Prevention of Significant Air Quality Deterioration Review of
Kia Motors Manufacturing Georgia, LLC
Motor Vehicle Assembly Plant Construction
Located in West Point, Georgia (Troup County)

PRELIMINARY DETERMINATION

SIP Permit Application No. 17363
June 2007

Reviewing Authority

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

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Attachments:
Appendix A Draft PSD Permit
Appendix B PSD Permit Application and Modeling Data

1.0 SUMMARY

The Georgia Environmental Protection Division (EPD) has reviewed the application submitted by Kia Motors Manufacturing Georgia, LLC (KMMG) for a permit to construct and operate a vehicle manufacturing facility near West Point, Georgia. The site location is northeast of West Point in Troup County along the north side of Interstate Highway 85 about 5.5 miles from the Alabama state line.

The facility 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. This assembly plant can be divided into three main manufacturing centers: press and body shop, paint shop, and assembly shop. Other facilities include manufacturing support and utilities.

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 VOC solvent 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 and other combustion products are generated by natural gas fired booth make-up air heaters and curing oven process heaters.

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 and particulate emissions. Other activities involve fluids filling and rolling test, which have negligible emissions. After final assembly the vehicles move to the test and finish area within the Assembly Shop, 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 hot water generators fired with natural gas and with No. 2 distillate oil back-up fuel.

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

The plant will have a nominal annual production capacity of 300,000 vehicles per year and should employ about 2,300 people.

The proposed project will result in new sources of air pollutant emissions for the region. The new facility will have emissions of particulate matter (PM/PM10), nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), and volatile organic compounds (VOC). 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 potential emissions of PM/PM10, NOx, and VOC were determined to be above the PSD significant level thresholds.

Troup County, where KMMG will be located, is classified as "attainment" or "unclassifiable" for SO2, PM2.5, PM10, NOx, CO, and ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended.

The EPD review of the data submitted by KMMG 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/PM10, NOx, and VOC, 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. Forest Service and the U.S. Fish and Wildlife Service each responded that significant impacts to air quality were not anticipated and a Class I air quality analysis would not be necessary for this project.

It has been determined through approved modeling techniques that the estimated maximum emissions will not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) or allowable PSD increment in the area surrounding the facility. It has further been determined that the proposed facility will not cause significant 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 KMMG for the construction of the proposed assembly plant. Numerous conditions are incorporated into the proposed construction permit to ensure and confirm compliance with all applicable air quality regulations. A copy of the draft permit is included in the Appendix A.

2.0 INTRODUCTION

In February 2007, Kia Motors Manufacturing Georgia, LLC (KMMG) officials met with the members of the Georgia Air Branch to discuss preliminary information (a Pre-PSD meeting). On April 19, 2007 KMMG submitted the initial official signed PSD application, and then submitted an updated version on April 27. KMMG submitted completed air dispersion modeling information on May 24, 2007.

The site location is northeast of West Point in Troup County along the north side of Interstate Highway 85 about 5.5 miles from the Alabama state line. The Georgia Department of Economic Development (GDED) assembled and purchased the properties for use as the West Point Economic Development Site (WPEDS), which is comprised of approximately 2,200 acres. As proposed, the WPEDS will be developed as a master planned industrial park owned and operated by the West Point Development Authority (WPDA), anchored by KMMG, along with associated distribution, training and supplier facilities. The KMMG facilities will be located on a 650 acre manufacturing area pad that is about 7,000 feet by 4,000 feet in dimension. The WEPDS is being designed and graded by the State of Georgia to prepare it for industrial use. The WPEDS will also incorporate infrastructure improvements such as the construction of a new I-85 interchange and frontage road, a rail spur from the CSX mainline, and utilities (electricity, water, sewer, natural gas and telecommunications) necessary for daily operations.

The permit application includes a description of the plant process operations and utilities, calculations of emission rates for each affected emissions unit, emission factors and process rates used to estimate potential emissions, a regulatory analysis, and a Best Available Control Technology (BACT) analysis. An ambient air quality analysis for ozone, PM10 and NOx is also addressed, as well as additional impact analyses as required in 40 CFR 52.21.

New major stationary sources of air pollution are required by the Clean Air Act to obtain a permit before commencing construction of permanent facilities. The proposed Troup County site is designated attainment for all NAAQS, and the new source review (NSR) permit process requires that a new major source locating in an area meeting national ambient air quality standards (NAAQS) undergo prevention of significant air quality deterioration (PSD) review if any regulated pollutant exceeds the major source threshold of 250 tons per year. The PSD review requirements are pollutant specific, and once it is determined that any one pollutant exceeds the major source threshold, the PSD review requirements apply to each pollutant that would equal or exceed the PSD significant emission rate increase threshold. Table 2-1 identifies the PSD applicability levels for each pollutant in Troup County and the estimated potential emissions for the proposed facility.

Plant-wide Emissions Summary

Table 2-1 lists the PSD significance thresholds for the criteria pollutants and the proposed facility's estimated emissions based on the project description and data provided in the permit application:

Table 2-1: Emissions Increases from the Project

Pollutant	PSD Threshold (tpy)	PTE (tpy)	PSD Applicability
TSP	25	52	**Yes**
PM-10	15	52	**Yes**
SO2	40	22	No
NOx	40	109	**Yes**
CO	100	99	No
VOC	40	452	**Yes**
Pb	0.6	N/A	No
Fluorides	3	N/A	No
H2S	10	N/A	No
Sulfuric Acid Mist	7	N/A	No
Total HAPs	N/A	56	N/A

The proposed KMMG plant will emit more than 250 tons per year of VOC, which will make it a PSD major source. Thus, according to PSD regulations, PSD review is triggered for VOC, as well as for any other criteria pollutants whose potential emissions exceed the PSD significance thresholds. Therefore, the KMMG facility must undergo PSD review for VOC, particulate matter (both total suspended particulates (TSP) and particulate matter less than 10 microns in diameter (PM-10)), and NOx.

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

- Application of best available control technology (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.

Georgia Rule 391-3-1-.02(b)(7) incorporates and adopts by reference, among other things, the federal definition of BACT in 40 CFR 52.21(b)(12).

Through its new source review procedures, EPD has evaluated the proposed motor vehicle manufacturing facility for compliance with the State and Federal requirements. The findings of EPD are assembled in this Preliminary Determination.

3.0 PROCESS DESCRIPTION

The following discussions provide a project and process overview for the proposed new Kia Motors Manufacturing Georgia plant (KMMG). The planned production includes two models of sport utility vehicles and such other future models as design and sales demand may dictate. The manufacturing lines are designed with flexibility to manufacture and finish multiple vehicle models. Under U.S. EPA regulations these vehicles come under the definition of automobile and the regulatory classification for automobiles and light duty trucks.

The Assembly Plant consists of production areas and ancillary support facilities, including energy utilities and waste water pre-treatment system. On-site support facilities operated by others will include the Mobis Module, where subassemblies, component modules, and trim parts are prepared and staged for just-in-time delivery to the assembly line, and the Vehicle Processing Center, where the finished vehicles are inspected again, prepared for customer sale, and processed for shipment.

The KMMG manufacturing area of the plant consists of a press shop, body shop, paint shop and assembly shop having the following functions:

Press 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 painted, and finish painted with a two part topcoat.
Assembly Shop	Parts modules, subassemblies, and trim parts are assembled onto the painted body; operating fluids are added; and the assembled vehicle is tested, adjusted to specifications, and repaired as needed; then delivered for out-processing by others.

The KMMG facility is planned for nominal assembly of 270,000 vehicles per year with a capacity of 300,000 vehicles per year. All annual emission estimates are based on capacity production of 300,000 vehicles per year.

<u>Press Building</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.

Body Shop

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, metal active gas (MAG) welding, and nut welding. The body is assembled in steps along the body assembly lines. The understructure is assembled in the framework line with tack welding, finish welding and stud welding. The body shell is assembled in the body line with tack and finish welding. Adhesive bonding agent is utilized at numerous stages throughout the body shop. Side assemblies are installed with tack welding and final welding. Assembly of add-on parts is carried out with spot welding and adhesives. There are no clear limitations on body shop production capacity, and the production rate keeps pace with the production demand or rate capacity of the paint shop.

The welding techniques for the proposed body shops include CO_2 arc welding, argon brazing/welding, resistance spot welding, projection nut welding and laser soldering. Emissions from welding and cutting torch processes which do not consume electrodes have generally been considered unquantifiable by EPA. CO_2 arc welding, referred to as MAG (Metal Active Gas) welding in the EPA AP-42 emission reference, uses an active gas (i.e. carbon dioxide and oxygen) and is the primary consumable electrode method for the plant. CO_2 is a more commonly used shortening of MAG welding gas. The process consists of a DC arc between a thin bare metal wire electrode and the workpiece. Of these welding processes, the only one that is clearly represented by AP-42 factors is MAG welding, which is a form of gas metal arc welding (GMAW). GMAW is a consumable electrode welding process that produces an arc between the weld pool and a continuously supplied filler metal and uses an externally supplied gas to shield the arc.

Body shop particulate emissions consist of very small amounts of emissions generated throughout the shop from the welding, brazing, soldering, and finishing activities. The estimated emissions are a factor of the amount of consumable welding material consumed. A conservative emission factor is used to cover potential emissions from welding activities having no published emission factors. This results in an emission estimate of less than 0.1 lb/hr for the body shop and 0.2 ton/year.

There are some metal grinding activities, but no quantifiable basis for estimating emissions from the planned KMMG operations. The sister company Hyundai facility in Alabama (HMMA) indicated a particulate emission of 0.22 lb/hour in its permit application, although no calculation basis was given. To not overlook a potential source of emissions, KMMG assumed the same particulate emission rate for its planned body shop activities.

PVC and Epoxy sealers are used. 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 KMMG assumed 5% of the VOC/HAP components might be volatilized during assembly in the body shop and 95% 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 ~0.55 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 effectively control the highest VOC loading emission sources. The following comments address features of this automobile paint shop facility:

- Low VOC and HAPs waterborne E-coat.
- Low VOC and HAPs waterborne surfacer coating.
- Low VOC and HAPs waterborne topcoat color basecoat.
- Solvent-borne clearcoat with recirculating air spray booth with bleed to RTO.
- Solvent-borne anti-chip rocker panel paint booth exhausted to the RTO.
- Low VOC and HAPs sealer and deadener materials.
- All oven process exhausts directed to the RTO for VOC control.
- Low VOC and HAPs waterborne cavity wax and wheel well blackout coating.
- Large air flow surfacer, basecoat, and clearcoat spray application paint booths use wet venturi scrubbers for paint overspray particulate control.
- Work decks for sanding, repair, heavy material spray application, and touch-up painting use disposable dry exhaust filter material for particulate control and vent to atmosphere.

