Outlook

RE: EPA Region 4 Comments on PSD Air Quality Modeling Application – MZX Tech LLC

From Shannon Lynn <slynn@trinityconsultants.com>
Date Sat 12/27/2025 11:36 PM
To Rodney Cuevas <RCuevas@mdeq.ms.gov>
Cc Jon Hill <JHill@trinityconsultants.com>; mrao@trinityconsultants.com <mrao@trinityconsultants.com>; Brian Ketchum <Brian.Ketchum@trinityconsultants.com>; Slater Smith <Slater.Smith@trinityconsultants.com>; Jaricus Whitlock <jwhitlock@mdeq.ms.gov>; Jeffrey Bland <JBland@mdeq.ms.gov>; Katherine Mertes <KMertes@mdeq.ms.gov>; Preston Bradley <pbradley@mdeq.ms.gov>; Chris Wells <CWELLS@mdeq.ms.gov>; James Jech <JJech@trinityconsultants.com>

2 attachments (6 MB)

2025-1227 Response to Region 4 Model Report Comments FINAL.pdf; 2025-1227 MZX Tech LLC - Volume II - Ambient Air Modeling Analysis FINAL.pdf;

Dear Mr. Cuevas,

Please find attached, the revised modeling report addressing the comments you provided from EPA Region 4. All associated files have been uploaded to the MDEQ portal link previously provided.

This should now address all concerns raised by MDEQ and EPA Region 4. If you have any questions or require further clarification, please do not hesitate to reach out.

Shannon

Shannon G. Lynn, P.E., C.M.
Principal Consultant

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1701 Centerview Drive Suite 109 Little Rock, AR 72211
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From: Rodney Cuevas <RCuevas@mdeq.ms.gov>
Sent: Tuesday, December 23, 2025 1:04 PM
To: Shannon Lynn <slynn@trinityconsultants.com>
Cc: Jon Hill <jhill@trinityconsultants.com>; Maya Rao <mrao@trinityconsultants.com>; Brian Ketchum <brian.ketchum@trinityconsultants.com>; Slater Smith <slater.smith@trinityconsultants.com>; Jaricus Whitlock <jwhitlock@mdeq.ms.gov>; Jeffrey Bland <JBland@mdeq.ms.gov>; Katherine Mertes <KMertes@mdeq.ms.gov>; Preston Bradley <pbradley@mdeq.ms.gov>
Subject: EPA Region 4 Comments on PSD Air Quality Modeling Application – MZX Tech LLC

Dear Mr. Shannon Lynn,

MDEQ has received draft comments from EPA Region 4 regarding the Prevention of Significant Deterioration (PSD) Air Quality Modeling Application for the MZX Tech LLC project.

The EPA has identified deficiencies and areas requiring clarification before the application can proceed. I have attached the full comment document to this email for your detailed review, but the primary items that need to be addressed include:

- **Ambient Air Boundary (Section 2):** Additional details are needed regarding the exact location of the property fencing and the specific security measures (e.g., cameras, signage, patrols) used to prevent public access.

- **Meteorological Data (Section 2.2.5 of the protocol):** There is a discrepancy between the Upper Air station ID cited in the report and the ID used in the AERMET files that needs to be clarified.

- **Inventory & Screening (Section 3.6.1):** The EPA requires the full list of potential sources and the Q/D calculations used for screening. They also require clarification on whether allowable or actual emissions were used for the cumulative inventory.

- **Missing Modeling Files & Calculations (Sections 4.2 & 5.1):** Several files are missing from the submittal, specifically the "worst-case" analysis files, SUSD emission rate calculations for turbines, and PM10/PM2.5 Class I significance modeling runs.

- **NAAQS Analysis & NO2 Discrepancies (Section 5.2 & Appendix C):**

    - The EPA noted modeled violations of the 1-hour NO2 NAAQS. While the report indicates MZX Tech is not a significant contributor, additional MAXDCONT output files are required to verify this.

    - There are significant discrepancies between the emission rates listed in the Appendix C tables and those used in the modeling input files. These must be reconciled.

    - A significant number of receptors showing concentrations over the SIL were omitted from the cumulative analysis without justification.

Please review the attached document and provide the requested modeling files, corrected tables, and clarifying justifications. Once we have the updated information, MDEQ will coordinate with EPA R4 for further review.

If you have any questions regarding these comments, please let me know.

Best regards,

Rodney Cuevas, BCES
Meteorologist
Air Quality Management Branch Manager
Mississippi Department of Environmental Quality (MDEQ)
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Jackson, Mississippi 39201
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December 27, 2025

Mr. Rodney Cuevas, BCES
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RE: EPA Region 4 Comments on PSD Air Quality Modeling Application – MZX Tech LLC

Dear Mr. Cuevas:

Thank you for forwarding the above-referenced document on December 23, 2025. The remainder of this letter will address the questions and comments raised by Region 4. In addition, the modeling report has been revised to address these questions and comments.

For clarification, Region 4 comments will be stated in *bold, italicized font* followed by the response by MZX Tech LLC.

Section 2 – Proposed Project Description
The section states the ambient air boundary line will use a combination of fencing and security measures to prevent the public from accessing the property. EPA Region 4 recommends including describing where exactly the fence is located and what type of security measures (patrol, cameras, signage, etc.) will prevent public access in accordance ***with EPA's ambient air*** *policy dated December 2, 2019.*

With submission of the final modeling protocol submitted to MDEQ, MZX made the decision to fence the entire boundary to restrict and control access to the site. This was reflected in Section 1.0 Introduction, page 1-2 of the final model protocol document.

Section 2.2.5 – Meteorological Data
The upper air data station selected in this section to represent the meteorological conditions at the project site is the North Little Rock upper air station, ID 3952. However, in the AERMET ***files provided, specifically in "KMEM_KLTR****-2019-****2023.SFC", the UA ID listed is 00072340. EPA*** *Region 4 recommends clarifying why there is a discrepancy in the upper air station ID between the modeling files and the modeling report.*

This is the same station. The Weather Bureau Army Navy (WBAN) identification number (ID) is 3952 and the World Meteorological Organization ID is 72340.

Section 3.6.1 – Development of Initial Inventory Source List
This section describes the methodology for compiling the nearby source emissions inventory through the Q/D screening assessment for sources outside of the SIA but within 50 km of the project facility. EPA Region 4 recommends providing the full list of potential sources and the Q/D calculations used for screening out sources from the cumulative inventory.

Tables of the Q/d analysis are attached.

This section also indicates that total annual emission rate will be utilized for the purposes of the Q/D screening analysis. For the sources that were selected for inclusion in the cumulative EPA Region 4 suggests clarifying whether allowable, typical actual (see Table 8.2 in 40 CFR Part 51, Appendix W for a ***description of "typical actual" emissions), or true actual emissions*** *were used in the modeling*.

All sources were modeled at permitted allowable emission rates except for Texas Gas Transmissions LLC (MSNOX1-MSNOX18), which used actual emissions from the emissions inventory (EI) data reviewed for this project.

Section 4.2 – Modeled Sources
EPA Region 4 recommends providing the modeling files for the "worst-case" analyses *summarized in Tables 4-1 and 4-2.*

These files have been uploaded to MDEQ's file transfer portal.

This section describes 15 of the 41 turbines will be modeled in startup mode for short-term averaging periods. Based on Table 4-2, the 15 turbines will include TUR2, TUR4, TUR11, TUR6, TUR13, TUR27, TUR18, TUE26, TUR20, TUR28, TUR35, TUR37, TUR38, TUR36, and TUR41. EPA Region 4 recommends providing the calculations for estimating the SUSD emission rate for each of the three turbine types.

These calculations were presented with Volume I of the application. To summarize, for the ten (10) Solar units (the 5 worst PGM-130 units and 5 worst Titan 350 units), modeled hourly emissions would be the SUSD emissions occurring in 10 minutes summed with 50/60 minutes of normal operating conditions. For the Proenergy worst 5 units, this would be the SUSD emissions occurring in 30 minutes summed with 30/60 minutes of normal operating conditions.

Section 5.1 – Class II and Class I Significance Analyses
Table 5-2 provides modeling concentrations for SO2, NO2, PM10, and PM2.5 Class I significant analyses. However, the modeling files only include SO2 and NO2 inputs and outputs for Class I significance. EPA Region 4 recommends providing the modeling files for the PM10 and PM2.5 Class I significance modeling runs.

These files have been uploaded to MDEQ's file transfer portal.

Section 5.2 – NAAQS Analysis
EPA Region 4 recommends providing the MAXDCONT output file "NO2o5yrNAAQS_CULP.MDC" *to demonstrate the project contribution to the NO2 NAAQS cumulative modeling.*

These files have been uploaded to MDEQ's file transfer portal.

The air quality modeling identified modeled potential violations of the 1-hour NO2 NAAQS at several locations in the significant impact area. The air dispersion modeling report indicates that MZX Tech does not significantly contribute to these potential violations. In such situations, it remains incumbent on the state or local agency to resolve in a timely manner such *violations resulting from other existing nearby sources. We request that MDEQ notify EPA Region 4 when these modeled predicted violations have been corrected.*

This comment is not applicable to MZX.

*The modeling files for the cumulative NO2 NAAQS modeling does not include all the receptors that had modeled over the 1-**hour NO2 SIL (7.5 µg/m3) in the significance modeling. The** picture below shows the receptors over the SIL in purple and the receptors modeled in the cumulative analysis in red. EPA Region 4 recommends including all receptors showing a **significance modeling concentration over 7.5 µg/m3 in the cumulative modeling analysis or** providing justification for not including those receptors.*

The 1-hour NO_2 NAAQS modeling files containing all receptors in excess of the 7.5 ug/m3 SIL have been provided in a folder title "Additional Files". The files included are:

1. NO2o5yrNAAQS.ami – this is the initial NAAQS file that was used to identify any exceeding receptors (as highlighted in the 1Hr_Exceedances.xlsx file)
2. NO2o5yrNAAQS_CULP.ami – this is the file containing detailed source group and contribution data for the exceeding receptors. The following detailed concentration files are also included:
    a. NO_2_all.mdc – contains the MAXDCONT output from the culpability run
    b. NO2o5yNAAQS_Contributions.xlsx – spreadsheet showing the MZK Tech contributions to each of the modeled NAAQS exceedances

Appendix C
Table C-4 lists the modeling parameters for the onsite NO2 point sources. The emission rates provided in the table only match the 1-hour cumulative NAAQS modeling. They do not match the annual cumulative NO2 NAAQS modeling or the 1-hour/annual significance NO2 NAAQS modeling. EPA Region 4 recommends adding a new table for annual NO2 onsite point sources and providing clarification on why the 1-hour significance emission rates do not match the cumulative modeling emission rates.

Table C.4 reflects the short-term (i.e., 1-hour) emission rates. These rates reflect the maximum hourly emissions, including startup/shutdown emissions. Table C.4b has been added to the inventory tables, and reflects the long-term (i.e., annual) emission rates. The annual rates are the total tons per year rates for each modeled source. Latest version is App C Source Inventory Datav3 (attached).

Table C-6 provides the modeling parameters for the offsite NO2 point sources. However, the input file for the 1-hour and annual NO2 cumulative modeling does not include several sources, MSNOX2, MSNOX13, MSNOX14, and MSNOX17. EPA Region 4 recommends clarifying why those sources were not included in the modeling.

These sources operate intermittently and were excluded from the modeling. They have been removed from the revised Table C.6. MSNOX13, MSNOX14 are emergency engines (reported 11 and 9.5 hours of operation, respectively in EI). MSNOX17 is an auxiliary air compressor engine (reported 52 actual hours of operation in EI). MSNOX2 is a compressor turbine with zero actual hours reported in the emissions inventory (i.e., did not operate). All sources with 60 or more hours of operation in the EI were included in the model for this source.

There are four offsite NO2 point sources, MSNOX43, MSNOX44, MSNOX45, and MSNOX46, listed in the modeling files but not provided in Table C-6. EPA Region 4 recommends clarifying why those sources were not included in the table.

These are sources that were added after revisions to the SIA associated with the inclusion of startup/shutdown emissions. They were inadvertently excluded from Table C.6, but have been added to the latest version of the table.

There are 7 offsite sources in Table C-6 where the emission rate reported in the table does not match the cumulative 1-hour and annual NO2 modeling files. EPA Region 4 recommends amending the table to match the modeling inputs or clarifying why there is a difference. See table below for the difference in emission rates:

Offsite NO2 Point Source	*Emission Rate from Table C-6 (g/s)*	*Emission Rate from Modeling Input files (g/s)*
MSNOX3	*9.17*	*6.7872*
MSNOX4	*9.17*	*7.8963*
MSNOX5	*9.17*	*7.4540*
MSNOX6	*9.17*	*8.0702*
MSNOX7	*4.67*	*4.2083*
MSNOX8	*4.67*	*3.6527*
MSNOX9	*4.67*	*3.8770*

Table C.6 has been updated to reflect the modeled rates. Modeled rates are actual emissions for these sources.

If you have any questions or comments about the information presented in this letter and attached report, please do not hesitate to call me at 501.454.6264.

Sincerely,

TRINITY CONSULTANTS

Shannon G. Lynn, P.E.
Principal Consultant

Table C.1 - MZX CO Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	8.76	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.23	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	8.76	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.23	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.23	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.23	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.23	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.23	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	8.76	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	8.76	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	8.76	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.23	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.23	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.23	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.23	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.23	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.11	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	2.74	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.11	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	2.74	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.11	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	2.74	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.11	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.11	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.11	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.11	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	2.74	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.11	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	2.74	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.11	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.11	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.11	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.11	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.57	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	5.23	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	5.23	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	5.23	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	5.23	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.57	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.57	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	5.23	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.05	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.05	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.05	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.05	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.05	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.05	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.05	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.05	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.05	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.05	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.05	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.05	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.05	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.05	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.05	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.05	7.6	477.59	1.97	0.61

Table C.2 - MZX PM_{10} Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.0176	24.4	740.37	22.42	3.35
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TUR20	350	770,118.3	3,874,694.8	268.5	0.0176	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.0176	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.0176	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.0176	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.0176	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.0176	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.0176	24.4	740.37	22.42	3.35
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TUR28	350	770,227.4	3,874,685.1	267.7	0.0176	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.0176	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.0176	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.0176	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.0176	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.0176	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0088	15.2	766.48	21.46	2.74
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TUR5	130	770,262.4	3,874,646.0	287.2	0.0088	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0088	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0088	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0088	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0088	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0088	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0088	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0088	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0088	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0088	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0088	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0088	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0088	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.0214	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.0214	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.0214	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.0214	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.0214	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.0214	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.0214	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.0214	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0003	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0003	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0003	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0003	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61

Table C.3 - MZX SO_2 Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.1323	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.1323	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.1323	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.1323	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.1323	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.1323	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.1323	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.1323	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.1323	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.1323	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.1323	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.1323	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.1323	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.1323	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.1323	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.1323	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0630	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.0630	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.0630	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.0630	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.0630	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0630	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0630	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0630	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0630	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0630	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0630	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0630	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0630	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0630	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0630	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0630	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0630	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.1625	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.1625	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.1625	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.1625	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.1625	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.1625	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.1625	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.1625	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0004	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0004	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0004	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0004	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0004	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0004	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0004	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0004	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0004	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0004	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0004	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0004	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0004	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0004	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0004	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0004	7.6	477.59	1.97	0.61

Table C.4 - MZX NO_2 Point Sources (1-hr Averaging Period)

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.82	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.38	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.82	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.38	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.38	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.38	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.38	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.38	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.82	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.82	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.82	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.38	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.38	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.38	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.38	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.38	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.18	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.28	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.18	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.28	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.18	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.28	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.18	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.18	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.18	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.18	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.28	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.18	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.28	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.18	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.18	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.18	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.18	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.47	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	2.58	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	2.58	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	2.58	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	2.58	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.47	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.47	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	2.58	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.03	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.03	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.03	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.03	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61

Table C.4b - MZX NO_2 Point Sources (Annual Averaging Period)

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.34	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.34	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.34	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.34	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.34	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.34	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.34	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.34	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.34	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.34	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.34	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.34	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.34	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.34	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.34	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.34	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.16	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.16	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.16	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.16	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.16	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.16	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.16	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.16	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.16	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.16	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.16	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.16	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.16	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.16	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.16	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.16	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.16	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.46	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.46	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.46	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.46	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.46	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.46	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.46	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.46	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.03	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.03	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.03	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.03	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61

Table C.5 - MZX $PM_{2.5}$ Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.0176	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.0176	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.0176	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.0176	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.0176	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.0176	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.0176	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.0176	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.0176	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.0176	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.0176	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.0176	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.0176	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.0176	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.0176	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.0176	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0088	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.0088	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.0088	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.0088	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.0088	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0088	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0088	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0088	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0088	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0088	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0088	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0088	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0088	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0088	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0088	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0088	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0088	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.0214	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.0214	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.0214	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.0214	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.0214	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.0214	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.0214	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.0214	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0003	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0003	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0003	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0003	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61

