TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 7, 2017

MR ROB FRANKLIN
GENERAL MANAGER
TOYOTA MOTOR MANUFACTURING TEXAS INC
1 LONE STAR PASS
SAN ANTONIO TX 78264-3638

Re: Permit Amendment
Permit Numbers: 70661 and PSDTX1036M1
Motor Vehicle Assembly Plant
San Antonio, Bexar County
Regulated Entity Number: RN104086673
Customer Reference Number: CN602524043

Dear Mr. Franklin:

Upon evaluation of the above-referenced amendment, we have determined that additional information is needed to complete our review. Please furnish the information indicated as follows:

Scope of Project and Federal NSR Applicability

- The permit amendment application covers the addition of a second assembly plant and changes to Plant 1 that include adding capacity to the Stamping Shop, adding capacity or new welding equipment in the Bodyweld shop and adding a panel coating line. The application does not address the effects that the added capacity/processes will have on the unchanged sources in Plant 1. Please discuss the effects the proposed changes will have on the production rates and emissions both upstream and downstream of each change at Plant 1. In other words, will the proposed changes result in debottlenecking at the existing plant and result in an increase in emissions for the remainder of Plant 1?

- Permit Nos. 70661 and PSDTX-1036 were originally issued on June 16, 2004 and included two assembly plants. The second plant was never constructed and the authority to construct the second plant lapsed on December 16, 2006. The permit was issued with a cap across each of the source type groupings (Categories) for both plants. Since that time, no permit action has been taken to clearly establish short term and annual allowable emission rates for Plant 1 and no clear emission limits exist in the MAERT for the sources located at Plant 1. However, the NAAQS analysis and the speciated impacts analysis for this project includes sources from Plant 1 and no emission rate calculations were provided for these sources so it is not possible to validate the emission rates used in the modeling.

  In 30 TAC 116.116(b)(1) it states that the conditions upon which a permit, special permit, or special exemption are issued include:

  > (1) representations with regard to construction plans and operation procedures in an application for a permit, special permit, or special exemption; and
  >
  > (2) any general and special conditions attached to the permit, special permit, or special exemption itself.

It is longstanding APD policy, that representations in a modeling report are just as enforceable as any other representation in the permit application since it is a part of the permit application. As such, if Toyota wishes to use the emission rates in the modeling report, supporting calculations must be provided and they will become the federally enforceable emission rates for these sources at Plant 1. Without federally enforceable emission rates, the modeling could be considered invalid and delay the issuance of this permit amendment.

- The federal applicability analysis did not clearly include the emissions from planned maintenance, startup and shutdown activities for the proposed sources which also include general plant maintenance activities. These activities must be identified and included in the project increases as part of the federal applicability analysis. Some of these activities are already authorized at Plant 1 within the permit or under one or more Permits by Rule (PBR) or de Minimis claims (30 TAC 116.119) and these authorization types may be used for the proposed sources but the emissions associated with the authorizations must be included in the federal applicability analysis.

Plot Plan

The plot plan submitted with the application includes none of the existing or proposed emission points. As a result, it is not possible to verify the spatial relationship between the emission points themselves, the buildings or the site property boundaries. It is also not possible to verify emission point accounting between Table 1a, the emission calculations or the air dispersion modeling. In addition, the text includes in a number locations wording similar to the following:

> It is possible that TMMTX may make physical changes to the Stamping / Bodyweld shops building structures to accommodate these changes. The changes to be made should not have a significant effect on the dispersive nature of existing operations exhaust stacks or new exhaust sacks.

Accurate building dimensions are required in order to support the air dispersion modeling effort.

Labeling of and identification of emission points, buildings, tanks, etc., must be consistent with other representations in the permit application such as emission calculations, process flow diagrams, Table 1(a) entitled, Emission Point Summary Table, air dispersion modeling, air quality analysis reports, and, if required, the separately filed TCEQ emissions inventory. For facilities with a large number of emission points, a legend should be included on the plot plan that lists the EPN, emission point name, and its location in plant coordinates or UTM Coordinates. For dispersion modeling purposes, a separate table cross referenced to the plot plan should be submitted listing building, tank, and other downwash structure heights. Please provide a revised plot plan.

Process Description

An extensive process description was submitted with the application. Given the complexity of the processes involved, additional information is requested to support other portions of the application as follows:

- The process description, process flow diagrams, BACT analysis, emission calculations, the sources included in the air dispersion modeling are frequently inconsistent and there are many examples of this in the tables in the BACT analysis. Please revise the process description and all other parts of the application such they are consistent.
- The terminology in the process description and the remainder of the application is inconsistent for the materials used in the stamping shop. In order to produce a quality part and prevent damage to the dies a die lubricant is used. In some cases this is referred to as a “die lubricant”; in others

it is a “rust preventative” and in some cases it is a “stamping oil” or “drawing oil”. Please revise the application such that it is consistent or provide information on how these are separate products and estimate emissions for each.

- The process description and the BACT analysis do not describe how the “die lubricant” is applied to the blanks or coil stock. Is it rolled on or sprayed? Please clarify and revise other parts of the application if it is sprayed.
- The process description does not include information on how the paints, sealers, adhesives are received and where they are placed prior to distribution and if there is mixing required and how the mixed products are distributed to the spray booths or application sites. Please include a discussion on coating solvent management, mixing and distribution including the handling of waste coating products.
- The application indicates that some of the plastic parts used for the interior parts may be molded at the site and no detail on this process was provided. Are the plastic pellets received in bulk and stored in silos or will they be received in Gaylords (boxes) or supersacks? Are the pellets conveyed pneumatically within the process? Please provide greater detail on all portions of this process. It should be noted that these operations are frequently authorized using several permits by rule (PBRs) such as 30 TAC 106.221, 393, 394 and 395 and since these sources are part of the project they must be included in the air quality analysis.
- The application provides little detail on the process wastewater operations at the plant. One significant waste water stream will be from the water wash booths. Sludge that includes VOCs will need to be separated from the stream and dewatered for disposal and the water will include miscible VOCs such as alcohols and glycol ethers. Please provide additional information on this portion of the process and include emission calculations, a BACT analysis and include this source in the impacts analysis.

Process Flow Diagrams

None of the 20 process flow diagrams include EPNs and some of the emission controls such as the proposed 95% efficient filters for the laser/MIG welding operations are missing. Please revise the process flow diagrams to include all emission controls and at a minimum the emission point designations that will be used in the impacts analysis.

Capture of Emissions

The permit application represents that all of the PM, VOC and exempt solvent (ES) emissions from the welding, body sealers, pretreatment, e-coat (ELPO) primer surfacer, topcoat, injection molding and final assembly are captured and are routed through the control devices or through dedicated exhaust points and as a result it is assumed that 100% capture of emissions is achieved. The (TCEQ) criteria for achieving 100 percent capture of emissions requires that the face velocity across all of the openings into the booths, welding, body shop and final assembly etc. is greater than 100 feet per minute (fpm). This can be determined by taking the exhaust flow rate (cfm) through the stack or vents and subtracting the flow rate for any air makeup fans that force air into the various areas of the plant and dividing the resulting flow rate by the area of the openings (ft^2). Please provide face velocity calculations or other engineering data to demonstrate that 100% capture of emissions is achieved.

BACT Analysis

General Comments

The BACT analysis is a very general discussion with no vendor data or process specifics included and in some cases the there is no clear and federally enforceable control option or techniques proposed. Many portions of the application include vague and unenforceable proposals such as material VOC content will be minimized when technically feasible or water based coatings will be used where technically feasible. BACT proposals must conform to the requirements established in the definitions included in the Texas and federal rules as follows:

> **§116.10. General Definitions.**
>
> (1) Best available control technology (BACT)--**An air pollution control method** for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practical and economically reasonable for the facility. The emissions reduction can be achieved through technology such as the use of add-on control equipment or by enforceable changes in production processes, systems, methods, or work practice.
>
> **40 CFR 52.21 (9)(b)(12)**
>
> (12) *Best available control technology* means **an emissions limitation** (including a visible emission standard) **based on the maximum degree of reduction for each pollutant** subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

Unclear or Inconsistent Control Technology Representations

Both the Three Tier TCEQ analysis and the EPA top down analysis determined that thermal controls were determined as appropriate add-on controls for a number of the coating operations. However, no specific thermal control technology was such as direct flame, recuperative or regenerative thermal oxidizers was identified and no vendor data for the proposed control systems was provided to further identify the type of controls to be used. Only the process flow diagrams indicate that regenerative thermal oxidizers (RTOs) may be used to limit VOC, ES and HAP emissions. The application must contain clear and consistent representations and the application sections should be revised to provide this level of detail.

