

**Engineering Evaluation
South County Regional Wastewater Authority
Application No. 31180
Plant No. 1381**

BACKGROUND

South County Regional Wastewater Authority (SCRWA) has applied for an Authority to Construct and/or Permit to Operate (PO) the following:

- S14 Emergency Standby Diesel Generator Set**
Make: Mitsubishi, Model: S16R-PTAW, Model Year: 2021
2346 bhp, 18.22 MMBtu/hr, EPA Engine Family: MMVXL65.4BBA
- Abated by**
- A14 Miratech Diesel Particulate Filter and Miratech Selective Catalytic Reducer**
- S301 Membrane Bioreactor (MBR) Treatment, including:**
MBR Headworks, MBR Blower and Electrical Building, MBR Membrane Basins, MBR Chemical Storage and Feed, MBR Solids Handling Process, 2.5 million gallons per day (MGD)
- MBR Headworks abated by**
- A305 Mist-Type Odor Scrubber, 10,100 cfm, existing**
100 cfm from MBR Headworks, 10,000 cfm from existing Preliminary Treatment, S305
- MBR Solids Handling Process abated by**
- A330 Mist-Type Odor Scrubber, 25,200 cfm, existing**
3,200 cfm from MBR Solids Handling Process, 22,000 cfm from existing Sludge Handling Process, S330
- And for a modification to the following equipment:**
- S150 Effluent Disposal Ponds (exempt)**
- S200 Effluent Disposal Ponds (exempt)**
- S300 Municipal Sewage Treatment Plant**
- S305 Preliminary Treatment, abated by A305, described above**
- S330 Sludge Handling Process, abated by A330, described above**
- S401 Tertiary Treatment**
- S402 Disinfection**

The above sources will be located at 1500 Southside Drive, Gilroy, CA 95020.

South County Regional Wastewater Authority (SCRWA) is a joint powers authority that was established to provide wastewater treatment for the cities of Gilroy and Morgan Hill. The SCRWA wastewater treatment plant was built in 1990 and treats the municipal wastewater of approximately 105,000 people. The treatment facility consists of a secondary treatment plant with headworks, pre-anoxic basins, oxidation ditches, and secondary clarifiers and a tertiary treatment plant with anthracite media filters, chlorine disinfection, and dechlorination. An ultraviolet (UV) light disinfection system has been installed and approved for use by the Division of Drinking Water (part of the State Water Resources Control Board).

SCRWA projects that the current treatment capacity of the wastewater treatment plant will soon be exceeded. This expansion project is planned to keep pace with permitted development and planned population growth.

Permit condition # 8462 limits the average dry weather wastewater flow rate to 8.1 million gallons per day (MGD) and the average wet weather wastewater flow rate to 18.8 million gallons per day (MGD). National Pollutant Discharge Elimination System (NPDES) Permit No. CA0049964 limits the secondary treatment capacity to 8.5 MGD (average dry weather flow rate) and the peak wet weather flow rate to 10.8 MGD from secondary treatment and 9 MGD from tertiary treatment under Order R3-2017-0028. Wastewater that has undergone only secondary treatment is to be disposed of in 37 percolation ponds, while wastewater that has undergone tertiary treatment is to be disposed of in the Pajaro River in accordance with the NPDES Permit No. CA0049964 or to the recycled water users.

Tentative Order R3-2026-0014 is pending adoption and would update the average dry weather treatment capacity to 11 MGD, once the facility upgrade (the subject of AN 31180) is complete. The applicant has said that this project will increase the average dry weather treatment capacity by 2.5 MGD to 11 MGD due to the addition of a membrane bioreactor treatment process. Per the applicant, permit condition #8462 erroneously placed the dry weather flow rate limit at 8.1 MGD, when it should have been 8.5 MGD. The wet weather flow rate will not change in this project.

The headworks (S110) throughput will be raised to 11 MGD. 2.5 MGD will go from the headworks to S301, MBR. So, only a portion of the sewage will be processed by S301. The water that is derived from the sewage at S301 will flow to either S401, Tertiary Treatment before going through the recycled water system and finally being released into the Pajaro River, or S150 and S200, Effluent Disposal Ponds.

The sludge from S301, MBR, (generated at the MBR bioreactors) will go to the MBR solids handling process, also part of S301.

Membrane Bioreactor (MBR) Treatment, S301

MBR Treatment is a wastewater treatment technology that combines conventional biologically activated sludge treatment with fine membrane filtration. As in a typical biologically activated

sludge treatment process, aeration is used to promote the growth of bacteria that consume nutrients present in the wastewater. This happens in the MBR bioreactors. Sludge is generated in this process and is dewatered in MBR solids handling. Pumps then push the resulting biologically treated wastewater through the fine, semipermeable membranes to filter out suspended solids and microorganisms. This happens in the MBR membrane basins.

The new Membrane Bioreactor (MBR) Treatment, S301, will include several elements: MBR headworks, MBR blower and electrical building, MBR bioreactors (aeration basins), MBR membrane basins, MBR chemical storage and feed, and the MBR solids handling process.

MBR Headworks and MBR Headworks Odor Control, modification of Mist-Type Odor Scrubber, A305

MBR headworks will be constructed near the existing plant headworks to consolidate screenings disposal. Outlet flow (2.5 MGD) from the existing plant headworks will be diverted to MBR headworks for additional pretreatment ahead of the new MBR facility, which includes the sensitive MBR membranes. MBR headworks will include influent pumps, fine screens, a screening conveyor, washer compactor, and odor control fans (routed to A305).

Foul air from MBR headworks will be captured and routed to the existing odor control for plant headworks, A305. This will be 100 cfm in addition to the existing 10,000 cfm that A305 currently handles for a total of 10,100 cfm. The total emissions from the modified A305 are calculated in this application. The facility has agreed to outlet H₂S and VOC limits of 1 ppm and 10 ppm (measured as methane), respectively. Ammonia emissions at A305 will be limited to a maximum hourly concentration of 120 ppmv and an annual average concentration of 60 ppmv.

MBR Solids Handling and MBR Solids Handling Odor Control, modification of Mist-Type Odor Scrubber, A330

MBR solids handling will dewater the biological solids produced by the MBR treatment process. A new solids handling building will be constructed to house the screw presses that will dewater the solids.

Foul air from MBR solids handling will be captured and routed to the existing odor control for plant sludge handling, A330. This will be 3,200 cfm in addition to the existing 22,000 cfm that A330 currently handles for a total of 25,200 cfm. The total emissions from the modified A330 are calculated in this application. The facility has agreed to outlet H₂S and VOC limits of 1 ppm and 10 ppm (measured as methane), respectively. Ammonia emissions at A330 will be limited to a maximum hourly concentration of 120 ppmv and an annual average concentration of 60 ppmv.

MBR Blower and Electrical Building

The MBR blower and electrical building will house the MBR aeration blowers and MBR air scour blowers. There will be three MBR aeration blowers (two duty, one standby) that will provide aeration for the biological processes of the MBR bioreactors (aeration basins). They will provide 2,475 cfm each, for a total flow rate of 4,950 cfm. There will be three air scour blowers

(two duty, one standby) that will provide air scour to the MBR membrane basins. They will provide 1,280 cfm each, for a total flow rate of 2,560 cfm. The facility has agreed to H₂S and VOC limits of 1 ppm and 10 ppm (measured as methane), respectively.

Emergency Standby Diesel Generator Set, S14

SCRWA will be adding an emergency standby generator (2,346 bhp) to provide backup power in the case of an outage. The EPA engine family (MMVXL65.4BBA) is certified to Tier 2. However, the engine will be equipped with a Miratech SCR/DOC/ADPF abatement device that will allow its emissions to comply with the Tier 4 standards. The engine will burn commercially available California low sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% by weight.

EMISSIONS CALCULATIONS

Emergency Standby Diesel Generator Set, S14

SCRWA has submitted supporting documents for the engine and abatement, which include manufacturer specifications and emissions data. The following tables provide a summary of the engine information.