The following Table 3-1 provides an overview of the exhaust emission control plan for the paint line primary VOC emission sources:

Table 3-1: Paint Shop VOC Emission Control

Source	Exhaust to
WB E-coat dip tank	Atmosphere
Solvent-borne RPP spray booth	RTO
WB Surfacer spray booth	Atmosphere
WB Basecoat spray booth & flash	Atmosphere
Solvent-borne Clearcoat spray booth	~88% Recirculation ~12% RTO
Clearcoat quality check booth & flash	Atmosphere
E-coat Oven	RTO
UBS/RPP Oven	RTO
Surfacer Oven	RTO
Topcoat Oven	RTO

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 capture (CE) and destruction (DE) efficiencies of control systems. In addition, PM emissions from coating application booths and sanding decks are based on removal efficiencies or maximum outlet PM loading of wet Venturi scrubbers and dry filters.

Emission calculations are based on the following assumptions:

- Coating properties (e.g. VOC and solids content) are based on typical coatings anticipated for use at Kia's North American automotive assembly plant.
- Application rates and paint solids transfer efficiencies (TEs) are based on paint solids usage for similar vehicles manufactured in Kia and Hyundai facilities.
- Equipment and process efficiencies (e.g. TE, CE & DE) are based on the most recent compliance test results for similar coatings operations, which are assumed to be long-term average performance levels.

- Oven VOC capture efficiencies (i.e. solvent carryover to ovens) for E-coat, guidecoat (also called surfacer or primer-surfacer), basecoat, and clearcoat are based on recent compliance test results for similar coatings operations. It should be noted that conflicting information exists regarding the solvent carryover of the E-coat operation. 80% carryover was used for this application. Honda America has suggested as little as 5% carryover, while Ford has evidence of 95% carryover.
- Oven VOC capture efficiencies are based on field tests at plants and laboratory oven capture efficiency tests. Capture in the booth exhaust or oven exhaust is significantly influenced by the boiling point and volatility of the coating solvents. As an example, basecoat contains mostly solvents with low boiling points, which results in a larger percentage being exhausted from the booth and a smaller percentage of solvent in basecoat being captured in the topcoat oven.
- Primer surfacer and topcoat application booths are equipped with wet Venturi scrubbers and other coating application and sanding booths are equipped with dry filters for PM control. Control efficiencies for wet Venturi scrubbers and dry filters at other surface coating operations are used to estimate potential controlled emissions.
- 5% of bodies are projected to be rerun through the main topcoat lines to correct coating defects (Major Repair). For example, potential emissions from topcoat lines are based on average gross production rate of 71.4 vehicles per hour to meet a net production rate of 68 jobs per hour. This is taken into account in the projected paint consumption.
- 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 are provided by KMMG in the application.

<u>Process Booth ASH and Oven Air Heaters</u>

All make-up air for the Paint Shop area paint spray booths and other forced draft booths is provided by conditioned air supply houses (ASHs). Natural gas direct-fired in-the-duct heaters with low-NO_X line 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 make-up air heaters enter the booth and are exhausted with the process air exhaust.

Indirect fired warm air heat boxes using nozzle-mixing 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.

Pollutant emission factors are taken from U.S. EPA Compilation of Emission Factors, AP-42, Natural Gas Combustion, except where noted. The following factors are used:

- PM 7.6 lb/10^6 ft^3 natural gas combusted;
- SO_2 0.6 lb/10^6 ft^3 natural gas combusted;
- NO_X <0.09 lb/10^6 Btu heat input (equipment data);
- CO 84 lb/10^6 ft^3 natural gas combusted;
- VOC 5.5 lb/10^6 ft^3 natural gas combusted; and
- HAPs 1.84 lb/10^6 ft^3 natural gas combusted.

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 for the scheduled days of operation. Actual burner operation would modulate for ambient temperature and humidity.

<u>Assembly Shop</u>

In the assembly shops, 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 cleaner, primer, and bonding agent constitute a three-part bonding system provided by Dow Automotive or equal. The bonding/sealing compound is a high solids polymer (~99%) resulting in a very small VOC emission per vehicle. A very small amount of solvent cleaner is also used to keep the applicator gun and tips clean. The solvent-based glass cleaner and primer are necessary for the three-step glazing system. No lower-VOC-emitting material systems are approved or identified as available for this assembly activity. The total estimated emission is about 0.02 lb/vehicle.

The major vehicle assembly is completed when the vehicle body is mated with pre-assembled engine, transmission, drive train, axle and suspension components, fuel tank, brake systems, and electrical components. The drive components are filled with required lubricants before assembly installation on the vehicle. After the sub-assembly components are installed, the brakes, radiator, air conditioning, power steering, and windshield washer reservoirs are filled. Before the end of the assembly line, fuel is added (16 liters) to the vehicle fuel tank. Other than gasoline and 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. The potential uncontrolled gasoline emission from filling and assumed spillage is about 7 tons/year, but onboard refueling vapor recovery equipment (aka "ORVR") should reduce the fueling emission by 95%, based on available U.S. EPA background information.

The assembled vehicles are considered mobile sources, and the testing operations are exempt from U.S. EPA and Georgia stationary source standards. No estimates are made and no control beyond that provided by the vehicle exhaust emission control is considered to be necessary for the emissions from assembled vehicle testing.

After finish assembly and the drive and water testing, vehicles are inspected for paint defects. Bodies with defects are spot sanded and the paint is repaired. Sanding is performed in Topcoat Repair Decks that are exhausted through disposable dry filters. Minor paint repairs are accomplished in Touch-Up Spray Booths.

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, and may be covered to inhibit rainwater from getting in the diked area. The vehicle fluids required in large quantities at the assembly lines are delivered to the tank farm by road tanker. The tanks are equipped with automatic overfill protection sensors, and volatile liquid tanks are equipped with submerged fill pipes and conservation vents. For gasoline, the tank is equipped to return displaced vapor to the road tanker by the vapor-balance process (aka "Stage I"). The above ground storage tanks have small amounts of filling/working losses and breathing losses. Other than gasoline, the vapor pressures of the stored materials are very small and the potential uncontrolled emissions are negligible.

Utilities

Hot water is generated at the Paint Shop to provide hot water to the air supply houses and process heat to the paint shop for booth temperature and humidity control and process tank heating. It is anticipated that three firetube boilers will be installed to handle cold start-up and the varying load demand, depending on season and operating status. Proposed hot water generator facilities include three 600 BHP (25.1 MMBtu/hr heat input) units HW01, HW02 and HW03. The hot water generators will burn natural gas as the primary fuel with No. 2 distillate fuel for back-up. The NOx emissions are based on a burner NOx performance specification of 30 ppmdv at 3% oxygen, when burning natural gas. KMMG has agreed to a 1 million gallon per year fuel oil restriction and a sulfur content limit of 0.3%; the effective SO2 potential emissions is 22 tons per year.

It is planned that two emergency electrical generators will be installed. In the case of a power supply failure, the standby emergency generators are necessary to power the emergency lighting and fire alarm, fire protection and other hazard protection devices and to power selected production facilities to a defined switch-off condition or to keep them in a state of production readiness until power is restored. Each generator is driven by a diesel engine. It is tested for reliable operation at regular intervals and otherwise only runs during a power failure. The diesel engines will meet the Tier 2 stationary diesel engine emission standards. The generators will be operated for "emergency" power when utility electric power is interrupted and for interim readiness testing. Planned operation of each diesel generator is less than 200 hours per year.

Vehicle Processing Center (VPC)

After KMMG is finished with the vehicle assembly and testing it is turned over to others for preparation for shipment and driven to the Vehicle Processing Center (VPC). The VPC is under the operations control of a separate company that is not controlled by KMMG. However, the sites are on contiguous property, and the vehicles processed and some of the materials for the operation will come from KMMG. For these reasons the known potential emission sources are included in this PSD permit inventory. When the Title V operating permit is required, it is anticipated that the VPC operations will not be included in the KMMG permit, but will be applied for by the operating entity.

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. Sanding is performed in Topcoat Repair Decks that are exhausted through disposable dry filters. Minor paint repairs are accomplished in the Touch-Up Spray Booth. Same as in the Paint Shop and the Assembly Shop, topcoat spot repair/touch-up booth solvent-borne basecoat and clearcoat are sprayed manually and cured with heat lamps.

4.0 REVIEW OF APPLICABLE RULES AND REGULATIONS

<u>State Rules</u>

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 KMMG 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 and distillate fuel oil 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. BACT has been established as high efficiency filters and wet venturi scrubbers meeting an exit loading of 0.0015 gr/DSCF.

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 17363. A review of the calculations indicates that KMMG meets all the limits in this standard without consideration of the RTO.

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. Projected uncontrolled is about 0.6 lb/gal. excluding water and projected controlled is about 0.16 lb/gal. The BACT limit subsumes 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). BACT establishes a lower limit but on a different averaging period;

   (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. BACT establishes a lower limit but on a different averaging period

   (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. Calculations of repair paint performance are provided in Table 4-4 of Application 17363, VOC Emissions from Paint Shop and Assembly Final Repair – Georgia Rule (t) Review.

   (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. BACT establishes a lower limit but on a different averaging period and criteria (water included);

(vii) 3.5 pounds of VOC per gallon of adhesive, excluding water delivered to an applicator that applies adhesives, except body glass adhesives; BACT establishes a lower limit but on a different averaging period and criteria (water included);

(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. The cleaner-activator meets this limit uncontrolled;

(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.

Rule 391-3-1-.02(2)(ff) Solvent Metal Cleaning establishes criteria for solvent degreasing operations at facilities whose VOC emissions exceed 100 tons per year. Specific degreasers have not been identified for installation at this time. Because VOC emissions from degreasing alone are not likely to exceed 100 tons per year, this rule is not applicable. However, compliance with the work practice standards of this rule is established as BACT.

Rule 391-3-1-.02(2)(lll) NOx Emissions from Fuel-Burning Equipment establishes a NOx performance requirement of 30 ppm @ 3% O2, dry basis, for fuel-burning equipment with a maximum design heat input capacity equal to or greater than 10 MMBtu/hr, which are located in the 45 counties including Troup. The requirement shall apply during the period May 1 through September 30 of each year.

Hot water heaters HW01, HW02, and HW03 are subject to this standard. However, BACT has been established as the Rule (lll) limit but applicable at all times natural gas is fired (not just ozone season). KMMG will use low-NOx burners to meet this limit.

None of the other indirect-fired process heaters proposed by KMMG have heat inputs equal to the 10 MMBtu/hr applicability threshold for rule (lll).

Rule 391-3-1-.02(2)(mmm) NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity. The requirements of this rule are not applicable to the emergency standby stationary engines, which meet the emergency engine definition in the rule and are exempt from the emission limitation.

Rule 391-3-1-.02(2)(rr) Gasoline Dispensing Facility - Stage I. KMMG will be located outside the Rule (rr) applicability area thus the rule does not officially apply. However, the work practice standards of this rule have been established as BACT.

Rule 391-3-1-.02(2)(vv) Volatile Organic Liquid Handling and Storage. KMMG will be located outside the Rule (vv) applicability area thus the rule does not officially apply. However, the work practice standards of this rule (modified to exempt low-volatility liquids) have been established as BACT.

Rule 391-3-1-.02(2)(zz) Gasoline Dispensing Facility - Stage II. KMMG will be located outside the Rule (zz) applicability area thus the rule does not apply. Since KMMG will only be filling new vehicles that have EPA-required Onboard Refueling Vapor Recovery (ORVR), there is no need to require Stage II vapor recovery as BACT.