Other Existing Sources in Texas

The TCEQ BACT analysis is based on a three tier evaluation process as outlined in *Air Pollution Control - How to Conduct a Pollution Control Evaluation* which is located at:

https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/airpoll_guidance.pdf

The guidance states that:

> In the first tier, an applicant's BACT proposal is compared to the emission reduction performance levels accepted as BACT in recent NSR permit reviews for the same process and/or industry, which can be identified by the principal company product or business, Standard Industrial Classification (SIC) Code and the North American Industry Classification System (NAICS) system code.

In this case, the analysis was based on the TCEQ BACT guidance tables which largely reflect Tier 1 BACT for commonly encountered industries or processes and eliminates the need to conduct extensive file research. However, auto assembly plants are not included in the BACT guidance tables since TMMTX and GM Arlington are the only two sources in the state. As a result, the guidance requires a review of recently issued permits. Since 2011 GM Arlington has made significant upgrades to the pretreatment, ELPO, primer surfacer, topcoat and sealer operations. As part of the BACT analysis, recent changes to the GM-Arlington (Permit No. 19156) must be taken into consideration. For spray applied coatings, the coating VOC content, addon VOC controls and transfer efficiency must be taken into consideration since all three have an impact on VOC emissions. The comparison should be on a lb VOC/gallon solids applied basis for spray applied coatings.

Furthermore, the BACT analysis must also take into consideration the requirements of 30 TAC 115, Division 5 for VOCs. Chapter 115 represents reasonably available control technology (RACT) and, as such, is considered to represent a starting point for a BACT analysis regardless of the location of the proposed facility. Specifically, the VOC content of the coating materials should be compared to the limits in 30 TAC 115.453(a) The analysis must also take into consideration the coating application equipment requirements in 30 TAC 115.453(c) and the work practices in 30 TAC 115.453(d).

Please incorporate the information for GM-Arlington and 30 TAC Chapter 115 into a revised BACT analysis.

Natural Gas Combustion Sources

The BACT analysis for combustion of natural gas is covered in general in Section 4.3 and specifically for proposed plant equipment on Sections 4.4.6 and 4.6.4. These sections evaluate emission control technologies for NO_x, CO, $PM_{2.5}$ and SO_2. The control of emissions for CO, $PM_{2.5}$ and SO_2 is limited to the use of low sulfur gaseous fuels and good combustion practices. However, there are a number of control technologies to reduce the formation of NOx emissions such as low NO_x burners. Selected portions of the analysis are included below:

> **Section 4.3**
>
> As discussed in the following BACT sections, TMMTX has evaluated the energy demands of the proposed plant, along with the specifications/requirements of the various process natural gas combustion devices. All the devices selected by TMMTX will be designed to combust only natural gas and will vary in heat input requirements. Because of the unique nature of this process equipment, the combustion equipment selected is based on the requirements of the process. Thus, options for altering or modifying the combustion zone or burner design may not be readily available.
>
> **Section 4.4.6**
>
> There is an entire family of combustion controls for NO_x reduction from various combustion units. Combustion controls reduce NO_X emissions by controlling the combustion temperature or the availability of oxygen. Typically, for applications analogous to boilers, the combustion control options generally include the following:
>
> a. Low Excess Air (LEA);
>
> b. Low-NO_x Burners (LNBs);

c. Overfire Air (OFA);

d. Burners Out of Service (BOOS);

e. Reduced Combustion Air Temperature;

f. Load Reduction; and

g. Flue Gas Recirculation (FGR).

The combustion controls listed above are typically applied to boilers and not to process heaters such as ovens, thermal oxidizers and heating, ventilation and air conditioning (HVAC) units. Therefore, no further detail will be provided regarding these combustion controls to the various process combustion devices and they will be precluded from any further BACT analysis.

Section 4.6.4

Because of the uniqueness of this process equipment, the equipment is being selected based on the requirements of the process. Thus, options for altering the combustion systems to a low NO_x burner design may not be readily available. Internal review of various combustion devices as based on energy studies have shown that standard burners are more energy efficient because of the cyclical nature of the burners kick on and off to support process operations. Burners designed to produce lower NOx may actually emitted more NO_x because of the nature of the burners requiring the burners to by cyclical. The equipment selected by TMMTX is considered energy efficient, and will be capable of combusting natural gas in an efficient manner.

Due to the size of the natural gas fired combustion equipment (< 40 MMBtu/hr) and quantity of emissions generated during the combustion of natural gas, it is not cost effective to install flue gas controls. A majority of the burners to be installed will be rated at less than 5 MMBtu/hr.

The proposed level of control is presented in Section 4.6.4 and is as follows:

TMMTX proposes as BACT, a NO_x emission limit of 0.10 lbs/MMBtu for each of the natural gas combustion devices. This limit is based on 1) the limited heat input requirements of the equipment (< 40 MMBtu/hr), 2) good combustion practices, which include periodic maintenance of the burners and 3) combustion of natural gas. No additional evaluation is required for this operation under the EPA's top-down BACT approach, and an economic, energy or environmental impact analysis is not required as part of the BACT evaluation for this operation.

This level of control is equivalent to the emission factors in Compilation of Air Pollutant Emission Factors, AP-42, Section 1.4 dated 3/98 which represents combustion technology that is over 20 years old. The application states that the TMMTX is equipment is unique but provides no information as to how the equipment is different from other combustion equipment and states that options for altering or modifying the combustion zone or burner design may not be readily available with no information from any potential equipment vendors to support this claim. Furthermore, this conclusion is not supported by the results of the RBLC search included in Table 4-2 where the examples from a variety of industries including automobile auto assembly plants have NO_x rates of less than 0.10 lb/MMBtu or low NO_x burners are proposed. In addition, GM-Arlington has proposed the following for the recently permitted and under construction ELPO and bodyshop:

Source Type	Firing Rate (MMBtu/hr)	Emission Rate (Lb NO_x/ MMscf)
ELPO Hot Water Generator	8.00	24
ELPO Air Supply House	1.30	65

Body Shop Heaters	1.30	65
ELPO Oven	16.74	36
ELPO RTO	9.00	40

These values are based on test data provided by the equipment vendors.

The proposed level of control does not represent BACT and unless specific information to the contrary is provided, BACT is considered to be low NO_x burners. Please revise the BACT analysis to include the use of low NO_x burners.

Particulate Matter Sources

The BACT analysis for particulate matter is covered in general in Section 4.3 for sources that are associated with the coating spraying operations and MIG welding/brazing operations.

Sections 4.6.2 and 4.6.7 Stamping Shop and Bodyweld Shop - Welding

Sections 4.6.2 and 4.6.7 conclude that no controls are required for the resistance/spot welding that is conducted using robots since little if any PM is generated and this level of control is considered to represent BACT. For the MIG/laser welding, these sections propose the use of a dry filter system which is also considered to represent BACT. However, the proposed level of control summarized in Table 4-1 is filter controls with no control efficiency specified. The emission calculations for welding in Table 2-5b use a filter efficiency of 95% while the calculations in Table 2-26d use a filter efficiency of 97% and no source for these emission control values is provided.

Table 4-6 provides a summary of the RBLC searches which concludes that filter controls represent BACT for welding. However, the entries in the table indicate that the Honda Greensburg Assembly plant was permitted in 2006 with a 99% efficient or 0.0015 gr/scf PM control system.

A search of PM control system vendors such as Donaldson, Inc. and Camfill Farr indicates that cartridge filter systems specifically designed for control of welding fumes are readily available that have efficiencies that exceed 99.9%. More specifically, Camfill Farr has a unit installed to control welding emissions at the Nissan North America, Inc. facility in Canton, MS. Please revise the BACT analysis for the welding operations such that a control system that is comparable to other facilities is proposed.

Surface Coating Operations – Spray Applied Coatings – PM Emissions

The proposed BACT analysis for PM emissions from spray application of coatings is acceptable since well established control technologies are proposed and the proposed control efficiencies meet the TCEQ BACT guidelines or represent Tier I when other similar sources are considered.

VOC and Exempt Solvent Emission Controls

Sections 4.6.2 and 4.6.7 Stamping Shop and Bodyweld Shop – Stamping

The BACT proposal is acceptable in terms of the general approach but lacks any substantive analysis of available stamping oil (die lubricant/rust preventative) VOC contents and does not provide any information on the material currently in use at TMMTX or any other stamping plants. Just stating that material VOC content will be minimized when technically feasible is not a clear and federally enforceable emission limitation. The proposed allowable emission rates for this operation are as follows:

Plant	Category	Spreadsheet	VOC Content (lb/gal)	Proposed Allowable Emission Rate (tpy)	Site Annual Total Emission Rate (tpy)
1	15-02	2-26e	4.50	56.25	112.5
2	23-01	2-5a	4.50	56.25	

In July 2012, GM Arlington authorized the construction of a new stamping shop using 30 TAC 106.317 (Permit No. 104578) and the operations have a federally enforceable VOC emission limit of 5.34 tpy. The plant is currently authorized to build over 300,000 large Sport Utility Vehicles (SUV) (jobs) per year. The proposed production from this site is 500,000 jobs per year. If the allowable emission rate for GM were ratioed to 500,000 jobs/year the resulting emission rate would be approximately 8.9 tpy. On an equal production basis, the proposed allowable emission rate is over 12X that of a comparable facility. Please revise the BACT analysis for the stamping operation. The analysis should be based, at a minimum, on stamping oils that are currently in use or available for use in stamping plants.

