

PLANTWIDE APPLICABILITY LIMITATION (PAL) PERMIT For Volatile Organic Compounds (VOC) Issued Pursuant to the Tennessee Air Quality Act

This permit fulfills the requirements of the federal regulations promulgated thereunder at 40 CFR \$51.166(w). This permit is issued in accordance with the provisions of paragraph 1200-03-09-.01(4)(s) of the Tennessee Air Pollution Control Regulations. The permittee has been granted permission to operate air contaminant sources in accordance with emissions limitations and monitoring requirements set forth herein.

Effective Date: draft

Expiration Date: draft

Issued To: Nissan North America, Inc.

Installation Description:

Automotive Manufacturing Facility - See Condition P1 for a full list of emission sources

Facility ID: 75-0155

Renewal Application Due Date: Between draft and draft

Information Relied Upon: Application dated December 12, 2023 Additional Information dated March 22, 2024

(continued on the next page)

TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

POST AT INSTALLATION ADDRESS

Installation Address: 983 Nissan Drive Smyrna

Permit Number: 981857

Primary SIC: 37

General Requirements

- **G1.** Any physical change in or change in the method of operation of an air contaminant source subject to the requirements of this permit
 - (a) Is not a major modification, as defined in subpart 1200-03-09-.01(4)(s)2(viii) of the Tennessee Air Pollution Control Regulations (TAPCR);
 - (b) Does not have to be approved through the major new source review (NSR) program; and
 - (c) Is not subject to the provisions in TAPCR 1200-03-09-.01(4)(a)6 (restrictions on relaxing enforceable emission limitations that the major stationary source used to avoid applicability of the major NSR program).

Provided the permittee:

- (d) maintains its plant-wide emissions below the plantwide applicability limitation (PAL) level;
- (e) meets the requirements in TAPCR 1200-03-09-.01(4)(s)1 through 15; and
- (f) complies with the requirements of this permit.

TAPCR 1200-03-09-.01(4)(s)1(ii)

G2. The permittee shall process all Title V permit changes according to the requirements of TAPCR 1200-03-09-.02(11).

The permittee shall notify the Technical Secretary within 30 days of a change that directly affects the permittee's ability to comply with the PAL permit but does not require a Title V notification under TAPCR 1200-03-09-.02(11). This notification shall include the permittee's proposed method of calculating the VOC emissions from the new unit(s) for the purpose of demonstrating compliance with the PAL limit. The permittee shall begin including actual or potential VOC emissions from such units in the calculations required by **Conditions P1** and **P2** upon startup or the effective date of the modification, as applicable.

Notifications shall be submitted to the Technical Secretary at the address below or a pdf copy to air.pollution.control@tn.gov:

Technical Secretary Division of Air Pollution Control Tennessee Permit Program Davy Crockett Tower, 7th Floor 500 James Robertson Parkway Nashville, TN 37243

TAPCR 1200-03-09-.02(11)(a)4, 1200-03-09-.02(11)(f), and 1200-03-09-.01(4)(s)7(x)

- **G3.** The following recordkeeping requirements shall apply to this facility:
 - (a) For monthly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than 30 days from the end of the month for which the data is required.
 - (b) For weekly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven days from the end of the week for which the data is required.
 - (c) For daily recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven days from the end of the day for which the data is required.

Logs and records specified in this permit shall be kept readily accessible and made available upon request by the Technical Secretary or a Division representative and shall be retained for a period of not less than five years. Logs and records contained in this permit are based on a recommended format. Any logs that have an alternative format may be utilized provided such logs contain the same or equivalent information that is required. Computer-generated logs are also acceptable. Logs and records are not required to be submitted semiannually unless specified in **Condition G4**.

TAPCR 1200-03-10-.04(2)(b)