Table C.6 - Offsite NO_2 Point Sources

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
RKLNA	Arcosa LW BR, LLC	746,870.0	3,888,350.0	66.48	8.48E+00	30.48	329.82	21.88	1.52
RKLNB	Arcosa LW BR, LLC	746,870.0	3,888,370.0	66.57	1.07E+00	24.38	327.59	12.19	0.76
RKLNC	Arcosa LW BR, LLC	746,850.0	3,888,350.0	66.16	5.73E+00	30.48	329.82	21.88	1.52
MSNOX1	Texas Gas Transmissions LLC	759,098.0	3,865,424.0	62.77	1.05E+00	12.19	766.67	17.37	1.83
MSNOX3	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	6.79E+00	9.45	622.22	48.77	0.49
MSNOX4	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	7.90E+00	9.45	622.22	48.77	0.49
MSNOX5	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	7.45E+00	9.45	622.22	48.77	0.49
MSNOX6	Texas Gas Transmissions LLC	759,025.0	3,865,298.0	62.39	8.07E+00	9.45	622.22	48.77	0.49
MSNOX7	Texas Gas Transmissions LLC	759,000.0	3,865,298.0	62.58	4.21E+00	9.45	583.33	32.61	0.58
MSNOX8	Texas Gas Transmissions LLC	759,000.0	3,865,298.0	62.58	3.65E+00	9.45	583.33	32.61	0.58
MSNOX9	Texas Gas Transmissions LLC	759,001.0	3,865,267.0	62.56	3.88E+00	9.45	583.33	32.61	0.58
MSNOX10	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX11	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX12	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX15	Texas Gas Transmissions LLC	759,124.0	3,865,394.0	62.94	4.66E-02	6.71	533.33	3.05	0.61
MSNOX16	Texas Gas Transmissions LLC	759,075.0	3,865,331.0	62.67	2.65E-02	4.27	533.33	3.05	0.46
MSNOX18	Texas Gas Transmissions LLC	758,974.0	3,865,297.0	63.03	6.30E-03	6.71	533.33	7.01	0.15
MSNOX19	Baptist Memorial Hospital	774,141.9	3,873,758.5	94.18	2.08E+00	3.05	0.00	0.01	0.30
MSNOX20A	JT Shannon Lumber Co.	771,492.4	3,871,923.5	87.85	4.10E-01	10.67	491.67	12.19	0.76
MSNOX20B	JT Shannon Lumber Co.	771,491.3	3,871,905.1	87.65	4.00E-02	15.24	491.67	12.19	0.61
MSNOX21	TVA Southaven	770,302.0	3,876,411.3	85.86	3.04E+00	45.72	361.11	20.73	5.49
MSNOX22	TVA Southaven	770,302.0	3,876,358.5	85.87	3.04E+00	45.72	361.11	20.73	5.49
MSNOX23	TVA Southaven	770,302.0	3,876,305.4	85.90	3.04E+00	45.72	361.11	20.73	5.49
MSNOX24	TVA Southaven	770,334.9	3,876,306.2	85.90	2.12E-01	27.74	561.11	10.09	0.66
MSNOX26	Rite Hite Products	773,278.0	3,872,067.0	82.76	1.45E-01	3.05	0.00	0.01	0.30
MSNOX27	Trunkline Gas Co., LLC	792,126.3	3,848,740.9	102.88	1.28E+01	11.58	672.22	14.93	0.61
MSNOX28	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX29	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX30	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX31	Trunkline Gas Co., LLC	792,076.1	3,848,708.8	105.66	1.15E+01	11.89	672.22	50.90	0.41
MSNOX32	Trunkline Gas Co., LLC	792,076.1	3,848,708.8	105.66	1.15E+01	11.89	672.22	50.90	0.41
MSNOX33	Trunkline Gas Co., LLC	792,051.2	3,848,707.3	106.59	1.15E+01	11.89	672.22	50.90	0.41
MSNOX34	Trunkline Gas Co., LLC	792,121.1	3,848,894.9	106.78	5.42E+01	14.02	672.22	9.14	1.83
MSNOX35	Trunkline Gas Co., LLC	792,168.6	3,848,988.9	102.02	3.02E-02	6.10	866.67	34.14	0.25
MSNOX36	Trunkline Gas Co., LLC	792,002.7	3,848,613.2	105.56	2.52E-02	1.22	1005.56	2.01	0.15
MSNOX37	Trunkline Gas Co., LLC	792,049.3	3,848,738.3	106.54	1.89E-02	4.57	644.44	30.48	0.30
MSNOX38	Trunkline Gas Co., LLC	792,049.3	3,848,738.3	106.54	1.89E-02	4.57	644.44	30.48	0.30
MSNOX39	Trunkline Gas Co., LLC	792,144.4	3,848,957.4	102.98	1.89E-02	4.57	644.44	30.48	0.30
MSNOX40	Trunkline Gas Co., LLC	792,200.6	3,848,805.4	100.70	2.52E-03	3.05	644.44	30.48	0.30
MSNOX41	Trunkline Gas Co., LLC	792,174.6	3,848,803.9	103.15	2.52E-03	3.05	644.44	30.48	0.30
MSNOX42	Trunkline Gas Co., LLC	792,002.7	3,848,613.2	105.56	1.51E-02	3.05	255.56	0.01	0.30
MSNOX43	Niteo Products LLC	776,541.5	3,856,525.0	110.92	1.59E-01	3.05	491.67	12.19	0.30
MSNOX44	Nidec Motor Corporation	773,683.0	3,868,716.0	96.56	1.64E-03	3.05	491.67	12.19	0.30
MSNOX45	SXP Shulz Xtruded Products	776,679.0	3,857,023.2	120.15	1.27E-01	3.05	491.67	12.19	0.30
MSNOX46	Evercompounds LLC	786,112.0	3,876,564.4	97.80	1.76E-02	3.05	491.67	12.19	0.30
TNNOX01	TVA Allen	760,344.0	3,884,227.0	66.15	5.36E+00	53.30	359.00	17.30	6.71
TNNOX02	TVA Allen	760,341.0	3,884,181.0	66.23	5.36E+00	53.30	359.00	17.30	6.71
TNNOX03	TVA Allen	760,309.0	3,884,139.0	66.28	2.00E+00	15.20	526.00	10.40	1.22
TNNOX04	TVA Allen	760,061.0	3,884,120.0	65.22	1.10E-01	4.57	679.00	19.80	0.41
TNNOX05	TVA Allen	760,061.0	3,884,116.0	65.19	1.10E-01	4.57	679.00	19.80	0.41
TNNOX06	TVA Allen	760,060.0	3,884,112.0	65.15	1.10E-01	4.57	679.00	19.80	0.41
TNNOX07	Valero Refining Co. TN, LLC	765,865.3	3,886,440.0	70.57	1.10E+00	30.50	616.48	6.10	3.20
TNNOX08	Valero Refining Co. TN, LLC	765,925.9	3,886,526.1	70.60	5.60E-01	44.20	588.71	7.80	1.68
TNNOX09	Valero Refining Co. TN, LLC	765,810.2	3,886,325.6	69.57	3.78E+00	86.00	449.82	7.00	4.21
TNNOX10	Valero Refining Co. TN, LLC	765,882.7	3,886,436.5	70.33	1.05E+00	46.60	616.48	7.90	2.35
TNNOX11	Valero Refining Co. TN, LLC	765,882.7	3,886,436.5	70.33	8.40E-01	46.60	616.48	7.90	2.35
TNNOX12	Valero Refining Co. TN, LLC	765,934.7	3,886,525.9	70.58	3.10E-01	35.10	616.48	9.20	1.13
TNNOX13	Valero Refining Co. TN, LLC	765,915.3	3,886,526.5	70.63	3.90E-01	30.50	616.48	6.10	0.98
TNNOX14	Valero Refining Co. TN, LLC	765,879.8	3,886,539.2	70.68	8.60E-01	45.70	644.26	8.80	1.59
TNNOX15	Valero Refining Co. TN, LLC	766,004.1	3,886,486.6	69.55	1.48E+00	29.00	605.37	5.50	1.68
TNNOX16	Valero Refining Co. TN, LLC	766,010.9	3,886,530.7	70.99	1.05E+00	49.70	605.37	6.10	2.65
TNNOX17	Valero Refining Co. TN, LLC	765,952.0	3,886,443.6	69.73	8.00E-02	16.80	644.26	4.90	0.61
TNNOX18	Valero Refining Co. TN, LLC	765,962.8	3,886,436.8	69.69	1.80E-01	53.30	866.48	5.80	0.76
TNNOX19	Valero Refining Co. TN, LLC	765,936.4	3,886,430.3	70.12	1.35E+00	53.30	533.15	9.10	2.13
TNNOX20	Valero Refining Co. TN, LLC	765,827.7	3,886,336.7	69.53	3.30E-01	40.50	572.04	6.10	1.37
TNNOX21	Valero Refining Co. TN, LLC	765,965.9	3,886,523.3	70.35	4.00E-01	34.10	605.37	14.50	1.37
TNNOX22	Valero Refining Co. TN, LLC	765,715.2	3,886,522.6	73.07	1.30E-01	30.50	615.93	6.00	1.07

Table C.6 - Offsite NO_2 Point Sources (continued)

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TNNOX23	Valero Refining Co. TN, LLC	766,075.0	3,886,382.2	68.77	1.30E-01	45.70	866.48	15.50	0.76
TNNOX24	Valero Refining Co. TN, LLC	765,877.3	3,886,329.4	69.50	1.40E-01	33.50	699.82	7.90	1.10
TNNOX25	Valero Refining Co. TN, LLC	765,877.3	3,886,329.4	69.50	1.80E-01	36.60	720.93	8.30	1.13
TNNOX26	Valero Refining Co. TN, LLC	766,054.7	3,886,374.1	68.76	7.96E+00	53.30	399.26	13.80	1.86
TNNOX27	Valero Refining Co. TN, LLC	765,796.2	3,886,171.5	71.36	1.77E+00	30.50	427.59	12.70	2.29
TNNOX28	Valero Refining Co. TN, LLC	765,834.5	3,886,597.9	70.71	6.10E+00	60.80	337.04	13.60	3.05
TNNOX29	Valero Refining Co. TN, LLC	765,409.8	3,886,431.1	69.62	4.80E-01	18.30	422.04	20.00	0.24
TNNOX30	Valero Refining Co. TN, LLC	766,729.6	3,886,458.0	68.64	2.20E-01	18.30	848.59	3.30	3.66
TNNOX31	Valero Refining Co. TN, LLC	765,456.4	3,886,496.4	71.27	1.57E+00	64.00	1273.15	20.00	2.02
TNNOX32	Valero Refining Co. TN, LLC	765,364.9	3,886,273.6	68.50	1.62E+00	61.00	1273.15	20.00	1.17
TNNOX33	Nucor, Inc.	758,505.0	3,881,388.9	64.92	1.13E+00	60.96	683.15	10.06	1.83
TNNOX34	Nucor, Inc.	758,990.4	3,881,254.3	63.97	3.50E-01	24.38	560.93	8.53	0.91
TNNOX35	Nucor, Inc.	758,921.9	3,881,254.3	64.08	5.60E-01	30.48	644.26	9.75	1.22
TNNOX36	Nucor, Inc.	758,430.1	3,882,122.1	65.33	6.74E+00	51.51	380.37	13.68	6.10
TNNOX37	Nucor, Inc.	758,747.5	3,882,204.2	64.97	2.15E+00	59.95	689.43	10.49	2.25
TNNOX38	Nucor, Inc.	758,601.0	3,882,148.2	65.17	1.30E-01	8.23	505.40	0.01	0.98
TNNOX39	Nucor, Inc.	758,579.3	3,882,125.1	65.21	1.30E-01	46.02	1273.00	20.00	1.55
TNNOX40	Nucor, Inc.	758,458.0	3,881,886.0	65.03	2.60E-01	1.98	422.04	15.24	0.15
TNNOX41	Nucor, Inc.	759,172.7	3,882,296.5	64.19	2.80E-01	9.45	366.48	9.14	0.61
TNNOX43	Nucor, Inc.	759,299.2	3,882,262.9	63.99	2.30E-01	9.45	366.48	9.14	0.61
TNNOX44	The Solae Company	784,455.0	3,882,172.3	88.78	3.60E-01	17.37	341.11	16.94	1.56
TNNOX45	The Solae Company	784,455.0	3,882,172.3	88.78	7.00E-01	21.33	450.00	18.00	1.07
TNNOX46	The Solae Company	784,455.0	3,882,172.3	88.78	5.60E-01	11.28	561.11	2.88	0.76
TNNOX47	The Solae Company	784,455.0	3,882,172.3	88.78	8.50E-01	20.12	433.89	13.97	1.07
TNNOX48	The Solae Company	784,455.0	3,882,172.3	88.78	5.00E-01	9.14	441.67	5.49	0.76
TNNOX49	The Solae Company	784,455.0	3,882,172.3	88.78	6.20E-01	12.19	355.56	87.31	0.10
TNNOX50	The Solae Company	784,455.0	3,882,172.3	88.78	3.20E-01	31.09	361.11	917.24	0.25
TNNOX51	The Solae Company	784,455.0	3,882,172.3	88.78	9.40E-01	35.36	362.22	43.38	1.37
TNNOX52	The Solae Company	784,455.0	3,882,172.3	88.78	9.90E-01	45.72	331.11	32.61	1.52
TNNOX53	The Solae Company	784,455.0	3,882,172.3	88.78	4.40E-01	21.33	366.67	34.35	0.92
TNNOX54	The Solae Company	784,455.0	3,882,172.3	88.78	5.30E-01	36.27	363.89	16.78	1.59
TNNOX55	The Solae Company	784,455.0	3,882,172.3	88.78	5.30E-01	36.27	363.89	16.78	1.59
TNNOX56	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.00E-01	11.12	447.22	0.01	0.71
TNNOX57	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.80E-01	11.83	447.22	2.97	0.61
TNNOX58	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.21E+00	14.63	466.67	3.96	1.37
TNNOX59	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.04E+00	16.46	466.67	4.72	1.22
TNNOX60	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.80E-01	15.24	466.67	3.20	1.22
TNNOX61	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.40E-01	18.29	461.11	0.91	0.56
TNNOX62	PMC Biogenix	776,904.6	3,895,730.0	79.60	7.00E-02	18.29	461.11	0.91	0.56
TNNOX63	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.00E-02	6.40	461.11	0.52	0.36
TNNOX64	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.50E-01	12.19	477.78	9.14	1.01
TNNOX65	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.00E-01	35.05	461.11	0.24	1.22
TNNOX66	PMC Biogenix	776,904.6	3,895,730.0	79.60	9.00E-02	30.48	497.22	1.52	0.46
TNNOX67	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	10.67	497.22	0.49	0.76
TNNOX68	PMC Biogenix	776,904.6	3,895,730.0	79.60	6.00E-02	6.80	497.22	0.91	0.52
TNNOX69	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	6.86	497.22	0.79	0.46
TNNOX70	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	6.86	497.22	0.49	0.76
TNNOX71	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.20E-01	7.77	497.22	0.79	0.76
TNNOX72	Memphis Cellulose LLC	776,829.8	3,895,012.5	78.60	3.45E+00	16.76	597.22	14.57	1.43
TNNOX73	Memphis Cellulose LLC	776,826.2	3,895,012.4	78.77	2.40E-01	5.36	495.00	12.19	0.38
TNNOX74	Memphis Cellulose LLC	776,826.2	3,895,012.4	78.77	2.52E+00	9.14	255.56	12.19	1.00
TNNOX75	Memphis Cellulose LLC	776,829.8	3,895,012.5	78.60	3.45E+00	18.29	527.78	13.50	1.31
TNNOX76	Covoro Mining Solutions, LLC	774,854.0	3,906,740.9	72.72	1.80E-01	21.33	288.89	19.51	0.10
TNNOX77	Covoro Mining Solutions, LLC	774,826.8	3,906,801.8	73.04	8.11E+01	25.91	533.33	39.62	0.76
TNNOX78	Covoro Mining Solutions, LLC	774,826.8	3,906,801.8	73.04	1.43E+01	25.91	288.89	35.05	1.07
TNNOX79	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX80	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX81	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX82	Covoro Mining Solutions, LLC	774,882.1	3,906,649.3	72.76	4.00E-02	15.24	288.89	4.57	0.15
TNNOX83	Covoro Mining Solutions, LLC	775,002.8	3,906,838.0	72.86	1.80E-01	13.72	433.33	14.02	0.30
TNNOX84	Covoro Mining Solutions, LLC	774,850.2	3,906,864.2	72.94	3.43E+00	30.48	422.22	7.92	2.13
TNNOX85	Covoro Mining Solutions, LLC	774,850.2	3,906,864.2	72.94	3.43E+00	30.48	422.22	7.92	2.13
TNNOX86	Covoro Mining Solutions, LLC	774,875.5	3,906,865.0	72.88	6.76E+00	30.48	452.22	3.81	1.45
TNNOX87	Covoro Mining Solutions, LLC	774,900.7	3,906,865.7	72.81	6.76E+00	18.29	452.22	13.41	1.45
TNNOX88	Federal Express Corporation	776,470.9	3,884,522.5	77.46	2.10E-01	22.86	505.56	11.19	0.46
TNNOX89	Federal Express Corporation	776,470.9	3,884,522.5	77.46	1.55E+00	22.86	505.56	11.19	0.46
TNNOX92	Federal Express Corporation	776,470.9	3,884,522.5	77.46	3.60E-01	22.86	505.56	11.19	0.46

