Prevention of Significant Air Quality Deterioration Review

Preliminary Determination

October 2022

Facility Name: Hyundai Motor Group Metaplant America, LLC
City: Ellabell
County: Bryan
AIRS Number: 04-13-029-00015
Application Number: 28503
Date Application Received: August 17, 2022
Application update received September 23, 2022

Review Conducted by:
State of Georgia - Department of Natural Resources
Environmental Protection Division - Air Protection Branch
Stationary Source Permitting Program

Prepared by: Ginger Payment – VOC Unit
Modeling Approved by: Byeong-Uk Kim - Data and Modeling Unit
Reviewed and Approved by: Jeng-Hon Su – VOC Unit Coordinator Stephen Damaske – Stationary Source Permitting Program Manager Karen Hays – Chief, Air Protection Branch

SUMMARY

The Environmental Protection Division (EPD) has reviewed the application submitted by Hyundai Motor Group Metaplant America, LLC (hereafter "HMGMA" or "Hyundai" or "facility") for a permit to construct and operate an electric vehicle manufacturing facility at the Bryan County Mega Site ("Mega Site"), near Ellabell, Georgia.

The auto assembly plant (OEM) will assemble passenger vehicles from steel panels manufactured on-site and mechanical components and trim components fabricated elsewhere and shipped to the assembly plant just-in-time for assembly of vehicles. OEM can be divided into four main manufacturing centers: stamping shop, body shop, paint shop, and assembly shop. Associated with these operations are support and utilities consisting of emergency generators, air heaters, and boilers. Other affiliated operations include Mobis, that will supply parts, battery packs, and sub-assemblies; Transys, which will provide seats; Glovis, which will conduct final preparations immediately prior to ship-out; and Hyundai Steel, which will conduct metal stamping. The OEM and affiliate operations will be grouped under AIRS # 02900015.

A lithium-ion battery manufacturing plant will also be constructed at the Mega Site that will provide battery cells to the Hyundai plant. EPD has preemptively assigned that future proposed facility AIRS # 02900016. The battery plant will be located immediately south of the Hyundai facility. The battery plant will plan to begin construction after the construction commencement of the Hyundai facility. The air permit application for the battery plant will be submitted separately, but the Hyundai application includes estimates of battery plant emissions for PSD modeling purposes conservatively as secondary emissions.

Site Determination

As indicated, Hyundai Motor Group Metaplant America, LLC ("HMGMA") will construct and operate a greenfield vehicle automobile assembly plant ("OEM") on an approximately 3,000-acre site located in Ellabell, Bryan County Georgia (referred to as the "Bryan County Mega Site" or "Mega Site"). HMGMA also proposes to construct other operations (referred to as "Glovis," "Mobis," "Transys," and "Hyundai Steel" which operations are described further in the permit application). HMGMA will sublease these operations to other Hyundai-related companies that will operate Glovis, Mobis, Transys, and Hyundai Steel under the air permit held by HMGMA. The Glovis, Mobis, Transys, and Hyundai Steel operations are collectively referred to as "AFF." AFF is considered part of the same stationary source as "OEM/AFF". OEM and AFF are referred to together as "OEM/AFF" and, to simplify things, their overall operation will collectively be referred to as being conducted by "Hyundai" for purposes of the permit record. HMGMA will be required to have a designated corporate official that will be responsible for overall environmental compliance aspects related to the proposed air permit for OEM/AFF. The OEM/AFF will be a major stationary source with respect to the Prevention of Significant Deterioration ("PSD") permit program.

A lithium-ion battery manufacturing plant (AIRS 029-00016) is also proposed to be located on the Mega Site. The battery plant will be partly owned by a Hyundai corporate entity, and partly owned by a separate third-party partner lithium-ion battery manufacturing company. Hyundai has represented that this joint venture will be structured so that the non-Hyundai battery partner company will have exclusive control over air pollution control decisions for the battery plant and will operate the battery plant so that it will neither be under the control of the same person as OEM/AFF nor persons under common control.

Based on the classifications and classification scheme in the 1972 Standard Industrial Classification ("SIC") Manual, the HMGMA facility is in SIC Industry Code 3711, "Motor Vehicles and Passenger Car Bodies," within SIC Major Group 37, "Transportation Equipment." The battery manufacturing plant is expected to be in SIC Industry Code 3691, "Storage Batteries," within SIC Major Group 36, "Electrical and Electronic Machinery, Equipment, and Supplies."

Hyundai has represented that, due to construction start date differences and contract negotiations with the battery partner, the separate air quality permit application for the separate battery plant will be submitted at a later date. Upon review of that permit application, if EPD confirms that the battery plant will neither be under the control of the same person as OEM/AFF nor persons under common control, or that the OEM/AFF activities and the battery plant activities are in separate industrial categories based on SIC Major Group, the battery plant will be issued a separate air permit for its operations as a separate source. Should EPD determine that the battery plant both will either be under the control of the same person as OEM/AFF or persons under common control and will be in the same industrial category as OEM/AFF, the battery plant would be permitted as part of the same stationary source. For purposes of the issuance of this PSD permit for OEM/AFF, Hyundai has conservatively included the potential emission impacts for the planned battery facility as part of the OEM/AFF PSD modeling demonstration, treating those emissions as secondary emissions. Thus, the PSD modeling demonstration has accounted for the emission impact from the battery plant, regardless of the future air permitting path for that operation.

<u>Proposed Project – Overview</u>

There will be one metal stamping shop designed to handle any model. Emissions from the stamping shop are negligible.

There will be one body shop designed such that it can handle any model. Welding of body panels and components and adhesive bonding in the body shop generate small amounts of particulate and VOC emissions.

There will be one paint shop handling all models. The paint shop is the major source of emissions from the plant with Volatile Organic Compound ("VOC") and particulate emissions resulting from the surface coating operations. VOC emissions from the paint shop are minimized by use of waterborne coatings wherever technologically appropriate and add-on emission controls. Nitrogen oxides ("NOx"), carbon monoxide ("CO"), and other combustion products are generated by natural gas fired booth air supply houses ("ASH"), the RTO, and indirect fired paint curing ovens.

There will be one assembly shop, designed and permitted such that it can handle any model. In the assembly shop the painted body comes together with the interior components; preassembled engine, chassis, and drive components; and other trim parts to complete the vehicle. Window glazing and miscellaneous adhesive use result in small amounts of VOC emissions. Other activities involve fluids filling, which have negligible emissions. After final assembly the vehicles move to final assembly touch up area, where vehicles may receive spot paint repair.

Support facilities include a tank farm for fluids and utilities. NOx and other combustion products are emitted from small boilers, air supply houses, and rooftop heating units fired with natural gas only.

Glovis will operate as a vehicle processing center (VPC) located on site which will take possession of the finished vehicles for final touchup, application of underbody wax, and distribution.

Mobis will provide vehicle sub-assemblies. Some epoxy and lacquer will be used in this process. Battery packs will also be manufactured in Mobis. No other emissions are expected.

Transys will manufacture vehicle seats, including molded flexible polyurethane foam manufacturing, fabric stitching and assembly. Minor amounts of PM emissions are expected.

Hyundai Steel will supply metal and stamped metal parts, similarly to the Hyundai Stamping Shop. No process emissions are expected.

Upon construction completion and startup (October 2024), the OEM plant will have a nominal production rate of approximately 65 vehicles per hour. Hyundai plans to increase the rate for the OEM/AFF in 2025 to the final rate of 100 vehicles per hour by continuing construction to add new production equipment.

Although the OEM plant is anticipated to operate at 65 vehicles per hour rate for the first two years, the initial application received August 17 and the September 23 update are conservatively based on the potential emissions associated with the final design capacity. The expected production output of this facility, upon final build-out, is 525,000 vehicles per year, based on a maximum production capacity of 100 units per hour (UPH), a maximum operation of 6,000 hours per year, and a ~88% uptime expectation (while 100 UPH is the goal, 88 UPH is a worst-case estimate of average production). The September application update includes the additional equipment to be installed in order to achieve the production specified, and it includes a revised BACT assessment and modeling to account for the slight change in emissions estimates, new building dimensions, and new equipment/stacks.

Summary of PSD/New Source Review Applicability

The proposed project will result in new sources of air pollutant emissions. The new facility will have emissions of particulate matter (“PM/PM_{10}/$PM_{2.5}$”), nitrogen oxides (“NOx”), carbon monoxide (“CO”), sulfur dioxide (“SO_2”), volatile organic compounds (“VOC”), and Total Greenhouse Gases (“Total GHG”). A Prevention of Significant Deterioration (“PSD”) New Source Review (“NSR”) analysis was performed for the facility for all pollutants to determine if the proposed facility would be a major stationary source for any NSR pollutant and identify pollutants that would exceed the significant emission rate levels. The facility is expected to be a PSD major source because the potential-to-emit (PTE) for each of NOx, CO, and VOC is greater than the PSD major source threshold, 250 tons per year (tpy). The potential emissions of PM/PM_{10}/ $PM_{2.5}$, NOx, CO, VOC and GHG were determined to be above the PSD significant level thresholds.

Bryan County, where Hyundai will be located, is classified as “attainment” or “unclassifiable” for $PM_{2.5}$, PM_{10}, NO_2, CO, and ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended.

The EPD review of the data submitted by Hyundai related to the proposed new facility indicates that the proposed facilities conform to all applicable federal new source performance standards (NSPS), national emission standards for hazardous air pollutants ("NESHAP"), and Georgia Rules for Air Quality Control. It is also the preliminary determination of the EPD that the proposed facilities provide for the application of Best Available Control Technology ("BACT") for the control of PM/ PM_{10}/ $PM_{2.5}$, NOx, CO, VOC, and Total GHG as required by federal PSD regulation 40 CFR 52.21(j).

The Federal Land Manager(s) (FLM) responsible for PSD Class I area within 300 km of the facility were contacted, provided preliminary annual emissions data, and given the opportunity for review of additional facility and emissions impact information. The U.S. Fish and Wildlife Service responded that significant impacts to air quality were not anticipated, and a Class I air quality analysis would not be necessary for this project.

EPD has reviewed the application submitted by Hyundai for a permit to construct and operate the proposed OEM/AFF.

It has been determined through approved modeling techniques that the estimated emissions will not cause or contribute to a violation of any ambient air standard or allowable PSD increment in the area surrounding the facility or in Class I areas located within 300 km of the facility. It has further been determined that the proposal will not cause impairment of visibility or detrimental effects on soils or vegetation. Any air quality impacts produced by project-related growth should be inconsequential.

This Preliminary Determination concludes that an Air Quality Permit should be issued to Hyundai for the construction and initial operation of the OEM plant and affiliates. This Preliminary Determination also acts as a narrative for the proposed PSD Permit.

1.0 INTRODUCTION – FACILITY INFORMATION AND EMISSIONS DATA

On August 17, 2022, Hyundai Motor Group Metaplant America, LLC submitted an application for an air quality permit to construct and operate a greenfield automobile assembly plant included affiliated operations (battery plant to be addressed separately). On September 23, 2022, Hyundai submitted an application supplement which includes the equipment to be installed in the production expansion and other changes. The facility is located at 9728 Hwy 280 E, Ellabell, Bryan County 31308.

Table 1-1: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	✓		✓	
PM_{10}	✓		✓	
$PM_{2.5}$	✓		✓	
VOC	✓	✓		
NO_X	✓	✓		
CO	✓	✓		
SO_2	✓			✓
TRS	N/A			
Pb	✓			✓
Fluorides	N/A			
H_2S	N/A			
SAM	N/A			
Max Individual HAP (Hexane)	✓			✓
Total HAP	✓	✓		
Total GHG	✓	✓		

Based on the proposed project description and data provided in the permit application, the estimated potential emissions of regulated pollutants from the greenfield facility are listed in Table 1-2 below:

Table 1-2: Emissions Increases from the Project

Pollutant	Potential Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD Review
PM	55	25	**Yes**
PM_{10}	21	15	**Yes**
$PM_{2.5}$	21	10	**Yes**
VOC	491	40	**Yes**
NO_X	295	40	**Yes**
CO	412	100	**Yes**
SO_2	3	40	No
TRS	--	10	No
Pb	0.002	0.6	No

Pollutant	Potential Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD Review
Fluorides	--	3	No
H_2S	--	10	No
SAM	--	7	No
Total GHG	572,679	75,000	**Yes**
Max Individual HAP (Hexane)	9	N/A	N/A
Total HAP	35	N/A	N/A

Based on the information presented in Tables 1-1 and 1-2 above, the construction of the greenfield Hyundai facility, as specified per Georgia Air Quality Application No. 28503, is classified as a major PSD source by itself. The OEM/AFF is PSD major for VOC, NOx, CO, and Total GHG, with emissions of PM, PM_{10}, and $PM_{2.5}$ above the SER. Therefore, the proposed Hyundai facility will trigger a PSD review for NOx, CO, VOC, PM/PM_{10}/$PM_{2.5}$, and Total GHG.

For Title V purposes, the facility is major for NOx, CO, VOC, Total GHG, and combined hazardous air pollutants ("combined HAP.") PTE for PM/PM_{10}/$PM_{2.5}$ was calculated with either uncontrolled emission factors with control efficiencies of air pollutant control devices or control device vendor guaranteed exit grain loading factors. The facility-wide uncontrolled PM/PM_{10}/$PM_{2.5}$ PTE is expected to exceed 100 tpy each; therefore, the facility Title V source category status for PM/PM_{10}/$PM_{2.5}$ is synthetic minor.

Through its new source review procedure, EPD has evaluated Hyundai's proposal for compliance with State and Federal requirements. The findings of EPD have been assembled in this Preliminary Determination.

2.0 PROCESS DESCRIPTION

According to Application No. 28503, Hyundai has proposed to construct and operate an electric vehicle manufacturing facility.

The following discussions provide a project and process overview for the proposed new Hyundai EV manufacturing plant. Under U.S. EPA regulations these vehicles come under the definition of automobile and the regulatory classification for automobiles and light duty trucks.

The OEM Plant consists of production areas and associated support facilities, including boilers, air heating units, and emergency engines. Affiliated operations (AFF) will include Mobis, Transys, Glovis, and Hyundai Steel.

The OEM/AFF consists of a stamping shop, body shop, paint shop and assembly shop having the following functions:

- Stamping Shop: Stamping presses form steel blanks into frame and body parts for the on-site manufacture of the vehicle body.
- Body Shop: The individual frame and body parts are welded and bonded to assemble a body-in-white.
- Paint Shop: The body-in-white is cleaned, pretreated, electrodeposition coated, sealed and fitted with sound deadeners, prime (aka guide coat) painted, and finish painted with a two-part topcoat (basecoat and clearcoat).
- Assembly Shop: Parts modules, subassemblies, and trim parts are assembled onto the painted body; operating fluids are added.
- AFF: Mobis will manufacture sub-assemblies to be delivered to the assembly shop. Glovis will conduct further processing on the completed vehicles, including underbody/chassis wax application, final paint touchup, and final inspection prior to shipping. Transys will manufacture molded flexible polyurethane foam and upholster to produce interior seats to be delivered to the assembly shop. Hyundai Steel will provide metal and stamped metal parts.

<u>Stamping Shop</u>

The assembly plant includes stamping of body parts and panels in the press building. The stamping operation utilizes numerous pieces of equipment (primarily heavy hydraulic presses) to form sheet metal into various shaped components of the vehicle body (i.e. floor members and panels, structural members, roof and side panels, doors, deck lid, etc.). Press dies draw, trim, pierce and bend the different parts that are formed. There are no quantifiable emissions identified for these press operations, and any potential emissions are considered to be negligible. Products of combustion associated with the roof-top unit comfort heaters are addressed separately.

<u>Body Shop</u>

The welded assembly of the body is carried out in the body shop. The “body-in-white” is formed by welding together subassembly and component parts in the body shop area. Body stampings for this process are received from the Press Shop and from suppliers and stored in the body shop prior to assembly. Construction of sub-assemblies is carried out using manual and automatic machine resistance spot welding, and electric arc welding. The maximum anticipated body shop production capacity at final build-out is 100 vehicles per hour.

