Draft Engineering Evaluation
CA-002 Somo Village (Resynergi)
1200 Valley House Drive, Rohnert Park, CA 94928, West side of building 1200
Plant No. 203504
Application No. 704470

Contents

1. BACKGROUND

Note: All acronyms are spelled out in Appendix A.

Resynergi has applied to obtain an Authority to Construct (A/C) and/or Permit to Operate (P/O) for the following equipment:

S1 CMAP Reactor Skid, Pyrolysis and Condenser, 5 US tons (sorted plastics) per 24 hours
Four 1.25 tpd units in parallel

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

A5 In-line pulse filter/Baghouse,
venting of plastic pneumatic conveyance located at end of conveyance line 348 cfm max
with a Coperion polyester filter bags

NCG means non-condensable gases. NG means natural gas. Tpd means US tons/day. Scfm means standard cubic feet per minute.

S4 Plastics Chipping/Pelletizing, 5 tpd (sorted plastics)
Virtus Shredder/Granulator Combination SG 1400
Max operating rate: 1,500 lb/hr
CME R-35 pellet mill, capacity: 2,500 lb/hr

abated by
A4 Cyclonic Separator, and Baghouse, 2,000 cfm
Baghouse: US Air Filtration, Model: 33-PTPBBV-39-6.25
Bin Vent with 9 polyester filter bags/cartridges

S5 Pyrolysis Oil Storage Tank, 120 gallons
UL listed UL-142
Internal buffer tank on CMAP Reactor Skid

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

S6 Pyrolysis Oil Storage Tank, 10,000 gallons
UL listed UL-142, Newberry Tanks

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

S7 Plastics Stockpile

S8 Plastic Pellet Silo, 7.5 tons [Exempt]

Abated by
A4 Cyclonic Separator, and Baghouse, 2,000 cfm
Baghouse: US Air Filtration, Model: 33-PTPBBV-39-6.25
Bin Vent with 9 polyester filter bags/cartridges
and
A5 In-line pulse filter/Baghouse,
venting of plastic pneumatic conveyance located at end of conveyance line, 348 cfm max
with a Coperion polyester felt filter bags

The pyrolysis reactor and condenser, or Continuous Microwave Assisted Pyrolysis (CMAP) plastic chemical recycling unit, will operate at 1200 Valley House Drive, Rohnert Park, CA. The operation will receive waste plastics and create a pyrolysis oil by pyrolyzing the waste plastics using electrically generated microwaves in an oxygen deprived environment, then condensing the products of pyrolysis. The pyrolysis oil can be used like sweet light crude oil to serve as a feedstock for the creation of virgin plastic resins.

Plastics Stockpile, S7
The process will start with the delivery of waste plastics from local materials recovery facilities (MRFs). The waste plastics will come pre-sorted from the MRFs to contain the target feedstocks for the CMAP. The target feedstocks are high density polyethylene (HDPE), low density polyethylene (LDPE), and polypropylene and will compose the majority of the waste plastics received. High value plastics such as polyethylene terephthalate (PET) have a readily available post-consumer market and are not used as feedstock. The remaining plastics, received as contamination in the waste plastic deliveries, polyvinyl chloride (PVC), mixed polycarbonates, and other non-polyolefinic plastics aren't acceptable as feedstock for the CMAP. The segregation of resin types is necessary for sustaining uniform gasification rates in the CMAP chamber. The CMAP system can tolerate a little contamination such as paper and some mixing of types of plastic.

The waste plastics will be delivered to the facility receiving dock and will be stored indoors but uncovered at the plastics stockpile, S7. Bales of waste plastic will be broken on trays at the facility prior to being transported on a conveyor to the plastics chipping and pelletizing operation, S4. On the trays, some hand sorting will be done to remove remaining unwanted plastics or other organic contaminants. Metal detectors and magnetic separators will remove most metal contaminants as the waste plastic is conveyed to S4. S7 will operate 12 hours per day, 5 days per week, and will have maximum and average raw plastic throughputs of 9 and 7.7 tons per day, respectively.

The permit conditions will have limits on the amount of contamination allowed.

Plastics Chipping/Pelletizing, S4
The CMAP requires sized and weighted granules for consistent operation. The shredder/granulator will reduce bulky dense material into small granules under ½" in diameter. Material that originates from thicker sources (e.g., bottle caps, etc.) can go straight into the plastic pellet silo, S8, to be fed to the CMAP. Lighter material is processed in the pellet mill after passing through the

shredder/granulator and then goes to S8. The operations at S4 will be conducted inside the building. Due to the noise restrictions of the business park in which Resynergi is located, S4 will operate for 12 hours per day. S4 will operate 12 hours per day 5 days per week and will have maximum and average raw plastic throughputs of 9 and 7.7 tons per day, respectively.

Operations at S4 will be enclosed. After passing through the shredder/granulator, the material will be transferred to the pellet mill with a sealed blower into a cyclonic separator, which will separate heavy and light plastic. Plastic dust, a source of PM emissions, will be abated by a baghouse, A4. Pellets generated in the pellet mill will be transferred to the pellet silo, S8, pneumatically in a sealed tube. The blower used for conveyance will produce a flow rate of 2,000 cfm out of A4.

Plastic Pellet Silo, S8 [Exempt]

The plastic pellet silo, S8, will store the sized and pelletized plastics to be used as feed to the CMAP. The silo will have a volume of 700 cubic feet and will be able to store 7.5 tons of pelletized plastics. Pelletized plastic will be conveyed from the silo to the CMAP in a sealed tube by a 10 hp blower (348 cfm maximum), placed at the end of the feed plastic delivery line. An in-line pulse filter, A5, will abate PM emissions before exhausting to the inside of the building. The headspace of the silo will be vented to A4 and will not increase its flow rate.

Regulation 2, Rule 1, Section 121.17 exempts equipment used exclusively for conveying and storing plastic pellets. Once the waste plastic reaches S8, it will be pelletized. Therefore, S8 is exempt per 2-1-121.17, including the emissions from A5 and the silo head space emissions vented to A4.

S8 will be permitted to operate continuously when the CMAP is operating (24 hours/day, 7 days/wk, 50 wks/yr) and will have a daily throughput of 5 tons per day of sized and pelletized plastic.

CMAP Reactor Skid, Pyrolysis and Condenser, S1

The CMAP (continuous microwave assisted pyrolysis) reactor skid will consist of four 1.25 US ton per day units operating in parallel to process 5 US tons per day of sized and pelletized plastic. The CMAP is a sealed unit and will use microwaves in the flash chamber, which is lined with RF-absorbent material, to heat the flash chamber to between 800 and 1000 degrees F, which is sufficient to flash the plastic feed stock into gas. Microwave absorbent media in the reaction chamber will absorb the microwaves to heat the reaction chamber before plastic is introduced.

All products of gasification/pyrolysis will be controlled and either condensed in the direct contact condenser into pyrolysis oil or vented (the non-condensable gases (NCG)) to the thermal oxidizer. The condenser will use chilled pyrolysis oil as the cooling medium. This will be done by looping previously condensed pyrolysis oil through a heat exchanger in each CMAP unit and cooled down to 50 deg F. The cold side of the heat exchanger will be water with propylene glycol. With the four CMAP units operating in parallel, two binary air-cooled water chillers will be used to cool the glycol and water mixture. The water chillers will each be equipped with two compressors using a charge of 8.5 kg (18.7 lbs) R410A coolant. There will be no direct contact between chilled glycol fluid from the chiller and the pyrolysis oil. No cooling tower is used.

The NCG production rate is estimated to be 20.4 cfm. The pyrolysis oil is estimated to have a vapor pressure of 15.51 mmHg. The heat chamber is filled with nitrogen and maintained at a low pressure to ensure anoxic reaction of the feedstock.

The pyrolysis oil will be sent first to a 120 gallon internal buffer tank, S5, through a combined drain. The pyrolysis oil will then be transferred into a 10,000 gallon storage tank, S6, outdoors. All tank emissions will be vented to the thermal oxidizer, including from the tank PRVs. Vendors will pick up the pyrolysis oil in tanker trucks from S6. Each tank is expected to have an annual throughput of 401,400 gallons per year.

The pelletized plastic pyrolyzed in S1 will be converted to approximately 69% pyrolysis oil, 25% non-condensable gases, 5% paraffin wax, and between 1 and 5% char by weight. Approximately 0.25 tons per day and 87.5 tons per year of char are expected to be produced. The facility has requested a 20% buffer for the permit condition limits to allow for operational variability, so char production will be limited to 0.3 tons per day and 105 tons per year. Char will drop out of the bottom of the reactors via closed seal for disposal as it is generated.

Emissions from S1 will come from combustion of the NCG and tank headspace vapors at the thermal oxidizer and fugitive emissions leaking from pumps, valves, flanges, and other connectors. S1 will be permitted to operate 24 hours/day, 7 days/wk, 50 weeks per year to allow for maintenance down time.

Thermal Oxidizer, A1

The NCG generated during the pyrolysis process will be vented to the thermal oxidizer (TO), Questor Q250, A1, at an estimated rate of 20.4 cfm. A1 will operate continuously as abatement to the CMAP (24 hours/day, 7 days/wk, 50 wks/yr). The headspace emissions from tanks S5 and S6 will also be vented to the thermal oxidizer. Although the NCG will have a high heat content (1475 Btu/scf), it will not be supplied at a pressure high enough to allow for complete combustion. Natural gas will be supplied at 13.9 scfm to the TO to aid in combustion. Natural gas will be supplied as a pilot at 0.31 scfm. During the first 180 days after startup, propane will be used as the pilot and combustion aid gas at the same flow rates mentioned above for natural gas. Once the natural gas line has been installed, it will replace the use of propane.

Gas chromatography carried out on the NCG found it to be composed of 92.4 wt% total hydrocarbons, 90.2 wt% total non-methane hydrocarbons, 42.7 wt% propylene, 6.7 wt% vinyl acetylene, and 0.14 wt% 1,3-butadiene, among other constituents. Propylene and 1,3-butadiene were the only TACs found. Vinyl acetate was mistaken for the vinyl acetylene in the NCG. Vinyl acetylene is not a TAC per BAAQMD Regulation 2, Rule 5.

The manufacturer has stated that the TO will have a 99.99 % combustion efficiency under ideal conditional of air, fuel and gas flows. The TO will have a limit based on mass emissions at the outlet, not destruction efficiency.

2. EMISSION CALCULATIONS

Resynergi has submitted supporting documents for the above equipment, including manufacturer specifications and emissions data. The emissions for each of the sources are described below.

Thermal Oxidizer, A1

The thermal oxidizer (TO) will have a maximum capacity of 20.4 NCG. It will also burn 13.9 cfm natural gas to aid in combustion and 0.31 cfm natural gas as a pilot. The TO will be permitted to operate 24 hours/day, 7 days/wk, and 50 weeks/yr.

