

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES	1 of 13
	APPL NO	542464-542467
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**APPLICANT'S NAME:** M. C. GILL CORPORATION (ID 13011)

**MAILING ADDRESS:** 4076 EASY STREET  
EL MONTE, CA 91731

**EQUIPMENT LOCATION:** SAME AS ABOVE

**EQUIPMENT DESCRIPTION:**

**Application no. 542464:**

TITLE V PERMIT REVISION, DE MINIMIS SIGNIFICANT

**Application no. 542465 (PC), New Construction of Resin Flowcoater (D62) to be vented to C65:**  
(see table below)

**Application no. 542466 (PC), New Construction of Curing Oven (D63) to be vented to C65:**  
(see table below)

**Application no. 542467 (PC), New Construction of RTO #10 (C65):**  
(see table below)

**Section H**

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
<b>Process 1: COATING AND DRYING</b>					
<b>System 3: FLOWCOATER AND CURING OVEN</b>					
<u>COATER, FLOW, PHENOLIC RESIN, 50 GALS; W: 9 FT 10 IN; HT: 10 FT 7 IN; L: 101 FT 4 IN</u> <u>A/N 542465</u>	<u>D62</u>	<u>C65</u>		<u>VOC: (9) [RULE 1128, 3-8-1996; RULE 1171, 11-7-2003; RULE 1171.5-1-2009]</u>	<u>A63.8, B59.10, B61.4, C8.1, H23.3, K67.9, K67.12</u>
<u>OVEN, NO. 8, HONEYCOMB SHEETS, CONVEYORIZED, WITH FOUR 25 HP. RECIRCULATING BLOWERS, FOUR 1.5 HP. EXHAUST FANS, AND FOUR 1.5 HP. COMBUSTION BLOWERS WITH</u> <u>A/N: 542466</u>  <u>BURNER, NATURAL GAS, ECLIPSE, MODEL WINNOX #100 V2.3, WITH FOUR LOW NOX BURNERS, 1.0 MMBTU/HR EACH, 4.0 MMBTU/HR TOTAL.</u>	<u>D63</u>	<u>C65</u>		<u>NOX: 30 PPMV NATURAL GAS (4) [RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]</u> <u>NOX: 30 PPMV NATURAL GAS (5) [RULE 1147: 9-9-2011]</u>	<u>A63.8, B59.10, H23.5, K67.9</u>

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<u>AFTERBURNER, THERMAL REGENERATIVE, RTO #10, ADWEST, MODEL RETOX 15.0, RTO 95, 20 FT 6 IN. W. X 38 FT 3 IN. L. X 14 FT 2 IN. H., WITH 2 CERAMIC BEDS, ONE 7.5 HP. COMBUSTION AIR BLOWER, ONE, 115 HP MAIN PROCESS BLOWER AND NATURAL GAS INJECTION A/N 542467</u>  <u>BURNER, START-UP, NATURAL GAS, MAXON, MODEL KINEDIZER LE, WITH LOW-NOX BURNER, 4.34 MMBTU/HR.</u>	<u>C65</u>	<u>D62 D63</u>	<u>CO: 2000 PPMV NATURAL GAS (5)</u> <u>[RULE 407.4-2-1982];</u> <u>NOX: 30 PPMV NATURAL GAS (4)</u> <u>[RULE 1303(a)(1)-BACT, 5-10-1996; Rule 1303(a)(1)-BACT; 12-6-2002];</u> <u>NOX: 60 PPMV NATURAL GAS (5)</u> <u>[RULE 1147; 9-9-2011];</u> <u>PM: 0.1 GRAINS/SCF NATURAL GAS (5)</u> <u>[RULE 409.8-7-1981];PM: (9) [RULE 404, 2-7-1986]</u>	<u>A63.8,</u> <u>A72.3, C1.6,</u> <u>D28.1,</u> <u>D182.1,</u> <u>D323.1,</u> <u>E193.3,</u> <u>H23.5</u>
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**BACKGROUND:**

M.C. Gill Corp. submitted application nos. 542464-542467 as Class I's on 8/30/12. A/N 542465 was submitted for a new Kerfless resin flowcoater (D62), and A/N 542466 was submitted for a new conveyORIZED curing oven (D62). Both will be vented to the new RTO #10 (C65), for which A/N 542467 was submitted. No other equipment will be vented to this RTO at this time.