Federal Rules - 40 CFR 60 (New Source Performance Standards)

Subpart MM (NSPS for Auto and Light Duty Truck Surface Coating Operations)

Subpart MM limits VOC emissions as follows:

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

Guide coating (in KMMG's case, primer surfacer and rocker panel primer) - 1.40 kg VOC/liter applied coating solid (11.7 lb/gal) on a monthly basis. KMMG meets this limit for primer surfacer without consideration of the RTO, but needs to consider VOC reduction for the rocker panel primer (estimated uncontrolled VOC is 11.68 lb/gal GACS).

Top coating (in KMMG's case, the basecoat and clear coat operation) - 1.47 kg VOC/liter applied coating solid (12.27 lb/gal) on a monthly basis. KMMG meets this limit without consideration of the RTO.

Subpart Dc (NSPS for Small Boilers)

Hot water heaters HW01, HW02, and HW03 are subject to this standard. For units less than 30 MMBtu/hr only firing natural gas and distillate oil, the only requirement is monthly fuel usage records and submittal of semiannual sulfur content certifications. KMMG has accepted a sulfur limit of 0.3%, which will allow them to keep monthly records as allowed in the recent amendments to Dc. None of the other indirect-fired process heaters proposed by KMMG have heat inputs equal to the 10 MMBtu/hr applicability threshold for Subpart Dc.

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 as part of the tier 2 non-road engine rule, and the phased fuel sulfur content limits already set in place by other supplier-based regulations.

Federal Rules - 40 CFR 63 (National Emission Standards for HAP)

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 (monthly average) 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.

It is predicted that KMMG can meet either limit through the use of the RTO (KMMG cannot meet either limit without controls), given that the E-coat operation solvent carryover (oven capture efficiency) is at least 30%. However, if testing reveals that the capture is less than 30%, KMMG has the option to comply with the higher limit and exclude E-coat in the averaging. The E-coat operation is expected to meet both criterion (low HAP coatings and 95% DE control device on E-coat cure oven).

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.

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.

Subpart DDDDD (NESHAP for Boilers)

Hot water heaters HW01, HW02, and HW03 are subject to this standard. These boilers are of firetube design. According to Subpart DDDDD, all firetube boilers are defined as "small" boilers for regulatory purposes. Because the units only fire natural gas and distillate oil, they are considered new, small liquid fuel fired boilers (firing only distillate fuel oil) and have limited requirements as specified in 63.7506b. No standards apply. The other indirect-fired process heaters proposed by KMMG have heat inputs less than 10 MMBtu/hr and fire natural gas only and thus are also considered new, small natural gas units with very limited requirements.

Subpart ZZZZ (NESHAP for Internal Combustion Engines)

Emergency generator engines are exempt from the standards of Subpart ZZZZ.

Subpart EEEE (NESHAP for Organic Liquids Distribution)

KMMG may install one ~11,000 gallon storage tank for methanol-based windshield wiper fluid. Methanol is a HAP and has a vapor pressure such that it exceeds the Subpart EEEE applicability threshold of 0.1 psia. The control requirement under EEEE for such a tank is to install and operate vapor balance system (aka Stage 1 vapor recovery) whereby a hose delivers displaced vapors from the storage tank to the delivery vessel. After construction, KMMG may resize this tank to less than 10,000 gallons to avoid this regulation. No other tanks are subject to this regulation; ethylene glycol is also stored in a 10,000 gallon + tank, but the vapor pressure is very low.

Prevention of Significant Deterioration – 40 CFR 52.21

The PSD program established in 40 CFR 52.21 is incorporated by reference into Georgia rules and applies to a new major stationary source or major modification that is located in an area formally designated as attainment or unclassifiable for any pollutant for which a NAAQS exists (criteria pollutants). Troup County is designated attainment or unclassifiable for all pollutants, so PSD is potentially applicable for all criteria pollutants.

The proposed facility is considered a PSD major source because the potential to emit VOC exceeds 250 tons per year. Where any one pollutant exceeds the PSD major source threshold, PSD review is also applicable to each pollutant for which the proposed emission increase exceeds the significant increase threshold for that pollutant.

In order to ensure that the facilities will implement the maximum degree of reduction for each pollutant regulated by NAAQS, the permit applicant must demonstrate it is installing best available control technology (BACT) for each pollutant subject to PSD review. BACT must consider economic, environmental and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities throughout the nation.

Table 2-1 summarizes the potential annual emissions for the proposed facility based on the proposed maximum allowable and potential emissions. The proposed facility is significant for TSP, PM10, NOx, and VOC. Therefore, the proposed facility is subject to PSD review for these pollutant emissions. A detailed BACT analysis is provided by KMMG in Section 5 of the application, and the EPD BACT preliminary determination is in Section 5 of this document.

U.S. EPA has set maximum permissible ambient air concentration levels for the criteria pollutants. These National Ambient Air Quality Standards (NAAQS) are designed to protect public health. PSD further limits increases in pollutant concentration over the baseline concentration (ambient air increments). PSD review requires the applicant to perform an air quality assessment to demonstrate that the proposed emissions will not cause or contribute to a violation of the NAAQS or predicted ambient impacts exceeding the PSD increment standards.

5.0 CONTROL TECHNOLOGY REVIEW

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

As part of the PSD permit application, a BACT analysis is required. The requirement is set forth in the PSD regulations at 40 CFR 52.21 (j) as:

> "*...an emission limitation based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any...source...which on a case-by-case basis is determined to be achievable taking into account energy, environmental and economic impacts and other costs.*"

A BACT analysis is required for PSD pollutants. For this application, only VOC, NOx, and PM-10 (all PM emissions are assumed to be PM-10) need to be controlled by BACT. No BACT review is required for any of the other pollutants that will be emitted from the proposed KMMG facility.

BACT Technical Approach

The BACT analysis for VOC emissions from the various emission sources and operations at the proposed KMMG plant is based on the "top-down" approach outlined in U.S. EPA's December 1, 1987 policy memorandum, and their New Source Review Workshop Manual. In this approach, progressively less stringent control technologies are analyzed until a level of control considered BACT is reached, based on the environmental, energy, and economic impacts.

The first step in the BACT "Top-Down" approach is to determine, for the emission source in question, the most stringent control available for a similar or identical source or source category. If it can be shown that the level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT approach under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The impact analysis of any BACT review includes an evaluation of environmental, energy, technical, and economic impacts. The environmental impact addresses the impact of collateral pollutants from any control technologies on the physical environment of the geographic area. This includes new pollution streams in the form of solid or liquid waste. Also, secondary air emissions from any control devices should be evaluated if the area is already designated as non-attainment. The energy impact analysis estimates the direct energy impacts of the control alternatives in units of energy consumption. If possible, the energy requirements of each control option, are assessed in terms of total annual energy consumption. The economic impact of a control option is assessed in terms of cost effectiveness, and ultimately, whether the option is economically reasonable.

Potential Control Options

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;
- Kia Motors experience with pollution control technologies for similar operations; and
- Georgia permitting records.

Information obtained from the above listed sources indicates there are several potential methods to control the emissions of concern from the various operations or equipment that will emit them at the proposed facility. These options include various forms of abatement technologies, as well as pollution prevention techniques. Pollution prevention, generally entails the use of good housekeeping practices and the use of inherently lower-emitting materials.

BACT Review for Body Shop Processes

Of the three criteria pollutants subject to PSD review, operations within the body shop will only emit PM-10 and VOC.

The applicant used very conservative emission factors for welding operations to obtain a projected, uncontrolled emission rate for PM-10 of 0.88 tons per year from all welding operations within both body shops. Abatement of these emissions via a commonly employed control technology for welding emissions, extended surface cartridge filters, was evaluated for technical and economic feasibility. Although it was determined that the use of cartridge filters to abate PM emissions from the welding operations is technically feasible, it is economically infeasible at an estimated cost of $80,000 to $100,000 per ton of PM emissions reduced. No less expensive abatement technologies or pollution prevention techniques are available for the PM emissions resulting from the welding operations in the body shop. A review of BACT determinations for recently constructed automobile manufacturing facilities elsewhere in Region IV indicates that there is no precedent for requiring abatement of these emissions as BACT. The Division agrees with the applicant's conclusion that abatement for PM emissions from the body shop operations is economically infeasible.

The adhesive bonding operations within the body shop are conservatively assumed to have the potential to emit 5.5 tons of VOC per year without controls. However, due to the low volatility of the solvents used in the adhesives, it is estimated that most of these emissions occur within the E-coat curing oven. Given that up to 95% of the VOC will be released in the E-coat oven, body shop actual VOC emissions will likely be less than 0.3 tons per year. VOC emissions from the body shop clean up are addressed in Georgia Rule (t).

BACT Review for Paint Shop Processes

The various manufacturing operations within the paint shop emit all three criteria pollutants for which the proposed facility is undergoing BACT review, VOC, PM-10, and NOx. The paint shop operations will be the primary source of VOC and PM emissions at the proposed facility. The various sources of VOC emissions within the paint shop can be divided into the categories of prime coating, guidecoating (primer surfacer and rocker panel primer), topcoating, application of sealers, waxes and deadeners, and purge/clean & body wiping operations.

For each of these operational categories, the applicant identified available abatement and pollution prevention technologies and ranked them according to the PSD review criteria discussed above. The detailed review of the paint shop operations, emissions profiles, and BACT evaluations are presented in Section 5 of Application 17363. The results are presented here.

<u>VOC from Primecoat (E-Coat) Operations:</u>

Chosen BACT Option

KMMG proposes to utilize a combination of pollution prevention and abatement technologies as BACT for VOC emissions from the primecoat operations. These technologies will consist of a water-borne primecoat with low VOC content, electrodeposition dip application of the primecoat to achieve 100 percent transfer efficiency, and permanent total enclosure of the curing oven, with exhaust being routed to a thermal oxidizer with a destruction efficiency in excess of 95 percent. The E-coat tank itself will not be controlled, however KMMG claims that approximately 80% of the VOC from the E-coat is carried over to the oven and captured by the RTO. This "20/80 split" is industry standard, but has recently been called into question due to claims made by Honda America. In support of the 20/80 split, Ford Motor Company provided input claiming that their testing has shown similar results. The PSD permit will require testing to determine the actual solvent carryover. The Division accepts this BACT proposal and will incorporate it into the draft construction permit as a limit of 0.19 pounds of VOC emitted per gallon of applied coating solids, as averaged on a monthly basis. This emission limit of 0.19 is higher than other BACT limits on E-coat operations controlling the curing oven only (often 0.13), but the technology is the same. One mitigating issue might be different assumed solvent carry over rates. Furthermore, the overall VOC emission per gallon of coatings applied at the KMMG plant will be lower than most other recently permitted auto assembly plants (2.2 lb/GACS).

Alternative BACT Options

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

- Installing a small RTO to control VOC from the E-coat tank exhaust. The RTO design airflow would be 17,000 acfm. KMMG estimated the cost of doing this option to be $499,000. Assuming that KMMG's estimation of solvent carry-over is correct, controlling the E-coat tank would only reduce emissions by 10 tons, giving a cost per ton of $49,000 per ton, which was deemed cost prohibitive.

