce SSOs.

Site Cleanup at Proposed San Francisco Power Plant (Nancy Katyl)

Water Board staff recently ramped up its oversight of cleanup activities at the proposed San Francisco Electric Reliability Project (SFERP) site to dovetail with power-plant licensing activities by the California Energy Commission. As we heard at the May Board meeting hearing on the Potrero Power Plant, the San Francisco Public Utilities Commission is proposing to build a 145-megawatt thermal plant near the Bay shoreline in the Potrero district. SFERP is part of a package of projects to improve the reliability of San Francisco's electrical supply. The plant would be built on a 4-acre portion of a larger 26-acre property located at 25th and Illinois Streets, also known as the Western Pacific property. The property is owned by the Port of San Francisco. San Francisco MUNI leases the western portion of the property for a light-rail maintenance yard, the 4-acre SFERP portion is in the middle, and the eastern portion of the property (the portion fronting the Bay) is vacant.

The property has contaminants typically found at other Bay-shoreline sites in San Francisco. Most contaminants originated with the fill materials used to create dry land from Bay wetlands many years ago. Soil contaminants at the property include metals and semi-volatiles; groundwater contaminants include metals, semi-volatiles, and fuel constituents. The Board dealt with similar conditions when it oversaw investigation and cleanup activities at Mission Bay, further north along the Bay shoreline in San Francisco.

In 1999, Cal/EPA designated the Board as the "administering agency" for cleanup at this property pursuant to the "Site Designation" process in state law. Under this process, the administering agency is required to consult with other agencies and address their comments prior to approving cleanup plans. The administering agency issues a "certificate of completion" once active cleanup is done, and this must be honored by other agencies. As "administering agency" for the property, we have reviewed and approved various site-cleanup documents - site characterization, risk assessment, and a risk management plan.

However, these documents mostly focus on the MUNI portion of the property and do not specifically address the power plant proposal.

In 2005, San Francisco applied to the California Energy Commission for a power plant license for SFERP. Under state law, the Commission is authorized to consult with and act on behalf of other state and local agencies, to assure an orderly permitting process for new power plants. The Commission is several months into its licensing process, and anticipates making a licensing decision later this year.

Board staff is actively coordinating with Commission staff to assure that SFERP meets both agencies' requirements and to avoid duplication of effort on site-cleanup matters. We have been meeting with Commission and City staff since January. We recently attended a Commission hearing-panel meeting to explain our site cleanup process and signed a staff-level memorandum of understanding to guide our joint efforts. Later this month, we will issue a technical-report directive to the City, requiring them to update various site-cleanup documents to specifically address the 4-acre portion of the property in light of the SFERP proposal. We will keep you informed of significant milestones in this property's cleanup.

Napa Enforces Stormwater Ordinance Against Hotel Development (Selina Louie)

The City of Napa recently fined Meritage Hotel, owned by the Napa Hospitality Group, \$3,000 for violating the City's stormwater ordinance.

The Meritage Hotel has been under construction during the past two rainy seasons. Throughout these two seasons, the City has repeatedly cited Meritage Hotel for chronic violations of its stormwater ordinance. In March 2006, the City's Public Works Director imposed fines at \$1,000 each for four cited violations of the City's stormwater ordinance: (1) a March 6, 2006, illicit discharge, (2) a March 14, 2006, illicit discharge, (3) an unprotected (dirt) stockpile, and (4) failure to notify the City of illicit discharge. Board staff also inspected the Meritage Hotel on April 24, 2006. As a result, Water Board staff issued a Notice to Comply for noncompliance with the State's General Permit for Storm Water Discharges Associated with Construction Activity. The violations noted in the Notice to Comply were similar to the types of violations cited by City staff. Meritage Hotel also failed to meet the deadlines for implementing corrective actions as required in the Notice to Comply. Meritage Hotel appealed the City fines to the City Council for consideration at the Council's May 16th hearing.