Table 1. NCG flow to A1

NCG heat content	1,475 Btu/scf
NCG maximum production rate	20.4 scfm
F factor*	9,528.7 dscfm/MMBtu
A1 permitted annual hours of operation	8,400 hours/yr
A1 Maximum heat input	2.67 MMBtu/hr
(at 8,400 hrs/yr)	22,462 MMBtu/yr
(at 24 hrs/day)	64.18 MMBtu/day

* Determined by facility based on gas chromatography of NCG

NO_X Emissions, A1:

Following are calculations of NOx emissions using the limit from 40 CFR 60, Subpart EEEE, "Standards of Performance for Other Solids Waste Incineration Units", Table 1, which limits NOx concentrations from devices subject to Subpart EEEE to 103 ppm at 7% oxygen, on a dry basis.

NOX (NCG) (180 scf NOX/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(9528.7 dscf/MMBtu)*(1.805 MMBtu NCG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.178 lb NOX/hr
0.075 lb NOX/hr / (1.805 MMBtu/hr) = 0.173 lb NOX/MMBtu
(15,165 MMBtu/yr)*(0.173 lb NOX/MMBtu) = **2623 lb/yr = 1.312 tons/yr**
(43.3 MMBtu/day)*(0.173 lb NOX/MMBtu) = **7.49 lb/day**

NOX (NG) (180 scf NOX/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(8710 dscf/MMBtu)*(0.869 MMBtu NG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.140 lb NOX/hr
0.140 lb NOX/hr / (0.869 MMBtu/hr) = 0.281 lb NOX/MMBtu
(7,297 MMBtu/yr)*(0.281 lb NOX/MMBtu) = **2053 lb/yr = 1.027 tons/yr**
(20.9 MMBtu/day)*(0.281 lb NOX/MMBtu) = **5.88 lb/day**

Total NOx: 13.37 lb/day, 2.440 tpy

Following are calculations of NOx emissions using the NOx emission factor for A1 from EPA's AP-42, Table 1.4-1, "Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion". The NOx emission factor for NCG has been increased by 7.4% to account for the 7.4% concentration of nitrogen gas in NCG.

NO_X (NCG) (15,165 MMBtu/yr)* (107.4 lb/MMscf CH_4)*(1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= **1,628.7 lb/yr = 0.814 tons/yr**
(43.3 MMBtu/day)* (107.4 lb/MMscf CH_4)*(1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= 4.7 lb/day

NO_X (NG) (7,297 MMBtu/yr)* (100 lb/MMscf CH_4)*(0.001 scf NG/Btu)
= **729.7 lb/yr = 0.365 tons/yr**
(20.9 MMBtu/day)* (100 lb/MMscf CH_4)* (0.001 scf NG/Btu)
= 2.1 lb/day

Total NOx: 6.8 lb/day, 1.179 tpy

Operating at the Subpart EEEE limit would subject the thermal oxidizer to RACT for NOx because the emissions of NOx would be over 10 lb/day. To avoid RACT, the thermal oxidizer will be limited to 95 ppm NOx at 7% O2 and 10 lb/day (1.825 tpy).

CO Emissions, A1:
The CO emission factor for A1 is taken from 40 CFR 60, Subpart EEEE, "Standards of Performance for Other Solids Waste Incineration Units", Table 1, which limits CO concentrations from devices subject to Subpart EEEE to 40 ppm at 7% oxygen, on a dry basis.

CO (NCG) (69 scf CO/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(9528.7 dscf/MMBtu)*(1.805 MMBtu NCG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.075 lb CO/hr
0.075 lb CO/hr / (1.805 MMBtu/hr) = 0.072 lb CO/MMBtu
(15,165 MMBtu/yr)*(0.072 lb CO/MMBtu) **= 994.1 lb/yr = 0.497 tons/yr**
(43.3 MMBtu/day)*(0.072 lb CO/MMBtu) = **3.118 lb/day**

CO (NG) (40 scf CO/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(8710 dscf/MMBtu)*(0.869 MMBtu NG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.033 lb CO/hr
0.033 lb CO/hr / (0.869 MMBtu/hr) = 0.066 lb CO/MMBtu
(7,297 MMBtu/yr)*(0.066 lb CO/MMBtu) **= 481.6 lb/yr = 0.241 tons/yr**
(20.9 MMBtu/day)*(0.066 lb CO/MMBtu) = 1.38 **lb/day**

Total CO: 4.497 lb/day, 0.821 tpy

PM Emissions, A1:
Following are PM calculations using the PM emission factor from the EPA's AP-42, Table 2.4-5, "Emission Rates for Secondary Compounds Exiting Control Devices".

PM (NCG) (15,165 MMBtu/yr)*(17 lb/MMscf CH_4)* (1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= 257.8 lb/yr = 0.129 tons/yr
(43.3 MMBtu/day)* (17 lb/MMscf CH_4)* (1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= 0.74 lb/day

PM (NG) (7,297 MMBtu/yr)* (17 lb/MMscf CH_4)*(0.001 scf NG/Btu)
= **124.1 lb/yr = 0.062 tons/yr**
(20.9 MMBtu/day)* (17 lb/MMscf CH_4)* (0.001 scf NG/Btu)
= 0.35 lb/day

Total: 1.09 lb/day, 0.191 tpy

This PM factor includes PM10 and PM2.5 and is presumed to include condensable particulate.

Following are calculations of PM emissions using the limit from 40 CFR 60, Subpart EEEE, "Standards of Performance for Other Solids Waste Incineration Units", Table 1, which limits PM emissions from devices subject to Subpart EEEE to 210 milligrams per dry standard cubic meter at 7% oxygen, which is equivalent to 0.092 grains/dscf.

PM (NCG) (((20.9-0)/(20.9-7))*(9528.7 dscf/MMBtu)*(1.805 MMBtu NCG/hr)*(210 mg/dscm) (1 lb/454000 mg)*(1 dscm/35.3 dscf) = 0.339 lb PM/hr
0.339 lb PM/hr / (1.805 MMBtu/hr) = 0.188 lb PM/MMBtu
(15,165 MMBtu/yr)*(0.188 lb PM/MMBtu) **= 2851 lb/yr = 1.426 tons/yr**
(43.3 MMBtu/day)*(0.188 lb PM/MMBtu) = **8.14 lb/day**

PM (NG) (((20.9-0)/(20.9-7))*(8710 dscf/MMBtu)*(0.869 MMBtu NG/hr)* (210 mg/dscm) (1 lb/454000 mg)*(1 dscm/35.3 dscf) = 0.149 lb PM/hr
0.149 lb PM/hr / (0.869 MMBtu/hr) = 0.172 lb PM/MMBtu
(7,297 MMBtu/yr)*(0.172 lb PM/MMBtu) **= 1255 lb/yr = 0.628 tons/yr**
(20.9 MMBtu/day)*(0.172 lb PM/MMBtu) = **3.595 lb/day**

Total PM: 11.735 lb/day, 2.054 tpy

The Subpart EEEE limit is tested using EPA Method 5. This means that the limit does not include condensable particulate and is a TSP limit. TSP is not subject to BACT. The BACT and RACT pollutants are PM10 and PM2.5. To avoid RACT, the thermal oxidizer will be limited to 0.40 lb PM10/hr and 0.40 lb PM2.5/hr, including condensable PM.

<u>POC Emissions, A1:</u>
The POC emission factor is from BAAQMD Regulation 8, Rule 34, Section 301.4, which limits NMOC emissions at the outlet of an emission control device, or series of devices, other than a flare to 120 ppm at 3% oxygen, on a dry basis.

POC (NCG) (120 scf POC/10^6 scf exhaust)*((20.9-0)/(20.9-3))*(9528.7 dscf/MMBtu)*(1.805 MMBtu NCG/hr)*(16.04 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.100 lb POC/hr (as methane)
0.100 lb POC/hr (as methane) / (1.805 MMBtu/hr) = 0.056 lb POC/MMBtu
(15,165 MMBtu/yr)*(0.056 lb POC/MMBtu) **= 842.8 lb/yr = 0.421 tons/yr**
(43.3 MMBtu/day)*(0.056 lb POC/MMBtu) = **2.41 lb/day**

POC (NG) (120 scf POC/10^6 scf exhaust)*((20.9-0)/(20.9-3))*(8710 dscf/MMBtu)*(0.869 MMBtu NG/hr)*(16.04 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.044 lb POC/hr (as methane)
0.044 lb POC/hr (as methane) / (0.869 MMBtu/hr) = 0.052 lb POC/MMBtu
(7,297 MMBtu/yr)*(0.052 lb POC/MMBtu) **= 370.7 lb/yr = 0.185 tons/yr**
(20.9 MMBtu/day)*(0.052 lb POC/MMBtu) = **1.06 lb/day**

Total: 3.47 lb/day, 0.606 tpy

SO_2 Emissions, A1:
Following are calculations of SO_2 emissions based on EPA's AP-42, Table 1.4-2, "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion". It is assumed that SO_2 emissions from the combustion of NCG in the TO will be equivalent to SO_2 emissions from NG. The NCG is not expected to contain a significant amount of sulfur, so this is a conservative assumption.

SO_2 (NCG) (15,165 MMBtu/yr)*(0.6 lb/MMscf CH_4)*(1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= **9.1 lb/yr = 0.005 tons/yr**
(43.3 MMBtu/day)* (0.6 lb/MMscf CH_4)*(1.45 scf NG/scf NCG)/(1,475 Btu/scf NCG)
= **0.03 lb/day**

SO_2 (NG) (7,297 MMBtu/yr)* (0.6 lb/MMscf CH_4)*(0.001 scf NG/Btu)
= **4.4 lb/yr = 0.002 tons/yr**
(20.9 MMBtu/day)* (0.6 lb/MMscf CH_4)* (0.001 scf NG/Btu)
= 0.01 lb/day

Total: 0.04 lb/day, 0.007 tpy

Following are calculations of SO2emissions using the limit from 40 CFR 60, Subpart EEEE, "Standards of Performance for Other Solids Waste Incineration Units", Table 1, which limits SO2 concentrations from devices subject to Subpart EEEE to 3.1 ppm at 7% oxygen, on a dry basis.

SO2 (NCG) (38 scf SO2/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(9528.7 dscf/MMBtu)*(1.805 MMBtu NCG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.066 lb SO2/hr
0.066 lb SO2/hr / (1.805 MMBtu/hr) = 0.037 lb SO2/MMBtu
(15,165 MMBtu/yr)*(0.037 lb SO2/MMBtu) **= 561 lb/yr = 0.281 tons/yr**
(43.3 MMBtu/day)*(0.037 lb SO2/MMBtu) = 1.602 **lb/day**

SO2 (NG) (38 scf SO2/10^6 scf exhaust)*((20.9-0)/(20.9-7))*(8710 dscf/MMBtu)*(0.869 MMBtu NG/hr)*(28.01 lb CH_4/lb-mole)/(385.3 scf/lb-mole) = 0.051 lb SO2/hr
0.051 lb SO2/hr / (0.869 MMBtu/hr) = 0.059 lb SO2/MMBtu
(7,297 MMBtu/yr)*(0.059 lb SO2/MMBtu) **= 431 lb/yr = 0.215 tons/yr**
(20.9 MMBtu/day)*(0.059 lb SO2/MMBtu) = 1.233 **lb/day**

Total: 1.233 lb/day, 0.215 tpy

The SO2 limits will be based on the Subpart EEEE limits.