Table 1: Daily and Annual Emissions from Manufacturer Guaranteed Data

Pollutant	Emission Factor¹ (g/bhp-hr)	Max Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Annual Emissions (tons/yr)
NO _x	0.50	62.0	129.2	0.065
POC	0.14	17.4	36.2	0.018
CO	2.60	322.4	671.8	0.336
PM ₁₀	0.02	2.5	5.2	0.003
PM _{2.5}	0.02	2.5	5.2	0.003
SO ₂	N/A ²	0.7	1.4	0.001

Basis:

- Annual emissions: Reliability-related activity 50 hours for S14
- Max daily emissions: 24-hour operation
- 1 pound = 454 grams
- ¹Emission factors are based on EPA/CARB Tier 4 standards. Manufacturers' documentation shows that the abated emissions factors will meet this standard.
- ²SO₂ emission factor from AP-42 Table 3.4-1, SO₂ (15 ppm) = 0.00809*0.0015 lb SO₂/bhp-hr

Mist-type Odor Scrubber, A305

The MBR headworks will be located adjacent to the existing plant headworks. Foul air from the MBR headworks equipment will be routed to A305, the abatement device already abating foul air from the existing plant headworks. Odor control fans at MBR headworks will add 100 cfm foul air to the existing 10,000 cfm currently handled by A305, for a total of 10,100 cfm foul air treated at A305. The anticipated pollutants are POC, H₂S, and ammonia. The emissions

concentrations will be limited by permit condition to 10 ppmv POC (as methane), 1 ppmv H₂S, an hourly concentration of 120 ppmv ammonia, and an annual average concentration of 60 ppmv ammonia.

Table 2. Annual and Daily Permitted Emissions from A305, Mist-type Odor Scrubber

Pollutant	POC Concentration, as methane (ppmv)	Foul Air Flow Rate (cfm)	Max Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Annual Emissions (tons/yr)
POC, increase	10	100	0.0598	21.81	0.011
POC, total	10	10,100	6.04	2,203	1.102

Mist-type Odor Scrubber. A330

The MBR solids handling building will be located near the existing plant sludge handling. Foul air from the MBR solids handling equipment will be routed to A330, the abatement device already abating foul air from the existing plant sludge handling. Odor control fans at MBR solids handling will add 3,200 cfm foul air to the existing 22,000 cfm currently handled by A330, for a total of 25,200 cfm foul air treated at A305. The anticipated pollutants are POC, H₂S, and ammonia. The emissions concentrations will be limited by permit condition to 10 ppmv POC (as methane), 1 ppmv H₂S, an hourly concentration of 120 ppmv ammonia, and an annual average concentration of 60 ppmv ammonia.

Table 3. Annual and Daily Permitted Emissions from A330, Mist-type Odor Scrubber

Pollutant	POC Concentration, as methane (ppmv)	Foul Air Flow Rate (cfm)	Max Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Annual Emissions (tons/yr)
POC, increase	10	3,200	1.91	697.99	0.349
POC, total	10	25,200	15.06	5,497	2.748

Membrane Bioreactor (MBR) Treatment, S301, aeration and air scour blowers

The MBR treatment process will include bioreactor basins and membrane basins. Aeration blowers (two duty, one standby) will provide air to the bioreactor basins at a flowrate of 4,950 cfm. Air scour blowers (two duty, one standby) will provide air to scour the membrane basins at a flowrate of 2,560 cfm. The emissions concentrations will be limited by permit condition to 10 ppmv POC (as methane) and 1 ppmv H₂S.

Table 4. Annual and Daily Permitted Emissions from S301, MBR Treatment (Blowers)

Source	Pollutant	POC Concentration, as methane (ppmv)	Foul Air Flow Rate (cfm)	Max Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Annual Emissions (tons/yr)
S301 (aeration blowers)	POC	10	4,950	2.96	1,079.70	0.540
S301 (air scour blowers)	POC	10	2,560	1.53	558.39	0.279
S301 (total)	POC	10	7,510	4.49	1,638.10	0.819

Municipal Sewage Treatment Plant, S300

POC emissions from the overall wastewater treatment plant are currently attributed to plant 1381 under Municipal Sewage Treatment Plant, S300. Application #8831 estimated POC emissions from S300 at 0.780 tpy using 80th percentile emission factors developed by the Bay Area Air Toxics (BAAT) POTW group. Currently, some POTW sources use a default emission factor of 0.7 lb organics/million gallons to estimate POC emissions, which would estimate POC from S300 to be 1.405 tpy.

However, estimated POC emissions from A305, A330, and S301 (blowers) total 4.669 tpy. Emissions calculated at S300 estimate the emissions from the entire wastewater treatment plant, which includes headworks, S305 (abated by A305), sludge handling, S330 (abated by A330), and MBR Treatment, S301 (blowers). If applied, the default POTW emission factor of 0.7 lb POC/million gallons, would estimate lower emissions (1.405 tpy) than the sum of the treatment plant components for which we have an estimation of emissions (and which represent the probable majority of POTW POC emissions (4.669 tpy)).

Therefore, POC emissions for the POTW source at the new wastewater flow rate of 11 MGD will be estimated as the POC emissions that have been estimated from A305, A330, and S301 (blowers) (4.669 tpy).

TOXIC RISK SCREENING AND REGULATION 9, RULE 2, HYDROGEN SULFIDE

The emission rates of diesel PM from S14, chloroform, vinyl chloride, 1,1,2,2-tetrachloroethane, and ammonia from S300 (emitted at A305 and A330), H₂S from S301, and ammonia and H₂S from S305 and S330 (emitted at A305 and A330) exceed the risk-assessment triggers set forth in Table 2-5-1.

Two projects have been permitted within the last five years: AN 30070 and AN 31561.

AN 30070 was submitted for alterations of and clarifications of permit conditions for the following sources.

S150	Effluent Disposal Ponds
S200	Effluent Disposal Ponds
S315	Secondary Treatment
S320	Secondary Clarifiers

- S325 Pre-Anoxic Basins
- S335 Reaeration Basin
- S401 Tertiary Treatment Chlorine Contact Basin
- S402 Tertiary Treatment Filter Media Washwater Basin
- A404 Chemical Scrubber abating S404, Sodium Bisulfite Tank
- A330 Chemical Scrubber abating S330, Sludge Handling

It did not result in an increase in emissions.

AN 31561 included only one exempt solar sludge drying source.

AN 30070 and AN 31561 are not part of this project for the purposes of Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants, Section 216.

The emergency engine, S14, is certified to the Tier 2 standards before abatement and will meet Tier 4 standards after abatement with a combined SCR/DPF. It will have a PM emission factor of 0.02 g/hp-hr after abatement. Using the PM emission factor for the proposed engine, a 50 hour per year limit for reliability-related activities, and assuming PM is in the form of diesel exhaust PM, the following annual emission rate for diesel exhaust PM was calculated:

S14

$$\frac{0.02 \text{ g PM}}{\text{hp-hr}} \times 2,346 \text{ hp} \times \frac{\text{lb}}{454 \text{ g}} \times \frac{50 \text{ hr}}{\text{yr}} = 5.2 \text{ lb PM/yr}$$

Because the emergency engine will have an SCR abating emissions, the associated urea injection will result in ammonia slip emissions of 20 ppmvd at 15% O₂ and 12% moisture, per manufacturer’s specifications.

Table 5. S14 Ammonia Emissions due to SCR

Source	Heat Input Rating [MMBtu/hr]	Annual Non-Emergency Operating Time [hours/year]	NH ₃ slip concentration [ppm]	NH ₃ Molecular Weight [lb/lb-mol]	NH ₃ slip Emissions [pounds/hr]	NH ₃ slip Emissions [pounds/year]
S14	18.22	50	20	17.0	0.906	90.6
			HRA Trigger		7.1	7,700

The MBR will include aeration blowers to provide air to the MBR bioreactor basins and air scour blowers to provide air to the MBR membrane basins to prevent fouling of the membranes. Three 2,475 cfm aeration blowers (two duty, one standby) and three 1,280 cfm air scour blowers (two duty, one standby) are proposed, for a total of 7,510 cfm air flow.

