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# CMSA Newsletter

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Central Marin Sanitation Agency

September 2004

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## **GENERAL**

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### **PG&E GRANT**

Our deadline for meeting the PG&E Self Generation Incentive Program's rebate requirements was September 20, 2004. The PG&E program manager had previously indicated that if our incentive claim package was "substantially" complete, they would accept it, especially given the unique circumstances surrounding the progress of our project and how the significant delays were beyond the control of CMSA. Substantially complete was informally defined as submitting most of the program's six documentation requirements.

We submitted the Incentive Claim Form package the prior Friday, September 17th. The package included our Permit to Operate from the Bay Area Air Quality Management District; an exemption letter from the building permitting process from the City of San Rafael; a maintenance coordination letter stating we will not perform routine maintenance during PG&E's peak energy demand period; proof of project payments to contractors, the design-engineer, and other service providers; and proof of a 3-year extended warranty for the engine-generator. The one document that we did not have is the interconnection agreement from PG&E, however, we provided a detailed summary of what we have done to acquire the

agreement, which is forthcoming. Also, since the project is not complete, there are outstanding payment obligations, most significant of which is the \$655K for the engine package.

The good news...PG&E has sent correspondence stating they have accepted our incentive claim package and that we have met our reservation deadline!! They have requested some additional information to be included in a supplemental claim package, and understand it may be awhile before our Board accepts the project as complete and we provide the final project information.

### **Tom Rose's Retirement**

Tom Rose, our staff engineer, will be retiring on October 7<sup>th</sup>, 2004. Tom has spent most of his career at CMSA with 21 years of service. He has either managed or been significantly involved in all of our major facility improvement projects since CMSA began operation in 1985. More recently, Tom's successful management of the cogeneration project was instrumental in our obtaining the PG&E grant (above). Tom has agreed to help out on special projects and the training of our new engineer after his retirement.

### **MMWD Desalination**

MMWD is completing a proposal evaluation process to select an engineering consultant to design, build, and operate a pilot desalination plant. The pilot plant will be located near the Marin Rod & Gun Club in San

Rafael, and be operated for up to one year. During this period, the performance of different pre-treatment filtration systems will be evaluated, and the quality of the brine and potable water products will be measured. The information learned will be used to enhance their EIR and potentially be used to make design decisions if the project moves forward.

Six proposals have been received by MMWD and a selection will be made at their October 6<sup>th</sup> board meeting.

MMWD has requested that we consider accepting the sludge from the pilot plant's pretreatment systems for disposal at our treatment plant. We accepted the filter sludge from the 1990 pilot plant with no impact to our NPDES permit or our biosolids requirements. Staff has reviewed the 1990 data and MMWD's predictions for disposal volumes and frequencies for the current plant, and determined that we could accept the sludge without operational or permitting impacts.

### **Strategic Business Plan**

We are well underway in the implementation phase of our strategic business plan (SBP). Our internal planning committee has collaborated with staff to prepare the draft strategic actions for each of the SBP's objectives, and have participated in an implementation workshop with Red Oak Consulting. During

the workshop the draft actions were reviewed, training was provided on how to write the strategies in an implementable action based format, and the process to complete the implementation phase of the SBP was thought out and agreed to by the committee.

A detailed schedule of meetings over the next few months has been prepared. At each meeting the planning committee will finalize each objective's actions by establishing who is responsible for action, determining what the resource needs are to successfully complete the action, and estimating a time frame for completion. One Goal's objectives will be the focus of each meeting. Department managers will be meeting with their staff after each meeting to update them on the progress and solicit input for the committees consideration. Red Oak's role during this phase will be to review our work product after each meeting to provide constructive feedback.

We anticipate having a draft plan completed by December for presentation to the Commission, and a final SBP ready for adoption at the January Board meeting

### **Regionalization**

Red Oak has started the Phase 1 work for the Regionalization Study, which will assess the inherent strengths and weaknesses of the current JPA governance structure. They have received most of the requested information from our member agencies and have

scheduled field visits with the member agencies and interviews with their staff for early October. This information will form the basis for the Phase 1 report that will be presented to the Board at their November meeting.

### **Security-Open Space Inspection**

As reported in prior CMSA newsletters, CMSA staff had reported they had seen homeless persons walking on trails located on CMSA's open space property. Following an inspection by Officer Mark Hedeem of the San Rafael Police Department and CMSA staff, various follow-up activities were identified and several have completed as previously reported. One activity that was completed in September was the trimming of the high grass located around the v-ditches that run parallel to Andersen Drive. Officer Hedeem had recommended that the high grass around the v-ditch be trimmed as the tall grass allows homeless persons undetected use of the ditch, as a trail. The Agency contracted with a local landscaper to complete the work and the v-ditch is now clearly visible to persons driving/walking past the CMSA property on Andersen Drive.