Reporting and Notification Requirements

- **G4**. The permittee shall submit semiannual monitoring reports and prompt deviation reports to the Technical Secretary. The reports shall meet the requirements in paragraphs (a) and (b) of this condition and must be submitted to the physical address or email address (pdf) specified in **Condition G2**.
 - (a) <u>Semi-Annual Report</u>: Semiannual reports shall cover the six-month periods from October 1st through March 31st and April 1st through September 30th and shall be submitted to the Technical Secretary within 30 days after the end of each six-month reporting period. Subsequent reports shall be submitted within 30 days after the end of each six-month period following the first report. These semiannual reports shall contain the following information:
 - (i) The identification of the permittee (owner and operator) and the permit number.
 - (ii) Total annual emissions (tons/year) based on a 12-month rolling total for each month in the reporting period calculated pursuant to **Condition P2**.
 - (iii) All data relied upon, including, but not limited to, any Quality Assurance or Quality Control data, in calculating the monthly and annual PAL pollutant emissions.
 - (iv) A list of any emissions units modified or added to the major stationary source during the 6-month period covered by the report.
 - (v) The number, duration, and cause of any deviations or monitoring malfunctions (other than the time associated with zero and span calibration checks), and any corrective actions taken.
 - (vi) A notification of a shutdown of any monitoring system, whether the shutdown was permanent or temporary, the reason for the shutdown, the anticipated date that the monitoring system will be fully operational or replaced with another monitoring system, and whether the emissions unit monitored by the monitoring system continued to operate, and the calculation of the emissions of the pollutant or the number determined by the method included in this permit, as provided by **Condition P2**.
 - (vii) A signed statement by the responsible official (as defined at TAPCR 1200-03-09-.02(11)(b)21) certifying the truth, accuracy, and completeness of the information provided in the report.
 - (b) <u>Deviation Report:</u> The permittee shall promptly submit reports of any deviation or exceedance of the PAL requirements, including periods where no monitoring is available. A report submitted pursuant to TAPCR 1200-03-09-.02(11)(e)1(iii)(III) shall satisfy this reporting requirement. The deviation reports shall be submitted within the time limits prescribed in TAPCR 1200-03-09-.02(11)(e)1(iii)(III). These deviation reports shall contain the following information:
 - (i) The identification of the permittee (source owner and operator) and the permit number;
 - (ii) The PAL requirement that experienced the deviation or that was exceeded;
 - (iii) Emissions resulting from the deviation or the exceedance; and
 - (iv) A signed statement by the responsible official (as defined by the applicable Title V operating permit program) certifying the truth, accuracy, and completeness of the information provided in the report.

TAPCR 1200-03-09-.01(4)(s)14

PAL Renewal

G5. The permittee shall submit a timely application to the Technical Secretary to request renewal of a PAL. A timely application is one that is submitted at least 6 months prior to, but not earlier than 18 months from, the date of permit expiration. If the permittee submits a complete application to renew the PAL within this time period, then the PAL shall continue to be effective until the revised permit with the renewed PAL is issued.

TAPCR 1200-03-09-.01(4)(s)7(iii) and 1200-03-09-.01(4)(s)10(ii)

- **G6.** The application to renew a PAL permit shall contain the information required in paragraphs (a) through (d) of this condition.
 - (a) The information required in TAPCR 1200-03-09-.01(4)(s)3(i) through (iii).
 - (b) A proposed PAL level.
 - (c) The sum of the potential to emit of all emissions units under the PAL (with supporting documentation)
 - (d) Any other information the permittee wishes the Technical Secretary to consider in determining the appropriate level for renewing the PAL.

TAPCR 1200-03-09-.01(4)(s)10(iii)

Expiration of PAL

- **G7.** Any PAL that is not renewed in accordance with the procedures in TAPCR 1200-03-09-.01(4)(s)10 shall expire at the end of the PAL effective period. Upon expiration of a PAL, the following requirements shall apply:
 - (a) Each emissions unit (or each group of emissions units) that existed under the PAL shall comply with an allowable emission limitation under a revised permit established according to the procedures in (i) and (ii) below.
 - (i) Within the time frame specified for PAL renewals in Condition G5, the permittee shall submit a proposed allowable emission limitation for each emissions unit (or each group of emissions units, if such a distribution is more appropriate as decided by the Technical Secretary) by distributing the PAL allowable emissions for the major stationary source among each of the emissions units that existed under the PAL. If the PAL had not yet been adjusted for an applicable requirement that become effective during the PAL effective period, as required under subpart 1200-03-09-.01(4)(s)10(v), such distribution shall be made as if the PAL had been adjusted.
 - (ii) The Technical Secretary shall decide whether and how the PAL allowable emissions will be distributed and issue a revised permit incorporating allowable limits for each emission unit, or each group of emission units, as the Technical Secretary determines is appropriate.
 - (b) Each emission unit(s) shall comply with the allowable emission limitation on a 12-month rolling basis. The Technical Secretary may approve the use of monitoring systems (source testing, emission factors, etc.) other than continuous emissions monitoring systems (CEMS), continuous emission rate monitoring systems (CERMS), portable emissions monitoring systems (PEMS) or continuous parametric monitoring systems (CPMS) to demonstrate compliance with the allowable emission limitation.
 - (c) Until the Technical Secretary issues the revised permit incorporating allowable limits for each emission unit, or each group of emissions units, as required in **Condition G7(a)(ii)**, the source shall continue to comply with a source-wide, multi-unit emissions cap equivalent to the level of the PAL emission limitation.
 - (d) Any physical change or change in the method of operation at the major stationary source will be subject to major NSR requirements if such change meets the definition of major modification in parts 1200-03-09-.01(4)(b)2 and 3.