Table 6. H₂S Emissions due to Membrane Bioreactor (MBR) Treatment, S301 (blowers)

Source #	TAC	Flow Rate (cfm)	Emissions [pounds/hr]	Acute Trigger Level (lb/hr)	Emissions [pounds/yr]	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
S301 (aeration blowers)	H ₂ S	4,950	0.026	0.019	229.4	390	Y
S301 (scour air blowers)	H ₂ S	2,560	0.014	0.019	118.7	390	N
S301 (total)	H₂S	7,510	0.040	0.019	348.1	390	Y

The MBR Headworks will provide additional preliminary treatment, consisting of fine screens, upstream of the new MBR facility to prevent fouling of the membranes, which have easily fouled pores. To consolidate screenings disposal, the MBR Headworks will be located near the existing plant Headworks (Preliminary Treatment, S305). Foul air from the MBR Headworks will be sent to the existing odor control for the existing plant Headworks, A305, Mist-type Odor Scrubber. A 100 cfm fan will move foul air from MBR Headworks to A305, increasing the flow rate of A305 from 10,000 cfm to 10,100 cfm. Limits of 1 ppm H₂S, 10 ppm VOC (as methane), 120 ppm ammonia as an hourly maximum, and 60 ppm ammonia as an annual average will be enforced by permit condition.

Table 7. Toxic Air Contaminant Emissions for Mist-type Odor Scrubber (Preliminary Treatment), A305 (foul air emissions)

Source #	TAC	Flow Rate (cfm)	Emissions [pounds/hr]	Acute Trigger Level (lb/hr)	Emissions [pounds/year]	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
A305	H ₂ S	10,100	0.050	0.019	442.2	390	Y
A305	NH ₃	10,100	3.206	1.4	14,044.3	7,700	Y

After influent wastewater has passed through the overall plant Headworks, 2.5 MGD will be directed to the MBR treatment process. This will increase the facility design dry weather average wastewater flow rate by 2.5 MGD, from 8.5 MGD to 11.0 MGD. This increased wastewater flow will result in an increase of TAC emissions from compounds found in the wastewater. These emissions have been estimated using emission factors developed from wastewater testing done at plant 1403, Santa Rosa Water-Laguna Treatment Plant.

It is assumed that 50% of the wastewater emissions will come out of the wastewater at Headworks and the other 50% will come out at Solids Handling. Wastewater emissions from the MBR treatment process are assumed to similarly be emitted at MBR Headworks and MBR Solids Handling, 50% at MBR Headworks and 50% at MBR Solids Handling. These emissions will exhaust to the atmosphere 50% at A305 (odor control for Preliminary Treatment and MBR Headworks) and 50% at A330.

Table 8. Toxic Air Contaminant Emissions for Mist-type Odor Scrubber (Preliminary Treatment), A305 (wastewater emissions)

Source #	TAC	Emissions [pounds/hr]	Acute Trigger Level (lb/hr)	Emissions [pounds/year]	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
A305	Benzene	1.12E-04	1.20E-02	9.82E-01	2.90E+00	N
A305	Perchloroethylene	1.16E-04	8.80E+00	1.01E+00	1.40E+01	N
A305	Toluene	4.72E-03	2.20E+00	4.14E+01	1.60E+04	N
A305	1,1,1-trichloroethane	8.04E-05	3.00E+01	7.05E-01	3.90E+04	N
A305	Trichloroethylene	1.03E-04	--	8.99E-01	4.10E+01	N
A305	Xylene	9.01E-04	9.70E+00	7.89E+00	2.70E+04	N
A305	Ethylbenzene	7.38E-04	--	6.46E+00	3.30E+01	N
A305	Chloroform	6.49E-03	6.60E-02	5.68E+01	1.50E+01	Y
A305	Methylene chloride	1.02E-03	6.20E+00	8.95E+00	8.20E+01	N
A305	Vinyl chloride	9.14E-05	8.00E+01	8.01E-01	1.10E+00	N
A305	Chlorobenzene	2.08E-04	--	1.82E+00	3.90E+04	N
A305	1,4-Dichlorobenzene	2.61E-04	--	2.29E+00	7.20E+00	N
A305	1,1,2,2-tetrachloroethylene	8.59E-05	--	7.53E-01	1.40E+00	N

A new MBR solids handling building will be constructed to house screw presses to dewater the biological solids produced by the MBR treatment process. The MBR Solids Handling building will be located near the existing plant Solids Handling Building (Sludge Handling Process, S330). Ducting will carry foul air from the MBR solids handling building to the existing odor control for the existing Solids Handling, A330, Mist-type Odor Scrubber. A 3,200 cfm fan will move foul air from the MBR solids handling building to A330, increasing the flow rate of A330 from 22,000 cfm to 25,200 cfm. Limits of 1 ppm H₂S, 10 ppm VOC (as methane), 120 ppm ammonia as an hourly maximum, and 60 ppm ammonia as an annual average will be enforced by permit condition.

Table 9. Toxic Air Contaminant Emissions for Mist-type Odor Scrubber (Sludge Handling), A330 (foul air emissions)

Source #	TAC	Flow Rate (cfm)	Emissions [pounds/hr]	Acute Trigger Level (lb/hr)	Emissions [pounds/year]	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
A330	H ₂ S	25,200	0.126	0.019	1,103.3	390	Y
A330	NH ₃	25,200	8.000	1.4	35,041.3	7,700	Y

Table 10. Toxic Air Contaminant Emissions for Mist-type Odor Scrubber (Sludge Handling), A330 (wastewater emissions)

Source #	TAC	Emissions [pounds/hr]	Acute Trigger Level (lb/hr)	Emissions [pounds/year]	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
A330	Benzene	1.12E-04	1.20E-02	9.82E-01	2.90E+00	N
A330	Perchloroethylene	1.16E-04	8.80E+00	1.01E+00	1.40E+01	N
A330	Toluene	4.72E-03	2.20E+00	4.14E+01	1.60E+04	N
A330	1,1,1-trichloroethane	8.04E-05	3.00E+01	7.05E-01	3.90E+04	N
A330	Trichloroethylene	1.03E-04	--	8.99E-01	4.10E+01	N
A330	Xylene	9.01E-04	9.70E+00	7.89E+00	2.70E+04	N
A330	Ethylbenzene	7.38E-04	--	6.46E+00	3.30E+01	N
A330	Chloroform	6.49E-03	6.60E-02	5.68E+01	1.50E+01	Y
A330	Methylene chloride	1.02E-03	6.20E+00	8.95E+00	8.20E+01	N
A330	Vinyl chloride	9.14E-05	8.00E+01	8.01E-01	1.10E+00	N
A330	Chlorobenzene	2.08E-04	--	1.82E+00	3.90E+04	N
A330	1,4-Dichlorobenzene	2.61E-04	--	2.29E+00	7.20E+00	N
A330	1,1,2,2-tetrachloroethylene	8.59E-05	--	7.53E-01	1.40E+00	N

The HRA estimates residential risk assuming exposure to annual average toxic air contaminant concentrations occurring 350 days per year, for 30 years. Risk estimate for offsite workers assumes an exposure that occurs 8 hours per day, 250 days per year, for 25 years. The stack heights and diameters used for this analysis are listed on the HRA forms in the application file.

Results from this HRA indicate that the maximum project cancer risk is estimated at 0.025 in a million, the project chronic hazard index (HI) is estimated at 0.0050, and the project acute HI is estimated at 0.37. In accordance with District Regulation 2-5-301, Best Available Control Technology for Toxics (TBACT) is not required because each source risk does not exceed a cancer risk of 1.0 in a million and/or a chronic HI of 0.20. The estimated project cancer risk does not exceed 6.0 in a million, and the project hazard indices do not exceed 1.0, so the project complies with the District's Regulation 2-5-302 project risk requirements, for projects located within an Overburdened Community, as defined in Regulation 2-1-243. This HRA only represents an analysis of TAC emissions from the proposed project under Application 31180. Therefore, these project HRA results do not represent a site-wide HRA.