The welding techniques for the proposed body shop include electric arc welding, and resistance spot welding. Emissions from welding and cutting torch processes which do not consume electrodes have generally been considered unquantifiable by EPA. Emissions from arc welding are estimated by the applicant using the EPA AP-42 emission factors for the anticipated electrode type to be used, and the estimated amount of welding material used per vehicle. There are some metal grinding activities, but anticipated emissions are negligible, and no emissions estimates are provided. Estimated PM emissions from welding, as provided by Hyundai, are less than 0.2 tons/year.

Adhesives and sealers are applied in the body shop. Material supplier data indicates adhesives are near 100% inert inorganic solids and/or polymer solids. Potential emissions are based on VOC and organic HAP data from material suppliers. For the suppliers considered, VOC contents are less than 2% by weight and HAP contents are less than 1% for all materials. Numerous facilities have assumed for source inventory estimates that VOC emissions do not occur until the body is heated in a curing oven. For this estimate Hyundai assumed 3% of the VOC/HAP components might be volatilized during assembly in the body shop and 97% when the body is heated in the Paint Shop E-coat curing oven. Since the E-coat oven VOC emission is controlled by a 95%+ destruction efficiency thermal oxidizer, the estimated combined uncontrolled body shop and controlled oven VOC emission is less than 0.2 tons/year from body shop sealer usage. It should be noted that since most VOC from these materials will volatilize in the E-coat cure oven, capture efficiency testing on the oven must address and adjust for this.

Paint Shop

There is one paint shop with single and parallel process line equipment for various paint process steps. The paint shop uses innovative waterborne paint technology to minimize the VOC emission potential and a regenerative thermal oxidizer (RTO) to control VOC and HAP from all paint shop ovens, where much of the VOC applied is released. Two rotary concentrators will be used to capture the high volume airflow from the clearcoat spray booths, which apply solvent borne coatings. The concentrators will be connected to the RTO which will destroy the desorbed VOC as part of the control process.

The overall paint shop process flow is as follows:

- E-Coat: 2 lines in parallel. Car bodies (“bodies in white”) from the body shop are submerged in waterborne coating using an electrodeposition method to promote adhesion, then cured in the e-coat oven. No PM emissions (100% transfer efficiency). Oven is controlled by the RTO. An 80% VOC carry-over rate is assumed. (“Carry over” refers to the amount of VOC applied in a coating operation that is actually emitted in the associated oven). Hyundai anticipates installing one e-coat line initially, and add the second line within 18 months to reach the final design production capacity.
- Inner Sealer: High-solids, low VOC inner sealer is applied to seams like caulk. No PM emissions (100 % transfer efficiency). 95% VOC carry-over to the UBS curing oven is assumed.

- UBS/Deadener/RPP: 2 booths in parallel. High-solids sound deadener, rocker panel anti-chip coating primer, and underbody sealer is spray applied. Transfer efficiency varies, and dry filters are used for PM control. 95% VOC carry-over to UBS curing oven is assumed. Curing oven is controlled by the RTO.
- E-Coat Sanding: Inspection and (if necessary) spot sanding station. PM is controlled by a dry filter.
- E-Coat Heavy Repair: Additional sanding is performed as needed. PM is controlled by a dry filter.
- Guide coat: (aka primer/surfacer): 2 booths in parallel apply waterborne spray coating to the vehicle bodies using electrostatic bell technique. Transfer efficiency is estimated at 70% and PM is controlled by multi-stage dry filters. Much of the exhaust air is recirculated after filtration. After coating, the bodies are cured in two parallel primer ovens, which are controlled by the RTO. 33% VOC carry-over to the primer oven is assumed.
- Primer Sanding: Inspection and (if necessary) spot sanding stations (2 in parallel). PM is controlled by a dry filter.
- Primer Heavy Repair: Additional sanding is performed as needed. PM is controlled by a dry filter.
- Topcoat- Basecoat: 3 booths in parallel apply spray basecoat using electrostatic bell technique. Transfer efficiency is estimated at 54% and PM is controlled by multi-stage filters. Much of the exhaust air is recirculated after filtration. After coating, the bodies are partially cured in the three flash off areas, which are controlled by the RTO. 44% VOC carry-over for the flash off areas, and 10% VOC carry over to the clearcoat ovens is assumed (therefore 54% of the VOC used in basecoat is controlled by the RTO to 95%). Hyundai anticipates installing two guide coat lines initially, and add the third line within 18 months to reach the final design production capacity.
- Topcoat – Clearcoat: 3 booths in parallel apply spray clearcoat using electrostatic bell technique. Transfer efficiency is estimated at 70% and PM is controlled by multi-stage filters and the rotary concentrators. Much of the exhaust air is recirculated after filtration. VOC is controlled after filtration by rotary concentrators, which is expected to achieve 95% removal efficiency. Because the concentrator itself is desorbed and VOC sent to the RTO, the effective destruction efficiency of the concentrator system is 95%*95% = 90.3% when factoring in the RTO control of the desorbed. After clear coating, the bodies are cured in the three clearcoat ovens, which are controlled by the RTO. 40% VOC carry-over to the clearcoat ovens is assumed. Hyundai anticipates installing two topcoat lines initially, and add the third line within 18 months to reach the final design production capacity. The two initial clearcoat booths will be routed to one concentrator, while the third clearcoat booth will be routed to a second concentrator.
- Topcoat Inspection: Inspection and (if necessary) spot sanding stations (2 in parallel). PM is controlled by a dry filter.
- Paint Shop Touchup Coating: Approximately 10% of vehicles will need some minor touchup on a small portion of the body. PM is controlled by a dry filter.
- Cavity Wax: 2 booths in parallel. Cavity wax is applied to interior portions for additional rust protection. PM is controlled by a dry filter.

The Paint Shop is the plant process area with the largest potential emissions of VOC and particulate matter (PM). It also is the area with the largest concentration of pollution control equipment. All emission points reflect BACT as either an emission control system or the equivalent level of control through design and utilization of materials with low VOC content.

VOC and PM emissions from surface coating operations are estimated based on the amount of coating materials applied to each vehicle, coating VOC and solids content, paint solids transfer efficiency (TE), and VOC carry over rates from the point of application to final release operation, - sometimes described as booth capture or oven capture (CE), and removal/destruction (DE) efficiencies of control systems. In addition, PM emissions from coating application booths are based on maximum outlet PM loading of dry filters, while sanding deck PM emissions are based on amount of sanding PM per vehicle and removal efficiency.

Emission calculations are based on the following assumptions:

- Coating properties (e.g. VOC and solids content) are based on typical coatings anticipated for use and currently in use at Hyundai facilities.
- Application rates and paint solids transfer efficiencies (TEs) are based on paint solids usage for similar vehicles manufactured in Hyundai facilities.
- Equipment and process efficiencies (e.g. TE, CE & DE) are based on the most recent compliance test results for similar coatings operations, and recent BACT limits, which are assumed to be long-term average performance levels.
- Oven VOC capture efficiencies (i.e. VOC carry over to ovens) for E-coat, guide coat (also called surfacer or primer-surfacer), basecoat, and clearcoat are based on recent compliance test results for similar coatings operations.
- 5% of bodies are projected to be rerun through the main topcoat lines to correct coating defects (Major Repair). Therefore, topcoat paint usage is adjusted by 5% for each vehicle to account for this.
- Repair throughputs are based on expected rates of repair. Repair paint usage is based on expected maximum average paint usage per vehicle.

Detailed emission calculation worksheets were provided by Hyundai in the application.

<u>Process Booth ASH, Oven Air Heaters, and Rooftop Air Makeup Units</u>

All make-up air for the Paint Shop area paint spray booths and other forced draft booths is provided by air supply houses (ASHs). Natural gas direct-fired heaters with low-NOx burners are used to temper this make-up air during the heating season and for humidity control. Tempered air is filtered prior to entering the manufacturing process. The fuel combustion products from these direct- fired ASH enter the booth and are exhausted with the process air exhaust.

Indirect fired burners provide heated air for the separate zones of the paint curing ovens. The fuel combustion products are vented directly to atmosphere and are not commingled with the process air.

All buildings, including the affiliates, will be equipped with rooftop units to supply comfort heat and condition air as needed. These are numerous (~452 total for OEM plant and affiliates) but small (1.8 MMBtu/hr or smaller). Estimated hourly combustion source emission rates are based on the preliminary total rated capacity of burners installed on each process, and the annual emissions are conservatively based on 100% capacity factor and 8760 hours operation per year. Actual burner operation would modulate for ambient temperature and humidity.

Emissions were estimated from the natural gas combustion sources using AP-42 Section 1.4, more recent guidance from the 2014 National Emissions Inventory Technical Support Document, and vendor guarantees of 35 ppm for NOx, which is equivalent to 43.35 pounds NOx per million cubic feet of natural gas.

Assembly Shop

In the assembly shop, the vehicle suspension, drive train, interior, mechanical, electrical, and trim modules and parts are assembled on the painted bodies received from the paint shop. Initial operations include the removal of doors (which are conveyed to the door pre-assembly area) and the installation of identification plates and labels. This is followed by the installation of interior trim components such as the instrument panel, pedal system, steering, cockpit electrics, etc. Mechanical fasteners are used for the installation of most components in this area. Few of the Assembly Shop operations have regulated air pollutant emissions of any significance.

Due to the numbers of glass panels involved, vehicle windshield and fixed window glazing is carried out by an automatic fitting process to keep the assembly line flowing without delay through this step. The bond areas of the glass window panels are cleaned and primed to prepare the surfaces for application and proper adhesion of the bonding agent. The single-component bonding/sealing compound is applied by automated process to the sealing edge of the glass pane and the robot places the pane in the body opening.

The major vehicle assembly is completed when the vehicle body is mated with pre-assembled electric motor, battery, and drive components. Fluids filling of brakes, radiator, air conditioning, power steering, and windshield washer reservoir has minimal emissions. Other than methanol used for windshield cleaner, the antifreeze and other fluids added to the vehicle have very low vapor pressures, and the evaporative losses are negligible. Total emissions are estimated at 0.3 tpy.

Prior to leaving the assembly shop, vehicles are inspected for paint defects. Bodies with defects are spot sanded and the paint is repaired in the assembly touchup booths, which are controlled with dry filters. Only a small percentage of vehicles are expected to need touchup.

Tank Farm

Storage tanks are used to maintain a supply of fluids used in the final assembly of the vehicles. The above ground tank farm is located outside the assembly building. The above ground storage tanks have very small amounts of filling/working losses and breathing losses. Other than windshield wash (40% methanol/ 60% water), the vapor pressures of the stored materials are very small, and the potential uncontrolled emissions are negligible. Tank Farm VOC/HAP emissions are estimated at 0.1 tons/year. All tanks are sized less than 10,000 gallons.

Utilities

Six small boilers (8.3 MMBtu/hr each) will fire natural gas only and provide hot water and steam as needed. These will be equipped with low-NOx burners, which were guaranteed to emit no more than 35ppmv NOx at 3% O_2 (43.35 pounds NOx per million cubic feet of natural gas).

It is planned that ten emergency electrical generators and ten fire pump engines will be installed. These engines will comply with NSPS 60 IIII. The diesel engines will meet the Tier 2 stationary diesel engine emission standards. Readiness testing will occur periodically on an intermittent basis, but permit Georgia EPD PTE guidance, the estimated PTE is based on 500 hours per year operation each.

MOBIS

Mobis will be operated by a Hyundai-related company who will supply parts and sub-assemblies. Mobis will occupy two buildings adjacent to the assembly shop. Mobis BSA building will manufacture lithium-ion battery tray assemblies while Mobis Module will assemble sub-assemblies. Negligible PM and VOC emissions are estimated from Hyundai from these operations (adhesives used have ~zero VOC and HAP, according to Hyundai).

Transys

Transys will be operated by a Hyundai-related company who supplies car seats and will be located near Mobis and the Assembly shop. Molded flexible polyurethane foam is manufactured and stitched into seating fabrics and metal framework. The only source of emissions detailed is from the foam fabrication, which will control PM using a dust collector.

Glovis Vehicle Processing Center (VPC)

After Hyundai is finished with the vehicle assembly it is turned over to the VPC for final preparation. At the VPC two minor emission sources are identified. A low VOC water-based underbody wax is applied for long term corrosion protection. Also, at VPC the vehicles are inspected again for paint defects. Bodies with defects are spot sanded and the paint repaired in touchup booths controlled by dry filters.

Hyundai Steel

Hyundai Steel will be located near the Glovis CC logistics storage area and the stamping shop. It will stamp metal parts and supply metal to the OEM.

The Hyundai permit application and supporting documentation can be found online at https://epd.georgia.gov/psd112gnaa-nsrpcp-permits-database.

3.0 REVIEW OF APPLICABLE RULES AND REGULATIONS

State Rules

Georgia Rule for Air Quality Control (Georgia Rule) 391-3-1-.03(1) requires that any person prior to beginning the construction or modification of any facility which may result in an increase in air pollution shall obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Act and the rules and regulations promulgated thereunder. Georgia Rule 391-3-1-.03(8)(b) continues that no permit to construct a new stationary source or modify an existing stationary source shall be issued unless such proposed source meets all the requirements for review and for obtaining a permit prescribed in Title I, Part C of the Federal Act [i.e., Prevention of Significant Deterioration of Air Quality (PSD)], and Section 391-3-1-.02(7) of the Georgia Rules (i.e., PSD).

Georgia Rules for Air Quality Control (Georgia Rule) 391-3-1-.03(1), Construction Permit, requires that any person prior to beginning the construction or modification of any facility which may result in an increase in air pollution shall obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Act and the rules and regulations promulgated there under.

Georgia Rule 391-3-1-.03(8)(b) continues that no permit to construct a new stationary source or modify an existing stationary source shall be issued unless such proposed source meets all the requirements for review and for obtaining a permit prescribed in Title I, Part C of the Federal Act [i.e., Prevention of Significant Deterioration of Air Quality], and Section 391-3-1-.02(7) of the Georgia Rules (i.e., PSD).

Georgia EPD Rule 391-3-1-.02(2)(b), Visible Emissions, limits the opacity of visible emissions from any air contaminant source which is subject to some other emission limitation under section (2). The opacity of visible emissions from regulated sources may not exceed 40 percent under this general visible emission standard. It is expected that the opacity of all emissions from the Hyundai facility will be much less than 40 percent.

Rule 391-3-1-.02(2)(d) for Fuel-burning Equipment establishes allowable emission rates for particulate, opacity, and NOx emissions (NOx applies only to units ≥250 MMBtu/hr input). Use of natural gas for external combustion and ultra low sulfur diesel for IC engines readily complies with this rule.

Rule 391-3-1-.02(2)(e) Particulate Emission from Manufacturing Processes establishes an allowable rate of particulate emission for Manufacturing Processes. For process weight rates up to 30 tons per hour and for rates above 30 tons per hour the allowable emission rates are established by the following equations:

$E = 4.1 P^{0.67}$ for process input weight rate up to 30 tons per hour
$E = 55 P^{0.11} - 40$ for process input weight rate above 30 tons per hour

Where: E = the allowable emission rate in pounds per hour

P = process weight rate in tons per hour.

The manufacturing activities and process spray booths having particulate emissions are subject to and comply with rule (e) for particulate emissions. Production will be greater than 30 tons per hour based on the process weight of the vehicle bodies. BACT has been established as high efficiency filters and should comply easily.

Rule 391-3-1-.02(2)(g) for Sulfur Dioxide establishes an allowable sulfur in fuel content limit of 2.5 weight percent for all units <100 MMBtu/hr input. Use of natural gas for external combustion and ultra low sulfur diesel (ULSD) for IC engines readily complies with this rule.

Rule 391-3-1-.02(2)(n) for Fugitive Dust establishes allowable opacity and work practice standards to minimize fugitive dust. Due to the nature of the proposed operations, the likelihood of violation is minimal.