The operation of the new flowcoater (D62) and curing oven (D63) will not result in a net increase of VOC emissions from the facility. The operation of the new oven and RTO #10 (C65) will result in an increase of NO<sub>x</sub>, PM and SO<sub>x</sub> emissions due to operation of the natural gas-fired burners. However, these emissions will be exempt from emission offsets under Rule 1304. All equipment will operate under the existing group VOC cap of 5070 lbs per month. The VOC emissions resulting from this operation is expected to be controlled by a PTE vented to new RTO #10 with at least 98% destruction. Also, while VOC emissions are released during the curing process in the oven (D63), these emissions will be associated with the flowcoater (D62), where the phenolic resin material will be applied.

In addition, M.C. Gill submitted four applications for a change of conditions to limit operating hours of the startup burner and reduce NO<sub>x</sub> emissions associated with existing RTO #6 (C47), RTO #7 (C48), RTO #8 (C49) and RTO #9 (C55). A net reduction of NO<sub>x</sub> emissions associated with these applications results when the NO<sub>x</sub> emissions are recalculated based on limited monthly operating hours of the start-up burner (20 hrs/mo) instead of the default 24/7 maximum operating hours. The maximum monthly operating hours will be limited by permit condition. These applications (A/Ns 547539-547542) are covered under a separate evaluation.

This company is a Title V facility. The Title V renewal permit was issued on 10/13/2010. This project is part of the 4<sup>th</sup> revision since the renewal. A/N 542464 was submitted for a de minimis significant permit revision.

According to the compliance data base, no notices to comply or notices of violation have been issued to this facility in the past two years. One odor complaint was filed on October 17, 2012

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(#228294), however the odors could not be confirmed and traced back to this facility during the follow-up visit. The facility was found to be operating in compliance. No further action was taken.

**PROCESS DESCRIPTION:**

This company manufactures laminated honeycomb blocks, panels and sheets, which are used in airplanes for commercial and military use. The new RTO #10 (C65) is an Adwest hot rock-type, dual-chamber, regenerative thermal oxidizer (RETOX 15.0 RTO95). It has a Maxon Kinedizer LE low-NO<sub>x</sub>, natural gas-fired start-up burner. The low-NO<sub>x</sub> burner (<30 ppm @ 3% O<sub>2</sub>) is fired only during start-up, which typically lasts up to one hour from a cold start. Upon reaching the ignition point in the combustion chamber (1500-1600°F), the burner is shut off. There is expected to be sufficiently high VOC concentration in the process stream for the destruction process to be self-sustaining. In this case, no additional heat is required from the fuel source. This should allow for no NO<sub>x</sub> emissions except during start-up, typically one hour. However, if needed, the temperature can be maintained with flameless natural gas injection (non-NO<sub>x</sub> forming). In addition, the dual chambers allow for reverse flow and pre-conditioning of the influent at regular intervals. This allows for an approx. maximum 95% heat recovery. The RTO is designed to achieve a minimum VOC destruction efficiency of 98%. The minimum operating temperature in the oxidizer will be 1475°F.

This RTO #10 (C65) will vent the new resin flowcoater (D62) and the new curing oven (D63) for the control of VOC emissions.

Honeycomb sheets will be conveyed through the resin flowcoater and saturated with a water-based phenolic resin. Excess resin will be blown out of the sheets by the air knife and the resin will be returned to the coating system's reservoir. After coating, the conveyor will transport the sheets to the curing oven (D63). The curing oven is divided into four equally divided zones, each with its own 1.0 mmBTU/hr low-NO<sub>x</sub> Eclipse Winnox #100 v2.4 natural gas-fired burner, 1.5 hp. combustion blower, 25 hp. recirculating blower, 1.5 hp. exhaust blower, and independent temperature control. There will be no recirculation of heat from the RTO #10 to this oven. This oven is conveyORIZED and is sized to handle multiple honeycomb sheets up to 6' wide and 14' long each. Curing temperatures range from 150°F to 400°F. The curing process will take up to 60 minutes. The curing oven will be under negative pressure, and continuously vented to RTO #10 (C65) for the control of VOC emissions released during the curing cycle.