CMAP Reactor Skid, S1 – Fugitive Emissions from leaking components
The CMAP, S1, will be entirely enclosed, with the only emissions coming from combustion of the NCG in the thermal oxidizer, A1, combustion of the vented headspace of the pyrolysis oil tanks (S5 and S6) in A1, and fugitive leaks from flanges, valves, pumps, and other connections. Fugitive emissions were calculated using California Air Pollution Control Officers Association (CAPCOA)

correlation equations and emission factor for the petroleum industry. The components counts were provided by the applicant. The leaking gas was assumed to be of the same composition as the NCG. The calculated NMOC emissions were assumed to be 100% POC.

Table 2. Component Counts

Component	Total Facility Count
Valves	149
Pump Seals	9
Connectors	951
Flanges	151
Open-ended Lines	18

This facility will be subject to Regulation 8, Rule 18, Equipment Leaks. The screening values of 500 ppmv for pumps and 100 ppmv for all other components were used initial in the CAPCOA correlation equations to obtain emission factors from non-leaking components. The calculated emissions showed greater than 10 lb/day of expected POC emissions using these screening values.

For the facility's equipment, the maximum allowable percentages of leaking components (0.15% for valves and connections, 0.5% for pumps, and pressure-relief devices) were used to determine the maximum number of components that might be pegged leakers. The number of pegged leakers for each stream type was distributed proportionally according to the total number of components for each stream type. The CAPCOA pegged emission factor for leaking equipment was used for each component type; the 100,000 ppmv pegged factors were used for pumps and compressors, and the 10,000 ppmv pegged factors were used for all other component types. The leaking gas composition of each stream type was assumed to be the same as NCG, including the total hydrocarbon (THC) and NMOC mass fractions, then applied to the component specific leak rates to determine the hourly POC emissions per stream for each component type. Gas chromatography testing done by the facility showed that the NCG was 92.4% THC and 90.2% NMOC. The hourly fugitive emission rates for all stream types and all component types were summed to obtain maximum hourly fugitive POC emission for pegged leakers and for non-pegged leakers. The pegged leaking and non-pegged leaking rates were summed to obtain the total hourly POC emission rate for the S1 CMAP Reactor Skid. Maximum daily and maximum annual emission were determined by assuming the fugitive emission occur 24 hours/day and 365 days/yr to be conservative, although the applicant has said that S1 is expected to operate 350 days/yr.

The TAC emissions were estimated by applying the mass percentage of the NCG TACs found in the gas chromatography report conducted by the facility to the total hourly POC emission rate of 0.42 lb/hr (10 lb/day over 24 hours/day).

The THC and POC emissions from the CMAP Reactor Skid, S1, are summarized below.

Table 3. Fugitive Emissions from Component Leaks at S1

Pollutant	lb/hr	lb/day	lb/yr	tpy
THC[1]	0.44	10.6	3,883	1.941
POC[1]	0.43	10.4	3,794	1.897
POC[2]	0.42	10.0	3,650	1.825

[1]Calculated using the CAPCOA correlation equations

[2]Fugitive POC if limited by permit condition to 10 lb/day

Pyrolysis Oil Storage Tank, 120 gallons, S5
S5 will act as a buffer tank for the pyrolysis oil generated by the CMAP. The proposed throughput is 401,400 gallons per year. The emissions were calculated using EPA's Tanks 5 assuming that the pyrolysis oil is Diesel #2. The total calculated standing loss emissions were 3.6E-5 lb organic/yr. The calculated working losses were 6.4E-4 lb organics/yr. The total unabated annual losses were 6.7E-4 lb organics/yr. The tank headspace will be vented to A1, which will abate the emissions by 99.99%, so the total abated emissions from S5 will be 6.7E-8 lb organic/yr. The output of the Tanks 5 program is in the application file.

The assumptions for the Tanks 5 model were:

- Type: Vertical, fixed roof
- Height: 4 ft
- Diameter: 3.1 ft
- Meteorology: Rohnert Park, CA
- Color: Red
- Vapor pressure: 0.3 psi
- Pressure setting on PV valve: 0.5 psig
- Vacuum setting on PV valve: 0.04 psig
- Contents: similar to #2 diesel
- Liquid height: 1.5 ft

Pyrolysis Oil Storage Tank, 10,000 gallons, S6
S6 will store pyrolysis oil for distribution to customers. The proposed throughput is 401,400 gallons per year. The emissions were calculated using EPA's Tanks 5 assuming that the pyrolysis oil is Diesel #2. The total calculated standing loss emissions were 1.5E-4 lb organic/yr. The calculated working losses were 9.4E-4 lb organics/yr. The total unabated annual losses were 1.1E-3 lb organics/yr. The tank headspace will be vented to A1, which will abate the emissions by 99.99%, so the total abated emissions from S5 will be 1.1E-7 lb organic/yr. The output of the Tanks 5 program is in the application file.

The assumptions for the Tanks 5 model were:

- Type: Vertical, fixed roof
- Height: 17 ft
- Diameter: 10 ft
- Meteorology: Rohnert Park, CA
- Color: White
- Vapor pressure: 0.3 psi
- Pressure setting on PV valve: 0.5 psig
- Vacuum setting on PV valve: 0.04 psig
- Contents: similar to #2 diesel

Plastics Stockpile, S7

Plastics will be delivered to the facility receiving dock and will be stored indoors but uncovered at the plastics stockpile, S7. S7 will operate 12 hours per day 5 days per week and will have maximum and average raw plastic throughputs of 9 and 7.7 tons per day, respectively. The annual throughput will be 2,811 tons of plastic per year.

The handling of plastics at S7 will result in PM emissions in the form of plastic dust. The emission factor is taken from the EPA's AP-42, Table 6.6.2-1, "Emission Factors for PET/DMT Process", using the uncontrolled emission factor for PM from product storage.

Table 4. PM Emissions from Plastics Stockpile, S7

Pollutant	lb/day	lb/yr	tpy
PM	7.2	2,248	1.124

Cyclonic Separator and Baghouse, A4

Plastics received at S7 will be transported on a sealed conveyor to plastics chipping/pelletizing, S4. Plastic dust generated at S4 will be sent to A4 for abatement before the air in the conveyance line is exhausted to the atmosphere. The headspace of the plastic pellet silo, S8, will also be vented to A4. The flow rate through A4 will be 2,000 cfm.

A4 will operate 5 days per week, 12 hours per day, and 52 weeks per year. Manufacturer specifications show that the grain loading rate will be no more than 0.03 gr/dscf.

Table 5. PM Emissions from Cyclonic Separator and Baghouse, A4

Pollutant	lb/day	lb/yr	tpy
PM	6.2	1,605	0.802

In-line Pulse Filter/Baghouse, A5

A5 will abate PM emissions from the exhaust at the end of the feed plastic delivery line, after S1. The flow rate through A5 will be a maximum of 348 cfm.

A5 will operate 7 days per week, 24 hours per day, and 50 weeks per year. Manufacturer specifications show that the grain loading rate will be 0.03 gr/dscf.

Table 6. PM Emissions from In-line Pulse Filter/Baghouse, A5

Pollutant	lb/day	lb/yr	tpy
PM	2.1	752	0.376

These PM emissions will be attributed to S8 in the facility PTE, but are exempt per 2-1-121.17.

3. TOXIC RISK SCREENING ANALYSIS

The emission rates of arsenic and cadmium from A1, and 1,3-butadiene due to the fugitive emissions from leaking components of S1 exceed the risk-assessment triggers set forth in Table 2-5-1.

This is a new facility, so there have been no other permitted projects within the last five years.

Emissions from the leaking components of S1 were calculated according to the previously mentioned CAPCOA correlation factor equations. The fugitive emissions were assumed to be identical in composition to the NCG, as measured by gas chromatography testing done by the facility. Estimated POC emissions from the leaking components of S1 were 10.39 lb/day. To stay below the trigger level for BACT, POC emissions were limited to 10 lb/day and TAC emissions were scaled proportionately.

Table 7. Toxic Air Contaminant Emissions from the leaking components of S1

TAC	Emissions (lb/hr)	Acute Trigger Level (lb/hr)	TAC Trigger (Y/N)	Emissions (lb/yr)	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
Propylene	1.97E-01	--	NO	1.73E+03	1.20E+05	NO
1,3-Butadiene	6.46E-04	2.90E-01	NO	5.66E+00	4.80E-01	YES
Vinyl Acetate*	3.08E-02	--	NO	2.70E+02	7.70E+03	NO

***The risk assessment included vinyl acetate. The gas contains vinyl acetylene, which is not a TAC, instead of vinyl acetate.

The gas chromatography testing conducted by the facility was used to determine the emissions at the thermal oxidizer, A1, resulting from the combustion of NCG and NG (as pilot and aid-combustion gas). The manufacturer has said that A1 will have a combustion efficiency of 99.99% based on the TO operating at stable and consistent condition of fuel, air and gases. To estimate metals emissions from the refractory of A1, emission factors have been taken from the BAAQMD TAC Emission Factor Guidelines – Appendix A, Table A-1.1.

Table 8. Toxic Air Contaminant Emissions from A1

TAC	Emissions (lb/hr)	Acute Trigger Level (lb/hr)	TAC Trigger (Y/N)	Emissions (lb/yr)	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
Acetaldehyde	3.67E-10	2.10E-01	NO	3.08E-06	2.90E+01	NO
Acrolein	2.30E-10	1.10E-03	NO	1.93E-06	1.40E+01	NO
Arsenic	4.70E-07	8.80E-05	NO	3.49E-03	1.60E-03	YES
Benzene	6.81E-10	1.20E-02	NO	5.72E-06	2.90E+00	NO
Beryllium	1.41E-08	--	NO	1.05E-04	3.40E-02	NO
Cadmium	2.59E-06	--	NO	1.92E-02	1.90E-02	YES
Copper	2.00E-06	4.40E-02	NO	1.48E-02	--	NO
Ethyl Benzene	8.09E-10	--	NO	6.79E-06	3.30E+01	NO
Formaldehyde	1.89E-08	2.40E-02	NO	1.58E-04	1.40E+01	NO
n-Hexane	5.37E-10	--	NO	4.51E-06	2.70E+05	NO
Lead	1.18E-06	--	NO	8.71E-03	2.90E-01	NO
Manganese	8.95E-07	--	NO	6.63E-03	3.50E+00	NO
Mercury	6.12E-07	2.70E-04	NO	4.53E-03	2.10E-01	NO
Naphthalene	5.19E-11	--	NO	4.36E-07	2.40E+00	NO
Nickel	4.94E-06	8.80E-05	NO	3.66E-02	3.10E-01	NO
PAH (as benzo(a)pyrene-equiv.)	5.73E-13	--	NO	4.82E-09	3.30E-03	NO
Propylene	4.42E-03	--	NO	3.88E+01	1.20E+05	NO
Selenium	2.83E-08	--	NO	2.10E-04	8.00E+00	NO
Toluene	3.12E-09	2.20E+00	NO	2.62E-05	1.60E+04	NO
Vanadium	5.40E-06	1.30E-02	NO	4.00E-02	--	NO
Xylene	2.32E-09	9.70E+00	NO	1.95E-05	2.70E+04	NO
1,3-Butadiene	1.45E-05	2.90E-01	NO	1.27E-01	4.80E-01	NO
Vinyl Acetate*	6.91E-04	--	NO	6.05E+00	7.70E+03	NO

***The risk assessment included vinyl acetate. The gas contains vinyl acetylene, which is not a TAC, instead of vinyl acetate.