Rule 391-3-1-.02(2)(t) VOC Emissions from Automobile and Light-Duty Truck Manufacturing is applicable to the surface coating of automobiles manufactured at the facility. Of the state rules, these standards are the most specifically applicable to the assembly and painting operations. The predicted emission performance for comparison to the standards can be extracted from the emission calculation worksheets submitted as part of Application 28503. A review of the calculations indicates that Hyundai meets all the limits in this standard without consideration of the RTO or rotary concentrators.

1. VOC emissions from automobile and/or light-duty truck manufacturing facilities shall not exceed:

   (i) 1.2 pounds of VOC per gallon of coating excluding water, monthly weighted average, from each electrophoretic (E-coat) applied prime operation. E-coating operations are subject to this limit.

   (ii) 15.1 pounds of VOC per gallon of applied coating solids, as a daily weighted average, from each spray prime operation. Primer Surfacer (guide coat) and rocker panel primer are subject to this limit (per definition of anti-chip coating in NESHAP

   (iii) 15.1 pounds of VOC per gallon of applied coating solids, as a daily weighted average, from each topcoat operation. Topcoat basecoat and clear coat operations are subject to this limit.

   (iv) 4.8 pounds of VOC per gallon of coating delivered to the coating applicator from each final repair operation. If any coating delivered to the coating applicator contains more than 4.8 pounds of VOC per gallon of coating, the limit shall be 13.8 pounds of VOC per gallon solids sprayed, as a daily weighted average.

   An evaluation of the topcoat compatible final repair/touch-up paints found that the VOC content of color basecoat exceeds 4.8 lb VOC/gallon of coating. An evaluation of the topcoat touch-up combined basecoat and clearcoat determined that the average is below the alternate limit of 13.8 pounds of VOC per gallon of coating solids sprayed.

(v) 3.5 pounds of VOC per gallon of sealer, excluding water delivered to an applicator that applies sealers in amounts less than 25,000 gallons during a 12 consecutive month period;

(vi) 1.0 pounds of VOC per gallon of sealer, excluding water, delivered to a coating applicator that applies sealers in amounts greater than 25,000 gallons during a 12 consecutive month period;

(vii) 3.5 pounds of VOC per gallon of adhesive, excluding water delivered to an applicator that applies adhesives, except body glass adhesives;

(viii) 6.9 pounds of VOC per gallon of cleaner, excluding water, delivered to an applicator that applies cleaner to the edge of body glass prior to priming.

(ix) 5.5 pounds of VOC per gallon of primer, excluding water, delivered to an applicator that applies primer to the body glass or to the body to prepare the glass and body for bonding;

(x) 1.0 pounds of VOC per gallon of adhesive, excluding water, delivered to an applicator that applies adhesive to bond body glass to the body;

(xi) 4.4 pounds of VOC per gallon of coating delivered to any applicator that applies coating to fascias. No coating may be used that exceeds this limit;
[Not applicable.]

(xii) 4.4 pounds of VOC per gallon of coating delivered to any applicator that applies base coat to fascias, on a daily weighted average basis;
[Not applicable.]

(xiii) 3.5 pounds of VOC per gallon of material, excluding water, for all other materials not subject to some other emission limitation sated in this paragraph.

2. The emissions of VOC from the use of wipe-off solvents shall not exceed 1.0 pounds per unit of production, as a rolling 12-month average.

3. VOC emissions from flush or clean paint application systems including paint lines, tanks and applicators shall not be allowed, unless such solvents are captured to the maximum degree feasible by being directed into containers that prevent evaporation into the atmosphere.

4. Drums, pails, cans or other containers storing solvents or waste solvents shall have air-tight covers which are in place at all times when materials are not being transferred into or out of the container.

5. VOC emissions from the cleaning of oil and grease stains on the body shop floor shall not exceed 0.1 pounds per unit of production.

Federal Rule - PSD

The regulations for PSD in 40 CFR 52.21 require that any new major source or modification of an existing major source be reviewed to determine the potential emissions of all pollutants subject to regulations under the Clean Air Act. The PSD review requirements apply to any new or modified source which belongs to one of 28 specific source categories having potential emissions of 100 tons per year or more of any regulated pollutant, or to all other sources having potential emissions of 250 tons per year or more of any regulated pollutant. They also apply to any modification of a major stationary source which results in a significant net emission increase of any regulated pollutant.

Georgia has adopted a regulatory program for PSD permits, which the United States Environmental Protection Agency (EPA) has approved as part of Georgia's State Implementation Plan (SIP). This regulatory program is located in the Georgia Rules at 391-3-1-.02(7). This means that Georgia EPD issues PSD permits for new major sources pursuant to the requirements of Georgia's regulations. It also means that Georgia EPD considers, but is not legally bound to accept, EPA comments or guidance. A commonly used source of EPA guidance on PSD permitting is EPA's Draft October 1990 New Source Review Workshop Manual for Prevention of Significant Deterioration and Nonattainment Area Permitting (NSR Workshop Manual). The NSR Workshop Manual is a comprehensive guidance document on the entire PSD permitting process.

The PSD regulations require that any major stationary source or major modification subject to the regulations meet the following requirements:

- Application of BACT for each regulated pollutant that would be emitted in significant amounts;
- Analysis of the ambient air impact;
- Analysis of the impact on soils, vegetation, and visibility;
- Analysis of the impact on Class I areas; and
- Public notification of the proposed plant in a newspaper of general circulation

The following is a discussion of the applicable federal rules and regulations pertaining to the equipment that is the subject of this preliminary determination, which is then followed by the top-down BACT analysis.

New Source Performance Standards

Subpart Dc (NSPS for Small Industrial-Commercial-Institutional Steam Generating Units)

Not applicable. The six boilers are rated below 10 MMBtu/hr. Air supply houses (ASH) will have some units rated greater than 10MMBtu/hr but are direct-fired and therefore do not meet the definition of Steam Generating Unit per Dc. The indirect fired ovens are not subject to Dc. The ovens are long enclosure comprising multiple zones. Each oven zone contains its own set of burners, each rated at below 10 MMBtu/hr. Even if subject, the only requirement would be tracking monthly use of natural gas (no emissions standards apply).

Subpart Kb (NSPS for Volatile Organic Liquid Storage)

Not applicable. Kb does not apply to VOL tanks with capacity less than 19,812 gallons.

Subpart MM (NSPS for Auto and Light Duty Truck Surface Coating Operations)
Subpart MM limits VOC emissions as follows:

Prime coating (in Hyundai's case, the E-Coat operation) - 0.17 kg VOC/liter applied coating solid (1.42 lb VOC/GACS) on a monthly basis. Hyundai expects to meet this limit without consideration of the RTO.

Guide coating (in Hyundai's case, primer surfacer) - 1.40 kg VOC/liter applied coating solid (11.7 lb VOC/GACS) on a monthly basis. Hyundai expects to meet this limit for primer surfacer without consideration of the RTO.

Top coating (in Hyundai's case, the basecoat and clear coat operation) - 1.47 kg VOC/liter applied coating solid (12.2 lb VOC/GACS) on a monthly basis. Hyundai will likely need to consider the RTO and concentrators control to demonstrate compliance with the topcoat limit.

On May 18, 2022, US EPA proposed to amend NSPS subpart MM and to establish a new rule, referred to as "subpart MMa," If promulgated as proposed, subpart MMa would apply in lieu of subpart MM for any automobile assembly plant constructed after May 18, 2022. The proposed changes are generally summarized as follows:

- Lowers E-coat limit to 0.33 lb VOC/GACS
- Lowers Guide coat limit to 2.92 lb VOC/GACS
- Lowers Topcoat limit to 3.53 lb VOC/GACS
- Add work practice standards consistent with those currently in NESHAP IIII
- Align testing, monitoring, and reporting requirements to those currently in NESHAP IIII

US EPA received several comments on the proposed changes to MM/MMa, and the revised rule has not been promulgated at the time of this review. The permit will not contain the proposed requirements, but Hyundai may become subject to any new limits upon promulgation of any such changes, even if those are not listed in the permit. According to Hyundai, the proposed plant will be able to comply with these proposed limits using the selected coatings, the RTO and rotary concentrators.

Subpart IIII (NSPS for Internal Combustion Engines)
All diesel-fired emergency generators and fire pumps will be subject to this rule. The two main requirements of the NSPS are emission standards that must already be achieved by the engine manufacturer, and use of ultra-low sulfur diesel fuel. These units are exempt from SIP permitting but included in this PD to address BACT and include the intermittent emissions from these in the PSD and Toxic Impact Assessment ("TIA") model. PTE for these engines is based on 500 hours per year each in accordance with Georgia PTE guidance.

National Emissions Standards For Hazardous Air Pollutants

The OEM/AFF facility is major for Hazardous Air Pollutants, therefore the NESHAPs applicable are for major HAP sources.

Subpart III (NESHAP for Flexible Polyurethane Foam Production)

The Transys operation will manufacture molded flexible polyurethane foam and is part of the OEM/AFF major HAP site. The NESHAP III requirements for molded foam consist of a prohibition of the use of HAP-based materials (except diiisocyanates) for cleaning, and a prohibition on the use of HAP-based materials in mold release agents. Compliance is demonstrated by keeping records of product data sheets documenting HAP content. Initial notification/compliance report is required.

Subpart EEEE (NESHAP for Organic Liquids Distribution)

Hyundai's tank farm will consist of tanks sized less than 10,000 gallons which will contain organic liquids which include HAP. Windshield wiper fluid, which contains ~50% methanol, is the only tank with more than negligible true vapor pressure (Vp = 2.2 psia). EEEE does not require control or vapor balance for any tanks at Hyundai. The only requirements will be keeping records of tank size and contents and submitting an initial notification/compliance report stating such.

Subpart IIII (NESHAP for Automobile Assembly)

Subpart IIII limits HAP emissions from the general surface coating operations of automobile assembly plants under two options:

- 0.3 lb HAP per gallons applied coating solids (lb/GACS) for coating operations of E-coat primer, guide coat (primer surfacer and rocker panel primer), topcoat, final repair, glass bonding primer, glass bonding adhesive, and all other coatings and thinners, or
- 0.5 lb HAP per gallon applied coating solids (monthly average) for just the guide coat (primer surfacer and rocker panel primer), topcoat, final repair, glass bonding primer, glass bonding adhesive, and all other coatings and thinners (E-coat primer not included in average), provided that the E-coat operation is either controlled to 95% DE on the cure oven, or coatings contain less than 1% HAP.

In addition to the above limit, the NESHAP limits HAP emissions to 0.01 lb/lb on sealers, adhesives, and deadeners (monthly average).

Subpart IIII contains operating standards for capture and control devices used to meet the HAP emission limits. The RTO must be operated at the temperature established during emissions testing, and the capture systems must meet flow minimums. Similar operating standards for the rotary concentrators are also included Subpart IIII.

Subpart IIII contains work practice standards to minimize HAP usage from cleaning of surface coating and auxiliary equipment. These work practices have been established as BACT.

Effective January 5, 2021, the NESHAP was amended to require compliance with the operating limits at all times. Previously, a Startup/Shutdown/Malfunction (SSM) exemption was allowed. The revised regulation also no longer requires an SSM plan to be developed.

Hyundai has represented that the proposed coatings to be used will likely comply with the NESHAP without taking credit for the RTO or the concentrators. Per NESHAP IIII, in this case, the operating limits, testing, and monitoring associated with control devices does not apply. These requirements are left in the draft permit as a precautionary measure to assist in BACT limit compliance assurance, and in expectation that the proposed NSPS MMa will contain similar requirements.

Subpart ZZZZ (NESHAP for Internal Combustion Engines)

New emergency engines over 500 bhp located at major sources of HAP are exempt from the emissions standards of Subpart ZZZZ, and only have to comply with the initial notification requirements of 40 CFR 63.6645(f). Engines smaller than 500 bhp must comply with NSPS IIII but are not subject to initial notification requirements of ZZZZ.

Subpart DDDDD (NESHAP for Boilers and Process Heaters)

The six boilers (rated at 8.3 MMBtu/hr each), and the indirect ovens (which meet the definition of process heaters) are subject to this standard. All units are classified as "Gas 1 units" and are required to conduct periodic tune ups with the schedule depending on the capacity class. No emission standards apply.

0-5 MMBtu/hr - Tune-up every 5 years
Greater than 5 but less than 10 MMBtu/hr – tune-up every 2 years (biennial)
10 MMBtu/hr or greater - tune-up every year (annual).

State and Federal – Startup and Shutdown and Excess Emissions

Excess emission provisions for startup, shutdown, and malfunction are provided in Georgia Rule 391-3-1-.02(2)(a)7. Excess emissions from the equipment associated with the proposed project would most likely result from a malfunction of the associated control equipment. The facility cannot anticipate or predict malfunctions. However, the facility is required to minimize emissions during periods of startup, shutdown, and malfunction.

NSPS and NESHAP contain their own provisions for periods of startup and shutdown. As mentioned previously, NESHAP IIII has now removed the startup and shutdown exemption provisions.

The BACT limits in the draft permit apply at all times, including startup and shutdown. Given the nature of the painting process (no equipment is expected to have higher emissions at startup, and the control device does not need an extended "warm up" period, little to no emissions increase is expected during startup.

Federal Rule – 40 CFR 64 – Compliance Assurance Monitoring

Under 40 CFR 64, the *Compliance Assurance Monitoring* Regulations (CAM), facilities are required to prepare and submit monitoring plans for certain emission units with the Title V application. The CAM Plans provide an on-going and reasonable assurance of compliance with emission limits. Under the general applicability criteria, this regulation applies to units that use a control device to achieve compliance with an emission limit and whose pre-controlled emissions levels exceed the major source thresholds under the Title V permitting program. Although other units may potentially be subject to CAM upon renewal of the Title V operating permit, such units are not being modified under the proposed project and need not be considered for CAM applicability at this time.

CAM is not applicable. Under 40 CFR 64, the *Compliance Assurance Monitoring* Regulations (CAM), facilities are required to prepare and submit monitoring plans for certain emission units with the Title V application, not the initial construction (SIP) permit application.

4.0 CONTROL TECHNOLOGY REVIEW

The proposed project will result in emissions that are significant enough to trigger PSD review for the following pollutants: PM, PM_{10}, $PM_{2.5}$, VOC, NO_x, CO, and Total GHG.

Definition of BACT

The PSD regulation requires that BACT be applied to all regulated air pollutants emitted in significant amounts. Section 169 of the Clean Air Act defines BACT as an emission limitation reflecting the maximum degree of reduction that the permitting authority (in this case, EPD), on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such a facility through application of production processes and available methods, systems, and techniques. In all cases BACT must establish emission limitations or specific design characteristics at least as stringent as applicable New Source Performance Standards (NSPS). In addition, if EPD determines that there is no economically reasonable or technologically feasible way to measure the emissions, and hence to impose and enforceable emissions standard, it may require the source to use a design, equipment, work practice or operations standard or combination thereof, to reduce emissions of the pollutant to the maximum extent practicable.

EPA's NSR Workshop Manual includes guidance on the 5-step top-down process for determining BACT. In general, Georgia EPD requires PSD permit applicants to use the top-down process in the BACT analysis, which EPA reviews. The five steps of a top-down BACT review procedure identified by EPA per BACT guidelines are listed below:

Step 1: Identification of all control technologies;
Step 2: Elimination of technically infeasible options;
Step 3: Ranking of remaining control technologies by control effectiveness;
Step 4: Evaluation of the most effective controls and documentation of results; and
Step 5: Selection of BACT.

The review was conducted generally using the top-down analysis and five-step process recommended by EPA in their *Draft New Source Review Workshop Manual* dated October 1990. In some cases, such as trivial sources, EPD exercises its right as a SIP-approved permitting authority to proceed according to the governing regulation, and the plain language of said codified regulations (not draft guidance).

For each pollutant subject to BACT review from each of the emission units or groups or processes, a comprehensive review of potential control technologies was conducted utilizing the following sources:

- The RBLC (RACT/BACT/LAER Clearinghouse);
- Pollution control technology vendors;
- EPA control technology documents;
- Review of recently issued BACT determinations for automobile manufacturing facilities elsewhere in the country;

- Experts familiar with both the automobile industry and control of similar processes;
- Hyundai Motors experience with pollution control technologies for similar operations; and
- Georgia permitting records.