Honeycomb sheets may be coated and cured multiple times until the density reaches the desired value. Afterwards, a final cure will be performed and the honeycomb sheet is sent for secondary processing in another area of the facility.

The maximum operating schedule of the facility will be 24 hr/day, 7 day/wk, and 52 wk/yr and the average operating time is 24 hr/day, 5 day/week, 50 week/year.

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**EMISSION CALCULATIONS:**

**VOC Emissions:**

VOC emissions will be emitted from both the resin flowcoater (D62) and the curing oven (D63). However, for AEIS and NSR purposes, the VOC emissions will be associated with the flowcoater. The VOC emissions will included in the facility-wide VOC cap of 5070 lbs/mo (169 lbs/day, and 7.04 lbs/hr).

**Maximum VOC emissions:**

Also, due to production limits of the resin flowcoater (D62), maximum throughput will be 64800 lbs of resin per month, as applied. See maximum VOC emission estimates below.

Max. line speed	6 ft/min
Max. sheet length	12 ft per slice
Max. amt. of resin per sheet	3.0 lbs resin / 6 ft x 12 ft honeycomb sheet

$$\frac{6 \text{ ft}}{\text{min}} \cdot \frac{\text{slice}}{12 \text{ ft}} \cdot \frac{3 \text{ lbs resin}}{\text{slice}} \cdot \frac{60 \text{ min}}{\text{hr}} \cdot \frac{24 \text{ hrs}}{\text{day}} \cdot \frac{30 \text{ days}}{\text{mo}} = 64800 \frac{\text{lbs resin}}{\text{mo}} \rightarrow 2160 \frac{\text{lbs resin}}{\text{day}}$$

Resin material, as applied

Phenolic resin	75%, max
Phenol, 18% max	(13.5%, as applied)
Formaldehyde, 2.0% max	(0.015%, as applied)
Ethylene glycol monobutyl ether	10%
<u>Deionized water</u>	<u>16%</u>
Total VOCs	25%

VOC<sub>R1, max</sub>

$$\text{VOC}_{R1, \text{max}} = 64800 \frac{\text{lbs resin}}{\text{mo}} \cdot \left( \frac{25 \text{ lbs VOC}}{100 \text{ lbs resin}} \right) = 16200 \frac{\text{lbs VOC}}{\text{mo}} \rightarrow 540 \frac{\text{lbs VOC}}{\text{day}} \rightarrow 22.5 \frac{\text{lbs VOC}}{\text{hr}}$$

$$\text{VOC}_{R2, \text{max}} = \text{VOC}_{R1, \text{max}} \cdot (1 - 0.98) = 259.2 \frac{\text{lbs VOC}}{\text{mo}} \rightarrow 10.8 \frac{\text{lbs VOC}}{\text{day}} \rightarrow 0.45 \frac{\text{lbs VOC}}{\text{hr}}$$

Therefore, even at maximum material thruptut for this equipment, VOC emissions are expected to be less than 900 lbs/mo (30 lbs/day).

**Average VOC emissions:**

$$\text{VOC}_{R1, \text{avg}} = 12000 \frac{\text{lbs resin}}{\text{mo}} \cdot \left( \frac{25 \text{ lbs VOC}}{100 \text{ lbs resin}} \right) = 3000 \frac{\text{lbs VOC}}{\text{mo}} \rightarrow 100 \frac{\text{lbs VOC}}{\text{day}} \rightarrow 4.17 \frac{\text{lbs VOC}}{\text{hr}}$$

$$\text{VOC}_{R2, \text{avg}} = \text{VOC}_{R1, \text{avg}} \cdot (1 - 0.98) = 60 \frac{\text{lbs VOC}}{\text{mo}} \rightarrow 2.0 \frac{\text{lbs VOC}}{\text{day}} \rightarrow 0.083 \frac{\text{lbs VOC}}{\text{hr}} \rightarrow 720 \frac{\text{lbs VOC}}{\text{yr}}$$

**Combustion Emissions:**

**Curing Oven (D63) under A/N 542466:**

The new curing oven will have four 1.0 mmBTU/hr natural gas-fired low NO<sub>x</sub> burners @ 30ppm NO<sub>x</sub>. The combustion emissions are summarized in an attached spreadsheet in the file for A/N 542466.