At the request of City staff, Bill Hurley and Selina Louie of Board staff made a presentation to the City Council explaining why the fines were appropriate and should be upheld. The City Council denied the appeal for three of the four citations, but dismissed one \$1,000 fine for Meritage Hotel's failure to notify the City of an illicit discharge. This was the first time the City of Napa implemented its new enforceable stormwater ordinance, which it enacted in June 2004 to comply with its Board imposed Phase II Municipal Stormwater Permit requirements.

Meritage Hotel is now in compliance with City and Board stormwater requirements.

Stream and Wetlands System Protection Policy Public Meetings (Ben Livsey)

Board staff recently conducted a series of Public Workshops and California Environmental Quality Act (CEQA) Scoping Meetings regarding the proposed Stream and Wetlands System Protection Policy (Policy). Meetings were held in Oakland, Cupertino, and San Rafael, on May 1, 9, and 15 respectively. The staff presentation consisted of an overview of the Basin Plan amendment and CEQA process, the stream and wetlands system science which will be used to craft the Policy, and the proposed Policy framework. Stakeholders in attendance included representatives from city governments, water districts, flood control agencies, state and federal resource agencies, homebuilder associations, environmental consulting firms, and creek and open space advocacy groups.

These meetings provided an opportunity for the public to comment on the Policy concept and its potential environmental impacts. These meetings also offered an opportunity for public comment on the direction the Board could be taking in regards to stream and wetland protection, and for staff to gauge support and concerns for the Policy among stakeholders. The main themes of public comments included Policy scope, permit streamlining and interagency coordination, implementation, economics, funding, and enforcement. The following are several recurring comments:

- The Board should look at permit streamlining opportunities and ways to ensure predictable permitting outcomes.
- The Board needs to examine how the Policy would affect local agencies, and what resources (i.e., financial, technical) would be available for local jurisdictions to implement the Policy.
- The Board should continue and increase its efforts to review, comment and advise on local general plans, local ordinances and project-specific CEQA documents.
- The Board needs to be more responsive to complaints of water quality violations, and should take stronger enforcement actions against gross water quality violators.

Staff will continue to engage stakeholders throughout the development of the Policy by holding additional meetings. This will include a field trip this summer to visit stream sites that illustrate stream protection needs and goals, and a public workshop this fall updating stakeholders on the development of the Policy. The draft amendment language and Staff Report are anticipated to be ready for public review in spring 2007.

A copy of the presentation given at the CEQA scoping meetings, a summary of comments received at these meetings, and other information and documents related to the proposed Stream and Wetlands System Protection Policy are posted on the Board's web page at: http://www.waterboards.ca.gov/sanfranciscobay/streamand_wetlands.htm. Additional information on the proposed Policy can be obtained from: Ben Livsey at (510) 622-2308 or BLivsey@waterboards.ca.gov.

Workshop: New Developments in Wetland Tracking and Assessment (Bruce Wolfe)

On May 25 and 26, the Board co-hosted this workshop with U.S. EPA Region 9, the State Resources Agency, and the San Francisco Estuary Project. Nearly 70 agency staff, wetland managers, and restoration practitioners from all over the West Coast attended, with the goal to

better collaborate on efforts to perform consistent monitoring and assessments of wetlands and riparian habitats.

Alexis Strauss, Water Division Chief at Region 9, and I opened the workshop. In my opening remarks, I emphasized that we must recognize both the need and opportunity to better track our wetland projects and regularly assess their conditions. Too often we assume that once a wetland restoration or mitigation project is proposed or approved, it will be successful. However, we commonly lack reliable data on the status of these projects and find we cannot determine whether the projects are successful and what the resultant conditions of the wetlands are. We must identify consistent ways to move past our uncertainties and make better decisions on the appropriateness of our ongoing restoration projects and where future restoration is necessary or appropriate.

The workshop covered a number of new developments, including the upcoming State Wetlands Demonstration Project to implement a tiered-approach to comprehensive wetlands and riparian habitat assessment, the implementation of the new California Rapid Assessment Method (CRAM), the expanding use of the Wetland Tracker tool. Andree Breaux of Board staff made a presentation on her work in our Region using the Wetland Tracker tool and comparing CRAM and other assessment methods.