VOC Emissions

BACT for VOC emissions is analyzed for the VOC-generating operations, largely the paint shop, but including fuel burning equipment, touchup paint booths, and adhesives/sealers. Sources of trivial amounts of VOC are addressed as a general group at the end of this section.

1. E-Coat Emissions

Applicant's Proposal

Hyundai proposes to utilize a combination of pollution prevention and abatement technologies as BACT for VOC emissions from the e-coat operation. These technologies will consist of a water-borne prime coat with low VOC content, electrodeposition dip application of the prime coat to achieve 100 percent transfer efficiency, and enclosure of the curing oven, with exhaust being routed to an RTO designed to achieve a destruction efficiency in excess of 95 percent. The E-coat tank itself will not be controlled, however evidence exists that approximately 80% of the VOC from the E-coat is carried over to the oven and then captured by the RTO. This "20/80 split" is industry standard. Hyundai proposes an associated limit of 0.10 pounds of VOC emitted per gallon of applied coating solids, as averaged on a monthly basis.

Alternative BACT Options

In conducting a "top down" approach, the following higher ranked options were not chosen as follows:

- Resizing the RTO to accommodate the E-coat tank exhaust. The RTO design intake airflow would increase by ~34,000 scfm from ~95,000 scfm to ~129,000 scfm. Using Hyundai's cost analysis provided, the annualized cost increase above proposed control (baseline) is $474,327. Assuming an 80% solvent carry-over, controlling the E-coat tank would reduce emissions by 13.6 tons, yielding a control cost above baseline of $34,915 per ton VOC reduced, which is deemed not cost effective in light of the proposed BACT limit compared to recent BACT limits. Note that resizing the RTO is cheaper than installing a new, small RTO on the e-coat tank, so that option was not explored since it would be even higher cost/ton control.
- Installing a rotary concentrator to control VOC from the E-coat tank exhaust. Hyundai estimated the annual cost above baseline of doing this option to be $407,902. Assuming an 80% solvent carry-over, controlling the E-coat tank would reduce emissions by 12.9 tons, yielding a control cost above baseline of $31,606 per ton VOC reduced, which is deemed not cost effective.

EPD Review – BACT/VOC/E-Coat

EPD reviewed the application and the RBLC and agrees that RTO control of the e-coat oven is BACT in most permits issued since 2000 for automobile assembly plants, and the proposed limit is within the commonly seen range. Ford proposed control of e-coat tank directly in the recently issued Stanton, Tennessee permit, but this is an outlier and does not set BACT for the Hyundai facility. EPD agrees that the cost of additional add-on control on the E-coat tank itself is prohibitive given the minimal reductions it provides. The proposed BACT and associated emissions limit is stricter than NSPS or state rule, and will comply with proposed NSPS MMa,

Conclusion – BACT/VOC/E-Coat

Table 4-1: BACT Summary for the E-Coat process

<table>
<tr><th>Pollutant</th><th>Control Technology</th><th>Proposed BACT Limit</th><th>Averaging Time</th><th>Compliance Determination Method</th></tr>
<tr><td rowspan="2">VOC</td><td>Waterborne and low VOC coating on E-coat Dip Tank</td><td rowspan="2">0.010 lb/GACS</td><td rowspan="2">Monthly</td><td rowspan="2">Records and test results</td></tr>
<tr><td>RTO on Oven</td></tr>
</table>

Facility must track usage and VOC content monthly and use test results of RTO stack test and VOC carry-over test. The proposed BACT applies at all times, including startup and shutdown.

2. Guide coat (Primer/Surfacer) Emissions

Applicant's Proposal

Hyundai proposes to utilize a combination of pollution prevention and abatement technologies as BACT for VOC emissions from the guide coat (primer/surfacer) operations. These technologies will consist of a water-borne guide coat with low VOC content, electrostatic spray application of the guide coat to enhance transfer efficiency, and routing VOC emissions from the curing oven to the plant RTO. The guide coat spray booth itself will not be controlled (cost prohibitive, as discussed below). Estimated solvent carryover (oven capture) is 33 percent. Hyundai proposes a BACT limit of 2.78 pounds of VOC emitted per gallon of applied coating solids, as averaged on a monthly basis.

Alternative BACT Options

In conducting a "top down" approach, the following, higher ranked options were not chosen as follows:

- Routing the guide coat spray booth emissions to a large RTO. The RTO design inlet airflow would be 225,000 scfm. Hyundai estimated the annualized cost above baseline option of doing this option to be $3,224,019, and the VOC emissions would be reduced by 130 tons, yielding a control cost of $24,881 per ton reduced, which was deemed cost prohibitive in light of the proposed BACT limit compared to recent BACT limits.
- Routing the guide coat spray booth emissions to rotary concentrators and resizing the proposed RTO system. To accommodate the 225,000 scfm booth airflow, two 113,000 scfm concentrators would be needed, and the RTO would be resized to handle an additional 12,000 scfm. Hyundai estimated the annualized cost above baseline of doing this option to be $1,934,856, and the VOC emissions would be reduced by 123 tons, yielding a control cost of $15,718 per ton reduced, which was deemed cost prohibitive, in light of the proposed NSPS MMa and the proposed BACT limit compared to recent BACT limits.

EPD Review – BACT/VOC/Guide coat

EPD reviewed the application and the RBLC and agrees that use of waterborne guide coats and RTO control of the guide coat oven is BACT in most permits issued since 2000 for automobile assembly plants, and the proposed limit is within the commonly seen range. Ford proposed control of a solventborne guide coat booth directly in the recently issued Stanton Tennessee permit to achieve a similar VOC limit. EPD agrees that the cost of add-on control on the guide coat booths themselves is prohibitive given the use of waterborne coatings to achieve a limit comparable to the lowest set. The proposed BACT and associated emissions limit is stricter than NSPS or state rule (t). This emission limit of 2.78 is lower than all but the strictest BACT limit found on the RBLC or otherwise reviewed by EPD.

Conclusion – BACT/VOC/Primer

Table 4-2: BACT Summary for the Guide coat Process

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Waterborne and low VOC coating on Guide Coat Booths	2.78 lb/GACS	Monthly	Records and test results
	RTO on Oven			

Facility must track usage and VOC content monthly and use test results of RTO stack test and VOC carry-over test. The proposed BACT applies at all times, including startup and shutdown.

3. Topcoat Emissions

Applicant's Proposal

Hyundai proposes to utilize a combination of pollution prevention and abatement technologies as BACT for VOC emissions from the topcoat operations (basecoat and clearcoat) operations. These technologies will consist of a low-VOC basecoat, and electrostatic spray application of the basecoat to enhance transfer efficiency. VOC emissions released in the basecoat flashoff area will be captured and routed to the RTO. VOC emissions from the solvent-borne clearcoat will be captured in each of the two spray booths and routed to the rotary concentrators. VOC emissions from the curing ovens will be routed to the RTO. Hyundai proposed a limit of 2.49 pounds of VOC emitted per gallon of applied coating solids, as averaged on a monthly basis.

Alternative BACT Options

In conducting a "top down" approach, the following, higher ranked options were not chosen as follows:

- Routing the basecoat coat spray booth emissions to a large RTO. The RTO design airflow would be 343,000 scfm. Hyundai estimated the annualized cost above baseline of doing this option to be $4,844,736, and the VOC emissions would be reduced by 104 tons, yielding a control cost of $46,786 per ton reduced, which was deemed not cost effective in light of the proposed BACT limit compared to recent BACT limits.
- Routing the basecoat spray booth emissions to rotary concentrator and resizing the RTO system. To accommodate the 343,000 scfm booth airflow, two 95,000 scfm concentrators

and two 77,000 scfm concentrators would be needed, and the RTO would be resized by 17,000 scfm. Hyundai estimated the annualized cost above baseline of doing this option to be $3,115,598, and the VOC emissions would be reduced by 98 tons, yielding a control cost of $31,671 per ton, which was deemed not cost effective when also considering the proposed limit compared to recent BACT limits.

EPD Review – BACT/VOC/Topcoat

EPD reviewed the application and the RBLC and agrees that low-VOC basecoats, RTO control on the basecoat flashoff area, rotary concentrator control on the clearcoat booths, and RTO control on the clearcoat ovens is BACT in most permits issued since 2000 for automobile assembly plants, and the proposed limit is within the commonly seen range. EPD agrees that the cost of add on control on the basecoat booth itself is prohibitive and exceeds the requirements for BACT. The proposed BACT and associated emissions limit is stricter than NSPS or state rule (t). This emission limit of 2.49 is lower than most BACT limits found on the RBLC or otherwise reviewed by EPD.

Conclusion – BACT/VOC/Topcoat

Table 4-3: BACT Summary for the Topcoat Process

<table>
<tr><th>Pollutant</th><th>Control Technology</th><th>Proposed BACT Limit</th><th>Averaging Time</th><th>Compliance Determination Method</th></tr>
<tr><td rowspan="4">VOC</td><td>Waterborne and low VOC coating on Base Coat Booths</td><td rowspan="4">2.49 lb/GACS</td><td rowspan="4">Monthly</td><td rowspan="4">Records and test results</td></tr>
<tr><td>RTO on Base Coat Flash Off Area</td></tr>
<tr><td>Rotary Concentrators on Clearcoat Booths (Followed by RTO)</td></tr>
<tr><td>RTO on Clearcoat Ovens</td></tr>
</table>

Facility must track usage and VOC content monthly and use test results of RTO stack test and VOC carry-over test. The proposed BACT applies at all times, including startup and shutdown.

4. Inner Sealer & Underbody Sealer (UBS) Emissions

Applicant's Proposal

Hyundai proposes to utilize a low-VOC, high-solids material to apply the inner sealer, underbody sealer, sound deadener, and rocker panel protectant, and to control the UBS oven with the RTO as BACT for VOC emissions. Hyundai proposed a combined VOC content limit of 0.4 lb/gallon as applied for all materials used, weighted average, on a monthly basis.

Alternative BACT Options

In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The materials used in these operations are high-solids and low VOC. Most of the VOC contained in these materials is carried over to the UBS oven which will have RTO control. Uncontrolled VOC emissions from the inner sealer and UBS booths themselves is less than 5 tons per year, and at low concentrations. Given the estimated add-on control costs associated with the (lower airflow, higher VOC emissions) e-coat operations, the costs here would be greater, and any add-on control for the UBS booths themselves is therefore cost prohibitive.

EPD Review – BACT/VOC/Inner Sealer/UBS

EPD reviewed the application and the RBLC and agrees that with the applicant's BACT proposal to use high-solids/low-VOC materials and route the UBS oven to the RTO. Many facilities assume that none of the small amount of VOC in the sealer and deadener materials is volatilized until the material is heated in a curing oven. Hyundai assumes that 5% of the VOC is lost in the material application area and 95% is volatilized in the UBS/RPP curing oven and directed to the RTO, which will provide 95% destruction of the captured VOC. The sealers are limited by Georgia rule to 1.0 lb VOC/gallon of material, and the HAP emissions from sealer and deadener materials are limited by NESHAP rule to 0.010 lb/lb of material used. Actual VOC and HAP contents are below these limits. In order to ensure that Hyundai continues to use the lowest VOC content products, the combined VOC content of all sealers and sound deadeners will be limited to 0.4 pounds per gallon as applied, averaged on a monthly basis.

Conclusion – BACT/VOC/Inner Sealer and UBS

Table 4-4: BACT Summary for Inner sealer and UBS Process

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Waterborne and low VOC Materials on Inner Sealer Application	0.4 lb/gallon content	Monthly	Records and test results
	RTO on UBS Oven			

Facility must track usage and VOC content monthly and use test results of RTO stack test and VOC carry-over test. The proposed BACT applies at all times, including startup and shutdown.

5. Cavity Wax Emissions

Applicant's Proposal

Hyundai proposes to utilize a low-VOC waterborne cavity wax as BACT for VOC emissions. Hyundai proposed a VOC content limit of 0.3 lb/gallon as applied for all materials used, weighted average, on a monthly basis.

Alternative BACT Options

In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The materials used in these operations are very low VOC. Uncontrolled VOC emissions from the cavity wax application is less than 3 tons per year. Given the estimated add-on control costs associated with the (lower airflow, higher VOC emissions) e-coat operations, the costs here would be even greater, and any add-on control for the cavity wax station is therefore cost prohibitive.

EPD Review – BACT/VOC/Cavity wax

EPD reviewed the application and the RBLC and agrees that with the applicant's BACT proposal to use low-VOC materials. In order to ensure that Hyundai continues to use the lowest VOC content products, the VOC content of cavity wax will be limited to 0.3 pounds per gallon as applied, averaged on a monthly basis.

Conclusion – BACT/VOC/Cavity Wax

Table 4-5: BACT Summary for cavity wax

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Low VOC material	0.3 lb/gallon content	Monthly	Records

Facility must track usage and VOC content monthly. The proposed BACT applies at all times, including startup and shutdown.

6. Miscellaneous VOC (Purge, Cleaning, and Body Wipe Emissions)

Applicant's Proposal
Hyundai proposes that closed loop purge systems and NESHAP IIII work practice standards as VOC BACT for purge cleaning of paint spray guns.

For general cleaning, and body wipe, Hyundai proposes a plantwide VOC limit from such operations of 90 tons per year.

Alternative BACT Options
In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The fugitive nature of these VOC emissions make add-on control cost prohibitive.

EPD Review – BACT/VOC/Miscellaneous
EPD reviewed the application and the RBLC and agrees that with the applicant's BACT proposal to use closed loop purge and NESHAP IIII work practices satisfies BACT for purge cleaning. EPD agrees that a 90 tpy plantwide miscellaneous VOC limit satisfies BACT for general cleaning solvent use and body wipes.

7. Touchup Coatings

Applicant's Proposal
Hyundai will operate touchup coatings in the Paint Shop, Assembly Shop, and Glovis VPC. These will all serve the same general purpose (touchup of small paint imperfections using low-temperature curing paints). Hyundai proposes compliance with Georgia Rule (t), which applies a 4.8 lb/gal content limit (all compliant coatings), with a 13.8 lb/gallon of coating solids sprayed (daily average) solids equivalent option as BACT for VOC emissions.

Alternative BACT Options
In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The coatings application rate is small, compared to production coating, but coatings are generally higher VOC due to the need to cure at ambient temperatures. The total airflow for all fifteen touchup booths is ~500,000 scfm, which is over twice the airflow from the guide coat

operations, but with only 20% of the emissions (26 tpy vs 140 uncontrolled tpy from guide coat). With twice the airflow, but ~20% of the uncontrolled emissions of guide coat, control costs associated with any add-on control for the touchup booths are clearly cost prohibitive.

EPD Review – BACT/VOC/Touchup Coatings
EPD reviewed the application and the RBLC and agrees that with the applicant's BACT proposal to consider BACT as compliance with Georgia Rule (t). No control of VOC from touch-up and final repair is used at assembly plants. The VOC content of the topcoat used for repair is subject to regulation under Georgia Rule (t) and the HAP emissions are included in the calculation of compliance with the federal NESHAP Subpart IIII. No additional control of VOC emissions is proposed.

Conclusion – BACT/VOC/Touchup Coatings

Table 4-6: BACT Summary for Paint Touchup

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Compliant materials	Comply with Ga rule (t) and NESHAP IIII	varies	Records

8. Assembly Shop – Windshield Installation (Window Glazing)

Applicant's Proposal
Windshield installation in assembly consists of applying a solvent based cleaner, a solvent based primer, and a low VOC adhesive. Due to fairly low material usage per vehicle, the overall uncontrolled VOC emissions are only ~2 tons per year. Hyundai proposed a VOC content limit of 0.3 lb/gallon as applied for all glass primer and adhesive materials used, weighted average, on a monthly basis.

Alternative BACT Options
In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The low overall emissions from this process will make any add-on control cost prohibitive.