The project will include two tanks, a buffer tank on the CMAP unit, S5, and a Pyrolysis Oil Storage Tank, S6. S5 will have a capacity of 120 gallons and S6 will have a capacity of 20,000 gallons. Emissions from both tanks will be routed through A1 and will therefore be abated.

Table 9. Toxic Air Contaminant Emissions from S5

TAC	Emissions (lb/hr)	Acute Trigger Level (lb/hr)	TAC Trigger (Y/N)	Emissions (lb/yr)	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
Propylene	3.27E-12	--	NO	2.87E-08	1.20E+05	NO
1,3-Butadiene	1.07E-14	2.90E-01	NO	9.40E-11	4.80E-01	NO
Vinyl Acetate*	5.11E-13	--	NO	4.48E-09	7.70E+03	NO

*The risk assessment included vinyl acetate. The gas contains vinyl acetylene, which is not a TAC, instead of vinyl acetate.

Table 10. Toxic Air Contaminant Emissions from S6

TAC	Emissions (lb/hr)	Acute Trigger Level (lb/hr)	TAC Trigger (Y/N)	Emissions (lb/yr)	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
Propylene	5.32E-12	--	NO	4.66E-08	1.20E+05	NO
1,3-Butadiene	1.74E-14	2.90E-01	NO	1.53E-10	4.80E-01	NO
Vinyl Acetate*	8.31E-13	--	NO	7.28E-09	7.70E+03	NO

*The risk assessment included vinyl acetate. The gas contains vinyl acetylene, which is not a TAC, instead of vinyl acetate.

Table 11. Total Project Toxic Air Contaminant Emissions

TAC	Emissions (lb/hr)	Acute Trigger Level (lb/hr)	TAC Trigger (Y/N)	Emissions (lb/yr)	Chronic Trigger Level (lb/yr)	TAC Trigger (Y/N)
Acetaldehyde	3.67E-10	2.10E-01	NO	3.08E-06	2.90E+01	NO
Acrolein	2.30E-10	1.10E-03	NO	1.93E-06	1.40E+01	NO
Arsenic	4.70E-07	8.80E-05	NO	3.49E-03	1.60E-03	YES
Benzene	6.81E-10	1.20E-02	NO	5.72E-06	2.90E+00	NO
Beryllium	1.41E-08	--	NO	1.05E-04	3.40E-02	NO
Cadmium	2.59E-06	--	NO	1.92E-02	1.90E-02	YES
Copper	2.00E-06	4.40E-02	NO	1.48E-02	--	NO
Ethyl Benzene	8.09E-10	--	NO	6.79E-06	3.30E+01	NO
Formaldehyde	1.89E-08	2.40E-02	NO	1.58E-04	1.40E+01	NO
n-Hexane	5.37E-10	--	NO	4.51E-06	2.70E+05	NO
Lead	1.18E-06	--	NO	8.71E-03	2.90E-01	NO
Manganese	8.95E-07	--	NO	6.63E-03	3.50E+00	NO
Mercury	6.12E-07	2.70E-04	NO	4.53E-03	2.10E-01	NO
Naphthalene	5.19E-11	--	NO	4.36E-07	2.40E+00	NO
Nickel	4.94E-06	8.80E-05	NO	3.66E-02	3.10E-01	NO
PAH (as benzo(a)pyrene-equiv.)	5.73E-13	--	NO	4.82E-09	3.30E-03	NO
Propylene	6.23E-08	--	NO	5.23E-04	1.20E+05	NO
Selenium	2.83E-08	--	NO	2.10E-04	8.00E+00	NO
Toluene	3.12E-09	2.20E+00	NO	2.62E-05	1.60E+04	NO
Vanadium	5.40E-06	1.30E-02	NO	4.00E-02	--	NO
Xylene	2.32E-09	9.70E+00	NO	1.95E-05	2.70E+04	NO
Propylene	2.02E-01	--	NO	1.77E+03	1.20E+05	NO
1,3 Butadiene	6.61E-04	2.90E-01	NO	5.79E+00	4.80E-01	YES
Vinyl Acetate	3.15E-02	--	NO	2.76E+02	7.70E+03	NO

*The risk assessment included vinyl acetate. The gas contains vinyl acetylene, which is not a TAC, instead of vinyl acetate.

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 project cancer risk is estimated at 6.9 in a million, the project chronic hazard index (HI) is estimated at 0.10, and the project acute HI is estimated at 0.030. In accordance with the District's Regulation 2-5-301, only source S1 requires TBACT because the estimated source risk exceeds a cancer risk of 1.0 in a million. Since the estimated project cancer risk does not exceed 10 in a million and hazard indices do not exceed 1.0, this proposed project complies with the District's Regulation 2-5-302 project risk requirements for projects not located in

an Overburdened Community, as defined in Regulation 2-1-243. This HRA represents an analysis of all sources of TACs at this facility. Therefore, these project HRA results also represent site-wide HRA results for the purposes of the Air Toxics "Hot Spots" Act (AB 2588).

Most of the cancer risk is attributed to the fugitive 1,3-butadiene.

S1 will comply with TBACT for valves, flanges, connectors, and open-ended lines by complying with Regulation 8, Rule 18.

TBACT for pumps is given in Document # 137.1, Revision 4 in the District BACT/TBACT Workbook. BACT(1) for POC and NPOC for pumps is 100 ppmv expressed as methane.

The facility will have no compressors.

Originally, the applicant stated that A1, Thermal Oxidizer, would operate at 1800 F and would be designed for a destruction efficiency of 99.99%. This would have been considered to be TBACT for the thermal oxidizer. The manufacturer recently stated that the lowest temperature at which the thermal oxidizer would run is 1168 F and that the oxidizer would only achieve 99.99% destruction under ideal, steady state conditions.

TBACT has been determined to be the promised emission rates below. The owner/operator will be required to determine the temperature at which the emission rates can be achieved and maintain A1 at or above that temperature during operation. Since the temperature limit may be fairly low, no temperature excursions will be allowed.

- Acetaldehyde – 0.21 lb/hr
- Benzene – 0.012 lb/hr
- Formaldehyde – 0.024 lb/hr
- Naphthalene – 0.00027 lb/hr
- 1,3-Butadiene – 0.0000145 lb/hr

The emission rates for acetaldehyde, benzene, and formaldehyde are based on the hourly triggers in Regulation 2, Rule 5. The emission rate for naphthalene is based on the annual trigger in Regulation 2, Rule 5.

The emission rate for 1,3-Butadiene is the rate that was used for the health risk assessment. Since, 1,3-Butadiene is the driver for risk in this application, this is appropriate.

Because it would be difficult to measure the non-condensable gases generated by the process, this is a simpler way to determine compliance than to attempt to measure 99.99% destruction.

4. PLANT CUMULATIVE EMISSIONS

The following table summarizes the cumulative increase in BACT pollutant emissions that will result from this application.

Table 12. Cumulative Increase in tons/yr for Plant 203504

Pollutant	Existing, tpy	New, tpy	Total, tpy
NOx	0.000	1.825	1.825
POC	0.000	2.432	2.432
CO	0.000	0.821	0.821
PM_{10}	0.000	4.127	4.127
$PM_{2.5}$	0.000	1.825	1.825
SO_2	0.000	0.215	0.215

Only the PM emitted from A1 is considered to be PM2.5.

5. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) AND REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)

Pursuant to Regulation 2-2-301, BACT shall be applied to new sources with a PTE equal to or greater than 10 lb per highest day of any single regulated air pollutant. The emissions from the new sources are not expected to exceed 10 lb per highest day of any regulated air pollutant, except for the fugitive POC emissions of the components from S1, CMAP, which are calculated at 10.4 lb/day. These emissions should be added to the A1, Thermal Oxidizer, emissions because A1 controls S1. The POC emissions from A1 are calculated at 3.47 lb/day. The total is 13.87 lb/day.

The fugitive emissions for S1 are calculated assuming compliance with the fugitive component requirements in Regulation 8, Rule 18. Compliance with the rule is considered to be BACT for the valves, flanges, connectors, and open-ended lines.

BACT for pumps is given in Document # 137.1, Revision 4 in the District BACT/TBACT Workbook. BACT(1) for POC and NPOC for pumps is 100 ppmv expressed as methane.

The facility will have no compressors.

Originally, the applicant stated that A1, Thermal Oxidizer, would operate at 1800 F and would be designed for a destruction efficiency of 99.99%. This would have been considered to be BACT for the thermal oxidizer. The manufacturer recently stated that the lowest temperature at which the thermal oxidizer would run is 1168 F and would only achieve 99.99% destruction under ideal, steady state conditions.

BACT for the thermal oxidizer has been determined to be the promised emission rate of 0.145 lb POC/hr. The owner/operator will be required to determine the temperature at which the emission rate can be achieved and maintain A1 at or above that temperature during operation. Since the temperature limit may be fairly low, no temperature excursions will be allowed.

Because it would be difficult to measure the non-condensable gases generated by the process, this is a simpler way to determine compliance.

Pursuant to Regulation 2-2-102, secondary pollutants from abatement devices are not subject to BACT, but are subject to RACT. NOx, CO, SO2, and PM are secondary pollutants emitted by A1,

Thermal Oxidizer. Emissions of NOx will be limited to 10 lb/day. Because emissions of secondary pollutants at A1 are below 10 lb/day each, A1 is not subject to RACT.

6. OFFSETS

Pursuant to Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits, or is permitted to emit, more than 10 tons per year of POC or NO_X. The sources will not have the potential to emit more than 10 tons per year of POC or NO_X. Therefore, offsets are not required.

The offsets requirements for $PM_{10,}$ $PM_{2.5}$, and SOx are specified in Regulation 2, Rule 2, Section 303. Per Section 303, $PM_{10,}$ $PM_{2.5}$, and SOx emission offsets are required for any new or modified source that is a major facility for $PM_{10,}$ $PM_{2.5}$, or SOx emissions. Resynergi is not a major facility for $PM_{10,}$ $PM_{2.5}$, and SOx emissions. Therefore, offsets for $PM_{10,}$ $PM_{2.5}$, and SOx are not required for this application.

Table 13. Potential to Emit for Plant 203504

Source No.	Name	PTE, NO_X,tpy	PTE, POC,tpy
S1	CMAP Reactor Skid	0.000	1.897
A1	Thermal Oxidizer	1.825	0.607
A4	Cyclonic Separator and Baghouse	0.000	0.000
A5	In-line Pulse Filter/Baghouse	0.000	0.000
S5	Pyrolysis Oil Storage Tank	0.000	0.000
S6	Pyrolysis Oil Storage Tank	0.000	0.000
S7	Plastics Stockpile	0.000	0.000
Total		1.825	2.504

7. STATEMENT OF COMPLIANCE

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

District Rules

Regulation 1, General Provisions and Definitions

The sources in this project are subject to and expected to be in compliance with the requirements of Regulation 1-301 (Public Nuisance), which states that no person shall emit such quantities of air contaminants or other material which cause significant nuisance to the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause injury or damage to business or property.

