Statement of Basis Hyundai Manufacturing of Alabama, LLC
Montgomery, AL
(Motor Vehicle Manufacturing)
209-0090
Major Source of VOCs & Hazardous Air Pollutant Emissions

Introduction

Hyundai Motor Manufacturing Alabama, LLC, (Hyundai) has applied for renewal of Major Source Operating Permit (MSOP) No. 209-0090. This proposed Title V MSOP renewal has been developed in accordance with the provisions of ADEM Admin. Code R. 335-3-16. The above-named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management (Department), in accordance with the terms and conditions of the permit.

Air Permits for original construction of the site were issued on October 4, 2002, which covered Unit Nos. 001, 002, and 003. An Air Permit for changing the various items associated with the original construction was issued on March 23, 2004, which covered Unit Nos. 001, 002, 003, 018, and 019. An Air Permit for changing the various items associated with the original boilers and regenerative thermal oxidizer (RTO) was issued on November 22, 2004, which covered Unit Nos. 001, and 002. An Air Permit for changing the various items associated with the construction was issued on March 14, 2005, which covered Unit No. 001. An Air Permit for changing the various items associated with the original construction was issued on March 7, 2008, which covered Unit No. 001. An Air Permit for changing the various items associated with the engine shop construction was issued on March 30, 2007, which covered Unit No. 008. An Air Permit for changing the control device associated with the engine shop construction was issued on November 12, 2008, which covered Unit No. 008. An Air Permit for changing the wording of provisos associated with the engine shop construction was issued on November 19, 2008, which covered Unit No. 008. An Air Permit for changing the limits associated with the production of vehicles was issued on November 8, 2010, which covered Unit No. 001. An Air Permit for associated with the emergency generators was issued on February 10, 2011, which covered Unit No. 017. An Air Permit for changing the limits associated with the production of vehicles was issued on June 12, 2012, which covered Unit No. 001. An Air Permit for changing the limits associated with the production of vehicles was issued on August 6, 2013, which covered Unit No. 001. An Air Permit for changing the limits associated with the RTO was issued on December 6, 2013, which covered Unit No. 001. An Air Permit for associated with the emergency generator was

issued on April 7, 2014, which covered Unit No. 016. An Air Permit for changing the control device associated with the engine shop construction was issued on March 20, 2014, which covered Unit No. 008. Air Permits for changing the limits associated with the two engine shops were issued on September 30, 2016, which covered Unit No. 008.

The initial Title V MSOP was issued on February 4, 2009, and this is the third renewal. The current MSOP expires on February 3, 2024. The renewal application was received on July 28, 2023.

The facility is located in Montgomery County, which is currently in compliance with all National Ambient Air Quality Standards (NAAQS).

There are no current or ongoing enforcement actions against Hyundai necessitating additional requirements to achieve compliance with the proposed permit conditions. The enforcement and compliance history for the facility can be found at https://echo.epa.gov/ (Search using Facility ID 110064859960).

This facility manufactures motor vehicles (SIC # 3711). The facility includes various assembly, painting, and engine assembly operations. In addition to the production units, the facility operates various natural gas fired units that the facility is allowed to operate 8,760 hours per year unless otherwise specified. Based on the Title V permit application, this facility is a major source for Title V standards for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), hazardous air pollutants (HAP), and carbon dioxide (CO2). Hyundai is a major source for Prevention of Significant Deterioration (PSD) purposes.

No changes were requested or will be required for this renewal.

Motor Vehicle Assembly Plant with Water Curtains, RTO, and Low NOx Burners (Unit 001)

Mix Room

The mix room is used for solvent paints and waterborne paints. Each of these rooms contains paint pots for mixing the paint. A warehouse next to the mix room is for the storage of bulk containers of paint.