- Sizing the RTO larger to accommodate the E-coat tank exhaust. The RTO design airflow would increase by ~17,000 acfm from ~80,000 acfm to ~100,000 acfm. Using KMMG's cost analysis provided and extrapolating, the annualized incremental cost increase is $430,000. Assuming that KMMG's estimation of solvent carry-over is correct, controlling the E-coat tank would only reduce emissions by 10 tons, giving an incremental cost increase of $43,000 per ton, which was deemed cost prohibitive.

It should be noted that the cost analyses used to rule these options out assume that only 20% of the VOC applied in the E-coat tank is released in the E-coat tank area. The cost figures would change significantly if solvent carry over is significantly lower than expected.

VOC from Guidecoat (surfacer) Operations:

Chosen BACT Option

KMMG proposes to utilize a combination of pollution prevention and abatement technologies as BACT for VOC emissions from the guidecoat (surfacer) operations. These technologies will consist of a water-borne guidecoat with low VOC content, electrostatic spray application of the guidecoat to enhance transfer efficiency, and routing VOC emissions from the curing oven to a thermal oxidizer with a destruction efficiency in excess of 95 percent. The guidecoat spray booth itself will not be controlled (cost prohibitive, as discussed below). Estimated solvent carryover (oven capture) is 8 percent. The Division accepts this BACT proposal and will incorporate it into the draft construction permit as a limit of 2.92 pounds of VOC emitted per gallon of applied coating solids, as averaged on a monthly basis. This emission limit of 2.92 is lower than all but the strictest BACT limit found on the RBLC.

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 airflow would be 400,000 ACFM. KMMG estimated the annualized cost of doing this option to be $8.5 million, and the VOC emissions would be reduced by 54 tons, giving a cost per ton of $156,000 per ton, which was deemed cost prohibitive.

- Routing the guide coat spray booth emissions to rotary concentrator/RTO system. The concentrations would have a inlet flow of 400,000 ACFM, and the RTO would be sized at 40,000 ACFM. KMMG estimated the annualized cost of doing this option to be $2.6 million, and the VOC emissions would be reduced by 52 tons, giving a cost per ton of $51,000 per ton, which was deemed cost prohibitive.

<u>VOC from Topcoat Operations</u>:

Chosen BACT Option

KMMG 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 water-borne basecoat with low VOC content, and electrostatic spray application of the basecoat to enhance transfer efficiency. VOC emissions from the solvent-borne clearcoat will be captured in each of the two spray booths, and in the curing ovens, and routed to a thermal oxidizer with a destruction efficiency in excess of 95 percent. The clearcoat flash zones (manual spray operations occur in these areas) will not be controlled. The Division accepts this BACT proposal and will incorporate it into the draft construction permit as a limit of 5.20 pounds of VOC emitted per gallon of applied coating solids (including VOC from purging of paint guns), as averaged on a monthly basis. This emission limit of 5.20 is lower than most BACT limits found on the RBLC.

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 450,000 ACFM. KMMG estimated the annualized cost of doing this option to be $9.5 million, and the VOC emissions would be reduced by 124 tons, giving a cost per ton of $77,000 per ton, which was deemed cost prohibitive.

- Routing the basecoat spray booth emissions to rotary concentrator/RTO system. The concentrations would have a inlet flow of 450,000 ACFM, and the RTO would be sized at 45,000 ACFM. KMMG estimated the annualized cost of doing this option to be $2.9 million, and the VOC emissions would be reduced by 117 tons, giving a cost per ton of $25,000 per ton, which was deemed cost prohibitive.

- Routing the clearcoat flash zone emissions to a large RTO. The RTO design airflow would be 140,000 ACFM. Kia estimated the annualized cost of doing this option to be $3 million, and the VOC emissions would be reduced by 52 tons, giving a cost per ton of $58,000 per ton, which was deemed cost prohibitive.

- Routing the clearcoat flash zone emissions to rotary concentrator/RTO system. The concentrations would have a inlet flow of 140,000 ACFM, and the RTO would be sized at 14,000 ACFM. Kia estimated the annualized cost of doing this option to be $0.97 million, and the VOC emissions would be reduced by 49 tons, giving a cost per ton of $19,000 per ton, which was deemed cost prohibitive.

<u>VOC from Rocker Panel Primer Operations</u>:

Chosen BACT Option

KMMG proposes to us a solvent-borne anti-chip rocker panel primer (RPP) and to control VOC emissions by directing the application booth and curing oven exhaust to the RTO, which will provide 95% destruction of the captured VOC. The applicant estimates that approximately 10% of the VOC may be uncaptured in the interval between the booth and oven and this is assumed to be an uncontrolled emission. The Division has determined control of the solvent-borne RPP spray booth and curing oven plus a permit limit of 4.7 pounds of VOC per gallon of RPP coating as applied, averaged on a monthly basis, is BACT for this coating operation. Since controlling emissions to this level represents the top control technique in a “top-down” approach, no analysis of other options is necessary.

<u>VOC from Application of Sealers and Sound Deadeners</u>

Chosen BACT Option

High-solids, low-VOC sealers and sound deadeners are applied in several work decks. Pre-extruded and flow coating seam and flange sealers may be applied in conditioned air supply booths that vent into the work space. The Underbody Sealer (UBS) and deadener materials are applied in work decks venting to atmosphere. 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. Kia 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. The applicant proposed that use of the high-solids, low-VOC materials conforming to regulations and control of the VOC volatilized in the curing oven is BACT. The Division finds that control of the rocker panel primer curing oven (where it is assumed most VOC from sealers and deadeners is released) is BACT. In order to ensure that Kia continues to use the lowest VOC content products, the combined VOC content of all sealers and sound deadeners will be limited to 0.45 pounds per gallon as applied, averaged on a monthly basis.

Alternative BACT Analysis

The UBS and deadener work decks that vent to atmosphere theoretically could have add-on VOC control, but controls are never installed on this low concentration exhaust, and the application did not include a detailed equipment cost analysis. An estimate of control cost using a concentrator/RTO system (the most cost effective for large air flows) was made using an annualized cost factor of $7/cfm derived from the cost estimate for assembly touch-up booths have a similar exhaust flow rate. Potential uncontrolled VOC emissions from the sealer and deadener work decks are 6 tons per year. Using this cost value and potential reduction, the cost effectiveness of a concentrator/RTO system to control VOC from the application point (work decks) would be over $140,000/ton, which is deemed cost prohibitive.

<u>VOC from Application of Cavity Wax and Blackout Coatings</u>

Chosen BACT Option

A low VOC waterborne wax is applied manually and by automation to interior seams, cavities and other inner recesses for long-term corrosion protection. Water and a very small amount of solvent from the process are vented to atmosphere. A low VOC waterborne blackout coating is applied to the wheel wells for corrosion protection and appearance. The estimated combined emission from these operations is less than 5 tons/year, and no additional control is proposed. The Division has determined that the use of low VOC waterborne coatings complying with the existing applicable standards and no add-on VOC control is BACT for these operations. In order to ensure that Kia continues to use the lowest VOC content products, the VOC content of cavity wax is limited to 0.3 pounds per gallon as applied averaged on a monthly basis, and the VOC content of blackout coatings is limited to 1.0 pounds per gallon as applied averaged on a monthly basis.

Alternative BACT Analysis

The feasibility of applying add-on controls to the cavity wax and blackout work decks was evaluated and it was demonstrated that control of the booth exhausts is not economically feasible. The total annual cost for an RTO to control VOC from the cavity wax and blackout booths is estimated to be around $1,680,000. The calculated cost effectiveness based on control of the projected actual emissions at capacity production is over $135,000/ton of VOC reduction. For a concentrator system the annual cost would be about $539,000 and the cost effectiveness is about $46,000/ton. The Division has deemed these options to be cost prohibitive.

VOC from Purge, Cleaning, and Body Wipe Operations:

The fugitive nature of the VOC emissions from the cleaning and body wipe operations and other miscellaneous production and equipment maintenance operations makes them prohibitively expensive to capture and abate. Thus, only pollution prevention techniques were evaluated by KMMG. These techniques include closed-loop purge systems that recapture purge solvents, work practice standards to minimize evaporative losses, and low-solvent cleaning solutions. Review of BACT determinations elsewhere indicates that similar facilities have received BACT limits ranging from 0.6 to 2.3 tons VOC per 1,000 vehicles assembled. The Division is proposing an emission limit of 90 tons during any twelve consecutive months for combined VOC emissions from body wiping, strippable paint booth coatings and equipment cleaning processes at the plant. This equates to a limit of 0.6 tons VOC per 1,000 vehicles. Furthermore, the Division is proposing additional conditions in the draft permit to further enforce work practice standards intended to reduce evaporative losses from cleaning operations within the paint shop and other areas of the manufacturing facility.

VOC from Final Repair and Touch-up Coatings

Chosen BACT Option

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. The Division has determined that these add-on control costs exceed the acceptable range of costs normally associated with BACT for control of VOC at a vehicle assembly plant. It is determined that the use of coatings complying with the existing applicable standards and no add-on VOC control is BACT for these operations.

Alternative BACT Analysis

The cost of applying add-on controls to the touch-up and final repair booths in the paint shop was evaluated, and VOC control for the booth exhausts was determined to be economically infeasible. A single RTO and a combination concentrator with a smaller RTO were evaluated. The total annual cost for an RTO to control VOC from the touch-up booths is estimated to be around $1,570,000. The calculated cost effectiveness based on control of the projected actual emissions at capacity production is over $117,000/ton of VOC reduction. For a concentrator system the annual cost would be about $500,000 and the cost effectiveness is about $39,000/ton.

In the assembly area final touch-up repair is carried out in five booths with a total exhaust flow of about 200,000 cfm, almost three times the airflow of the paint shop touchup and repair booths. Since these control costs are flow capacity related, the annual costs are expected to be over twice that estimated for the paint shop booths.

The assembly shop touch-up paint usage is projected to be about the same as the paint shop, thus, the cost effectiveness booth control in the assembly area should be greater than twice that for the paint shop touch-up booths.

Facility-Wide VOC Emissions:

The predicted maximum facility-wide VOC emission for the scenario analyzed is 452 tons per year. 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 452 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.

PM-10 from Surface Coating Operations:

KMMG evaluated control technologies that are technically feasible and available from paint shop equipment providers. The resulting abatement technologies include a combination of wet-venturi scrubber systems for the larger paint line spray coating operations, dry particulate filtration systems for the smaller spray operations, and high transfer efficiency application techniques wherever possible to minimize overspray and PM emissions. The particulate emissions from body surface preparation and other material application work decks are controlled by gravity deposition and disposable dry exhaust filters. These particulate emission control techniques are standardized within the industry. The Division accepts this proposal as BACT for the affected sources, and expresses it in the draft permit as a PM emission limit of 0.0015 grains per dry standard cubic foot of exhaust air. This BACT determination is consistent with other BACT determinations recently issued in Region IV for this industry. The Division has also included a filter inspection and replacement requirement for the dry particulate filtration systems as a BACT requirement for PM10 from the paint shop. Since filters and venturi scrubbers represent the highest level control in a top-down approach, no further analysis of other control options is necessary.