LTMS Six-Year Program Review (Beth Christian)

On May 12, Water Board staff participated in a public meeting to review the progress of the Long Term Management Strategy (LTMS) for the placement of dredged material in San Francisco Bay. The primary goals of the LTMS are to significantly reduce in-bay disposal of dredged material and to increase the beneficial reuse of dredged material. These goals are being achieved gradually over a 12-year transition period that started in the year 2000 after State Board certification of the LTMS Programmatic EIR/EIS.

Board staff have been key players in the LTMS since its inception in 1990. At that time, the limited capacity for dredged material disposal at the heavily-used Alcatraz Island in-bay aquatic disposal site, as well as concerns over potential environmental impacts, highlighted the need for improved management of and alternative disposal options for dredged material. Board staff, along with staff from other regulatory agencies with authority over dredging activities, including U.S. EPA, U.S. Army Corps of Engineers, and BCDC, joined with navigation interests, fishing groups, environmental organizations, and others to develop the LTMS.

Compared to pre-LTMS years, when tensions between dredging project sponsors and the fishing and environmental communities ran high (Figure 1), major accomplishments have been made in several areas under the LTMS. These accomplishments have helped to foster better communication among all the interested parties and achieve consensus about how dredged material can be managed in the most economically and environmentally sound manner.



Figure 1. Fishing boat blockade, aka “mudlock,” at Alcatraz Island Disposal Site circa 1988.

Major Accomplishments of the LTMS from 2000-2006

- **DMMO** The Dredged Material Management Office (DMMO) is a joint program of the regulatory agencies, including the Board, which have oversight over dredging and dredged material disposal. It has greatly streamlined the regulatory process for dredgers by providing interagency coordinated review of hundreds of dredging project proposals to ensure that LTMS goals will be met while complying with applicable State and Federal requirements.
- **LTMS Funding Support for Scientific Studies** From 2001 through 2005, approximately \$3.25 million was allocated to study various issues of importance to LTMS. These studies included: mercury methylation potential and management in wetlands restored with dredged material; disposal plume tracking and modeling; effects of dredged material plumes on herring eggs; and juvenile salmonid distribution in the San Francisco estuary.
- **Upland and Wetland (U-W-R) Beneficial Reuse of Dredged Material** Beneficial reuse is the key to the overall success of the LTMS program. Since the inception of the LTMS, several important reuse projects have been permitted, including the Hamilton Wetlands Restoration Project (Marin County), and a few have now come on line or been expanded, including the Montezuma Wetlands Restoration Project (Solano County), and the Oakland Middle Harbor Habitat Enhancement Area, along with several other smaller or one-time-use U-W-R sites. Well over 7 million cubic yards of dredged material have been delivered to these sites to date (Figure 2).