Surface Coating Operations - VOC and ES

The BACT analysis for the Plant 1 Panel Coating Line and all of the coating operations in Plant 2 is covered below.

Section 4.6.1 Plant 1 Panel Coating Line

It should be noted that Table 4-1 does not include information on Category 14 and the information in Category 24 was assumed to be applicable and Table 4-7 and Table 4-8 only contain information for Category 24 and was assumed to be applicable.

E-Coat

The BACT proposal is inconsistent between the text, Table 4-1, Table 4-2 and the emission calculations. The proposed BACT in the text for e-coat is a coating VOC content of 0.64 lb/gal applied coating solids and 98% control of the oven exhaust. The Tables propose a coating VOC content of 0.04 lb/gal applied coating solids and 98% control of the oven exhaust. The emission calculations in Tables 2-6a are based on a coating VOC content of 0.65 lb/gal and 98% oven abatement. In addition, the application does not include some recently permitted (December 2015) operations such as GM-Arlington which is limited to 0.42 lb VOC/ applied and a 95% control of the dip tank and the oven. Please revise the application such that recent permitting actions are taken into account and all parts of the application are consistent.

Primer Surfacer/Basecoat/Clearcoat

The application text states that:

> The proposed truck panel coating line is a wet-on-wet system that applies primer surfacer, basecoat and clearcoat in one process. This system is substantially different that a traditional Paint Shop where each coating is sent to an oven for curing prior to next coating being applied. Thus, the information presented in the RACT/BACT/LAER Clearinghouse for traditional automotive surface coating operations is not applicable.

This statement provides no information on how the proposed “wet on wet” system is different from a traditional system from an air emissions standpoint. The process flow diagrams indicate that the system is configured as follows:

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Source	Emission Point
Preheat Oven	RTO
Primer Surfacer Booth	Atmosphere
Primer Surfacer Heated Flash	RTO
Basecoat Booth	Atmosphere
Basecoat Heated Flash	RTO
Clearcoat Booth	RTO
Oven	RTO

With this arrangement, the emission distribution in the system will be different from a traditional system and a comparison between the VOC and ES concentrations, emission rates, and appropriate locations for emission control and control technologies should be done on a side by side basis. Once this is complete, a clearer comparison between the technologies and the entries in the RBLC should be made and the BACT analysis should be updated.

Section 4.6.8 Primary Body Surface Coating Operation – Plant 2

E-Coat

The BACT proposal is inconsistent between the text and Table 4-1, Table 4-2 and the emission calculations. The proposed BACT in the text for e-coat is a coating VOC content of 0.64 lb/gal applied coating solids and 98% control of the oven exhaust. The Tables propose a coating VOC content of 0.04 lb/gal applied coating solids and 98% control of the oven exhaust. The emission calculations in Tables 2-6a are based on a coating VOC content of 0.65 lb/gal and 98% oven abatement. In addition, the application does not include some recently permitted (December 2015) operations such as GM-Arlington which is limited to 0.42 lb VOC/ applied and a 95% control of the dip tank and the oven. Please revise the application such that recent permitting actions are taken into account and all parts of the application are consistent.

Primer Surfacer/Basecoat/Clearcoat

The BACT analysis sections, process flow diagrams and the emission calculations are inconsistent with the sources that will be controlled, the type of controls and the control efficiencies. These issues are summarized in the following tables.

Primer Surfacer/Basecoat/Clearcoat Controls by Application Sections

Source	Process Flow Diagram Emission Point	Section 4.6.8 Text Emission Point	Table 4-1 BACT Summary Emission	Table 4-8 – RBLC Emission Point	Table 2-7- Emission Calculation Emission Point

			Point		
Preheat Oven	RTO	Not Discussed	Not Discussed	Not Discussed	Not Discussed
Primer Surfacer Booth	Atmosphere	Atmosphere	Atmosphere	Atmosphere	Atmosphere
Primer Surfacer Heated Flash	RTO	Atmosphere	Carbon/TO Concentrator	Atmosphere	RTO
Basecoat Booth	Atmosphere	Atmosphere	Atmosphere	Atmosphere	Atmosphere
Basecoat Heated Flash	RTO	Atmosphere	Carbon/TO Concentrator	Atmosphere	RTO
Clearcoat Booth	RTO	RTO	Carbon/TO Concentrator	RTO	RTO
Oven	RTO	RTO	Carbon/TO Concentrator	RTO	RTO

Primer Surfacer/Basecoat/Clearcoat Controls Efficiency by Application Sections

Source	Process Flow Diagram Emission Point	Section 4.6.8 Text Control Efficiency (%)	Table 4-1 BACT Summary Control Efficiency (%)	Table 4-8 – RBLC Control Efficiency (%)	Table 2-7-Emission Calculation Control Efficiency (%)
Preheat Oven	RTO	Not Discussed	Not Discussed	Not Discussed	Not Discussed
Primer Surfacer Booth	Atmosphere	0.0	0.0	None Represented	0.0
Primer Surfacer Heated Flash	RTO	0.0	Carbon 85 and TO 98	None Represented	98.0
Basecoat Booth	Atmosphere	0.0	0.0	None Represented	0.0
Basecoat Heated Flash	RTO	0.0	Carbon 85 and TO 98	None Represented	98.0
Clearcoat Booth	RTO	95.0	Carbon 85 and TO 98	None Represented	98.0
Oven	RTO	95.0	Carbon 85 and TO 98	None Represented	98.0

The BACT determination is based on the concept that the proposed "wet on wet" system is unique and that the "traditional system" RBLC and other BACT determinations are not applicable. This statement provides no information on how the proposed "wet on wet" system is different from a traditional system from an air emissions standpoint. With this arrangement, the emission distribution in the system will be different from a traditional system and a comparison between the VOC and ES concentrations, emission rates, and appropriate locations for emission control and control technologies should be done on a side by side basis. Once this is complete, a clearer comparison between the technologies and the entries in the RBLC should be made and the BACT analysis should be updated.

Finally the application states that:

> As discussed previously, TMMTX may elect to install a body coating line that will utilize a "Traditional" design. The BACT determination above will also pertain to that "Traditional" coating line.

This statement conflicts with the position that there can be no comparison between wet on wet system and traditional system. If a traditional system is being considered, a BACT analysis based on other traditional systems must be presented.

Section 4.6.9 – Plastic Parts Painting – Plant 2

The control proposal for the interior parts, bumper covers, and rocker panel coating lines are as follows:

> TMMTX is proposing the primary use of waterborne primers and topcoat basecoat materials. Waterborne topcoat materials are also being proposed for the interior parts spray booth. The resultant lbs of VOC/gallon are as follows:
>
> - Category 25-01 Interior Parts: 3.2 lbs VOC/gallon;
> - Category 25-04 Bumper: 2.2 lbs VOC/gallon; and
> - Category 25-05 Rocker Panel: 1.9 lbs VOC/gallon.

This level of control results in a VOC emission rate for these sources of

- Bumper Cover Coating 205.4 tpy
- Rocker Panel Coating 60.0 tpy
- Interior Parts Coating 52.0 tpy

The results from the RBLC search indicate that many of the sources include the use of thermal oxidizers to control emissions from the ovens and the TCEQ recognizes the results of the testing at TMMTX that indicate that little solvent remains in the coatings by the time that the parts reach the oven. However, the analysis does not look at additional controls on the spray booths and heated flash zones. The emission calculations indicate that the majority of the solvents flash off in the spray booths.