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**Emissions Summary, Oven (D63)**

Air Contaminants	Oven (D63) A/N 542466			
	lb/hr		lb/day	
	avg	max	avg	max
CO	0.067	0.133	1.60	3.20
NO <sub>x</sub>	0.073	0.146	1.75	3.49
PM <sub>10</sub>	0.014	0.029	0.34	0.69

Note: Based on 24 hrs/day, ave = 50% of max

**Start-up Burner Combustion Emissions from RTO #10 (C65) under A/N 542467:**

Fuel = natural gas

Max. burner heat input rating = 4.34 mmBTU/hr

Ave. operating hours = 20 hrs/day, 5 days/wk, 50 wks/yr

Max. operating hours = 20 hrs/day, 7 days/wk, 52 wks/yr; 20 hours/month

Refer to Attachment 1 for detailed emissions

The new RTO #10 (C65) will have a 4.34 mmBTU/hr burner for start-up in order to bring it up to operating temperature. The set-point will be 1500°F. It will then switch to a gas injection mode where natural gas is injected directly into the combustion chamber as needed to maintain the minimum operating temperature. At the applicant's request, the start-up burner will be limited to operate no more than 20 hrs/mo.

$$\frac{4.34 \text{ mmBTU}}{\text{hr}} \cdot \frac{\text{scf}}{1050 \text{ BTU}} \cdot \frac{10^6 \text{ BTU}}{\text{mmBTU}} \cdot \frac{38.2 \text{ lbs NO}_x}{10^6 \text{ scf}} = 0.158 \frac{\text{lbs NO}_x}{\text{hr}} \rightarrow 3.16 \frac{\text{lbs NO}_x}{\text{day}} \rightarrow 3.16 \frac{\text{lbs NO}_x}{\text{mo}}$$

$$\rightarrow 30\text{-day R.A.} = 3.16 \frac{\text{lbs NO}_x}{\text{mo}} \div 30 \frac{\text{days}}{\text{mo}} = 0.106 \frac{\text{lbs NO}_x}{\text{day}}$$

$$\text{Max fuel usage: } \frac{4.34 \times 10^6 \text{ BTU}}{\text{hr}} \cdot \frac{20 \text{ hrs}}{\text{mo}} \cdot \frac{30 \text{ days}}{\text{mo}} \cdot \frac{\text{scf}}{1050 \text{ BTU}} = 2755 \frac{\text{scf}}{\text{day}}$$

Refer to the file for A/N 542467 for the spreadsheet for CO, PM<sub>10</sub>, ROG, SO<sub>x</sub> and R1401 TAC emissions for RTO #10 (C65). The table below summarizes the emissions of NO<sub>x</sub>, CO, PM<sub>10</sub> for this control equipment.

**Emissions Summary, RTO #10 (C65)**

Air Contaminants	RTO #10 (C65) A/N 542467			
	lb/hr		lb/day	
	avg	max	avg	max
CO	1.28	1.28	25.63	25.63
NO <sub>x</sub>	0.158	0.158	3.16	3.16
PM <sub>10</sub>	0.031	0.031	0.62	0.62

Note: RTO #10 start-up burner will be limited to ≤ 20 hrs/mo. Avg=Max

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**RTO Design:**

Process gas inlet temp.	400°F
Stack outlet temp. (max.)	585°F
Operating temp from combustion chamber	1500-1600°F
Heat exchanger efficiency	95%
Volume of the combustion zone	850 ft <sup>3</sup>
Heat input rating of the burner	4.34 mmBTU/hr
Maximum design air flow capacity	15,000 scfm (total not to exceed, variable speed)

The new RTO has a variable speed combustion air blower with a maximum air flow capacity of 15,000 scfm. This air flow is also variable and ducting to the RTO is dampered.