(e) The permittee shall continue to comply with any State or Federal applicable requirements (best available control technology (BACT), reasonable available control technology (RACT), new source performance standards (NSPS), etc.) that may have applied either during the PAL effective period or prior to the PAL effective period except for those emission limitations that had been established pursuant to part 1200-03-09-.01(4)(a)6, but were eliminated by the PAL in accordance with the provisions in **Condition G1(c)**.

TAPCR 1200-03-09-.01(4)(s)9

VOC Limit Supersedes Statement

G8. The VOC PAL in Condition P1 supersedes the VOC limits at Conditions E11-1, E21-1, E22-1, E23-1, E24-2, E25-2, E26-3, E27-3, E31-2, E32-2, E35-2, E41-1, E51-1, E52-1, E61-7, E62-7, E64-2, E66-1 (annual limit only), E70-1, E71-9, E78-2, and E80-2 of Title V Permit 577616.

The permittee shall submit a significant modification application to incorporate the changes authorized by this permit into the Title V permit within 90 days of issuance of this permit. Alternatively, the permittee shall submit a Title V Renewal application requesting incorporation of the changes authorized by this permit into the Title V permit within 90 days of issuance of this permit, provided that the Title V Renewal application is submitted during the time frame stipulated by the Title V permit. The application shall be made using forms made available by the Technical Secretary.

TAPCR 1200-03-09-.03(8)

VOC PAL Conditions

Limitations

P1. Emissions of VOC from this facility shall not exceed the PAL of 1,806.0 tons during all intervals of 12 consecutive months. Compliance with the PAL shall be determined within 30 days of the end of each month based on the sum of the VOC emissions for the prior 12-month period.

TAPCR1200-03-09-.01(4)(s)

Compliance Method: Compliance with this emission limitation shall be demonstrated by calculating the emissions of VOCs on a monthly basis from every emissions unit (source) operating at the facility and emitting VOC, as specified in **Condition P2**. At the time of the issuance of this permit, the following sources of VOC have been identified at the facility, including insignificant activities/emission units.

Table P-1: Permitted Sources				
ESRN	Source Description	Source Designation	Calculation Technique	
75-0155-01	Three Natural Gas-Fired Boilers	Small	Emission Factors	
75-0155-22	Miscellaneous Solvent Usage	Major	Mass Balance	
75-0155-25	Paint Line 2 Undercoat Booth	Small	Mass Balance	
75-0155-26	WWS Operations	Small	Mass Balance	
75-0155-51	Paint Line 1	Major	Mass Balance	
75-0155-52	Paint Line 1 and Fascia Pant Line 1 Natural Gas Usage	Small	Emission Factors	
75-0155-53	Fascia Paint Line 1	Major	Mass Balance	
75-0155-61	Paint Strip House	Small	Mass Balance	
75-0155-62	Fascia Paint Line 2	Major	Mass Balance	
75-0155-64	Paint Line 2 Topcoat	Major	Mass Balance	
75-0155-65	Facility-Wide Natural Gas Usage	Small	Emission Factors	
75-0155-66	Paint Line 2 Primer	Major	Mass Balance	
75-0155-68	Paint Line 2 Stone Guard and Cavity Wax	Significant	Mass Balance	
75-0155-70	Paint Line 2 Cavity Wax Booth	Significant	Mass Balance	
75-0155-71	Paint Line 2 Body E-Coat	Significant	Mass Balance	
75-0155-72	Services Parts E-Coat	Small	Mass Balance	
75-0155-78	Miscellaneous Sealers and Adhesives	Major	Mass Balance	
75-0155-80	Windshield Wiper Fluid Operation	Small	Emission Factors	
75-0155-83	Gasoline Dispensing	Small	Emission Factors	
75-0155-89	Paint Line 2 Pretreatment	Small	Mass Balance	
75-0155-90	Paint Line 1 Pretreatment	Small	Mass Balance	
75-0155-104	ILC Door Adhesive Line	Small	Mass Balance	
75-0155-106	Headliner Spray Process	Small	Mass Balance	

