

## Treatment Plant Activities



Two **influent sluice gates**; far left, in Aeration Basin #4 were replaced this month. Originally scheduled for replacement in FY12, the CIP team decided to bundle this gate installation work with a small project to replace return activated sludge headers in the same area. The cast iron gates; right, were at the end of their life cycle and could not be repaired. "Bolt on" stainless steel gates were chosen because the price of stainless steel gates was half the cost of iron gates.

Staff discovered early signs of chain wear and corrosion on both **Headworks filter screens** in 2011. The physical screens are made out of stainless steel and were assessed to be in perfect shape. The originally installed chains and sprockets, however, were made from mild steel with an anodized coating which was beginning to fail. The Capital Improvement Team decided to fund a FY12 project to purchase and install stainless steel wetted "submerged" parts to avert a potential failure. The photos above show the first screen being removed from the influent channel. The other photo depicts CMSA mechanical technician Abel Villarreal working alongside a manufacture representative dismantling and reinstalling the new parts. Both screens were removed, reequipped, and reinstalled into their respective channels.



In August, Maintenance staff installed a **replacement diesel fuel storage "day" tank** for the Cummins emergency generator. This tank is meant to provide an initial 55 gallon fuel source when a power failure occurs. As the emergency generator begins to supply power to the Agency, an electronic fuel pump inside this tank ensures a steady supply of diesel is fed from the main 5000 gallon bulk diesel tank to the emergency generator. The original day tank was 28 years old and subject to intermittent failures as it reached the end of its useful life. Pictured, far right, is the replacement of the old fuel tank.



Operations staff is replacing the **fine bubble diffuser** (left) membrane's in Aeration Basins 1 & 4. Aeration basins 2 & 3 will have their membranes changed out as soon as the gate and pipe requirement work is completed in Tanks 1 & 4 and these tanks are brought online.



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## FALL 2012

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## What's Happening Now...

### Planned Shut Down

A successful planned collection system and treatment plant shutdown was the result of a concerted effort between Central Marin Sanitation Agency (CMSA), Ross Valley Sanitary District (RVSD) and San Rafael Sanitation District (SRSD). The JPA member agencies had been meeting monthly since July to plan and prepare for the isolation of their respective collection systems. On September 6th, at 12:00 a.m., the RVSD, SRSD, and SD#2 collection systems and the San Quentin pump station were simultaneously shut down to allow CMSA staff to perform valve replacement work on the South Francisco Force Main, calibrate the influent flow meters, perform assessment work in the aeration basin gates, and permanently isolate a no longer utilized chemical injection line attached to the San Rafael interceptor. SRSD and RVSD staff performed maintenance work on their system during the shutdown also.

The South Francisco Junction Box (SFJB), where a majority of this work occurred, contains a 48" interceptor isolation valve, the 10" valve scheduled for replacement, a chemical injection line (now



Abandoned Chemical Injection Line



New San Rafael Force Main Isolation Valve



New 4-inch Vault Sample Line

abandoned). San Rafael Sanitary District provided one of the two pumps required for dewatering the

approximate 40,000 gallons of water within the pipe and CMSA provided the second pump. Water from this isolated section of pipe was pumped from the SFJB and San Rafael flow meter vault up and into the CMSA Headworks around the project work area.

Pictured ; 2) new San Rafael Force Main Isolation Valve; 3) Abandoned Chemical Injection Line; 4) New 4-inch Vault Sample Line

## Central Marin Sanitation Agency



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Contingency pump

## Capital Improvement Projects

### Digester Improvements



The new membrane cover, above, was installed onto Digester No. 1, and the startup—testing all its controls, filling it with digester gas, and preparing the digester for restarting—will begin soon. The cover is two membranes, an inner gas holder and an outer cover that protects the inner gas holder from the elements and provides controlled air pressure for the gas storage system. Once the cover has been started up and filled with digester gas from Digester 2, Digester 1 will be ready for restarting. Digester restarting involves removing 2/3 of the reclaimed water it was filled with for cover installation, partially refilling it with active sludge, starting the new pump mixing system, bringing the system up to operating temperature, and topping it up with fresh primary and secondary sludge. Digester No. 1's feed rate will be gradually increased during restarting until its digestion and gas production are stable, and it's receiving all of the Treatment Plant's sludge. Once Digester 2 is no longer being fed, it will be ready to be dewatered, so GSE Construction, the prime contractor, can install its pump mixing system and cover. The Agency is investigating the possibility of installing a third mixing pump, to provide full redundancy for this critical process component.

**Hydrogen Sulfide Scrubbers** The new hydrogen sulfide (H<sub>2</sub>S) scrubbers have been built and started up. Their 7-day operational test was being performed in early September, and the test was successfully completed. The new scrubbers use a non-hazardous medium to remove hydrogen sulfide from the biogas.