EPD Review – BACT/VOC/Windshield Installation (Window Glazing)
EPD agrees that BACT for window glazing is compliance with existing regulations, and that add-on controls would be economically infeasible. EPD agrees that a limit of 0.3 lb/gallon constitutes BACT.

Conclusion – BACT/VOC/Windshield Adhesives

Table 4-7: BACT Summary for Window Glazing

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Compliant materials	0.3 lb/gallon	varies	Records

9. Assembly Shop – Fluids Filling

Applicant's Proposal
Hyundai proposes no control for the fluids filling, which is expected to emit 0.5 tons VOC per year.

EPD Review – BACT/VOC/Fluids Filling
EPD agrees that BACT is no control. The general good housekeeping practices will suffice for BACT.

10. Glovis VPC Underbody Wax

Applicant's Proposal
Hyundai proposes the use of low VOC materials as BACT, with a VOC content limit of 0.3 lb/gallon, monthly weighted average.

Alternative BACT Options
In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: The materials used in these operations are very low VOC. Uncontrolled VOC emissions from the underbody wax application is less than 3 tons per year. Given the estimated add-on control costs associated with the (lower airflow, higher VOC emissions) e-coat operations, the costs here would be even greater, and any add-on control for the underbody wax station is therefore cost prohibitive.

EPD Review – BACT/VOC/Underbody Wax
EPD agrees with the proposed BACT limit of 0.3 lb/gallon monthly weighted average.

11. Tank Farm

Applicant's Proposal
Hyundai proposes the use of a submerged fill pipe for any windshield fluid tanks over 4000 gallons as VOC BACT. Emissions from tanks holding coolant, brake fluid, refrigerant, etc are negligible and BACT for these is no control.

EPD Review – BACT/VOC/Tank Farm
EPD agrees that submerged fill pipes on the larger methanol tanks satisfies BACT.

12. Facility Wide Work Practices

Applicant's Proposal

Hyundai proposes to a facility wide VOC limit of 491 tons per year. This limit is a culmination of the above-mentioned BACT limits and a production schedule of 525,000 vehicles per year. It also reflects good work practices to minimize fugitive VOC loss from spills, cleaning, open containers, etc.

EPD Review – BACT/VOC/Facility Wide Emissions

In order to ensure that the economic and technical analyses of the various VOC control options remain valid for all operating scenarios, a plant-wide VOC emission limit of 491 tons per year (based on a 12-month rolling total) is included in the proposed permit. Emission calculations are required as a part of the monthly recordkeeping. Furthermore, the plantwide VOC limit represents the culmination of all the BACT limits and good work practices that were determined to be BACT. Note that the facility-wide VOC BACT annual emission limit also applies to VOC emissions from fuel combustion.

13. Combustion Sources

Applicant's Proposal

Hyundai proposes to utilize good combustion practices and fire only pipeline quality natural gas as VOC BACT for all of the natural gas combustion sources, including the boilers, ASH, ovens, and rooftop air makeup units. No numeric limit is specified. For emergency engines, including the generators and fire pumps, BACT is proposed as compliance with NSPS 40 CFR 60 IIII.

EPD Review – BACT/VOC/Combustion Sources

EPD agrees that firing natural gas and operating the equipment for good combustion practices satisfies BACT. For those units subject to NESHAP DDDDD, compliance with the tune-up requirement of that standard satisfies BACT. EPD agrees that compliance with NSPS IIII satisfies BACT for the emergency engines.

NOx Emissions

BACT for NOx emissions is analyzed for the NOx-generating operations, consisting of combustion equipment, including boilers, air supply houses, ovens, rooftop air makeup units, and emergency engines (internal combustion). All combustion units will fire natural gas exclusively except for the diesel-fired generators. These units are grouped by similar size and function.

1. Natural Gas-Fired External Combustion

Applicant's Proposal

The facility will include numerous small natural gas combustion sources. No individual unit proposed exceeds 20 MMBtu/hr. The six proposed boilers are rated at 8.3 MMBtu/hr each, the Air Supply houses (direct fired) have varying capacity from 8 to 20 MMBtu/hr, the ovens have varying capacity from 2-20 MMBtu/hr, and the rooftop units range from 1 – 1.8 MMBtu/hr. No add-on control is feasible for these small units, but varying burner and combustion designs are feasible which minimize NOx formation. Hyundai has proposed the use of low NOx burners achieving 35 ppm NOx at 3%O2 (which is equivalent to 43.35 pounds NOx per million cubic feet of natural gas) for all natural gas combustion sources at the facility, other than the RTO. The facility proposed 60 ppm NOx at 3% O2 (which is equivalent to 74.32 pounds NOx per million cubic feet of natural gas) for the low NOx burner of the RTO.

Alternative BACT Options

In conducting a "top down" approach, the following, higher ranked options were not chosen as follows: Selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) are technically infeasible due to the small size of the external combustion sources and the low exit temperature of the exhaust from these emission units. Ultra low NOx units were not selected due to the costs associated with these units, the small size of the units, and the fact that ultra low NOx units are not generally required as BACT for combustion sources at automobile assembly plants.

EPD Review – BACT/NOx/Natural Gas Combustion

EPD agrees that BACT for small natural gas combustion units at Hyundai (other than the RTO) is low NOx burners capable of achieving 35 ppm NOx at 3%O2. This BACT, on a facility wide basis, is lower than almost all recent BACT determinations for automobile assembly plants. Compliance will be demonstrated by an initial stack test on a representative boiler, and documentation from the vendor that the units are designed to meet 35 ppm NOx. According to the application, due to the additional heat input and high oxygen content of the RTO exhaust, the RTO supplier could not guarantee at 35 ppm NOx rate, but supported a BACT of 60 ppm. Compliance will also be demonstrated by an initial stack test.

Conclusion – BACT/NOx/Natural Gas Combustion

Table 4-8: BACT Summary for Natural Gas Combustion

Pollutant	Control Technology	Proposed BACT Limit	Compliance Determination Method
NOx	Low NOx Burners	35 PPM NOx @3% O2 (natural gas units except RTO)	Stack test and Records
NOx	Low NOx Burner	60 PPM NOx @3% O2 (RTO)	Stack test and Records

2. Emergency Engines (Generators and Fire Pumps)

Applicant's Proposal

The facility will include ten emergency generators and ten fire pumps, each firing ultra low sulfur diesel fuel. The emissions from the emergency engines will effectively be limited to 500 hours per year based on the Georgia PTE guidance. The actual usage of these engines will be periodic readiness testing (~2 hours per week each). During emergency usage when power is not available, the assembly plant will not operate. Hyundai has proposed NOx BACT from these engines to be compliance with NSPS 40 CFR 60 IIII.

EPD Review – BACT/NOx/Emergency Engines

EPD agrees that compliance with NSPS IIII satisfies NOx BACT for emergency engines.

CO Emissions

BACT for CO emissions is analyzed for the NOx-generating operations, consisting of combustion equipment, including boilers, air supply houses, ovens, rooftop air makeup units, and emergency engines (internal combustion). All combustion units will fire natural gas exclusively except for the diesel-fired generators. These units are grouped by similar size, function, and emissions profile.

1. Natural Gas-Fired External Combustion

Applicant's Proposal
The facility will include numerous small natural gas combustion sources. No individual unit proposed exceeds 20 MMBtu/hr. The six proposed boilers are rated at 8.3 MMBtu/hr, the Air Supply houses (direct fired) have varying capacity from 8 to 20 MMBtu/hr, the ovens have varying capacity from 2-20 MMBtu/hr, and the rooftop units range from 1– 1.8 MMBtu/hr. No add-on control is feasible for these small units, and good combustion practices are the only feasible method of control. Hyundai has proposed the good combustion practices as BACT for CO. Units subject to NESHAP DDDDD will be subject to periodic tune up requirements.

EPD Review – BACT/CO/Natural Gas Combustion
EPD agrees that BACT for small natural gas combustion units at Hyundai is good combustion practices. Catalytic oxidation has been determined technically infeasible due to the small size of the external combustion sources; in addition, a search in the U.S. EPA RBLC database has shown no add-on controls installed on such small emission units and no add-on controls or any natural gas-fired ovens, boilers, or air make-up units in an automaker. AP-42 Section 1.4 will be used to estimate CO emissions, but no numeric limit is proposed. Compliance will be demonstrated by compliance with NESHAP DDDDD for those units subject to boiler MACT (boilers, oven burners).

Conclusion – BACT/CO/Natural Gas Combustion

Table 4-9: BACT Summary for Natural Gas Combustion

Pollutant	Control Technology	Proposed BACT Limit	Compliance Determination Method
CO	Good Combustion Practices	No numeric standard. Compliance with NESHAP DDDDD for subject units	Records for NESHAP DDDDD tune-ups if applicable

2. Emergency Engines (Generators and Fire Pumps)

Applicant's Proposal
The facility will include emergency generators and fire pumps, each firing ultra low sulfur diesel fuel. The emissions from the emergency engines will effectively be limited to 500 hours per year based on the Georgia PTE guidance. The actual usage of these engines will be periodic readiness testing (~2 hours per week each). During emergency usage when power is not available, the

assembly plant will not operate. Hyundai has proposed CO BACT from these engines to be compliance with NSPS 40 CFR 60 IIII.

EPD Review – BACT/CO/Natural Gas Combustion
EPD agrees that compliance with NSPS IIII satisfies CO BACT for emergency engines.

Particulate Matter (PM/ PM_{10}/ $PM_{2.5}$) Emissions

BACT for PM emissions is analyzed for the surface coating operations, sanding, and combustion units. Negligible/fugitive sources of emissions (welding/roads/cooling towers) are also evaluated in an abundance of caution. These units are grouped by similar size, function, and emissions profile.

1. Paint Spraying

Applicant's Proposal
Particulate matter is generated coating overspray from paint, wax, and sealer spraying onto automobile bodies and parts. Hyundai will minimize overspray when practicable by using electrostatic bell spray in the guide coat and topcoat booths. Hyundai has proposed the use of dry particulate filtration systems for all spray coating, including UBS, guide coat, topcoat, touchup and wax application. These particulate emission control techniques are standardized within the industry. The vendor guarantee on these filters is 0.001 g/m3 exhaust exit loading from the filters. Emissions for PM/ PM_{10}/ $PM_{2.5}$ are estimated using the design booth stack airflow times this exit loading. Additional filtration will be installed on the clearcoat booths to reduce fouling of the rotary concentrators used for VOC control.

Alternative BACT Options
The facility listed the following control technologies for review:

- Dry filter
- Wet Venturi Scrubber
- Electrostatic precipitator
- Water wash filtration

As dry filter represents the best control available, and RBLC supports the use of the 1 mg/m3 limit as BACT, no further analysis is needed.

EPD Review – BACT/PM/Paint Spraying
EPD accepts dry filters as BACT for PM, and agrees that a filterable PM limit of 0.001 g/m3 satisfies BACT. Note that since many booths will have combustion air delivered from the ASH into the booths, there may be small amounts of condensable PM that filtration systems are not expected to control. Therefore, the limit associated with BACT is for filterable particulate matter only. Compliance will be determined through an initial stack test of representative sources, documentation of filter efficiency guarantee, and daily pressure drop monitoring and replacement requirements for the dry particulate filtration systems.

Conclusion – BACT/PM/Paint Spraying

Table 4-10: BACT Summary for the Paint/UBS/Wax Spray Application Processes

Pollutant	Control Technology	Proposed BACT Limit	Compliance Determination Method
PM	Dry Filters on Guide Coat, Topcoat, UBS, touchup, and wax application	0.001 g/m3 filterable PM	Representative Stack test and records

2. Natural Gas-Fired External Combustion

Applicant's Proposal

The facility will include numerous small natural gas combustion sources. No individual unit proposed exceeds 20 MMBtu/hr. The six proposed boilers are rated at 8.3 MMBtu/hr, the Air Supply houses (direct fired) have varying capacity from 8 to 20 MMBtu/hr, the ovens have varying capacity from 2-20 MMBtu/hr, and the rooftop units range from 1 – 1.8 MMBtu/hr. Much of the combustion sources, the ASH, will be direct-fired with combustion exhaust going into the paint booths. No add-on control is feasible for these small units. Hyundai has proposed the use of pipeline quality natural gas and good combustion practices on all natural gas combustion sources at the facility. Units subject to NESHAP DDDDD (boilers and ovens) must conduct periodic tune-ups per the MACT.

EPD Review – BACT/PM/Natural Gas Combustion

EPD agrees that BACT for small natural gas combustion units at Hyundai is use of pipeline quality gas and compliance with Boiler MACT for subject units. No numeric limit is proposed because emissions are difficult to quantify such to ensure an achievable limit, and testing of such units is technically problematic.

3. Emergency Engines (Generators and Fire Pumps)

Applicant's Proposal

The facility will include emergency generators and fire pumps, each firing ultra low sulfur diesel fuel. The emissions from the emergency engines will effectively be limited to 500 hours per year based on the Georgia PTE guidance. The actual usage of these engines will be periodic readiness testing (~2 hours per week each). During emergency usage when power is not available, the assembly plant will not operate. Hyundai has proposed PM BACT from these engines to be compliance with NSPS 40 CFR 60 IIII.

EPD Review – BACT/PM/Emergency Engines

EPD agrees that compliance with NSPS IIII satisfies PM BACT for emergency engines.

4. Sanding

Applicant's Proposal

Hyundai will operate nine sanding operations to repair and scuff any painting defects. The amount of sanding needed is variable and depends on the number of vehicles needing sanding and the area and extent sanding is needed. In general, only a small percentage of vehicles needs sanding, and the area is very small. It is Hyundai's goal to minimize sanding by ensuring quality paint application beforehand. Hyundai proposes the use of dry particulate filtration systems for all sanding operations. While the filters are expected to meet the same exit loading as the dry filters used for painting, because the amount of sanding may vary, and emissions may be less than the rate determined using the vendor guaranteed exit loading for paint spray, no numeric limit is proposed in order to not overestimate emissions for modeling purposes.

Alternative BACT Options

As dry filters represent the best control available, no further analysis is needed.

EPD Review – BACT/PM/Sanding

EPD accepts dry filters as BACT for PM from sanding. Compliance will be determined through documentation of filter efficiency guarantee, and daily pressure drop monitoring and replacement requirements for the dry particulate filtration systems

5. Welding

Applicant's Proposal

Hyundai will conduct welding in the body shop. The vast majority of welding conducted is non-emitting spot resistance welding, which uses no consumable electrode. For the small amount of electric arc welding conducted, emissions are estimated using AP-42. Potential emissions are estimated at less than 0.2 tons per year. Hyundai proposes that its use of spot welding for most welding constitutes BACT for PM emissions from welding, and no control limit is proposed.

EPD Review – BACT/PM/Welding

EPD agrees that no controls are required as BACT for spot welding. For arc welding, the approved BACT is the use of filters. Due to the small amount of expected potential $PM/PM_{10}/PM_{2.5}$ emissions, there is no numeric BACT limit on arc welding.

6. Paved Roads

Applicant's Proposal

The Hyundai site will have paved roads for use by trucks delivering raw materials and parts, as well as exporting finished vehicles. Finished vehicles will be driven a short distance on paved roads to the Glovis VPC for final preparation and shipping. Emissions are very minor because the materials transported will have no likelihood of depositing material capable of generating fugitive dust. BACT for the roads is paving the roads and compliance with Georgia Rule (n).

EPD Review – BACT/PM/Roads

EPD agrees that BACT is compliance with Georgia Rule (n)

7. Cooling Towers

Applicant's Proposal

Hyundai will operate cooling towers. Small amounts of PM emission occur as a function of dissolved solids in the water and drift rate of the cooling tower. Drift is the amount of mist produced by the tower. BACT is the design of cooling towers with a drift rate of 0.0005%.

EPD Review – BACT/PM/Cooling tower
EPD agrees that a cooling tower design with a drift rate of 0.0005% is BACT for Hyundai.

8. Transys Operation

Applicant's Proposal
The Transys operation will manufacture polyurethane foam for seat manufacturing. Proposed BACT is a dust collector with an exit loading of 0.004 gr/dscf.