Table P-2: Insignificant Activities/Emission Units				
ESRN	Source Description	Source Designation	Calculation Technique	
75-0155-10	Miscellaneous Touch up Pens/Markers	Small	Mass Balance	
75-0155-20	Battery Case Welding Operations	Small	Potential-to-Emit	
75-0155-28	467.7 HP Natural Gas-Fired Emergency Generator	Small	Emission Factors	
75-0155-57	15 Emergency Engines	Small	Emission Factors	
75-0155-99	480 HP Diesel-Fired Emergency Generator	Small	Emission Factors	
75-0155-100	Laser Cutting in FPL1	Small	Potential-to-Emit	
75-0155-101	Laser Cutting in FPL2	Small	Potential-to-Emit	
75-0155-102	Emissions Test Lab II - Chassis Dynamometer Test Area	Small	Potential-to-Emit	
75-0155-103	260 HP ILC Diesel-Fired Emergency Fire Pump	Small	Emission Factors	
75-0155-107	Injection Molding for Fascia Production	Small	Emission Factors	
75-0155-108	Injection Molding for ILC Door Line	Small	Emission Factors	
75-0155-109	Injection Molding for Fuel Tank Production	Small	Emission Factors	
75-0155-110	Hot Melt Glue for Headliner Production	Small	Potential-to-Emit	
75-0155-111	3M AdPro Pens	Small	Mass Balance	
75-0155-112	Trim & Chassis Miscellaneous Fluid Fill Operations (PSF, Brake Fluid, Coolant Fill, WWF)	Small	Emission Factors	
75-0155-113	Service Parts Pretreatment Line	Small	Mass Balance	
75-0155-114	Wastewater Treatment Plant	Small	Mass Balance	
75-0155-115	Plant-wide Storage Tanks (except gasoline dispensing and WWF operations)	Small	Emission Factors	
75-0155-116	WWL fueling vehicles not equipped with OBVR	Small	Emission Factors	
75-0155-117	Tire Room Lubricant	Small	Mass Balance	
75-0155-118	Body Welding	Small	Potential-to-Emit	
75-0155-119	Smyrna Supplier Park Resistance Welding	Small	Potential-to-Emit	
75-0155-120	Die Cleaning Booths	Small	Mass Balance	
75-0155-121	Testing Lab	Small	Mass Balance	
75-0155-122	Zinc Digestion	Small	Mass Balance	
75-0155-123	Paint Line 1 Reverse Osmosis	Small	Mass Balance	
75-0155-124	Maintenance Paint Booth in Paint Strip House	Small	Mass Balance	
75-0155-125	Plant-Wide Small Maintenance Parts Washer	Small	Mass Balance	
75-0155-126	Improvement Team T&C	Small	Mass Balance	
75-0155-127	Field Quality Center (FQC) Vehicle Repair	Small	Mass Balance	
75-0155-128	Propane Cylinder and Aerosol Can De-Pressurization	Small	Potential-to-Emit	
75-0155-129	Emissions Test Laboratory II – Gasoline defueling & dispensing for EPA Emissions Test	Small	Potential-to-Emit	
75-0155-130	FQC Repair Shop Exhaust System	Small	Potential-to-Emit	

P2. The permittee shall use the procedures specified in Tables P-3, P-4, and P-5 to calculate emissions of VOC during each month and each period of 12 consecutive months for each emission source or emission unit listed. Monthly and 12 consecutive month emissions of VOC from all emission sources/emission units shall be summed to determine facility-wide VOC emissions in tons/month and tons during all intervals of 12 consecutive months (12-month rolling total), as shown in Tables P-6 and P-7, respectively. Total VOC emissions for each emission source during all intervals of 12 consecutive months shall be recorded as show in Table P-8.

	Table P-3: Emission Calculation Procedures - Mass Balance					
ESRN	VOC Control ¹	Calculation Technique ²	Overall Destruction Efficiency (DE)			
10	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
22	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
25	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right]/2000$	0%			
26	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
51	RTO	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)](1-DE) - (Vol_w)(D_w)(W_w)]/2000\right]$	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is below the temperature established during the most recent performance test.			
	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right]/2000$	0%			
53	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right]/2000$	0%			
61	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
62	ТО	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)](1-DE) - (Vol_w)(D_w)(W_w)\right]/2000$	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is more than 50°F below the temperature established during the most recent performance test.			
64	ТО	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)](1-DE) - (Vol_w)(D_w)(W_w)]/2000\right]$	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is more than 50°F below the temperature established during the most recent performance test.			

