



South Bayside System Authority

Providing wastewater services to residents and businesses in Redwood City, San Carlos, Belmont, and West Bay Sanitary District

SBSA BULLETIN

FALL 2008

SBSA Commission

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✓ **ENHANCED PRIMARY TREATMENT**

✓ **REDUCING MERCURY**

See Details Inside.

Manager's Corner

By Daniel Child, SBSA Manager

Progress Report on Our CIP



Since announcing in our last newsletter SBSA's \$339 million capital improvement program (CIP) over the next 10 years, we have been busy on numerous fronts.

I am excited to bring you up to date on some of the critical issues we are addressing in order to implement the CIP in the most professional manner possible:

■ The Commission evaluated various options for financing the CIP including "Pay as You Go," issuing revenue bonds as an agency, having each member entity issue their own revenue bonds, borrowing from the State Water Resources Control Board Revolving Fund (SRF) and borrowing from local banks. The Commission determined that accessing the SRF when possible – these loans have low interest rates along with many restrictions – and offering the member entities the opportunity to participate in jointly issued revenue bonds to cover the cost of the CIP are the best options. Three of SBSA's owners – the cities of Redwood City and San Carlos, and West Bay Sanitary District – are working toward approving very soon or have approved financing agreements to join the first revenue bond issuance. The City of Belmont has not made the final determination as of the date of this writing, however, they are leaning towards financing their share of the debt independently.

■ In order to pay off the debt it will be necessary for the member agencies to substantially increase wastewater treatment fees regardless of which financing option they choose. The exact amount of the required fee increase will be determined by each of the SBSA members as they identify the exact needs of the citizens of their community. It is expected that rates will increase over a period of time to meet the repayment schedule of the loans.

■ The SBSA Commission has also determined that it is best to issue debt on an "as needed" basis rather than issuing a bond for the total cost of the CIP in one loan. This allows some flexibility in how the money is borrowed and when it has to be paid back, though there is more risk of seeing higher interest rates in the future.

Manager's Corner: CIP Program

■ Because of the enormity of the CIP – 131 projects over 10 years – we have selected five engineering firms to work with us, each capable of implementing any of the projects, but also with specific talents that can be utilized to improve the process. The five firms were among 14 that submitted statements of qualification and RFP responses. The selected firms are: Brown & Caldwell of Walnut Creek, CDM of Walnut Creek, Freyer & Laureta of San Mateo, Kennedy Jenks of Palo Alto, and Winzler & Kelly of San Francisco. We also selected an architectural firm, HKIT Architects of Oakland.

■ Working with the engineers and staff, we are finalizing an implementation schedule to determine the order in which the projects will be implemented over the next decade.

■ One of the most important projects is replacement of three of the four pump stations and upgrading the fourth. The replacement of the force main is also critical to stabilize the SBSA conveyance system.

■ Engineering will begin in early September for a project to repair the wastewater treatment plant's disinfection system. This project will replace much of the old pipe used to carry sodium hypochlorite to the chlorine contact tanks and other areas in the plant along with improvements in pumping and control systems to make our disinfection system more consistent.

■ Master Plans to evaluate both the electrical and automation systems throughout the SBSA facilities will begin in early fall. The Motor Control Centers (MCC) were essentially outdated when they were installed in the 1980s. Spare parts are no longer available, they are not dependable and they are no longer efficient. Much of the plant's wiring is imbedded in concrete below the water table and has experienced severe corrosion. The plant's automation systems need to be repaired, replaced or implemented in various forms throughout the system. At the same time SBSA has the opportunity to improve the electrical system to lessen our dependence on utility power by potentially generating more power with by-products of the treatment process. We will evaluate the potential of doubling our current cogeneration (utilization of methane gas produced from the breakdown of solids in the wastewater to produce electricity) process from 450 kW to 900 kW. SBSA now generates 25% of its power needs and hopes to increase it to 50% or more.

■ HKIT Architects have begun a needs and site analysis for a new building to replace the current administrative offices and plant control room on SBSA site. The current building was constructed over four wastewater processing tanks which produce very corrosive gasses. Over the past 25 years, the building's steel studs have eroded due to sulfuric acid (formed when hydrogen sulfide produced in wastewater and moisture combines) to the point that, in many places, the building is now held up by sheet rock and stucco.