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## **CAPITAL/ ENGINEERING**

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### **Engineer Recruitment**

The recruitment to fill the engineering vacancy created by Tom Rose's retirement is coming to a close. We have offered the position to Ken Katen, a licensed civil engineer, who currently works for the Regional Water

Quality Control Board. Ken has been Marin County's area engineer for the Regional Board for several years and has written some of the NPDES permits for the local treatment facilities. Ken has accepted our offer and will hopefully start at CMSA in mid-October. Ken's strengths are in project management and hydraulics, and he will be an asset when we have to develop negotiating strategies for our permit renewal with the Regional Board.

### **Capacity Study**

Staff has met with Carollo Engineers to begin negotiating the scope of work and fee for the Capacity Management Alternative Study. The study will be performed in two phases. The first is the determination of maximum influent flows for 2, 5, 10, and 20 year storm events, and performing a hydraulic analysis of the treatment plant. The second phase is developing wet weather flow storage and management alternatives for a design storm event (i.e 10 year storm) and conducting a cost/benefit analysis of each.

We have added two elements to the Carollo proposed scope, included a couple workshops with our member agencies to share information at key junctures in the studies development, and added an additional Board presentation after the Phase 1 work is complete. The first scope addition is an analysis of each unit process to determine what is the maximum treatment level under design conditions during peak wet weather flows. The

results will indicate what flowrate causes a significant decline in the treatment ability of each process, and will identify possible means to increase treatment above the maximum flowrate. The second scope addition is investigation of upstream storage in the collection system and the necessary interfacing with local governments to determine potential siting and feasibility.

The scope and fee should be finalized in the next couple of weeks, and a kick-off meeting will take place in mid-October. We are targeting a fee near our FY05 budget of \$200,000.

#### **Co-generation**

This was going to be the week of the 'big toaster,' but unfortunately we were unable to make much toast. After some fits and starts, the engine vendor was able to get the engine running under load with natural gas. There was a small but significant mechanical problem with an object called a stepper motor that was not revealed until late in the game. The engine manufacturer, Waukesha-Dresser-Halliburton, regulates the amount of fuel that the engine gets (and therefore the amount of "load" it can carry) with the stepper motor that positions a gas regulating valve that in turn controls the amount of fuel going to the engine.

The term "load" is used here to describe the power that is generated and used. In our case, the engine is not yet connected to either the plant or utility. In order to test the engine under load we have to provide a place for the electricity to be used, so we hire

a specialized company that rents a resistive load aka "toaster", that is hauled around on a trailer. In this case, we are renting the toaster from a company called Cummins West.

Putting the engine under load test is a pre-requisite to connecting up to the utility and generating power. We were delayed in getting to this point by an O-ring which the manufacturing giant Waukesha-Dresser-Halliburton had installed on their stepper motor to prevent the intrusion of condensation along the motor's shaft. It was after the Stewart and Stevenson field technicians had spent ten working days trying to solve what they thought was a complicated control wiring and circuitry problem, that Waukesha's engineers acknowledged there was a problem with the newly adapted O-rings that caused them to bound up with the shaft and prevent full rotation of the shaft. They had apparently installed the O-rings and not tested them. Both stepper motor shafts shipped to CMSA had the O-rings and both became bound-up when rotated. The solution was to remove the O-rings. After that the shafts rotated freely and the stepper motors worked fine.

With that correction, the load tests were scheduled for Friday September 24<sup>th</sup>. Unfortunately, other problems caused the engine's protective circuitry to trip the engine breaker and load testing did not succeed. Stewart and Stevenson technicians managed to borrow the load test unit for the weekend and did solve the remaining problems with their controls and protective circuitry, but then ran into limitations of inadequate utility gas pressure and could not generate power above

325 kilo Watts. Arrangements with the PG&E have been made to increase the delivered gas pressure. When that takes place (hopefully this week) the load testers can return and we can proceed with demonstrating that the engine can generate 750 kilo Watts.

Beyond load testing we still have a number of benchmarks to pass. In particular the pre-parallel test. After that is accepted by PG&E we are free to connect the generator to the facility's electrical system and parallel with the utility, which will allow us then to complete development of the digester gas fuel system.

That is the short story. The long story includes more such as alarm signal and control loop checks, integration with the plant control system, start-up of the siloxane removal system, and finally the training of CMSA staff - all of which should keep us and the contractors busy into the first few weeks of November.