EPD Review – BACT/PM/Transys
EPD agrees that a dust collector is BACT for this operation.

Total GHG Emissions

BACT for GHG emissions is analyzed for the GHG-generating operations, consisting of combustion equipment, including natural gas combustion sources and diesel emergency engines. These units are grouped by similar size and function. Incidental emissions of other GHG compounds (methane, nitrous oxide, and fluorinated gases) are not identified.

1. Natural Gas Combustion

Applicant's Proposal

Hyundai proposes the use of natural gas, and a plantwide limit of 118 lb CO2e /MMBtu as BACT, based on emission factors found in 40 CFR Part 98 as of July 1, 2021.

EPD Review – BACT/GHG/Natural Gas Combustion
As carbon capture is determined technically infeasible for small combustion sources, EPD agrees that BACT for small units at Hyundai is natural gas and agrees with the limit. Compliance will be demonstrated through use of emission factors.

2. Emergency Generators

Applicant's Proposal
No controls other than good combustion practices and compliance with NSPS IIII were identified for GHG control for the emergency engines. Hyundai proposes a plantwide limit of 164 lb CO2e/MMBtu as BACT, based on emission factors found in 40 CFR Part 98 as of July 1, 2021.

EPD Review – BACT/GHG/Emergency Engines
As carbon capture is determined technically infeasible for small combustion sources, EPD agrees that BACT for emergency engines at Hyundai is natural gas and agrees with the limit of 164 lb/MMBtu. Compliance will be demonstrated through use of emission factors.

5.0 TESTING AND MONITORING REQUIREMENTS

Testing Requirements:

In order to demonstrate initial and ongoing compliance with BACT limits as well as federal and state emissions standards, the draft permit contains requirements for emissions testing of equipment, and ongoing monitoring of pollution control equipment parameters. These requirements will be discussed below according to the associated compliance requirement.

Plantwide Emissions Caps

Compliance with the plantwide VOC and production limits established in Section 2 is demonstrated via record keeping, no testing or monitoring is directly used to show compliance. Monitoring of control devices to maintain an established control efficiency is addressed in more specifically-applicable requirements.

Particulate Matter BACT Limits

Dry particulate filters are used to meet the BACT PM limit(s). The dry particulate filters are disposable and should be replaced per manufacturer's specifications to reduce the likelihood of plugging. Because an outlet loading of 1 mg/m3 is fairly common to the industry, a single source Method 5 (filterable PM) test of a guide coat booth, and a test of a touchup booth are the only testing requirements. Records documenting filter efficiency, along with pressure drop monitoring to ensure that they are properly maintained are required for compliance assurance.

Nitrogen Oxide (NOx) BACT Limits

All natural gas-fired units (other than the RTO control device) are subject to a 35 ppm NOx BACT limit. Since the burners are all very similar in design and operate fairly steady-state with few moving parts, the Division recommends that initial performance testing on a single, representative unit be conducted. No further testing or monitoring is required because the likelihood of violation is minimal. However, the permittee must keep documentation showing that the units operated are designed to meet 35ppm NOx. Furthermore, monitoring in the form of periodic tune-ups is required for units subject to Boiler MACT. Emergency engines will have no requirements other than those specified in NSPS IIII.

Since the RTO is subject to a NOx BACT limit of 60 ppm, the facility must conduct an initial performance test to demonstrate compliance with this NOx BACT limit. No further testing and monitoring is required.

VOC BACT Limits

Initial and ongoing compliance with the BACT limits will be demonstrated via VOC usage records and material balance, but control equipment efficiency will also be used in determining compliance. The VOC control devices are the RTO and the rotary concentrators (clearcoat booths only). Initial destruction and capture efficiency testing is required by 40 CFR 63 Subpart IIII but will also be essential in demonstrating compliance with the BACT limits. 40 CFR 63 Subpart IIII allows an assumed 100% capture only on coating operations that both meet the criteria for a permanent total enclosure (PTE), and have no still-wet part leaving the PTE. Hyundai must also determine spray coating transfer efficiency since the BACT limits, NESHAP, NSPS, and parts of the Georgia rule are expressed as pound emitted per gallon of applied coating solids.

To ensure ongoing compliance with the VOC BACT limits, as well as other standards, Hyundai must ensure that the VOC control devices are continuously operating properly. The RTO temperature, concentrator desorption temperature, and capture system parameters such as either duct pressure or volumetric airflow (duct pressure is typically the parameter chosen) must be continuously monitored and recorded, as specified in 40 CFR 63 Subpart IIII. If the capture system meets the criteria for a permanent total enclosure (PTE), Hyundai may conduct continuous monitoring and recording of either booth pressure drop or facial velocity across all natural draft openings.

Work Practice Standards – VOC BACT

Monthly inspections will be proposed to ensure ongoing compliance with the work practice standards.

40 CFR 63 Subpart IIII Limits

Compliance with the MACT standards are explicitly detailed in the standard. See the VOC BACT Limits above for details on testing and monitoring requirements for VOC and HAP. 40 CFR 63 Subpart IIII contains requirements to monitor control device bypass lines to minimize bypass and uncontrolled emissions.

40 CFR 60 Subpart MM Limits

Based on the calculations presented, Hyundai will comply with the NSPS limits without having to consider the reductions from the RTO and concentrators. In this case, only material usage records are needed to ensure initial and ongoing compliance. However, if and when proposed NSPS MMa becomes finalized, Hyundai will need the add-on controls to comply. The permit will not contain a proposed rule but this is documenting for the record that compliance with any applicable NSPS is required even if not yet specified in the permit.

40 CFR 63 Subpart DDDDD

The proposed fuel burning equipment will not be subject to any emission standards, testing or monitoring requirements of the Boiler MACT. Periodic tune ups are required; tune-up frequencies depend on the capacity of the unit.

40 CFR 60 Subpart IIII

A non-resettable hour meter to track operating hours is the only monitoring required by the engine NSPS. While engine testing is an option to demonstrate compliance with the applicable emission limits, engine manufacturers EPA certifications will be the method of choice. The proposed diesel engines will be required by the NSPS to document the use of compliant ultra low sulfur fuel and follow requirements in the NSPS. These engines are otherwise exempt from permitting in normal SIP permits; they were included in the permit because they are subject to the BACT limits.

40 CFR 63 Subpart EEEE

No emissions standards, work practices, testing, or monitoring applies to the tanks sized less than 10,000 gallons. There are records and initial notification requirements to document the tank capacity and vapor pressure of contents.

40 CFR 63 Subpart III

The work practice standard to use no HAP-based (other than isocyanates) cleaner or mold release agent do not require testing or parameter monitoring. It only requires records of material HAP content in the form of product data sheets.

Georgia Rules (b), (d), (g), (e)

No testing or monitoring is necessary because the likelihood of violation of any of these standards is minimal.

Georgia Rule (t)

Based on the calculations presented, Hyundai will comply with the Georgia Rule (t) limits without having to consider the reductions from the RTO or rotary concentrators, except for basecoat and possibly another coating. See VOC BACT Limits for details on testing and monitoring control devices.

CAM Applicability:

Because the permit will not be a Title V permit, CAM is not applicable and is not being triggered by the proposed greenfield facility. Therefore, no CAM provisions are being incorporated into the facility's permit.

6.0 AMBIENT AIR QUALITY REVIEW

An air quality analysis is required to determine the ambient impacts associated with the construction and operation of the proposed modifications. The main purpose of the air quality analysis is to demonstrate that emissions emitted from the proposed modifications, in conjunction with other applicable emissions from existing sources (including secondary emissions from growth associated with the new project), will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) in a Class II area and PSD Increment in a Class I or Class II area. NAAQS exist for NO_2, CO, $PM_{2.5}$, PM_{10}, SO_2, ozone (O_3), and lead. PSD increments exist for SO_2, NO_2, $PM_{2.5}$, and PM_{10}.

The proposed project at Hyundai triggers PSD review for VOC (i.e., ozone), NOx, PM, PM_{10}, $PM_{2.5}$, CO, and Total GHG. An air quality analysis was conducted to demonstrate the facility's compliance with the NAAQS and PSD Increment for PM_{10}, $PM_{2.5}$, CO, and NOx. An additional analysis was conducted to demonstrate compliance with the Georgia air toxics program. This section of the application discusses the air quality analysis requirements, methodologies, and results. Supporting documentation may be found in the Air Quality Dispersion Report of the application and in the additional information packages.

For this analysis, predicted emissions from Hyundai OEM, affiliates Glovis, Mobis, Transys, and Hyundai Steel are modeled. However, it is important to note that predicted emissions from the yet to be permitted, adjacent lithium ion battery plant are also included in this modeling demonstration.

The reasons for including the battery plant are two-fold:

1) Should EPD determine that the battery plant both will either be under the control of the same person as OEM/AFF or persons under common control and will be in the same industrial category as OEM/AFF, the PSD guidance requires modeling of the entire project, even if filed under separate applications.
2) If the battery plant is deemed not to be under the control of the same person as OEM/AFF or persons under common control, or is determined not to be in the same industrial category as OEM/AFF, and is permitted as a separate source, the emissions are still important, as they constitute "secondary emissions" that would not occur but for the construction of the OEM plant.

Modeling Requirements

The air quality modeling analysis was conducted in accordance with Appendix W of Title 40 of the Code of Federal Regulations (CFR) §51, *Guideline on Air Quality Models*, and Georgia EPD's *Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions (Revised)*.

The proposed project will cause emission increases of VOC, NOx, PM_{10}, $PM_{2.5}$, CO, and Total GHG that are greater than the applicable PSD Significant Emission Rates. Therefore, air dispersion modeling analyses are required to demonstrate compliance with the NAAQS and PSD Increment. Total GHG and VOC have no PSD increment or NAAQS and therefore are not modeled. However, VOC and SO_2 emissions are considered in the secondary formation analysis for ozone and $PM_{2.5}$, respectively.

Significance Analysis: Ambient Monitoring Requirements and Source Inventories

Initially, a Significance Analysis is conducted to determine if the NOx, CO, PM_{10} and $PM_{2.5}$ emissions increases at the facility would significantly impact the area surrounding the facility. Maximum ground-level concentrations are compared to the pollutant-specific U.S. EPA-established Significant Impact Level (SIL). The SIL for the pollutants of concern are summarized in Table 6-1.

If a significant impact (i.e., an ambient impact above the SIL) does not result, no further modeling analyses would be conducted for that pollutant for NAAQS or PSD Increment. If a significant impact does result, further refined modeling would be completed to demonstrate that the proposed project would not cause or contribute to a violation of the NAAQS or consume more than the available Class II Increment.

Under current U.S. EPA policies, the maximum impacts due to the emissions increases from a project are also assessed against monitoring *de minimis* levels to determine whether pre-construction monitoring should be considered. These monitoring *de minimis* levels are also listed in Table 6-1. If either the predicted modeled impact from an emission increase or the existing ambient concentration is less than the monitoring *de minimis* concentration, the permitting agency has the discretionary authority to exempt an applicant from pre-construction ambient monitoring. This evaluation is required for CO, NOx, PM, PM_{10}, and $PM_{2.5}$.

If any off-site pollutant impacts calculated in the Significance Analysis exceed the SIL, a Significant Impact Area (SIA) would be determined. The SIA encompasses a circle centered on the facility with a radius extending out to (1) the farthest location where the emissions increase of a pollutant from the project causes a significant ambient impact, or (2) a distance of 50 km, whichever is less. All sources within a distance of 50 km of the edge of a SIA are assumed to potentially contribute to ground-level concentrations within the SIA and would be evaluated for possible inclusion in the NAAQS and PSD Increment analyses.

Table 6-1: Summary of Modeling Significance Levels (SIL)

Pollutant	Averaging Period	PSD Significant Impact Level (μg/m^3)	PSD Monitoring *de minimis* Concentration (μg/m^3)
PM_{10}	Annual	1	--
	24-Hour	5	10
$PM_{2.5}$	Annual	0.2	--
	24-Hour	1.2	--
SO_2	Annual	1	--
	24-Hour	5	13
	3-Hour	25	--
NO_2	Annual	1	14
	1-Hour	7.5	-
CO	8-Hour	500	575
	1-Hour	2000	--

NAAQS Analysis

The primary NAAQS are the maximum concentration ceilings, measured in terms of total concentration of pollutant in the atmosphere, which define the “levels of air quality which the U.S.

EPA judges are necessary, with an adequate margin of safety, to protect the public health." Secondary NAAQS define the levels that "protect the public welfare from any known or anticipated adverse effects of a pollutant." The primary and secondary NAAQS are listed in Table 6-2 below.

Table 6-2: Summary of National Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS	
		Primary / Secondary ($\mu g/m^3$)	Primary / Secondary (ppm)
PM_{10}	24-Hour	150 / 150	--
$PM_{2.5}$	Annual	12 / 15	--
	24-Hour	35 / 35	--
SO_2	3-Hour	None/1300	None /0.5
	1-Hour	196/ none	0.075/None
NO_2	Annual	100 / 100	0.053 / 0.053
	1-Hour	188/ none	0.1/None
CO	8-Hour	10,000 / None	9 / None
	1-Hour	40,000 / None	35 / None
Ozone	8-Hour		0.070
Pb	3-month	0.15/0.15	--

If the maximum pollutant impact calculated in the Significance Analysis exceeds the SIL at an off-property receptor, a NAAQS analysis is required. The NAAQS analysis would include the potential emissions from all emission units at Hyundai, except for units that are generally exempt from permitting requirements and are normally operated only in emergency situations. The emissions modeled for this analysis would reflect the results of the BACT analysis for the modified emission unit. Facility emissions would then be combined with the allowable emissions of sources included in the regional source inventory. The resulting impacts, added to appropriate background concentrations, would be assessed against the applicable NAAQS to demonstrate compliance. For an annual average NAAQS analysis, the highest modeled concentration among five consecutive years of meteorological data would be assessed, while the highest second-high impact would be assessed for the short-term averaging periods.

PSD Increment Analysis

The PSD Increments were established to "prevent deterioration" of air quality in certain areas of the country where air quality was better than the NAAQS. To achieve this goal, U.S. EPA established PSD Increments for certain pollutants. The sum of the PSD Increment concentration and a baseline concentration defines a "reduced" ambient standard, either lower than or equal to the NAAQS that must be met in an attainment area. Significant deterioration is said to have occurred if the change in emissions occurring since the baseline date results in an off-property impact greater than the PSD Increment (i.e., the increased emissions "consume" more than the available PSD Increment).

U.S. EPA has established PSD Increments for NO_X, SO_2, PM_{10}, and $PM_{2.5}$; no increments have been established for CO. The PSD Increments are further broken into Class I, II, and III Increments. Hyundai is located in a Class II area and within 300 km of one or more Class I areas. The PSD Increments are listed in Table 6-3.

Table 6-3: Summary of PSD Increments

Pollutant	Averaging Period	PSD Increment	
		Class I ($\mu g/m^3$)	Class II ($\mu g/m^3$)
PM_{10}	Annual	4	17
	24-Hour	8	30
$PM_{2.5}$	Annual	1	4
	24-Hour	2	9
SO_2	Annual	2	20
	24-Hour	5	91
	3-Hour	25	512
NO_2	Annual	2.5	25

To demonstrate compliance with the PSD Increments, the increment-affecting emissions (i.e., all emissions increases or decreases after the appropriate baseline date) from the facility and those sources in the regional inventory would be modeled to demonstrate compliance with the PSD Class II increment for any pollutant greater than the SIL in the Significance Analysis. For an annual average analysis, the highest incremental impact will be used. For a short-term average analysis, the highest second-high impact will be used.

The determination of whether an emissions change at a given source consumes or expands increment is based on the source classification (major or minor) and the time the change occurs in relation to baseline dates. The major source baseline date for NO_2 is February 8, 1988, and the major source baseline for SO_2 and PM_{10} is January 5, 1976. Emission changes at major sources that occur after the major source baseline dates affect Increment. In contrast, emission changes at minor sources only affect Increment after the minor source baseline date, which is set at the time when the first PSD application is completed in a given area, usually arranged on a county-by-county basis. The minor source baseline date for PM_{10} is set by this application, the statewide minor source $PM_{2.5}$ date is October 20, 2011, and the statewide minor source baseline date for NO_2 is May 5, 1988.