■ SBSA Senior Project Manager, Robert Donaldson, describes the enhanced primary treatment program that is nearing completion in a separate article.

Between newsletters, if there are major developments involving our CIP, we will post them on our website – www.sbsa.org — and/or send out a brief message by email.

Perhaps the highest priority in the CIP is to upgrade the pump stations. Some of them are more than 40 years old and the equipment has exceeded its expected useful life. Frequent failures cause high repair costs and risk potential spills. They are no longer reliable to pump the wastewater flows.

Without improvements to the pump stations, there is a real risk of spills and the inability to regulate pumping. The first step in this process is to develop a long range Master Plan (MP) to coordinate the short and long term needs of the conveyance system to facilitate the most cost effective and efficient solution to address the problems at the pump stations and in the force main.

SBSA to Launch Enhanced Primary Treatment

Facilities are nearly finished for SBSA's new chemically enhanced primary treatment (EPT).

In this process, chemicals (ferric chloride and polymer) are added to the sewage to facilitate faster settlement of suspended solids during treatment's first phase, explained SBSA Senior Program Manager, Robert Donaldson.

Donaldson noted that the chemicals force the suspended particles to clump together via the processes of coagulation and flocculation. The particle aggregate, or "floc," and thereby settle faster, enhancing treatment efficiency, as measured by removal of solids, organic matter and nutrients from the wastewater.

EPT is a stage II plant expansion project that will help hold solids in the primary treatment system when the higher flows peak during the day. Additionally EPT has many other important advantages over conventional primary treatment. Primary treatment is the least expensive wastewater treatment process when compared to the amount of solids and organics it removes as compared to other processes. Primary systems are at the beginning of the treatment process and typically remove about 60% of the solids and organic matter. The more that can be removed at the primary treatment phase the fewer solids overflow to the more expensive downstream secondary biological processes.

Donaldson said while it does cause the cost of primary treatment to go up, its positive impacts on other treatment processes can help mitigate the additional cost. "With fewer solids overflowing to the more expensive biological systems it will be interesting to see how the decrease in solids and increase in biological treatment efficiency can best be leveraged," Donaldson said.

That will be a "wait and see" after the system is up and running. Other treatment plants with EPT have noted that their recycled water systems actually require less chemical treatment while simultaneously increasing the effectiveness of their systems. Also, the solids coming from the primary system are the types that are better digested in the digesters, which in turn can potentially impact the methane production which is closely linked to energy production.

"More gas means more energy savings," Donaldson noted. Lastly, during the initial full scale testing, the ferric chloride transferred iron into the anaerobic digesters, thus lowering the amount of hydrogen sulfide in the methane gas. This helps protect the Co-Generation engine SBSA uses to produce close to 25% of its own energy needs. Typically SBSA has to "scrub" the hydrogen sulfide from this gas at a significant cost for materials and labor to change the scrubber media and then the cost of disposing the spent media. Donaldson noted that testing indicates that EPT could reduce scrubber changes, which will save money while simultaneously increasing gas quality to the Co-Generation unit and free up staff time to perform other important duties around the plant.

"EPT treatment does not replace any of the existing treatment processes," Donaldson explained. "Yet it can greatly increase their effectiveness and efficiency, thereby increasing plant reliability. EPT is a relatively simple technology providing an effective treatment augmentation, which is easily and cost effectively implemented."



SBSA Developing Program to Reduce Dental Mercury Discharges

SBSA is developing a program to reduce mercury discharged into San Francisco Bay in order to comply with requirements imposed by the California Regional Water Quality Control Board's San Francisco Bay Region (RWQCB), reports Technical Services Manager Ken Kaufman.

The new regulations are found in the "Waste Discharge Requirements for Municipal and Industrial Discharges of Mercury to San Francisco Bay," a regulatory order issued by the RWQCB in 2007.

Specifically, SBSA and other Bay Area wastewater districts must develop, implement and document cost-effective pretreatment and pollution prevention strategies for dental offices to reduce the amount of mercury amalgam discharged into public wastewater systems which ultimately flow to San Francisco Bay.