Coating Booth	Calculation Table	Booth Flashoff Fraction	Annual Emission Rate (tpy)
Interior Parts Manual	2-9a	0.65	3.40
Interior Parts Automatic	2-9a	0.65	30.39
Bumper Primer	2-11a	0.83	26.59

Bumper Basecoat	2-11a	0.71	43.13
Bumper Clearcoat	2-11a	0.77	86.69
Rocker Panel Primer	2-12a	0.75	7.70
Rocker Panel Basecoat	2-12a	0.75	18.56
Rocker Panel Clearcoat	2-12a	0.80	20.02

Please revise the application to evaluate VOC controls for the plastic shop spray booths. The controls evaluated should include RTOs and rotary concentrators/thermal oxidizers. Contrary to the conclusions in Section 4.4.5(5) these units have been permitted, installed and operated successfully at a number of sites in Texas. A partial listing of these sources is as follows:

Company	Permit Number	Product	Emission Controls
Union Tank Car	5566	Tank Cars	Rotor Concentrator/Thermal Oxidizer
Connor Steel	74024	Storage Tanks	Rotor Concentrator/Thermal Oxidizer
Caterpillar, Inc.	93234	Hydraulic Excavators	Rotor Concentrator/Thermal Oxidizer
Caterpillar, Inc.	87118	Engines	Rotor Concentrator/Thermal Oxidizer
Dragon Products	78921	Roll off Boxes	Rotor Concentrator/Thermal Oxidizer
Dragon Products	81515	Roll off Boxes	Rotor Concentrator/Thermal Oxidizer
GM –Arlington	19156	Auto Assembly	RTO and Rotor Concentrator/Thermal Oxidizer

Section 4.6.10 – Miscellaneous Metal Parts

Miscellaneous metal parts are covered in an inconsistent manner in the application as follows:

Operation	Section 4.6.1 Text	BACT Summary Table 4-1	RBLC Summary Table 4-10	Process Description	Process Flow Diagram*	Emission Calculation Table
Blackout	Yes	Yes	Yes	Yes	Yes	2-13a
Fuel Tank Coating	No	Yes	Yes	No	No	Not Included
Small Parts E-coat	No	Yes	Yes	No	No	Not Included

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*Includes Cavity Wax from Category 27

For the sources where there is complete coverage in the application, the BACT proposal is acceptable.

Section 4.6.11 - Miscellaneous Body Coatings

A VOC content limit of 0.5 lb VOC/gallon is proposed for all of the materials except for the waxes. This value is inconsistent with the results of the RBLC search since nearly all of the sites list a VOC content limit of 0.3 lb/gal. In addition, the BACT Summary – Table 4-1 and the RBLC Summary – Table 4-11 include no mention of topcoat oven incineration which included in the Section 4.6.11 text, the emission calculations and the process flow diagram.

The emission source accounting is also inconsistent as follows:

Operation	Section 4.6.11 Text	BACT Summary Table 4-1	RBLC Summary Table 4-11	Process Description	Process Flow Diagram	Emission Calculation Table
Wax - Engine Booth	No	No	No	Yes	Figure 2-17	Yes
Wax – Hub Booth	No	No	No	Yes	Figure 2-17	Yes

The waxes have a VOC content of 5.85 and 5.60 Lb VOC/gal which is considerably higher than the 3.6 and 4.0 lb VOC/gal proposed as BACT for a number of the other waxes.

Please revise the application such that all operations are included in the BACT analysis and the coating VOC content limits are consistent with the RBLC results and the limits in 30 TAC 115.453.

Section 4.6.12 – Miscellaneous Process Cleaning

Section 2.5.9 of the process description states that water based purges are typically not captured and this section does not include a discussion why water based purges cannot be captured and/or controlled. The discussion should center on reducing the emissions from the waterborne purge in the plastics operation since the purge operation has emissions over 140 tpy which is approximately 75% of the total purge emissions. Furthermore, the process description, this section or the emission calculations indicate how much solvent borne purge is collected and how it relates to the emission calculations and BACT. Please provide additional information on water based purge collection and solvent borne purge collection.

Section 4.6.13 – Paint Repair

The application proposes two techniques for reducing emissions from the final repair operation as follows:

- Use of waterborne materials where technically feasible; and
- Good operating practices, which includes material management to minimize excessive use and spillage.

There are no clearly enforceable limitations in this proposal. The coating VOC contents represented in the emission calculations range from 5.8 to 7.1 lb VOC/gal. However, the RBLC Summary - Table 4-13 does not include a BACT proposal although nearly every referenced source limits VOC content to less

than 4.8 lb VOC/gal as does 30 TAC 115.453(a)(3). Please revise the BACT analysis to be consistent with the RBLC Results and Chapter 115.

Section 4.6.14 – Final Assembly Line

The data in Table 2-24 was used to calculate a weighted average VOC content for all window installation materials and the resulting value was 1.044 lb VOC/gallon. Two of the sources listed in the RBLC have a weighted average VOC content for all window installation materials 0.40 lb VOC/gal. Please revise the BACT analysis to be consistent with the RBLC results or provide clear justification why the VOC content limitations in the RBLC cannot be achieved for the proposed operation.

Storage Tanks

The BACT analysis for the gasoline, diesel, urea, waste solvent and other automotive fluids is inconsistent between the individual sections the BACT Summary Table, the RBLC Summary and the emission calculations. The representations for these tanks are summarized as follows:

Fixed Roof Diesel, Urea, ATF, Antifreeze, Brake Fluid, Engine Oil, Gear Lube, Waste Solvent etc.

Control Measure	Emission Calculations	Section 4.6.3	Section 4.6.6	BACT Summary Table 4-1	RBLC Summary Table 4-5
White in Color	Yes	No	No	No	No
Submerged Fill Pipe	No	Yes	Yes	Yes	Yes
Conservation Vent	Yes	Yes	Yes	Yes	Yes

Fixed Roof Gasoline

Control Measure	Emission Calculations	Section 4.6.3	Section 4.6.6	BACT Summary Table 4-1	RBLC Summary Table 4-5
White in Color	Yes	No	No	No	No
Submerged Fill Pipe	No	Yes	Yes	Yes	Yes
Conservation Vent	Yes	Yes	Yes	Yes	Yes
Stage 1 Vapor Control	No	Yes	Yes	Yes	Yes

The BACT guidelines for storage tanks are located at:

https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/bact/bact_tanks.pdf

The guidelines require that tanks are to be painted specular aluminum or white and include submerged fill pipes. Please revise the BACT analysis and the emission calculations such that all parts are consistent.

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In addition, as part of BACT requirements, the transport vessels delivering VOC containing materials shall meet the leak testing requirements in 30 TAC § 115.234 for tank trucks transporting volatile organic compounds (VOC) having a true vapor pressure greater than or equal to 0.5 pounds per square inch absolute under actual storage conditions.

Emergency Support Equipment

Section 4.6.5 covers the emergency support equipment which consists of two diesel fired 1200 kw emergency generators and one diesel fired 215 kw fire pump. The BACT proposal includes meeting the requirements of NSPS Subpart IIII and MACT Subpart ZZZZ, using low sulfur diesel fuel (<15 ppm) and limiting operating hours. However, no numerical emission limits were proposed and the emission calculations were based on the use of EPA Compilation of Air Pollutant Emission Factors – AP-42, Section 3.3 (10/96). This is equivalent to basing BACT on engine designs that are over 20 years old. BACT should be based on the most stringent of the following:

- 40 CFR Part 60, Subpart IIII
- 40 CFR Part 63, Subpart ZZZZ
- 30 TAC 117, Subchapter B, where RACT establishes the BACT floor; or
- Emission factors from the actual equipment vendor

Please revise the BACT analysis for the engines and the analysis results should be presented in units of g/hp-hr for NO_x and CO.

Emission Calculations

General Criteria Pollutant Calculation Comments

In addition to specific comments on individual work sheets there are a number of issues associated with the emission calculations as a whole. These include but are not limited to:

- No emission point numbers are associated with any emission source. This makes it difficult to construct a Maximum Allowable Emission Rate Table (MAERT) and it is unclear which sources are associated with the surrogate EPNs used in the air dispersion modeling. Each emission source must have a clearly associated emission point with clearly defined stack parameters.
- No exempt solvents (ES) are included in any of the sources that have solvent emissions. The speciated emission rate calculations include ES such as acetone in the calculations. In order to be able to emit ES they must be included in the criteria pollutant emission rate calculations. ES is an air contaminant just like any other (it is only exempt from regulation as a VOC) and needs to be included in the BACT analysis and speciated off property impacts analysis.
- For the surface coating operations, the emission rates are frequently based on an amount of coating material per vehicle and it is unclear if this is an average or worst case value. This value should be based on the maximum surface area for the vehicle or part to be produced, the lowest coating solids content for maximum solvent emissions and the highest solids content for and the maximum PM emissions and the maximum anticipated dry film thickness.
- The emission calculations do not account for all of the constituents in the coating products. For example, the emission calculations for Interior Parts VOC and PM – Table 2-9a and Table 2-9b are based on the following:

  Coating density = 7.64 lb/gal
  Coating VOC content = 3.17 lb VOC/gal
  Coating solids content is 33% or (7.64 x 0.33) = 2.52 lb solids/gal

Since coatings are composed only of solids and solvents the sum of the solvent content and the solids content should equal the total coating density.

7.64 lb/gal – 3.17 lb VOC/gal – 2.52 lb solids/gal = 1.95 lb/gal missing

Ideally, the sum of the VOC, ES, water and solids should exceed 100%since this would represent a worst case VOC, ES, water and solids content. Please review all of the spreadsheets and revise the emission calculations to account for all of the constituents in all of the coatings used in each process.

- The plastic shop will include silos that store plastic pellets that will be used in the injection molding process as well as a pneumatic pellet conveying system. The silos and conveying systems will have baghouses or cartridge filter systems that separate the pellets from the conveying air and will control emissions from the erosion of the pellets in the system. However, no emission calculations were presented for these sources. Emission calculations must be presented for all sources to be constructed regardless of the magnitude of the emissions. Stating that emissions are insignificant and not quantifying the emissions is not acceptable.