	Table P-3: Emission Calculation Procedures - Mass Balance					
ECDN	VOC					
66	TO	$VOC_{Total} = \left[\sum_{i=1}^{M} \left[(Vol_i)(D_i)(W_i) \right] (1-DE) - (Vol_w)(D_w)(W_w) \right] / 2000 $	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is more than 50°F below the temperature established during the most recent performance test.			
68	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right] / 2000$	0%			
70	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right] / 2000$	0%			
71	ТО	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)](1-DE) - (Vol_w)(D_w)(W_w)]/2000\right]$	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is more than 50°F below the temperature established during the most recent performance test.			
72	ТО	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)](1-DE) - (Vol_w)(D_w)(W_w)\right]/2000$	DE shall be based upon the overall VOC destruction efficiency established during the most recent approved performance test. DE shall equal zero for every three-hour period where the average temperature is more than 50°F below the temperature established during the most recent performance test.			
78	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right]/2000$	0%			
89	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right] / 2000$	0%			
90	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
104	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right] / 2000$	0%			
106	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right] / 2000$	0%			
111	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
113	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
114	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%			
117	None	$VOC_{Total} = [\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000$	0%			

	Table P-3: Emission Calculation Procedures - Mass Balance			
ECDN	VOC			
ESKN	Control	Calculation Technique ²	Overall Destruction Efficiency (DE)	
120	None	$VOC_{Total} = [\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000$	0%	
121	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
122	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
123	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
124	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
125	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
126	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)]/2000\right]$	0%	
127	None	$VOC_{Total} = \left[\sum_{i=1}^{M} [(Vol_i)(D_i)(W_i)] - (Vol_w)(D_w)(W_w)\right]/2000$	0%	

¹ Regenerative Thermal Oxidizer (RTO)

Thermal Oxidizer (TO)

² Where:

VOC_{Total} = Total mass of VOC emitted from all material usage during the month (ton/month)

M = Number of differing VOC containing materials used during the month

Vol_i= Total volume of coating i used during the month (gal)

 D_i = Density of coating i (lb/gal)

W_i= Mass fraction of VOC in coating i (lb/lb)

Vol_w= Total volume of VOC-containing waste collected during the month (gal)

D_w= Average density of waste collected (lb/gal)

W_w= Average mass fraction of VOC in waste material (lb/lb)

CE = Overall Control Efficiency

Table P-4: Emission Calculation Procedures – Emission Factor(s)				
ESRN	VOC Emission Factor (EF)	Emission Factor Source	Calculation Technique ¹	
01	0.006 lb VOC/MMBtu or 6.12 lb VOC/MMscf	Manufacturer (Cleaver Brooks) emission factor	VOC _{Total} =(EF(lb/MMBtu))(max heat input (MMBtu/hr))(monthly hours of operation)/2000 or VOC _{Total} =(EF(lb/MMscf))(monthly actual gas usage (MMScf))/2000	
28	0.0022 lb VOC/hp-hr	NSPS Subpart JJJJ Standard	VOC _{Total} =(EF(lb/hp-hr))(max hp)(hours of operation)/2000	
52	0.0054 lb VOC/MMBtu or 5.5 lb/MMscf	AP-42 Chapter 1.4, Table 1.4-2	VOC _{Total} =(EF(lb/MMBtu))(max heat input (MMBtu))(monthly hours of operation)/2000 or VOC _{Total} =(EF(lb/MMscf))(monthly actual gas usage (MMScf))/2000	