Painting Operation

The vehicle goes through the pretreatment line and then an e-coat process. The pretreatment line includes washing, spraying with degreasers, rinsing, conditioned, phosphate dipped, spray and dip rinsed, and finally sprayed with a de-ionized water rinse. This process helps protect the body. The e-coat process includes a dip tank of water-based cathodically-charged paint, followed by several rinse stages to

remove excess paint. The vehicle then goes to the natural fired gas oven to be cured. The vehicle then goes through the e-coat sanding booth. Following this, sealers and underbody deadeners are applied in the UBS booths. The Rocker Panel Booth then applies protective coatings on one of the models in the RPP Booth.
The vehicle proceeds through a robotic painting area and a manual painting area where primer/surfacer is applied before it goes through the Primer/Surfacer Oven, and another sanding booth. After the sanding booth, the line splits into two top-coating lines. The vehicle moves through a robotic basecoat booth, manual basecoat booth, robotic clearcoat booth, manual clearcoat booth, and top-coating oven. Inspection booths follow. There is also an on-line buff/sanding area and cavity wax/black out/black tape coating booth located here.

There is a scrubber system that collects particulates from the main paint. In the penthouse, there are air handlers for the inlet and exhaust air.

The RTO located east of the paint shop is a two chamber natural gas fired unit. The following units will be captured and directed to the Oven Exhaust RTO: E-Coat Oven, Sealer/Deadener Oven, Primer/Surfacer Oven, Clearcoat Booth Automatic Zones, and Topcoat/Clearcoat Ovens and RPP Booth Exhaust.

Various Operations
Hyundai runs a windshield installation process and a final inspection area. This area is where Hyundai tests the completed vehicle through tests involving the brakes, transmission, and alignment of the vehicle. The fuel dispensing area is where the vehicles are filled with gasoline and other fluids before leaving the assembly line. Wastewater from the paint line and other industrial areas goes to Hyundai's privately owned treatment system before discharging to the city's waste-water collection system. The Wastewater Treatment Equalization Tank (ET-1) holds this water until it is treated.

Hyundai also has repair paint and enamel and urethane paint touch-up booths. Dynamometer roll testing is also performed on the vehicles.

A separate building holds the Undercoat Operation (UW1, UW2). This operation coats the undercarriage of the completed vehicle before it leaves the site for shipping with an undercoat wax.

Coating Line

Applicable Regulations

The automotive plant is subject to New Source Performance Standards (NSPS) for Automobile and Light Duty Truck Surface Coating Operations, Subpart MM in 40 CFR Part 60.390.

The automotive plant is subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Surface Coating of Automobiles and Light Duty Trucks, Subpart IIII in 40 CFR Part 63.3080.

The automotive plant is subject to various case by case Maximum Allowable Control Technology (MACT) 112(g) decisions made by the Department according to ADEM Admin. Code R. 335-3-14-.06. These limits detailed numerous HAP MACT 112(g) decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

The automotive plant is subject to various Best Available Control Technology (BACT) determinations made by the Department according to ADEM Admin. Code R. 335-3-14-.04. These limits detailed numerous VOC, NOx, CO, and PM BACT decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

Coating Line

Testing of Emissions

Initially, every three years, or after a significant model change, using the EPA document *"Protocol for Determining Daily VOC Emission Rate of Automobile and Light Duty Truck Topcoat Operations", June 10, 1988,* and revisions thereafter, Hyundai will determine destruction efficiency for the automotive plant's RTO, determine transfer efficiencies, booth splits, control efficiencies, and other items, and use Method 24 or 311 as appropriate for the coatings used in coating operations.

Coating Line

Monitoring of Emissions

This line is subject to the NSPS as defined in 40 CFR 60, Subpart MM. These lines are also subject to case-by-case PSD-BACT decisions involving VOC, PM, NOx, and CO. This line is also subject to case by case 112 (g) decisions for HAPs.

Hyundai keeps records as required by the NSPS for their automotive line. This source maintains the allowed pound VOC/pound of coating solids as applied calculations for the different operations through coating formulations and the use of the thermal oxidizers. The monitoring required is as outlined in the NSPS (40 CFR 60, Subpart MM). These are submitted quarterly to the department.