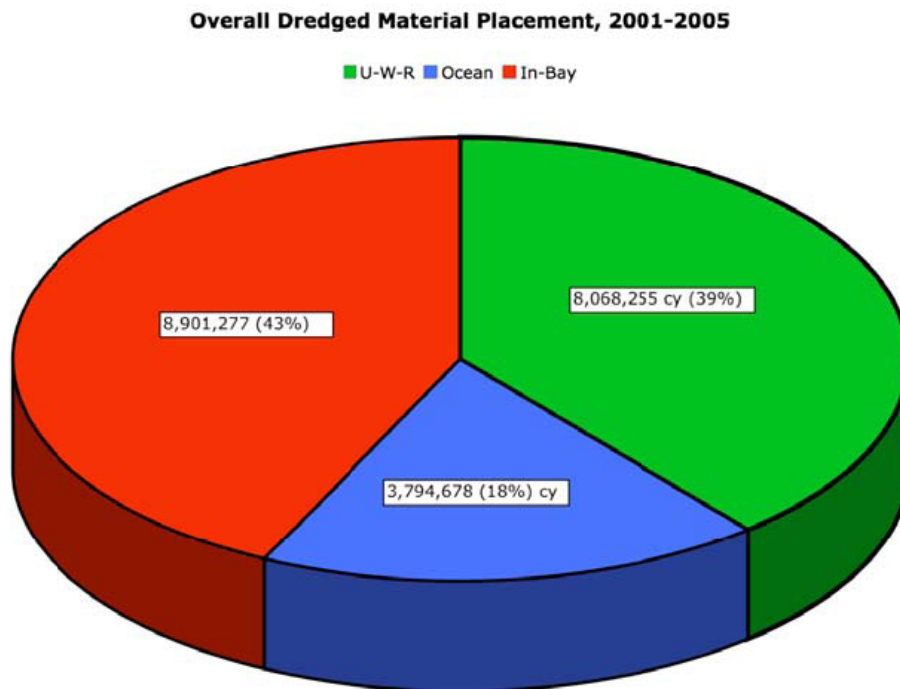


Figure 2. Overall dredged material volumes sent to each placement environment under the 2001 LTMS Management Plan. The long-term goal is to achieve at least 40% beneficial reuse and no more than 20% In-Bay disposal, with ocean disposal for the remainder.

Conclusions of the Six-year Review

The LTMS program is operating as the EIR/EIS and Management Plan anticipated, and remains on track with the Transition Period milestones and overall LTMS goals. The LTMS agencies are not proposing any overall policy or program-level changes at this time and will continue to integrate new knowledge and information such as results from ongoing LTMS scientific studies, changes in the status of sensitive species, or availability of new beneficial reuse sites, into management of dredging projects.

South Bay Salt Pond Restoration Project Governance Retreat (Naomi Feger)

On May 2, Naomi Feger and I attended a Project Governance and Decision-making Day-Long Retreat associated with the South Bay Salt Pond (SBSP) Restoration Project. The objective of the retreat was to develop recommendations on the optimal functions and organizational structure for the next 10 years to implement the long-term SBSP restoration project. The discussion among the cross-agency participants included the following key questions:

1. Who will manage implementation of the project?
2. How will science and adaptive management be integrated into project decision-making?
3. How will public involvement be integrated into project decision-making?

4. What will be the role of regulatory agencies in implementing the project.

Board staff is currently overseeing Waste Discharge Requirements issued by the Board in 2004, in conjunction with the Initial Stewardship Plan for the SBSP restoration project and will be involved in permitting restoration activities in later phases of the project. A draft programmatic EIS/EIR on the overall restoration is expected to be circulated in January 2007. Forward planning, such as this retreat, is necessary to ensure the successful implementation of the planned restoration projects.

Alviso Slough Inspection Follow-up (Paul Amato)

As I reported in an earlier Report, and in response to a complaint from an Alviso resident, Board staff Dale Bowyer and Paul Amato met with representatives of the State Lands Commission, Santa Clara Valley Water District, Alviso Task Force community group, South Bay Yacht Club (SBYC), and the Blue Whale Sailing School (BWSS) on April 7 to inspect the SBYC and BWSS facilities for alleged water quality violations resulting from activities including discharges from abandoned boats, illegal docks, spray painting, dredging and filling of dirt.

The Bay Conservation and Development Commission (BCDC) had previously sent enforcement letters to SBYC, BWSS, and other property and vessel owners requiring that the responsible parties take actions to comply with BCDC regulations. Actions include removal of abandoned boats and live-aboards, and other potentially unauthorized structures.

No direct water quality violations were observed during the April 7 inspection, though we are concerned about the number of derelict vessels on the SBYC property and the removal of wetland vegetation on the BWSS property. As follow-up, letters are being sent to representatives of both facilities to inform them of potential impacts to water quality and beneficial uses of Alviso Slough. SBYC was notified that any evidence of pollutant discharges from abandoned vessels could lead to future enforcement and that materials stored on top of wetland vegetation was considered fill that would need to be removed. BWSS was asked to provide information about wetland vegetation clearing on its property. Board staff will work with both facilities to assure these issues are addressed.

BCDC staff will perform another site visit with the State Lands Commission, Santa Clara Valley Water District, SBYC and BWSS representatives in early June to determine whether appropriate actions have occurred or are in progress, or whether enforcement orders against any party will be pursued.