	Table P-4: Emission Calculation Procedures – Emission Factor(s)					
ESRN	VOC Emission Factor (EF)	Emission Factor Source	Calculation Technique ¹			
57	Eleven Non-NSPS 4- stroke lean-burn natural gas engines: 0.118 lb/MMBtu	AP-42 Chapter 3.2, Table 3.2-2	VOC _{Total} =(EF(lb/MMBtu)(monthly actual fuel usage (MMScf))(1000 Btu/Scf)/2000 or VOC _{Total} =(EF(lb/MMBtu))(max heat input (MMBtu/hr))(hours of operation)/2000			
	Three diesel-fired engines < 600 HP: 0.00251 lb VOC/hp-hr One diesel-fired engine	AP-42 Chapter 3.3, Table 3.3-1	VOC _{Total} =(EF(lb/hp-hr))(max hp)(monthly hours of operation)/2000			
	> 600 HP: 0.000/05 lb VOC/hp-hr	AP-42 Chapter 3.4, 1 able 3.4-1				
65	0.0054 lb VOC/MMBtu or 5.5 lb VOC/MMscf	AP-42 Chapter 1.4, Table 1.4-2	VOC _{Total} =(EF(lb/MMBtu))(max heat input(MMBtu/hr))(hours of operation)/2000 or VOC _{Total} =(EF(lb/MMscf))(monthly actual gas usage(MMScf))/2000			
80	ERA Environmental Management Solutions Tanks on Demand Software	Program utilizes methodology from AP-42 Chapter 7.1 Organic Liquid Storage Tanks	Software-based			
83	ERA Environmental Management Solutions Tanks on Demand Software	Program utilizes methodology from AP-42 Chapter 7.1 Organic Liquid Storage Tanks	Software-based			
99	0.00251 lb VOC/hp-hr	AP-42 Chapter 3.3, Table 3.3-1	VOC _{Total} =(EF(lb/hp-hr))(max hp)(monthly hours of operation)/2000			
103	0.00251 lb VOC/hp-hr	AP-42 Chapter 3.3, Table 3.3-1	VOC _{Total} =(EF(lb/hp-hr))(max hp)(monthly hours of operation)/2000			
107	157.4 lb VOC/ million pounds of resin	Development of Emission Factors for Polyethylene Processing, Journal of Air & Waste Management Association (1996)	VOC _{Total} =(EF)(monthly total resin used(10 ⁶ lbs))/2000			
108	157.4 lb VOC/ million pounds of resin	Development of Emission Factors for Polyethylene Processing, Journal of Air & Waste Management Association (1996)	VOC _{Total} =(EF)(total resin used(10 ⁶ lbs))/2000			
109	157.4 lb VOC/ million pounds of resin	Development of Emission Factors for Polyethylene Processing, Journal of Air & Waste Management Association (1996)	VOC _{Total} =(EF)(monthly total resin used(10 ⁶ lbs))/2000			

Table P-4: Emission Calculation Procedures – Emission Factor(s)				
ESRN	VOC Emission Factor (EF)	Emission Factor Source	Calculation Technique ¹	
112	ERA Environmental Management Solutions Tanks on Demand Software	Program utilizes methodology from AP-42 Chapter 7.1 Organic Liquid Storage Tanks	Software-based	
115	ERA Environmental Management Solutions Tanks on Demand Software	Program utilizes methodology from AP-42 Chapter 7.1 Organic Liquid Storage Tanks	Software-based	
116	ERA Environmental Management Solutions Tanks on Demand Software	Program utilizes methodology from AP-42 Chapter 7.1 Organic Liquid Storage Tanks	Software-based	

¹ Where:

VOC_{Total} = Total mass of VOC emitted during the month (ton/month)

Table P-5: Emission Calculation Procedures – Potential-to-Emit			
ESRN	Source Description	Ton/12 consecutive Months	
20	Battery Case Welding Operations	0.07	
100	Laser Cutting Fascia Paint Line 2	1.68	
101	Laser Cutting Fascia Paint Line 1	0.91	
102	Emissions Test Lab II Chassis Dynamometer Test Area	0.27	
110	Hot Melt Glue for Headliner Production	0.16	
118	Body Welding	0.07	
119	Smyrna Supplier Park Resistance Welding	0.07	
128	Propane Cylinder and Aerosol Can De-Pressurization	0.38	
129	Emissions Test Laboratory II – Gasoline Defueling & Dispensing for EPA Emissions Test	0.05	
130	FQC Repair Shop Exhaust System	0.0000251	

Table P-6: Source-Specific and Facility-Wide VOC Emissions						
	E	SRN	E	SRN ¹	Facil	ity-wide
	VOC	Emissions	VOC	Emissions	VOC	Emissions
Month/Year	(tons/mo) ²	$(\text{tons}/12 \text{ mo})^3$	(tons/mo)	(tons/12 mo)	(tons/mo)	(tons/12 mo)

1. Columns should be added for each ESRN shown in Tables P-3, P-4, and P-5. Any ESRN added after issuance of this permit should be included upon startup.

2. The VOC emissions in tons/month for each ESRN is the calculated VOC emissions using the method specified in Tables P-3 or P-4, the potential emission rate listed in Table P-5, or any emissions from changes made pursuant to Conditions G2 and G3, not already addressed in Tables P-3 through P-5.