**Worst Case – Heat required to heat air from 70°F to 1475°F:**

$$\begin{aligned}
 M &= 15,000 \text{ scfm} \times 0.075 \text{ lb/scf} \times 60 \text{ min/hr} = 67,500 \text{ lb/hr} \\
 C_{p70} &= 0.240 \text{ Btu/lb-}^\circ\text{F} \\
 C_{p1475} &= 0.272 \text{ Btu/lb-}^\circ\text{F} \\
 C_{p\text{avg}} &= 0.256 \text{ Btu/lb-}^\circ\text{F} \\
 Q &= MC_p \Delta T \\
 &= 67,500 \times 0.256 \times (1475 - 70) \\
 &= 24.3 \text{ mmBtu/hr}
 \end{aligned}$$

After 95% heat recovery:

$$\begin{aligned}
 Q &= 24.3 \times 0.05 = 1.214 \text{ Btu/hr} \\
 \text{Heat input needed} &= 1.214 \times 1050/632 \text{ (AP 40, page 948, Table D7)} \\
 &= 2.02 \text{ mmBtu/hr}
 \end{aligned}$$

Contaminated airflow is expected to be sufficient to provide the process load for combustion to be self-sustaining. Also, the oxidizer will have a burner rated at 4.34 mmBtu/hr, which should be sufficient to heat the bed and maintain the oxidizer temperature.

**Residence time calculation:**

$$\begin{aligned}
 \text{Total flow rate} &= 15,000 \text{ cfm} \\
 Q \text{ (flow rate per second)} &= 15,000 \text{ cfm} \times [(1475 + 460)/(70 + 460)] \times (15.1/14.7) \text{ psia} \\
 &= 56254 \text{ cfm}/60 \text{ sec/min} = 937.6 \text{ cu. ft.}
 \end{aligned}$$

$$\begin{aligned}
 \text{Residence time} &= V/Q = \text{combustion chamber vol./flow rate} = 850/937.6 = 0.91 \text{ sec} \\
 &0.91 \text{ sec} \geq 0.3 \text{ sec recommended residence time}
 \end{aligned}$$

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**RULES AND REGULATIONS**

**RULE 212: SIGNIFICANT PROJECT PUBLIC NOTIFICATION**

**Rule 212(c)(1):**

There is no school within 1000 feet of the plant. Therefore, public notice is not required.

**Rule 212(c)(2):**

Public notice will not be required by this paragraph since the emission increases from the facility are only from the combustion of natural gas in the start-up burner of the new RTO #10 (C65) and the natural gas-fired burners of the curing oven (D63), which are below the thresholds.

lb/day	CO	NO <sub>x</sub>	PM <sub>10</sub>	VOC	SO <sub>x</sub>	Lead
Oven (D63) A/N 542466	3	3	0	0	0	0
RTO #10 (C65) A/N 542467	0	0	0	0	0	0
Total	3	3	0	0	0	0
Max Limit	220	40	30	30	60	3

**Rule 212(c)(3):**

The toxic emissions from the combustion of natural gas in the start-up burner of the new RTO #10 (C65), and from the operation of the new resin flowcoater (D62) and the new curing oven (D63) will result in a total project MICR below  $1 \times 10^{-6}$ . See section on Rule 1401. Therefore, public notice is not required.

**Rule 212(c)(g):**

Public notice will not be required by this paragraph since any emission increase of NO<sub>x</sub> and CO from the new curing oven (D63) and the start-up burner in RTO #10, and the VOC emissions from the resin flowcoater (D62) will be below their respective thresholds.

lb/day	CO	NO <sub>x</sub>	PM <sub>10</sub>	VOC	SO <sub>x</sub>	Lead
Total R2 increase	3	3	0	11	0	0
Max Limit	220	40	30	30	60	3

**RULE 401: VISIBLE EMISSIONS**

Visible emissions from the operation of this equipment are not expected. No complaints have been filed on this company for similar operations.

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**RULE 402: NUISANCE**

The operation of this equipment is not expected to cause a public nuisance. Although there have been some odor complaints potentially against the facility, the facility has not been issued any notices of violations for nuisance(s).

