

## **AUXILIARY STEAM BOILERS NOS. 1 AND 2 (S-7 AND S-8)**

Both auxiliary boilers were operated on either natural gas (NG) or landfill gas (LFG) during the year. The NG and LFG flow meters for S-7 and S-8 were operable for the entirety of 2012, and the hourly data was collected and electronically archived. The rolling, three-clock-hour, average, first-pass temperatures for S-7 and S-8 were above the minimum temperature of 770 degrees Fahrenheit when firing LFG 100 percent of the operating time during the reporting period.

The annual maintenance on S-7 and S-8, which includes auxiliary boiler shut-down, internal inspection, needed repairs, and annual burner tuning, was completed in December 2012. The annual source test for S-7 (BAAQMD NST-2782) was completed on December 12, 2012. The final source test report is in progress, but preliminary results show S-7 was in compliance.

S-8 was retrofitted to meet the new nitrogen oxides (NO<sub>x</sub>) emission limit of 15 ppmvd NO<sub>x</sub> at 3 percent oxygen (O<sub>2</sub>) when firing natural gas. An Authority to Construct Permit No. 24448 was issued on July 31, 2012. The burner retrofit for S-8 was completed in early December, and the annual source test and compliance demonstration source test (BAAQMD NST-2783) was completed on December 6, 2012. The final source test report was received on December 28, 2012, from Blue Sky Environmental, Inc., and was submitted to BAAQMD on January 3, 2013.

Both S-7 and S-8 continue to meet the BAAQMD requirement for at least one inch of insulation on all exposed, external surfaces of each boiler, except for any surface or appurtenance that must remain un-insulated for safety or operational reasons.

The LFG hydrogen sulfide (H<sub>2</sub>S) concentration for calendar year 2012 ranged from 32 to 44 ppmvd. Using 44 ppmvd H<sub>2</sub>S, the maximum exhaust gas sulfur dioxide (SO<sub>2</sub>) concentration for S-7 and S-8 was 7.3 ppmvd corrected to three percent O<sub>2</sub> dry, which is significantly below the permit limit of 300 ppmvd SO<sub>2</sub>. The NG total sulfur concentration for the year ranged from 0.237 to 0.346 grains sulfur per 100 cubic feet of NG in accordance with Pacific Gas and Electric's (PG&E's) Rule 21 – Transportation of Natural Gas. Using the 0.346 grains of sulfur per 100 cubic feet of NG, the maximum exhaust gas SO<sub>2</sub> concentration was 0.55 ppmvd SO<sub>2</sub> corrected to three percent O<sub>2</sub> dry, which is significantly below the permit limit of 300 ppmvd SO<sub>2</sub>. There were no Title V Deviations or BAAQMD Reportable Compliance Activities for S-7 and S-8 during the reporting period.

## **MULTIPLE-HEARTH FURNACES (S-9, S-10, A-1, A-2, A-3, A-4)**

Multiple-Hearth Furnace (MHF) No. 1 (S-9) operated until January 23, 2012, when it was shut-down for annual maintenance. MHF No. 2 (S-10) was started on January 18, 2012, and operated until November 2, 2012, when it was shut down for annual maintenance. S-9 was started on October 23, 2012, and operated the remainder of 2012.

S-9 and S-10 did not exceed the permit limit of 20 percent opacity for more than an aggregated period of 3 minutes in any single clock-hour as detected by the opacity Continuous Emission Monitoring System (CEMS).

The combined biosolids feed rate to S-9 and S-10 did not exceed the daily maximum of 120 dry tons per day. During the 12-month reporting period, Central Contra Costa Sanitary District (CCCSD) had a maximum 12-month cumulative biosolids feed to the furnace of 15,097 dry, short tons, which is less than the 12-month rolling limit of 20,000 dry, short tons per year.

Biosolids (sludge cake) solids content is measured once per day on a 24-hour composite sample. The volatile fraction of the cake solids is measured daily. The volatile content varies slightly from day to day, depending primarily on the amount of lime added for potential hydrogen (pH) control.

The auxiliary fuel (LFG or NG) feed rate to S-9 and S-10 did not exceed the auxiliary fuel feed rate limit of 27 million Btu per hour during the reporting period.

The rolling, three-clock-hour, average temperature on Hearth No. 1 for both furnaces was above the 1,000 degrees Fahrenheit minimum limit 100 percent of the time when co-firing LFG and biosolids. Temperatures on Hearths Nos. 1 through 11 for both S-9 and S-10 have been recorded hourly and electronically archived during the reporting period.