Aquatic Nuisance Species Task Force Meeting (Naomi Feger)

Board Staff (Naomi Feger) attended the May 24-26 Aquatic Nuisance Species (ANS) National Task Force meeting on behalf of the San Francisco Estuary Project (SFEP) (an Ex-Officio member of the Task Force). The Board is the lead agency for implementation of the SFEP's Comprehensive Conservation and Management Plan. The ANS Task Force is an intergovernmental organization dedicated to preventing and controlling aquatic nuisance species, and implementing the Nonindigenous Aquatic Nuisance Prevention and

Control Act of 1990 and the National Invasive Species Act of 1996. The Task Force is comprised of 22 Federal and Ex-Officio members.

The ANS Task Force has been successful in establishing six Regional Panels, including the Western Regional Panel of which the SFEP Project is a member. The Task Force has also encouraged the creation of State ANS Management Plans. The California State Aquatic Invasive Species Management Plan is currently being finalized and will need to be signed by the Governor prior to its approval by the Task Force. The SFEP has taken the lead on completing the State's Plan, initially drafted by the Department of Fish and Game. Upon approval, California's Management Plan will be eligible for some limited funding under a grant program administered by the U.S. Fish and Wildlife Service. To date, the Task Force has approved 20 State and Interstate Management Plans. A topic of discussion during the Task Force meeting was how to improve the level of funding for implementation of State plans, given the increasing number of approved plans.

At the May meeting, the Task Force approved the National Management Plan for the genus *Caulerpa*, a high-growth-rate green algae. The Task Force pursued development of a National Management Plan for *Caulerpa* species after divers in southern California found the first U.S. infestation of non-native *C. taxifolia* (Mediterranean strain) in 2000. There are seven other species-specific control plans that have been approved by the Task Force, including plans for two species found in San Francisco Bay, the Mitten Crab and the European Green Crab.

Moffett Naval Air Station, Hangar 1 – Cleanup Alternatives Proposed (Judy Huang)

On May 5, the U.S. Navy released its Engineering Evaluation/Cost Analysis (EE/CA) for Hangar 1 at the former Moffett Naval Air Station. The purpose of the EE/CA is to select a remediation alternative for Hangar 1. Currently, the Navy is soliciting comments on the EE/CA and will respond to them by July 5.

Hangar 1 was constructed in 1932 to house the airship USS Macon. The floor of the hangar encompasses approximately 8 acres (~10 football fields) and has an indoor height of 200 feet. The interior of the building is so large that fog sometimes forms near the ceiling.

In 1997, PCBs as Aroclor-1268 were detected in sediments in adjacent wetlands, used as a stormwater retention pond (called Site 25) for Hangar 1 and the adjacent areas. As a result of various source investigations, Hangar 1 was identified as the primary source of the PCB 1268.

In 2002 and 2003, NASA conducted tests, which confirmed the PCB detected in the wetlands is the result of weathering of Hangar 1's siding. Samples taken from the



Hangar 1 Exterior

siding show levels of PCB up to 188,000 parts per million, which is over 188,000 times the level deemed acceptable for human and environmental exposure to soils impacted by PCBs under an industrial scenario. In the stormwater drain sediment adjacent to the structure, PCB has been found at levels up to 540 parts per million, over 544 times the level acceptable under an industrial scenario.

The EE/CA evaluated 13 removal action alternatives ranging from enclosing the entire hangar inside another structure to demolition of the hangar. The EE/CA selected demolition as the Navy's preferred alternative at an estimated cost of \$12.2 million. The alternative preferred by the community is removal and replacement of the contaminated siding at an estimated cost of \$24.6 million.

On May 4, Board staff Judy Huang and Sandia Potter, U.S. EPA staff Chris Cora and John Chestnut, and Navy personnel attended a legislative staff briefing at Congresswoman Eshoo's office. The Navy presented a brief overview of the EE/CA to Congresswoman Eshoo's legislative staff in addition to staff from Senator Boxer's office. Board staff informed the legislative staffs that while the Board is prohibited by the State Water Code to specify the method of remediation for Hangar 1, it will accept almost any reasonable alternative that protects human health, the environment, and complies with all applicable state regulations.

