



Sunnyvale

July 27, 2022

Water Pollution Control Plant
1444 Borregas Avenue
Sunnyvale, CA 94088-3707
TDD/TYY 408-730-7501
sunnyvale.ca.gov

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

TV Tracking #: 491

1. RECEIVED IN ENFORCEMENT: 07/27/2022

Attn: Title V Reports

Re: Semiannual Monitoring Report, City of Sunnyvale Water Pollution Control Plant, Facility No. A0733

To Whom It May Concern:

Per Section I, Part F of its Title V permit, the City of Sunnyvale Water Pollution Control Plant (Facility No. A0733) is submitting this Semiannual Monitoring Report for the period from January 1 through June 30, 2022. After reasonable inquiry, we conclude the following regarding this period of operation:

- S-14 exceeded the 200 mmBTU daily limit in Condition 10844(2) for six days during a post-overhaul break-in of the engine (RCA #08F07);
- S-14 Source Test was performed outside of the 12-month period in Condition 10844(6) (RCA #08F08);
- All reports were submitted on time; and
- All CEM QA procedures, methodologies, and maintenance were performed as required.

PGF Input Heat Limits Monitoring [Condition 10844(2)]:

Between January 3 and January 25, 2022, S-14 was taken out-of-service for a major overhaul as part of the engine's preventative maintenance schedule. S-14 was returned to service on January 26, 2022, to start the break-in process, and Sunnyvale submitted RCA #08F07 to document the expected exceedance of the 200 mmBTU daily limit. The daily IHVs for S-14 for the 10-day break-in period were calculated consistent with Condition 10844(7) and ranged from 215 – 218 mmBTU, which constitutes a 7% to 8% exceedance of the daily limit. The consecutive 12-month total IHV for S-14 of 57,500 mmBTU remained in compliance with the 72,000 mmBTU limit. During the break-in period, while the engine was run at 800 kW, Sunnyvale performed emission monitoring, and the results indicated compliance with the emission limits specified for S-14 in the Facility #A0733 Title V permit.

As part of its 2017 Major Facility Review Renewal Application, Sunnyvale presented findings from an investigation on the origin of the IHV limits in Condition 10844(2) showing that the daily and annual IHV

limits are an artifact of an error that occurred during the issuance of the Authority to Construct (ATC Application #11087) for Sources S-14 and S-15. Sunnyvale asserts that the 200 mmBTU/day limit was derived from the heat capacity of surrogate Waukesha engines that were never installed. To correct this issue, and prevent future exceedances of the daily IHV limit during routine maintenance activities, Sunnyvale will be submitting a request for an administrative amendment to correct the input heat value (IHV) limits in Condition 10844(2) and add a maintenance exemption for the major overhaul break-in process.

Source Test [BAAQMD 8-34-301.4; Condition 10844(6)]:

The last successful source test for S-14 was performed on January 11, 2021. Following the completion of the major overhaul, S-14 was operated from January 26 to February 5, 2022, to break-in the engine and seat the piston rings. Source test results, made available to Sunnyvale on February 21, 2022, indicated compliance with all emission limits and S-14 was returned to operation. The break-in process had been delayed from earlier scheduling due to workforce and supply chain impacts from the pandemic, which in turn resulted in Sunnyvale delaying the annual source test beyond the 12-month period in Condition 10844(6). In response, Sunnyvale submitted RCA #08F08. Source test results, made available to Sunnyvale on February 21, 2022, indicated compliance with all emission limits and S-14 was returned to operation.

PGF Combustion Temperature Monitoring [Condition 10844(8)]:

The thermocouple data collected during this reporting period are accurate, reflective of the operating conditions of S-14 and S-15, and in compliance with Condition 10844(8).

PGF Quarterly Emissions Monitoring [9-8-503, 9-8-302.1, 9-8-302.3]:

First and second quarter emissions monitoring events for S-14 and S-15 were conducted on February 2 and April 21, 2022, respectively. All results were in compliance with the applicable emissions limits of 70 ppm NO_x and 2,000 ppm CO.

RICE Oil Change Frequency [Table 2d.13 of NESHAP 63.6603(a)]:

There was no exceedances of the oil and filter change and hose and spark plug inspection 1,440-hour limit established in Table 2d.13 of NESHAP 63.6603(a) for all applicable RICE engines at the facility.

Sulfur Compounds Monitoring [Condition 19978(2)]:

The results from quarterly monitoring of total reduced sulfur compounds in digester gas used to operate S-16, S-17, and S-18 provided in the following table demonstrate compliance with the 1,550 ppmvd limit:

Total Reduced Sulfur Compounds – Draeger Tube Test Results				
S-16, 17 & 18	Date of Test	Requirement	Result ppmv (dry)	Compliant (Y/N)
Q1 2021	3/2/2022	19978 (2)	800	Y
Q2 2021	5/18/2022	19978 (2)	950	Y

Emergency Standby Diesel Generator Reliability-Related Activities [Condition 22850(1)]:

During the reporting period, reliability-related activities performed on the emergency standby diesel generators (S-26 and S-27) were in compliance with the limitation of ≤ 50 hours/year.