Regulation 2, Rule 1, General Requirements
Regulation 2, Rule 1, Section 121.17 exempts equipment used exclusively for conveying and storing plastic pellets. The plastic pellet silo, S8, will store plastic that has been pelletized. From S8 to the end of the plastic conveyance line, the plastic will be pelletized. Therefore, S8 is exempt per 2-1-121.17. A5, the small baghouse, is not exempt, because it also controls the plastic feed into S1.

California Environmental Quality Act (CEQA) (Sections 2-1-310 to 2-1-315)
The City of Rohnert Park (City) was the lead agency for the Resynergi Recycling Facility Administrative Use Permit (PLAP24-0020) project at 1200 Valley House Drive, within the T7 Transect of the SOMO Village Planned Development Area. Pursuant to Rohnert Park Municipal Code 17.06.840 – Permitted Uses, a recycling facility is allowed in this transect with an Administrative Permit.

The City Council approved an Administrative Use Permit for this project on December 18, 2024, finding that: (1) The proposed location of the use is in accord with the objectives of the zoning ordinance and the purposes of the district in which the site is located, because the project is a light industrial use to be located within the commercial core of SOMO Village. The SOMO Village Planned Development was adopted with the intent to continue to support a diverse sector which includes industrial uses and green jobs. The project supports the adopted SOMO Village Final Development Plan Objective "Create jobs in diverse sectors including Green Jobs" and the General Plan Policy CD-48A, "Ensure that SOMO Village is developed as a sustainable community typified by pedestrian- and bicycle-friendly elements, compact village-style blocks, and integration of residential, commercial, and industrial uses."; (2) The proposed location of the use and the conditions under which it would be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity; as the City hired third-party professionals to conduct a thorough analysis of the proposed use and the City has determined that existing state and federal regulations have review authority over the health and safety of operating the type of use proposed and the project will be required to abide by conditions of approval related to health, safety, and welfare; and (3) The proposed use complies with each of the applicable provisions of this title, as the project complies with relevant development standards as proposed and with the additional required conditions of approval titled "Conditions of Approval, PLAP24-0020 – Resynergi Recycling Facility" and will be conditioned to comply with all relevant performance standards. Additionally, this project has been studied under CEQA and it was determined that, when in compliance with the federal, state, and local regulatory requirements outlined in the memorandum from Dudek titled "Regulatory Requirements for Hazardous Material Handling, Resynergi Project", dated December 4, 2024, the project would not change the findings of the prior analyses found in the Sonoma Mountain Village EIR and the SOMO Village Project Supplemental EIR. The memorandum cites federal, state, and local regulations applicable to the Project discussed in the Sonoma Mountain Village Environmental Impact Report (EIR) (SCH No. 20070521116) (City of Rohnert Park 2010) and the Sonoma Mountain (SOMO) Village Project Supplemental EIR (SCH No. 2019060006) (City of Rohnert Park 2019).

In 2010, the City approved the Sonoma Mountain Village project and certified the Program EIR (SCH No. 20070521116). Since that time, the project applicant has requested approval of modifications to various discretionary entitlements in support of the proposed project (SCH No. 2019060006). The proposed project includes a mix of residential and commercial uses similar to what was approved as part of the 2010 prior approved project. The proposed project includes a total of 1,694 single-family attached and detached residences plus 56 accessory dwelling units (ADUs) on 176 acres with a range

of densities dependent on transect zone (from 2-9 units/acre in suburban areas and as many as 25-70 units/acre in the urban core); 823,000 square feet (sf) of commercial, light industrial and retail uses (includes the existing 700,000 sf of commercial uses); and 38.54 acres in public and private parks and open space. The project is envisioned as a mixed-use urban village designed around a village center. In accordance with CEQA, the City released a Notice of Preparation (NOP) on June 7, 2019, for the required 30-day review period for the SOMO Village Project. The purpose of the NOP was to provide notification that an SEIR for the project was being prepared and to solicit guidance on the scope and content of the document. The City held a public scoping meeting on June 19, 2019 to take verbal comments on the scope of the SEIR. A supplemental NOP was released on August 30, 2019, to address the relocation of a proposed water tank from on-site within the SOMO Village site, to an off-site location in unincorporated Sonoma County. The public comment period for this supplemental NOP lasted 30 days from August 30, 2019 to September 30, 2019. On December 17, 2020, the City held a public hearing at which time interested persons had an opportunity to testify on the proposal. The Draft SEIR was circulated for public review and comment for a period of 45 days from December 13, 2020 to January 31, 2020.

On March 9, 2021, the City of Rohnert Park approved a revised final development plan and conditional use permit for the SOMO Village Project. The City determined that the project will have a significant impact on the environment, an EIR was prepared for this project pursuant to the provisions of CEQA, a Supplemental EIR was prepared for this project pursuant to the provisions of CEQA, Mitigated measures were made a condition of the approval of the project, a mitigation reporting or monitoring plan was adopted for the this project, a Statement of Overriding Considerations was adopted for this project, and findings were made pursuant to the provisions of CEQA.

The Air District has reviewed and considered the City's environmental analysis. Based on that review, the Air District finds that the proposed project does not result in any new significant impacts or any increase in the severity of previously identified significant impacts anticipated by the EIR and Supplemental EIR.

The Air District additionally finds that there is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the 2021 Supplemental EIR was adopted that shows that:

a. The project will have one or more significant effects not discussed in the previous EIR;
b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Accordingly, the Air District finds no additional subsequent or supplemental EIR is required for the project pursuant to CEQA section 21166 or CEQA Guidelines section 15162.

Regulation 2-1-412, Public Notice, Schools & Overburdened Communities

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 be located within 1,000 feet of the outer boundary of a K-12 school site: Credo High School, 1300 Valley House Drive #100, Rohnert Park, CA 94928. Therefore, the requirements of California Health & Safety Code §42301.6 and Regulation 2-1-412 apply.

This project is not in an overburdened community as defined by Regulation 2-1-243.

Regulation 2, Rule 2, New Source Review
Pursuant to Regulation 2-2-301, BACT is required for new sources with PTE emission increases that equal 10.0 lb or greater of POC, NPOC, NO_X, SO_2, PM_{10}, or CO. As discussed above, S1, CMAP, and A1, Thermal Oxidizer, are subject to BACT for POC.

Furthermore, according to Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits, or is permitted to emit, more than 10 tons per year of POC or NO_X. In addition, Regulation 2-2-303 requires that offsets be provided for any new or modified source at a major facility with a cumulative increase, minus any contemporaneous emission reduction credits, which exceeds 1.0 ton per year of PM_{10}, $PM_{2.5}$, or SO_2. The facility will not emit more than 10 tpy or either POC or NOx.

Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants
The requirements of this rule are discussed in the Toxic Risk Screening Analysis Section above.

Regulation 2, Rule 6, Major Facility Review
Facilities that are subject to 40 CFR 60, Subpart EEEE, are subject to 40 CFR 70, State Operating Permit Programs, and therefore to BAAQMD Regulation 2, Rule 6, Major Facility Review.

Section 60.2967 of Subpart EEEE requires that a complete application for a Title V permit must be submitted not later than 12 months after the date that S1, CMAP, commences operation.

Regulation 6, Rule 1, Particulate Matter, General Requirements
Pursuant to Section 6-1-301, a person shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree. The sources are expected to meet the requirements of Regulations 6-1-301.

The facility does not have bulk materials as defined by Section 6-1-202, so Section 6-1-307, Prohibition of Visible Emissions Within and From Regulated Bulk Material Sites, does not apply.

Pursuant to Section 6-1-310.1, the sources may not emit total suspended particulate (TSP) in excess of 0.15 grains/scf. The baghouse have a grain loading of 0.03 grains/scf, so they will comply.

S1, CMAP, and A1, Thermal Oxidizer, are limited by 40 CFR 60, Subpart EEEE, to 0.013 grains/dscf, so they will comply with the standard.

None of the sources will emit 1,000 kg TSP/yr, so Section 6-1-310.2 does not apply.

Pursuant to Section 6-1-311.1, the sources may not emit total suspended particulate (TSP) in excess of the process weight limits. These limits depend on the amount of material processed per hour. They only apply to sources with defined emission points. Following is a list of the sources, the process weights, and the limits:

S1/A1, CMAP w/Thermal Oxidizer:	420 lb/hr	1.78 lb/hr
S4, Plastics Chipping:	1,500 lb/hr	3.56 lb/hr
S7, Stockpile, No emission point		
S8, Plastic Pellet Silo:	1,500 lb/hr	3.56 lb/hr

The sources will comply with the limits in Section 6-1-311.1.

None of the sources will emit 1,000 kg TSP/yr, so Section 6-1-311.2 does not apply.

None of the sources will emit 2,000 kg TSP/yr, so the source testing in Section 6-1-506 does not apply.

Regulation 7, Odorous Substances

According to Regulation 7-102, the limitations of this Regulation shall not be applicable until the District receives odor complaints from 10 or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective as a result of citizen complaints described above, the limits shall remain effective until such time as no citizen complaints have been received by the District for 1 year. The limits of this Regulation shall become applicable again when the District receives odor complaints from five or more complainants within a 90-day period.

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. At an emission rate of 0.3.47 lb of POC per day, the operation of A1 will not exceed an emission rate of 15 lb of organic compounds per day.

The fugitive emissions of S1, CMAP Reactor, are subject to Regulation 8-18, not 8-2.

Regulation 8, Rule 18, Equipment Leaks

S1, CMAP is subject to this regulation. The facility will be required to identify all components and comply with the limits in Sections 8-8-301, 8-8-302, 8-8-303, 8-8-304, 8-8-306, 8-8-307, 8-8-309, 8-8-310, and 8-8-311.

The facility will be required to comply with the inspection requirements in Section 8-18-401, the identification requirements in Section 8-18-402, the visual inspection schedule in Section 8-18-403, and recurrent leak schedule requirements in Section 8-18-407, using a portable hydrocarbon detector that complies with Section 8-18-501.

In addition, the facility will be required to comply with the recordkeeping requirements in Section 8-18-502 and the reporting requirements in Section 8-18-503.

Regulation 8, Rule 22, Valves and Flanges at Chemical Plants
S1, CMAP is not subject to this rule because Section 8-11-115 exempts facilities with more than 100 valves, which are subject to the provisions of Regulation 8, Rule 18.

Regulation 9, Rule 1, Sulfur Dioxide
In accordance to Regulation 9-1-301, a person shall not emit from sources, other than ships, SO_2 in quantities which result in ground level concentrations in excess of 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. In accordance with Regulation 9-1-302, a person shall not emit from any source, a gas stream containing SO_2 in excess of 300 ppm (dry). Natural gas has an average sulfur content of 3 ppm. It is assumed that SO_2 emissions from the combustion of NCG in the TO will be equivalent to SO_2 emissions from natural gas. The NCG is not expected to contain a significant amount of sulfur, so this is a conservative assumption. Therefore, the gas stream cannot exceed 300 ppm at any of the sources. Additionally, 40 CFR 60, Subpart EEEE limits SO_2 emissions to 3.1 ppmv. Permit conditions will require source testing to ensure compliance with these limits.