The Permit-to-Operate requires reporting of the total time the average pressure drop across the furnace wet scrubber is below 5.9 inches of water column for S-9 and 4.7 inches of water column for S-10. The pressure drop in S-9 was above the reporting trigger level 100 percent of the time during the reporting period. The pressure drop in S-10 was above the reporting trigger level 99.9 percent of the time during the reporting period.

The Permit-to-Operate requires reporting the total time the O<sub>2</sub> concentration on Hearth No. 2 exceeded the Permit-to-Operate maximum limit of 10 percent O<sub>2</sub>. The oxygen concentration was below the 10 percent O<sub>2</sub> reporting threshold for 99.9 percent of the time during the reporting period.

The annual non-methane organic carbon (NMOC) and SO<sub>2</sub> source test for S-10 (BAAQMD NST-1874) was conducted on February 28, 2012, as well as March 20 and March 27, 2012. The source test results were submitted to BAAQMD on May 10, 2012. The source test results showed that the S-10 stack NMOC concentration averaged 8 ppmvd, at three percent O<sub>2</sub> when co-firing biosolids and LFG. The permit limit for NMOC is 120 ppmvd, dry at three percent O<sub>2</sub> co-firing biosolids and LFG. There is no NMOC limit when co-firing biosolids and NG.

The source test results showed that the S-10 stack SO<sub>2</sub> concentration averaged three ppmvd at three percent O<sub>2</sub> when co-firing biosolids and LFG and three ppmvd at

three percent O<sub>2</sub> when co-firing biosolids and NG. Both of these are well below the 300 ppmvd permit limit for SO<sub>2</sub> for all fuels.

#### **CENTRIFUGE AND CAKE HOPPERS (S-24, A-14, A-15)**

S-24 only operated when being abated by A-14 or A-15.

#### **GASOLINE DISPENSING FACILITY (S-25)**

The throughput records for S-25 are recorded monthly. Total gas dispensed for calendar year 2012 was 689 gallons. This is considerably less than the limit of 400,000 gallons in any consecutive 12-month period. S-25 passed the annual pressure decay test (ST-38), the annual dynamic back pressure test (ST-27), and the annual Vapor Recovery Inspection on April 5, 2012. To meet the new California Air Resources Board (CARB) standards for above ground storage tanks, Mr. Darin Reinholdt of Reinholdt Engineering Construction installed a compliant standing loss control system to the 2,000 gallon gasoline storage tank on August 13, 2012, well prior to the compliance date of April 1, 2013. In order to continue compliant operation of S-25, CCCSD plans to:

- Install Phase I enhanced vapor recovery equipment by July 1, 2014
- Install Phase II enhanced vapor recovery equipment by January 1, 2016

#### **WASTEWATER TREATMENT PLANT (S-100)**

The wastewater flowrate into CCCSD's Treatment Plant never exceeded 53.8 million gallons per day during dry weather and 140 gallons per day average for any wet weather month. Required operating records are available on request.

#### **PRELIMINARY TREATMENT (S-110, A-23, A-24)**

S-110 only operated when being abated by A-23 or A-24.

#### **PRIMARY TREATMENT (S-120, A-120)**

S-120 only operated when being abated by A-120.

#### **SLUDGE HANDLING – DISSOLVED AIR FLOTATION THICKENERS (S-180, A-187)**

S-180 only operated when being abated by A-187.

#### **ASH CONVEYING SYSTEM (S-182, A-186, A-196, A-191, A-192)**

S-182 only operated while being abated by A-186, A-196, A-191, or A-192. A-186, A-196, A-191, and A-192 all have operating Mikro-Charge Leak-Gauges or equivalent.

A daily visual emission check is conducted on A-186, A-196, A-191, and A-192. Maintenance records are available upon request.

### **COGENERATION (S-188)**

CCCSD is required to operate and maintain a NOx CEMS on S-188. Zero and span drifts were checked daily while S-188 was in service and all were within acceptable limits during the entire period. S-188 was in compliance with the following permit limits:

- rolling three clock-hour average concentration limit of 42 ppmvd NOx corrected to 15 percent O<sub>2</sub>;
- single clock-hour average concentration limit of 154 ppmvd NOx corrected to 15 percent O<sub>2</sub>;
- 24-hour rolling clock-hour average mass emission limit of 118 pounds NOx;
- 365-day rolling average mass emission limit of 19.824 tons of NOx;
- new mass limit of 2.12 pounds of NOx per kW-hr of useful work output;
- 24-hour rolling clock-hour average mass emission limit of 157 pounds of carbon monoxide (CO); and
- 365-day rolling average mass emission limit of 26.376 tons of CO.