NOx from Direct and Indirect Fired Process Heaters in Paint Shop:

Chosen BACT Option:

Natural gas burners are used to provide heat for the direct-fired make-up air heaters for the paint booths and work decks and for the indirect fired curing oven process heaters. Kia has proposed natural gas burners and a NOx limit of 0.09 lb/MMBtu as BACT. Other emissions are based on EPA Publication AP-42 emission factors. The paint curing ovens have heat zones with separate zone heat exchanger boxes providing indirect heat to the oven. These process air heater burners are individually less than 10 million Btu per hour heat input. The Division accepts this limit of 0.09 lb/MMBtu as BACT. This limit is slightly lower than the typical NOx BACT limit of 0.10 lb/MMBtu found for similar sources. Low emission natural gas burners are used for these process air heaters. Add-on NOx control or ultra-low NOx burners are not technically feasible for these particular applications.

BACT Review for Assembly Shop Operations

VOC Emissions from Glazing Operations:

Kia evaluated abatement via regenerative thermal oxidation and ruled out abatement as prohibitively expensive (in excess of $150,000 per ton of VOC reduced). Kia stipulated, and the Division agreed, that abatement of these emissions can be ruled out as economically infeasible. Kia proposes as BACT the use of low solvent formulations, where appropriate, and conformance with the applicable requirements of Georgia Rule (t) for VOC emissions from automobile manufacturing and the NESHAP for automobile surface coating. Recently issued BACT determinations for similar facilities do not require abatement for these emissions and do not specify emission limits. The Division also determines that conformance with the applicable regulatory requirements is BACT and is not specifying any additional limits for VOC emissions from glazing operations in the assembly shops.

Vehicle Processing Center Underbody Wax Application:

After completion of vehicle assembly and testing by KMMG, the vehicle is delivered to the on-site Vehicle Processing Center (VPC) for preparation for shipment to the customer. At the VPC the vehicles will receive an underbody wax application and paint touch-up. The BACT analysis for the paint shop and assembly touch-up confirming that no add-on VOC control is feasible is applicable to the VPC touch-up.

The underbody is a low VOC water-based material that is applied for long term corrosion protection. The uncontrolled VOC is estimated to be less than 4 tons/year. Using estimated cost factors for touch-up paint booth add-on VOC control, the estimated cost of abatement of the VOC emissions from the underbody wax operation would be over $100,000 per ton of VOC reduced. KMMG proposes as BACT for this process the use of low-VOC water-based product. Recently issued BACT determinations for similar facilities elsewhere in Region IV do not require abatement of these emissions and do not specify emission limits. Therefore, the Division is not specifying BACT for VOC emissions from the underbody wax application operations beyond that required by Georgia rules and general emission requirements of this permit.

VOC Emissions from Fluids Filling Operations:

VOC emissions from the filling of vehicle fluids is negligible. To the extent that VOC is released from these operations, it is in the form of gasoline vapors from the filling of the fuel tanks and assumed spillage. Because the vehicles to be produced at the proposed facility will be equipped with on-board vapor recovery systems to minimize evaporative losses during re-fueling, no further BACT evaluation is warranted. Because the inclusion of the on-board vapor recovery systems is mandated by other federal programs, there is no need to include this requirement as an enforceable condition in the permit.

VOC, PM, and NOx Emissions from the Functional Test Stands:

Pursuant to U.S. EPA policy memos, emissions from these sources are considered to be mobile source emissions, not subject to PSD review. Therefore, BACT for the assembled vehicle test stands was not evaluated.

VOC Emissions from Tank Farm Storage Operations:

Kia estimates potential emissions of VOC from the tank farm to be about 0.5 ton per year for each of the three gasoline storage tanks proposed. The Division stipulates that except for the Stage I vapor controls for gasoline storage tanks, additional control of these VOC emissions is not necessary or cost effective. The Division has included design and work practice standards as BACT requirements for the tank farm. Stage I vapor controls with submerged fill and vapor return line from the storage tanks to the delivery vessel are being required for the gasoline storage tanks. Submerged fill pipes are being required for other tanks over 4000 gallons that store volatile organic liquids with a maximum true vapor pressure greater than 3.5 kilopascals. 3.5 kilopascals was chosen as the cutoff value because EPA uses this value as a cutoff point for 40 CFR 60 Subpart Kb; liquids with vapor pressures below this number will have minimal emissions. Both of these requirements are based on VOC regulations that are required in the Atlanta non-attainment area for similar emissions units (Georgia Air Quality Control Rules 391-3-1-.02(2)(rr) and (vv))

BACT Review for Support Utilities

The regulated utilities at the proposed KMMG plant will consist of three medium sized boilers to generate hot process water (not steam) for manufacturing processes and two emergency power diesel generator sets.

Hot Water Generators:

Chosen BACT Option:

KMMG evaluated BACT for NOx emissions from the three boilers and proposed a low NOx burner emission limit of 0.036 pounds NOx per MMBtu while burning natural gas (30 ppm NOx at 3% oxygen). The applicant also proposed to limit the annual combustion of back-up distillate fuel oil to one million gallons total for all boilers in order to limit the potential emissions of sulfur dioxide to less than 40 tons per year, based on the regulatory limit of 0.5% sulfur content. The applicant subsequently agreed to a fuel oil sulfur content limit of 0.3% sulfur, by weight, to allow for more flexible recordkeeping under Subpart Dc NSPS. The Division has determined that BACT for these units should be use of natural gas as the primary fuel and a limit on NOx emissions of 30 ppm at 3 percent oxygen on a dry basis, while the units are burning natural gas, and a limit of one million gallons of back-up fuel oil usage per year (on a 12-month rolling basis).

Alternative BACT Analysis:
The feasibility of add-on emission controls and burner performance options were evaluated by the applicant.

- In the firetube hot water generator design there is no appropriate temperature zone or space for SNCR reagent injection or SCR catalyst. For SCR the fuel cost alone to reheat the exhaust gas stream would add $40,000/ton of NOx reduction to the overall control cost. No add-on NOx control is found to be feasible for the proposed firetube boilers.

- Better performing ultra-low NOx burners have been installed on boilers to meet LAER requirements in nonattainment areas. The availability and cost effectiveness of ultra-low NOx burners were evaluated. The incremental cost per ton to replace low-NOx burners with ultra low NOx burners was estimated to be $36,000/ton of NOx, which is deemed cost prohibitive.

- The boiler manufacturer did offer a lower NOx burner that achieved 20 ppm, which would lower NOx potentials from the boilers from 22.0 tpy to 19.9 tpy, but carbon monoxide emissions would increase from 15.2 tpy to 46 tpy. The Division determined that the slight reduction in NOx would not warrant the large increase in carbon monoxide emissions.

<u>Emergency Generators:</u>
The applicant proposed that BACT for the emergency power generators is conformance with the recently promulgated NSPS for stationary internal combustion engines. The emissions from the generators will effectively be limited by a cap on their non-emergency annual operating hours that is imposed as part of the designation as emergency standby units. The Georgia rules impose an annual operating hour cap for each generator at 200 hours per year, and the NSPS limits emergency stationary engines to 100 hours per year for maintenance checks and readiness testing.

6.0 TESTING AND MONITORING 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.

<u>Plantwide Emissions Caps</u>
Compliance with the various plantwide NOx, VOC, and CO limits established in Section 1.2 is demonstrated via record keeping, no testing or monitoring is directly used show compliance. Monitoring of control devices to maintain an established control efficiency is addressed in more specifically-applicable requirements.

<u>Particulate Matter BACT Limits</u>
Both dry particulate filters and venturi scrubbers 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 0.0015 gr/dscf is industry standard and a properly maintained filter should easily meet this limit, no performance testing is required.

A Method 5 performance test will be required for each venturi scrubber to ensure initial compliance with the 0.0015 gr/dscf limit. During the test, supply pump pressure must be monitored to establish a range indicative of compliance. Because venturi scrubbers rely heavily on the amount of water pumped across the orifice, supply pump pressure must be monitored and recorded daily and compared to the established range to ensure ongoing compliance.

<u>Nitrogen Oxide (NOx) BACT Limits</u>
Hot water heaters HW01, HW02, and HW03 are subject to a 30 ppm NOx limit that serves as both a BACT limit and the Rule (lll) standard. Rule (lll) specifies that affected sources comply with the monitoring protocol in the Division's PTM Section 2.119. This requires annual tune-ups every spring including NOx measurements using either Method 7E or CTM30. An initial NOx performance test using Method 7E is required to demonstrate initial compliance.

All other indirect-fired and direct-fired process heaters are subject to a BACT limit of 0.09 lb/MMBtu. This limit is slightly lower than the standard AP-42 natural gas emission factor. 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.

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 only VOC control device is the RTO. 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. Because Kia assumed a 80% solvent carry-over (80% capture efficiency) as the basis for the E-coat limit and in the cost analysis, it is crucial to determine this actual value. As stated earlier in this determination, there is conflicting information regarding E-coat solvent carryover. 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. Kia 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, Kia must ensure that the VOC control devices are continuously operating properly. The RTO 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), Kia 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, Kia will comply with the NSPS limits without having to consider the reductions from the RTO. In this case, only material usage records are needed to ensure initial and ongoing compliance.

40 CFR 63 Subpart DDDDD

The proposed fuel burning equipment will not be subject to any emission standards, or testing or monitoring requirements of the Boiler MACT.

40 CFR 60 Subpart IIII

A non-resettable hour meter to track operating hours is the only monitoring required by the engine NSPS, and this requirement also serves to ensure compliance with Rule (mmm) avoidance. 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 fuel burning equipment will not be subject to any emission standards, or testing or monitoring requirements of the Boiler MACT.

40 CFR 60 Subpart Dc

No testing is required. Meters for fuel oil and natural gas are required by the NSPS, although Kia may request approval for another method of tracking monthly fuel oil and natural gas usage.

40 CFR 63 Subpart EEEE

This NESHAP specifies the requirements for ensuring compliance with the requirement to operate vapor balance (similar to Stage 1 for gasoline dispensing). No testing is required.

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

7.0 AMBIENT AIR QUALITY REVIEW

The main purpose of the air quality analysis is to demonstrate that criteria pollutants emitted from the proposed KMMG facility in conjunction with other applicable emissions from existing sources (including secondary emissions from growth associated with the Kia facility), will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD increment in a Class II or Class I area. NAAQS exist for NO2, CO, PM-10, PM-2.5, SO2, Ozone (O3), and lead (Pb). PSD increments exist for SO2, NO2, and PM-10. Air Toxics is also addressed in a separate modeling exercise.

Generally, the source impact analysis will involve (1) an assessment of existing air quality, which may include ambient monitoring data and air quality dispersion modeling results; and (2) predictions, using dispersion modeling, of ambient concentrations that will result from the proposed plant and future growth associated with the project. The following Class I areas are located within 300 km of the proposed project: (1) Cohutta Wilderness Area at 216 km; (2) Sipsey Wilderness Area at 257 km; (3) Bradwell Bay Wilderness Area; and (4) St. Marks National Wildlife Refuge at 285 km in distance from the proposed plant. The U.S. U.S. Forest Service is designated as the Federal Land Manager for the Wilderness Areas and the U.S. Fish and Wildlife Service is designated Federal Land Manager for St. Marks National Wildlife Refuge. The Class I analysis is discussed later in this section.