H₂S modeling was conducted for this project. In accordance with the District's Regulation 9-2-301, the hydrogen sulfide ground level concentration (GLC) limit is 0.03 ppm averaged over any 60 consecutive minutes. The maximum modeled 1-hour H₂S concentration is 0.027 ppm. These results represent a conservative estimation based on a full meteorological dataset and conservative emission assumptions for ground level concentrations of H₂S at the property's fence

line and do not necessarily demonstrate compliance or noncompliance with the District's Regulation 9-2-301. However, based on the H₂S modeling conducted for this project, it is expected that the proposed sources will comply with Regulation 9, Rule 2.

The H₂S modeling is based, in part, on including an area south of the plant where the facility has installed solar panels. SCRWA owns this parcel, but leases it out, aside from the portion on which the facility has installed solar panels and operates a solar farm. If the portion of the parcel used by SCRWA for a solar farm is leased out, the area is no longer within the property lines, and H₂S would likely have to be reduced to comply continuously with Regulation 9, Rule 2, Hydrogen Sulfide. A permit condition has been imposed that requires reevaluation of compliance with the rule if the area is no longer held by the facility.

PLANT CUMULATIVE EMISSION

The following table summarizes the cumulative increase in BACT pollutant emissions that will result from this application. POC emissions attributed to S300 in AN 8831 are removed in this application and replaced with the POC emissions from A305 and A330 (see explanation in the Emissions Calculations section above).

Table 11. Cumulative increase in tons/yr

Pollutant	Existing, tpy	New, tpy	Removed, tpy	Total, tpy
NO _x	1.292	0.065		1.357
CO	0.067	0.336		0.403
PM ₁₀	0.003	0.003		0.006
PM _{2.5}	0.002	0.003		0.005
SO ₂	0.001	0.001		0.002
POC	0.904	4.687	(0.780)	4.811

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Pursuant to Regulation 2-2-301, BACT is required for a new source with emission increases that equal 10.0 lbs or greater of any BACT pollutant (NO_x, CO, POC, NPOC, SO₂, PM). These pollutants are defined in Regulation 2-2-210. Similarly, abatement devices with secondary emission increases that equal 10.0 lbs or greater of any BACT pollutant are subject to Reasonably Available Control Technology (RACT), which is defined in Regulation 2-2-225.

The increase in emissions due to the Emergency Standby Diesel Generator Set, S14, is expected to exceed the BACT threshold for NO_x, CO, and POC. The increase in emissions due to the Municipal Sewage Treatment Plant, S300, emitted at the Mist-type Odor Scrubber, A305, and the Mist-type Odor Scrubber, A330, is expected to exceed the BACT threshold for POC.

Emergency Standby Diesel Generator Set, S14

BACT for the Emergency Standby Diesel Generator Set, S14, is presented in the current Bay Area Air Quality Management District (BAAQMD) BACT/TBACT Workbook for IC Engine – Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, Document #96.1.5, Revision 0, dated 12/22/2020. The BACT(2) standards for the following

pollutants that exceed 10 lb/day are shown below. The more restrictive BACT(1) standards are not applicable to this engine because it will be limited to operation as an emergency standby engine.

S14 will satisfy the BACT(2) standard for the BACT pollutants that exceed 10 lb/day:

Pollutant	BACT(2) Standard
POC ¹	0.14 g/bhp-hr
NO _x	0.5 g/bhp-hr
CO	2.6 g/bhp-hr

¹NMHC = POC

Municipal Sewage Treatment Plant, S300 (emitted at Mist-type Odor Scrubber, A305 and Mist-type Odor Scrubber, A330)

BACT for the foul air abatement of wastewater sources has been established in recent applications for wastewater treatment plants, including application 29889 (for City of Richmond WPCD, plant 2482), application 30200 (for San Francisco South East Treatment Plant, plant 568), and application 30965 (for Union Sanitary District, plant 1209). BACT for POC was established as limiting organic emissions from devices abating wastewater treatment sources to 10 ppm, measured as methane.

A305 and A330 are going to have an organic emissions limit of 10 ppm, measured as methane, and will therefore satisfy BACT for POC.

OFFSETS

Emission offset requirements for POC and NO_x are set out in Regulation 2, Rule 2, Section 302. Per a District policy, “Calculating Potential to Emit for Emergency Backup Power Generators”, signed on 6/3/2019, 100 hours of emergency operation will be assumed, in addition to the 50 hours allowed for reliability-related and testing operation, for the purpose of determining the applicability of District permitting regulations. Therefore, this policy will be used in the calculation of the PTE of emergency backup power generators. POC and NO_x offsets are required for new or modified sources at a facility that emits or will be permitted to emit 10 tons per year or more of that pollutant. Offsets for POC and NO_x are not required for this application.

The offsets requirements for PM₁₀, PM_{2.5}, and SO_x are specified in Regulation 2, Rule 2, Section 303. Per Section 303, PM₁₀, PM_{2.5}, and SO_x emission offsets are required for any new or modified source that is a major facility for PM₁₀, PM_{2.5}, or SO_x emissions. SCRWA is not a major facility for PM₁₀, PM_{2.5}, and SO_x emissions. Therefore, offsets for PM₁₀, PM_{2.5}, and SO_x are not required for this application.

Tables 12 and 13 show the PTE for SCRWA before and after the project. The emission factors for S11, S12, and S13 are taken from the BAAQMD database.

Table 12. Potential to Emit Before Project

Source		Condition#/ Limit		NO _x (TPY)	POC (TPY)
11	Emergency Standby Generator	100073	150 hr/yr	0.980	0.031
12	Emergency Standby Generator	100073	150 hr/yr	0.980	0.031
13	Emergency Standby Generator (east)	100073	150 hr/yr	1.624	0.087
300	Municipal Sewage Treatment Plant	Dry Weather Flow	8.5 MGD		3.490
				3.585	3.639

Table 13. Potential to Emit After Project

Source		Condition#/ Limit		NO _x (TPY)	POC (TPY)
11	Emergency Standby Generator	100073	150 hr/yr	0.980	0.031
12	Emergency Standby Generator	100073	150 hr/yr	0.980	0.031
13	Emergency Standby Generator (east)	100073	150 hr/yr	1.624	0.087
14	Emergency Standby Diesel Generator Set	100073	150 hr/yr	0.194	0.054
300	Municipal Sewage Treatment Plant	Dry Weather Flow	8.5 MGD		4.669
				3.779	4.873

STATEMENT OF COMPLIANCE

The owner/operator is expected to comply with all applicable requirements. Key requirements are listed by source below:

Membrane Bioreactor (MBR) Treatment, S301, Preliminary Treatment, S305, and Sludge Handling Process, S330**Regulation 8, Rule 2: Miscellaneous Operations**

Regulation 8-2-301 prohibits a person from discharging into the atmosphere from any miscellaneous operation an emission containing more than 15 lbs of organic compounds per day and containing a concentration of more than 300 ppm total carbon on a dry basis.

If a source is subject to another rule in Regulation 8, Rule 2 does not apply.

The outlets of the MBR control devices are limited to 10 ppm of organic compounds, so the MBR will comply with the standard.

Regulation 9, Rule 2: Inorganic Gaseous Pollutants: Hydrogen Sulfide

This rule limits ground level concentrations of hydrogen sulfide to 0.06 ppm averaged over three consecutive minutes or 0.03 ppm averaged over any 60 consecutive minutes. On January 26, 2026, the Air District modeled H₂S emissions to determine whether S305 (Preliminary

Treatment), S330 (Sludge Handling Process), and S301 (Membrane Bioreactor (MBR) Treatment) will comply with the Rule due to emissions from A305, A330, and the open MBR basins at S301.

A305 and A330 each have one vessel and one stack. The stack outlets are each 42 inches in diameter and will be capable of releasing 10,100 cfm at A305 and 25,200 cfm at A330. The outlet height is 20.5 feet above ground level for A305 and 31 feet above ground level for A330. The H₂S emissions from the abatement devices will be limited by permit condition to 1 ppmv.

S301 will include membrane basins and bioreactor basins, which will have air introduced by fans (7,510 cfm total). The membrane basins are enclosed, but air may escape. Two enclosure panels are located at a height of 15', with a length of 56' and a width of 10', each. The H₂S emissions from the membrane basins will be limited by permit condition to 1 ppmv.