Federal Rules
NEW SOURCE PERFORMANCE STANDARDS
The following section of this evaluation discusses the applicability and requirements of all related New Source Performance Standards (NSPS) associated with the facility.

Storage vessels
40 CFR Part 60, Subpart Kc, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023.
Pursuant to §60.110c(a), this subpart applies to the following storage vessels with a capacity greater than or equal to 20,000 gallons. Section 60.110c(b) exempts vessels storing a volatile organic liquid with a maximum true vapor pressure less than 0.25 psi.

S5 has a capacity of 10,000 gallons. Therefore, it is not subject to the standard.

40 CFR 60, Subpart VVb, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023.

A facility is a SOCMI facility if it produces as an intermediate or final product, any of the chemicals listed in 40 CFR 60.489. The mixture created by the process contains benzene, butadiene, ethylbenzene, ethylene, isobutylene, isopropanol, propylene, and toluene, which are on the list.

Section 60.480b(d)(2) exempts facilities that produce less than 1,102 tpy of a chemical listed in 40 CFR 60, Section 489 from Sections 60.482-1b through 60.482-11b. The facility must apply for the exemption and keep records as required in Section 486b(i).

A permit condition requiring the facility to apply for the exemption and to keep the necessary records will be added to the permit.

40 CFR 60, Subpart DDD, Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.

Section 560 states that:

> "The provisions of this subpart apply to affected facilities involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate) as defined in Section 561. The affected facilities designated below for polypropylene and polyethylene are inclusive of all equipment used in the manufacture of these polymers, beginning with raw materials preparation and ending with product storage, and cover all emissions emanating from such equipment.

Section 561 defines the manufacture of these polymers as manufacturing materials that contain at least 50% of the polymer. The facility is breaking apart polyethylene and polypropylene and is not recovering the monomers or polymers as intact molecules.

Therefore, the facility is not subject to 40 CFR 60, Subpart DDD.

40 CFR 60, Subpart IIIa, Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023.

This regulation applies to air oxidation unit processes. Section 60.611a defines air oxidation reactor as: "any device or process vessel in which one or more organic reactants are combined with air, or a combination of air and oxygen, to produce one or more organic compounds. Ammoxidation and oxychlorination reactions are included in this definition."

The facility has no air oxidation reactors, so the regulation does not apply.

40 CFR 60, Subpart NNNa, Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023.

This regulation applies to distillation operations. Section 60.661a defines distillation operations as: "…an operation separating one or more feed stream(s) into two or more exit stream(s), each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the

redistribution of the components between the liquid and vapor-phase as they approach equilibrium within the distillation unit."

S1, CMAP Reactor Skid, Pyrolysis and Condenser, contains a distillation operation.

The distillation operation must produce any of the chemicals listed in Section 667a as a product, co-product, by-product, or intermediate, except as provided in Section 660a(c).

The facility produces alcohol, benzene, 1,3-butadiene, butane, 1-butene, 2-butene, ethylbenzene, ethylene, hexane, isobutane, isobutylene, naphthalene, octene, pentane, propanol, propylene, toluene, and perhaps others. These compounds are on the list in Section 667a.

Per Section 60.660a(b), the standard applies to vent streams, which are defined in Section 60.662a as: "any gas stream discharged directly from a distillation facility to the atmosphere or indirectly to the atmosphere after diversion through other process equipment." The gas flow from distillation equipment will not be vented to the atmosphere or to other process equipment for recovery. It will be routed to a thermal oxidizer. Therefore, the stream is not a vent stream and the equipment is not subject to the standard.

A permit condition prohibiting venting to the atmosphere from the equipment or bypassing the thermal oxidizer will be added to the permit.

40 CFR 60, Subpart RRRa, Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023.

Pursuant to §60.700(a), this subpart applies to each reactor process not discharging its vent stream into a recovery stream, each combination of a reactor process and the recovery system into which its vent stream is discharged, or each combination of two or more reactor process and the common recovery system into which their vents streams are discharged that produces any of the chemicals listed in §60.707 as a product, co-product, by-product, or intermediate.

S1 is a reactor process as defined by Section 60.701a. The reactor makes chemicals listed in Section 60.707 as products, co-products, by-products, and intermediates.

Per Section 60.700a(b), the standard applies to vent streams, which are defined in Section 60.701a as: "any gas stream discharged directly from a reactor process to the atmosphere or indirectly to the atmosphere after diversion through other process equipment." The gas flow from the reactor process will not be vented to the atmosphere or to other process equipment for recovery. It will be routed to a thermal oxidizer. Therefore, the stream is not a vent stream and the equipment is not subject to the standard.

A permit condition prohibiting venting to the atmosphere from the equipment or bypassing the thermal oxidizer will be added to the permit.

40 CFR 60, Subpart EEEE, Standards of Performance for Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006

The facility will be subject to the above standard because it will have an OSWI unit as defined in Section 60.2977.

On May 23, 2023, EPA withdrew a proposed provision that would have removed pyrolysis/combustion units from the other solid waste incineration (OSWI) standards. On May 30, 2023, EPA informed NACAA that pyrolysis and gasification were subject to the standard. On June 23, 2023, a notice was published in the Federal Register that withdrew the proposed provision from the OSWI standard.

The use of microwaves to gasify plastic film is therefore subject to the standard.

On June 30, 2025, EPA published a notice in the Federal Register that increased the limits for OSWI that processed less than 10 tons/day of waste. The effective date is August 25, 2025, which is before the initial startup date for this equipment. The limits below reflect this change.

The standard has the following components per Section 60.2890:

(a) Preconstruction siting analysis.
(b) Waste management plan.
(c) Operator training and qualification.
(d) Emission limitations and operating limits.

Cadmium:	400 micrograms/dscm
Carbon Monoxide:	69 ppm by volume, dry
Dioxins/Furans (total mass basis):	3100 nanograms/dscm
Dioxins/Furans (toxic equivalency basis):	40 nanograms/dscm
Hydrogen Chloride:	210 ppm by volume, dry
Lead:	26,000 micrograms/dscm
Mercury:	12 micrograms/dscm
Opacity:	10 percent
Oxides of nitrogen:	180 ppm by volume, dry
Particulate matter:	210 milligrams per dry standard cubic meter
Sulfur Dioxide:	38 ppm by volume, dry

(e) Performance testing.
    Initial and annual performance tests
(f) Initial compliance requirements.
(g) Continuous compliance requirements.
(h) Monitoring.
    Carbon monoxide and oxygen must be monitored continuously.
(i) Recordkeeping and reporting.

The previous limits are shown below:

Cadmium:	18 micrograms/dscm
Carbon Monoxide:	40 ppm by volume, dry
Dioxins/Furans:	33 nanograms/dscm
Hydrogen Chloride:	15 ppm by volume, dry
Lead:	226 micrograms/dscm
Mercury:	74 micrograms/dscm
Opacity:	10 percent
Oxides of nitrogen:	103 ppm by volume, dry
Particulate matter:	0.013 grains/dscf
Sulfur Dioxide:	3.1 ppm by volume, dry

Section 60.2917 requires a petition to EPA if a scrubber is not used to comply with the emission limits. This requirement will be in the permit conditions.

Section 60.2967 requires that the facility submit a complete application for a Title V permit within 12 months of startup of the unit.

The facility will be subject to permit conditions that require compliance with the standard.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The following section of this evaluation discusses the applicability and requirements of all related National Emission Standards for Hazardous Air Pollutants (NESHAP) associated with the facility.

40 CFR 63, Subpart F, National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

40 CFR Part 63, Subpart G, National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater.

40 CFR 63, Subpart H, National Emission Standards for Hazardous Air Pollutants for Equipment Leaks and Fenceline Monitoring for All Emission Sources.

The facility is not subject to the subparts F, G, and H because it will not be a major source of hazardous air pollutants.

40 CFR 63, Subpart U, National Emission Standards for Hazardous Air Pollutants Emissions: Group 1 Polymers and Resins

The facility is not subject to the above standard because it will not manufacture elastomer products as defined in Section 63.482.

40 CFR 63, Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards

Subpart YY applies to production of acetal resins, acrylic and modacrylic fibers, carbon black, cyanide chemicals, ethylene, hydrogen fluoride, polycarbonate, and spandex. Therefore, the standard does not apply to this facility.

40 CFR 63, Subpart JJJ, National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins

The facility is not subject to the above standard because it will not manufacture thermoplastic products as defined in Section 63.1312.

40 CFR 63, Subpart PPP, National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyols Production

The facility is not subject to the above standard because it will not manufacture polyether polyols as defined in Section 63.1423, excerpted below:

> "a compound formed through the polymerization of EO or PO or other cyclic ethers with compounds having one or more reactive hydrogens (i.e., a hydrogen atom bonded to nitrogen, oxygen, phosphorus, sulfur, etc.) to form polyethers (i.e., compounds with two or more ether bonds). This

definition of *polyether polyol* excludes cellulose ethers (such as methyl cellulose, carboxymethyl cellulose, hydroxyethyl cellulose, hydroxy ethyl cellulose, and hydroxypropyl methyl cellulose) and materials regulated under 40 CFR part 63, subparts R, G, and H (the HON), such as glycols and glycol ethers."

EO means ethylene oxide. PO means propylene oxide.

40 CFR 63, Subpart EEEE, National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)

The facility is not subject to the above standard because it will not be a major source of hazardous air pollutants.

40 CFR 63, Subpart FFFF, National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

The facility is not subject to the above standard because it will not be a major source of hazardous air pollutants.

40 CFR 63, Subpart VVVVVV, National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources

Pursuant to §63.11494(a), the provisions of this subpart apply to an owner/operator of a chemical manufacturing processing unit that meets the conditions specified in paragraphs (a)(1) and (2) of this section; which are as follows:

- The chemical manufacturing process unit is located at an area source of HAPs; and,
- HAPs listed in Table 1 of this subpart are present in the chemical manufacturing process unit.

The process does produce one of the chemicals on the list: 1,3-butadiene. It is present in the gas at a concentration over 0.1%.

Section 63.11494(b) states that a chemical manufacturing processing unit "includes all process vessels, equipment, and activities necessary to operate a chemical manufacturing process that produces a material or a family of materials described by North American Industry Classification System (NAICS) code 325. A CMPU consists of one or more unit operations and any associated recovery devices. A CMPU also includes each storage tank, transfer operation, surge control vessel, and bottoms receiver associated with the production of such NAICS code 325 materials."

The facility must comply with the following:

63.11495 Management practices
- (a)(1) Lid on process vessels
- (a)(2) Transfer of liquids
  - (iv) Vent to a control device
- (a)(3) Inspections of process vessels and equipment
  - (i) Quarterly
  - (ii) Detection methods
  - (iii) Alternative: Method 21 w/500 ppm leak limit
  - (iv) Inspections during operations

(v) No inspection in a quarter where equipment doesn't operate
(a)(4) Repairs within 15 calendar days
(a)(5) Records of inspections and repairs
(c) Startup, shutdown, and malfunction provisions do not apply
(d) General duty to minimize emissions

The heat exchange system requirements in 40 CFR 63.11495(b) do not apply because cooling water is not the cooling medium used in the condenser. No cooling tower will be used.