Table C.6 - Offsite NO_2 Point Sources (continued)

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TNNOX95	Federal Express Corporation	776,470.9	3,884,522.5	77.46	4.90E-01	9.14	422.22	12.19	1.00
TNNOX96	MSC Airport Authority	775,512.4	3,882,140.2	89.61	8.50E-01	9.14	422.22	12.19	1.00
TNNOX97	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX98	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX99	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX100	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX101	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX102	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00

Arkansas Potential Inventory Sites

Facility	Permit No.	AFIN	UTM E	UTM N	NO_X Total Emissions (tpy)	Distance to Site (km)	NO_X Q/d
Arcosa	0280-AOP-R5	18-00082	746,861	3,888,508	531.4	27.05	19.64
Valero Partners	0668-AOP-R14	18-00120	757,098	3,891,132	42.5	20.88	2.04
Tetra Technologies	0870-AR-20	18-00146	756,118	3,888,620	6.7	19.69	0.34
Trojan Luggage	1523-AR-2	18-00054	757,029	3,893,997	2.3	23.21	0.10
Warren Oil	1652-AR-7	18-00013	757,473	3,891,350	20	20.82	0.96
Master Halco	1719-AR-6	18-00230	755,846	3,888,434	0.5	19.75	0.03
Crittenden Co Landfill	1994-AOP-R2	18-00094	750,039	3,891,519	0	26.16	0.00
Newberry Tanks	2206-AR-5	18-00077	759,590	3,893,183	0	21.15	0.00
Consolidated Grain	2215-AR-2	18-00881	759,706	3,891,839	2	19.94	0.10
Cargill	2244-A	18-00920	757,150	3,889,650	5.3	19.72	0.27
Sterigenics	2457-A	18-00913	725,796	3,895,504	22.5	48.99	0.46
Sloan Valve	0396-AR-15	74-00029	650,391	3,904,196	8.3	123.38	0.07
Riceland	0478-AR-16	62-00012	672,507	3,865,028	71.4	98.24	0.73
Boar's Head	1709-AR-7	62-00125	699,528	3,874,837	52.1	70.72	0.74
Fed Bureau of Prisons	2198-AR-3	52-00018	700,629	3,873,054	79.7	69.65	1.14
US Army Corp	1793-AOP-R4	39-00023	715,189	3,846,347	720.6	62.03	11.62
Producers Rice Mill	0397-AR-5	19-00019	701,231	3,903,106	15	74.55	0.20
Riceland	0476-AR-5	19-00008	681,856	3,919,039	24.2	98.79	0.24
Mueller Copper Tube	1027-AR-4	19-00004	701,609	3,901,551	0	73.63	0.00
Riceland	1608-AR-6	19-00006	726,167	3,904,848	30	53.29	0.56
Producers Rice Mill	1616-AR-3	19-00098	678,927	3,900,920	2.1	94.95	0.02
Golden Ridge	2387-AR-1	19-00407	700,938	3,904,834	0	75.49	0.00

Mississippi Potential Inventory Sites

Facility	AI	Plant ID	UTM E	UTM N	NO_X Total Emissions (tpy)	Distance to Site (km)	NO_X Q/d
LEHMAN ROBERTS COMPANY, PLANT NUMBER 6	5648	00007	775,845	3,850,920	84.62	24.64	3.43
TEXAS GAS TRANSMISSION LLC, LAKE CORMORA	1079	00009	759,098	3,865,424	2475.75	14.64	169.06
ARDAGH METAL BEVERAGE USA INC	1063	00016	792,212	3,876,326	25.27	22.01	1.15
NITEO PRODUCTS LLC	1934	00027	776,542	3,856,525	5.21	19.44	0.27
BAPTIST MEMORIAL HOSPITAL, DESOTO	2187	00038	774,142	3,873,759	72.45	4.06	17.84
J T SHANNON LUMBER COMPANY	1525	00041	1,320,321	3,904,733	15.46	3.32	4.66
INTERNATIONAL PAPER CO, OLIVE BRANCH	5653	00046	792,471	3,875,348	4.38	22.23	0.20
TVA SOUTHAVEN COMBINED CYCLE PLANT	12199	00095	770,312	3,876,204	483.25	1.29	374.47
NIDEC MOTOR CORPORATION	18531	00101	773,683	3,868,716	0.18	7.09	0.02
RITE HITE PRODUCTS	50219	00109	773,278	3,872,067	5.04	4.16	1.21
SXP SCHULZ XTRUDED PRODUCTS LLC	58173	00112	776,679	3,857,023	25.10	19.01	1.32
EVERCOMPOUNDS LLC	70500	00114	786,112	3,876,564	102.67	15.95	6.44
ROXUL USA INC	56942	00052	808,959	3,875,060	218.61	38.71	5.65
TRUNKLINE GAS COMPANY, LLC, INDEPENDENCE	4105	00025	792,126	3,848,741	4865.17	34.11	142.62
WASTE MANAGEMENT OF TUNICA LANDFILL INC	8339	00033	751,800	3,852,730	30.75	28.85	1.07

Tennessee Potential Inventory Sites

COMPANY	SITE#	UTM E	UTM N	NO_X Total Emissions (tpy)	Distance to Site (km)	NO_X Q/d
NUCOR STEEL MEMPHIS	3601	759,092	3,882,145	389.42	13.30	29.29
ALLEN COMBINED CYCLE PLANT-TVA	2480	760,309	3,884,139	401.00	13.56	29.57
VALERO REFINING COMPANY- TENNESSEE, L.L.C.	2385	765,853	3,886,434	1064.92	12.33	86.37
SOLAE COMPANY, THE	4272	784,455	3,882,172	299.83	15.95	18.80
PMC BIOGENIX	1231	776,905	3,895,730	424.04	21.85	19.40
MEMPHIS CELLULOSE LLC	1001	776,830	3,895,013	348.66	21.15	16.49
COVORO MINING SOLUTIONS, LLC	2571	774,854	3,906,741	1086.56	32.16	33.79
FEDERAL EXPRESS CORP.(HUB)	2903	776,471	3,884,523	489.06	11.45	42.73
MEMPHIS-SHELBY COUNTY AIRPORT AUTHORITY	2491	775,512	3,882,140	31.57	8.94	3.53
METHODIST HEALTHCARE- MEMPHIS HOSPITALS, METHODIST SOUTH HOSPITAL	1300	771,719	3,880,775	5.66	6.04	0.94

PSD PERMIT APPLICATION
Volume II – Modeling Report

Greenfield Simple-Cycle Combustion Turbine Project

MZX Tech LLC
Southaven, MS

Prepared By:

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December 2025

Project 250401.5102

LIST OF FIGURES

1. EXECUTIVE SUMMARY

MZX Tech LLC (MZX) is proposing to construct and operate a greenfield electricity generating station that will be located at 2875 Stanton Rd South, DeSoto County, Southaven Mississippi. The proposed facility will produce electricity for use and will include simple cycle combustion turbines (CT) and support equipment. Three (3) turbine models will be used for the site, the Solar PGM-130, Solar Titan 350, and Proenergy 6000 PE. Additionally, ten (10) PLUM Pressure Reduction Systems (PRSs) will be installed to regulate the pressure of incoming natural gas and condition the natural gas for use in the combustion turbines. The CT units and PLUM units will fire natural gas as fuel. More detail regarding the proposed project is provided in Section 2 of this application.

The proposed project will require a Prevention of Significant Deterioration (PSD) permit as a new major source. Project-related emissions are anticipated to exceed the PSD significant emission rate (SER) thresholds for total particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), total particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen oxides (NO_X), volatile organic compounds (VOC), sulfur dioxide (SO_2), carbon monoxide (CO), and greenhouse gases (GHG) in terms of carbon dioxide equivalents (CO_2e). Therefore the proposed project requires a PSD air quality/dispersion modeling analysis.

The application package contains the necessary state air construction and operating permit application for the proposed project, included in two (2) separate application volumes. This Volume II of the application package includes all the required air quality assessments necessary as part of this PSD permit application. Volume I of the application details the required emissions analyses, regulatory review, and control technology analyses.

1.1 Permitting and Regulatory Requirements

MZX is submitting this construction permit application, in accordance with the PSD permitting requirements, to request authorization to construct an assortment of simple-cycle combustion turbines and supporting equipment. Since the proposed facility will be a major source under the PSD permitting program (i.e., the potential to emit for at least one regulated NSR pollutant exceeds 250 tpy), substantive PSD requirements apply with respect to each regulated NSR pollutant whose potential to emit exceeds the applicable SER thresholds. MZX has evaluated emissions increases of CO, NO_X, filterable PM, total PM_{10}, total $PM_{2.5}$, CO_2e, SO_2, and VOC resulting from the proposed project for comparison to their respective PSD SER to determine whether PSD permitting is required, as identified in Table 1-1.

Table 1-1.Proposed Project Emissions

Pollutant	Project Emissions (tpy)	PSD Significant Emission Rate (tpy)	PSD Triggered? (Yes/No)
Filterable PM	19.6	25	No
Total PM_{10}	19.6	15	Yes
Total $PM_{2.5}$	19.5	10	Yes
SO_2	156.5	40	Yes
NO_X	423.4	40	Yes
VOC	417.4	40	Yes
CO	364.2	100	Yes
CO_2e	6,410,729	75,000	Yes

Since the project potential emissions of total PM_{10}, total $PM_{2.5}$, NO_X, VOC, SO_2 and CO exceed their respective SERs, the proposed project is required to undergo PSD review for each pollutant. Because these pollutants trigger PSD permitting, PSD review is also required for CO_2e because the calculated CO_2e project emission increases exceed the applicable SER. Emission calculations are provided in Appendix D of Volume I of this application, and PSD permitting requirements are detailed in Section 3 of Volume I of this application.

MZX is submitting this construction and operating permit application package in accordance with all federal and state requirements. The proposed project will be subject to applicable federal New Source Performance Standards (NSPS), and Mississippi Department of Environmental Quality (MDEQ)'s state regulations. Applicability of these programs is discussed in Section 4 of Volume I of this application.

1.2 Modeling Summary

The results of the air quality dispersion modeling analyses presented in this report are summarized as follows:

- Ambient PM_{10} impacts from the project in the form of the standard are below the Class I and Class II Significant Impact Levels (SILs) for all applicable averaging periods.
- Ambient SO_2 impacts from the project in the form of the standard are below the Class I and Class II SILs for all applicable averaging periods.
- Ambient $PM_{2.5}$ impacts from the project in the form of the standard are below the Class I and Class II SILs for all applicable averaging periods.
- Ambient CO impacts from the project in the form of the standard are below the Class II SILs for all applicable averaging periods.
- Ambient NO_2 impacts for the project in the form of the standard are above the Class II SIL for the 1-hr and annual averaging periods. Subsequent modeling demonstrated compliance with the 1-hr NO_2 NAAQS and the annual NO_2 NAAQS and Increment standards.

The PSD air quality analyses described in this report demonstrate that the proposed project will neither cause nor contribute to an exceedance of any NAAQS or PSD Increment.

1.3 Application Contents

Volume II of this permit application is organized as follows:

- Section 2 contains a description of the facility and proposed project;
- Section 3 describes the PSD modeling procedures;
- Section 4 discusses the technical approach employed in the modeling analyses;
- Section 5 describes the results of the PSD dispersion analyses;
- Appendix A includes an area map, site layout map, and other supporting figures;
- Appendix B includes the modeling protocol and MDEQ response;
- Appendix C includes the emissions information used in modeling; and
- Appendix D contains electronic modeling files.

Figure 2-1 provides a map of the area surrounding the proposed project location. The approximate central Universal Transverse Mercator (UTM) coordinates of the facility (centered around the emissions sources) are 770.230 kilometers (km) East and 3,874.910 km North in Zone 15 (NAD 83). The area surrounding the facility is predominantly rural.

Figure 2-1. Project Site Location Map

MZX will install fencing around the entire boundary to prevent the public from accessing MZX property. The proposed boundary of the facility is shown in Figure 2-2 (yellow line visible drawn around the facility). The yellow line represents the ambient air boundary for modeling.

Figure 2-2. Facility Ambient Air Boundary and General Site Layout

2.1 Description of Proposed Project

MZX is proposing to construct and operate an electricity generating station that will include CT units and support equipment. Three (3) different turbine models and ten (10) PLUM PRSs will be installed to regulate incoming natural gas pressure and condition the natural gas for use in the combustion turbines. The CT and PLUM units will fire natural gas as fuel.

3. PSD MODELING REQUIREMENTS

The following sections detail the methods and models used to demonstrate that the proposed project will not cause or contribute to an exceedance of either the NAAQS or the PSD Class I or Class II Increment. The dispersion modeling analyses were conducted in accordance with the following guidance documents, as well as the submitted modeling protocol[1]:

- *Guideline on Air Quality Models* 40 CFR 51, Appendix W (EPA, Revised, November 29, 2024)
- User's Guide for the AMS/EPA Regulatory Model – AERMOD, (EPA, November 2024)
- AERMOD Implementation Guide (EPA, last revised November 2024)
- New Source Review Workshop Manual (EPA, Draft, October 1990)
- Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS (EPA, Memorandum from Mr. Stephen Page, March 23, 2010)
- Revised Draft Guidance for Ozone and Fine Particulate Matter Modeling (EPA, Memorandum from Mr. Richard A. Wayland, September 20, 2021)
- *Revised Policy on Exclusions from "Ambient Air"* (EPA, Memorandum from Mr. Andrew R. Wheeler, December 2, 2019)
- *Guidance for $PM_{2.5}$ Permit Modeling* (EPA, Memorandum from Mr. Stephen Page, May 20, 2014)
- Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA, Memorandum from Mr. Richard A Wayland, April 30, 2019)
- Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Mr. Peter Tsirigotis, April 17. 2018)
- Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Mr. Richard Wayland, April 30. 2024)
- Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. Tyler Fox, March 1, 2011); and
- Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. R. Chris Owen and Roger Brode, September 30, 2014).
- Interpretation of "Ambient Air" in Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD) (EPA, Memorandum from Stephen D. Page to Regional Air Division Directors, June 22, 2007).
- *Q/D Screening Method* (ADEC/AQM, Mr. Alan E. Schuler, June 19, 1997)

Part C of Title I of the Clean Air Act, 42 U.S.C. §§7470-7492, is the statutory basis for the PSD program. The U.S. EPA has promulgated PSD definitions, applicability, and requirements in 40 CFR Part 52.21. PSD is the component of the federal New Source Review (NSR) permitting program that is applicable in areas that are not designated as in nonattainment of the NAAQS. DeSoto County, where the facility is located, is currently designated as "attainment" or "unclassifiable" for all criteria pollutants.[2]

The proposed project will be considered a major modification under PSD since the proposed project emissions increases for certain criteria pollutants are expected to exceed their respective PSD SERs.

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[1] Modeling protocol submitted to the MDEQ on November 5, 2025, and approved on November 18, 2025. Copies of these documents can be found in Appendix B.

[2] 40 CFR 81.325

As discussed in Volume I and shown in this Volume II report, the project emission rates trigger PSD permitting for multiple criteria pollutants with established SILs, NAAQS, and/or PSD Increment standards, specifically CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. The ozone-based impacts of the project's NO_X and VOC emissions increases are assessed and summarized in section 4.8.3.

This section addresses requirements for evaluating NAAQS, PSD Increment, Class I Area, and additional impacts.

3.1 Class II Significance Analysis

The Class II Significance Analysis was conducted to determine whether the calculated emissions increases for SO_2, CO, NO_2, PM_{10} and $PM_{2.5}$ would exceed certain ambient concentration thresholds commonly referred to as the SILs, shown in Table 3-1.

Table 3-1. Significant Impact Levels, NAAQS, and PSD Class II Increments

Pollutant	Averaging Period	PSD Class II SIL (µg/m^3)	Primary and Secondary NAAQS (µg/m^3)	Class II PSD Increment (µg/m^3)
PM_{10}	24-hour	5	150 (1)	30
	Annual	1	--	17
$PM_{2.5}$	24-hour	1.2 (2)	35(4)	9 (3)
	Annual	0.13 (2)	9(5)	4 (3)
NO_2	1-hour	7.5	188(6)	N/A
	Annual	1	100(7)	25
SO_2	1-hr	7.8	196	N/A
	3-hr	25	1,300	512
	24-hour	5	365	91
	Annual	1	80	20
CO	1-hr	2,000	40,000	N/A
	8-hr	500	10,000	N/A
Ozone	8-Hour	1 ppb	137	--

(1) Not to be exceeded more than three times in 3 consecutive years (highest sixth high modeled output).
(2) EPA promulgated $PM_{2.5}$ SILs and PSD Increments on October 20, 2010 [75 FR 64864, PSD for Particulate Matter Less Than 2.5 Micrometers Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC); Final Rule]. The SILs became effective on December 20, 2010 (i.e., 60 days after the rule was published in the Federal Register) but the U.S. Court of Appeals decision on January 22, 2013 remanded the SIL values back to EPA for reconsideration. EPA has recently provided updated guidance (April 2024) which recommended use of a 24-hr $PM_{2.5}$ SIL of 1.2 µg/m^3, and an annual SIL of 0.13 µg/m^3.
(3) The above-mentioned court decision did not impact the promulgated increment thresholds for $PM_{2.5}$.
(4) The 3-year average of the 98th percentile 24-hour average concentration (highest eighth high modeled output).
(5) The 3-year average of the annual arithmetic average concentration (highest first high modeled output).
(6) The 3-year average of the 98th percentile of the daily maximum 1-hr average (highest eighth high modeled output).
(7) Annual arithmetic average (highest first high modeled output).