S-188 had an unexpected failure on March 29, 2012, and was out of service until October 8, 2012. Mr. William Hammel, BAAQMD Inspector, was on-site on August 27, 2012, to audit the performance of the NOx CEMS, but was unable to conduct the audit since S-188 was out of service. S-188 was back in service on October 8, 2012 and Mr. Hammel was notified. Mr. Hammel conducted the Relative Accuracy Test Audit (RATA) on S-188's NOx CEMS on October 12, 2012 and found no issues.

The NG feed rate to S-188 never exceeded 1,188 million Btu per day high heating value during the reporting period.

The NG total sulfur concentration for the year ranged from 0.237 to 0.346 grains sulfur per 100 cubic feet of NG in accordance with PG&E's Rule 21 – Transportation of Natural Gas. Using the 0.346 grains of sulfur per 100 cubic feet of NG, the maximum exhaust gas SO<sub>2</sub> concentration was 0.18 ppmvd SO<sub>2</sub> corrected to 15 percent O<sub>2</sub> dry, which is significantly below the permit limit of 300 ppmvd SO<sub>2</sub> dry.

CCCSD's first 2012 Title V Deviation and first Reportable Compliance Activity (RCA) occurred on November 27, 2012. The NOx CEMS on S-188 was taken off-line for preventative maintenance at 07:48 on November 27, 2012 and sent to the manufacturer for the required annual preventative maintenance. S-188 remained online while the NOx CEMS was being serviced. During that time, the ratio of injection water flow to fuel flow was monitored as a parametric monitor for NOx. Since the NOx CEMS was going to be out-of-service for more than 24 hours while S-188 was in operation, CCCSD filed an RCA Report with BAAQMD for an inoperative monitor at 11:52 on

November 28, 2012. The NOx CEMS was put back into service at 08:45 on December 5, 2012. The combined 10-day Title V Deviation Notification/30-day Title V Deviation Report was submitted to BAAQMD on December 6, 2012. BAAQMD determined that CCCSD complied with all reporting requirements and no enforcement action was taken.

**EMERGENCY STANDBY GENERATORS (S-195, S-196, A-1195, A-1196)**

The permit limits the testing and maintenance (T&M) run-time of S-195 and S-196 to 100 hours each per calendar year. In 2012, S-195 was operated for 28 hours for T&M and S-196 was operated for 16 hours for T&M.

S-195 and S-196 only operated when the particulate trap/catalyzed diesel particulate filters (A-1195 and A-1196) were in place.

Maintenance records for S-195 and S-196 are available upon request.

Finally, the leak detection system on the above-ground, 2,000-gallon, diesel, day tank was tested and passed on April 5, 2012.

**PORTABLE DIESEL ENGINES (S-194, S-198)**

S-194 is a 54 hp emergency diesel engine which drives a 6 inch centrifugal pump. The unit is used at various places in CCCSD's Treatment Plant where permanent pumps are not practical. S-198 is a new 58 hp emergency diesel engine which drives a 4 inch centrifugal pump. The following table summarizes location and operating times for S-194 and S-198:

<b>2012 Portable Diesel Engine Summary</b>			
<b>Source</b>	<b>Equipment Operated More Than 72 Consecutive Hrs?</b>	<b>2012 Maximum Rolling 12-month Non-Emergency Run Hour</b>	<b>2012 Total Emergency Run Hour</b>
S-194 - Deutz Model F4L912 (6" Gorman Rupp Pump)	No	3.9	0
S- 198 - Deutz Model T4A3-F3L1011 (4" Gorman Rupp Pump)	No	38.7	52.6

In mid-July 2012, S-198 was used for 52.6 hours to aerate water and pump algae off the water surface in a storage basin in efforts to prevent the emissions of hydrogen sulfide as well as nuisance odors. Mr. Peter Calimeris, BAAQMD Inspector, visited the Treatment Plant on September 20, 2012, to confirm that the 52.6 run hours qualified as emergency use and would not count towards the rolling 12-month, 72 hour limit. Mr. Calimeris confirmed that the run-time was emergency use, and CCCSD did not

have to file a RCA. A letter was sent to Mr. Calimeris summarizing the emergency use on October 11, 2012.

### **SLUDGE LOADING FACILITY (S-197)**

S-197 is designed for emergency sludge loading and since its completion in mid-2011; S-197 has handled zero tons of wet sludge.