#### **Primary Clarifier Coatings**

Another summer and another coating job nearly complete. F.D. Thomas has done a very thorough job on three of our primary clarifiers. They have shown a great deal of professional concern about how to proceed with the work, and been flexible in treating bad coatings not detected by our inspections while leaving coatings alone that we had thought needed treatment, but which proved to be in good shape. They have completed their work on two of the clarifiers thus freeing them up for wet weather service and are working on the final clarifier, primary clarifier no. 1. At the beginning of

the summer we were uncertain as to whether or not the contractor would be able to complete all three clarifiers. They added additional equipment and personnel and were able to meet our needs. We anticipate the work to be complete in early October with acceptance at the October 12<sup>th</sup> Commission meeting.

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## **BUSINESS SERVICES**

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### **Contracts**

We have a contract with Polydyne, Inc. for the supply of mannich polymer for use in sludge thickening and sludge dewatering. Polydyne, Inc. informed us on September 20, 2004, that they are going to shut down their facility in Contra Costa County, which produces our specific blend of mannich polymer, effective November 1, 2004. Polydyne, Inc. is working with CMSA to find an alternative polymer product within their remaining mannich or emulsion product line. They will be on-site within the next week to perform polymer testing in an attempt to identify a product that will meet our performance requirements at a comparable unit cost.

Unfortunately, this is a bad time to be looking at other polymers (dry or emulsion) because there is a worldwide shortage of a key ingredient of most polymers, acrylic acid. This is limiting availability of polymers and pushing the prices up ~20%. In spite of this, we will be looking at these polymers because the alternatives from Polydyne may not work. Other

agencies facing the same dilemma are Santa Rosa and Contra Costa Central Sanitation District.

CMSA has historically not had great success with other formulas of polymer from Polydyne, Inc. or other suppliers. If Polydyne is unable to supply an acceptable alternative, the contract could be terminated with a thirty day notice without prejudice per contract termination provisions. If the polymer supply contract with Polydyne, Inc. terminates, emergency negotiations will ensue with alternative suppliers of polymer.

### **Asset Management**

Everybody says you need one... but why do we need a Computerized Maintenance Management System (CMMS)? Originally maintenance records were kept on 3x5 cards or in 3 ring binders, now computerized systems allow an even greater level of detail to be stored and various tasks, and inventory to be tied together to improve tracking and to improve predicting future costs. This power makes full implementation of a CMMS critical to our asset management program. Good Asset Management is a critical part of continuing to meet our mission. CMSA has selected and purchased the Maintenance Connection CMMS. Business Services is leading the implementation. Obviously this will also require a huge commitment of time and effort by O&M to switch over and to take advantage of all the modules of the new program (such as work order control, preventive maintenance, and inventory control). Business Services is

entering all our equipment into the data base.

The CMMS is progressing with roll out of the corrective maintenance (Work Order) module scheduled for 10-14-04. Population of the software databases has been slower than expected and continues to be a time consuming effort. Each data point is manually retrieved from various electronic and paper sources, collated, and entered into the new system. The new corrective maintenance system is replacing an older internally written program that lacked the integration capabilities required of a comprehensive CMMS. With the rollout of this first module, CMSA is continuing towards its goal of implementing a highly efficient and developed asset management system.

### **Human Resources**

On an annual basis, the Agency performs a review and update of the Personnel Policies and Procedures Manual. The review & update took place in September which consisted primarily of providing clarity and consistency to already existing policies and procedures. Many of the updates are provided by our Administrative Assistant, Kathy Britton, as she maintains a list of proposed revisions identified throughout the year. As a pre-requisite to completing the modifications, the updates were reviewed with the MAPE Local 949 representatives and approved by the Agency's Board. The policies have now been revised and distributed to staff. Department managers will be training staff on the adopted changes.

## **OPERATIONS & MAINTENANCE**

### **Maintenance Position Recruitment**

A maintenance position has been vacant since the untimely death of Tom McMillan. Through internal recruitment we promoted Mike Gardea to fill Tom's position. We have now started a recruitment to fill the vacancy created by Mike's promotion in our maintenance department. The job description for the new classification, mechanical technician, was recently approved by MAPE and the CMSA Board. Koff & Associates, an HR consulting firm, is managing the recruitment and will be assisting Joe Smith, our maintenance supervisor, to set up the advertising and an interview panel for the recruitment. The process including advertising, application review, interviews, selection and processing will run until the end of November.

### **Dissolved Air Floatation**

The Maintenance department has completed the overhaul of the DAF (dissolved air floatation) Tank #1. The two dissolved air floatation tanks are used to thicken secondary solids wasted from aeration, prior to feeding to the digester. Since secondary solids are lighter, the DAF's use air to float most of the solids, which are skimmed by a top collector. The rebuild of this unit replaced the chain on both the top and

bottom collectors, the top guide rails, shoes, rollers and bearings. This rebuild extends the life of this asset by years.