The highest design concentrations out of all given modeling years for each pollutant-averaging time is then compared to the SIL level shown in Table 3-1 to determine if the ambient air impact is significant. In the case of 1-hour NO_2, 1-hour SO_2, 24-hour and annual $PM_{2.5}$ evaluations, EPA guidance states that the applicant should determine the maximum concentration at each receptor per year, then average those values on a receptor-specific basis over the 5 years of meteorological data prior to comparing with the appropriate SIL. All other pollutants and averaging periods are assessed based on their maximum concentrations in any of the five (5) modeled years.

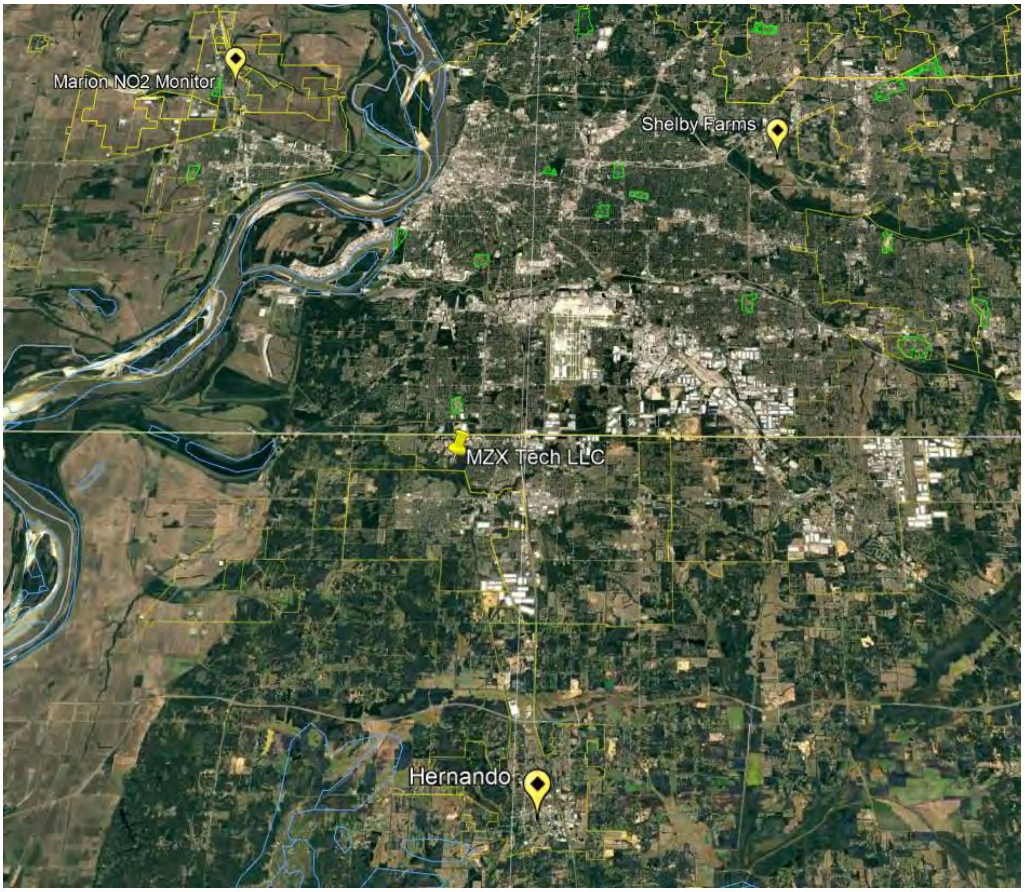
When modeled design concentrations are less than the applicable SIL, as was the case for several pollutants in this analysis, further analyses (NAAQS and PSD Increment) are not required for those pollutant-averaging period combinations.

As detailed further in Section 4.8.3, the Significance Analysis for $PM_{2.5}$ and PM_{10} also considered secondary $PM_{2.5}$ impacts from the project NO_X and SO_2 emissions, in accordance with the updated EPA April 2024 MERPs guidance. Impacts of secondary formation of ozone were also considered through the evaluation of the project VOC and NO_X emissions, in accordance with the EPA April 2024 MERPs guidance.

3.2 Ambient Background Data

Ambient background monitoring concentrations are necessary for any required full NAAQS analysis for the facility. As shown in the significance results in Section 5, full impact analyses were required for 1-hour and annual NO_2. However, given the vacature of the $PM_{2.5}$ significant monitoring concentration (SMC), per 40 CFR 51.166(i)(5) and 40 CFR 52.21(i)(5)(i)(K), there are no specific pre-construction monitoring exemptions available for $PM_{2.5}$. Given the availability of current, high quality data from existing state-run monitoring networks, MZX is proposing that no preconstruction monitoring be required for $PM_{2.5}$. Additionally, since the project emissions increase will exceed 100 tpy for both NO_X and VOC (precursors to ozone), MZX has selected a background monitor for ozone. Nearby ambient background monitoring stations were reviewed, and the following stations were chosen as appropriately representative ambient background monitoring stations. Locations of the selected background monitors are shown in Figure 3-1.

Figure 3-1. Location of Selected Background Monitors



Monitor selections were based on the criteria listed in EPA's *Guidance on Developing Background Concentrations for Use in Modeling Demonstrations*.[3] When evaluating the criteria from this guidance below, the Marion site was determined to be the most representative background monitor data available.

[3] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on Developing Background Concentrations for Use in Modeling Demonstrations*, Research Triangle Park, North Carolina, EPA 454/R-24-003, November 2024.

- Is the monitor located in an urban or rural setting similar to the project area?
- Are the wind and terrain patterns at the monitor consistent with the project area?
- Is the monitor representative of pollutant transport from other sources located outside of the modeling domain?
- Has ambient data from this monitor been used in previous cumulative impact analysis for the project area or surrounding areas?

3.2.1 NO_2 Background Monitor

The following site was selected as an appropriately representative background monitor for NO_2:

NO_2 – LH Polk and Colonial Dr., Marion Site (AQS Site ID 05-035-0005)

The Marion site is the closest geographically to the MZX site (located less than 30km to the northwest) and has valid data through the most recent monitoring year (2024). Marion is in a similar climatological region and is surrounded by similar residential and light industrial landuse types. It is classified as a near road monitor and as such provides a more conservative background value for use in the NO_2 modeling analysis.

While background concentrations in the form of the NAAQS standards will be derived for use in the NAAQS modeling analyses results summaries, background concentrations may be derived for use in the NAAQS analyses based on a season and hour-of-day approach. Available EPA guidance (e.g., *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the* NO_2 *National Ambient Air Quality Standard, September 2014*) would be used for derivation of the season and hour of day background concentrations.

3.2.2 $PM_{2.5}$ Background Monitor

As shown in Table 5-1, $PM_{2.5}$ model impacts are below both the 24-hour and annual SILs. As such, no cumulative modeling analyses including ambient background concentrations were required. Nevertheless, since the SMC for $PM_{2.5}$ was vacated, there is no currently-established threshold that specifically eliminates pre-construction monitoring requirement and thus it must still be addressed. The vacated SMC was set at 4 $\mu g/m^3$ on a 24-hour averaging period basis, far in excess of the 1.2 $\mu g/m^3$ SIL which the project models below. There are several $PM_{2.5}$ monitors in the area, each of which have current design values (2022-2024) well below the 24-hour NAAQS of 35 $\mu g/m^3$.[4] The Shelby Farms NCORE Monitoring Site (AQS Site ID 47-157-0075) was chosen to address pre-construction monitoring requirements, based on the following criteria:

1. Proximity – the Shelby Farms site is within 25km of the proposed project site.
2. Monitoring Objective – The Shelby Farms monitor is an NCORE monitor focused on population exposure rather than other monitors in the area which are near road or have alternative monitoring purposes.
3. Dispersion Environment – While the Shelby Farms monitor is not the geographically closest ambient $PM_{2.5}$ monitor to the proposed site, both are located within the same Core-Based Statistical Area (CBSA) (Memphis, TN-MS-AR). The monitoring location is also in a more representative area (e.g., not in high traffic or downtown, heavily urban, or industrial Memphis area) than other surrounding monitors. Both the Shelby Farms monitor and proposed project site are in suburban settings, with a mix of forest, light industry and residential communities which have similar surface roughness. Both areas are also in gently rolling terrain with similar elevations.

[4] https://www.epa.gov/system/files/documents/2025-06/pm25_designvalues_2022_2024_final_05_28_25.xlsx

4. Emissions Source Distribution – The Shelby Farms monitor is located generally downwind of the densely populated and industrialized locations in the Memphis area, meaning that it would capture the local and regional sources of pollution typical of the overall area. Since the proposed project site is more upwind of the major industrial and anthropogenic sources, and thus not exposed as frequently to direct pollutant transport, the Shelby Farms monitor provides a conservative estimate of background.
5. Meteorology – Both the Shelby Farms monitor location and proposed project site are in the same terrain regime with the same proximity to major water bodies and other features that influence meteorological conditions. There are no unique features at either site that would lead to more or less frequent temperature inversions or extreme stability events. Given that, along with the proximity of the two sites in general, both the monitor and project locations experience similar weather patterns throughout the year.

NCORE stands for the National Core multipollutant monitoring network. Established by the EPA in 2006, this network consists of approximately 80 monitoring stations across the United States that measure multiple air pollutants and meteorological parameters at a single location.

3.2.3 Ozone Background Monitor

As discussed in Section 3.4, ozone impacts using the conservative MERP methodology are expected to be well below the EPA-recommended SIL value, thus precluding the need for any cumulative ozone NAAQS review.

However, since the project emissions increase will exceed 100 tpy for both NO_X and VOC (precursors to ozone), a regional characterization of ozone background is provided. The Hernando, MS (AQS Site ID 28-033-0002) site was selected as an appropriately representative background monitor for ozone based on the following factors:

1. Proximity – the Hernando site is within 20km of the proposed project site and is the closest monitor.
2. Monitoring Objective – The Hernando monitoring objective is population exposure rather than other monitors in the area which are near road or have alternative monitoring purposes.
3. Dispersion Environment – Both Hernando and the proposed project site are located within the same CBSA (Memphis, TN-MS-AR). Both sites are also in similar suburban settings, with a mix of forest, light industry and residential communities with similar surface roughnesses. Both areas are also in gently rolling terrain with similar elevations.
4. Emissions Source Distribution – As described in #3, both the Hernando monitor and proposed project site are located in similar suburban settings. There are a few industrial sources in the immediate vicinity of each site, however ozone is driven more by regional pollutant transport and vehicle traffic. The Hernando monitor is an a slight more developed area with increased vehicle traffic flowing in the general vicinity which would make it a somewhat conservative estimate of ambient background.
5. Meteorology – Both the Hernando monitor location and proposed project site are in the same terrain regime with the same proximity to major water bodies and other features that influence meteorological conditions. There are no unique features at either site that would lead to more or less frequent temperature inversions or extreme stability events. Given that, along with the proximity of the two sites in general, both the monitor and project locations experience similar weather patterns throughout the year.

The most recent design value period is 2022-2024. The 2022-2024 design value (71 parts per billion [ppb]) is above the ozone NAAQS for the Hernando monitor, however the area continues to be designated attainment for ozone. Further, with the 2025 ozone season ending on October 31, preliminary monitoring data indicates that the 2023-2025 design value will be below the 70 ppb NAAQS. In any case, the proposed project is not significant for ozone, therefore it will not contribute significantly to degradation of the ozone NAAQS in the area.

Table 3-2. Selected Background Concentrations

PSD Pollutant	Averaging Period	Monitor Background Concentration (μg/m³)	Metric	Monitor Location
NO_2	1-hour	65.9	3-yr average of 98th percentile	Marion Site
	Annual	7.5	Annual Average	
$PM_{2.5}$	24-hour	20.0	3-yr average of 98th percentile	Shelby Farms
	Annual	8.4	Annual Average over 3-yr	
Ozone	8-hour	71 ppb	3-yr average of annual 4th highest daily maximum	Hernando

3.3 Ambient Monitoring Requirements

A pre-construction air quality analysis using continuous monitoring data may be required for pollutants subject to PSD review per 40 CFR §52.21(m). Given the extensive network of state-run, EPA-approved ambient monitors for all pollutants triggered by this project, no pre-construction monitoring for ozone should be required.

While not a modeled pollutant, the proposed project has VOC emissions in excess of 100 tpy. Based on this, PSD regulations also require the applicant to address pre-construction monitoring for ozone (VOC). There is already an extensive network of state-run ozone monitors in the area around the project site. Further, as shown in section 4.8.3, potential ozone impacts from the project are well below the EPA-established SIL for ozone. Given the existing monitor network and insignificant impact from the project, no pre-construction monitoring for ozone should be required.

3.4 Ozone Ambient Impact Analysis

Elevated ground-level ozone concentrations are the result of photochemical reactions among various chemical species. These reactions are more likely to occur under certain ambient conditions (e.g., high ground-level temperatures, light winds, and sunny conditions). The chemical species that contribute to ozone formation, referred to as ozone precursors, include NO_X and VOC emissions from both anthropogenic (e.g., mobile and stationary sources) and natural sources (e.g., vegetation). Pursuant to 40 CFR 52.21, an ambient ozone impact analysis is not required unless a project's emissions increase is greater than 100 tpy of VOC or NO_X. As this project's increase in emissions is greater than 100 tpy of NO_X, an ozone impacts analysis was conducted through evaluation of the MERPs.

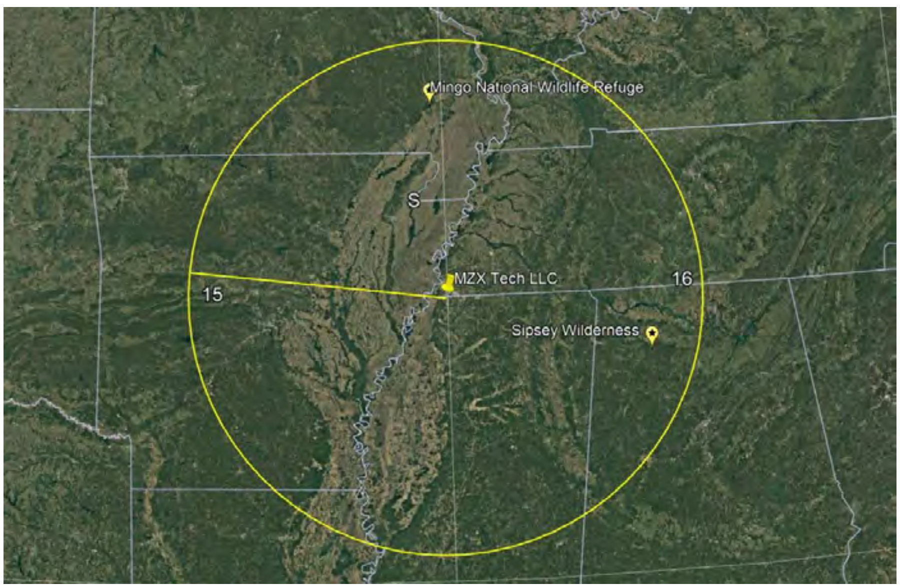
EPA has issued guidance specifying a SIL value for ozone of 1 ppb, and has developed a demonstration methodology (the MERPs guidance) to provide a framework for a Tier 1 demonstration that can illustrate that a project will not cause or contribute to any exceedance of ambient ozone standards.[5] The April 2019 EPA guidance document titled *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ Under The PSD Permitting Program* was used in conjunction with the most recent April 2024 EPA guidance, to provide a Tier 1 demonstration that ozone impacts from the project will not cause or contribute to ambient air quality levels of ozone. Both VOC and NO_X emissions increases from the project were considered. Details regarding that analysis can be found in Section 4.8.3 of this report.

3.5 Class I Requirements

Class I areas are federally protected areas for which more stringent air quality standards apply to protect unique natural, cultural, recreational, and/or historic values. The following Class I areas are located within 300 km of the proposed facility (with the approximate distance to the proposed facility listed) [6]:

- Mingo National Wildlife Refuge (215 km)
- Sipsey Wilderness (233 km)

Figure 3-2. Class I Areas Within 300 km of MZX



All other Class I areas are located at distances greater than 300 km from the proposed facility.

The Federal Land Managers (FLM) have the authority to protect air quality related values (AQRVs) and to consider, in consultation with the permitting authority, whether a proposed major emitting facility or a proposed modification to an existing major emitting facility will have an adverse impact on such values. AQRVs for which PSD modeling is typically conducted include visibility and deposition of sulfur and nitrogen.