A separate air quality analysis is required for each of these pollutants to be emitted in an amount over the PSD significant threshold. As indicated above, NOx, PM/PM10, and VOC are to be emitted in amounts over their respective PSD significant thresholds.

<u>Initial Modeling of Project</u>

To determine the extent of air quality modeling that must be conducted, an initial model run of the potential emissions from the project alone (in this case, the KMMG facility including VPC) is conducted using the EPA-mandated AERMOD air dispersion model. If initial modeled results exceed the respective pollutant's significant impact level (SIL), then further modeling is required to ensure no violations of the NAAQS or PSD increment. Furthermore, if initial modeled results exceed the monitoring threshold, preconstruction monitoring may be required unless the Division determines that ambient monitoring is unnecessary. KMMG modeled the proposed facility for both NOx and PM10; there is no NAAQS or PSD increment for VOC and thus VOC is not modeled in this manner. It should be noted that the NAAQS and PSD increment exist for nitrogen dioxide (NO2), not nitrogen oxides (NOx). NO2 is the major component of NOx, making up approximately 75% of the NOx from combustion products. To account for this, KMMG's modeling uses an emission rate scalar of 0.75 for all NOx emissions sources – the Division has accepted this scalar in past PSD applications. Model inputs are detailed in Table 6-1 of Application 17363.

The results of the initial modeling for NO2 and PM10 are listed in Table 7.1 along with the respective significant impact levels and monitoring thresholds for each applicable pollutant for each averaging period.

Table 7.1 - Initial Modeling of KMMG Facility

Class II Modeling Results KMMG Facility Application, Section 6				
Pollutant	Averaging Period	Preconstruction Monitoring Evaluation (ug/m3)	Class II PSD Modeling Significant Impact Level (ug/m3)	Projected Concentration (ug/m3)
NO2	Annual	14	1	5.65
PM-10	Annual 24-hour	Not Applicable 10	1 5	5.15 23.8
VOC	No significant air quality concentration for ozone monitoring has been established. Instead, applicants with a net emissions increase of 100 tons per year or more of VOC subject to PSD may be required to perform an ambient impact analysis, including pre-application monitoring data.			

As shown in Table 7.1, the projected concentrations of both NO2 and PM-10 exceed all three significant impact levels and thus require additional modeling for NAAQS and PSD increment considering nearby contributing sources. The maximum radius of significant impact (ROI) for each pollutant is listed below. The additional NAAQS and PSD increment modeling need only consider concentrations/impacts inside these radii as follows:

Annual averaged NO2: 1.7 km (EPD results: 2.0 km)
Annual averaged PM-10: 5.7 km (EPD results: 6.0 km)
24-hour averaged PM-10: 2.0 km (EPD results: 2.0 km)

Preconstruction Monitoring Requirement

The impact for NO_2 is below the de minimis preconstruction monitoring concentration. Therefore, preconstruction air quality monitoring is not required for this pollutant. The PM-10 impact, however, is above the de minimis concentration. EPD will accept data from nearby monitoring stations in lieu of further PM-10 monitoring. Furthermore, the proposed KMMG project has the potential to emit more than 100 tons per year of VOC; however, EPD will accept ozone data from the Muscogee County monitoring stations in lieu of further ozone monitoring.

Class II Analysis Results

Because initial modeled pollutant concentrations from the proposed project exceeded the SIL, the applicant conducted a NAAQS and PSD increment analysis on emissions of NO2 and PM-10. KMMG used the Aermod program and the same KMMG source stack parameters and emission rates used in the initial model. No guidelines exist for such analyses for VOC/ozone, so the applicant instead submitted a qualitative review of VOC impact on the Class II area.

For the purposes of the NAAQS analysis, major and minor facilities located within 50km of the ROI (and few larger facilities beyond 50 km) were analyzed to determine if their emissions warranted inclusion in the model. For sources located in Georgia, the Division provided guidance with developing a list of sources to be included. For sources located in Alabama, ADEM provided a list of sources that should be included. The "20D Rule" was allowed by the Division so that smaller and more distant sources (i,e; sources having trivial impact inside the ROI) may be screened out and omitted from the model. The 20D Rule specifies that contributing sources with potential emissions (in tons per year) less than 20 times the distance to the ROI (in kilometers) may be omitted from the model. In addition to the concentrations due to nearby contributing sources, the NAAQS analysis includes the background concentration as provided by the Division. Below is a list of those contributing sources modeled; more detailed information regarding these sources is found in Application 17363.

Georgia

Tenaska Georgia Generation, Heard County Power LLC, Oglethorpe Power Corp., Georgia Power – Wansley, Georgia Power – Yates, West Georgia Generating Company, Milliken & Co Hillside, Milliken & Co Valway, Milliken & Co Hillside Coating, and Southern Natural Gas Ellerslie Compressor Station

Alabama

BF Goodrich Tire Manufacturing, Knauf Fiber Glass, Norbord Alabama Inc., and Transcontinental Gas Pipe Line Corporation – Station 110

For the purposes of the PSD increment analysis, major and minor facilities located within 50km of the ROI (and few larger facilities beyond 50 km) were analyzed to determine if their emissions warranted inclusion in the model. KMMG is the first PSD application for Troup County Georgia and thus triggers the minor source baseline date for Troup County with Application 17363. For sources located in Georgia, the Division provided guidance with developing a list of sources to be included. For sources located in Alabama, ADEM provided a list of sources that should be included. The "20D Rule" was allowed by the Division. Below is a list of those increment-consuming (constructed or modified after respective baseline date), and increment-expanding (removed from service after the respective baseline date) sources in Georgia and Alabama; more detailed information regarding these sources is found in Application 17363.

Georgia

Peace Valley Generation Facility (never built), Tenaska Georgia Generation, Heard County Power LLC, Oglethorpe Power Corp., Georgia Power – Wansley, and West Georgia Generating Company

Alabama

BF Goodrich Tire Manufacturing, Knauf Fiber Glass, Norbord Alabama Inc., and Transcontinental Gas Pipe Line Corporation – Station 110

Table 7.2 illustrates the results of the NAAQS and PSD increment analyses for NO2 and PM-10. Note that the results derived when EPD ran the analysis are similar to Kia's and do not change the overall conclusion. Reasons for any such differences may include version of modeling/topography data used, round-off error, and usage of actual stack heights versus good engineering practice (GEP).

Table 7.2a – Class II Modeling Results (provided by Kia)

Class II Modeling Results – NAAQS and PSD Increment Analyses KMMG Facility							
		NAAQS				Class II PSD Increment	
Pollutant	Averaging Period	Standard (ug/m3)	Model Results* (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	Maximum Predicted Impact (ug/m3)
NO2	Annual	100	6.36	14.0	20.4	25	5.73
PM-10	Annual	50	5.34	20.0	25.3	17	5.27
	24-hour	150	19.9	38.0	57.9	30	21.3

*The values used in the table above represent the 6th highest high value derived from the model while the initial model run (KMMG sources only) to determine ROI is the maximum value.

Table 7.2b – Class II Modeling Results (produced by Ga. EPD)

EPD Class II Modeling Results – NAAQS and PSD Increment Analyses KMMG Facility							
		NAAQS				Class II PSD Increment	
Pollutant	Averaging Period	Standard (ug/m3)	Model Results (ug/m3)	Background Conc. (ug/m3)	Total Conc. (ug/m3)	Standard (ug/m3)	Maximum Predicted Impact (ug/m3)
NO2	Annual	100	6.38	14.0	20.4	25	5.73
PM-10	Annual	50	5.35	20.0	25.3	17	5.27
	24-hour	150	21.14	38.0	57.6	30	21.3

The Class II air quality impacts of the proposed KMMG facility emissions, either alone or in conjunction with emissions of off-site significant sources contributing to background concentrations, have been found to comply with all applicable Class II NAAQS and PSD increments.

Class I Analysis Results

The U.S. Forest Service acts as the Federal Land Manager for three of the Class I areas (Sipsey, Cohutta, and Bradwell Bay Wilderness Areas) within 300 km of the proposed KMMG plant site. The U.S. Fish and Wildlife Service acts as the Federal Land Manager for another Class area (St. Marks National Wildlife Refuge) within 300 km of the proposed KMMG plant site. The applicant provided the FLMs the project's maximum expected annual emissions and the distances to each Class area. Subsequently, the FLMs advised the Division that a Class I area analyses would not be required for any of the Class I areas. This decision was based the relatively low level of emissions that were perceived to potentially impact the Class I areas and the comparatively long distance to each Class I area. Thus, the applicant was not required to conduct analyses of Class I Air Quality Related Values (AQRVs). EPD agrees with the conclusions of the FLMs and will not require modeling to demonstrate compliance with the Class I air quality standards in the four previously mentioned Class I areas.

Ozone Levels

Because actual and potential emissions of VOC from the proposed KMMG facility will exceed 100 tons per year, the applicant was required to submit an ozone impact analysis in addition to the impact analyses submitted for NO2 and PM-10. The photochemistry underlying generation of ground-level ozone is very complex and not well understood. As such, no air quality dispersion model has yet been developed which is capable of accurately predicting ambient ozone concentrations resulting from the precursor emissions of a single facility. Consequently, the analysis of the potential impacts of VOC on ground level ozone generation must be conducted by other means.

The analysis submitted by the applicant consisted of an evaluation of existing ambient monitoring data for the area, as well as a qualitative evaluation of the increase in the precursor pollutants of VOC and NOx that the proposed KMMG facility will emit, relative to background concentrations of these pollutants in the area. The applicant concluded that the additional VOC and NOx emissions from the KMMG plant will have a negligible effect on ambient ozone concentrations in the area. The Division has evaluated the analysis submitted by the applicant and agrees with its conclusions.

In addition to the analysis conducted by KMMG, the Division obtained the estimated actual VOC and NOx emissions for the existing major stationary sources in Troup County from the Title V applications submitted by those sources. The Potential emissions from the KMMG plant would result in a VOC increase of 26% above current levels and a NOx increase of less than 13% above current levels from existing major stationary sources (see appendix c for a list of existing major sources and estimated actual emissions). If VOC and NOx emissions from area (non-major) stationary sources, mobile sources, and biogenic sources were to be considered, the percentage increase as a result of the KMMG facility would be much smaller.

Air Toxics

There are no applicable NAAQS or specific Georgia ambient air standards for the individual toxics expected to be emitted by the facility. Impacts from toxic air pollutants have been analyzed using the EPD Guidance for Ambient Impact Assessment of Toxic Air Pollutant Emissions (referred to as the Georgia Air Toxics Guideline; Version June 21, 1998). The Georgia Air Toxics Guideline is a guide for estimating the environmental impact of sources of toxic air pollutants. A toxic air pollutant 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. KMMG used ISCST3 computer dispersion model (AERMOD is not required for this particular assessment) to predict the maximum 15-minute, 24-hour or annual average ground level concentration (referred to as MGLC) for each pollutant in question.