For Hyundai's various PSD-BACT limits that involve VOCs, Hyundai maintains records of monthly coating usage, coating analysis, and control device destruction efficiency (through temperature monitoring of the RTO) to show compliance with their permit limits. These are submitted quarterly to the department. Hyundai has limits on the overall usage of VOCs, usage of clean up/purge/flushing solvents, usage of HAPs for miscellaneous assembly materials, and usage of HAPs for clean-up/purge/flushing solvents. The E-Coat Oven, RPP Booth, Sealer/Deadener Oven, Primer/Surfacer Oven, Clearcoat Booth Automatic Zone, and Topcoat/Clearcoat Oven are all vented to the RTO that is required to achieve a 95% destruction efficiency. There are thermocouples on the RTO to monitor and record temperature measurements. These records are maintained in a computer database for review. Hyundai reports exceedances within the General Proviso break-down requirements. Written reports are submitted with their quarterly report.

For Hyundai's various PSD BACT limits that involve PM, Hyundai maintains records of various checks to show compliance with their permit limits. The pressure differential between the supply air to the booth and the exhaust air from the booth shall be measured using a pressure differential gauge and shall be recorded daily. Records shall be kept of these measurements. These measurements indicate proper manufacturer's recommendations for the operation of the booths particulate control equipment and indicate compliance with the PM requirements.

Hyundai's automotive plant was subject to a 112(g) decision. Most of the requirements were based on the draft NESHAP (IIII) requirements. Additionally, Hyundai's automotive plant 112(g) limits mirror NESHAP regulations for Auto Manufacturing (IIII) with some additional 112(g) requirements. For Hyundai's other various 112(g)-MACT limits that involve HAPs, Hyundai maintains records of monthly coating usage, coating analysis, and control device destruction efficiency to show compliance with their permit limits. These are submitted quarterly to the department. Hyundai has limits on the overall usage of HAPs, usage of clean up/purge/flushing solvents and 112(g) limits on their automotive assembly line.

Hyundai utilizes only natural gas as a fuel for the ovens and has installed low NO_x burners. The use of natural gas will minimize emissions of PM and SO_2. Due to the inherently low particulate and SO_2 emissions using this fuel, no periodic monitoring will be required. The use of low NO_x burners will minimize the emissions of NOx. Therefore, no emission monitoring will be required for this pollutant.

Low NOx burners and natural gas only as a fuel are utilized throughout Hyundai on all sources where it is feasible to reduce NOx emissions. CO emissions are typically elevated inversely to NOx emissions, meaning efforts to reduce NOx emissions will generally increase CO emissions. For the small size of the units at Hyundai, CO controls would be infeasible, and possibly counterproductive to the control of NOx.

The stacks associated with these sources shall not exhibit greater than 10% opacity. If opacity of 5% or greater is observed from a stack, the operator shall investigate the cause and make any necessary corrective actions. This BACT limit is more stringent than the state allowable opacity. Due to the use of natural gas on all the burners and PM filters and controls on stacks, it is unlikely that visible opacity would be emitted.

A Stage II vapor control system or On-Board Vapor Recovery (OBVR) system shall be installed and used during filling of the gas tank for each vehicle.

Hyundai shall utilize good work practices that are practically and economically feasible that reasonably minimize clean-up/purge/general solvent usage in all operations. Coatings, solvents, and other VOC containing material will be handled in such a way as to minimize VOC emissions from storage, handling, coating, and cleanup. Closed containers shall be used for the storage and disposal of cloth or other material used for VOC containing material cleanup or usage. Coatings and other fresh or spent VOC coating material will be stored in closed containers.

Two 24.5 MMBTU/HR Natural Gas Fired Boilers -HW 1,2 (Unit 002)

The two 24.494 MMBTU/HR Natural Gas Fired Boilers (HW1, 2) were constructed with the automotive plant. These boilers supply mostly process heat for the painting operation.

Boilers

Applicable Regulations

The two 24.5 MMBTU/HR Natural Gas Fired Boilers are subject to various Best Available Control Technology (BACT) determinations made by the Department according to ADEM Admin. Code R. 335-3-14-.04. These limits detailed numerous VOC, NOx, CO, and PM BACT decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

These boilers are subject to the NSPS for Industrial, Commercial, and Institutional Boilers and Process Heaters, Subpart Dc in 40 CFR Part 60.40c, but because they will be natural gas fired only, no substantive requirements will be implemented other than recordkeeping requirements.