- The same emission calculation spreadsheet (Table 2-6a) is used to estimate emissions from the e-coat portion of the panel line in Plant 1 and the entire e-coat operation in Plant 2 which would authorize 250,000 jobs/year each. Since the panel line would appear to coat only a fraction of the surface area of the Plant 2 line it appears that the Plant 1 panel line is either over permitted or would amount to a parallel coating line which has the potential to debottleneck the Plant 1 operations. Please revise the application to include a separate spreadsheet for the Plant 1 operations that corresponds to the maximum amount of surface area to be coated on an hourly and annual basis.

- For the coating operations, the solvent emissions are based on emission splits between the booths, heated flash zones, fugitives and the ovens and no justification was provided for these emission distributions. The use of industry averages or typical values is not acceptable justification. Test data from a similar operation is preferred and the summary pages of the test report should be provided to validate the emission distribution used. Alternatively, testing such as an oven solvent loading test may be used as long as the test conditions accurately reflect temperature and air flow conditions that occur in the booths and ovens during the test. Please provide a basis for solvent emission distribution for each of the coating operations.

- PM emission calculations were provided for each of the spray applied coating operations and a transfer efficiency (TE) was used in the calculations but no basis for the TE value was provided. Since transfer efficiency is part of the compliance demonstration for 40 CFR Part 60, Subpart MM, representative transfer efficiency values for the primer surfacer, basecoat and clearcoat operations should be available for use. Please provide the basis for the TE values and may include copies of the test report summary pages.

  For other sources, justification that gives consideration to part geometry, application technique (manual spray. robotic spray, dipping) as well as the atomization technology (HVLP, electrostatic spray, turbo disks or turbo bells) must be provided.

  For non-spray coating application operations, the application technology should be noted on the solvent calculation spreadsheet that to make it clear that 100% transfer efficiency is achieved and as a result there will be no PM emissions.

- The coating solvent emission rate calculations are based on a VOC content for the coatings to be applied at each step of the coating process. However, no supporting information is provided for the VOC content and it is unclear if the VOC content used in the calculation is a maximum or average value. Short term emissions must be based on a maximum value (as mixed and thinned

– ready to spray). Annual emissions may be based on this value or they may be based on a weighted average VOC content. Please provide the basis of the solvent (VOC and ES) content used in the emission calculations.

- For the processes for which an oven is part of the process, the oven must be identified. For example, the sealer and hem adhesive pass through an oven that is controlled by a thermal oxidizer. It appears that the oven is the Topcoat Oven. The appropriate process oven should be noted on each spreadsheet such that the associated emission point is clearly identified.

- A number of the spreadsheets include example calculations when a portion of the emissions are routed to a thermal oxidizer. However, the control efficiency in the example does not match the value used in the calculation. Please revise the example calculations such the values used in the examples match the values used in the calculations.

- Section 2.2.5 covers the primary body paint system and the application states that:

  > All paint materials will be supplied to the primary body paint system from mix tanks in the paint mix room or satellite tanks via a central paint circulating system (tanks, pumps and piping). The paint circulating system consists of minimal valves, flanges and pumps, and thus there are insignificant fugitive emissions from this system. The paint may be reduced as required with the appropriate thinners. These paint thinners are included as part of the VOC content of the paint ("as sprayed VOC" or "as applied") when calculating emissions from the primary body paint system spray system.

  The emission calculations include no estimation of emissions from the paint mixing operations. Please provide emission calculations from the mixing operation or justify why there are no emissions.

Criteria Pollutant Emission Rate Calculations – Individual Worksheets

Natural Gas Combustion – Tables 2-2a, 2-2b, and 2-2c

The annual criteria pollutant emission calculations are based on a maximum firing rate and an operating schedule of 1625 hours/yr. While some of the sources are used for comfort heating and would have a limited operating schedule in Bexar County, others are production booth heaters and the thermal oxidizers and this schedule would not allow for even one 8 hour shift 5 days per week for 50 weeks per year. In fact a production schedule of 250,000 vehicles per year with a maximum of 70 vehicles per hour would require 3,571 hours of operation/year. Including shift changes and the fact that the line rate will be less than 70 vehicles per hour for some portion of the year the operating schedule for the ovens and oxidizers may exceed 4,000 hours per year. In addition, the greenhouse gas (GHG) calculations are based on an operating schedule of 1752 hr/yr. Please revise the emission calculations for each source based on an appropriate number of hours for each operation and ensure that the operating schedule is consistent for all of the emission calculations.

The TCEQ requires that the products of combustion of the solvents be included in the RTO emissions. This is done by using the emission factors for fuel oil firing (surrogate for coating VOC) from Compilation of Emission Factor – AP-42 Section 1.3. The Air Permits Division has developed a spreadsheet that calculated the emissions from natural gas firing and sums them with the emissions from the combustion of the solvents to arrive at a total emission rate. Please revise the RTO emission calculations to account for the firing of natural gas and coating solvents.

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Diesel Engines – Tables 2-3a, 2-3b, and 2-3c

The emission calculations for the emergency diesel generators and the diesel fire water pumps were based on Compilation of Air Pollutant Emission Factors AP-42, Section 3.3 rather than the applicable emission limits or actual performance data from one or more of the following:

- 40 CFR Part 60, Subpart IIII
- 40 CFR Part 63, Subpart ZZZZ
- 30 TAC 117, Subchapter B, where RACT establishes the BACT floor; or
- Emission factors from the actual equipment vendor

The revised calculations should be based on g/hp-hr values for each air contaminant.

Storage Tanks – Tables 2-4a – 2-4k

The spreadsheets note that no emissions were estimated from the Freon refrigerant (R-134a) used in the vehicle air conditioning systems since it is not a regulated air contaminant. The refrigerant is an air contaminant according to the definition of air contaminant in the Texas Clean Air Act which is as follows:

> TCAA 382.003 - (2) "Air contaminant" means particulate matter, radioactive material, dust, fumes, gas, mist, smoke, vapor, or odor, including any combination of those items, produced by processes other than natural.

Since it is an air contaminant, the emissions must be quantified and included in the emission calculations and included in the off property impacts analysis.

The tables also state that the emissions from filling the unleaded gasoline tank are controlled through the use of Stage I vapor controls and that the emissions are considered to be insignificant. The TCEQ rules have no significance or de minimis levels below which no quantification is required. Please provide emission rate calculations for the unleaded gasoline loading operation.

The waste paint emissions (Table 2-4h) were calculated assuming that the contents of the tank are exclusively xylene. The speciated emission rate calculations include a large number of solvents and the waste paint will have a composition similar to that of the coatings used in the booths and dip tanks. Please provide justification for the use of only one species to represent the emissions from this tank.

Table 2-4g estimates emissions from engine oil/rear suspension but it is not clear if this is intended to represent more than one tank since engine oil and gear lubricant must be stored in separate tanks. Please clarify.

Finally, no emissions were estimated for the loading connectors at the tank farm loading rack or from pumps, valves and flanges (equipment leak fugitives). These emissions should be evaluated using the TCEQ guidance for Equipment Leak Fugitives which is attached as a separate document.

Please quantify emissions for equipment leak fugitives and include the emissions in the off property impacts analysis.

Stamping/Press Die Lubricant – Table 2-5a

There is no backup for the VOC content of the stamping shop drawing oil and a VOC content of 4.25 lb VOC/gal indicates that there are other constituents in the product since the density (VOC content) of oil alone is approximately 7.3 lb/gal. Complete speciation is needed to determine if there are other constituents that are not an air contaminant such as water or if there are solids that may be emitted if the drawing oil spray applied. Please provide complete speciation and revise the emission calculations to account for all species and the application method.

The spreadsheet also states that the stamping shop will be equipped with several stamping presses which are considered non air contaminant emission sources and it is unclear what this means. Please explain why there are no air emissions while keeping in mind the TCEQ definition of an air contaminant and the application methods of any lubricants.

Welding – Table 2-5b

The welding technology for the suspension welding is not clearly identified. An examination of Table 12.19-1 in AP-42 indicates that this is a GMAW (gas metal arc welding) process. The emission factor used in the emission calculations corresponds to an ER5154 wire and the emission calculations reference a Hobart BR-6 wire. Pleased verify the welding technology and justify the use of the emission factor for the wire that will be used in the process. The cover gas must also be identified and the emissions quantified.

The emission calculations are also based on a control efficiency of 95% and an assumed 100% capture efficiency. There is no information in the spreadsheet or in the rest of the application to support these values and assumptions. Please see the capture efficiency discussion and request for vendor control information above.

E-Coat – Table 2-6a

No comments in addition to the general comments.