The target for this program is to have 85% of dental offices that generate mercury amalgam waste participating in an amalgam program by 2012. SBSA has until late 2009 to develop and begin to implement a dental amalgam program with the goal of achieving the target by 2012.

Dental offices in some Bay Area cities have been actively controlling the discharge of amalgam waste for several years. The use of an "amalgam separator" is considered the most cost-effective approach to reducing the discharge of mercury amalgam. Several wastewater agencies in the Bay Area already require the use of these devices.

Kaufman said that SBSA is assigning its new Pollution Prevention Specialist, Maya Slocum, to work with the local dental association and dentists within the SBSA jurisdiction to collectively devise a plan to comply with the new regulation.

He added that SBSA may hire a consultant to facilitate collaboration with other wastewater districts in San Mateo County and the two local dental societies. Ideally, the objective of this collaboration will be a consistent approach to dental mercury reduction throughout the County.



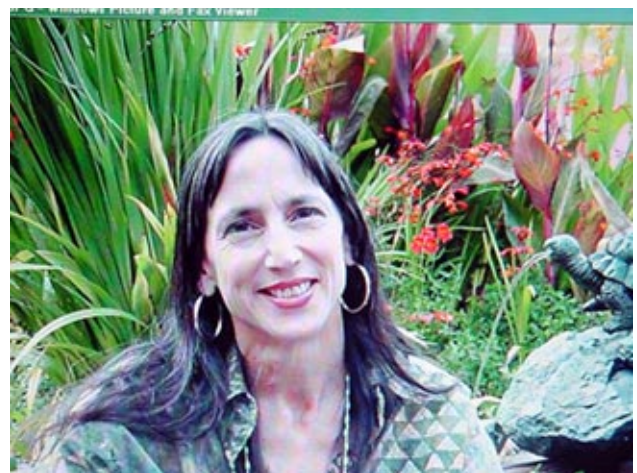
SBSA Creates Pollution Prevention Specialist Position

Maya Slocum has joined SBSA as a pollution prevention specialist.

This is a new position approved by the SBSA Commission and will allow SBSA to increase pollution prevention outreach to businesses within the service area.

Her tasks will include outreach to local dentists to improve mercury containment in compliance with new regulations (see related story), outreach in other pollution prevention areas, and work with schools in SBSA's jurisdictions with the award-winning Sewer Science Program that she, ironically, helped create from 1997-1999.

She comes to SBSA after 14 years teaching integrated science and biology at Menlo-Atherton High School, where she co-developed with the Palo Alto Treatment Plant a curriculum called Sewer Science. It is a hands-on lab that teaches high school students about municipal wastewater treatment using specially designed tanks, analytical equipment, and a student



workbook. Developed specifically to meet the needs of grades 9 through 12, this week-long curriculum helps wastewater treatment plants reinforce pollution prevention messages and introduces students to careers in the wastewater field. SBSA has been using its personnel to help present the curriculum to some 1,500 students each year, according to Technical Services Manager Ken Kaufman.

She has long been interested in mercury contamination and other ecological issues. In 1997 at Menlo Atherton, she developed a Water Ecology and San Francisquito Creek unit, which she taught for 10 years (and took students to the creek). In 1999, she also developed creek and mercury presentations for the Palo Alto Treatment plant which was geared for elementary school students.

She earned her California Teacher Credential in Life Science from Cal State Hayward and her B.A. in biology/environmental studies from University of California at Santa Cruz.

Allen Named to New Position of Environmental Health & Safety Manager

Donna Allen has been named to the newly-created position of Environmental Health and Safety Manager by SBSA Manager Dan Child. She assumed her position in August.

Child said that Ms. Allen will be in charge of developing and implementing SBSA's safety policies and overseeing the facility's regulatory compliance in areas other than the NPDES (National Pollutant Discharge Elimination System).

Allen joins SBSA after eight years with the City of Burlingame, the last 7 ½ as environmental compliance officer for the city's wastewater treatment facility. The city contracts with Veolia Water North America to provide full operations and maintenance services for the facility; Allen interfaced with both entities.