**RULE 1128: PAPER, FABRIC, AND FILM COATING OPERATIONS**

The material processed through the new resin flowcoater (D62) and the new curing oven (D63) is expected to comply with the VOC content requirements of this rule when vented to the new RTO #10 (C65). The VOC content of the resin, as applied, (278 g/l, lwle) is greater than the rule requirement [265 g/l, lwle, per Rule 1128(c)(2)]. However, both the flow coater and the oven will be within a PTE vented to the new RTO #10, which is expected to meet a minimum 95% destruction efficiency, and 90% collection efficiency [per Rule 1128(d)]. The RTO #10 will be required to be source tested to verify compliance. In addition, this control equipment will be required to be tested once every five years under the Title V periodic monitoring. Based on experience with similar equipment and operations, compliance is expected.

$$\frac{75 \text{ lbs resin} \cdot \frac{\text{gal}}{10 \text{ lbs}} \cdot \frac{1.95 \text{ lbs VOC}}{\text{gal}} + 10 \text{ lbs EGBE} \cdot \frac{1 \text{ lb VOC}}{1 \text{ lb EGBE}} + 15 \text{ lbs water} \cdot \frac{0 \text{ lb VOC}}{1 \text{ lb water}}}{75 \text{ lbs resin} \cdot \frac{\text{gal}}{10 \text{ lbs}} + 10 \text{ lbs EGBE} \cdot \frac{\text{gal}}{7.51 \text{ lbs}} + 15 \text{ lbs water} \cdot \frac{\text{gal}}{8.34 \text{ lbs}}}$$

$$= \frac{24.63 \text{ lbs VOC}}{10.63 \text{ gals}} = 2.32 \frac{\text{lb VOC}}{\text{gal}} \rightarrow 278 \frac{\text{g VOC}}{\text{l}} > 265 \frac{\text{g VOC}}{\text{l}} \text{ [Rule 1128(c)(2)]}$$

**RULE 1147: NO<sub>x</sub> REDUCTIONS FROM MISCELLANEOUS SOURCES**

The natural gas-fired start-up burner on RTO #10 (C65) is expected to meet the 60 ppmv @ 3% O<sub>2</sub> (or 0.073 lb NO<sub>x</sub>/mmBTU) NO<sub>x</sub> emissions requirement under Rule 1147(c)(1), Table 1. The start-up burner is also required to meet current BACT requirements (<30 ppmv @ 3% O<sub>2</sub>), which the manufacturer has guaranteed. The curing oven (D63) is expected to meet the 30 ppmv @ 3% O<sub>2</sub> NO<sub>x</sub> emission requirements under Rule 1147(c)(1) and BACT. The facility will be required to demonstrate compliance for both through source tests prior to the issuance of permits to operate. Compliance is expected.

**RULE 1171: SOLVENT CLEANING OPERATIONS**

The facility will be using water for clean-up of the waterbased phenolic resin in the flow coater. Compliance with this rule is expected.

**REGULATION XIII:**

There will be an increase in combustion emissions due to the operation of the burners of the curing oven (D63) and the start-up burner on the new RTO #10 (C65). BACT is triggered for NO<sub>x</sub> and CO. The combustion emissions from the new RTO will be exempt from offset requirements per Rule 1304(c)(4), Regulatory Compliance.

**BACT**            The low-NO<sub>x</sub> natural gas-fired burners on the RTO and oven are required to meet current BACT requirements for NO<sub>x</sub> (<30 ppmv @ 3% O<sub>2</sub>), which the facility will be required to demonstrate through a source test. Similar equipment types with similar burner models have been previously demonstrate to meet this NO<sub>x</sub> emission level. Compliance is expected.

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VOC emissions from the new resin flowcoater (D62) and curing oven (D63) will be vented to the new RTO #10 (C65), which satisfies BACT requirements for these source categories for VOC emissions [minimum 95% destruction efficiency and 100% collection efficiency]. A minimum of 98% overall control efficiency is expected with 100% collection (PTE) and 98% destruction. Therefore, compliance is expected.

**Offsets:** The combustion emissions resulting from the operation of the start-up burner on the RTO will be exempt from providing emission offsets under Rule 1304(c)(4), Regulatory Compliance. VOC emissions from the flowcoater and the curing oven will be included under the existing group cap of 5070 lb/mo.