Modeling Methodology

Details on the dispersion model, including meteorological data, source data, and receptors can be found in Volume 2 of the permit application.

Modeling Results

The final modeling results are summarized in the DMU's modeling review report (Appendix C). Below are the details of major modeling analysis results.

Significant Impact Analysis

Table 6-4 show that the proposed project will not cause ambient impacts of CO above the appropriate SIL. Because the emissions increases from the proposed project result in ambient impacts less than the SIL, no further PSD analyses were conducted for CO.

However, ambient impacts above the SILs were predicted for NO_x, PM_{10}, and $PM_{2.5}$ as shown in the table below, requiring NAAQS and Increment analyses be performed for these.

Table 6-4: Class II Significance Analysis Results – Comparison to SILs

Pollutant	Averaging Period	Max Modeled Conc. ($\mu g/m^3$)	Secondary Impact ($\mu g/m^3$)*	Total ($\mu g/m^3$)	SIL ($\mu g/m^3$)	SIA (km)	Receptor UTM Zone: 17	
							Easting (meter)	Northing (meter)
CO	1-hour	896.54	N/A	896.54	2,000	N/A	458,723.49	3,558,071.24
	8-hour	475.65	N/A	475.65	500	N/A	458,723.49	3,558,071.24
PM_{10}	24-hour	8.36	N/A	**8.36**	5	1.43	457,837.23	3,559,197.15
	Annual	2.00	N/A	**2.00**	1	1.16	457,028.78	3,557,941.75
NO_2	1-hour	141.34	N/A	**141.34**	7.5	51.15	457,000.00	3,559,500.00
	Annual	22.52	N/A	**22.52**	1	7.25	458,000.00	3,558,800.00
$PM_{2.5}$	24-hour	8.186	0.071	**8.257**	1.2	10.74	457,837.23	3,559,197.15
	Annual	1.979	0.005	**1.984**	0.2	3.18	457,028.78	3,557,941.75

* Secondary $PM_{2.5}$ impacts were estimated with the MERP approach using the NO_X and SO_2 emissions at the proposed facility.

For any off-site pollutant impact calculated in the Significance Analysis that exceeds the SIL, a Significant Impact Area (SIA) must be determined. All sources of the pollutants in question within the SIA plus an additional 50 kilometers are assumed to potentially contribute to ground-level concentrations and must be evaluated for possible inclusion in the NAAQS and Increment Analyses.

Based on the results of the Significance Analysis, the distance between the facility and the furthest receptor from the facility that showed a modeled concentration exceeding the corresponding SIL were determined as shown in Table 6-4. For a pollutant with more than one averaging period, a larger SIA value was used to determine the extent of receptors for cumulative analyses.

NAAQS and Increment Modeling

The next step in completing the NAAQS and Increment analyses was the development of a regional source inventory. Nearby sources that have the potential to contribute significantly within the facility's SIA are ideally included in this regional inventory. Hyundai requested and received an inventory of NAAQS and PSD Increment sources from Georgia EPD. Hyundai reviewed the data received and calculated the distance from HMGMA to each facility in the inventory. All sources more than 50 km outside the SIA were excluded.

Additionally, pursuant to the "20D Rule," facilities outside the SIA were also excluded from the inventory if the entire facility's emissions (expressed in tons per year) were less than 20 times the distance (expressed in kilometers) from the facility to the edge of the SIA. In applying the 20D Rule, facilities in close proximity to each other (within approximately 2 kilometers of each other) were considered as one source. Note that Increment consumers and baseline emissions from the provided inventory were included in the Increment modeling analysis.

The regional source inventory used in the analysis is included in the permit application and the attached modeling report.

NAAQS Analysis

In the NAAQS analysis, impacts within the facility's SIA due to the potential emissions from all sources at the facility and those sources included in the regional inventory were calculated. Since the modeled ambient air concentrations only reflect impacts from industrial sources, a "background" concentration was added to the modeled concentrations prior to assessing compliance with the NAAQS.

The results of the NAAQS analysis are shown in Table 6-5. When the total impact at all significant receptors within the SIA are below the corresponding NAAQS, compliance is demonstrated.

For background data, Hyundai used the values provided by EPD on the website for the most appropriate site. Bryan County Megasite is in a rural area, thus statewide NO_2 and PM_{10} values were deemed appropriate. For $PM_{2.5}$, the Savannah-Mercer monitor data was used. The Savannah-E. President monitoring data was used for ozone.

Table 6-5: NAAQS Analysis Results

Pollutant	Averaging Period	Max Modeled Conc. (μg/m³)	Background (μg/m³)	Secondary Impact (μg/m³)*	Total (μg/m³)	NAAQS (μg/m³)	Receptor UTM Zone: 17	
							Easting (meter)	Northing (meter)
NO_2	1-hour	600.05	30.3	N/A	**630.4**	188	462,000.00	3,518,000.00
	Annual	24.21	4.5	N/A	28.7	100	458,000.00	3,558,800.00
$PM_{2.5}$	24-hour	59.596	18.2	0.071*	**77.87**	35	458,000,00	3,555,300.00
	Annual	2.501	7.3	0.005*	9.806	12	457,028.78	3,557,941.75
PM_{10}	24-hour	7.06	30	N/A	37.06	150	457,691.30	3,559,331.57

* DMU evaluated secondary $PM_{2.5}$ impacts with the MERP approach using the NO_X and SO_2 emissions at the proposed facility.

As indicated in Table 6-5 above, all total modeled impacts at all significant receptors within the SIA are below the corresponding NAAQS except for 1-hour NO_2 and 24-hour $PM_{2.5}$. Therefore, "culpability analysis" was conducted to determine if the proposed facility causes or contributes NAAQS violations. The determination about whether or not a facility is "culpable" for a NAAQS violation is made with a comparison of a facility's own contribution to NAAQS violation receptors.

The results of the culpability analysis are presented in Tables 6-6 and 6-7. Note that the 1-hour NOx impact of 630.4 ug/m^3 in Table 6-5 (NAAQS analysis) was modeled at (462,000.00, 3,518,000.00) which is a part of a coarse grid and near an off-site emission source. For the culpability analysis, the Division conducted the analysis with the finest resolution. With a finer grid around the off-site emission source, the 1-hour NOx impact of 3,590.930 ug/m^3 was modeled at (461,100, 3,518,000). Because the the proposed facility's own contribution is smaller than the corresponding SIL, the facility is not considered being culpable.

Table 6-6: 1-hour NO_2 NAAQS Contribution Analysis

All Modeled Conc. (μg/m³)*	HMGMA Modeled Conc. (μg/m³)	Receptor UTM (Zone: 17) Easting (meter)	Receptor UTM (Zone: 17) Northing (meter)	Rank	Remark
3,590.930	0.028	461,100	3,518,000	8th	Highest 1-hour NO_2 concentration among all receptors exceeding the 1-hour NO_2 NAAQS level
192.768	5.952	480,000	3,552,500	14th	Maximum 1-hour NO_2 Contribution by HMGMA among all receptors and ranks exceeding the 1-hour NO_2 NAAQS level

* The number of receptors exceeded the 1-hour NO_2 NAAQS level (188 μg/m³) was 5,327 in the culpability analysis modeling output including the background concentration of 30.3 μg/m³. The exceedance(s) at each of NAAQS violation receptors occurred from 8th rank up to 237th, but no exceedances afterwards. This refined modeling demonstrates that HMGMA will not cause or contribute a significant impact (i.e., ≥ 7.5 μg/m³) to the NO_2 NAAQS exceedances at the 1-hour averaging period.

Table 6-7: 24-hour $PM_{2.5}$ NAAQS Contribution Analysis

All Modeled Conc. (μg/m³)*	HMGMA Modeled Conc. (μg/m³)**	Receptor UTM (Zone: 17) Easting (meter)	Receptor UTM (Zone: 17) Northing (meter)	Rank	Remark
77.876	0.345	458,000.00	3,555,300.00	8th	Highest $PM_{2.5}$ Concentration among all receptors exceeding the 24-hour $PM_{2.5}$ NAAQS level
43.394	0.976	458,200.00	3,554,900.00	12th	Maximum $PM_{2.5}$ Contribution by HMGMA among all receptors and ranks exceeding the 24-hour $PM_{2.5}$ NAAQS level

* The number of receptors exceeded the 24-hour $PM_{2.5}$ NAAQS level (35 μg/m³) was 2,636 in the culpability analysis modeling output including the background concentration of 18.2 μg/m³ and the facility's secondary impact of 0.071 μg/m³. The exceedance(s) at each of NAAQS violation receptors occurred from 8th rank up to 90th, but no exceedances afterwards. This refined modeling demonstrates that HMGMA will not cause or contribute a significant impact (i.e., ≥ 1.2 μg/m³) to the $PM_{2.5}$ NAAQS exceedances for the 24-hour averaging period.
** Values include the facility's secondary impact of 0.071 μg/m³.

PSD Increment Analysis

The modeled impacts from the Increment modeling were evaluated to determine whether compliance with the Increment was demonstrated. The results are presented in Table 6-8.

Table 6-8: Class II PSD Increment Analysis Results

Pollutant	Averaging Period	Max Modeled Conc. (μg/m³)	Secondary Impact (μg/m³)**	Total (μg/m³)	Increment (μg/m³)	Receptor UTM Zone: 17 Easting (meter)	Receptor UTM Zone: 17 Northing (meter)
NO_2*	Annual	24.03	N/A	24.03	25	458,000.00	3,558,800.00
$PM_{2.5}$*	24-hour	7.490	0.071**	7.561**	9	457,691.32	3,559,331.57
	Annual	2.257	0.005**	2.262**	4	457,028.78	3,557,941.75
PM_{10}*	24-hour	7.59	N/A	7.59	30	457,691.32	3,559,331.57
	Annual	2.18	N/A	2.18	17	457,028.78	3,557,941.75

* Highest concentrations for annual averaging periods and second highest concentrations for 24-hour averaging periods.

** Secondary $PM_{2.5}$ impacts were assessed with the MERP approach using the NO_X and SO_2 emissions at the proposed facility ("Secondary Impact") and downward trends of SO_2 and NO_2 emissions as well as measured $PM_{2.5}$ concentrations.

Table 6-8 demonstrates that the impacts are below the corresponding increments for annual NO_2, 24-hour $PM_{2.5}$, annual $PM_{2.5}$, 24-hour PM_{10}, and annual PM_{10}.

Ambient Monitoring Requirements

The impacts for NO_X, CO, SO_2, and PM_{10} quantified in Table 6-4 of the Class I Significance Analysis are compared to the Monitoring *de minimis* concentrations, shown in Table 6-1, to determine if ambient monitoring requirements need to be considered as part of this permit action.

Because all maximum modeled impacts are below the corresponding *de minimis* concentrations except for annual NO_2, no pre-construction monitoring is required for 8-hour CO and 24-hour PM_{10}.

For annual NO_2, annual $PM_{2.5}$, and 24-hour $PM_{2.5}$, Georgia EPD operates a robust system of ambient air monitors. Hyundai will rely on this monitoring data and EPD has approved the use of those pre-existing monitoring data in lieu of any requirement for on-site pre-construction monitoring.

As noted previously, the VOC *de minimis* concentration is mass-based (100 tpy) rather than ambient concentration-based (ppm or $\mu g/m^3$). Projected VOC emissions increases resulting from the proposed greenfield facility exceed 100 tpy; however, the current Georgia EPD ozone monitoring network (which includes monitors in Savannah) will provide sufficient ozone data such that no on-site pre-construction or post-construction ozone monitoring is necessary.

Class I Area Analysis

Federal Class I areas are regions of special national or regional value from a natural, scenic, recreational, or historic perspective. Class I areas are afforded the highest degree of protection among the types of areas classified under the PSD regulations. U.S. EPA has established policies and procedures that generally restrict consideration of impacts of a PSD source on Class I Increments to facilities that are located near a federal Class I area. Historically, a distance of 100 km has been used to define "near", but more recently, a distance of 300 kilometers has been used for all facilities.

The three Class I areas within approximately 300 kilometers of the Hyundai are Wolf Island Wilderness located ~90km south of the facility; Okefenokee Wilderness located ~142km southwest of the facility; and Cape Romain Wilderness located ~203km northeast of the facility. The U.S. Fish and Wildlife Service (FWS) is the designated Federal Land Manager (FLM) responsible for oversight of all three of these Class I areas.

To simplify the assessment, U.S. EPA modeling guidance provides for a screening process that uses an arc of receptors located at 50km from Hyundai in the direction of each of the Class I areas. This technique was used and the results are in Table 6-9.

Table 6-9: Class I Screening Results

Pollutant	Averaging Period	Max Modeled Conc. (µg/m³)	Secondary Impact (µg/m³)*	Total (µg/m³)	SIL (µg/m³)	Receptor UTM Zone: 17	
						Easting (meter)	Northing (meter)
NO_2	Annual	0.072	N/A	0.072	0.1	505,985.64	3,570,265.61
PM_{10}	24-hour	0.210	N/A	0.210	0.3	505,985.64	3,570,265.61
	Annual	0.006	N/A	0.006	0.2	505,767.14	3,571,110.47
$PM_{2.5}$	24-hour	0.207	0.043	0.250	0.27	437,934.29	3,512,144.28
	Annual	0.006	0.002	0.008	0.05	505,767.14	3,571,110.47

* Secondary $PM_{2.5}$ impacts were estimated with the MERP approach using the NO_X and SO_2 emissions at the proposed facility.

Class I Visibility Analysis

A screening technique is used to assess the potential for project impacts at Class I areas. The metric is a Q/D method, whereas Q is the sum of maximum daily emissions (expressed in tons per year) of visibility impairing pollutants (NOx, PM_{10} and SO_2). D is the distance to the nearest Class I area in kilometer. The corresponding Federal Land Manager, Fish and Wildlife Service, reviewed and approved the analysis on September 29, 2022.

The AQRV Q/D screening level is 10. Based on the predicted permitted emissions from the project (including the future battery plant), the maximum Q/D (for Wolf Island, the closest Class I Area) is 5.7. Therefore, no significant visibility impact is expected. No further analysis was performed.

Ozone Analysis

The 8-hour NAAQS for ozone is 70 ppb. The background concentration at the nearby Savannah E. President Street monitor is 57 ppb. The facility wide (including battery plant) potential permitted emissions of ozone precursors are VOC-541 tpy, and NOx-400 tpy.

It is estimated that the facility’s own contribution is over the ozone SIL (1ppb). Therefore, cumulative assessment was conducted. The cumulative analysis for ozone shows that the impact on ambient ground level ozone concentrations from the facility will not cause an ozone NAAQs violation.

Cumulative Analysis

MERPs can be used to determine if a facility's proposed emission increases will result in total impacts that are above the National Ambient Air Quality Standards (NAAQS). All relevant pollutants need to be included in the analysis.

For ozone, the following equation should be used:

$$Background\_ozone + \left(\frac{FEMIS\_NOx}{MERP\_NOx} + \frac{FEMIS\_VOC}{MERP\_VOC}\right) * SIL\_ozone \leq NAAQS\_ozone$$ **Equation (5)**

Background_ozone is the 3-year design value from a representative background ozone monitor. *FEMIS_NOx* and *FEMIS_VOC* are the facility-wide emissions (after modification) for NOx and VOC (tpy). *MERP_NOx* and *MERP_VOC* are the MERPs for NOx and VOC (tpy). *SIL_ozone* is 1 ppb. If the sum of the terms is less than or equal to *NAAQS_ozone* (70 ppb), the proposed project does not cause or contribute to a violation of the ozone NAAQS. If the sum of the terms is greater than *NAAQS_ozone* (70 ppb), the applicant may consider performing a Tier 2 demonstration or revisiting the scope of the project (e.g., reducing emissions, updating stack parameters, etc.). If a Tier 2 demonstration is pursued, the applicant must submit an updated modeling protocol to GA EPD for approval.