Dry Sand – Table 2-6b

The emission calculations are also based on an engineering estimate based on other Toyota facilities and an assumed 100% capture efficiency. Please provide the basis of the estimate and 100% capture efficiency.

Primer Topcoat VOC and PM – Table 2-7 and Table 2-8

No comments in addition to the general comments.

Interior Parts VOC and PM – Table 2-9a and Table 2-9b

No comments in addition to the general comments.

Molding – Table 2-10

No comments.

Plastic VOC and PM – Table 2-11a and Table 2-11b

No comments in addition to the general comments.

Rocker VOC and PM – Table 2-12a and Table 2-12b

No comments in addition to the general comments.

Blackout VOC and PM – Table 2-13a and Table 2-13b

No comments in addition to the general comments.

Sealer – Table 2-14

No comments in addition to the general comments.

Sealer Adhesive – Table 2-15

The emission calculations include two entries for form sealer and hem adhesive at slightly different application rates and the emissions from each entry are summed to arrive at a total emission rate for the process. It is unclear why there are two entries. Please explain why and revise the emission calculations as needed.

Cavity Wax VOC ad PM – Table 2-16a and Table 2-16b

No comments in addition to the general comments.

PVC VOC and PM – Table 2-17a and Table 2-17b

No comments in addition to the general comments.

Wax VOC and PM – Table 2-18a and Table 2-18b

No comments in addition to the general comments.

Process Clean, Purge and Wipe Solvent – Table 2-19a – Table 2-19c

Table 2-19a

The process clean spreadsheet list cleaners for many areas of the plant but does not appear to cover cleaning within the booths or the use of products that make the booth easier to clean such as strippable booth coatings or ELPO cleanup. Please ensure that the list of areas to be cleaned is comprehensive and that the emission rates are based on worst case solvent content (average is used in the table) and solvent consumption.

Table 2-19b

The basis of the consumption for the purge solvent for the solvent borne coatings is unclear. Is the volume used in the emission calculations the total amount of purge solvent used or is it the amount that is potentially not captured for disposal or recycling? If it is the uncaptured amount how was this loss determined?

Table 2-19c

No comments in addition to the general comments.

Offline VOC and PM – Table 2-20a and Table 2-20b

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No comments in addition to the general comments.

Underbody VOC and PM – Table 2-21a and Table 2-21b

No comments in addition to the general comments.

Repair Polish VOC and PM – Table 2-22a and Table 2-22b

No comments in addition to the general comments.

Fluid Fill – Table 2-23a to Table 2-23e

The basis for gasoline fluid fill in the vehicle and the outdoor gasoline storage tank is inconsistent. Storage tank turnovers are based on a vehicle fill of 7 gallons while the fluid fill calculations are based on a vehicle fill of 5 gallons. Please ensure that all sections of the application are consistent.

The fluid fill for antifreeze is based on ethylene glycol while many antifreeze products contain diethylene glycol or propylene glycol. Please revise the fluid fill calculations to include all of the species commonly included in antifreeze mixtures.

The fluid fill operations do not include charging the air conditioning systems with refrigerant and refrigerant oil. As noted above, the refrigerant (R-134A) is an air contaminant that requires an authorization. Please provide emission calculations for the air conditioner charging operation.

The storage tank emission calculations included diesel fuel and urea (DEF) while the vehicle fluid fill did not include either. Please include these fluid fills in the emission calculations.

The fluid fill calculations did not include all of the vehicle fluids. For very low vapor pressure (<0.01 mmHg at 104°F) materials such as engine oil, ATF, brake fluid, and gear oil there will essentially be no emissions. A notation should be added to Table 2-23a discussing the low vapor pressure of these materials.

Window Install – Table 2-24

The emission calculations for the window install operation appear to be based on 100% transfer efficiency and the process description (Section 2.5.8.1) provides no clarification on the application technique other than to state that the coatings are applied robotically. Please verify the application technique and revise the emission calculations to include PM emissions if the coatings are sprayed.

Rolltest – Table 25

The emission calculations are based on the use of AP-42 factors for Low Altitude, non-California Vehicles - Volume II Mobile Sources for light duty gasoline vehicles (LDGV) for the 1990 model year and later. Please explain why the emissions are not based on the current emission standards or the standards that will be effect when the first models will be produced.

With the addition of the diesel fuel and urea tanks, it appears that a diesel truck option will be available and the roll test numbers should be based on the anticipated mix between gasoline and diesel vehicles. Please revise the emission calculations to account for new emission standards and the anticipated mix of engine options.

E-Coat Truck Bed –Table 2-26a

No comments in addition to the general comments.

Prime Topcoat VOC and PM – Table 2-26b and Table 2-26c

The emission calculations appear to represent the coating operations for panel line in Plant 1. However, the emission calculations do not include, booth and other equipment cleaning, panel wipe down or purge solvent or ELPO cleanup. Please revise the emission calculations to include all of the steps in the process and address all of the issues with purge and cleanup issues noted above.

Laser Weld – Table 2-26d

The emission calculations were based on GMAW emission factors with no justification. A better description of the welding technology is requested since laser beam welding (LBW) requires no filler material such as a wire while laser-hybrid welding, combines the laser of LBW with an arc welding method such as gas metal arc welding. Please revise the emission calculations to align with the welding technology that will be used. The cover gas, if any, must also be identified and the emissions quantified.

The emission calculations are also based on a control efficiency of 97% and an assumed 100% capture efficiency. There is no information in the spreadsheet or in the rest of the application to support these values and assumptions. Please see the capture efficiency discussion and request for vendor control information above.

Drawing Oil – Table 2-26e

There is no backup for the VOC content of the stamping shop drawing oil and a VOC content of 4.25 lb VOC/gal indicates that there are other constituents in the product since the density (VOC content) of oil alone is approximately 7.3 lb/gal. Complete speciation is needed to determine if there are other constituents that are not an air contaminant such as water or if there are solids that may be emitted if the drawing oil spray applied. Please provide complete speciation and revise the emission calculations to account for all species and the application method.

The spreadsheet also states that the stamping shop will be equipped with several stamping presses which are considered non air contaminant emission sources and it is unclear what this means. Please explain why there are no air emissions while keeping in mind the TCEQ definition of an air contaminant and the application methods of any lubricants.

Diesel Fill and Urea Tank Fill – Table 2-27a to Table 2-27d

No comments in addition to the general comments.

Emission Summary and Totals – Table 2-28a through Table 2-28c

No comments.

Speciated Emission Rate Calculation Comments

In addition to specific comments on individual work sheets there are a number of issues associated with the emission calculations as a whole. These include but are not limited to:

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- No emission point numbers are associated with any emission source. This makes it difficult to construct a Maximum Allowable Emission Rate Table (MAERT) and it is unclear which sources are associated with the surrogate EPNs used in the air dispersion modeling. Each emission source must have a clearly associated emission point with clearly defined stack parameters.
- It appears that the speciated emission rate calculations (Table 2-29) only cover a portion of Plant 2 (stamping, storage tanks, general assembly etc. is missing) and does not cover the proposed changes to Plant 1. Please provide speciated emission rate calculations for all the proposed changes at the site.
- Summing the weight fraction of the represented species in a particular process frequently results in a total of less than 100%. Complete speciation is lacking on Table 2-29a, 2-30a, and 2-31a and all species in a product (including water) must be included in the analysis regardless of whether or not they are required to be reported on an MSDS or SDS or other product data sheet.

  Just to clarify, we do not need the details of the resin chemistry. For resins, it is sufficient to give the resin category (e.g., alkyd resin, epoxy resin, etc.). The total percentages of the constituents need to add up to at least 100 weight-percent. Some vendors give a range (e.g., 5 - 10 percent) for each constituent to protect their coating recipe, but if a range is given, the applicant must use the high end of the range in the emission calculations used for the required health effects review.

  A number of the product vendors may consider some of the speciated ingredients to be confidential or proprietary. Individual air contaminants may not be withheld but exact product formulas may be treated as confidential information and will be subject to the Texas Commission on Environmental Quality (TCEQ) confidential information management procedures that prohibit the disclosure of confidential information and require that all confidential information be maintained in separate locked files.

  Detailed information about how the TCEQ handles confidential information is available at: http://www.tceq.state.tx.us/permitting/air/confidential.html. Also, here is the link to a June 14, 1976 Attorney General's opinion that, although about 40 years old, is still valid: https://www.texasattorneygeneral.gov/opinions/opinions/45hill/op/1976/pdf/jh0836.pdf.

  If a vendor or manufacturer still declines to provide 100 percent speciation, you may assume that the portion of the material that is not speciated has a short-term effects screening level (ESL) of 2 $\mu g/m^3$. However, in many cases it most likely will not pass the required health effects review.