In order to demonstrate compliance with Georgia's Toxic Guidelines at the worst-case conditions, each toxic was modeled as if it represented 100 percent of all VOC emitted from the facility. The KMMG facility was modeled at the maximum anticipated hourly VOC emission rate for each stack (totaling ~202 lb/hr plantwide) to determine the predicted MGLC for each averaging period. A detailed breakdown the stack parameters and emission rates is found in Table 8-1 of Application 17363. The results are specified in Table 7.3. Note that the results derived when EPD ran the analysis are similar to Kia's and do not change the overall conclusion. Reasons for any such differences may include version of modeling/topography data used, or round-off error.

Table 7.3 – Toxic Impact Assessment – Plantwide VOC Modeling using ISCST3

Averaging Period	MGLC (Kia's Results)	MGLC (EPD Results)
Annual	27.0 ug/m3	28.83 ug/m3
24-hour	266 ug/m3	269.3 ug/m3
15-minute	2124 ug/m3	2211 ug/m3

Next, the acceptable ambient concentrations (AAC) for each identified toxic air pollutant were developed following Georgia's Toxic Guidelines. Table 8-2 in Application 17363 details the reference for development of each AAC for each toxic air pollutant expected to be emitted.

Lastly, the MGLC for each averaging period was compared to the respective AAC for each toxic air pollutant. As can be seen in Table 8-2 of Application 17363, the MGLC (assuming each toxic is emitted at the same rate equal to total VOC) is below the AAC for all toxic air pollutants except for naphthalene and MDI.

The annual AAC for naphthalene is 3 ug/m3 and the MGLC assuming a plantwide naphthalene emission rate of 202 lb/hr is 28.83 ug/m3. However, naphthalene only appears as a trace compound in solvent blends. Because actual naphthalene emissions will only be a small fraction of the plantwide VOC emissions (< 2%), no adverse effect is expected.

The annual AAC for MDI is 0.6 ug/m3 and the MGLC assuming a plantwide MDI emission rate of 202 lb/hr is 28.83 ug/m3. Because actual MDI emissions are estimated to be only 0.24 lb/hr, no adverse effect is expected.

The details of the toxic impact analysis performed by KMMG are found in Application 17363. The Division has reviewed this impact assessment as well as attached data and has concluded that the facility passes the Georgia Toxic Guidelines for the project.

8.0 ADDITIONAL IMPACT ANALYSES

PSD requires an analysis of impairment to visibility, soils, and vegetation that will occur as a result of the proposed project, as well as an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the facility. Other impact analysis requirements may also be imposed on a permit applicant under local, state, or federal laws that are outside the PSD permitting process.

<u>Impact on Soils & Vegetation</u>
The applicant submitted a detailed analysis of the types of soils, vegetation, and land uses in the vicinity of the proposed KMMG plant, as well as a qualitative assessment of the potential for emissions from the proposed plant to adversely impact the quality of soils and vegetation in the area. This analysis included potential factors such as changes in soil pH, and toxic effects of increased criteria pollutant concentrations on the vegetation native to the area.

One indicator of potential vegetation and soils effects is a comparison of predicted ambient concentrations with ambient air quality standards. Of most significance here is the fact that the secondary NAAQS were established to prevent adverse "welfare" effects such as direct damage to vegetation and harmful contamination of soils. In light of the fact that it has been shown that the operation of the facility will not threaten or exceed any ambient standard at any location, there should not be any discernible effects on vegetation and soils.

<u>Impact on Visibility</u>
Visibility impairment is any perceptible change in visibility (visual range, contrast, atmospheric color, etc.) from that which would have existed under natural conditions. Poor visibility is caused when fine, solid or liquid particles – usually in the form of volatile organics, nitrogen oxides, or sulfur oxides – absorb or scatter light. This light scattering or absorption actually reduces the amount of light received from viewed objects and scatters ambient light into the line of sight. This scattered ambient light appears as haze.

Another form of visibility impairment in the form of plume blight occurs when particles and light-absorbing gases are confined to a single, elevated haze layer or coherent plume. Plume blight, a white, gray or brown plume clearly visible against a background sky or other dark object, usually can be traced to a single source such as a smoke stack.

The applicant submitted detailed Level I and Level II visibility screening analyses conducted from several points of perspective. No significant adverse impacts on visibility are expected to result from the emissions from the proposed KMMG plant.

A visual impacts assessment has been conducted at selected 'sensitive' sites near the facility to identify potential visual impacts that may result from the operation of the KMMG facility. Each of these sites is located in the Class II area that surrounds the facility.

This assessment has employed the EPA VISCREEN model (version 1.0). The VISCREEN model was developed to evaluate potential visual impacts at PSD Class I areas. As a result, the model contains visual impacts screening criteria, which have been found to be important in preserving scenic vistas within, and integral vistas surrounding such areas. These criteria identify worst-case meteorological conditions under which industrial plumes may begin to be visually perceived.

No applicable screening criteria have been developed to address visual impacts in Class II areas. For this reason, the VISCREEN model is very conservatively applied in Class II areas utilizing Class I visual impacts criteria.

Due to combustion controls and operation of various air pollution control equipment by the facility, no visual impacts are expected to result near the source. All the manufacturing sources are subject to proposed BACT emission limits that should have negligible or no visible emissions, and the fuel burning sources, which are subject to a 20 percent opacity standard, should have negligible visible emissions burning natural gas or the back-up No. 2 distillate oil in the hot water boilers.

The visual impacts under evaluation in this assessment involve specific geometries of line-of-sight, usually looking through a considerable length of plume, and solar angle. The occurrence of such geometries is not frequent, and may not occur at all for certain situations, such as a ground-based observer looking through the plume toward the sky, as the model conservatively considers the stack, the observer, and the plume centerline to be at the same elevation.

Level I Screening Analysis

The sites deemed to be sensitive to visual impacts in the area surrounding the KMMG facility are identified in Table 8-1.

TABLE 8-1
VISUAL IMPACTS ANAYLSIS RECEPTORS

Sensitive Site	Distance from KMMG (km)	
	Minimum	**Maximum**
La Grange Airport	11.2	13.2
FDR State Park	22.6	24.6
Roosevelt's Little White House	41.4	42.4

Level I analysis involved the maximum KMMG emission rates of PM-10 and NOx over a 24-hour period. This emission scenario includes operation of all three hot water generators at capacity, firing No. 2 fuel oil. The facility will normally operate the hot water generators firing natural gas, with considerably lower emissions of both NOX and PM-10. In fact, peak demand operations should require no more than 75 percent of the combined capacity of the three hot water generators.

Other quantitative model input data includes the minimum distance to the 'sensitive' site (which is conservatively also entered as the minimum distance between the source and the observer), the maximum distance between the source and the 'sensitive' site, and the background visual range of the area, as indicated on Figure 4-3 of the Tutorial Package for the VISCREEN Model.

The Level 1(default) meteorology, stability class "F" and 1 meter-per-second wind speed, were provided by the model, as were default values of particle size and density, and other parameters. The summary output report for each sensitive area is included on CD-ROM as a part of this application. Under these maximum worst-case conditions, the two most distant 'sensitive' sites were predicted to free of any visual impact as a result of the operation of the KMMG facility.

The site closest to the KMMG facility was found to exceed the very restrictive Class I criteria by the maximum worst-case Level I analysis. This indicates that, under the conditions modelled, and for certain geometries of source, observer, wind direction, cloud cover, and solar angle, a plume may be perceived by an observer looking toward the KMMG facility.

Level II Screening Analysis

The Level II screening analysis is also conducted with the VISCREEN model. The Level II analysis incorporates more specific information regarding the source, topography, visual range, and appropriate meteorological conditions.

The Level II approach implemented in this analysis consisted of the elimination of meteorological conditions with a low probability of occurrence. Raw hourly meteorological data files were located for five of the years (1985 - 1989) of data. Occurrences of meteorological stability class F were found to occur with a 1 meter-per-second wind less 0.2% of the time in any sector. Such conditions were considered "calm" meteorological conditions by the EPA meteorological data pre-processor used to format the data for air quality modeling. By definition, during a "calm" meteorological condition, wind direction is subject to a large range of meander. The wind direction is not likely to persist in a single 22.5-degree sector for an entire hour. In addition, during meteorological calm periods, wind speed is not likely to persist at a single speed for an entire hour. As a result, wind speeds of 1 meter-per-second or less were eliminated from further analysis.

The five years of meteorological data were processed by the WRPLOT View software program, which produced a joint frequency distribution of the occurrence of 6 classes of wind speed, 16 22.5-degree sectors of wind direction, and 6 meteorological stability classes. The stability classes were A, B, C, D, E, and F.

The wind sector with the greatest number of occurrences of D, E, and F conditions was studied. E and F conditions, by definition, can only occur at night with some allowance for transitional hours. By definition, D-daytime conditions with wind speeds of 1 meter-per-second or less can only occur when the sky is completely overcast. Since there is no sun to illuminate the plume under an overcast condition, this condition was eliminated from further consideration.

With no “D”, 1 meter-per-second conditions, and no “E”, or “F” conditions to be assessed, the next most conservative dispersion condition is “D”, with a 2 meters-per-second wind speed. However, no “D”, 2 conditions were found in this wind sector. The next most conservative dispersion condition is “D”, with a 3 meter-per-second wind speed. The fact that many “D”, 3 conditions exist in the data is considered an additional degree of conservatism.

The Level II analysis was conducted for each La Grange Airport site using a “D” condition with a 3 meter-per-second wind speed. The modeled output indicates that, under the worst-case conditions, the LaGrange airport was predicted to be free of any visual impacts as a result of the operation of the KMMG facility.

Impacts on nonattainment areas

Troup County is currently in attainment for all pollutants. The facility is not expected to have a significant impact on any nonattainment area based on the air quality impact assessment performed.

Growth Impact

The growth projection analysis only addresses permanent economic growth attributed to the facility. Short-term or temporary impacts, such as construction, are not considered permanent growth, and are not addressed as an additional impact.

The facility will be located in a mostly rural portion of the State. The population density of West Point and Troup County are 297 and 55 people per square km. Employment at the facility is expected to total approximately 2,300 personnel once the facility becomes operational. No quantifiable adverse impacts on local air quality conditions are expected to accompany plant related population growth. Personnel hired for the facility should largely be drawn from the existing regional population, with no appreciable adverse changes in traffic or other growth associated parameters. The regional area includes Columbus and LaGrange, Georgia, which are approximately 31 and 12 miles respectively from the facility, and Lanett, Opelika and Auburn, Alabama, which are approximately 6, 25, and 34 miles respectively from the facility. Local surface road traffic will be mitigated by the close proximity to and interchange with Interstate Highway I-85. With the technical, management and skilled employment opportunities with good pay scales, it can be expected that there will be employment shifts within the community and region and some employee movement into the region consistent with regional planning and desired growth for the area.

9.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

Part 1.0 – Entire Facility

Conditions 1.1.1 through 1.1.5 are generally applicable conditions.

Condition 1.1.6 is added to clarify that non-VOC solvents (e.g.- acetone) are to be counted as water, as per Georgia Rules.

Condition 1.1.7 details the construction deadlines specified in 40 CFR 52.21.

Condition 1.1.8 instructs that the definition specified in the applicable regulation shall be used. For example, "initial startup" means startup of manufacturing saleable automobiles for the purposes of equipment subject 40 CFR 63 IIII, but "startup" means startup for any reason for the purposes of equipment subject to 40 CFR 60 Dc.