[5] *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program* (Memorandum from Mr. Richard A. Wayland, U.S. EPA, to Regional Air Division Directors, April 30, 2019).

[6] All distances approximate and based on data obtained from the Class I Area distance tool as published by the FL DEP at https://floridadep.gov/air/air-business-planning/content/class-i-areas-map

The ratio of emissions to Class I distance (i.e., Q/D) for this project for the Class I areas within 300 km was considered in order to determine if the FLM would require a full AQRV analysis. The FLM's AQRV Work Group (FLAG) 2010 guidance states that a Q/D value of ten or less indicates that AQRV analyses should not be required.[7] The Q/D ratio for all Class I areas within 300 km of the facility was evaluated and demonstrated that impacts will be less than 10. Initial screening criteria were calculated for the Class I areas using proposed MZX plant maximum daily emission estimates and are presented in Table 3-3. As shown, the Q/D values are well below 10 and as such, AQRV analyses should not be required for this project.

Table 3-3. Class I Q/D Screening Analysis

	Mingo Wilderness Area	Sipsey Wilderness Area
SO_2 (tpy)	156.53	156.53
NOx (tpy)	474.58	474.58
PM_{10} (tpy)	20.99	20.99
H_2SO_4 (tpy)	0.15	0.15
Total Emissions (tpy)	652.25	652.25
Distance (km)	215	233
Q/d	3.03	2.80

A Significance Analysis was conducted for the Class I areas to determine if an evaluation of PSD Increment impacts upon the Class I area was required. AERMOD was utilized for the NO_2, SO_2, PM_{10}, and $PM_{2.5}$ analyses, whereby a screening procedure was utilized evaluating an array of receptors located 50 km from the facility at 1-degree intervals for a full 360 degrees, creating a ring of hypothetical receptors at a 50 km distance from the facility to compare project emission increase impacts to those receptors at 50 km.[8] Significance results from those receptors demonstrated that the Class I SILs for PM_{10}, $PM_{2.5}$, SO_2, and NO_2 were not exceeded. Results of the analysis can be found in Section 5 of this report.

The Class I area SILs and PSD Increment thresholds utilized are listed below. $PM_{2.5}$ Class I SILs are taken from recent EPA guidance regarding appropriate recommended significant impact levels for $PM_{2.5}$.[9]

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[7] U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. Federal land managers' air quality related values work group (FLAG): phase I report, revised (2010). Natural Resource Report NPS/NRPC/NRR, 2010/232. National Park Service, Denver, Colorado.

[8] This assumes that all applicable FLMs have determined that no AQRV analyses are required for the project.

[9] Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Richard Wayland, April 30, 2024)

Table 3-4. Class I Significant Impact Levels and Increment Thresholds

Pollutant	Averaging Period	Class I SIL ($\mu g/m^3$)	Class I PSD Increment ($\mu g/m^3$)
NO_2	Annual	0.1	2.5
$PM_{2.5}$	24-hour	0.27	2
	Annual	0.03	1
PM_{10}	24-hour	0.3	8
	Annual	0.2	4
SO_2	3-hour	1.0	25
	24-hour	0.2	5
	Annual	0.1	2

3.6 Regional Inventory Data

As shown in Section 5 of this report, the only pollutants (and averaging periods) that exceeded their respective Class II SIL were 1-hr and annual NO_2.

As such, it was necessary to develop regional inventory data for Class II modeling of the previously mentioned pollutant (NO_2). Significance evaluations of NO_2 showed levels above the SIL that extended to a maximum of 20.9 km from the facility for the 1-hr averaging period and 1.5 km from the facility for the annual averaging period. Modeling inventory information was compiled as described in the following sections.

No other pollutants (PM_{10}, $PM_{2.5}$, CO, and SO_2) impacts exceeded the Class II SILs and no pollutants exceeded the Class I SILs, as referenced in Section 3.5 and as shown in model results in Section 5.

3.6.1 Development of Initial Inventory Source List

Google Earth was relied upon to identify counties or part of the counties that are located within a 50 km radius of the facility. As a result, counties were identified in Tennessee (Shelby, Fayette, and Tipton counties), Mississippi (DeSoto, Marshall, Tate, and Tunica counties), and Arkansas (Crittenden, Cross, St. Francis, Woodruff, and Lee counties).

A comprehensive emissions inventory of all nearby point sources was requested from MDEQ. Nearby sources were also requested from the Shelby County Health Department (SCHD) and the Arkansas Division of Environmental Quality (ADEQ). This inventory was used to determine which nearby sources to include in the cumulative impact modeling. For nearby sources up to 50 km from the proposed MZX site, a Q/D (emission rate/distance) screening assessment was used to determine the additional sources to be modeled. Application of the Q/D assessment involves determining the total annual emission rate (Q) of all sources at a nearby facility and dividing by its distance (D) from the proposed MZX site. If the ratio is greater than or equal to 20, the nearby source was included in the NAAQS/Increment analysis. Sources with a Q/D less than 20 and sources beyond 50 km are indirectly accounted for in the background monitored concentration and do not need to be modeled explicitly. No building downwash was included for these sources.

Limiting the extent and scope of the modeling inventory is supported by EPA statements in the most recently revised Appendix W. Alternative methods for inventory development may be used in accordance with the *Guideline* which states that

"*The number of nearby sources to be explicitly modeled in the air quality analysis is expected to be few except in unusual situations. The determination of nearby sources through the application of the EPA's recommended framework calls for the exercise of professional judgment by the appropriate reviewing authority…"*.[10]

3.6.2 File Review of Modeling Parameters

File reviews at SCHD and MDEQ were conducted for the Title V/PSD major sources already identified (for validity of data from the PSD inventory) as well as for minor sources. Additionally, ADEQ databases were queried for records on facilities identified in the respective state inventories. Based on the results of the file review and additional research, a few identified sources were excluded from the modeling evaluation for the following reasons:

- The site consisted of only emergency use equipment, not subject to inclusion in modeling analyses.
- File review indicated the site of interest was not a source of NO_2 emissions, and the source was, therefore, removed from consideration.

A listing of those sites identified, as well as the final major and minor source inventory information modeled for the NAAQS and PSD Increment analysis is included in Appendix C.

3.7 Additional Impacts Analysis

PSD regulations require that three "additional impacts" be considered as part of a PSD permit action: a soil and vegetation analysis, an economic growth analysis, and a visibility analysis. The effect of the proposed project's CO, SO_2, NO_2, PM_{10} and $PM_{2.5}$ emissions increases on local soils and vegetation was addressed through comparison of modeled impacts to the secondary NAAQS. The results of this analysis are discussed in Section 5.4.

An economic growth analysis is intended to assess the amount of new growth that is likely to occur in support of the new project and to estimate emissions resulting from associated growth. Associated growth relates to any residential and commercial/industrial growth that may result from the proposed project. Residential growth depends on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. The proposed project will not result in a change of the current resources necessary to operate and support the project. Therefore, additional economic growth impacts from the proposed project will be minimal. No significant air quality degradation due to associated growth will be expected. Construction activities will also be planned so that no adverse air quality or visibility impacts occur.

A near-field visibility analysis was conducted for the sensitive receptor closest to the project site, where sensitive receptor is defined as a regional airport, state park, or state historic site located within the project's significant impact area (SIA). The Memphis International Airport (KMEM) is located 6.9 km to the NW of the project site which is within the project SIA for 1-hour NO_2. As such, a near-field visibility analysis was conducted for KMEM, using EPA's VISCREEN model, and the results are presented in Section 5.4.

Also, per 40 CFR 52.21, as the net emissions increase for the proposed project is greater than 100 tons per year of NO_X, an ambient air quality analysis or gathering of ambient air quality data is required for ozone.

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[10] Appendix W, Section 8.3.3.b.iii

Additional consideration of ozone is discussed further in Section 4 of this report associated with the EPA guidance document associated with Modeled Emission Rates for Precursors (MERPs), as well as the more recent April 2024 EPA guidance regarding the MERPs.

4. MODEL SELECTION AND METHODOLOGY

This section includes a summary of the modeling methodology originally presented in the dispersion modeling protocol previously submitted to and approved by the MDEQ.

4.1 Model Selection – AERMOD

Dispersion models predict downwind pollutant concentrations by simulating the evolution of the pollutant plume over time and space for specific set of input data. These data inputs include the pollutant's emission rate, source parameters, terrain characteristics, and atmospheric conditions.

According to the 40 CFR 51, Appendix W (the *Guideline)*, the extent to which a specific air quality model is suitable for the evaluation of source impacts depends on (1) the meteorological and topographical complexities of the area; (2) the level of detail and accuracy needed in the analysis; (3) the technical competence of those undertaking such simulation modeling; (4) the resources available; and (5) the accuracy of the database (i.e., emissions inventory, meteorological, and air quality data).

Taking these factors into consideration, MZX utilized the AERMOD modeling system to represent all project emissions sources at the facility. AERMOD is the default model for evaluating impacts attributable to industrial facilities in the near-field (i.e., source receptor distances of less than 50 km) and is the recommended model in the *Guideline*.

The latest version (v24142) of the AERMOD modeling system was used to estimate maximum ground-level concentrations in all analyses conducted for this application. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and was promulgated in December 2005 as the preferred model for use by industrial sources in this type of air quality analysis.[11] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[12] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[13]

The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the dispersion and post-processing module.

AERMAP is the terrain pre-processor that is used to import terrain elevations for selected model objects and to generate the receptor hill height scale data that are used by AERMOD to drive advanced terrain processing algorithms. National Elevation Dataset (NED) data available from the United States Geological Survey (USGS) are utilized to interpolate surveyed elevations onto user specified receptor, building, and

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[11] 40 CFR Part 51, Appendix W, Guideline on Air Quality Models, Appendix A.1 AMS/EPA Regulatory Model (AERMOD).

[12] Earth Tech, Inc., Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model, Concord, MA.

[13] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised), Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

source locations in the absence of more accurate site-specific (i.e., site surveys, GPS analyses, etc.) elevation data.

AERMET generates a separate surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the meteorological site shown to be representative of the application site.

The AERMOD dispersion model allows for emission units to be represented as point, area, or volume sources. All point sources with vertical releases were modeled with their actual stack parameters (i.e., height, diameter, exhaust gas temperature, and gas exit velocity).

MZX used the BREEZE® graphical interface, developed by Trinity Consultants, to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (dated 24142) and AERMAP (dated 24142) and provides capability for image-generation. Using the procedures outlined in the *Guideline* as a reference, the AERMOD dispersion modeling for this project was performed using only regulatory default options.

4.2 Modeled Sources

MZX modeled the project-associated sources for the significance analysis. This includes the facility's 41 simple cycle combustion turbines (TUR-1 through TUR-41) and 10 Plum PRS units that will be installed as part of this project.

For any off-site impact calculated in the significance modeling analysis that was greater than the SIL for a given pollutant, a NAAQS analysis incorporating nearby sources was performed (cumulative impact analysis). For the cumulative impact analysis, all sources at the facility and the appropriate inventory sources were included.

Modeling analysis for each ambient-air standard utilized inputs that represent the most conservative, or a "worst-case", operating scenario. The "worst-case" operating scenario, for modeling purposes, represents the load and ambient temperature conditions when worst-case concentrations occur because combustion turbine performance varies with generation load and temperature. Rather than modeling various individual load scenarios (e.g., 50%, 75%, 100%), MZX presents a single, conservative modeling case. This case pairs the highest potential emission rates (which typically occur at high loads) with the poorest plume dispersion characteristics (e.g. the lowest exhaust temperature and velocity, which typically occur at lower loads). The intent of this hybrid approach is to create a scenario that is more conservative than any single, real-world operating condition. With compliance demonstrated under this overly conservative scenario, it can be assumed that the facility is in compliance under all other operating loads.

The stack parameters selected to represent "worst-case" are provided in Table 4-1.

Table 4-1. Modeled Source Parameters

Proposed Unit	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Inside Diameter (m)
350	24.4	740.3	22.4	3.35
130	15.2	766.5	21.5	2.74
Proenergy	25.0	617.6	23.8	3.05
Plum	7.6	477.6	2.0	0.61

The MZX facility is designed to be a continuous power generation site, it is not a peaking or other type of site where it will undergo frequent startup and shutdown activity. Further, the startup/shutdown cycle for each Solar unit completes in ten (10) minutes and each Proenergy unit completes in thirty (30) minutes and there will be no more than six (6) planned startup/shutdown events in a given year. As such, that is no more than one (1) hour of operation in startup/shutdown mode for any specific piece of equipment and no more than 198 hours total across all planned turbines. Given the extremely infrequent nature of those conditions, startup/shutdown events could be excluded from the model based on EPA's Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2, as discussed on page 8 (bold added for emphasis):

"However, the intermittent nature of the actual emissions associated with emergency generators and startup/shutdown in many cases, when coupled with the probabilistic form of the standard, could result in modeled impacts being significantly higher than actual impacts would realistically be expected to be for these emission scenarios. The potential overestimation in these cases results from the implicit assumption that worst-case emissions will coincide with worst-case meteorological conditions based on the specific hours on specific days of each of the years associated with the modeled design value based on the form of the hourly standard."

And also Page 9 (bold added for emphasis):

"Given the implications of the probabilistic form of the 1-hour NO_2 NAAQS discussed above, we are concerned that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself. As a result, we feel that it would be inappropriate to implement the 1-hour NO_2 standard in such a manner and recommend that compliance demonstrations for the 1-hour NO_2 NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. EPA believes that existing modeling guidelines provide sufficient discretion for reviewing authorities to exclude certain types of intermittent emissions from compliance demonstrations for the 1-hour NO_2 standard under these circumstances."

However, in order to ensure the protection of public health across all situations, EPA also discusses alternatives to exclusion on p.11:

"Another approach that may be considered in cases where there is more uncertainty regarding the applicability of this guidance would be to model impacts from intermittent emissions based on an average hourly rate, rather than the maximum hourly emission. For example, if a proposed permit includes a limit of 500 hours/year or less for an emergency generator, a modeling analysis could be based on assuming continuous operation at the average hourly rate, i.e., the maximum hourly rate times 500/8760. This approach would account for potential worst-case meteorological conditions associated with emergency generator emissions by assuming continuous operation, while use of the average hourly emission represents a simple approach to account for the probability of the emergency generator actually operating for a given hour."

MZX utilized an even more conservative emission approach to account for the infrequent nature of startup and shutdown activities at the facility. Since no more than five (5) combustion turbines of each model type (e.g., Solar 130, Solar 350, Proenergy) will be in startup mode in any given hour, MZX's approach consists of determining which (five) 5 sources represent the "worst-case" modeled impact during startup.

The five (5) "worst-case" sources were determined by modeling all combustion turbines at a unit emission rate of 1 gram per second (g/s) to determine which combustion turbines have the highest predicted impact (by turbine type). MZX then modeled a scenario where the five Solar 350s, five Solar 130s, and five ProEnergy turbines with the worst-case impacts are in startup mode within the same hour. The modeled emission rate for these units is a blended hourly rate, calculated by combining the short-duration (e.g., 10 or 30 minutes) startup emissions with the normal maximum hourly rate for the remainder of that hour. The resulting SIL and full impact models, where necessary, thus include a total of fifteen (15) combustion turbines at emission rates assuming one startup every hour for short term averaging periods, and the remaining twenty-six (26) combustion turbines modeled at normal operating emission rates. For annual averaging periods, all combustion turbines were modeled at annualized emission rates equivalent to the total annual emissions estimated for the type of combustion turbine plus the total annual startup and shutdown emissions for the type of combustion turbine. By using this modeling approach, it is acknowledged and accepted that the final permit will include an enforceable operational limit restricting the facility to having no more than five of each turbine type in startup or shutdown mode during any given hour. Table 4-2 provides the results of the analysis to determine which five combustion turbines of each type represent the "worst-case" modeling scenario during startup and shutdown activities.

Table 4-2. **"Worst-Case" Analysis of Combustion Turbine Stacks**

Predicted Impact Ranking	Solar 130		Solar 350		Proenergy	
1	TUR2	2.53	TUR27	1.27	TUR35	10.49
2	TUR4	2.50	TUR18	1.27	TUR37	8.29
3	TUR11	2.49	TUR26	1.23	TUR38	6.76
4	TUR6	2.46	TUR20	1.21	TUR36	5.57
5	TUR13	2.42	TUR28	1.20	TUR41	4.52
6	TUR7	2.35	TUR19	1.19	TUR39	3.95
7	TUR8	2.34	TUR32	1.19	TUR40	2.76
8	TUR14	2.32	TUR21	1.19	TUR34	2.51
9	TUR1	2.32	TUR29	1.16		
10	TUR9	2.32	TUR33	1.16		
11	TUR3	2.31	TUR31	1.16		
12	TUR5	2.27	TUR22	1.15		
13	TUR15	2.27	TUR25	1.15		
14	TUR16	2.25	TUR24	1.15		
15	TUR12	2.23	TUR30	1.13		
16	TUR17	2.21	TUR23	1.12		
17	TUR10	2.13				

4.3 Receptor Grid and Coordinate System

The entire MZX facility property will be fenced. Modeled concentrations were calculated at ground-level receptors placed along the facility's fence line and on a variable Cartesian receptor grid. Fence line receptors were spaced no further than 50 meters apart. Beyond the fence line, receptors were spaced 100 meters apart on a Cartesian grid extending out to a distance sufficient to resolve the maximum concentration, but at least extending outward to 5 km in all directions. Additionally, less refined receptor grids extend from the finest grid out to 10 km in each direction, with receptors spaced 250 meters apart from 5 km – 8 km from the facility and 500 meters from 8 km to 10 km from the facility. If the SIL is exceeded for any pollutant, additional modeling will be performed to determine the size of the significant impact area (SIA).