The bioreactor basins are open. The bioreactor basins are in two treatment trains of 3 tanks each. Each train is 75' x 38', while the tanks are 23.75' x 38'. The tanks have a depth of 26' with 20' of water for 6' of headspace above the water. The H₂S emissions from the bioreactor basins will be limited by permit condition to 1 ppmv.

According to the modeled H₂S emissions, the Air District determined that the maximum modeled 1-hour H₂S concentration is 0.027 ppm. Therefore, it is expected that the sources in the proposed project will comply with Regulation 9, Rule 2.

The H₂S modeling is based, in part, on including an area south of the plant where the facility has installed solar panels. SCRWA owns this parcel and controls public access. Access is controlled through lease agreements that prohibit members of the public from gaining access. As part of these agreements the solar panels operators and farmers are equivalent to SCRWA employees. If the agreements are modified in the future, H₂S would likely have to be reduced to comply continuously with Regulation 9, Rule 2, Hydrogen Sulfide. A permit condition has been imposed that requires reevaluation of compliance with the rule if the area is no longer held by the facility.

Effluent Disposal Ponds (200 acres), S150, and Effluent Disposal Ponds, S200

Regulation 2, Rule 1: General Requirements

Regulation 2-1-103 provides an exemption for any source that is not already exempt from the requirements of Section 2-1-301 and 302 as set forth in Section 2-1-105 to 128. S150 and S200 are open-air percolation ponds which allow the disposal of effluent through land application. SCRWA discharges the majority of its effluent to S150 and S200, but can discharge wastewater that has undergone tertiary treatment into the Pajaro River in wet weather conditions. The effluent received by S150 and S200 is treated effluent, having either undergone secondary treatment in the main plant wastewater treatment process or treatment in the MBR treatment process.

The ponds meet the permit exemption criteria of Regulation 2-1-103. The ponds are not subject to Regulation 6, Regulation 8, or Regulations 9 through 12. The effluent is treated and therefore,

not a source of hydrogen sulfide emissions. Regulation 9-2 does not apply. The ponds are not subject to Regulation 2, Rule 1, Sections 316-319. The treated effluent is not a source of toxic air contaminants, hazardous substances, or a source that will result in a public nuisance. The ponds do not emit more than 10 lb/day of any criteria pollutant and are not ozone generators. Therefore, S150 and S200 are exempt from the requirements of Regulation 2-1-301 and 302.

Emergency Standby Diesel Generator Set, S14

CARB Airborne Toxic Control Measure for Stationary Compression Ignition Engines

§93115.2 requires any person who purchases a stationary compression ignition engine to meet the requirements of the ATCM.

As of January 1, 2006, owners and operators of new engines are required to consume CARB diesel fuel in accordance with §93115.5.

Per §93115.6(a)(1), an engine located within 500 feet of school grounds shall not operate for non-emergency use between 7:30 A.M. and 3:30 P.M. on days when school is in session. The source is not located within 500 feet of school grounds.

Pursuant to §93115.6(a)(3), a new engine must meet the following requirements as of January 1, 2005.

- ATCM "Table 1 Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines" for same model year and maximum engine power, which is shown below;

Table 14. ATCM "<u>Table 1 Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines</u>"				
Maximum Engine Power	Model Year	PM (g/bhp-hr)	NMHC+NO_x (g/bhp-hr)	CO (g/bhp-hr)
hp > 750 (kW > 560)	2008+	0.15	4.8	2.6

- After December 31, 2008, be certified to the new non-road compression-ignition engine emission standard for all pollutants for 2007 and later model year engines as specified in 40 CFR, Part 60, Subpart III; and,
- Not operate more than 50 hours per year for maintenance and testing purposes, except as provided in §93115.6(a)(3)(A)(2). §93115.6(a)(3)(A)(2) allows Districts to allow operation for 100 hr/yr for maintenance and testing as long as the diesel PM emission rate is less than or equal to 0.01 g/bhp-hr. This engine will not meet this requirement with the diesel particulate filter.

The emergency engine is expected to meet the emission requirements and will be limited, through permit condition, to operate unrestricted only for emergencies and a maximum of 50

hours per year for maintenance and testing purposes. In addition, the permit will include near-school operating provisions that meet the requirements of §93115.6(a)(1).

Pursuant to §93115.10(d) (1) a non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon installation. The owner/operator of the emergency engines shall keep monthly records of the following for 36 months, with the prior 24 months readily accessible at the site and the prior 25 to 36 months available to the District within 5 working days from the request. However, Major Facilities are required to maintain records for a minimum of 5 years.

- Emergency use hours of operation;
- Maintenance and testing hours of operation;
- Hours of operation for emission testing to show compliance with §933115.6(a)(3) and §93115.6(b)(3);
- Initial start-up testing hours;
- If applicable, hours of operation to comply with the requirements of NFPA 25;
- Hours of operation for all uses other than those specified in §93115.10(g)(1)(A) through (D);
- If applicable, DRP engine hours of operation; and,
- The fuel used.

New Source Performance Standards (NSPS) 40 CFR Part 60 Subpart IIII

According to §60.4200(a)(1)(i), the emergency engine is subject to the requirements of 40 CFR Part 60 Subpart IIII, “Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.”

Pursuant to §60.4205(b), owners or operators of 2007 model year and later stationary emergency diesel engine-generator sets with a displacement of less than 30 liters per cylinder must comply with §60.4202. In accordance with §60.4202(a)(2), the emission standards must meet those established in 40 CFR part 1039, appendix I and 40 CFR 1039.105. Pursuant to 40 CFR part 1039, appendix I, engines with a rated power greater than 560 kW (750 hp) must meet the following emission standards.

Table 15. Review of Standards for Engines with Less than 30 L per Cylinder Displacement				
Pollutant	NSPS Emission Standard (g/kW-hr)	NSPS Emission Standard (g/hp-hr)	EPA Certified Emission Rate (unabated) (g/kW-hr)	EPA Certified Emission Rate (unabated) (g/hp-hr)
NO _x	6.4	4.8	5.47	4.08
CO	3.5	2.6	0.7	0.52
PM	0.20	0.15	0.15	0.11

The aforementioned analysis demonstrates that the emergency engine will meet the emission standards of 40 CFR part 1039, appendix I. In addition, the emergency engine is expected to meet the following opacity standards identified in 40 CFR 1039.105.

Table 16. 40 CFR 1039.105 Opacity Standards	
Mode	Opacity (%)
Acceleration	20
Lugging	15
Peak (During acceleration or lugging modes)	50

§60.4206 and §60.4211(a) require the owner or operator to maintain and operate the emergency engine according to the manufacturer's written instructions or owner/operator developed procedures approved by the manufacturer for the entire life of the emergency engine. The emergency engine is expected to be maintained and operated in accordance with the requirements of §60.4206 and §60.4211(a).

§60.4207(b) requires diesel fuel consumed after October 1, 2010 to meet the requirements of 40 CFR 1090.305, which is a maximum sulfur content of 15 parts per million (ppm). The fuel consumed is expected to meet this requirement.

§60.4209(a) requires the installation of a non-resettable hour meter. This will be included as a permit requirement.

The emergency engine is certified to the requirements of 40 CFR part 1039 and is expected to comply with §60.4211(c).

Per §60.4211(f), the emergency engine will be allowed to operate unrestricted during emergencies. In addition, the emergency engine will be limited to less than 100 hours per calendar year for maintenance and testing. However, the requirements of the CARB ATCM may further limit the maintenance and testing hours.

National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart ZZZZ – Emergency Engine (S14)

Pursuant to §63.6585, engines located at an area source are subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, *“National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.”*

However, according to §63.6590(a)(1)(iii) & §63.6590(c)(1), diesel engines that commenced construction on June 12, 2006 or later and that operate at a facility that emits or has the potential to emit any single hazardous air pollutant (HAP) at a rate of less than 10 tons per year or any combination of HAPs at a rate of less than 25 tons per year, comply with the standard by complying with 40 CFR Part 60 Subpart IIII, *“Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.”* The emergency engine is expected to meet the requirements of this subpart by meeting the standards of 40 CFR Part 60 Subpart IIII, *“Standards of Performance of Stationary Compression Ignition Internal Combustion Engines.”*

District Rules

Regulation 6, Rule 1:

S14 is subject to Regulation 6, Rule 1. Opacity and visible emissions from S14 are limited by Regulation 6-1-303.2 to Ringelmann No. 2.