63.11496, Process Vents
For the purposes of this section, continuous process vents are defined in 40 CFR 63.107. Subsection (a) states that "A process vent is the point of discharge to the atmosphere (or the point of entry into a control device…" Subsection 63.107(h)(4) states that a continuous process vent, is not a gas stream exiting a control device; therefore, the equipment is not considered to have a continuous process vent and subsection (b) does not apply.

63.11497, Storage Tanks
(a) No requirements in Table 4 for the tanks
(b) Planned routine maintenance

63.11498, Wastewater
Plant has no wastewater systems

63.11499, Heat Exchange Systems
Plant has no heat exchange systems as defined by 40 CFR 63.102.

63.11501, Notification, recordkeeping, reporting
(b) Notification of compliance status
(c) Recordkeeping
(1)(i), (1)(vii), (1)(viii), (8)
(d) Semi-annual compliance reports
(1) Deviations
(3) Delay of leak repair
(4) Process change
(8) Malfunctions
(e) Affirmative defense

The facility will be required to comply with the standard. A condition prohibiting bypasses will be added.

40 CFR 63, Subpart BBBBBBB, National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry
Pursuant to §63.11579(a), the provisions of this subpart apply to an owner/operator that meets the conditions specified in paragraphs (a)(1) through (a)(3); which are as follows:

- Chemical preparations facility is owned or operated;
- The chemical preparations facility is a stationary area source of HAPs; and,
- The chemical preparations facility has at least one chemical preparations operation in target HAP service.

Chemical preparations operation means the collection of mixing, blending, milling, and extruding equipment used to manufacture chemical preparations. The facility does not have a chemical preparations operation.

According to §63.11588, a target HAP is defined as metal compounds of chromium, lead, manganese, and nickel. The facility does not use compounds that contain chromium, lead, manganese, or nickel.

Therefore, the facility is not subject to the requirements of this subpart.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The facility will not be a major facility and therefore, will not be subject to PSD.

8. PERMIT CONDITIONS

Permit Condition 100684 for S1, A1, and A5

On June 30, 2025, EPA promulgated limits for OSWI with a capacity less than 10 tons per day that were higher than the limits that were promulgated on December 16, 2005. The conditions reflect this change.

The BAAQMD limits for toxics are based on the quantities proposed in the Health Risk Assessment and the thresholds in Regulation 2, Rule 5.

1. The owner/operator of the CMAP Reactor Skid, S1, shall not exceed a plastic throughput of 5 tons in any 24 hour period or 1,750 tons in any consecutive 12-month period. (Basis: Cumulative Increase)

2. The owner/operator shall ensure that the received plastics contain:
   a. A minimum of 92% of target materials (LDPE, HDPE, PP, PS);
   b. A maximum of 6% other contaminants;
   c. A maximum of 2% PET/EVOH/nylon/PU;
   d. A maximum of 0.5% PVC (Basis: 2-5)
   (Basis: Regulation 2-5)

3. The owner/operator shall ensure that char production does not exceed 0.3 tons in any 24 hour period or 105 tons in any consecutive 12-month period. (Basis:Regulation 2-1-320)

4. The owner/operator shall route all particulate matter emissions from the plastic pellets feed system on S1 to A5, Baghouse. (Basis: Regulations 6-1-301, 6-1-310, 6-1-311)

5. The owner/operator shall operate such that the outlet PM10 (as defined in Regulation 2, Rule 1) grain loading for A5, Baghouse, does not exceed 0.03 grains per dry standard cubic foot. (Basis: Regulations 2-1-320, 6-1-310, Cumulative Increase)

6. The owner/operator shall ensure that the CMAP Reactor Skid, S1, complies with all of the requirements within BAAQMD Regulation 8, Rule 18. The owner/operator shall complete the initial inspection within 90 days of startup. The owner/operator shall complete an 8-18 inspection for the pumps during source testing. The owner/operator is not required to complete an inspection for the other components during source testing. Within 30 days of the initial inspection, the owner/operator shall report the final component count. The District will adjust the cumulative increase if the component count is greater than the numbers below. The District may revise the health risk assessment in response to the final component count. If the final cancer risk is over 10 in a million, the owner/operator shall shut the equipment down until corrective actions are approved and implemented.
   a. Valves: 149
   b. Pumps: 6
   c. Connectors: 951

d. Flanges: 151
e: Open-ended lines: 18
(Basis: Regulations 2-5, 8-18)

7. The owner/operator of S-1 shall not exceed a leak rate of 100 ppm at any pump. (Basis: BACT)

8. The owner/operator shall abate emissions from CMAP Reactor Skid, S1, at the Thermal Oxidizer, A1, at all times when S1 is in operation. (Basis: Cumulative Increase, Regulation 2-5)

9. The owner/operator shall operate the Thermal Oxidizer, A1, in accordance with the manufacturer's specifications.. (Basis: Cumulative Increase, Regulation 2-1-320)

10. The owner/operator shall not exceed the following heat input limits at A1:
    a. 44 MMBtu non-condensable gases during any 24-hour period;
    b. 15,165 MMBtu non-condensable gases during any consecutive 12-month period;
    c. 21 MMBtu natural gas during any 24-hour period;
    d. 7,298 MMBtu natural gas during any consecutive 12-month period.
    e. During the first 180 days after startup:
        i. 53 MMBtu propane during any 24-hour period.
        (Basis: Cumulative Increase)

11. The owner/operator shall ensure that the CMAP Reactor Skid, S1, and the Thermal Oxidizer, A1, comply with the applicable requirements of 40 CFR 60, Subpart EEEE. (Basis: 40 CFR 60, Subpart EEEE)

12. The owner/operator shall submit a petition to EPA per 40 CFR 60.2917 for specific operating limits. (Basis: 40 CFR 60, Subpart EEEE, Section 2917)

13. The owner/operator shall apply for a Title V permit within one year of startup. (Basis: 40 CFR 60, Subpart EEEE, Section 2967)

14. The owner/operator shall implement CO and oxygen continuous emissions monitoring, as required in 40 CFR 60, Subpart EEEE. (Basis: 40 CFR 60, Subpart EEEE)

15. The owner/operator shall apply to the EPA for an exemption to 40 CFR 60, Subpart VVb and shall keep the records required by this subpart. If the exemption request is denied, the owner/operator shall ensure that the CMAP Reactor Skid, S1, complies with all of the requirements within 40 CFR 60, Subpart VVb. (Basis: 40 CFR 60, Subpart VVb)

16. The owner/operator shall ensure that no gas stream generated by the CMAP Reactor Skid, S1, vents directly to the atmosphere, without first passing through the Thermal Oxidizer, A1. (Basis: 40 CFR 60, Subpart NNNa, 40 CFR 60, Subpart RRRa, 40 CFR 63, Subpart VVVVVV)

17. The owner/operator shall ensure that the CMAP Reactor Skid, S1, complies with the applicable requirements of 40 CFR 63, Subpart VVVVVV. (Basis: 40 CFR 63, Subpart VVVVVV)

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18. The owner/operator shall operate the Thermal Oxidizer, A1, at the minimum temperature that is established during the last complying source test. This temperature shall be no lower than 1168 degrees Fahrenheit. The owner/operator shall ensure that A1 reaches this temperature before the non-condensable gases are introduced. The District may adjust this minimum temperature, if source test data demonstrates that an alternate temperature is necessary for or capable of maintaining compliance with parts 20 and 21 of this condition. (Basis: Cumulative Increase, Regulations 2-1-320, 2-5).

19. To determine compliance with the temperature requirement of part 18 of this condition, the owner/operator shall equip the Thermal Oxidizer, A1, with a temperature measuring device capable of continuously measuring and recording the temperature in the Thermal Oxidizer (A1). The owner/operator shall install the temperature measuring device in accordance with the manufacturer's recommendation. The owner/operator shall record the temperature at least once every fifteen minutes. (Basis: Cumulative Increase, Regulation 2-5)

20. The owner/operator shall ensure that the emissions from the Thermal Oxidizer, A1, meet the standards listed in Table 1 of 40 CFR 60, Subpart EEEE within 60 days of the CMAP Reactor Skid, S1, reaching the charge rate at which it will operate, but no later than 180 days after initial startup:
    a. Cadmium – 400 micrograms/dscm^3
    b. Carbon monoxide: 69 ppm
    c. Dioxins/furans (total mass basis) – 3,100ng/dscm
    d. Dioxins/Furans (toxic equivalency basis: 40 nanograms/dscm
    c. Hydrogen chloride – 210 ppmv
    d. Lead – 26,000 micrograms/dscm^3
    e. Mercury – 12 micrograms/dscm^3
    f. Opacity – 10%
    g. Oxides of nitrogen – 180 ppmv

    h. Particulate matter – 210 milligrams per dry standard cubic meter
    i. Sulfur dioxide – 38 ppmv

    All emission limitations in this part are measured at 7% oxygen, dry basis at standard conditions.

    (Basis: 40 CFR 60, Subpart EEEE)

21. The owner/operator shall ensure that the emissions from the Thermal Oxidizer, A1, meet the following standards:
    a. Arsenic – 4.7E-07 lb/hr (Basis: Regulation 2-5)
    b. Cadmium – 2.192 E-6 lb/hr (Basis: Regulation 2-5)
    c. POC from A1 stack – 0.145 lb/hr (Basis: Regulation 2-5, Cumulative Increase)
    d. NOx – 0.416 lb/hr (Basis: Cumulative increase)
    e. Acetaldehyde – 0.21 lb/hr (Basis: Regulation 2-5)
    f. Benzene – 0.012 lb/hr (Basis: Regulation 2-5)
    g. Formaldehyde – 0.024 lb/hr (Basis: Regulation 2-5)
    h. Naphthalene – 0.00027 lb/hr (Basis: Regulation 2-5)
    i. 1,3-Butadiene – 0.029 lb/hr (Basis: Regulation 2-5)
    j. PM10: 0.40 lb/hr including condensable PM (Basis: Cumulative increase)

k. PM2.5: 0.40 lb/hr including condensable PM (Basis: Cumulative increase)
l. Lead: 3.31 E-5 lb/hr (Basis: Regulation 2-5)
m. HCl: 0.04 lb/hr (Basis: Regulation 2-5)
n. Mercury: 2.4 E-5 lb/hr (Basis: Regulation 2-5)
o. Dioxins as defined in Regulation 2, Rule 5: 5.0 E-12 lb/hr (Basis: Regulation 2-5)

22. The owner/operator shall conduct an initial performance test within 60 days after S1 reaches the charge rate at which it will operate, but no later than 180 days after its initial startup. The owner/operator shall conduct an annual performance test within 12 months of the last source test. The owner/operator shall ensure that the performance tests comply with 40 CFR 60.2922 and use the requirements and methods described in Table 1 of 40 CFR 60, Subpart EEEE. The owner/operator may reduce the Subpart EEEE testing for a pollutant that has compliant source testing for three years in accordance with Section 60.2934. (Basis: 40 CFR 60, Subpart EEEE, Sections 2922, 2927, 2928, 2933, 2934, Table 1)