In general, the receptors covered a region extending from all edges of the proposed facility ambient boundary to the point where impacts from the project are no longer expected to be significant. The boundary was defined as all areas that will be fenced and/or not accessible to the general public as shown in Figure 2-2. In accordance with EPA's ambient air policy dated December 2, 2019, MZX will use a combination of fencing and security measures to prevent the public from accessing MZX property.

For any pollutants exceeding the Class II SIL, the cumulative modeling for demonstrating compliance with the applicable NAAQS and PSD Increments was conducted for those receptors with impacts equal to or greater than the SIL in the SIL analyses. Since 1-hour NO_2 Impacts exceeded the NAAQS, the MAXDCONT option in AERMOD was used to determine if the proposed project was significant (above the corresponding SIL) at the receptors exceeding the standard.

Receptor elevations and hill heights required by AERMOD were determined using the AERMAP terrain preprocessor (version 24142). Terrain elevations from the USGS 1-arc second NED were used for AERMAP processing. In all modeling data files, the location of emission sources, structures, and receptors are represented in the UTM coordinate system, zone 15, NAD-83.

4.4 Urban versus Rural Dispersion Options

Classification of land use in the immediate area surrounding a facility is important in determining the appropriate dispersion coefficients to select for a particular modeling application. The selection of either rural or urban dispersion coefficients for a specific application should follow one of two procedures. These include a land use classification procedure or a population-based procedure to determine whether the area is primarily urban or rural.[14]

Of the two methods, the land use procedure is considered more definitive. The land use within the total area circumscribed by a 3-km radius circle around the facility was classified using the land use typing scheme proposed by Auer. If land use types 23 (Developed, Medium Intensity), or 24 (Developed, High Intensity) account for 50% or more of the circumscribed area, urban dispersion coefficients should be used; otherwise, rural dispersion coefficients are appropriate.

AERSURFACE (v24142) was used for the extraction of the land-use values in the domain. The results of the land use analysis evaluation were as follows.

Each USGS NLCD 2016 land use class was compared to the most appropriate Auer land use category to quantify the total urban and rural area. Table 4-1 summarizes the results of this land use analysis. As shown, approximately 82% of the area can be classified as rural, which is well in excess of the 50% threshold established in the Auer procedure. Therefore, rural dispersion coefficients will be used in AERMOD.

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[14] 40 CFR Part 51, Appendix W, the Guideline on Air Quality Models (January 2017) – Section 7.2.1.1(b)(i)

Table 4-3. Summary of Land Use Analysis

Category ID	Category Description	Number of Grid Cells	Percent	Dispersion Class
11	Open Water	68	0.2%	Rural
21	Developed, Open Space	7,593	24.2%	Rural
22	Developed, Low Intensity	8,098	25.8%	Rural
23	Developed, Medium Intensity	4,284	13.6%	Urban
24	Developed, High Intensity	1,466	4.7%	Urban
31	Barren Land	1	0.0%	Rural
41	Deciduous Forest	276	0.9%	Rural
42	Evergreen Forest	54	0.2%	Rural
43	Mixed Forest	3,719	11.8%	Rural
52	Shrub/Scrub	257	0.8%	Rural
71	Grassland/Herbaceous	23	0.1%	Rural
81	Pasture/Hay	3,054	9.7%	Rural
82	Cultivated Crops	340	1.1%	Rural
90	Woody Wetlands	2,105	6.7%	Rural
95	Emergent Herbaceous Wetlands	60	0.2%	Rural
	Total	31,398	100%	
	Urban		18.3%	
	Rural		81.7%	

4.5 Meteorological Data

Given that site-specific meteorological data was not available for the proposed site, data collected by a representative meteorological site was used. According to Appendix W, the selection of meteorological data to be used in the modeling analysis should be based on spatial and climatological (temporal) representativeness.[15] The representativeness of the data is based on the following:

1. The proximity of the meteorological monitoring site to the area under consideration;
2. The complexity of terrain;
3. The exposure of the meteorological site; and
4. The period during which data are collected.

Site-specific meteorological data or data from National Weather Service (NWS) stations, universities, Federal Aviation Administration (FAA) stations, military stations, and others should be used if possible. The determination of representativeness of site-specific data for AERMOD applications cannot be based solely on

15 U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised January 17, 2017.

proximity.[16] According to Appendix W, the implementation of NWS Automated Surface Observing Stations (ASOS) in the early 1990's should not preclude the use of NWS ASOS data if such a station is determined to be representative of the modeled area.[17] Surface meteorological sites located within 120 km of the proposed site with available comprehensive meteorological data during the 2019-2023 period were evaluated.

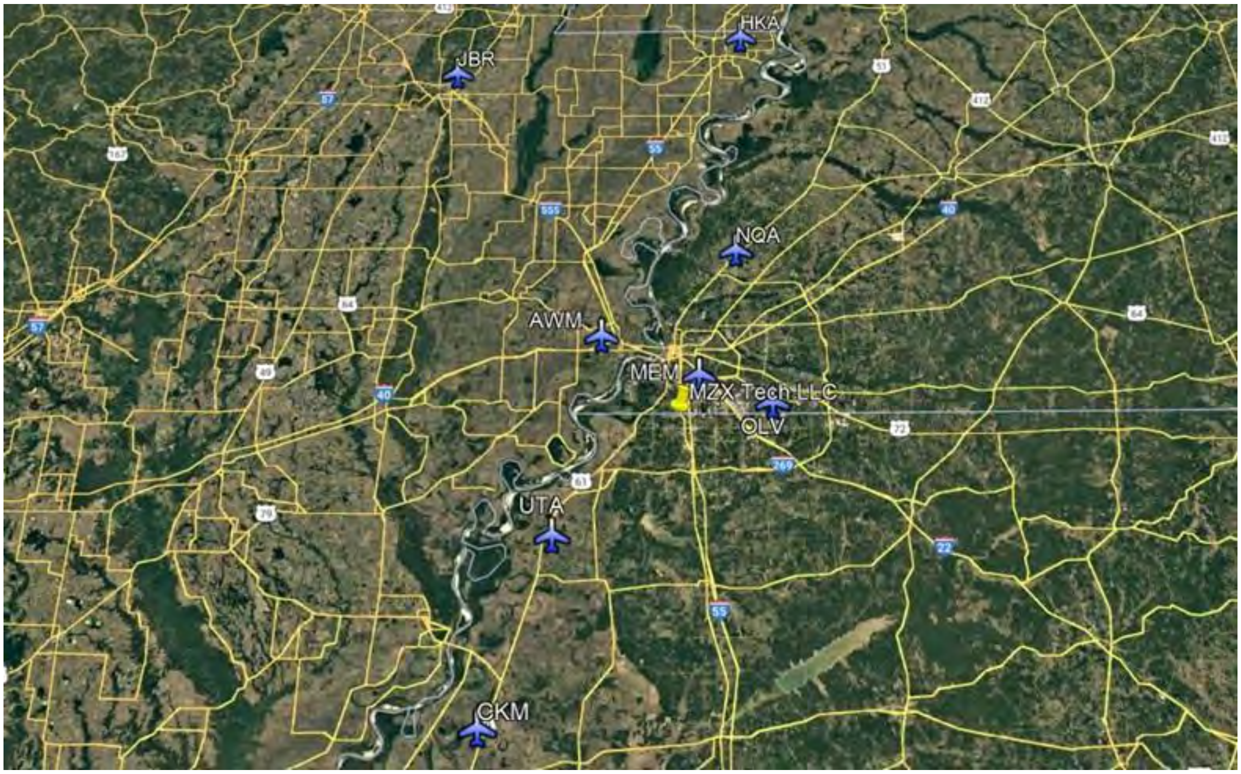
Table 4-4. Meteorological Surface Stations Near Proposed Facility

Met Station ID	WBAN ID	Site Description	Base Elevation (m)	Distance from MZX (km)	Recoverability 2019-2023
MEM	13893	MEMPHIS	76.8	6.9	99.18%
OLV	13815	OLIVE BRANCH	124.1	22.3	91.65%
AWM	53959	WEST MEMPHIS MUNICIPAL	63.7	24.2	92.19%
NQA	93839	MILLINGTON REGIONAL	102.4	43.4	88.75%
UTM	23903	TUNICA MUNICIPAL	57.0	42.9	59.92%
CKM	00314	CLARKSDALE COUNTY	51.6	84.5	69.41%
HKA	53869	BLYTHEVILLE MUNICIPAL	77.5	110.7	95.06%
JBR	03953	JONESBORO MUNICIPAL	79.9	112.9	89.78%

16 U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, Memorandum, April 17, 2018.

17 U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised January 17, 2017.

Figure 4-1. Meteorological Surface Stations Near Proposed Facility



All sites were analyzed for data completeness with AERMET using the latest available 5-year data set for each site. Based on the results, the three sites with the greatest recoverability (AWM, MEM, HKA) were analyzed further to determine recoverability by quarter over the 5-year period (2019-23). MEM showed greater than 90% recoverability for every quarter of each year. AWM showed less than 90% for one quarter and just above 90% for at least two more quarters during the 5-year period. HKA also showed less than 90% recoverability for one quarter and had several quarters below 95%. Given that MEM has complete, recent data and is located in such close proximity to the MZX site, MEM was reviewed to confirm representativeness.

Regulatory application of AERMOD necessitates careful evaluation of the meteorological data for input to AERMET. Data representativeness, in the case of AERMOD, means utilizing data of an appropriate type for constructing realistic boundary layer profiles.[18] Calculations of the boundary layer parameters are dependent on the surface characteristics in the vicinity of the modeled facility. The surface characteristics are quantified by the assignment of three variables: albedo, Bowen ratio, and surface roughness length.

AERSURFACE was used to determine surface characteristics using land cover data from the U.S. Geological Survey (USGS) National Land Cover Data (NLCD) 2016 archives and look-up tables of surface characteristics that vary by land cover type and season.[19] The surface variables were set to vary by season using 12 sectors. For the AERSURFACE analysis, the mean of the surface characteristics generated for average

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[18] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised January 17, 2017.

[19] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *User's Guide for AERSURFACE Tool*, Research Triangle Park, North Carolina, EPA 454/B-20-008, February 2020.

moisture conditions at each of the nearby meteorological stations were compared to the proposed MZX site. The results of the AERSURFACE analysis showed that MEM site has surface characteristics comparable to the proposed MZX site.

Table 4-5. Surface Characteristics of Selected Meteorological Stations

Meteorological Station ID	Mean Albedo	Mean Bowen Ratio	Mean Surface Roughness
Proposed MZX Site	0.160	0.697	0.163
MEM	0.170	0.883	0.042

The MEM meteorological site was also evaluated with a land cover analysis, a terrain analysis, a climate analysis, and a wind-rose analysis. For the land cover analysis, a one kilometer (km) radius was centered on the meteorological tower location, and the land use was categorized based on the 2019 NLCD.[20] Impervious and canopy differences among the sites were also examined. The results showed that the MEM site had similar spatial distribution of land use, impervious coverage, and canopy coverage to MZX.

In addition to the land cover similarities, windroses for the 3 nearest meteorological stations were reviewed to ensure climatological consistency between the project site and chosen meteorological site. Figure 4-2 through Figure 4-4 present windroses from MEM, Olive Branch Airport and West Memphis Municipal Airport, respectively. Each of the windroses show prevailing winds with a southerly component and winds much less frequently coming from the western or eastern directions. Overall, the windroses demonstrate consistency in wind flow across the area encompassing the project site and meteorological stations. All windroses were obtained from Iowa State University's, "Iowa Environmental Mesonet" website.[21]

[20] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised January 17, 2017.