On May 23, the Navy held a Hangar 1 EE/CA open house followed by a more formal public meeting. In the open house segment, both Navy and regulatory staffs responded directly to questions from the public. In the public meeting segment, the Navy collected comments from the audience for written response to be included within an Action Memorandum to be issued later. During the public meeting, Board staff read a statement reaffirming our position that any alternative Navy chooses to implement will need to protect human health, the environment, and to comply with all applicable state regulations. Further, Board staff indicated that the EE/CA is currently under our review and that our comments will soon be provided to the Navy. Attendance at the meeting was such that the room was filled to capacity with some members of the community being denied entry by the NASA Fire Department. The majority of the comments received questioned the accuracy of the EE/CA cost analysis for demolition and asked the Navy to spend the additional \$12 million to restore Hangar 1.

Mussel Rock Landfill Notice of Violation (Cecilio Felix)

In May, I issued a Notice of Violation to the City of Daly City for its closed Mussel Rock Landfill. Violations noted during staff's recent site inspection include exposed waste, discharge of leachate, inadequate surface water drainage controls and maintenance, and lack of maintenance for numerous slope failures. The closed landfill is used as open space and is frequently utilized by the public for recreation. Water quality impacts from the landfill are relatively minor.

On-going maintenance is a major compliance item set forth in the Board's Waste Discharge Requirements for the closed landfill. The landfill, which began receiving waste in 1957, well before modern regulations were in place, is located on an active landslide, which in-turn straddles the San Andreas fault and is immediately adjacent to the Pacific Ocean. The impacts of unstable conditions, high precipitation and surface water impacts

necessitate the need for continual maintenance at this landfill, especially where public access is allowed.

Staff continues to work with Daly City on this long-time problem to identify effective options for addressing landfill maintenance issues for both the immediate and long-term.

PIBA Symposium on Perchlorate (Keith Roberson)

On April 19, Keith Roberson of the Groundwater Protection Division made a presentation at the Pacific Industrial Business Associates (PIBA) Symposium in Santa Clara. The half-day symposium focused on perchlorate toxicology, risk assessment, and the State's response. Keith's presentation summarized the status of investigations and cleanups of perchlorate sites within the boundaries of our Region. The presentation also summarized relatively minor detections of perchlorate in municipal and private wells in the Region. Other speakers at the symposium included Dr. Bob Howd of the State Office of Environmental Health Hazard Assessment (OEHHA), John Borkovich of the State Water Board, and T.R. Hathaway of the Department of Toxic Substances Control (DTSC).

In terms of perchlorate impacts to water, our Region has fared well compared with the Central Coast and Los Angeles Basin Regions. To date, not a single water supply well in our Region has been taken out of service due to perchlorate impacts. Three municipal supply wells, two in Sunnyvale and one in San Jose, have shown sporadic detections of perchlorate, but not at levels exceeding the State's action level or Public Health Goal (6 micrograms per liter). Some privately owned wells in the Coyote Valley (Santa Clara County) have also shown one-time, low-level perchlorate detections, none of which were confirmed by re-sampling.

There are three known perchlorate release sites within the Region. One of these, the former United Technologies Corporation (UTC) rocket motor manufacturing site south of San Jose, is a major release site. Groundwater and soils on the UTC site contain very high concentrations of perchlorate, and perchlorate enters on-site creeks via groundwater discharge and stormwater runoff. However, no off-site water supply wells have been affected by perchlorate from this site, and remediation is well under way. The other two perchlorate release sites are less significant. The OEA explosives testing site near Suisun City in Solano County has moderate perchlorate concentrations in one groundwater monitoring well and very low concentrations in two others. However, there is no indication of offsite migration of perchlorate from the OEA site. The third site, a small perchlorate plume near Arques Avenue in Sunnyvale has almost disappeared, as only two monitoring wells showed perchlorate detections in 2005, both of which were below the Public Health Goal.