23. During the performance tests required by part 22 of this condition, the owner/operator shall conduct District approved source tests to determine compliance with the limits in part 21. The owner/operator shall submit the source test results to the District's Source Test Section no later than 60 days after the source test. The owner/operator shall determine the temperature setting at which A1 will comply with all limits during each source test. Flow shall be measured using EPA Method 1, not the F-factor method in EPA Method 19. The owner/operator may determine the methane and ethane mass emissions and subtract them from the total organic emissions to determine the VOC hourly emissions rate. The owner/operator shall use EPA Method 201A, Determination of PM10 and PM2.5 Emissions from Stationary Sources or an approved alternative to measure PM10 and PM2.5. The owner/operator may assume that all PM10 is PM2.5 in lieu of running a separate PM 10 test. The owner/operator shall install two 6-in ports into the thermal oxidizer stack for the PM source tests. The owner/operator shall submit the port location and design for approval to the District's Source Test Section for approval prior to installation of the ports. (Basis: Regulation 2-1-403)

24. During the initial performance test required by part 22 of this condition, the owner/operator shall take a sample of the non-condensable gases. The owner/operator shall obtain a GC analysis of the gas. The analysis shall be submitted to the District within 30 days of the performance test. The sample shall be analyzed for organic compounds and for elemental chlorine. (Basis: Regulation 2-5)

25. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. [Basis: Regulation 2-1-403]

26. The owner/operator shall equip A5, Baghouse, with a device for measuring the pressure drop across the baghouse. The owner/operator shall check A5 for plugging at least every week. (Basis: Regulations 6-1-301, 6-1-310, 6-1-311, 2-1-403)

27. The owner/operator shall inspect A5, Baghouse, weekly to ensure proper operation. The following items shall be checked:
    a. The pressure drop across the baghouse shall be checked weekly. The pressure drop shall be no less than 0.5 and no greater than 10 inches of water.
    b. The baghouse exhaust shall be checked weekly for evidence of particulate breakthrough. If breakthrough is evident from plume observations, dust buildup near the stack outlet, or abnormal pressure drops, the filter bags shall be checked for any tears, holes, abrasions, and scuffs, and replaced as needed.
    c. All hoppers shall be discharged in a timely manner.
    d. The pulsejet shall be maintained and operated at sufficient intervals to maintain compliance

    (Basis: Regulation 2-1-403)

28. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

    a. Total daily throughput of material.
    b. Total monthly throughput of material
    c. Total monthly hours of operation.
    d. The monthly hours of operation shall be totaled for each consecutive 12-month period.
    e. Thermal oxidizer temperature measurements and time of measurement;
    f. Records of source tests performed.
    g. Records of all inspections and all maintenance work including bag replacement for the baghouse. Records of each inspection shall consist of a log containing the date of inspection and the initials of the personnel that inspects the baghouses.
    h. Records of pressure drop monitoring

    All measurements, records, and data required to be maintained by the owner/operator shall be retained and made available for inspection by the District for at least five years following the date the data is recorded.

(Basis: Recordkeeping)

29. The Air District may reassess the risk from the operation of S1 and A1 after reviewing the results of the initial source testing, the non-condensable gas analysis, and the final component count. If the cancer risk exceeds 6.9 in a million but is below 10 in a million, the Air District will require an additional public notice. If the cancer risk exceeds 10 in a million, the Air District shall restrict operation of the equipment.
    (Basis: Regulation 2-5)

30. The owner/operator shall report all instances of non-compliance with Condition 100684 in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the non-compliance. Within 30 calendar days of the discovery of any non-compliance, the facility shall submit a written report including the probable cause of the non-

compliance and any corrective or preventative actions. The reports shall be sent by e-mail to compliance@baaqmd.gov or by postal mail to the following address:

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

(Basis: Regulation 2-1-403)

Permit Condition 100685 for S4, S8, and A4

1. The owner/operator shall ensure that the throughput of raw plastic not exceed 9 tons/day at S-4. (Basis: Cumulative increase, Regulation 2-1-320)

2. The owner/operator shall route all particulate matter emissions from Plastics Chipping Pelletizing, S4, and the headspace of the Plastic Pellet Silo, S8, to Cyclonic Separator and Baghouse, A4. (Basis: Regulation 6-1-301, 6-1-310, 6-1-311)

3. The owner/operator shall equip Cyclonic Separator and Baghouse, A4, with a device for measuring the pressure drop across the baghouse. Each device shall be checked for plugging at least every week. (Basis: Regulations 6-1-301, 6-1-310, 6-1-311, 2-1-403)

4. The owner/operator shall inspect Cyclonic Separator and Baghouse, A4, weekly to ensure proper operation. The following items shall be checked:
   a. The pressure drop across the baghouse shall be checked weekly. The pressure drop shall be no less than 0.5 and no greater than 10 inches of water.
   b. The baghouse exhaust shall be checked weekly for evidence of particulate breakthrough. If breakthrough is evident from plume observations, dust buildup near the stack outlet, or abnormal pressure drops, the filter bags shall be checked for any tears, holes, abrasions, and scuffs, and replaced as needed.
   c. All hoppers shall be discharged in a timely manner to maintain compliance with 3(a) above.
   d. The pulsejet shall be maintained and operated at sufficient intervals to maintain compliance with 3(a) above.
   (Basis: Regulation 2-1-403)

5. The owner/operator shall operate such that the outlet PM10, as defined in Regulation 2, Rule 1, grain loading for Cyclonic Separator and Baghouse, A4, not exceed 0.03 grains per dry standard cubic foot. (Basis: Regulation 6-1-310, Cumulative Increase)

6. The owner/operator shall not operate Plastics Chipping/Pelletizing, S4, for more than 3,120 hours in any consecutive 12-month period. (Basis: Cumulative Increase, 2-1-320)

7. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

a. Records of all inspections and all maintenance work including bag replacement for the baghouse. Records of each inspection shall consist of a log containing the date of inspection and the initials of the personnel that inspects the baghouses. Total monthly hours of operation.

c. The monthly hours of operation shall be totaled on a consecutive 12-month period.

Records of pressure drop monitoring

All records shall be retained on-site for five years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)

Permit Condition 100686 for S5, S6

1. The owner/operator of S5, Pyrolysis Oil Storage Tank, 120 gallons, and S6, Pyrolysis Oil Storage Tank, 10,000 gallons, shall limit the throughput to 401,400 gallons per year of pyrolysis oil per tank. The owner/operator shall not heat the tank. The owner/operator shall submit an analysis of the compounds in the headspace of the tank with any application for an increase in throughput. (Basis: Regulation 2-1-320)

2. The owner/operator shall ensure that no liquids other than pyrolysis oil made by the CMAP Reactor Skid, S1, are stored in the tank. (Basis: Regulation 2-1-320)

3. The owner/operator shall ensure that headspace emissions from S-5 and S-6 are vented to the thermal oxidizer. (Basis: Regulation 2-1-320)

4. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
   a. Quantities of each type of liquid stored at this source on a monthly basis.
   b. If a material other than those specified in Part 1 is stored, POC/NPOC and toxic component contents of each material used; on a monthly basis;
   c. Monthly throughput calculations shall be totaled for each consecutive twelve-month period.

   All records shall be retained on-site for five 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 applicable District Regulations. (Basis: Regulation 2-1-320)

Permit Condition 100687 for S7

1. The owner/operator shall not exceed the following materials throughput limits at Plastics Stockpile, S7:
   a. 2,811 tons of post-consumer plastic waste in any consecutive 12-month period;
   b. 9 tons of post-consumer plastic waste in any 24-hour period. (Basis: Cumulative Increase)

2. The owner/operator shall ensure that the **received** plastics contain:
   a. A minimum of 92% of target materials (LDPE, HDPE, PP, PS);
   b. A maximum of 6% other contaminants;
   c. A maximum of 2% PET/EVOH/nylon/PU;
   d. A maximum of 0.5% PVC (Basis: Regulation 2-5)

3. To determine compliance with the above part, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
   a. Total daily throughput of material.
   b. Total daily throughput of material shall be totaled on a monthly basis.
   c. Total daily throughput of discarded material

   All records shall be kept on-site in a District approved log for at least five years from the date on which a record is made and be made available to District staff on request. (Basis: Recordkeeping, Cumulative Increase)

9. 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. However, the proposed source will be located within 1,000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412. After the 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:

S1 CMAP Reactor Skid, Pyrolysis and Condenser, 5 tpd (sorted plastics)
Four 1.25 tpd units in parallel

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

A5 In-line pulse filter/Baghouse,
venting feed plastic pneumatic conveyance line, 348 cfm max
with a Coperion polyester felt filter bags

S4 Plastics Chipping/Pelletizing, 5 tpd (sorted plastics)
Virtus Shredder/Granulator Combination SG 1400
Max operating rate: 1,500 lb/hr
CME R-35 pellet mill, capacity: 2,500 lb/hr

abated by
A4 Cyclonic Separator, and Baghouse, 2,000 cfm
Baghouse: US Air Filtration, Model: 33-PTPBBV-39-6.25
Bin Vent with 9 polyester filter bags/cartridges

S5 Pyrolysis Oil Storage Tank, 120 gallons
UL listed UL-142
Internal buffer tank on CMAP Reactor Skid

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

S6 Pyrolysis Oil Storage Tank, 10,000 gallons
UL listed UL-142, Newberry Tanks

abated by
A1 Thermal Oxidizer, Questor Q250
20.4 scfm NCG, 14.2 scfm NG, 2.67 MMBtu/hr

S7 Plastics Stockpile

S8 Plastic Pellet Silo, 7.5 tons [Exempt]

Abated by
A4 Cyclonic Separator, and Baghouse, 2,000 cfm
Baghouse: US Air Filtration, Model: 33-PTPBBV-39-6.25
Bin Vent with 9 polyester filter bags/cartridges
And
A5 In-line pulse filter/Baghouse,
venting pneumatic feed plastic conveyance line 348 cfm max
with a Coperion polyester felt filter bags

By: _____ Date: _____
Ryan Atterbury
Air Quality Engineer

Appendix A,

Acronyms

BACT:	Best Available Control Technology
btu:	British Thermal Unit
CMAP:	Continuous Microwave Assisted Pyrolysis Process
dscfm:	dry standard cubic feet per minute
dscm:	dry standard cubic meter
EO:	ethylene oxide
EVOH:	ethylene vinyl alcohol copolymer
HDPE:	high density polyethylene
LDPE:	low density polyethylene
kg:	kilogram
MMbtu:	million btu
NACAA:	National Association of Clean Air Agencies
NCG:	non-condensable gases
NG:	Natural gas
NOx:	oxides of nitrogen
OSWI:	other solid waste incineration
PET:	polyethylene terephthalate
PM:	particulate
PO:	propylene oxide
PP:	polypropylene
PS:	polystyrene
PU:	polyurethane
PVC:	Polyvinyl chloride
RACT:	Reasonable Available Control Technology
scf:	standard cubic feet
scfm:	standard cubic feet per minute
TO:	thermal oxidizer

tpd: US tons per day

tpy: US tons per year

TSP: total suspended particulate