Under separate evaluation, the existing permits for RTO #6 (C47), RTO #7 (C48), RTO #8 (C49) and RTO #9 (C55) are being evaluated for a change of conditions to recalculate the emissions based on limits of operating hours of the start-up burner to 20 hrs/mo instead of the default 24/7 operating schedule. When doing so, the NO<sub>x</sub> potential to emit (PTE) associated with the four equipment is reduced from 30 lb/day to 1 lb/day. The total facility PTE becomes 16 lb/day, including the above new curing oven and RTO. See the separate evaluation for additional details. The NO<sub>x</sub> emissions from the new oven are exempt from offsets under Rule 1304(d) since the facility NO<sub>x</sub> is <4tpy.

**Modeling:** The emissions resulting from the operation of the burners on the curing oven and start-up burner on the RTO will be less than the allowable emissions in Rule 1303 Table A-1, as summarized below for combustion sources 2-5 mmBTU/hr. Modeling is not required for VOC.

### Modeling Emissions

Burner Rating, (MMBtu/hr)	NO <sub>x</sub> Emissions		CO Emissions		PM <sub>10</sub> Emissions	
	Actual (lb/hr)	Allowed (lb/hr)	Actual (lb/hr)	Allowed (lb/hr)	Actual (lb/hr)	Allowed (lb/hr)
4.0 (Curing oven, D63 A/N 542466)	0.073	0.31	0.067	17.1	0.014	1.91
4.34 (RTO #10, C65 A/N 542467)	0.158		1.28		0.031	

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**Rule 1401: NEW SOURCE REVIEW OF TOXIC AIR CONTAMINANTS**

There will be an increase in toxic emissions due to the installation of new resin flowcoater (D62), curing oven (D63) and RTO start-up burner (C65). However, the increase in health risk due to the emissions of toxic air contaminants will be below their thresholds (i.e., MICR will be below one in a million; and the hazard and chronic indices (HIA and HIC) will be <1.0. See attachments in the files (A/Ns 542465-542467).

Maximum TAC emissions from the operation of the new resin flowcoater (D62), curing oven (D63) will be tied to the maximum process rate and throughput of resin material. All the VOC and R1401 emissions will be associated with the resin flowcoater. See TAC emission calculations below, which will result in a MICR and HIA/HIC for oven that are expected to be below their thresholds. As shown on the attached spreadsheet, even at the very maximum production rate, the MICR for the flowcoater will be <7.26 x 10<sup>-8</sup> and the HIA/HIC will be <<1.0.

$$R1_{\text{formaldehyde}} = 2160 \frac{\text{lb resin}}{\text{day}} \cdot 1.5\% \text{ formaldehyde} = 32.4 \frac{\text{lb}}{\text{day}} \rightarrow 1.35 \frac{\text{lb}}{\text{hr}}$$

$$R2_{\text{formaldehyde}} = R1_{\text{formaldehyde}} (1 \cdot 0.98) = 0.648 \frac{\text{lb}}{\text{day}} \rightarrow 0.027 \frac{\text{lb}}{\text{hr}}$$

$$R1_{\text{phenol}} = 2160 \frac{\text{lb resin}}{\text{day}} \cdot 13.5\% \text{ phenol} = 291.6 \frac{\text{lb}}{\text{day}} \rightarrow 12.15 \frac{\text{lb}}{\text{hr}}$$

$$R2_{\text{phenol}} = R1_{\text{phenol}} (1 \cdot 0.98) = 5.83 \frac{\text{lb}}{\text{day}} \rightarrow 0.243 \frac{\text{lb}}{\text{hr}}$$

$$R1_{\text{EGBE}} = 2160 \frac{\text{lb resin}}{\text{day}} \cdot 10\% \text{ EBGE} = 216.0 \frac{\text{lb}}{\text{day}} \rightarrow 9.0 \frac{\text{lb}}{\text{hr}}$$

$$R2_{\text{EGBE}} = R1_{\text{EGBE}} (1 \cdot 0.98) = 4.32 \frac{\text{lb}}{\text{day}} \rightarrow 0.18 \frac{\text{lb}}{\text{hr}}$$

The table below shows the project wide health risk impact from the toxic air contaminant emissions is expected to remain below the thresholds for MICR of 1 x 10<sup>-6</sup> and HIA/HIC <<1.0. Therefore, the equipment is expected to comply with this rule.

