# PAL PERMIT STATEMENT

Facility Name: Nissan North America, Inc. City: Smyrna County: Rutherford

Date Application Received: December 12, 2023 Date Application Deemed Complete: March 22, 2024 Permit Issuance Date: draft Permit Expiration Date: draft

Emission Source Reference No.: 75-0155 Permit No.: 981857

# **INTRODUCTION**

This narrative is being provided to assist the reader in understanding the content of the attached Plantwide Applicability Limitation (PAL) permit. The primary purpose of the PAL permit is to establish a plantwide limit for Volatile Organic Compounds (VOC) applicable to **Nissan North America Inc. (Smyrna)** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the PAL Permit. It initially describes the facility receiving the permit, then the applicable requirements and their significance, the compliance status with those applicable requirements and finally the approach to the PAL permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

#### Acronyms:

- PSD Prevention of Significant Deterioration
- NSR New Source Review
- PAL Plantwide Applicability Limit

## I. Identification Information

## A. Source Description

**1.** Nissan North America, Inc. is an automobile and light duty truck manufacturing facility. A complete list of the sources at the facility is in Section V of this document.

## B. Facility Classification

- **1.** Attainment or Non-Attainment Area Location. Area is designated as an attainment area for all criteria pollutants.
- 2. Company is located in a Class II area (generally speaking, this means that the facility is not located within a national park or national wilderness area; see 40 CFR 52.21(e) for complete definition).

#### II. Emission sources

The following emission sources are included in the PAL permit.

Included in Title V and PAL Permit		
ESRN	Source Description	
75-0155-01	Three Natural Gas-Fired Boilers	
75-0155-22	Miscellaneous Solvent Usage	
75-0155-25	Paint Line 2 Undercoat Booth	
75-0155-26	WWS Operations	
75-0155-51	Paint Line 1	
75-0155-52	Paint Line 1 and Fascia Pant Line 1 Natural Gas Usage	
75-0155-53	Fascia Paint Line 1	
75-0155-61	Paint Strip House	
75-0155-62	Fascia Paint Line 2	
75-0155-64	Paint Line 2 Topcoat	
75-0155-65	Facility-Wide Natural Gas Usage	
75-0155-66	Paint Line 2 Primer	
75-0155-68	Paint Line 2 Stone Guard and Cavity Wax	
75-0155-70	Paint Line 2 Cavity Wax Booth	
75-0155-71	Paint Line 2 Body E-Coat	
75-0155-72	Services Parts E-Coat	
75-0155-78	Miscellaneous Sealers and Adhesives	
75-0155-80	Windshield Wiper Fluid Operation	
75-0155-83	Gasoline Dispensing	
75-0155-89	Paint Line 2 Pretreatment	
75-0155-90	Paint Line 1 Pretreatment	
75-0155-104	ILC Door Adhesive Line	
75-0155-106	Headliner Spray Process	

Included in PAL Permit Only (Sources designated as insignificant emission units or activities)		
ESRN	Source Description	
75-0155-10	Miscellaneous Touch up Pens/Markers	
75-0155-20	Battery Case Welding Operations	
75-0155-28	467.7 HP Natural Gas-Fired Emergency Generator	
75-0155-57	15 Emergency Engines	
75-0155-99	480 HP Diesel-Fired Emergency Generator	

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

# III. Project Description

PAL Permit No. 981857 represents the original PAL Permit for this facility. At the time of issuance of this PAL permit this facility is permitted under Title V Operating Permit No. 577616. This PAL permit will be incorporated into the Title V operating permit after issuance of the PAL permit.

# IV. PAL Permit Approach

The regulations governing PAL permits for facilities located in areas designated as attainment with the National Ambient Air Quality Standards (NAAQS) are part of the Federal and TAPCR PSD regulations codified at 40 CFR §§51.166 and 52.21 and TAPCR §1200-03-09-.01(4). Nissan is proposing a PAL permit for VOC that has been developed in accordance with the applicable TAPCR PAL regulations.

# 1. Derivation of PAL Levels

Subparagraph 1200-03-09-.01(4)(s) of the TAPCR allows existing major stationary sources to use any 24-month period within the 10 years preceding the PAL permit application submittal to establish facility baseline emissions. Nissan calculated the proposed "actual" based PAL levels for VOC in accordance with subparagraph 1200-03-09-.01(4)(s). The PAL level was calculated by the methodology described in subparts 1200-03-09-.01(4)(s)2(i) and (ii). The resulting PAL level is the

sum of the baseline actual emission (BAE) rate of the PAL pollutant (VOC) plus the applicable NSR significant level for VOC of 40 tons per year.