  Please revise these tables to provide 100% or greater speciation.
- It is also unclear if the species weight fractions in the calculations are actual fractions, average values between several coatings or worst case values. Average values are not acceptable and worst case values result in a conservative impact analysis and enhance chemical flexibility since a worst case value can represent several existing coatings and can allow for the introduction of new coatings in many cases without further review. Please discuss how the weight fractions were determined.
- The speciated particulate matter emission rate calculations did not include transfer efficiency as was done in the criteria pollutant emission rate calculations. Please revise the calculations to include transfer efficiency.
- It is unclear if the speciated emission rates from the surface coating operations are based on as received formulations or if mixing (Part A and Part B) and thinning are included. Please explain how the spreadsheets accommodate mixing and thinning.
- No MSDS, SDS, product data sheets or Toyota database extracts are provided to allow verification of the inputs for the species or the coating densities. Please provide, at a minimum, a discussion of how the species, densities and weight fractions were determined. Spreadsheets or database extracts along with the discussion is preferred.

- The control efficiencies used in the emission calculations are not sourced consistently. Some are just values that correspond to the control efficiencies used in the criteria pollutant emission rate calculations while others are linked to another spreadsheet (='Control % Backup'!F4) for which there is no access. Please provide a copy of all of the additional spreadsheets used in the emission calculations.
- A number of the hidden rows are for other parts of the process such as offline repair and final repair and have a 0.00 gal/vehicle coating consumption which results in a 0.00 lb/hr emission rate for all of the species. These operations also appear to have a different emission distribution than the remainder of the process. Please explain why these operations are not included in the speciated emission rate calculations and clarify if these operations are to be included in the speciated impacts analysis.
- In Table 2-31a for other products some of the species have more than one entry as can be seen for phosphoric acid.

7664-38-2	Phosphoric Acid	P	2.1%
7664-38-2	Phosphoric Acid	P	40.0%
7664-38-2	Phosphoric Acid	P	20.0%

  How does the spreadsheet manage selecting the highest emission rate to set the allowable emission rate for this species and how is this value transferred into the speciated impacts analysis.
- The Table 2-30a footnotes do not appear to accurately describe how the PM emission calculations are done within the spreadsheet. Please ensure that transfer efficiency is included in the PM emission calculations and revise the footnotes as required.
- A number of the species in the emission rate calculations are not classified correctly as a particulate (P) or a volatile (V). It should be noted that the many compounds that meet the definition of VOC in 30 TAC § 101.1 are not necessarily volatile in actual use. Examples of this are paint resins, phthalate plasticizers, greases, lubricating oils, or UV inhibitors. The TCEQ guidance in this case is to treat compounds with a vapor pressure of less than 0.01 mmHg (0.0002 PSIA) at 104°F as either not emitted (NE) or as PM depending on the process. Since vapor pressure data is not always readily available, two other criteria may be used to classify compounds as VOCs or PM. Compounds with a boiling point of over 400°F or having a molecular weight above 200 g/gmol are generally not considered to be volatile. This approach will reduce the number of compounds to be evaluated or will significantly reduce emission rates.

  For multiple component coatings, some of the constituents are consumed in the polymerization reaction and are not emitted. Examples include isocyanates and polyols in polyurethane coatings, and bisphenols, epichlorohydrins, and amines in epoxy coatings. As such, emissions should not be estimated for these constituents and they should be designated as non-emitting (NE) in constituent listings for the coating formulations.

  Please review the species classification and change the designator and the emission calculations as required.

Vendor Data

No vendor data was provided for any of the process equipment or control equipment to demonstrate that the proposed operations will perform as represented in the application. Equipment examples, include, but are not limited to:

- Thermal oxidizers or other thermal control equipment;
- Dry filters used in the coating operations;
- Water wash filters used in the coating operations;
- Coating application equipment; and
- Baghouses and cartridge filter systems.

In addition, with a lack of vendor data it is not possible to establish operating parameters such as temperatures, concentrations, or pressure drops etc. to demonstrate that the equipment is functioning properly and the facility is operating with the limits of the permit and applicable rules. If appropriate vendor data cannot be provided, the permit may include requirements for extensive amounts of stack sampling to establish operating parameters and demonstrate the performance levels represented in the application can be achieved (see 30 TAC 116.111(a)(2)(G)). This requirement is unrelated to the Compliance Assurance Monitoring (CAM) and Periodic Monitoring (PM) requirements in 30 TAC 122 which includes the monitoring requirements of 40 CFR Part 70 and Part 64.

Please provide vendor data to support the representations made in the application and appropriate operating parameters for the equipment.

Rule Applicability

Section 3.2.2 Chapter 112 – Control of Air Pollution from Sulfur Compounds

The application states that:

> This chapter contains limitations that apply to emissions of sulfur compounds. The limitations contained in this chapter are not applicable to the air emission sources associated with the operations performed at the San Antonio vehicle assembly plant nor will they apply to the proposed new vehicle assembly line project.

The site is subject to the requirements of Chapter 112 since the combustion of natural gas results in emissions of SO_2. Specifically, the site is subject to the net ground level concentration limits in 30 TAC 112.3. Please revise the rule applicability analysis for Chapter 112.

Section 3.3.2 – New Source Performance Standards (NSPS)

The text and Table 3.3 are not consistent. The table indicates that Subpart Dc is applicable and the text contains no discussion of this rule. Please revise the table or the text as required.

Section 3.3.3 Hazardous Air Pollutant Regulations

The text and Table 3-4b are not consistent. The table indicates that Subpart DDDDD is applicable and the text contains no discussion of this rule. Please revise the table or the text as required.

Planned MSS

All sources must authorize their planned maintenance, startup and shutdown (MSS) emissions as required by 30 TAC 101.222(h). The application included no identification of planned MSS activities and did not estimate emissions or identify potential construction authorizations for the activities. Please revise the application to include planned MSS activities. To simplify this process, please see the attachment which includes an extensive list of activities and authorizations.

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Table 1a

The Table 1a instructions state that EPNs and FINs are limited to 10 alphanumeric characters. This naming convention also applies to the TCEQ Emission Inventory (30 TAC 101.10) and the Air Permits Allowable Database (APAD). The Maximum Allowable Emission Table (MAERT) in the current permit follows this convention. However, the additional sources in the current amendment application do not follow these naming conventions. Please revise the EPNs and FINs in Table 1a and all parts of the application to follow the acceptable naming conventions.

Page 2 includes no stack parameters and includes a reference to refer to Tables 5-1A through 5-1C for all stack parameters. All stack parameters (whether modeled or not) must be presented on Table 1a.

Once the emission rates are revised, please submit a revised Table 1(a) with criteria pollutants listed for each EPN. Speciated emission rates may be presented on separate spreadsheets for each EPN or group of EPNs for a specific process.

Air Dispersion Modeling

General Air Dispersion Modeling Comments

In order to be able to complete a modeling audit, all of the files used in the model such as the input files, output files, downwash files, meteorological data, surface roughness determinations, ambient monitor data, the text of the report and all spreadsheets used in the setup of the model, including criteria pollutant and species emission rates, and reporting of results must be submitted electronically. Files may be presented on a compact disk or through an FTP. Paper copies of model input and output files are of little value when conducting an audit.

The species impacts analysis does not cover all of the project sources. For example, welding operations are not included and the emission of the die lubricant from the metal stamping operation, the storage tanks and the panel Line at Plant 1 are not included. Please revise the impacts analysis to include all project sources. In order to ensure that all sources are accounted for the modeling repost should include a table that includes each worksheet in the emission calculation spreadsheet and lists the model run or files that include each of the sources.

Section 5.2.5 - Buildings

It is not possible to validate the building shapes with the data presented in the modeling report. Figure 5-1 presents building outlines that include a number of tiers but it is impossible to correlate the tiers listed in Section 5.25 with the building dimensions shown in the drawing and listed in Section 2.4. Please provide elevation drawings of the buildings such the shape of the buildings in the model may be verified.

In addition, changes to existing plant may be required to accommodate the addition of the proposed process additions and Section 2.3 of the application states that:

> Please note that changes may occur to the exiting building structures or additional building may be installed to support some of the operations noted above. The changes to occur should not cause a significant change to the dispersive nature of the existing operations exhaust stacks or any new exhaust stacks.

This approach to building downwash and the speculation on the effect of the changes is not acceptable. Please provide actual building dimensions to be included in the modeling runs and revise the impacts analysis accordingly.

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Section 5.2.7 – TMMTX Project Emission Inventory

This section also included a discussion of the emission rates for NO_x to be used in the hourly impacts evaluation. The report text stated:

> For emission of NO_x from the proposed 2017 Project, TMMTX is proposing a natural gas usage limit which will be expressed in million cubic feet of natural gas to be consumed annually rolled on a 12-month basis. Since an annual usage limit will be employed, the maximum pound/hour emission rate was not utilized in the evaluation. Instead the annual tons/year was converted to an annual average pound/hour emission rate and that emission rate was used in the evaluation.

Taking annual throughput and dividing it by the anticipated number of annual operating hours results in an average hourly emission rate and not a short-term maximum. Hourly rates should be based on the maximum throughput that can be practically achieved in any hour. Please revise the analysis to use only maximum hourly emission rates.