[21] https://mesonet.agron.iastate.edu/sites/locate.php

Figure 4-2. Windrose for Memphis International Airport

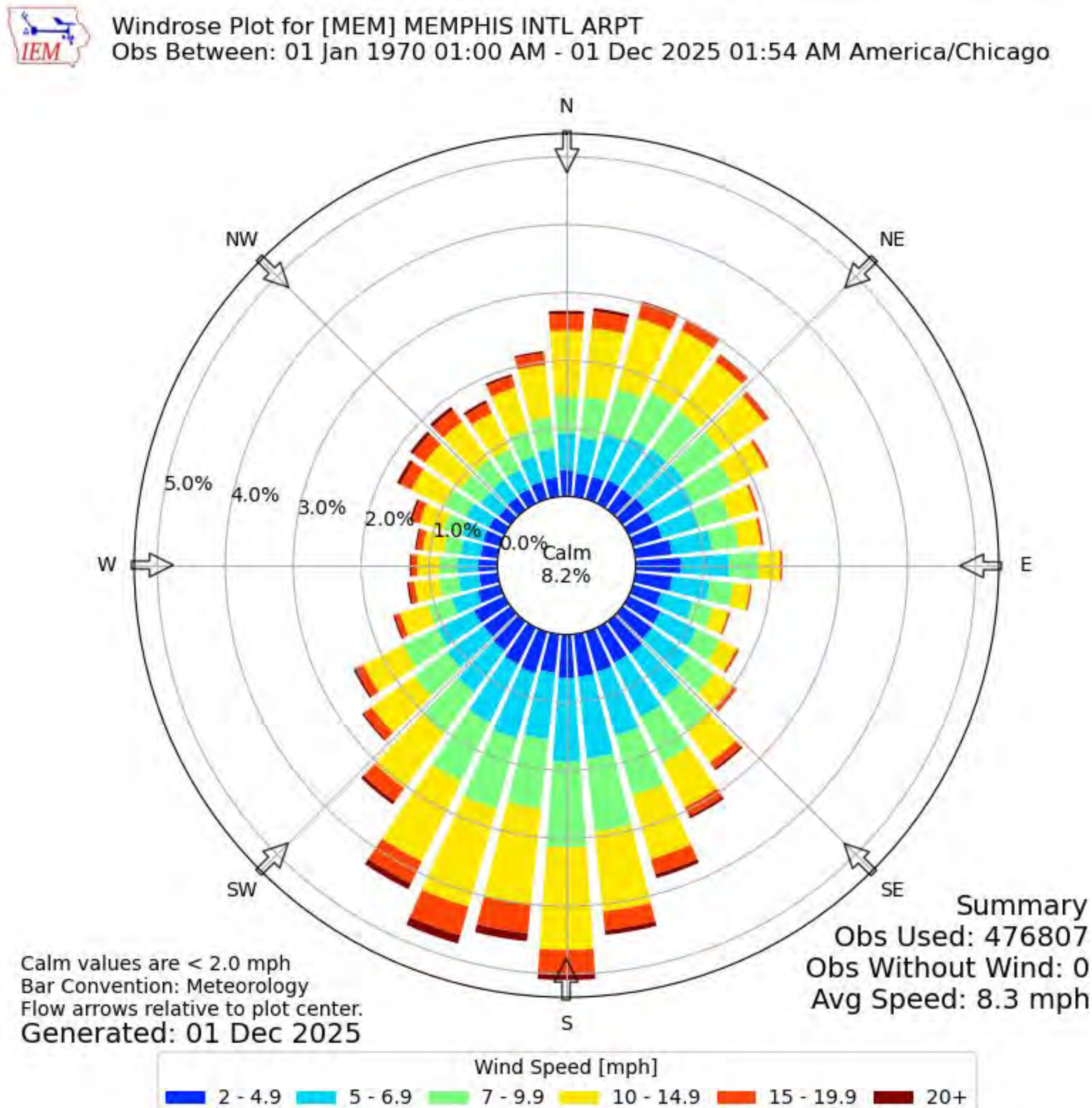


Figure 4-3. Windrose for Olive Branch Airport

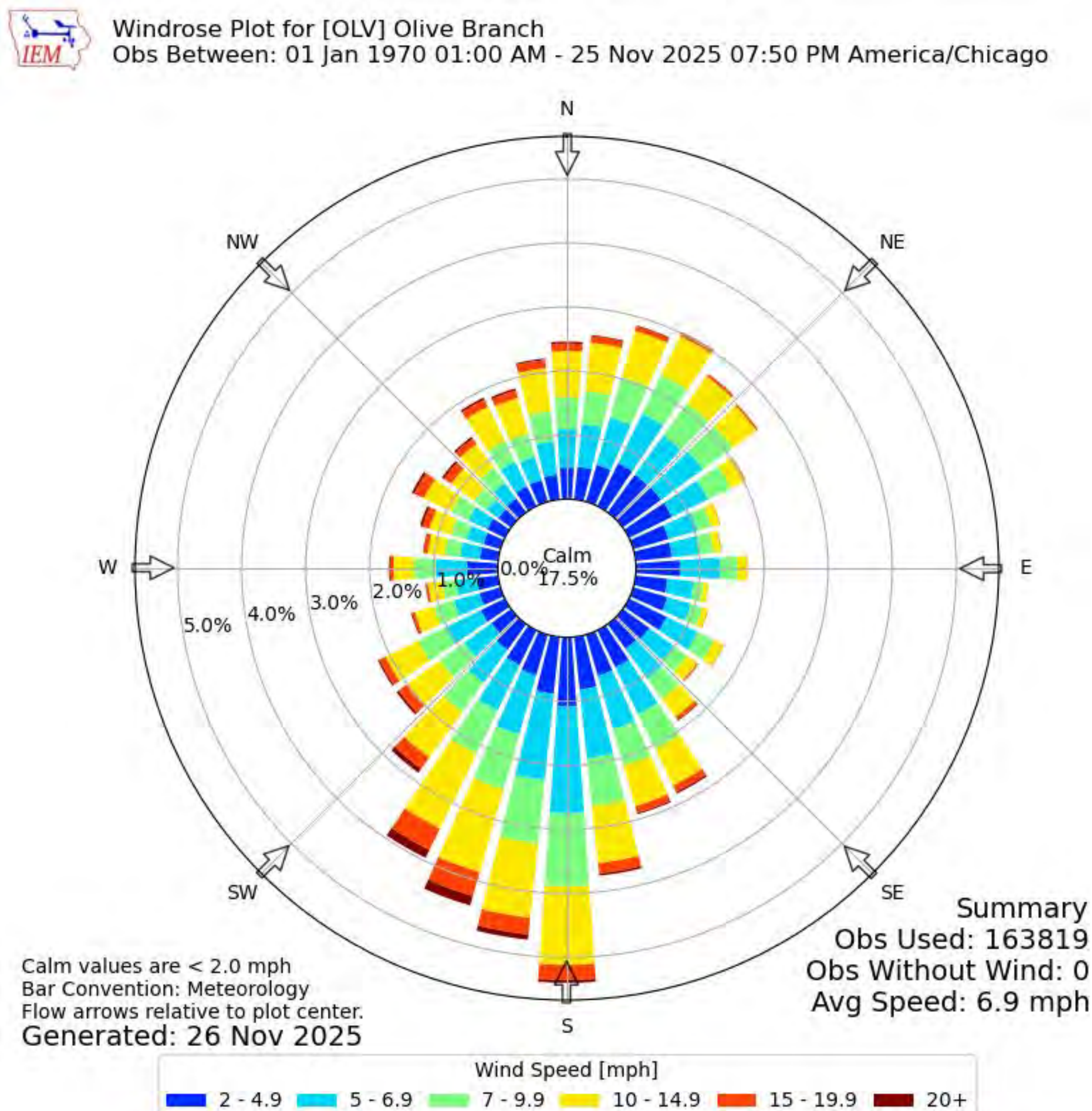
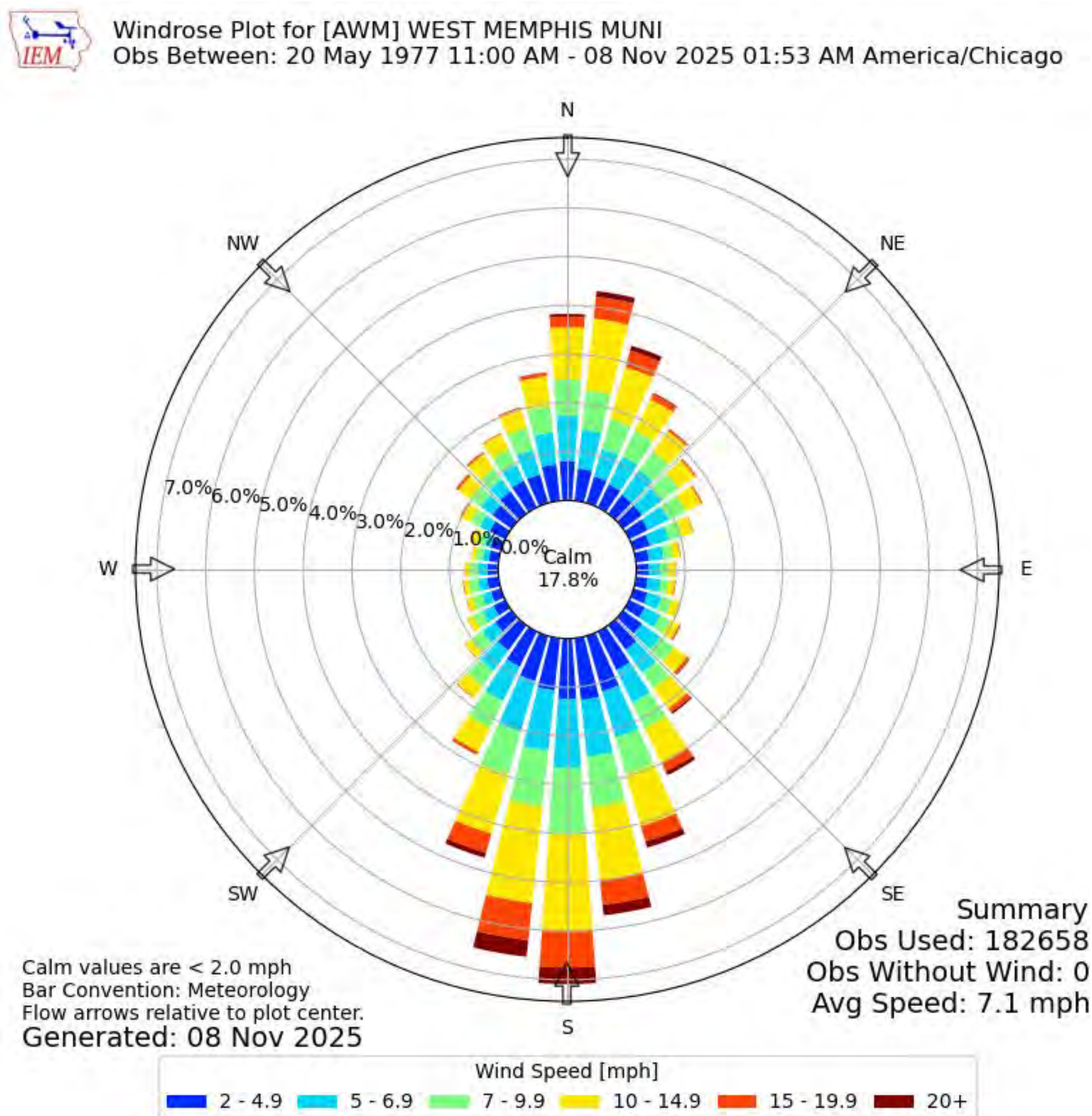


Figure 4-4. Windrose for West Memphis Municipal Airport



From the results of all analyses, the MEM NWS site was chosen to best represent the land use, terrain, and exposure of the MZX site. According to Appendix W, Section 8.4.2(b), the surface characteristics input to AERMET should be representative of the land cover in the vicinity of the meteorological data, i.e., the location of the meteorological tower for measured data.[22] Therefore, surface characteristics representative of the MEM NWS site was used in AERMET. The area surrounding the proposed site and the MEM NWS are shown in Figure 4-5.

Figure 4-5. MZX Site and MEM Site

Characterization of surface moisture conditions for the NWS MEM site for each year of meteorology is presented in Table 4-6. The surface moisture conditions were determined by comparing precipitation for the period of data to be processed to the 30-year climatological record, selecting "wet" conditions if precipitation is in the upper 30th percentile, "dry" conditions if precipitation is in the lower 30th percentile, and "average" conditions if precipitation is in the middle 40th percentile.[23]

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[22] Ibid.

[23] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *ERMOD Implementation Guide*, Research Triangle Park, North Carolina, EPA 454/B-23-009, 2023.

Table 4-6. Average Yearly Surface Moisture Conditions for MEM

Year	Annual Precipitation [1]	Surface Moisture Classification [2]
2019	73.14	WET
2020	58.85	AVG
2021	51.80	AVG
2022	51.96	AVG
2023	51.96	AVG

1. https://www.ncdc.noaa.gov/cdo-web/search.
2. https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time- series.

According to Appendix W, the EPA has integrated the ADJ_U* option into AERMET as a regulatory option to address issues with model over-prediction of ambient concentrations from some sources associated with under-prediction of the surface friction velocity (u*) during light wind, stable conditions.[24] The ADJ_U* option is specifically recommended for sources using standard NWS airport meteorological data, site-specific meteorological data without turbulence parameters, or prognostic meteorological inputs derived from prognostic meteorological models. The ADJ_U* option was used in AERMET Stage 3.

For upper air data, the closest upper air station is located at the NWS in North Little Rock, AR (KLZK, WMO ID 72340). Twice daily soundings from the NWS KLZK radiosonde site for the 2019-2023 period were used in AERMET.

Given the representativeness for MEM and KLZK, the meteorological data set for the time period from 2019 to 2023, was processed using the ADJ_U* option in the latest version of AERMET (version 24142). The data were processed and prepared using the surface characteristics of the Memphis International Airport surface station. A surface station elevation of 271 ft was utilized in the modeling analyses.

4.6 Building Downwash Analysis

AERMOD incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithms. Direction specific building parameters required by AERMOD are calculated using the BPIP-PRIME preprocessor (version 04274). Facility structures were built into the model and downwash influences were evaluated appropriately.

4.7 GEP Stack Height Analysis

EPA has promulgated stack height regulations that restrict the use of stack heights in excess of "Good Engineering Practice" (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This essentially prevents the use of excessively tall stacks to reduce ground-level pollutant concentrations.

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure. The wind direction-specific downwash dimensions and the dominant downwash structures used in this analysis are determined using BPIP. In general, the

[24] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised January 17, 2017.

lowest GEP stack height for any source is 65 meters by default.[25] None of the facility's emission unit stacks exceed GEP height.

4.8 Modeled Emission Sources

As discussed in Section 3 of this report, the Significance Analysis evaluates the potential emissions of the greenfield facility emissions sources and does not take into consideration any regional off-site emissions sources. The NAAQS and Increment analyses consider emissions from both on-site and off-site sources. This section discusses the emission sources considered, emission rates, and modeling methods utilized in the Significance Analysis and NAAQS and Increment analyses.

4.8.1 Significance Analysis

The Significance Analysis was conducted to determine whether the emissions increases associated with the proposed project are modeled to exceed the SIL. This analysis is based on modeling the worst-case operating scenario. Class I and Class II significance modeling utilized worst-case short-term emissions derived for evaluation of long-term (e.g., annual) conditions.

Information providing the modeling inputs utilized in the significance, NAAQS, and Increment analyses, can be found in Appendix C.

4.8.2 NO_2 Modeling Approach

The revised *Guideline* now indicates Ambient Ratio Method 2 (ARM2) has replaced ARM as the regulatory default Tier 2 NO2 modeling method. MZX utilized ARM2 for modeling NO_2 for the 1-hour and annual SIL and NAAQs modeling assessments, and for the annual PSD increment modeling assessment.

All emissions data was input into the AERMOD model as NO_X, with the model providing output results in terms of NO_2. Electronic modeling files for the NO_2 modeling analyses are provided in Appendix D.

4.8.3 Tier 1 Analysis - Consideration of Modeled Emission Rates for Precursors (MERPs)

In April 2018, the EPA released guidance recommending SILs for ozone and $PM_{2.5}$.[26] Although this guidance was not a final agency action and did not create any binding requirements on permitting authorities, permit applicants, or the public, the recommended SILs could be used to demonstrate that a proposed source does not cause or contribute to a exceedance of any NAAQS or PSD increments. On April 30, 2024, the EPA provided supplemental guidance to the SILs for ozone and $PM_{2.5}$ which retained the SILs for ozone and 24-hour $PM_{2.5}$ and recommended new, lower SILs for annual PM2.5.[27] MZX used the latest recommended Class II SILs for ozone and $PM_{2.5}$ to assess potential secondary pollutant impacts from the proposed facility.

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[25] 40 CFR §51.100(ii)

[26] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, Memorandum, April 17, 2018.

[27] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, April 30, 2024.

In July 2022, the EPA provided final guidance on how to implement the modeling requirements to show PSD compliance for ozone and $PM_{2.5}$.[28] To make the required NAAQS or PSD increment compliance demonstration, proposed sources should provide a full accounting of the combined impacts of each allowable precursor (and the direct component of $PM_{2.5}$) emissions on ambient concentrations of the relevant ozone and $PM_{2.5}$ NAAQS if any precursor(s) (or the direct component of $PM_{2.5}$) would be emitted in a significant amount. In other words, for ozone, if either NO_X or VOC precursor emissions would be emitted in a significant amount (i.e., above their SER), then both precursors should be included in the assessment of ozone impacts. For $PM_{2.5}$, if a source would emit a significant amount of one or more of NO_X, SO_2, or direct $PM_{2.5}$ emissions, then the source should include NO_X and SO_2 precursor as well as direct $PM_{2.5}$ emissions in the assessment of $PM_{2.5}$ impacts. Primary impacts of $PM_{2.5}$ were estimated with the AERMOD modeling system.

To estimate ozone and total $PM_{2.5}$ impacts, the EPA released final guidance on the use of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 demonstration tool.[29] The tool relates single source impacts on secondary pollutants (ozone and secondary $PM_{2.5}$) with an air quality threshold to determine if such an impact causes or contributes to an exceedance of any NAAQS or PSD Increments.[30] MERPs reflect levels of increased precursor emissions that are not expected to cause a significant contribution to ozone and $PM_{2.5}$. In practice, MERPs are intended to be used with SILs as analytical tools for PSD air quality analyses.

The Shelby County (Memphis) hypothetical source was chosen as the representative source for the ozone and $PM_{2.5}$ MERPs analyses. The greater metropolitan Memphis area is less than 20 km from the project location, and the project site and hypothetical source are in the same regional area for influences on ozone formation from VOC and NO_X emissions. The appropriate tpy/stack height combination was chosen for the pollutants in question and the calculations conducted were consistent with EPA guidance to evaluate project-based impacts compared to the ozone SIL.

4.8.3.1 Ozone MERPS Assessment

All MERP data was pulled from the EPA MERPs View Qlik database, for the Shelby County site.[31] The 10 meter stack data was utilized from Qlik. The SIL analysis demonstration for the proposed project is as follows:

> ((423.39 tpy NO_X project emissions increase / 500 tpy hypothetical source) * (0.694398 ppb hypothetical source impact)) + (417.4 tpy VOC project emissions increase / 500 tpy hypothetical source) * (0.250293 ppb hypothetical source impact)) = 0.797 ppb

As the predicted ozone value is less than the SIL value of 1, a cumulative analysis for ozone was not required.

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[28] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance for Ozone and Fine Particulate Matter Permit Modeling*, Research Triangle Park, North Carolina, July 2022.

[29] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program*, Research Triangle Park, North Carolina, 2019.

[30] Ibid.

[31] https://www.epa.gov/scram/merps-view-qlik

4.8.3.2 $PM_{2.5}$ MERPS Assessment

As mentioned above, all MERP data was pulled from the EPA View Qlik database. The 10 meter stack data was utilized from Qlik. The MERP calculations are as follow:

For annual $PM_{2.5}$:

> ((423.39 tpy NO_X project emissions increase / 500 tpy NO_X hypothetical source) * (0.003261 $\mu g/m^3$ hypothetical source impact)) + (156.53 tpy SO_2 project emissions increase / 500 tpy SO_2 hypothetical source) * (0.008668 $\mu g/m^3$)) = 5.48E-03 $\mu g/m^3$

For daily $PM_{2.5}$:

> ((423.39 tpy NO_X project emissions increase / 500 tpy NO_X hypothetical source) * (0.060261 $\mu g/m^3$ hypothetical source impact)) + (156.53 tpy SO_2 project emissions increase / 500 tpy SO_2 hypothetical source) * (0.671154 $\mu g/m^3$)) = 2.61E-01 $\mu g/m^3$

The above considerations of additive effects of secondary $PM_{2.5}$ to direct primary $PM_{2.5}$ should be considered highly conservative, since it is highly unlikely that there would be temporal and spatial alignment of primary and secondary $PM_{2.5}$ impacts, particularly for the short term 24-hr averaging period in the near field of the facility, where modeled primary $PM_{2.5}$ impacts are at their highest.

Secondary $PM_{2.5}$ has been added into the summary tables for all $PM_{2.5}$ Class II SIL modeling results in Section 5.

In addition to the Class II values described above, the distance-dependent MERP values were downloaded in order to estimate the impact at the 200 km distance to the nearest Class I area. Those MERP calculations are as follow:

For annual $PM_{2.5}$:

> ((423.39 tpy NO_X project emissions increase / 500 tpy NO_X hypothetical source) * (0.001108 $\mu g/m^3$ hypothetical source impact)) + (156.53 tpy SO_2 project emissions increase / 500 tpy SO_2 hypothetical source) * (0.000719 $\mu g/m^3$)) = 1.16E-03 $\mu g/m^3$

For daily $PM_{2.5}$:

> ((423.39 tpy NO_X project emissions increase / 500 tpy NO_X hypothetical source) * (0.037541 $\mu g/m^3$ hypothetical source impact)) + (156.53 tpy SO_2 project emissions increase / 500 tpy SO_2 hypothetical source) * (0.087982 $\mu g/m^3$)) = 5.93E-02 $\mu g/m^3$

Those secondary $PM_{2.5}$ impacts have been added into the summary tables for all $PM_{2.5}$ Class I SIL modeling results in Section 5.