Regulation 6-1-305 prohibits the emission of particles from any operation in sufficient number to cause annoyance to any other person where the particles are large enough to be visible as individual particles at the emission point, or of such size and nature as to be visible individually as incandescent particles. S14 is not expected to produce visible emissions or fallout in violation of this regulation and will be assumed to be in compliance with Regulation 6-1-305.

Regulation 6-1-310 limits emissions from any source of particulate matter in excess of 343 mg per dscm (0.15 grains per dscf) of exhaust gas volume. S14 is expected to comply with this requirement.

Regulation 6-1-311 prohibits total suspended particulate (TSP) emissions from any source to be emitted at a rate in excess of the limit indicated for the source’s process weight rate in Table 6-1-311.1. Process weight rate is defined by 6-1-206 as excluding liquids and gases used solely as fuel and combustion air. As an internal combustion engine, liquids and gases used solely as fuel and combustion air make up all of the process weight for S14. S14 is therefore not subject to 6-1-311.

Regulation 8, Rule 2: Miscellaneous Operations

Regulation 8-2-301 prohibits a person from discharging into the atmosphere from any miscellaneous operation an emission containing more than 15 lbs of organic compounds per day and containing a concentration of more than 300 ppm total carbon on a dry basis.

If a source is subject to another rule in Regulation 8, Rule 2 does not apply.

The engine emits 17.4 lbs of organic compounds per day.

Following is a calculation of the concentration of organics compounds in the engine exhaust.

Calculation of lb-moles in the engine exhaust:

V, flow	14665	cfm
	21117600	cf/day
T, Temp	932	F
	1392	R
P	1	atm
R	0.7302	
n	20776.07458	lb-moles/day

Calculation of lb-moles of organic compounds as methane in the exhaust

Organics	17.4	lb/day
MW Methane	16	
		lb-mol/day as
Organics	1.0875	methane

Concentration of organics in the exhaust by dividing lb-moles of organics by lb-moles in the exhaust: 52.3 ppm

Because the organics concentration is less than 300 ppm, the engine will comply with the standard.

Regulation 9, Rule 1: Sulfur Dioxide

S14 is subject to the SO₂ limitations of Regulation 9-1-301 (Limitations on Ground Level Concentrations of Sulfur Dioxide) and 9-1-304 (Burning of Solid and Liquid Sulfur Dioxide Fuel).

Pursuant to Regulation 9-1-301, the ground level concentrations of SO₂ shall not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. The engine will meet this standard due to the use of CARB low sulfur diesel fuel with a sulfur content of 0.0015% by weight.

Pursuant to Regulation 9-1-304, a person shall not burn any liquid fuel having a sulfur content in excess of 0.5% by weight. Compliance with Regulation 9-1 is expected due to the use of CARB low sulfur diesel fuel with a sulfur content of 0.0015% by weight.

Regulation 9, Rule 8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

S14 will be operated as an emergency standby engine and therefore is not subject to the emission rate limits in Regulation 9, Rule 8. S14 is exempt from the requirements of Section 9-8-301 through 305, 501, and 503 per Regulation 9-8-110.5 (Emergency Standby Engines). S14 is subject and expected to comply with 9-8-330.3 (Emergency Standby Engines, Hours of Operation) since non-emergency hours of operation will be limited in the permit conditions to 50 hours per year. S14 is also subject to and expected to comply with monitoring and record keeping requirements of Regulations 9-8-502.1 and 9-8-530, which are incorporated into the proposed permit conditions.

Overall Facility (SCRWA), Plant 1381

Regulation 1: General Provisions and Definitions

SCRWA is subject to Regulation 1, Section 301, which prohibits discharge of air contaminants or other material resulting in public nuisance. The proposed sources are not expected to be a source of public nuisance.

Regulation 2, Rule 2: Prevention of Significant Deterioration (PSD) Requirement

The PSD requirements in District Regulation 2, Rule 2, Section 304 and 305 apply to major modifications at a major facility. This site is not a major facility. Therefore, Regulation 2-2-304 and 2-2-305 do not apply.

Regulation 2, Rule 6: Major Facility Review

This rule requires that major and designated facilities apply for a Title V federal operating permit. This facility is not a major facility.

Regulation 3: Fees

The facility has paid the application fees billed under Invoice 4KG77.

California Environmental Quality Act (CEQA)

This project, consisting of the proposed upgrades to SCRWA, plant 1381, was the subject of an Initial Study/Mitigated Negative Declaration. The Initial Study/Mitigated Negative Declaration (IS/MND) was approved by the lead Agency (South County Regional Wastewater Authority) on November 4, 2020.

This permit application was subject to Mitigated Negative Declaration prepared by an agency other than the Air District. Prior to approving the permit application, the Air District reviewed and considered the Negative Declaration adopted by the lead agency, including public comments.

California Health & Safety Code §42301.6 and Regulation 2-1-412

Pursuant to California Health & Safety Code §42301.6(a), prior to approving an application for a permit to construct or modification of a source, which is located within 1,000 feet from the outer boundary of a school site, the District shall prepare a public notice as detailed in §42301.6. §42301.9(a) defines a “school” as any public or private school used for the purposes of the education of more than 12 children in kindergarten or any grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Using the GreatSchools.org website and searching with Google Maps, it has been determined that the source will not be located within 1,000 feet of the outer boundary of any K-12 school site. Therefore, the project is not subject to the public notice requirements due to proximity to a school.

This project is in an overburdened community as defined by Regulation 2-1-243 and a Health Risk Assessment is required pursuant to Regulation 2-5-401, so it is subject to the public notification requirements in Regulation 2-1-412. The details of the public notice are in the Recommendation Section at the end of this evaluation.

CONDITIONS

Permit Condition 8462 for S150, S200, S300, S301, S305, S315, S320, S330, S336, S337, S402

South County Regional Wastewater Authority (SCRWA)

1. The owner/operator shall not exceed total wastewater flow rates of ~~8.11~~ million gallons per day (MGD) average dry weather flow, which includes 8.5 MGD from the main wastewater treatment plant and 2.5 MGD from S301, Membrane Bioreactor (MBR) Treatment, and 18.8 MGD peak wet weather flow. If actual or projected wastewater flows ever exceed these level, the operator of the SCRWA Treatment Plant shall apply to the District within 30 days for a modification of their Permit to Operate. (Basis: Cumulative Increase)
2. To determine compliance with the above condition, the owner/operator shall maintain the following records:
(Basis: ~~Cumulative Increase~~)
 - a. Daily and monthly records of the quantity of wastewater processed at this source.
 - b. Monthly records totaled for each consecutive 12-month period.
 - c. All records shall be retained onsite for two years from the date of entry and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any District Regulation.
(Basis: ~~Cumulative Increase~~)
- e. 3. The owner/operator shall ensure all equipment at the facility shall be operated in such a manner as to prevent the occurrence of off-site odors such as would constitute a "Public Nuisance" per District Regulation 1-301 or result in a violation of District Regulation 7 "Odorous Substances".
(Basis: Regulation 1-301)
4. The owner/operator shall ensure that only effluent treated by S-320, Secondary Clarifiers, or S301, Membrane Bioreactor (MBR) Treatment, is sent to S150 and S200, the effluent ponds, or the Pajaro River in accordance with the NPDES Permit No. CA0049964.
(Basis: Cumulative Increase)
5. The owner/operator shall ensure that sludge generated during the treatment process is disposed of off-site.
(Basis: Cumulative Increase)

Septage Receiving at S-305, Preliminary Treatment, at ~~@~~ Plant #1381:

6. All emissions resulting from septage receiving at S-305 shall be abated by A-305, Mist-Type Odor Scrubber, at all times ~~that~~ when septage receiving is a source of malodorous emissions. (Basis: Regulation 1-301)

S-330, Sludge Handling Process ~~@~~at Plant #1381:

7. S-330 shall be abated by A-330, Mist-Type Odor Scrubber, at all times ~~that~~ when S-330 is a source of malodorous emissions. (Basis: Regulation 1-301)