57 ppb (background) + (400/170 + 541/29,922)*1 = 59.37 ppb < 70 ppb

7.0 ADDITIONAL IMPACT ANALYSES

PSD requires an analysis of impairment to visibility, soils, and vegetation that will occur as a result of a modification to the facility and an analysis of the air quality impact projected for the area as a result of the general commercial, residential, and other growth associated with the proposed project.

Soils and Vegetation

To address the potential soil and vegetation impacts, the applicant adopted the NAAQS analysis presented above because EPA recently proposed to use the secondary NAAQS standards for such analysis. The Soils and Vegetation analyses have been reviewed and based on the results of the contribution of HMGMA on the NAAQS and PSD increment, Soils and Vegetation analysis is considered to be addressed.

Growth

The purpose of the growth analysis is to estimate the impact of growth in the area associated with the project. The proposed project will bring growth, jobs, and construction to Bryan County and the Savannah Georgia MSA (Bryan, Chatham, and Effingham Counties). Most of the growth is expected along the I-16 and I-95 corridors. The Savannah MSA population is estimated at 410,000 with an average population density of 302 people per square mile.

The applicant estimates that 8100 people will be employed at the site. As regional suppliers move into the area over the next few years, additional jobs will be created. Although located in a rural setting, the Hyundai plant will be close enough to a population center (Savannah area) that many of its employees can commute from their existing residence.

The increase in emissions in the region from additional truck travel, increased passenger car travel, regional suppliers, and potential increase in emissions at some nonpoint sources (such as commercial businesses, nonroad, and residential use associated with increased population) is expected to have minimal impact on the overall emissions profile or ambient air pollutant concentrations in the region because these increases are small in relation to the existing emissions inventory of the area.

Although the area has grown significantly in population in the past ten years, the local air quality monitoring data for the region shows that the ambient air around the project site can readily accommodate any additional direct or indirect growth which may occur from the proposed plant without project-associated growth causing or contributing to violations of the NAAQS or PSD increment. Therefore, EPD agrees with the applicant that any growth attributable to this proposed project is not expected to cause quantifiable air quality impacts.

Visibility

To demonstrate that visibility impairment will not result from Hyundai, the VISCREEN model was used to assess potential impacts on ambient visibility at so-called “sensitive receptors”. For the Hyundai facility, Savannah International Airport is subject to Class II area visibility analysis.

The results of the Level II VISCREEN analysis show that the screening criteria are not exceeded at any of the sensitive receptors when evaluated using the Level II input parameters. Therefore, the proposed facility is not anticipated to cause adverse impacts on visibility at the sensitive receptors in the surrounding area.

Georgia Toxic Air Pollutant Modeling Analysis

Georgia EPD regulates the emissions of toxic air pollutant (TAP) emissions through a program covered by the provisions of *Georgia Rules for Air Quality Control*, 391-3-1-.02(2)(a)3.(ii). A TAP is defined as any substance that may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. Procedures governing the Georgia EPD's review of TAP emissions as part of air permit reviews are contained in the agency's "*Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions (Revised)*."

Selection of Toxic Air Pollutants for Modeling

For projects with quantifiable increases in TAP emissions, an air dispersion modeling analysis is generally performed to demonstrate that off-property impacts are less than the established Acceptable Ambient Concentration (AAC) values. The TAP evaluated are restricted to those that may increase due to the proposed project. Thus, the TAP analysis would generally be an assessment of off-property impacts due to facility-wide emissions of any TAP emitted by a facility.

The applicant calculated the facility-wide emissions of compounds identified as TAP in the Georgia Air Toxics Guidelines, using estimated short and long term emission rates. For natural gas combustion sources, the emissions are conservatively estimated at 8,760 hr/yr. For painting and coating, the TAP emissions are estimated based on the material TAP content and the estimated controlled emissions rates. The facility wide total TAP emissions (lb/yr) for each compound was compared to rate in the MER list in Appendix A of the guidelines as a screening tool.

Most compounds assessed were screened out using the MER. To address TAP that may originate from volume sources (essentially, just the natural gas fired rooftop heating units and the storage tanks), the applicant included back in the TAPs model any compound that is emitted from volume sources in rates greater than 20% of the MER. (The guidelines specify that MER can be used when emissions are mainly from point sources.)

The TAPS that had either plantwide emissions above the MER, or emissions from volume sources above 20% of the MER were: formic acid, formaldehyde, diethanolamine, isopropyl alcohol, HDI, benzene, arsenic, cadmium, manganese, lead (under the MER, but over the 20% MER from rooftop units), and barium (under the MER, but over the 20% MER from rooftop units).

The results of the modeling show that no TAP MGLC exceeds the applicable AAC. See table below for results.

Pollutant	Averaging Period	Modeled Concentration (μg/m³)[a]	AAC (μg/m³)	% of AAC
Acrolein	15-min	4.04×10^{-1}	23.0	1.8%
	Annual	4.70×10^{-4}	2.00×10^{-2}	2.3%
Arsenic	15-min	6.93×10^{-3}	2.00×10^{-1}	3.5%
	Annual	2.20×10^{-4}	2.33×10^{-4}	94.2%
Barium	24-hour	2.79×10^{-2}	1.19	2.3%
Benzene	15-min	4.14	1,600	0.3%
	Annual	7.04×10^{-3}	1.30×10^{-1}	5.4%
Cadmium	15-min	3.81×10^{-2}	30.0	0.1%
	Annual	1.21×10^{-3}	5.56×10^{-3}	21.7%
Chromium	Annual	1.54×10^{-3}	1.00×10^{-1}	1.5%
Diethanolamine	24-hour	5.84×10^{-1}	4.80	12.2%
Formaldehyde	15-min	12.3	245.0	5.0%
	Annual	0.137	1.10	12.4%
Formic Acid	15-min	27.9	941	3.0%
	24-hour	3.89	21.4	18.2%
Hexamethylene Diisocyanate (1,6-) (HDI)	15-min	4.11×10^{-2}	14.0	0.3%
	Annual	4.14×10^{-4}	1.00×10^{-2}	4.1%
Isopropyl Alcohol (IPA)	15-min	701	9,800	0.7%
	24-hour	99.6	2,330	4.3%
Lead	24-hour	3.17×10^{-3}	1.20×10^{-1}	2.6%
Manganese	15-min	2.54×10^{-1}	500.0	0.1%
	Annual	1.81×10^{-3}	5.00×10^{-2}	3.6%
Nickel	24-hour	4.32×10^{-1}	7.94×10^{-1}	54.4%

For each TAP identified for further analysis, both the short-term and long-term AAC were calculated following the procedures given in Georgia EPD's *Guideline*. Figure 8-3 of Georgia EPD's *Guideline* contains a flow chart of the process for determining long-term and short-term ambient thresholds. Hyundai referenced the resources previously detailed to determine the long-term (i.e., annual average) and short-term AAC (i.e., 24-hour or 15-minute). The AACs were verified by the EPD.

8.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed facility are included in draft Permit No. 3711-029-0015-P-01-0.

Section 1.0: Facility Description

Greenfield vehicle assembly plant, including affiliated sources. The battery plant will be permitted separately but is included in PSD model.

Section 2.0: Requirements Pertaining to the Entire Facility

Condition 2.1.1 limits vehicles production to 525,000 per year to match permitted rate and to ensure compliance with modeling for long-term standards.

Condition 2.1.2 limits plantwide VOC to 491 tons based on vehicle production above, BACT limits, and estimated usage. This is to be consistent with similar OEM permits. The 491-tpy VOC limit is determined to be the facility-wide long-term VOC BACT limit. If this limit is exceeded, it may be possible that the HAP/TAP emission rates are also higher than the rate they were modeled.

Section 3.0: Requirements for Emission Units

BACT LIMITS
Condition 3.2.1 contains the numeric PM BACT limits for sources using dry filters.

Condition 3.2.2 contains the VOC BACT for painting operations controlled by either the RTO (e-coat ovens, UBS oven, Guide Coat ovens, Basecoat flashoff areas and clearcoat ovens), or rotary concentrators (clearcoat booths).

Conditions 3.2.3 through 3.2.11 contains the numeric VOC BACT limits for materials, based on VOC content or VOC emissions from each material type.

Condition 3.2.12 contains the numeric NOx BACT limit for all natural gas combustion sources, excluding the RTO, on site set at 35 ppm @3% O_2 and the numeric NOx BACT limit for the RTO to 60 ppm @3% O_2.

Conditions 3.2.13 and 3.2.14 contain the numeric Total GHG BACT limits for all natural gas combustion sources and diesel fired emergency engines.

Condition 3.2.15 contains the numeric PM BACT limit for Transys foam manufacturing which requires the use of the dust collector.

Condition 3.2.16 contains the VOC BACT work practice standards for all operations referencing the work practice/housekeeping requirements in the NESHAP IIII. This rule already addresses keeping solvent laden wipes in closed containers, so a separate condition is not necessary.

Condition 3.2.17 contains the NOx, CO, VOC, and $PM/PM_{10}/PM_{2.5}$ BACT (for all pollutants) for the emergency engines referencing compliance with NSPS IIII.

Condition 3.2.18 contains the VOC BACT for the methanol tanks over 4000 gallons requiring submerged fill pipes (similar to non-applicable Ga Rule (vv)).

Condition 3.2.19 contains the $PM/PM_{10}/PM_{2.5}$ BACT for the cooling towers.

Condition 3.2.20 contains the $PM/PM_{10}/PM_{2.5}$ BACT for the paved roads.

Condition 3.2.21 contains the NOx, CO, VOC, and $PM/PM_{10}/PM_{2.5}$ BACT for all external natural gas combustion sources.

FEDERAL RULES

Condition 3.3.1 subjects all the surface coating operations to 40 CFR 63 Subpart A and Subpart IIII.

Conditions 3.3.2 through 3.3.9 contain the emission limits, operating limits, and work practice standards (including housekeeping which is deemed as general VOC BACT) applicable under NESHAP IIII.

Condition 3.3.10 subjects the prime coat operation, guide coat operation, and topcoat operation to 40 CFR 60 Subpart A and Subpart MM.

Conditions 3.3.11 through 3.3.13 contain the emission limits for the e-coat, guide coat, and topcoat operations applicable under NSPS MM.

Conditions 3.3.14 and 3.3.15 contain the general applicability and tune-up schedule/requirements for natural gas boilers and ovens subject to Boiler MACT NESHAP DDDDD.

Condition 3.3.16 contains the general applicability for the tanks to NESHAP EEEE. Note that no tanks require control or vapor balance and are only subject to records and reporting.

Conditions 3.3.17 through 3.3.22 contain the general applicability, emission limits, fuel requirements, and operating requirements for NSPS IIII for the emergency engines, including generators and fire pumps. These are otherwise permit exempt sources but relevant requirements are included here due to a site comprehensive BACT.

Condition 3.3.23 contains the general applicability and requirements of flexible foam NESHAP III.

GEORGIA RULES

Condition 3.4.1 subjects the applicable emission units to Georgia Rule (b).

Condition 3.4.2 subjects the applicable emission units to Georgia Rule (d).

Condition 3.4.3 subjects the applicable emission units to Georgia Rule (e).

Condition 3.4.4 subjects the applicable emission units to Georgia Rule (g).

Conditions 3.4.5 through 3.4.11 contain the detailed Georgia Rule (t) requirements.

Section 4.0: Requirements for Testing

Condition 4.2.1 contains the initial capture and destruction efficiency testing as dictated by NESHAP IIII.

Conditions 4.2.2 requires periodic re-testing of the RTO destruction efficiency and clarifies the NESHAP IIII language that temperature monitoring must be conducted, submitted and used to set the operating limit (minimum RTO combustion chamber temperature). The condition also requires an additional test upon the start up of the expansion which will be the second E-coat line and third topcoat line.

Condition 4.2.3 requires periodic re-testing of the concentrator destruction efficiency and clarifies the NESHAP IIII language that desorption temperature monitoring must be conducted, submitted and used to set the operating limit (minimum desorption temperature).

Condition 4.2.4 requires periodic re-testing of the capture systems and clarifies the NESHAP IIII language that capture-related parameters must be conducted, submitted and used to set the operating limit.

Condition 4.2.5 requires transfer efficiency testing per the NESHAP IIII to be used for MACT, NSPS MM, and BACT compliance evaluations.

Condition 4.2.6 requires an initial NOx test on one representative boiler to demonstrate compliance with the numeric NOx BACT limit for all natural gas fired units. Because all the plant combustion units are small, and many are not set up for testing or are direct-fired, testing on these would be technically problematic and economically impractical. Testing of all units is not needed because many units are identical. The main method of demonstrating NOx BACT compliance is documentation of low NOx burners.

Conditions 4.2.7 and 4.2.8 require an initial filterable PM test on one representative paint booth equipped with a multi-stage filter, and a test on a single stage filter to ensure compliance with the numeric PM BACT limit. Testing of all units is not needed because many filter are identical. The main method of demonstrating PM BACT compliance for filters is documentation of 0.001 g/m3 vendor specifications.

Condition 4.2.9 requires an initial NOx test on the RTO to demonstrate compliance with its numeric NOx BACT limit.

Section 5.0: Requirements for Monitoring

Conditions 5.2.1 through 5.2.5 establish the RTO, concentrator, and capture system monitoring per NESHAP IIII.

Conditions 5.2.6 through 5.2.7 require hour meters on the emergency engines per NSPS IIII and requires that the permittee meet the operating and maintenance requirements of NSPS IIII.

Condition 5.2.8 requires monthly inspections for compliance with the work practice standards of NESHAP IIII (also is general VOC BACT) and Georgia rule (t).

Condition 5.2.9 requires daily pressure drop readings of all dry filter to ensure proper maintenance in order to meet the PM BACT limits.

Condition 5.2.10 requires the facility to maintain records containing vendor's design NOx specification to ensure compliance with the numeric NOx BACT limit for natural gas combustion sources.

Section 6.0: Other Recordkeeping and Reporting Requirements

Condition 6.1.4 establishes Title V style semiannual excess emission, excursion, and exceedance reporting.

Conditions 6.2.1 through 6.2.2 detail the general records requirements for Georgia Rule (t) and NSPS MM and require tracking of vehicles produced per month against the annual production limit in Condition 2.1.1.

Conditions 6.2.3 through 6.2.4 detail the records and calculations for compliance with Georgia Rule (t).

Conditions 6.2.5 and 6.2.6 require tracking of miscellaneous VOC against the plantwide miscellaneous VOC (body wiping, cleaning, etc) BACT limit in Condition 3.2.11.

Conditions 6.2.7 and 6.2.8 detail the records and emissions calculations to demonstrate compliance with NSPS MM.

Conditions 6.2.9 through 6.2.31 detail the records and emissions calculations as required by NESHAP IIII.

Conditions 6.2.32 through 6.2.36 detail the NSPS IIII recordkeeping requirements for the emergency engines.

Conditions 6.2.37 and 6.2.38 are the general records and reporting requirements of NESHAP EEEE as applicable to the tank farm.

Conditions 6.2.39 through 6.2.47 detail the general records need to demonstrate compliance with the plantwide VOC BACT limit, Total GHG BACT limits, $PM/PM_{10}/PM_{2.5}$ BACT filter documentation, and NOx BACT low NOx burner documentation.

Condition 6.2.48 details the general requirements of the RICE MACT ZZZZ.

Condition 6.2.49 details the general records requirements for NESHAP III.

Conditions 6.2.50 through 6.2.52 details the general records requirements for NESHAP DDDDD.

Section 7.0: Other Specific Requirements

This section includes general PSD construction timeframe conditions, Georgia general requirements for reporting of initial construction, Title V application submittal.

Section 8.0: General Provisions

The general provisions found in Georgia SIP permits are included here.

Condition 8.3.7 clarifies that "VOC excluding water" means "VOC excluding water and exempt solvents". In this case, there are no limits that exclude water.

Condition 8.3.8 explains where to find definitions of terms found in the permit.

APPENDIX A

EPD'S PSD Dispersion Modeling and Air Toxics Assessment Review