**Summary of MICR and HIA/HIC**

A/N	MICR	HIA/HIC
542465	7.28 x 10 <sup>-8</sup>	3.02 x 10 <sup>-3</sup>
542466	2.16 x 10 <sup>-7</sup>	3.43 x 10 <sup>-3</sup>
542467	8.10 x 10 <sup>-9</sup>	2.33 x 10 <sup>-2</sup>
Total	2.97 x 10 <sup>-7</sup>	0.030

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**REG XXX**

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NO <sub>x</sub>	40
PM <sub>10</sub>	30
SO <sub>x</sub>	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is part of the 4th permit revision to the Title V renewal permit issued to this facility on October 13, 2010. Also included in this revision is the change of conditions on the four RTO’s, which is covered in a separate evaluation. The table on the following page summarizes the cumulative emission increases resulting from this permit revision, the fourth since the Title V renewal permit was issued:

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### Title V Permit Revisions Summary

		HAP	VOC	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>x</sub>	CO
1 <sup>st</sup> Revision	Install new curing oven (D53), and vent to new RTO #9 (C55) – P/C (A/N 527418)	0	0	0	0	0	0
	Install new curing oven (D54), and vent to new RTO #9 (C55) – P/C (A/N 527419)	0	0	0	0	0	0
	Install new RTO #9 (C55), to vent dip coat impregnating room #1 (D8), curing ovens (D53 and D54) - P/C (A/N 527420)	0	0	3	1	0	3
	Modification to dip coat impregnating room #1 (D8) to vent it to new RTO #9 (C55) - P/C (A/N 527421)	0	0	0	0	0	0
	Modification to RTO #7 (C48) to remove venting of dip coat impregnating room #1 (D8) - P/C (A/N 527422)	0	0	0	0	0	0
2 <sup>nd</sup> Revision	Installation and operation of dip coat impregnating and drying equipment, prepregger #3 (D56-D57) and vented to existing RTO #6 (C47) –P/C (A/N 524462)	0	0	0	0	0	0
	Modification of existing RTO #6 (C47) to vent prepregger #3 (D56-D57) –P/C (A/N 524463)	0	0	0	0	0	0
3 <sup>rd</sup> Revision	New construction of boiler with 11.815 mmBTU/hr low-NOx burner (D60) to replace boiler (D29) (A/N 537850)	0	1	3	2	0	21
4 <sup>th</sup> Revision	Install new resin flowcoater (D62), to be vented to new RTO #10 (C65) - P/C(A/N 542465)	0	0	0	0	0	0
	Install new curing oven (D63), to be vented to new RTO #10 (C65) – P/C (A/N 542466)	0	1	3	1	0	3
	Install new RTO #10 (C65), to vent new flowcoater (D62) and new curing oven (D63) - P/C (A/N 542467)	0	0	0	0	0	0
	Change of conditions to RTO #6 (C47) to limit operating hours of start-up burner to 20 hrs/mo - P/C (A/N 547539)	0	0	-6 <sup>(a)</sup>	0	0	-2
	Change of conditions to RTO #7 (C48) to limit operating hours of start-up burner to 20 hrs/mo - P/C (A/N 547540)	0	0	-7	0	0	-2
	Change of conditions to RTO #8 (C49) to limit operating hours of start-up burner to 20 hrs/mo - P/C (A/N 547541)	0	0	-13	-1	0	-3
	Change of conditions to RTO #9 (C55) to limit operating hours of start-up burner to 20 hrs/mo - P/C (A/N 547542)	0	-1	-3	-1	0	-3
Cumulative Total	0	1	-23	2	0	17	
Maximum Daily	30	30	40	30	60	220	

Note: (a) -7 lb NOx/day from RTO #6, plus 1 lb/day assigned for actual NOx emissions for group of RTO #6-9.

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Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

**RECOMMENDATION/CONCLUSION:**

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility with permits to construct in Section H.