She served for seven years as the Safety Council representative for Northern California for the Veolia Water Western Business Center, a group of approximately 50 wastewater treatment professionals from Texas to Hawaii. The council prepared safety policy, programs and training for all facility managers.

"I performed many full safety audits at these plants as well facilities in California," Allen said. "I also provided direct support for facilities that were impacted with less than great safety records."

She also was the CWEA Santa Clara Valley Safety Committee Chairman. The CWEA Safety committee is responsible for auditing the treatment plants that apply for the Annual Section and State Safety Awards. As chairman of the safety committee, she was responsible for ensuring the group produced an annual safety seminar regarding a current safety topic.

Also for Burlingame's treatment plant, she administered the facility's federal pretreatment program, pollution prevention program, and Stormwater Pollution Prevention Program. She also ensured compliance with federal and local regulations for inspection of industrial and commercial facilities regarding environmental fulfillment. In addition, she developed outreach programs and submitted necessary regulatory reports.

Allen completed an update of all safety policies and programs, a task she will be doing at SBSA.

Before working in Burlingame, she served as a project management intern for MHA Environmental Consultants in San Mateo, where she performed acute toxicity testing for Bay area Pacific Gas & Electric power plants.

Allen earned a B.S. in Environmental Science Policy and Management from University of California in Berkeley. She also has earned numerous professional certifications, including these:

- Occupational Health and Safety Management Certification, University of California Santa Cruz, August 2006.
- Environmental Health and Safety Management Certification, University of California Santa Cruz, August 2006.
- Hazardous Materials Management Certification, University of California Santa Cruz, December 2001.
- OSHA General Industry Training certification 2000-2007.

Measure W on Redwood City Ballot Could Impact SBSA

SBSA's future plans could be jeopardized by Measure W on the Nov. 4 ballot, according to a report from the City Attorney presented to the Redwood City Council.

Both SBSA's plant and buffer area would be covered by provisions of Measure W, the report concludes.

"A preliminary legal review shows that unlike county or federal agencies, which would not be covered by the (measure), a joint powers agency like SBSA is not exempt from Redwood City's land-use laws," the report states. "In fact, SBSA is subject to Redwood City's land use requirements, including the two-thirds vote requirement (of development if Measure W passes)."

The report continues, "SBSA is preparing to undertake a major infrastructure upgrade over the next decade, including possible expansion and significant upgrades to the existing facility. Although the complete scope of the upgrade is not known at this time, if such an expansion requires changes to the General Plan or Zoning Code or requires other legislative action, such action could trigger the (Measure W) two-thirds voter approval requirement.

"This could occur, if for example, SBSA proposed to build facilities on the unimproved area portion of the buffer area. In addition, even if the expansion does not require legislative action, it could still trigger the two-thirds voter approval requirement if use permits are required."

Measure W was placed on the ballot by the City Council after an initiative with a sufficient number of registered voter signatures qualified it.

The City Council countered by planning Measure V on the ballot, which would require a vote only on lands owned by Cargill Salt, and would not impact SBSA or other properties in Redwood City except Cargill's land.

Employee Corner

SBSA is pleased to announce the hiring of several new fulltime and part-time employees.

The full time employees:

- Larry Ford** – Material Services Coordinator – 1/2/08
- Enrique Salvatierra**– Water Quality Specialist – 6/16/08
- Ronel Ram** – Operator – 5/13/08
- Daniel Buenrostro** – Operator – 5/6/08
- Quinten Green** – Operator – 5/6/08
- Eric Gable** – Plant Mechanic II – 7/28/08
- James Lostica** – Plant Mechanic II – Instrumentation Tech – 7/28/08
- Nathan Murphy** – Plant Mechanic II – Electrician – 8/18/08
- Donna Allen** – Environmental Health and Safety Manager – 8/11/08
- Maya Slocum** – Water Quality Specialist – Pollution Prevention–8/25/08

The part-time/temp positions:

- Adam Kettler** – Utility Worker
- Ben Padua** – Lab Assistant
- David Rosas** – Utility Worker
- Jerry Dye** – Materials Services Coordinator