**Aeration Blower Replacement** CMSA utilizes blowers to send air through the Aeration Basins as an oxygen source for the activated sludge treatment process. We replaced two of the four original constant-speed blowers at the plant with new 150-hp variable speed turbo blowers. The remaining two blowers will be used only for backup purposes. The two new blowers were delivered on site in June, Western Water Constructors, the

project's general contractor, completed the blowers' installation in July, and the manufacturer performed the equipment startup in August. Final control integration is due to be completed in September. The new blowers will provide an energy savings because their speed can be adjusted to provide just the right amount of aeration to match the fluctuating activated sludge's



biochemical oxygen demand (BOD) levels. Because of the projected savings, PG&E has approved a conservation incentive rebate of \$28,310 through their energy rebate program.

### Reclaimed Water System Improvements

This system provides reclaimed treated effluent for process-related uses, reducing potable water usage, and providing cooling for the cogen engine. Recent condition assessments indicated the hydropneumatic tank, strainers, and pumps are at or nearing the end of their service lives and need to be refurbished or replaced. New technologies, such as the new Headworks filter screens and the pump and washdown monitors for CCTs 5 and 6, have changed the need for reclaimed water at various locations in the Plant. In June, the Board awarded the design contract for this project to Carollo Engineers. Carollo conducted site visits, reviewed record drawings and reclaimed water usage data, and provided the 50% design submittal for Agency review. The Agency's project team met with Carollo in early September to provide comments and direction to complete the final design, with construction contract award targeted for the November Board meeting.

### Primary Clarifier Improvement

The submerged steel surfaces in two primary clarifiers are being cleaned and recoated. Recoating is scheduled to be completed by Euro Style Management in early October.



## Finance News

**FY 2011-12 Budget Performance :** As of June 30, 2012, the Agency received 95% of budgeted operating revenue and incurred 95% of total budgeted operating expenses. The Capital Improvement Program was at 81% of budget. The Revenue Bond Program was at 96% of budget and included \$2.2 million in contractual obligations associated with the Digester Improvements/FOG Project, Aeration Blower Replacement Project and other minor capital projects. The remaining budget balance of \$2.7 million represents Revenue Bond funded activities for FY13.

**CAFR & PAFR Awards :** The Government Finance Officers Association (GFOA) awarded CMSA the Certificate of Achievement for Excellence in Financial Reporting for its FY 2010-11 Comprehensive Annual Financial Report (CAFR). This marks the tenth consecutive year the Agency has received this recognition. The GROA also awarded the Agency its second Award for Outstanding Achievement in Popular Annual Financial Reporting for its FY11 Popular Annual Financial Report, which is a document designed to be an easily understandable financial presentation that provides greater appeal to the general public and others without a background in public finance. Effort is underway to prepare the FY11-12 CAFR and PAFR for the Agency. These reports will be available once the Agency's FY12 Financial Statements have been audited by its independent auditor and accepted by the CMSA Board. The FY10-11 CAFR and PAFR are available at [www.msa.us/finance/budget](http://www.msa.us/finance/budget).

### Internal Control Audit



The Agency's new auditors, Chavan & Associates, conducted an internal control audit of Agency financial transactions in July. The audit evaluates staff compliance with Agency policies and procedures: bidding, contracting, and purchasing; salary/benefits; accounts payable and receivable; banking and other areas affecting financial integrity. Personnel files are randomly chosen for review of hiring process and salary administration, and selected financial transactions from payroll processing, disbursements, bank deposits, and contract execution are reviewed to determine if staff followed proper Agency policy and procedures. Chavan issued a letter to management indicating there are "no material weaknesses" with the Agency's internal controls. In early September, Chavan conducted the financial audit and prepared the Agency's financial statements for the fiscal year ending June 2012. The auditor's report on the FY12 financial statements will be presented to the Board in November 2012.

### Environmental Services

The CMSA lab recently went through the stringent accreditation process necessary to meet the requirements set forth in its NPDES permit in order to perform permit compliance testing. All of the analysis results were well within the control limits and were reported to the Environmental Lab Accreditation Program, the State Water Board, and EPA. The lab is performing lagoon monitoring samples for the Town of Corte Madera (lagoon, pictured right) to make sure the waters are safe for recreational use.



CMSA operates four odor control facilities in the Central Marin collection system that inject calcium nitrate into the system to control odors. The summer months are always busy. The low flows and warm temperatures result in the formation of hydrogen sulfide in the sewers. By monitoring the levels in the nitrate facility (pictured left), the appropriate amount of calcium nitrate can be added to prevent its formation and reduce odors.

For public outreach, the biggest even of the year for Environmental Services is the Marin County Fair. Five days of constant excitement meant over 2,340 environmental quizzes were given. Fairgoers answered questions about dioxins, polychlorinated biphenyls, cyanide, pharmaceutical disposal, mercury, and fats, oil and grease (FOG). Pictured, right, is Environmental Services Manager Rob Cole talking with kids at the Fair about preventing pollution.

The FOG program continues with inspections of the restaurants in Central Marin and Tam Valley, and we are updating our FOG databases with the substantial number of new restaurants, changes of ownership, and remodels that have occurred this year.