Landfill Gas Component System Leak Testing [8-34-301.2]:

First and second quarter monitoring of the landfill gas system components at the Facility were conducted on March 17 and June 27, 2022, to identify any presence of organic compound concentrations above the permit limit of 1,000 ppmv measured as methane. Results from both monitoring events were below the limit.

Landfill Gas Emission Control System [8-34-113.2]:

During the reporting period, the LFG emission control system was in compliance with the shutdown time limitation of ≤ 240 hours/year.

I am the responsible person for the City of Sunnyvale Water Pollution Control Plant. I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate and complete.

Please contact Melody Tovar at (408) 730-7740 if you have any questions or comments on this report.

Sincerely,

Ramana Chinnakotla

Ramana Chinnakotla
 Director, Environmental Services Department



Sunnyvale

July 27, 2022

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Water Pollution Control Plant
1444 Borregas Avenue
Sunnyvale, CA 94088-3707
TDD/TYY 408-730-7501
sunnyvale.ca.gov

Attn: Title V Reports

**Re: Compliance and Enforcement Agreement Semiannual Progress Report, City of Sunnyvale
Water Pollution Control Plant, Facility No. A0733**

To Whom It May Concern:

This Semiannual Progress Report is submitted in response to a request for additional information from the Bay Area Air Quality Management District (BAAQMD) in a letter dated January 16, 2018, regarding the City of Sunnyvale's (City) submittal of a Major Facility Review Permit Application package (Application No. 29006) for the Water Pollution Control Plant (Facility No. A0733). In that letter, BAAQMD indicated that due to the existing Compliance and Enforcement Agreement with the Main Influent Pump Engines (S-16 through S-18), the City is required to submit semiannual progress reports that describe key accomplishments made in pursuit of compliance with BAAQMD 9-8-303. This letter satisfies the reporting requirement for the period from January 1 to June 30, 2022.

Project Background

The City is currently engaged in a massive Capital Improvement Program, the Sunnyvale Cleanwater Program (SCWP), at the Water Pollution Control Plant. The SCWP was developed to rebuild and upgrade the entire wastewater treatment facility, ensuring its continued service to Sunnyvale residents and protection of the San Francisco Bay well into the future. The Master Plan and Programmatic Environmental Impact Report for the SCWP were approved by the City Council in August of 2016, thereby establishing a roadmap for the implementation of the Program in accordance with all environmental regulations. Replacement of the Main Influent Pump Engines with electric motor driven pumps, as described in the Compliance and Enforcement Agreement, is part of the first large project of the SCWP.

This project, referred to as the Headworks and Primary Treatment Facilities Project, is being implemented in two construction "packages." Package 1 was completed in October 2017 and consisted of site preparation work in the location of the new facilities, including demolition of the former Dewatering Beds, the installation of a stormwater bypass channel beneath the future construction site, and import of more than 100,000 cubic yards of clean fill to the site to consolidate the existing ground surface so the future

facilities would be built on a structurally stable base. Construction of the actual facilities (Package 2) is currently underway.

Construction Status Update

Within the Package 2 project, there are multiple sources under the Authority to Construct (ATC) Permit (Application No. 28138). Package 2 construction began in late 2017 and has been progressing. Delays in obtaining PG&E power and subsequent completion of electrical system testing have pushed the start-up of the new facilities to the end 2022. The aerial extent and progress of construction activities for both project packages are shown in **Figure 1**. Status updates on the Package 2 elements are as follows:

- The new electric-driven pumps that will replace the current gas-driven main influent pump engines (sources S-16/17/18) are not going to be a source of air emissions and therefore do not require an ATC. The new electric motor-driven influent pumps have been installed and Functional Testing was completed in September 2021 with the use of temporary power.
- The Grit Basins (S-110) and Grit Pump equipment installation is complete. Functional Testing of the Grit Removal System and Pumps was completed in August and September 2021, respectively, with the use of temporary power.
- The Primary Sedimentation Tanks (S-120), Pump Gallery, and Scum Pump area equipment installation is complete. Functional Testing of the Sludge/Scum/Scum Recirculation Pumps and Collectors was completed in July 2021 with the use of temporary power. Functional Testing of the Channel Air Blower was completed in June 2021. Canopy soffit installation at the Primary Sedimentation Tanks sampler and blower area is complete.
- The Headworks Electrical Building, which will operate the new electric motor-driven pumps, is complete. The temporary power connection for Installation and Functional Testing was made at Switchboard (SWBD-255) has been removed and utility power was established in October 2021.
- The Screenings and Grit Handling Building equipment installation is complete. Functional Testing of the Screenings Washer/Compactor and Grit Washers was completed in April and September 2021, respectively, with the use of temporary power. Functional Testing of the Screenings Conveyor is complete.
- The 2 MW Emergency Diesel Generator (S-27), ancillary equipment and electrical installation is complete. A portion of the Functional Testing was completed in November 2021, following PG&E establishing utility power in October 2021. Due to faulty PG&E equipment, the testing was ceased, the replacement of the PG&E equipment was completed in January 2022, and the remaining testing was completed in March 2022.
- Construction of the heat recovery system on S-14 and S-15, which includes installation of heat recovery equipment, pipe supports, hot water piping, and engine exhaust piping, is complete and the system is expected to be commissioned just prior to decommissioning of S16-S18.