Permit Condition 100859 for S14, A14

Tier 2 Engines, equipped with add-on SCR and DPF;
ST for NOX/CO, POC, and PM

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor, or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 20 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limits:
NO_x: 0.50 g/bhp-hour
POC: 0.14 g/bhp-hour
CO: 2.60 g/bhp-hour
PM: 0.02 g/bhp-hour
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]

7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
PM(filterable) EPA Method 5 or Air District-approved equivalent
NOx EPA Method 7E or Air District-approved equivalent
POC EPA Method 25A and EPA Method 18 or Air District-approved equivalent
CO EPA Method 10 or Air District-approved equivalent
[Basis: Regulation 2-1-403]
8. To determine compliance with the above parts, the owner/operator shall maintain the following records in an Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test
 - d. Engine load percentage
 - e. Engine, SCR, and DPF maintenance records
 - f. SCR system owner's manual or manufacturer's specifications
 - g. DPF owner's manual or manufacturer's specifications
 - h. All backpressure monitor notifications and corrective actions
 - i. SCR urea injection rate (gpm)[Basis: BACT, Cumulative Increase, Recordkeeping]

Permit Condition 100072 for S14

1. The owner or operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, state or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, state or Federal emission limits is not limited.
[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
2. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained.

[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

3. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
 - a. Hours of operation for reliability-related activities (maintenance and testing).
 - b. Hours of operation for emission testing to show compliance with emission limits.
 - c. Hours of operation (emergency).
 - d. For each emergency, the nature of the emergency condition.
 - e. Fuel usage for each engine(s).

[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

4. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply: The owner or operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:
 - a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
 - b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.“School” or “School Grounds” means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). “School” or “School Grounds” includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

Permit Condition 100073 for S14

The owner/operator shall not exceed the following limits per year per engine for reliability-related activities:

50 Hours of Diesel fuel (Diesel fuel)

[Basis: Cumulative Increase; Regulation 2-5; Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

Permit Condition 100860 for S301, S305, S330, A305, and A330

1. The owner/operator of S301, Membrane Bioreactor (MBR) Treatment, shall ensure the throughput at S301 does not exceed a wastewater flow rate of 2.5 MGD. [Basis: Cumulative Increase]
2. To demonstrate compliance with part 1 of this condition, the owner/operator shall record the following:
 - a. Daily and monthly records of the quantity of effluent processed at S301; and,
 - b. Consecutive 12-month period quantity of effluent processed at S301 by totaling the monthly records of Part 2(a) of this condition.
[Basis: Regulation 9-2]
3. The owner/operator shall ensure that the abated hydrogen sulfide (H₂S) concentrations at S305, Preliminary Treatment, S330, Sludge Handling Process, MBR headworks (part of S301), the MBR solids handling building (part of S301), and S301, MBR treatment, do not exceed 1 ppmv, measured at the exhaust of either A305, Mist-type Odor Scrubber, A330, Mist-type Odor Scrubber, the MBR bioreactor basins (part of S301), or the MBR membrane basins (part of S301). [Basis: Regulation 2-5, Regulation 9-2]
4. To demonstrate compliance with Part 3 of this condition, the owner/operator shall measure the concentration of H₂S at the outlet stacks of A305 and A330, and the outlets of the MBR bioreactor basins (part of S301) and the MBR membrane basins (part of S301) using Draeger tubes, a Jerome meter (provided the instrument is maintained and calibrated per manufacturer's specs and a bump test is performed and recorded prior to data collection), or other District approved method on a daily basis at least 5 days per week for the first two months of operation and on a weekly basis thereafter, if all daily concentrations show compliance with the full emission limit. The results from the first two months of testing shall be submitted to the Engineering Division to initially reduce the testing frequency from daily to weekly. The owner/operator can reduce the monitoring frequency from weekly to monthly if all readings are below one half of the emission limit for two months and the results of this testing are submitted to the Engineering Division. If readings rise above the emission limits, monitoring frequency will return to daily until two months of consecutive compliance can be demonstrated, at which point testing shall again be submitted to the Engineering Division to reduce testing frequency from daily to weekly. The reduction in monitoring frequency will be handled administratively. [Basis: Regulation 2-1-403, Regulation 2-5, Regulation 9-2]
5. The owner/operator shall maintain the following records:
 - a. H₂S volumetric concentration records from Part 4;
 - b. POC volumetric concentration records from Part 7; and,
 - c. NH₃ volumetric concentration records from Part 9.

All records shall be retained onsite for two years from the date of entry and made available for inspection by District staff upon request. These recordkeeping requirements do not replace the recordkeeping requirements contained in any applicable District regulation.
[Basis: Cumulative Increase, Regulation 9-2]

6. The owner/operator shall ensure that the abated precursor organic compounds (POC) concentrations at S305, Preliminary Treatment, S330, Sludge Handling Process, MBR headworks (part of S301), the MBR solids handling building (part of S301), and S301, MBR treatment, do not exceed 10 ppmv, measured as methane, at the exhaust of either A305, Mist-type Odor Scrubber, A330, Mist-type Odor Scrubber, the MBR bioreactor basins (part of S301), or the MBR membrane basins (part of S301) on an hourly basis. [Basis: Cumulative Increase]
7. To demonstrate compliance with the limits in Part 6 of this condition, the owner/operator shall measure POC, as methane, with an FID or PID at the outlet stacks of A305 and A330, and the outlets of the MBR bioreactor basins (part of S301) and the MBR membrane basins (part of S301) on a daily basis at least 5 days per week for the first two months of operation of these sources and on a weekly basis thereafter, if all daily concentrations show compliance with the full emission limit. The results from the first week of testing shall be submitted to the Engineering Division within 30 days of startup of these sources. The results from the first two months of testing shall be submitted to the Engineering Division to initially reduce the testing frequency from daily to weekly. The owner/operator can reduce the monitoring frequency from weekly to monthly if all readings are below one half of the emission limit for two months and the results of this testing are submitted to the Engineering Division. If readings rise above the emission limits, monitoring frequency will return to daily until two months of consecutive compliance can be demonstrated, at which point testing shall again be submitted to the Engineering Division to reduce testing frequency from daily to weekly. The reduction in monitoring frequency will be handled administratively.
 - a. If the measured concentration is over 10 ppm, the owner/operator may subtract the methane from the concentration with a portable flame ionization detector (FID) equipped with an activated carbon filter tip, or District approved instrument.
 - b. A POC measurement by the FID exceeding 10 ppm shall not be deemed a violation but shall trigger a requirement to test a sample from the outlet using EPA Method 18 or District approved equivalent method to demonstrate compliance. The owner/operator shall ensure that the detection limit of the testing method chosen is comparable to the results of the FID and the limit as per Part 6 of this condition. The sample for the confirmation test shall be collected on the same day an exceedance is measured. The owner/operator shall follow proper sample collection methodology for the laboratory method chosen, including but not limited to; proper sample media, and hold times. The owner/operator shall obtain the results of the test within two weeks of gathering the sample. If the results of the test show non-compliance, the owner/operator shall report the results to the Compliance and Enforcement Division of the Air District.[Basis: Cumulative Increase, BACT, Regulation 2-1-403]
8. The owner/operator shall ensure that the abated ammonia (NH₃) concentrations at S305, Preliminary Treatment, S330, Sludge Handling Process, MBR headworks (part of S301), and the MBR solids handling building (part of S301) do not exceed 120 ppmv, measured at the exhaust of either A305, Mist-type Odor Scrubber, or A330, Mist-type Odor Scrubber. The owner/operator shall ensure that the abated ammonia (NH₃) concentrations at S305, Preliminary Treatment, S330, Sludge Handling Process, MBR headworks (part of S301), and

the MBR solids handling building (part of S301) do not exceed 60 ppmv on an annual average basis, measured at the exhaust of either A305, Mist-type Odor Scrubber, or A330, Mist-type Odor Scrubber. [Basis: Regulation 2, Rule 5]