### **Getting Ready for Flu Season**

Like colder weather weakening everyone for virus attacks, internet connections are always openings for virus attacks on our networks. This can have huge impacts at CMSA because most of our systems have some cross connectivity on our network. The firewall protecting CMSA's networks was updated with new firmware by I/E this month. This will help keep our system healthy through "flu" season. The old firmware had some minor security flaws that were fixed in the new release along with some enhancements that will allow us to have better control over traffic in and out of the Plant's networks.

### **Pump Station Maintenance**

The Electrical / Instrumentation staff have been in the field doing preventive maintenance on the Belvedere Pump Stations and the Corte Madera Pump Stations. These PM's should be completed by the end of the month. These PM's allow us to find problems and make repairs before they became emergencies, helping ensure reliability in through winter.

### **CMSA.US**

CMSA's web site has been updated allowing staff to more easily administrator the content. The site is kept up to date and, with these changes, it will be even easier to maintain. Take a look!

### **Go GIANTS!**

Sunday afternoon, September 19<sup>th</sup>, the CWEA Redwood Empire Section sponsored a day to see the Giants at SBC Park. The Section offered Giant's tickets at a reduced price. This was a great way to have a tailgate party, see the Giants and Padres play, and bond with other members and family. Although it rained that morning the weather cleared and the following CMSA employees enjoyed the game: Jenny Bender family, Antonio Barros family, Joe Smith family, Rob Cole and Doug Miller family. Thanks to Rob Cole for organizing this and to the Giants for winning (4-2)!

**Cogeneration O&M**

The new Waukesha cogeneration unit is creeping closer and closer to full operation. Last Month's PG&E bill (all purchased power no generation) shows the cost of no cogeneration; the bill was \$50,544, approximately \$30,000 more than when cogen is on.

As noted previously, CMSA will send two mechanics to Waukesha's training center to learn maintenance of the new unit in class and hands-on. Mike Gardea will go the first week in October (he will see fall colors outside the classroom) and Lou is scheduled for December (he expects the cold weather will keep him indoors close to his books).

Operations has assisted the contractors with purging the natural gas line and lining up natural gas valving for testing. Operations has also assisted with the final tie-in of the hot water loop which enabled the contractor to demolish the old heat exchanger system in the boiler room.

Thanks to the Instrumentation/Electric shop for extensive support work done to help finish this contract.

**O&M Teamwork**

Operations and maintenance worked quickly and efficiently together in replacing the diffuser membranes in aeration tanks #1 and #2. Aeration Tank #2 was put in service this month and the new diffuser membranes are providing better oxygen transfer rates in both 1&2 aeration tanks. As

part of the A&B and CAMS program, the operations department is performing periodic volume and pressure readings on the aeration system in order to determine when diffusers will need to be replaced and the cost effectiveness in doing so.

Operations and maintenance carried their teamwork from the aeration tanks over to the primary clarifiers. They have been removing and replacing the weir plates for the contractor that is blasting and recoating the metal troughs and pipes. Good progress has been made, tanks #2 and #3 are done. The weir plates have been removed from tank #1 and the contractor is sand blasting. We expect the coating to be done shortly and all tanks will be returned to service for wet weather.

**Centrifuge Performance Work Plan**

The centrifuge work plan was completed on September 21, 2004, with the help of Jean St. Louis conducting the majority of the operation. Numerous parameter settings were sampled and tested in an effort to find the optimal performance settings for the new centrifuges. We are currently compiling and reviewing the data from that study. The initial results from the study show that increased performance was realized through better mixing (additional dilution water showed this) and an increased amount of ferric. Thanks go out to the lab personnel for their attention to detail during the testing of numerous samples that were run during the study.

**State Wastewater Operator Certification Review**

A number of operators have been preparing for the fall Wastewater Certification test that takes place the first Saturday in October (the 2nd). Good luck to all that will be taking the test. I'm sure congratulations will be in order and documented in the next newsletter!

**Stepping Up**

Continuing thanks to Byron for helping out while Sanova is off. Byron is handling the Administration building and the plant grounds.

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## **ENVIRONMENTAL SERVICES**

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**NPDES Testing**

The NPDES testing we performed at CMSA in August was in compliance with our permit requirements. The metals results for September have not been received from the commercial laboratory. Our September testing included Section 13267 of the California Water Code that requires CMSA to perform semi-annual sampling of all 126 priority pollutants and some additional sampling specific to sewage treatment plant effluent dischargers.