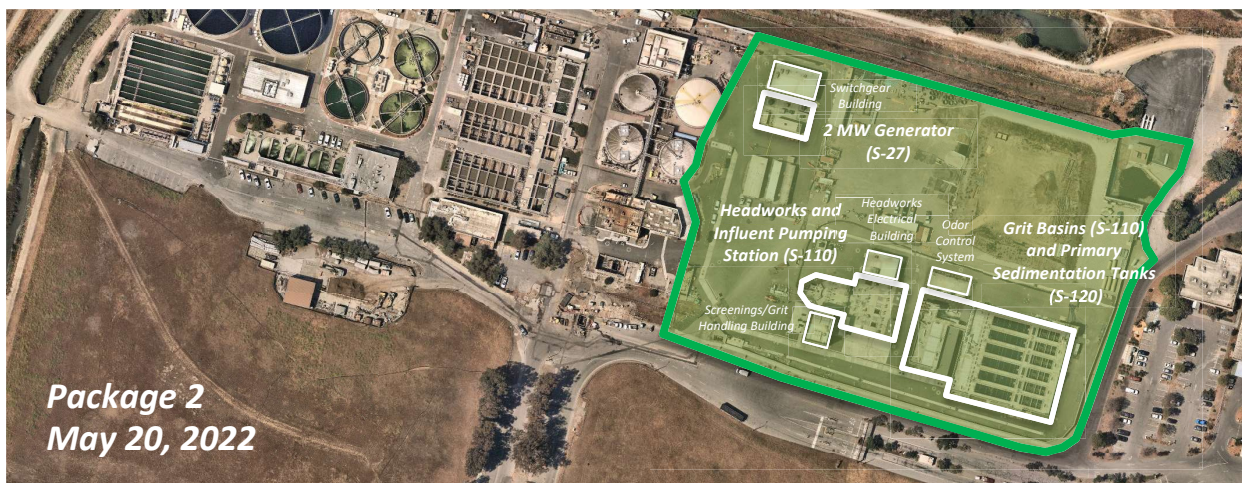


Figure 1: Aerial of construction progress for Primary Packages 1 and 2.



- Coordination with PG&E for the new 12kV Primary Service is complete. A Complete PG&E Primary Service document package was sent to PG&E on November 30, 2020, for review and was based on the revised curves provided by PG&E on September 16, 2020, following an approximate 7-month review/coordination period. PG&E was onsite February 10, 2021, and completed the witness testing of the main breaker relays and battery alarm. Following the witness testing, PG&E requested that the Current Transformers (CTs) in the main breakers be relocated. The CTs were installed, tested, and the results were sent to PG&E on June 25, 2021, with a request to reschedule the witness testing. The second round of witness testing was performed on September 10, 2021, and PG&E energized the new utility service on October 12, 2021. During the post-energization testing of the new 12kV Switchgear/Generator Controls on November 16, 2021, PG&E equipment continued to trip unexpectedly and the testing was ceased. PG&E determined that the equipment needed to be replaced, and the work to change-out their equipment was completed on January 24, 2022, and was verified to be functioning properly. The remaining post-energization testing of the new 12kV Switchgear/Generator Controls was completed March 15, 2022.
- Following the utility power being established in October 2021, the startup and testing of the overall Process Control and Instrumentation System began, including establishing the control network. During testing, equipment designed to provide overload protection for essential process equipment did not function properly. The issue is currently under investigation and active troubleshooting.

A time-lapse construction video of the Headworks and Influent Pump Station structures is posted on the Sunnyvale Cleanwater Program's website and can be accessed from the following link:

[Construction Time-Lapse of the Screening and Wastewater Influent Pumping Facilities](#)

Compliance and Enforcement Agreement

The Package 2 project provides for the replacement of sources S-16 through S-18 with electric motor-driven engines to attain compliance with BAAQMD 9-8-303 (in this case, by eliminating them as sources altogether). The Compliance and Enforcement Agreement was extended during this reporting period and is currently scheduled to expire on November 30, 2022.

Please contact me at (408) 730-7740 or Cameron Kostigen Mumper at (408) 730-7729 with any questions or comments regarding this report.



Sunnyvale

Sincerely,

A handwritten signature in black ink, appearing to read 'Melody Tovar', with a flourish at the end.

Melody Tovar, P.E.

Regulatory Programs Division Manager

cc: Huiting Gao, BAAMQD (email)
Joseph Muehleck, BAAQMD (email)