Condition 1.2.1 limits production to 300,000 automobiles because emission calculations and BACT cost analyses presented by Kia in application 17363 were based on this figure, and 300,000 represents the design capacity of the plant as it was proposed.

Condition 1.2.2 limits plantwide VOC emissions to 452 tons per year because the toxic impact assessment and BACT cost analyses presented by Kia in application 17363 were based on this figure. Furthermore, the plantwide VOC limit represents the culmination of all the BACT limits and good work practices that were determined to be BACT.

Condition 1.2.3 limits plantwide NOx emissions to 109 tons per year because the PSD and NAAQS modeling presented by Kia in application 17363 were based on this figure. This figure represents NOx emissions from all fuel burning sources utilized in the process operations of the facility; NOx generated by general office comfort heating, and assembled automobile engines are not taken into account in this limit.

Condition 1.2.4 limits plantwide CO emissions to 99 tons per year to avoid PSD and BACT as would become applicable to CO at any higher emission rate. Kia estimated that potential CO emissions are 94 tons per year using lower-than-AP-42 emission factors provided by the burner manufacturers. This figure represents CO emissions from all fuel burning sources utilized in the process operations of the facility; CO generated by general office comfort heating, and assembled automobile engines are not taken into account in this limit.

Part 2.0 – Emission Units

Condition 2.2.1 specifies which units and control devices are subject to the PM BACT limit of 0.0015 gr/dscf. In fact, all operations using high-efficiency dry filters are considered to be equipped with BACT.

Condition 2.2.2 is a BACT limit requiring 95% destruction efficiency from the RTO.

Conditions 2.2.3 through 2.2.9 establish the BACT limits for the major surface coating groups, in either units of VOC emitted per gallon coating solids applied (transfer efficiency taken into account, or in units VOC weight content.

Condition 2.2.10 establishes as BACT a VOC emission limit in tons per year for miscellaneous VOC usage, excluding VOC from certain other activities.

Condition 2.2.11 establishes the BACT NOx limit on the hot water heaters; this limit encompasses Georgia Rule (lll) that applies to the same units, and extends the 30 ppm beyond ozone season to all periods when natural gas is used.

Condition 2.2.12 establishes the BACT NOx limit on all other process heaters that are direct-fired (spray booth heating) or indirect-fired (ovens). The heat inputs listed in Table 2.2.12 are approximate, as this value may change slightly upon final plant construction – any changes in heater capacity will not affect the limit. Note that individual burner and heat exchanger size on all indirect-fired equipment is less than 10 MMBtu/hr, hence these units are not subject to Rule (lll)

Condition 2.2.13 establishes as VOC BACT the work practice standards that are part of MACT IIII.

Condition 2.2.14 establishes VOC BACT for gasoline dispensing, mirroring Georgia Rule (rr) – Stage 1 vapor recovery.

Condition 2.2.15 establishes VOC BACT for storage tanks, similar to Georgia Rule (vv) – submerged fill pipes, but providing a minimum vapor pressure threshold.

Condition 2.2.16 establishes VOC BACT for any cold solvent degreasers, mirroring Georgia Rule (ff).

Condition 2.2.17 establishes a VOC BACT work practice standard requiring containment of VOC-laden materials.

Conditions 2.3.1 through 2.3.3 establish HAP limits from 40 CFR 63 Subpart IIII.

Condition 2.3.4 establishes control devices operating standards from 40 CFR 63 Subpart IIII.

Conditions 2.3.5 through 2.3.7 establish the work practice standards from 40 CFR 63 Subpart IIII.

Conditions 2.3.8 through 2.3.10 establish the VOC limits from 40 CFR 60 Subpart MM. Note that rocker panel primer, which is an anti-chip coating, is considered a guidecoat for the purposes of the NSPS and the NESHAP, as specified in the NESHAP.

Conditions 2.3.11 and 2.3.12 establish the general applicability of 40 CFR 63 DDDDD to the hot water heaters and indirect-fired process heaters. These units have limited requirements as detailed in Subpart DDDDD.

Conditions 2.3.13 through 2.3.17 establish the requirements of 40 CFR 60 Subpart IIII to all diesel-fired internal combustion engines, including emergency electrical generators and fire pumps. Because the specific model year engines installed has not been determined yet, that portion is not detailed in these conditions.

Conditions 2.3.18 and 2.3.19 establish the requirements of 40 CFR 60 Subpart Dc to the hot water heaters. Kia has agreed to limit fuel oil sulfur content to 0.3% in order to utilize the monthly usage provision allowed by Subpart Dc in the recent amendments to that regulation.

Condition 2.3.20 establishes the general applicability of 40 CFR 63 Subpart EEEE to organic liquid storage containers that meet the applicability thresholds. At the time of permit draft, the only tank likely to be affected is the methanol tank, but it may be resized to less than 10,000 gallons upon final install – thus avoiding any standards of this regulation.

Condition 2.4.1 establishes Georgia Rule (b) as applicable.

Condition 2.4.2 establishes Georgia Rule (e) as applicable.

Conditions 2.4.3 and 2.4.4 establish Georgia Rule (d) as applicable.

Condition 2.4.5 limits fuels used at the facility to natural gas, propane, and distillate fuel (including diesel fuel) and thus subsumes Georgia Rule (g).

Condition 2.4.6 limits emergency generators to 200 hours per year to avoid Georgia Rule (mmm).

Conditions 2.4.7 through 2.4.11 establish Georgia Rule (t). Note that rocker panel primer is considered a spray prime operation under rule (t).

Condition 2.4.12 sets operating limits for the RTO and capture system in order to ensure compliance with Rule (t). Note that Kia can meet almost all the Rule (t) limits without consideration of VOC control.

Part 3.0 – Performance Testing

Condition 3.1.1 specifies the appropriate tests methods to determine compliance with all the emission standards and limits in the permit

Conditions 3.1.2 through 3.1.5 detail the general testing requirements under Georgia rules.

Conditions 3.1.6 and 3.1.7 specify test result reporting requirements under the General Provisions of the NESHAP.

Condition 3.2.1 establishes the general performance testing requirements of 40 CFR 63 Subpart IIII. The language from Subpart IIII is not altogether clear, so a more user-friendly version of the tests are spelled out in Conditions 3.2.2 and 3.2.3.

Condition 3.2.2 details the requirements to conduct VOC destruction efficiency testing on the RTO, per Subpart IIII.

Condition 3.2.3 details the requirements to conduct capture efficiency testing, per Subpart IIII.

Condition 3.2.4 requires transfer efficiency determinations to be made on all spray-painting according to Subpart IIII.

Condition 3.2.5 requires initial NOx testing on each hot water heater

Condition 3.2.6 requires initial NOx testing on one representative heater.

Condition 3.2.7 requires initial PM testing on each wet scrubber.

Part 4.0 – Monitoring

Conditions 4.2.1 through 4.2.4 detail the monitoring requirements specified by 40 CFR 63 Subpart IIII, including continuous monitoring and records of RTO temperature and capture system parameters.

Condition 4.2.5 establishes the fuel monitoring requirements of 40 CFR 60 Subpart Dc as applicable to the hot water heaters.

Condition 4.2.6 establishes the operational hour metering requirements of 40 CFR 60 Subpart IIII as applicable to emergency generators and fire pumps.

Condition 4.2.7 establishes the NOx monitoring schedule and protocol required by PTM Section 2.119 as applicable to the hot water heaters.

Condition 4.2.8 requires daily recording of each wet venturi scrubber pump supply pressure to ensure proper operation for the PM BACT limit.

Condition 4.2.9 requires monthly inspections of all the work practice standards.

Condition 4.2.10 requires that the dry particulate filters installed as PM BACT be maintained per manufacturer recommendations.

Condition 4.2.11 requires monitoring on the Stage 1 vapor recovery system on the gasoline tanks.

Part 5.0 – Record Keeping and Reporting

Conditions 5.1.1 and 5.1.2 are general requirements from Georgia rules.

Condition 5.1.3 requires semiannual reporting of exceedances and excursions. Note that 40 CFR 60 Subpart MM requires quarterly reports if an exceedance occurs- this is addressed in Condition 5.2.9b, otherwise, only semiannual reporting is required by 40 CFR 63 Subpart IIII and 40 CFR 60 Subpart Dc.

Condition 5.2.1 requires that records of be kept sufficient to determine compliance with the VOC limits of Georgia Rule (t) and 40 CFR 60 Subpart MM. Because many standards in averaged on a daily basis, daily records are needed for some items, while monthly records may be sufficient to show compliance with certain limits.

Conditions 5.2.2 through 5.2.9 detail the record keeping, and reporting requirements to demonstrate compliance with Rule (t) and 40 CFR 60 Subpart MM. Prompt reporting of emissions exceeding the applicable standards is required by these conditions. Prompt reporting of monthly totals exceeding one-twelfth of the annual standards is required, but it should be noted that this, in and of itself does not constitute a violation. These conditions also prescribe the calculations to be used to demonstrate compliance.

Conditions 5.2.10 through 5.2.12 detail the record keeping and reporting requirements of 40 CFR 60 Subpart Dc.

Conditions 5.2.13 through 5.2.36 detail the record keeping, reporting, and emissions calculation requirements of 40 CFR 63 Subpart IIII. These conditions reflect, almost verbatim, the language specified in Subpart IIII.

Conditions 5.2.37 through 5.2.44 detail the record keeping, and reporting requirements of 40 CFR 60 Subpart IIII as they will apply to emergency generators and fire pumps. These conditions also provide compliance demonstration records for Rule (mmm) avoidance.

Conditions 5.2.45 and 5.2.46 require record keeping to demonstrate ongoing compliance with the BACT requirement of Stage 1 vapor balance for gasoline dispensing.

Conditions 5.2.47 through 5.2.50 details the record keeping requirements to demonstrate ongoing compliance with the VOC BACT limits.

Conditions 5.2.47 through 5.2.51 detail the record keeping requirements to demonstrate ongoing compliance with the VOC BACT limits and the plantwide VOC limit. Prompt reporting of emissions exceeding the limits is required by these conditions. Prompt reporting of monthly totals exceeding one-twelfth of the annual standards is required, but it should be noted that this, in and of itself does not constitute a violation. These conditions also prescribe the calculations to be used to demonstrate compliance.

Conditions 5.2.52 through 5.2.54 detail the record keeping requirements to demonstrate ongoing compliance with the plantwide NOx and CO limit. Prompt reporting of emissions exceeding the limits is required by these conditions. Prompt reporting of monthly totals exceeding one-twelfth of the annual standards is required, but it should be noted that this, in and of itself does not constitute a violation. These conditions also prescribe the calculations to be used to demonstrate compliance.

<u>Appendix A – Draft PSD Permit</u>

Appendix B – PSD Permit Application No. 17363 & Supporting Data

Initial Application received April 19, 2007

Update Application received April 25, 2007

PSD and NAAQS modeling results received May 24, 2007

Table of PSD increment-consuming (and expanding) sources modeled

Table of contributing sources modeled for NAAQS

Table of major sources in Troup County