These boilers are subject to the NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, Subpart DDDDD in 40 CFR Part 63.7480, but because they will be existing natural gas fired only sources, no substantive requirements will be required.

Boilers

Monitoring of Emissions

Hyundai will utilize only natural gas as a fuel for the boilers and have installed low NO_x burners. The use of natural gas will minimize emissions of PM and SO_2. Due to the inherently low particulate and SO_2 emissions using this fuel, no periodic monitoring will be required. The use of low NO_x burners will minimize the emissions of NOx. The boiler burner manufacturer has tested the NOx ppm levels on these low NO_x burners and found them satisfactory to meet the permit requirements. Therefore, no emission monitoring will be required for this pollutant.

The boilers are subject to the National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD). Because of these boilers small size and only natural gas fired fuel, Hyundai will conduct a tune-up of the boiler or process heater annually as specified in 40 CFR§ 63.7540. This tune-up shall be conducted as a work practice for all regulated emissions under this subpart.

Storage Tanks with Stage I Recovery (Unit 003)

Tank Farm Utilities

The tank farm consists of three 10,000-gallon gasoline storage tanks and one 9,950-gallon windshield washer fluid storage tank. Also, in the

wastewater area, Hyundai has three 65,000 gallon, two 18,000-gallon and three 10,000-gallon wastewater equalization storage tanks. The gasoline storage tanks have been equipped for Stage I recovery.

Storage Tanks

Applicable Regulations

The storage tank area is subject to various BACT determinations made by the Department according to ADEM Admin. Code R. 335-3-14-.04. These limits detailed numerous VOC BACT decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

These tanks are not subject to the NSPS for Volatile Organic Liquid Storage Vessels for which construction, reconstruction, or modification commenced after July 23, 1984, Subpart Kb in 40 CFR Part 60.110b. Due to the nature of the permit and the small emissions involved, the gasoline storage tanks are subject to installation of Stage I recovery and submerged fill pipes.

Engine Testing (Unit 008)

Hyundai has four engine Test Dynamometers Nos. 3, 4 (ES-17) and Nos. 6, 7 (ES-19) for QA/QC purposes. The four engine test dynamometers units are controlled by an incinerator afterburner and a catalytic oxidizer.

Engine Testing

Applicable Regulations

The engine dynamometers are subject to various case by case MACT 112(g) decisions made by the Department according to ADEM Admin. Code R. 335-3-14-.06. These limits detailed numerous HAP MACT 112(g) decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

These decisions are for the control of HAPs with CO used as a surrogate indicator of compliance. The NESHAP for Engine Test Cells/Stands, Subpart PPPPP in 40 CFR Part 63.9280 requires no additional measures for existing sources.

Engine Dynamometer ES-17 and Engine Dynamometer ES-19 are subject to various BACT determinations made by the Department according to ADEM Admin. Code R. 335-3-14-.04. These limits detailed numerous PM, CO, and NOx BACT decisions and were originally established in the Air Permit issued on October 4, 2002, which was subsequently incorporated into the Title V Permit issued on February 4, 2009. These are described in detail in the proposed Title V Permit.

Engine Testing

Monitoring of Emissions

Engine Dynamometer ES-17 and Engine Dynamometer ES-19 are vented to catalytic oxidizers that are required to achieve 99.9% destruction efficiency. There are thermocouples on the catalytic oxidizers to monitor and record temperature measurement. These paper records are maintained and made available for review at the time. Hyundai reports exceedances within the General Proviso break-down requirements. Written reports are submitted with their quarterly report. The use of natural gas and low NOx burners on the incinerator afterburner should ensure compliance with Hyundai's PM and NOx limits for these units.

Generators (Units 016-19)

Several emergency only generators are included with this renewal which include: Unit 016 - a Generac (EG04) 63 HP, 36 KW natural gas fired engine; Unit 017 - a_Kohler Power Systems 400 REZX (EG02) 650 HP, 485 KW natural gas fired engine; Unit 018 – a Caterpillar 3406C (CFB2) 460 HP, 343 KW diesel fired engine; Unit 019 - a Caterpillar 3412C (EG01) 1039 HP, 775 KW diesel fired engine; and a Caterpillar 3512C (CEB1) 1818 HP, 1356 KW diesel fired engine. These are used for power outages, fires, and periodic testing only.