9. To demonstrate compliance with the limits in Part 8 of this condition, the owner/operator shall measure ammonia (NH₃) with a portable monitor or other suitable District approved method at the outlet stacks of A305 and A330 on a daily basis at least 5 days per week for the first two months of operation of A305 and A330 and on a weekly basis thereafter, if all daily concentrations show compliance with the full emission limit. The results from the first week of testing shall be submitted to the Engineering Division within 30 days of startup of A305 and A330. The results from the first two months of testing shall be submitted to the Engineering Division to initially reduce the testing frequency from daily to weekly. The owner/operator can reduce the monitoring frequency from weekly to monthly if all readings are below one half of the emission limit for two months and the results of this testing are submitted to the Engineering Division. If readings rise above the emission limits, monitoring frequency will return to daily until two months of consecutive compliance can be demonstrated, at which point testing shall again be submitted to the Engineering Division to reduce testing frequency from daily to weekly. The reduction in monitoring frequency will be handled administratively. [Basis: Regulation 2, Rule 5, Regulation 2-1-403]
10. The owner/operator shall abate the emissions from the plant headworks building at S305 and the MBR headworks (part of S301) with A305, and the emissions from the plant sludge handling building at S330 and the MBR solids handling building (part of S301) with A330, at all times, except that A305 and A330 can be out of service for up to 24 hours per calendar year for the changing out of media or other maintenance. [Basis: Cumulative Increase, BACT, Regulation 2-1-320]
11. The owner/operator shall ensure that the gas flow to A305 is at least 10,000 cfm from the plant headworks building at S305 and at least 100 cfm from MBR headworks (part of S301) at all times while A305 is in operation, except during carbon changeout or required maintenance. The owner/operator shall ensure that the gas flow to A330 is at least 22,000 cfm from the plant sludge handling building at S330 and at least 3,200 cfm from MBR solids handling building (part of S301) at all times while A330 is in operation, except during carbon changeout or required maintenance. [Basis: Cumulative Increase, BACT, Regulation 2-1-320]
12. The owner/operator shall ensure that the gas flow from the MBR bioreactor basins is at least 4,950 cfm and that the gas flow from the MBR membrane basins is at least 2,560 cfm at all times while the MBR is in operation. [Basis: Cumulative Increase, Regulation 2-1-320]
13. The owner/operator shall ensure that the stack of A305 is at least 20.5 feet above grade and emits vertically with a hinged rain cap. The owner/operator shall ensure that the stack of A330 is at least 31 feet above grade and emits vertically with a hinged rain cap. The owner/operator shall ensure that the height of the MBR bioreactor basins is at least 26 feet above grade and the height of the MBR membrane basin enclosure panels is at least 15 feet above grade. [Basis: Regulation 9-2, Regulation 2-5, Regulation 2-1-320]

14. The owner/operator of A305 and A330 shall use the monitoring results obtained from part 4 and/or part 7 to estimate the frequency of A305 and A330 carbon changeout necessary to maintain compliance with the H₂S limit and POC limit in parts 3 and 6 and part 15. [Basis: Cumulative Increase, Regulation 9-2]
15. The owner/operator of A305 and A330 shall immediately schedule change out with unspent carbon for each carbon vessel exhibiting breakthrough, defined as detection at its outlet of whichever occurs first of the following:
 - a. 10 ppmv POC (measured as methane, using the measurements from part 7) averaged over 1 week, or
 - b. 1 ppmv H₂S (using the measurements from part 4) averaged over 1 week.[Basis: Cumulative Increase, Regulation 9-2]

Facility-wide Permit Condition 100861

1. The owner/operator shall notify the Engineering Division within 30 days if the portion of the parcel adjacent to the southwest border of plant 1381, SCRWA, which contains/contained a solar farm operated by SCRWA, is no longer occupied and operated by SCRWA. In this case, compliance with Regulation 9, Rule 2 shall be reassessed and another air dispersion analysis shall be conducted. [Basis: Regulation 2-1-320, Regulation 2-1-403, Regulation 9-2]

End of Conditions

RECOMMENDATION

The District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct/Permit to Operate for the equipment listed below. The proposed project will be located within an overburdened community and requires an HRA, which triggers the public notification requirements of District Regulation 2-1-412. After comments are received and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct/Permit to Operate for the following sources:

- S14 Emergency Standby Diesel Generator Set**
Make: Mitsubishi, Model: S16R-PTAW, Model Year: 2021
2346 bhp, 18.22 MMBtu/hr, EPA Engine Family: MMVXL65.4BBA
- Abated by**
- A14 Miratech Diesel Particulate Filter and Miratech Selective Catalytic Reducer**
- S301 Membrane Bioreactor (MBR) Treatment, including:**
MBR Headworks, MBR Blower and Electrical Building, MBR Membrane Basins, MBR Chemical Storage and Feed, MBR Solids Handling Process
- MBR Headworks abated by**
- A305 Mist-Type Odor Scrubber, 10,100 cfm, existing**
100 cfm from MBR Headworks, 10,000 cfm from existing Preliminary Treatment, S305
- MBR Solids Handling Process abated by**
- A330 Mist-Type Odor Scrubber, 25,200 cfm, existing**
3,200 cfm from MBR Solids Handling Process, 22,000 cfm from existing Sludge Handling Process, S330
- And a modification to the following equipment:**
- S150 Effluent Disposal Ponds (exempt)**
- S200 Effluent Disposal Ponds (exempt)**
- S300 Municipal Sewage Treatment Plant**
- S305 Preliminary Treatment, abated by A305**
- S330 Sludge Handling Process, abated by A330**

S401 Tertiary Treatment

S402 Disinfection

By: _____
Ryan Atterbury
Air Quality Engineer

Date: _____

DRAFT

List of Acronyms

ADPF: active diesel particulate filter

AP-42: EPA publication: Compilation of Air Emissions Factors from Stationary Sources

ATCM: Airborne Toxic Control Measure (CARB)

Atm: Atmosphere

BAAQMD: Bay Area Air Quality Management District

BAAT: Bay Area Air Toxics

BACT: Best Available Control Technology

bhp: brake horsepower

btu: British Thermal Unit

CARB: California Air Resources Board

CCR: California Code of Regulations

cf: cubic feet

cfm: cubic feet per minute

CFR: Code of Federal Regulations

CI: compression ignition

CO: carbon monoxide

DOC: diesel oxidation catalyst

DPF: diesel particulate filter

DRP: Demand Response Program

dscm: dry standard cubic meter

EPA: federal Environmental Protection Agency

FID: flame ionization detector

g: grams

gal: gallons

GLC: ground level concentration

gpm: gallons per minute

HAP: hazardous air pollutant

HI: health index

hp: horsepower

HRA: health risk assessment

H₂S: hydrogen sulfide

hr: hour

HRA: Health Risk Assessment

IS/MND: Initial Study/Mitigated Negative Declaration

kW: kilowatt

lb: pounds

MBR: membrane bioreactor

mg: milligram

MGD: million gallons per day

min: minute

MM: million

MMBtu: million British Thermal Units

MW: Molecular Weight

NESHAP: National Emissions Standards for Hazardous Air Pollutants (EPA)

NFPA: National Fire Protection Association

NH₃: ammonia

NO_x: Oxides of nitrogen

NPDES: National Pollutant Discharge Elimination System

NSPS: New Source Performance Standards (EPA)

O₂: oxygen

P: pressure

PM: particulate matter

PM₁₀: particulate matter with a diameter less than 10 microns

PM_{2.5}: particulate matter with a diameter less than 2.5 microns

PO: permit to operate

POC: precursor organic compounds

POTW: publicly owned treatment works

ppm: parts per million

ppmv: parts per million by volume

PTE: potential to emit

R: ideal gas constant (atm ft³ lb-mol rankine)

RACT: Reasonably Available Control Technology

scf: standard cubic feet

scfm: standard cubic feet per minute

SCR: selective catalytic reducer

SCRWA: South County Regional Wastewater Authority

SO₂: sulfur dioxide

SO_x: oxides of sulfur

TAC: Toxic Air Contaminant

TBACT: Best Available Control Technology for Toxics

tpy: tons per year

TSP: total suspended particulate

UV: ultraviolet

V: volume

VOC: volatile organic compound

WPCD: Water Pollution Control District

yr: year

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