Groundwater Cleanup of Recalcitrant Compounds (Alec Naugle)

The 5th biennial *Batelle Conference on Groundwater Cleanup of Chlorinated and Recalcitrant Chemicals* was held recently in Monterey. Over one thousand leading groundwater professionals discussed and debated technical and policy issues regarding cleanup of recalcitrant chemicals. These chemicals include chlorinated industrial and drycleaner solvents, petroleum hydrocarbons, MTBE, chromium, arsenic, perchlorate, PCBs, etc.

Several expert panels addressed broad technical problems and policy implications with an eye toward the future and an acknowledgement of the uncertainties. Some of the issues raised included:

- Just how recalcitrant are these so-called “recalcitrant” compounds, particularly in light of some recent successes?
- Can drinking water standards really be achieved?
- Can cleanup be done in a “reasonable” time frame?
- What are the most important factors controlling success or failure?
- Are we just cleaning up a bunch of monitoring wells or cleaning up the whole aquifer?
- If groundwater cleanup to drinking water standards is unrealistic in a reasonable time frame, what interim goals should be adopted?

As in past conferences, there was inspired discussion and a range of opinions expressed. There seemed to be a general consensus that at some sites, with complex geology and where pure-phase chemical product occurs, achieving drinking water standards may not be possible for decades or centuries. It was also identified that in the long run, time and money would be better spent upfront on characterization to minimize cleanup costs and better tailor the cleanup remedy to the site.

Many of the presentations focused on methods to treat groundwater pollution where it resides (*in situ*, in the ground) as opposed to pumping it to the surface for treatment (*ex situ*). These remedies use treatment compounds to chemically degrade or sequester pollutants or to stimulate biological activity to degrade pollutants. The treatment compounds are typically injected into the ground through wells or emplaced in trenches that are aligned perpendicular to the groundwater flow to intercept the pollutants. The most prevalent technologies showcased at the conference included:

- Peroxide, ozone, and permanganate to chemically oxidize solvents and hydrocarbons
- Iron-based materials such as granulated iron filings, iron powder, iron/water/oil emulsions, green rust, etc., to chemically reduce solvents and control metals like chromium, arsenic, and radio nuclides
- Edible, food-grade vegetable oils, lactate, molasses, whey protein, compost, ground-up shells, etc., to enhance biodegradation of solvents and hydrocarbons and stabilize pH and metals
- Phyto-remediation using trees such as Willow, Poplar, and Aspen to control pollutants
- Subsurface heating and vacuum extraction to vaporize and recover volatile pollutants
- Surfactant flushing and groundwater pumping to dissolve and recover solvents and hydrocarbons

Many of these technologies have already been implemented in our Region. These in-ground technologies offer cost savings because less waste is produced, and those that rely on “passive” groundwater flow to move the contaminants through the chemical/biological treatment zone will require less energy. As a result, we expect to see further refinements and more widespread deployment of these technologies.

In-house Training

Our May training was a site visit to the Bay Bridge replacement project, including associated wetland mitigation projects at Eastshore Park. Keith Lichten organized the session, and we learned about water quality aspects of the bridge replacement project. Our June training will be on dealing with the media; it will be presented by staff from the State Board's Office of Public Affairs. Brownbag seminars included a May 18 session on a product to promote the bioremediation of chlorinated solvents and some metals. The proprietary product, EHC, is a combination of solid carbon and fine-grained iron that facilitates both microbial and chemical degradation of these constituents in soil and groundwater.

Staff Presentations and Outreach

Conservation International's Business and Biodiversity Council (Bruce Wolfe)

On June 1, I made a presentation to Conservation International's Business and Biodiversity Council at a field trip hosted by Cargill and staff of the Don Edwards San Francisco Bay National Wildlife Refuge Complex. The focus of the field trip was the South Bay Salt Pond Restoration Project and how agencies, Cargill, and the public collaborated on project initiation. I spoke on our use of science in the project, especially our use of environmental risk screening levels during our review of the State's project acquisition and our ongoing adaptive management and science during implementation of the project's Initial Stewardship Plan.