3. The tons per 12-consecutive month values are the sum of the emissions in the 11 months preceding the month just completed + the emissions in the month just completed.

Table P-7: Facility-Wide VOC Emissions			
Month / Year	VOC Emissions (tons/month) ¹	VOC Emissions (tons/12 Consecutive Months) ²	

1. The VOC emissions in tons/month is the sum of all calculated VOC emissions from Tables P-3 and P-4, the potential emission rates listed in Table P-5, and any emissions from changes made pursuant to Conditions G2 and G3, not already addressed in Tables P-3 through P-5.

2. The tons per 12-consecutive month values are the sum of the emissions in the 11 months preceding the month just completed + the emissions in the month just completed.

Table P-8: VOC Emissions for Source			
Month / Year	VOC Emissions (tons/month) ¹	VOC Emissions (tons/12 Consecutive Months)	

1. The VOC emissions in tons/month is the sum of all calculated VOC emissions from Tables P-3 or P-4 (as applicable to each source), and any emissions from changes made pursuant to Conditions G2 and G3, not already addressed in Tables P-3 and P4.

2. The tons per 12-consecutive month values are the sum of the emissions in the 11 months preceding the month just completed + the emissions in the month just completed.

TAPCR 1200-03-09-.01(4)(s)

P3. Emission calculations for compliance purposes must include emissions from startups, shutdowns, and malfunctions.

TAPCR 1200-03-09-.01(4)(s)7(iv)

Compliance Method: The permittee shall assume a control efficiency of 0% during periods where temperature monitoring data for the RTO(s) and TO(s) is not available due to malfunction.

Monitoring Requirements

P4. The as-supplied VOC content of all VOC-containing materials (all coatings, inks, adhesives, thinners, and solvents) to be used by this source shall be determined from Safety Data Sheets (SDS) or manufacturer or vendor formulation data which explicitly list the VOC content by weight. If new materials are used, or if material formulation is changed, logs used to calculate emissions of VOC shall be updated within 30 days from the initial date of usage of the new or altered material. Where the vendor of a VOC containing material, which is used in or at the emissions unit, publishes a range of pollutant content from such material, the owner or operator must use the highest value of the range to calculate the VOC pollutant emissions unless the Technical Secretary determines there is site-specific data or a site-specific monitoring program to support another content within the range.

TAPCR 1200-03-09-.01(4)(s)12(iii)

Compliance Method: Purchase orders and/or invoices for all VOC- and HAP-containing materials, along with current SDS, must be maintained and kept available for inspection by the Technical Secretary or a Division representative. The SDS must explicitly list the VOC and HAP content by weight for all VOC- and HAP-containing materials. If SDS are not available with this information, vendor formulation data containing the required information for those materials must also be maintained. documents (maintained electronically) may be used to fulfill this requirement.

P5. The permittee shall use a thermocouple(s) to continuously monitor and record, a minimum of once every fifteen minutes, the combustion chamber temperatures of each RTO/TO controlling emissions from Sources 51, 62, 64, 66, 71, and 72 while those sources are in operation. Each RTO/TO shall be operated with the minimum combustion chamber temperature (three-hour block data averaging basis) determined for that RTO/TO based on the results of the most recent approved performance test for that RTO/TO. The overall destruction efficiency determined during the most recent approved performance test for each RTO/TO shall be used for the emission calculations required by **Condition P2** during operations when the minimum temperature requirement is being met.

TAPCR 1200-03-09-.01(4)(s)12(v)

Compliance Method: Compliance with the above minimum combustion chamber temperature requirements and all permanent total enclosure criteria (if applicable) shall assure each RTO/TO achieves the overall VOC destruction efficiency determined by the results of the most recent performance testing of each RTO/TO. Any deviations from an RTO/TO's minimum combustion chamber temperature requirement (three-hour block data averaging basis) during which the average temperature is more than 50°F below the minimum combustion chamber temperature determined for that RTO/TO during the most recent performance test [this temperature allowance does not apply to Source 51] shall be recorded in a deviation log within seven days of the incident. A 0% control efficiency shall be applied in the calculations required by **Condition P2** during periods of deviation from the minimum temperature. An explanation of the cause of the incident and the corrective action taken shall be included in the deviation log. The combustion chamber temperature shall be recorded in electronic format. Times that the source is not in operation shall be noted.

The requirements in paragraphs (a) through (e) below apply to all enclosures determined to be a permanent total enclosure during the most recent performance testing to assure that 100% of the VOC emissions are being captured and sent to the control device.