Generators

Applicable Regulations

The Generac Generator (Unit 016) is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ in 40 CFR Part 63.3080 as a new source. The requirements are described in detail in the attached provisos. This source will show compliance by complying with the NSPS as defined in 40 CFR 60, Subpart JJJJ in 40 CFR Part 60.4230 for the natural gas fired unit as a new source.

The Kohler Generator (Unit 017) is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ in 40 CFR

Part 63.3080 as a new source. The requirements are described in detail in the attached provisos. This source will show compliance by complying with the NSPS as defined in 40 CFR 60, Subpart JJJJ in 40 CFR Part 60.4230 for the natural gas fired unit as a new source.

The Caterpillar 3406C Generator (Unit 018) is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ in 40 CFR Part 63.3080 as a new source. The requirements are described in detail in the attached provisos.

The Caterpillar 3412C and 3512C Generators (Unit 019) are subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ in 40 CFR Part 63.3080 as a new source. The requirements are described in detail in the attached provisos.

Generators

Monitoring of Emissions

There is no regular monitoring of emissions, besides the normal hour meter requirements and regular periodic maintenance as required by the NESHAP. The units have shown compliance with the standards by certification by the manufacturer.

Title V Permitted Units

The following is a list of all of the facility's sources (individual emissions units) that will be part of the facility's Title V Major Source Operating Permit:

Permit Unit No.	Description of Unit
001	MOTOR VEHICLE ASSEMBLY PLANT WITH WATER CURTAINS, RTO, AND LOW NOX BURNERS
002	2-24.5 MMBTU/HR NATURAL GAS FIRED BOILERS (HW 1,2)
003	STORAGE TANKS WITH STAGE I RECOVERY
008	ENGINE TEST DYNAMOMETER W/ CATALYTIC OXIDIZER NO. 2 (ES-17), NO. 3 (ES-17), NO. 5 (ES-19), and NO. 6 (ES-19)

016	**GENERATOR(S) GENERAC 63 HP, 36 KW, NATURAL GAS/LPG**
017	**GENERATOR(S): KOHLER POWER SYSTEMS 650 HP, 485 KW, NATURAL GAS/LPG**
018	**GENERATOR(S): CATERPILLAR 460 HP, 343 KW, DIESEL**
019	**GENERATOR(S): CATERPILLAR 1039 HP, 775 KW, DIESEL** **GENERATOR(S): CATERPILLAR 1818 HP, 1356 KW, DIESEL**

CAM

Compliance Assurance Monitoring (CAM) is not applicable for the NESHAP (MACT) regulations within this Title V permit because these regulations were proposed post November 15, 1990 (Automotive Manufacturing, Boilers, and Engine Testing). CAM is not applicable for the Title V permit for the other units listed herein because potential uncontrolled emissions of criteria pollutants do not exceed 100 tons per year on any one unit with a control device.

Monitoring of emissions from the automobile lines will be accomplished by a CAM plan for the thermal oxidizers and compliant coatings. For the thermal oxidizer, the minimum set-point temperature of the combustion chamber was set by performance testing. The temperature will be monitored and recorded continuously using a thermocouple and chart. This facility shall maintain emission records and supporting background documents to this Department and submit records that pertain to their MSOP whenever requested.

Permitting Fees

Title V major sources are subject to operating permit fees which charge the facility a yearly amount based on the actual emission rate of pollutants for the previous year.

Affected States Notification

Standard practice is to notify of the issuance of this major source operating permit to all states bordering Alabama.

Environmental Justice

An Environmental Justice analysis was performed utilizing EPAs EJSCREEN tool and the Council on Environmental Quality's (CEQ) Climate and Economic Justice screening tool (Justice 40). This permit is for an existing facility, and no modifications or increases in emissions will result from the issuance of this permit; therefore, it was determined that enhanced outreach is not necessary.

Recommendations

I recommend that the renewal Major Source Operating Permit be issued to Hyundai pending resolution of any comments received during the 30-day public comment period and 45-day EPA review.

November 2023
Kevin Fulmer
Chemical Branch

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