### **TOTAL ORGANIC CARBON LEAKS - LFG SYSTEM AT CCCSD**

Total organic carbon (TOC) leak checks of the LFG process lines and piping at the gas metering yard are required at least once every quarter. Any reading over 1,000 ppmvd TOC as methane is considered a leak. When leaks are found, they are immediately repaired and retested for compliance. The date and results of each leak check are summarized below:

<b>2012 TOC LEAK CHECK SUMMARY</b>	
<b>Date of Leak Check</b>	<b>Number of Leaks Detected &amp; Repaired</b>
February 10, 2012	13 TOC leaks
May 16, 2012	3 TOC leaks
August 13, 2012	4 TOC leaks
November 26, 2012	3 TOC leaks

### **TOTAL ORGANIC CARBON LEAKS - LFG SYSTEM AT ACME LANDFILL**

Bulldog Energy Company, which manages the LFG distribution system for Acme Landfill, is required to check their landfill gas distribution line to CCCSD for TOC leak checks at least once every quarter. A reading of TOC greater than 1,000 ppmvd is considered a recordable leak and must be repaired as soon as possible. When leaks are found, they are immediately repaired and retested for compliance. The date and results of each leak check are summarized below:

2012 TOC LEAK CHECK SUMMARY	
Date of Leak Check	Number of Leaks Detected & Repaired
March 28, 2012	1 TOC leak
June 21, 2012	0 TOC leak
September 25, 2012	0 TOC leak
December 20, 2012	1 TOC leak

### FORKLIFT FLEET

CCCSD operates a fleet of seven forklifts. The average fleet emission is 1.9 grams hydrocarbon (HC)+NOx/kW-hr and is below the January 1, 2011, limit of 2.7 grams HC+NOx/kW-hr. The following table lists the unit and emissions for each forklift in CCCSD's forklift fleet:

CCCSD'S FORKLIFT FLEET SUMMARY				
Year	Make	Size	Controls	gms HC+NOx /kW-hr
1996	Kalmar AC	1.992 L	BlueCAT 300	1.3
1996	Kalmar AC	1.992 L	BlueCAT 300	1.3
1996	Kalmar AC	4.169 L	BlueCAT 300	2.7
2003	Hyster 40/Komatsu	2.000 L	OEM	4.0
2005	Toyota	2.237 L	OEM	4.0
2008	Komatsu	880 AH	Electric	0.0
2010	Toyota	990 AH	Electric	0.0
			<b>AVERAGE</b>	<b>1.9</b>

### OTHER TITLE V

CCCSD completed the demolition and removal of its lime storage and conveyance system on July 20, 2012. CCCSD submitted a Device Data Update (DDU) form to BAAQMD on July 23, 2012, to remove S-11, S-13, S-15, S-22 and A-7 from its BAAQMD Permit-to-Operate (PTO). CCCSD also submitted a Title V minor permit revision to remove the sources from its Title V Permit and paid the invoice on September 21, 2012.

CCCSD is preparing to comply with new Clean Air Act (CAA) Section 129 Subpart MMMM (129) regulations for existing sewage sludge incinerators (SSI). CCCSD

submitted a draft compliance plan to BAAQMD in May 2012 for review. A revised compliance plan was sent to BAAQMD on November 2, 2012.

CCCSD's five-year Title V Major Facility Review Permit expired on December 11, 2011. In order to keep the existing Title V Major Facility Review Permit in effect, CCCSD completed the renewal application on time and paid the associated fees. The Title V Major Facility Review Permit renewal application was submitted to BAAQMD on June 10, 2011. CCCSD's Title V Major Facility Review Permit is currently under review and the new CAA 129 permit conditions will be incorporated in the new Title V Major Facility Review Permit.

In addition to the five-year Title V Major Facility Review Permit, CCCSD also has a BAAQMD annual PTO which expires on December 1 of every year unless renewed. Since CCCSD received the 2013 BAAQMD PTO on October 30, 2012, the existing five-year Title V Major Facility Review permit remains in effect. CCCSD conducted a thorough review of the 2013 PTO and submitted a letter with proposed administrative revisions to BAAQMD on November 26, 2012. CCCSD also submitted a DDU form and Title V Minor Modification to remove all references of S-191 in its BAAQMD PTO and Title V Permit on November 15, 2012. S-191 was decommissioned in 2007 and removed from the list of sources in the 2008 PTO but was still referenced in the text of the permit.

CCCSD is considered a major stationary combustion source of Greenhouse Gas (GHG) emissions by the California Air Resources Board. CCCSD's annual anthropogenic emissions of CO<sub>2e</sub> are less than 25,000 metric tons; therefore, CCCSD does not incur a compliance obligation under the Cap and Trade portion of AB 32, but CCCSD is required to report and verify CO<sub>2e</sub> emissions on an annual basis.

## **2012 COMPLIANCE CERTIFICATION FORMS**

The attached compliance certification forms are submitted to comply with Title V regulations and BAAQMD's Regulation 2, Rule 6, which requires each facility that has a Title V Major Facility Review Permit to complete these forms.