BAE rates were calculated for all emissions units that emit VOC at the Nissan Smyrna plant. A table summarizing the BAE rates for each emissions unit, as well as the proposed PAL level for Nissan, is included as Tables 4-1 and 4-3 in the revised PAL application dated March 22, 2024. Individual BAE calculations are included in Table B-1 of the application. The methodology for calculating BAE as well as demonstrating ongoing compliance with the VOC PAL for each source is described in Table A-5 of the application. The following list provides a description of relevant emissions data decisions made in the development of BAE rates:

- a. Material Balance: The bulk of VOC emissions from the Nissan Smyrna plant are from the usage of VOC-containing materials. Monthly usage of each VOC-containing material is tracked and emissions are calculated based on the mass of VOC in each materials used. Reductions from the usage of control devices (thermal oxidizers) and waste collected and sent offsite may be included in the calculations, provided that the appropriate monitoring and recordkeeping, which is outlined in the permit, is performed. Destruction efficiencies utilized in emission calculations for sources controlled by thermal oxidizers are based upon the results of performance testing.
- b. Emission Factors: Emission factors were used for fuel combustion sources. Manufacturer data was used for natural gas combustion for Source 01 [boilers]. New Source Performance Standard (NSPS) emissions standards were used for Source 28 [emergency engines]. AP-42 emission factors for natural gas combustion were used for Sources 52 and 65 [boilers]. It should be noted these emission factors are equivalent to those published in the EPA's 2014 National Emissions Inventory (NEI), version 2 Technical Support Document (May 2018). AP-42 emission factors were used for Sources 57 and 103 [emergency engines] which are not subject to NSPS emission standards. No emission factors were found in the NEI for this fuel combustion category. The methodology described in the October 2024 updates to AP-42, Chapter 7 for liquid storage tanks was utilized for solvent tanks in Sources 80 and 83. Emission factors developed by the Air & Waste Management Association were utilized for injection molding processes in Sources 107-109.
- c. Potential to emit: No emissions from sources utilizing the potential to emit option were included in the BAE calculation. However, these units must be accounted for when demonstrating compliance with the VOC PAL. Table 1 of 40 CFR §86.1811-17--fully phased-in tier 3 exhaust emission standards, were utilized for Source 130 [repair shop exhaust system]. Mass balance was used for Source 128 [propane cylinder and aerosol can de-pressurization] and Source 110 [hot melt glue operations]. Sources 100 and 101 [laser cutting emissions] were estimated by making a conservative estimate that 100% of plastic removed is emitted entirely as PM, VOC, CO, or CO<sub>2</sub>. AP-42 emission factors for mobile sources, Appendix H, Highway Mobile Source Emission Factors for light-duty gasoline-powered vehicles at zero-mile emission levels (June 1995) were used for Source 129 [Emissions Test Laboratory II]. No emission factors were found in the NEI for this fuel combustion category. AP-42 emission factors were used for the welding operations included in Sources 20, 118, and 119. No emission factors were found in the NEI for welding operations.

#### 2. PAL Compliance Demonstration Methodology

Pursuant to TAPCR subpart 1200-03-09-.01(4)(s)3(iii), the owner or operator of a major facility submitting a PAL permit application shall include the calculation procedures that will be used to convert the monitoring system data to monthly and annual mass emissions based on 12-month rolling total emissions for each month. Inherent in this requirement is knowledge of the monitoring and

recordkeeping methods that will be used to track emissions of each PAL pollutant from each emissions unit for purposes of calculating rolling 12-month total emissions each month. Nissan will be required to comply with the monitoring, recordkeeping, and reporting requirements listed in TAPCR parts 1200-03-09-.01(4)(s)12 through 14. The data to be monitored for each emissions unit and the method by which the data will be recorded for each emissions unit and PAL pollutant is briefly discussed in the following paragraphs.

The monthly mass emissions of VOC will be summed for each emissions unit and on a plant-wide basis. The monthly totals (ton/month) will be summed with the monthly totals from the previous 11 months for each emissions unit and facility-wide to determine the actual 12-month rolling total mass emissions rates in tons per year. The following paragraphs identify how emissions of the PAL pollutants will be calculated for each type of emissions unit at the facility and how the emissions will be converted to a monthly mass emissions rate. Nissan proposes to use a mix of mass balance, emissions factors, and potential to emit to track actual emissions as specified in TAPCR subparts 1200-03-09-.01(4)(s)12(iii), (vi), and (vii).

Table 6-1 of the application and Tables P-3, P-4, and P-5 of the PAL permit identify which of the three options will be used demonstrate compliance with the PAL for each emission source.

Per TAPCR item 1200-03-09-.01(4)(s)12(vi)(III), if technically practicable, Nissan must conduct validation testing within six months of PAL permit issuance for significant emissions units that relied upon an emissions factor (destruction efficiency of thermal oxidizer) to calculate PAL BAE rates unless TDEC determines that emissions testing is not required. TDEC has determined that validation testing six months after the PAL permit is issued is not necessary. This is because all emission factors (destruction efficiencies) used for significant emissions units are based upon performance testing which was conducted within the last five years. Pursuant to TAPCR 1200-03-09-.01(4)s12(ix), all destruction efficiencies must be revalidated at least once every five years. The sources subject to this requirement are listed below.

ESRN	Source Description
75-0155-51	Paint Line 1
75-0155-62	Fascia Paint Line 2
75-0155-64	Paint Line 2 Topcoat
75-0155-66	Paint Line 2 Primer
75-0155-71	Paint Line 2 Body E-Coat
75-0155-72	Services Parts E-Coat

# V. Public Participation Procedures.

A. Notification of original PAL permit was mailed to the following environmental agencies:

- 1. U.S. EPA Region 4
- 2. Kentucky Department for Environmental Protection
- 3. Nashville/Davison Co. Metropolitan Health Dept.