Section 5.5.6 - Results

The results discussion includes on federal NAAQS standards and does not include a comparison to the State property line standards for SO_2 which are located in 30 TAC 112.3. Please revise the impacts analysis to include all applicable state property line standards.

Modeling Report Tables

Table 5.1 - Theoretical Stack Parameters

The basis of selection of the "theoretical" worst case stack is unclear. Some of the parameters correspond to those from existing sources while others appear to be simply "conservative" values that were selected without a clear basis. This method of selecting a worst case stack is unreliable. In addition, the method places the worst case stack in the center of the building which is not a worst case location. Worst case stacks should be selected by completing a modeling run at 1.0 lb/hr for each stack at a worst case location and comparing all of the results. Please provide a revised worst case stack selection for use in the impacts analysis.

Furthermore, it is unclear if the purpose of Table 5.1 is to develop stack parameters for the additional assembly plant (see Table 5-2b) or to develop stack parameters for modeling the existing plant or both. Please clarify.

Table 5-6 Multi- Source impact Analysis- Existing TMMTX Facility Modeled Inventory.

Table 5-6 includes stack parameters for the existing plant and the NO_x, PM_{10}, and $PM_{2.5}$ emission rates to be used in the sitewide NAAQS analysis. However, footnote (a) states that the rates are from ADEQ Permit No. 2305-AOP—R1 issued to Big River Steel on August 31, 2016. Assuming that the footnote is in error, it is unclear where the modeled emission rates were obtained since the existing MAERT includes broad caps such as NGCOMB – Plant-wide Natural Gas Combustion. Although not readily obvious, this cap includes the emissions from a second plant that lost authorization due to failure to construct within 18 months of the original permit issuance date in June 2004. Please provide the basis of the modeled emission rates and discuss how they are related to the federally enforceable emission rates in the current permit and provide a comparison table.

Section 6 - Effects Screening Level (ESL) Compliance Demonstration

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Section 6.1.2.2 Comparison of Predicted Concentrations with ESL Acceptable Levels

As part of the speciated off property impacts analysis the off property concentrations must be compared to the TCEQ Effects Screening Levels (ESLs). The ESLs were previously updated periodically in the form of an Excel spreadsheet with an effective date. After February 2017, the Toxicology Division discontinued the use of periodically updated lists and moved to the TAMIS database where changes to ESLs can be made on an as needed basis. The impacts analysis was conducted using the November 2016 ESL list. The analysis must be revised using the ESLs from the TAMIS database. The date of the database extract must be included in the analysis and the date of the extract should be no more than 30 days prior to the date of the submittal of the results. Please provide a revised impacts analysis using a recent extract from the TAMIS database. The database is located at:

https://www.tceq.texas.gov/toxicology/esl/list_main.html

Since there are a number of existing sources at the site in addition to the proposed sources a combined speciated impacts analysis is required for many species. The TCEQ Modeling and Effects Review Applicability (MERA) Guidance Document covers this situation and the document is located at:

https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mera.pdf

Step 5 provides criteria for the inclusion of other sources and is as follows:

> **Step 5:** Is the total concentration due to the emission increases ≤0.1 ESL? Only increases in emissions are considered for this step.
>
> The purpose of this step is to allow small emission increases without requiring full modeling and effects review. This step uses an equation that restricts an emission increase impact to ≤ 10 percent of an ESL. Only increases in emissions are considered for this step. Comparisons are made to the short-term ESL except for constituents with long-term ESLs that are < 10 percent of their corresponding short-term ESLs. For these constituents, compare concentrations obtained from this step to both the short- and long-term ESL.

The application used a 50% threshold and this is not acceptable. Please revise the analysis based on the 10% threshold in the MERA Guidance Document. Iin many cases, less effort is required if the impacts from all the species from all of the sources are included in the analysis from the outset.

Table 6-2a, 6-3a and 6-4a – provide comparisons to ESLs for specific compounds from the proposed operations. However, a number of the species are missing ESLs and no comparison was completed. ESLs must be obtained for all species to be emitted. Specific guidance on obtaining ESLs is located at:

https://www.tceq.texas.gov/toxicology/esl/list_main.html

Alternatively, an ESL of 2 µg/m^3 may be used for species for which an ESL is not included in the TAMIS database. Please revise the impacts analysis by including an ESL for all species.

Scope of the Impacts Evaluation Table 6.2 to Table 6.7

These tables focus on portions of Plant 2 (storage tanks, stamping, etc. are missing) and do not appear to include the changes to Plant 1. Please revise the impacts analysis to include Plant 2 in its entirety and all changes to Plant 1.

Table 6.6 – Multi Source Impact Analysis

This table sums the impacts from the proposed sources and the existing sources to determine the total off property impacts. However, it is unclear how the emission rates for the existing sources were determined. Please provide spreadsheets or other documentation from the original application or any changes from the use of the permit chemical flexibility condition that provide the existing allowable emission rates. The documentation must clearly demonstrate if the modeled emission rates represent

both of the originally permitted plants (one was never constructed) or if the rates represent the existing plant only. Simply dividing the original emission rates by two is not acceptable.

Figures 6-1 through 6-4 - Presentation of Results

The figures provide the maximum concentrations and the location of the maximum concentration (a single receptor). The impacts for several of the species exceed their ESLs and not enough information is provided to determine the areal extent of the exceedances in order for the Toxicology Division to make a determination that the impacts are not detrimental to human health or the environment. Please provide a maximum concentration map for each species that exceeds its respective ESL. The map should extend from the property line and far enough in all directions until the concentration no longer exceeds the ESL.

At this point, no frequency of exceedance plots are being requested. Depending on the magnitude of the exceedances (2X, 4X etc.), frequency plots that provide the number of hours of exceedance on each receptor may be required. "Amoeba" plots are not acceptable.

Response to This Letter

In order to reduce the processing time for this permit amendment, it is suggested that any response to this letter be prepared with the Form PI-1 instructions in mind. This form and the instructions are located at:

https://www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/10252.pdf

Particular attention should be paid to the instructions for Section VII – Technical Information, including the guidance for completing Table 1a.

Please note that the Texas Commission on Environmental Quality (TCEQ) has an Internet site that has proven helpful to many air permit applicants. The site includes New Source Review Permit forms, tables, guidance documents and state air regulations. The Web address is:

www.tceq.texas.gov/nav/permits/air_permits.html

After receipt of all the additional information, we will continue the review of your application. If the information furnished in response to this notice results in the need for further clarification or additional information, we will communicate that need as soon as possible. In accordance with Title 30 Texas Administrative Code § 116.116(a), all representations made in a permit application become conditions upon which a permit is issued. Any variations from these representations require prior authorization from the TCEQ.

Failure to submit all of the requested information within 30 days of the date of this notification may result in a voidance of your application. Following a voidance, the permit fee will be retained for 180 days. If you still wish to pursue the project following the voidance, you will need to submit a new Form PI-1 (General Application for Air Preconstruction Permits and Amendments) and an entirely new application. The new application will be subject to the state and federal rules and regulations in place at the time of submittal, i.e., we will review state and federal applicability (best available control technology, netting, offsets, etc.). If public notice was required in the original application, you may be required to republish the notice. You do not need to submit additional fees with the new application if the project scope has not increased and the original fee was correct.

This application was accepted for review in the expedited program. In order to provide a high level of efficient service and commitment to the processing of your application with additional resources, all responses to any requests for information should be provided in a timely manner. Projects with delayed responses, deficient or incomplete responses, or other excessive applicant initiated delays will be removed from the expedited permitting program and the remaining surcharge will be refunded.

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In addition, please ensure that a copy of the submitted information is also sent to the applicable TCEQ regional office and any local air pollution control program(s) with jurisdiction. Please note that the cover letter for your submission should indicate that a copy has been sent to the regional office [and local air pollution control program(s), if applicable]. Lists of the TCEQ regional offices and local air pollution control programs are available at:

www.tceq.texas.gov/about/directory/oce_directory.html

and

www.tceq.texas.gov/permitting/air/local_programs.html, respectively.

If a new Form PI-1 and new application are not submitted within 180 days from the date of the voidance, you will forfeit the original permit fee. A new Form PI-1, new application, and a new fee must be submitted if you desire to pursue the project beyond the 180 days.

Thank you for your cooperation in this matter. If you have any questions, please contact me at (512) 239-5027, or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

Mike Coldiron, P.E.

Air Permits Division

Texas Commission on Environmental Quality

Enclosure

cc: Sanitarian Services Manager, Food and Environment Division, San Antonio Metropolitan Health District, San Antonio

Air Section Manager, Region 13 - San Antonio

Air Permits Section Chief, New Source Review Section (6PD-R), U.S. Environmental Protection Agency, Region 6, Dallas

Project Number: 274625 and 274627