**Laboratory**

We have submitted the data for our bacteriological unknown quality control samples that we submit to the Environmental Laboratory Accreditation Program (ELAP) in order to maintain our certification to test

for bacteriological analysis on wastewater. Last month we received notification that we had passed all of our chemical analysis certification samples. We will have to wait till November to find out the results of the bacteriological samples. The study data must be turned in by October 22 and then they evaluate all of the data they receive and statistically develop the quality control limits based on the results they receive and the analysis of the certified unknown sample provider.

In order to maintain certification to test wastewater, environmental laboratories must analyze performance evaluation samples of unknown concentrations. We have to find out how much of a specific compound the sample contains within narrow control limits. We are required to submit our chemical testing results to the EPA and ELAP. If we achieve the high level of accuracy required we only have to analyze one set of samples for each regulator (EPA and ELAP) a year. If we do not meet the required confidence interval, we must submit a letter with the reason why we did not achieve the required results, what we have done to correct the problem, and re-analyze additional samples. Each classification of testing such as drinking water, wastewater, and hazardous waste requires certification testing and each field of testing requires analysis of a set of samples (including chemical, bacteriological, organic, inorganic, radiological, specialized research, in both liquid and solid matrices). For

CMSA, we are certified for wastewater covering chemical analysis and bacteriological analysis. Commercial labs have sets of samples for each classification and each field of testing requiring almost a continuous certification process.

#### **Bioassay Test**

Every month we are required to perform a 96 hour bioassay that runs continuously from Monday to Friday. The purpose of this test is to assess the effects of our effluent on the survival of rainbow trout. In September, we experienced a problem with the control water samples in our flow through acute bioassay testing. We have two tanks of our effluent containing 10 rainbow trout in each tank, where our effluent flows through for a minimum of 96 hours. We are also required to run two flow through control tanks containing 10 rainbow trout in each tank with tap water flowing through. The purpose of the tap water is to mimic the test conditions experienced by the fish in the effluent tanks and see if there is any test condition that might cause fish death, such as temperature. According to the EPA Methods we must have at least a 90% survival in our control tanks to be able to use the bioassay for NPDES compliance monitoring. On Wednesday September 8<sup>th</sup> we had 85% survival in our controls and had to end the testing even though we had 100% survival in our effluent.

We called MMWD to see if they had changed any of the chemical additions to the drinking water supply that may have affected the survival of our fish in the control tanks. We were told that

nothing had changed with our water supply. The potable water is treated with activated carbon filtration to remove the chlorine, which is very toxic to the young fish. New fish were reordered, the activated carbon cartridges were changed, and the bioassay ran the following week. We had 100% survival in our effluent and our control tanks.

#### **Biosolids**

Land application continued during the month of September and we expect to land apply our biosolids till the end of October. We sent out our comprehensive semi-annual biosolids samples for testing that is required for landfill regulatory compliance. Twice a year comprehensive metal and organics testing is required to dispose of our biosolids at a landfill site for alternate daily cover. The results are sent to Redwood Landfill in order to meet their acceptance standards.

#### **New Industrial Waste Inspector/Laboratory Technician**

We have begun training of our new industrial waste inspector and laboratory technician. Devina Douglas accepted our offer of employment and began working at CMSA on August 23. Ms. Douglas has a BS Degree from Cal Poly San Luis Obispo in Microbiology and more than two years experience working for the City of San Luis Obispo in the wastewater laboratory and doing outside environmental monitoring. Her strong background in laboratory analysis at a wastewater

treatment plant has been as asset in understanding the sampling and laboratory analysis we perform at CMSA. She is currently training in our industrial waste program and will also be assisting CMSA in inspections for the pollution prevention program with Las Gallinas Valley Sanitary District.

**LGVSD Assistance**

We have trained the LGVSD laboratory person on Fats, Oil, and Grease (FOG) inspections and on usage of the inspection checklist we developed. We are currently in the progress of a blanket inspection program of all of the food service establishments in the LGVSD service area.

**SASM Assistance**

We have loaned our hydrogen sulfide meter to Sewerage Agency of Souther Marin to perform an assessment of low level hydrogen sulfide testing around their plant and to do some perimeter odor monitoring. They paid for calibrating the meter, which is suggested by the manufacturer on an annual or semi-annual basis. The calibration required replacement of a gold foil sensor that is used to concentrate the hydrogen sulfide and achieve the extremely low, parts per billion, analytical capabilities of the meter. We were required to do perimeter and plant monitoring in our previous permit which ended in 2001, and we currently use the meter for odor monitoring and complaints.