- (a) Any natural draft opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Technical Secretary. An NDO is defined as any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed;
- (b) Any exhaust point from the enclosure shall be at least four equivalent duct or hood diameters from each NDO;
- (c) The total area of all NDOs shall not exceed five percent (5%) of the surface area of the enclosure's four walls, floor, and ceiling;
- (d) The average facial velocity (FV) of air through all NDOs shall be at least 200 feet per minute. The direction of air flow through all NDOs shall be into the enclosure. A differential pressure across the enclosure of 0.007 inches of water (0.013 mm Hg) is required to demonstrate compliance with this requirement
- (e) All access doors and windows whose areas are not included in item (c) and are not included in the calculation in item (d) shall be closed during routine operation of the process.

The Division may require the permittee to verify the Permanent Total Enclosure status. Emissions from any sources not included in the enclosure, or emissions during times when the requirements in paragraphs (a) through (e) are not being met, shall have zero capture and control efficiency.

P6. The permittee shall revalidate all total VOC destruction efficiencies and minimum combustion chamber temperatures through performance testing. Such testing must occur at least once every five years after issuance of the PAL. Methods for measuring transfer, capture, and destruction efficiencies are to follow approved protocols (e.g., the Nissan protocol dated November 25, 1991, and/or the "Protocol for determining Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat," EPA-453/R08002).

Compliance Method: The permittee shall submit to the Technical Secretary the results of any re-validation test or method within three months after completion of such test or method. An electronic copy of the report in PDF format shall be submitted to Air.Pollution.Control@tn.gov.

TAPCR 1200-03-09-.01(4)s12(ix) and 1200-03-09-.01(4)(s)14

P7. The Technical Secretary shall be notified at least 30 days prior to the actual test date before conducting any performance test required by this permit. A site-specific test plan must be submitted as a part of this notification. The test plan must be approved by the Technical Secretary prior to the performance test.

TAPCR1200-03-10-.01(3)(a)

- **P8.** All waste paint sludge containing VOCs and HAPs that is collected in drums and shipped offsite to a permitted treatment, storage, disposal, or recycling (TSDR) facility can be used as credit toward the facility's VOC emissions as specified in Table P3 of **Condition P2**. Before credit can be given, the following conditions must be met:
 - (a) In order to claim credit for offsite disposal of VOC and HAP containing waste in any calendar month, the permittee must sample at least one shipment of VOC and HAP containing waste during that month. The permittee shall not claim credit for offsite disposal of waste containing VOC and HAP during any calendar month in which samples were not collected.
 - (b) The permittee must collect samples from at least ten percent (10%) of all drums with VOC and/or HAP containing waste in a shipment, using the most current version of American Society for Testing and Materials (ASTM) Method D5495 (Standard Practice for Sampling with a Composite Liquid Waste Sampler). The samples may be combined into one composite sample for testing. The VOC and HAP content of that sample

shall be applied to all shipments of VOC and HAP containing waste during that calendar month. Records shall be maintained of the VOC and HAP content of each analyzed sample, the amount of waste paint sludge shipped off-site each month, and the calculated amounts of HAPs and VOCs shipped off-site each month based on the sample analysis and the amount of waste paint sludge shipped off-site.

(c) Upon notification by the Technical Secretary or an authorized representative, the permittee shall inform the Technical Secretary or an authorized representative of the next sample collection date at least seven days prior to the event. The Technical Secretary or an authorized representative(s) shall have the option to attend the sample collection and to select the drums to be sampled.

TAPCR 1200-03-09-.03(8)

Compliance Method: The permittee shall maintain all required documentation in order to receive credit for shipping solvents off site.

Recordkeeping Requirements

- **P9.** The permittee must retain onsite the records identified below. Such records may be retained in an electronic format.
 - (a) The permittee must retain a copy of all records necessary to determine compliance with any requirement in TAPCR 1200-03-09-.01(4)(s) and this permit, including a determination of the facility-wide 12-month rolling total VOC emissions, for five years from the date of such record.
 - (b) The permittee must retain a copy of the following records for the duration of the PAL effective period plus five years:
 - (i) A copy of the PAL permit application and any application for revisions to the PAL; and
 - (ii) Each annual certification of compliance pursuant to Title V and the data relied on in certifying the compliance.

TAPCR 1200-03-09-.01(4)(s)13

(end of conditions)

The permit application gives the location of this source as 35.963502 Latitude and -86.486252 Longitude.