This section summarizes the results of the dispersion modeling analyses. Electronic copies of modeling files are being sent electronically.

5.1 Class II and Class I Significance Analyses

As discussed in Sections 3.1 and 3.5, Significance Analyses for Class II and Class I areas, respectively, were conducted to determine the need for further pollutant modeling. Modeled emission points, parameters, and emission rates for the Significance Analyses are provided in Appendix C.

The results of the Class II Significance Analyses for each pollutant are provided in Table 5-1 and represent the maximum modeled concentrations from the significance runs.

Table 5-1. Class II Significance Analysis Results

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	$PM_{2.5}$ MERP Contribution ($\mu g/m^3$)	Total $PM_{2.5}$ Impact ($\mu g/m^3$)	SIL	Exceeds SIL	Radius of Significant Impact (km)
SO_2	Annual	0.26	--	--	1	No	N/A
	24-hr	2.40	--	--	5	No	N/A
	3-hr	5.72	--	--	25	No	N/A
	1-hr	6.95	--	--	7.8	No	N/A
NO_2	Annual	3.67	--	--	1	Yes	1.5
	1-hr	71.30	--	--	7.5	Yes	20.9
PM_{10}	Annual	0.06	0.005	0.07	1	No	N/A
	24-hr	0.39	0.261	0.65	5	No	N/A
$PM_{2.5}$	Annual	0.06	0.005	0.07	0.13	No	N/A
	24-hr	0.32	0.261	0.58	1.2	No	N/A
CO	8-hr	97.31	--	--	500	No	N/A
	1-hr	150.47	--	--	2,000	No	N/A

1. PM_{10} and $PM_{2.5}$ results include MERPs contribution to the predicted modeled impact.

As shown in Table 5-1, all PM_{10}, $PM_{2.5}$, SO_2, and CO modeled impacts for the project are less than the applicable Class II SILs. As such, by definition, the project does not cause or contribute to an exceedance of the NAAQS or Class II PSD Increment for PM_{10}, $PM_{2.5}$, SO_2, or CO. However, the NO_2 1-hr and annual modeled impacts for the project exceeded the Class II SIL. As a result, full impact analyses for NO_2 are required and are summarized in subsequent sections.

In addition to assessing project significance, the impacts in Table 5-1 were compared to the PSD SMCs for each of the respective pollutants (with the exception of $PM_{2.5}$ which was addressed in Section 3.2) to determine the need for any pre-construction monitoring. Table 5-2 presents the impact in relation to each SMC.

Table 5-2. Significant Monitoring Concentration Results

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	SMC ($\mu g/m3$)	Exceeds SMC (Yes/No)
SO_2	24-hr	2.31	13	No
NO_2	Annual	1.75	14	No
PM_{10}	24-hr	0.40	10	No
CO	8-hr	97.31	575	No

As shown in Table 5-2, all pollutants and averaging periods are well below their respective SMC and as such, no pre-construction monitoring is required for the proposed project.

The results of the Class I Significance Analyses for PM_{10}, $PM_{2.5}$, SO_2, and NO_2 are provided in Table 5-3.

Table 5-3. Class I Significance Analysis Results

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	SIL ($\mu g/m^3$)	Exceeds SIL? (Yes/No)
SO_2	Annual	0.01	0.1	No
	24-hr	0.16	0.2	No
	3-hr	0.66	1	No
NO_2	Annual	0.04	0.1	No
PM_{10}	Annual	0.002	0.2	No
	24-hr	0.023	0.3	No
$PM_{2.5}$	Annual	0.003	0.03	No
	24-hr	0.074	0.27	No

1. $PM_{2.5}$ results include MERPs contribution to the predicted modeled impact.

As shown in Table 5-3, the direct modeled impacts were below the applicable Class I SILs for the receptors along the 50 km-radius ring of receptors evaluated in AERMOD.

5.2 NAAQS Analysis

A NAAQS modeling analysis was conducted for those pollutants and averaging periods for which the Significance Analysis results equaled or exceeded the Class II SIL. As described in Section 4, the NAAQS and Increment analyses utilized the significant receptors (as derived from the Significance Analysis) for use in the refined analysis. Note that modeled concentrations in excess of the NO_2 1-hr NAAQS were found, however, MZX utilized the MAXDCONT option in AERMOD to demonstrate that the project would be insignificant at the time and location of all modeled exceedances. The full source contribution analysis is included in the electronic modeling file archive. In addition to confirming that the project was not significant at any potential modeled violation, MZX reviewed the locations of the highest modeled concentrations and noted that the receptor locations are located on the property of sources that are also modeled. As such, those high values are not truly exceedances in ambient air.

Modeling source parameters utilized in the NAAQS modeling assessment, for all facility sources evaluated within the significance analysis and for off-site inventory sources, can be found in Appendix C.

Table 5-4. NAAQS Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Background Concentration (µg/m³)	Total Impact (µg/m³)	NAAQS (µg/m³)	Exceeds NAAQS
NO_2	Annual	6.4	7.5	13.9	100	No
	1-hr	7,121.8	65.9	7,187.7	188	Yes [1]

1. Max MZX contribution to any exceedance was 5.24 µg/m³, well below the SIL of 7.5 µg/m³.

As shown in Table 5-4, no modeled exceedances of the NAAQS at which MZX was significant were found and as such MZX will not cause or contribute to any exceedances of any NAAQS.

5.3 PSD Increment Evaluations

A PSD Increment evaluation was conducted for annual NO_2 as shown in Table 5-5. No impacts in excess of the annual NO_2 Increment were shown by the model and as such, the proposed MZX project will not cause or contribute to any exceedance of the PSD increment.

Table 5-5. PSD Increment Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Increment (µg/m³)	Exceeds Increment (Yes/No)
NO_2	Annual	6.4	25	No

5.4 Additional Impact Analyses

This section presents the results of the additional impact analyses conducted for the proposed project.

5.4.1 Soil and Vegetation Results

The results of the significance modeling analyses for those pollutants with impacts less than the SIL and from the full impact analysis for those pollutants with impacts equal to or exceeding the SIL were assessed against the secondary NAAQS standards, which provide protection for public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

As shown in Table 5-6, the impacts for each pollutant are below the applicable secondary NAAQS. Thus, there are no adverse impacts expected on soils or vegetation as a result of the proposed project.

Table 5-6. Soil and Vegetation Impacts

Pollutant	Averaging Period	Total Concentration ($\mu g/m^3$)	Secondary NAAQS ($\mu g/m^3$)	Exceeds Threshold (Yes/No)
SO_2 [1]	Annual	0.25	26	No
NO_2 [2]	Annual	13.9	100	No
PM_{10} [3]	24-hr	0.66	150	No
$PM_{2.5}$ [4]	Annual	0.06	15	No
	24-hr	0.59	35	No

1. Maximum annual SO_2 impacts from the Significance analysis.
2. Maximum annual NO_2 impact from the NAAQS analysis.
3. Maximum 24-hr PM_{10} impact from the Significance analysis.
4. Maximum 24-hr and annual $PM_{2.5}$ impacts from the Significance analysis.

5.4.2 Visibility Results

Table 5-7 presents the results of the near-field (visible plume) visibility analysis that was performed in VISCREEN. The background visual range input to VISCREEN was 25 km, based on Figure 9 in the VISCREEN User's Guide.[32] The conservative, level 1 default parameters resulted in impacts in excess of the critical values. As such a level 2 analysis was conducted, using actual meteorological conditions for the region. The worst-case 1% meteorological condition during daytime hours identified for analysis was determined from the data included as part of the electronic modeling file submittal for this analysis. The resulting impacts indicate that there are no visible plume concerns at the nearest sensitive receptor, Memphis International Airport.

Table 5-7. VISCREEN Modeling Results

Background	Theta (deg.)	Azimuth (deg.)	Distance (km)	Alpha (deg.)	Delta-E Critical	Delta-E Plume	Contrast Critical	Contrast Plume
Sky	10	150	10.7	19	2.00	0.961	0.05	-0.002
Sky	140	150	10.7	19	2.00	0.317	0.05	-0.004
Terrain	10	84	6.9	84	2.00	0.247	0.05	0.001
Terrain	140	84	6.9	84	2.00	0.073	0.05	0.001

[32] https://gaftp.epa.gov/Air/aqmg/SCRAM/models/screening/viscreen/WB4PlumeVisualOCR.pdf

APPENDIX A. FIGURES

Figure A-1. Modeled MZX Tech LLC Site Layout

Figure A-2. 1-Hour NO_2 SIL Results
(SIL = 7.5 $\mu g/m^3$)

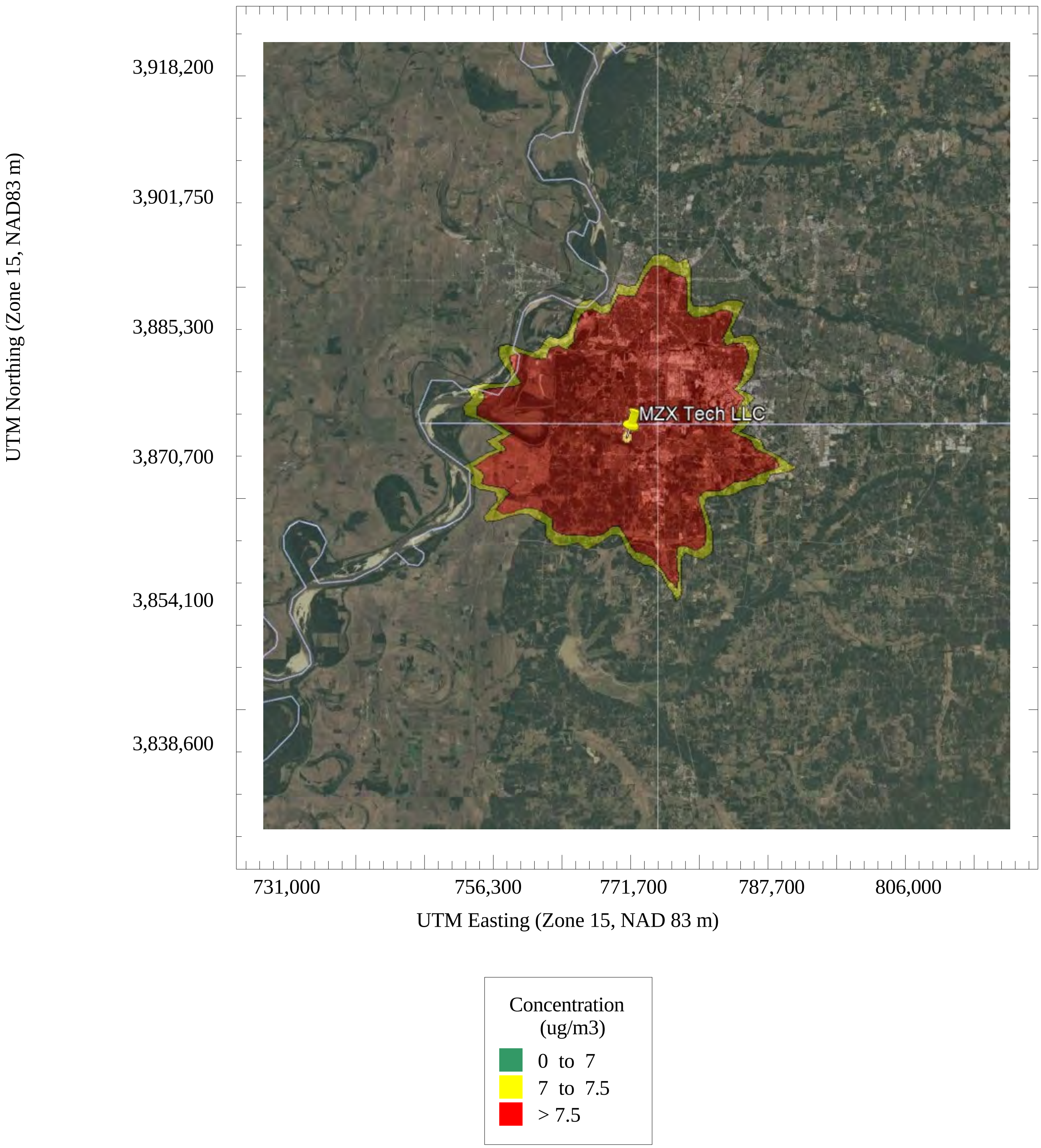
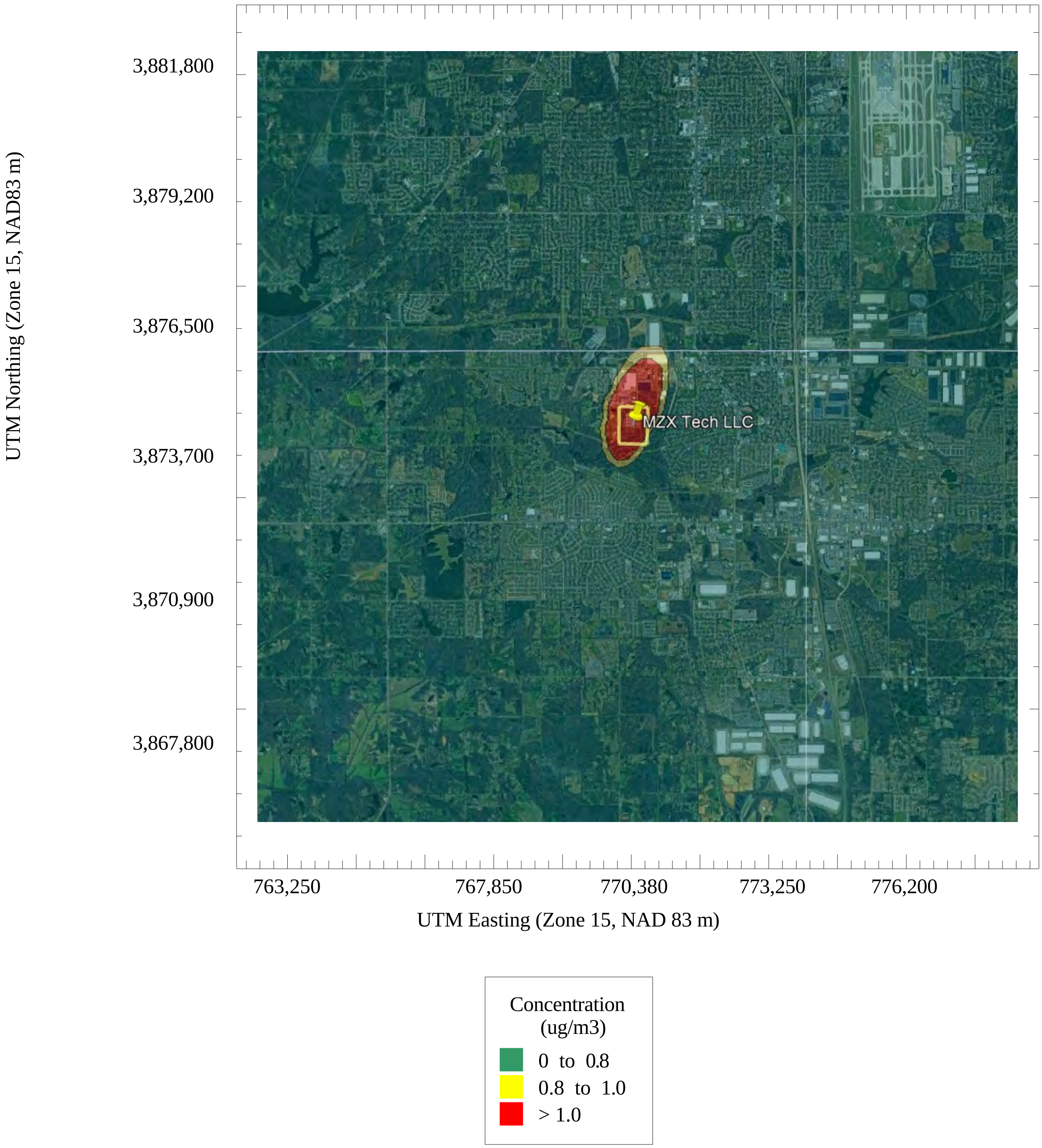


Figure A-3. Annual NO_2 SIL Results
(SIL = 1 μg/m³)



APPENDIX B. MODELING PROTOCOL AND MDEQ RESPONSE

State of Mississippi
TATE REEVES
Governor
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHRIS WELLS, EXECUTIVE DIRECTOR

November 18,2025

Shannon G. Lynn, P.E., C.M.
Principal Consultant
Trinity Consultants
1701 Centerview Drive Suite 109 Little Rock, AR 72211

Re: MZX Tech LLC – Revised Modeling Protocol for Greenfield Cycle Combustion Turbine Project

Dear, Mr. Lynn,

Thank you for your organization's submission of the revised modeling protocol associated with the construction of the three simple cycle combustion turbines in Southaven, Mississippi. The following are MDEQ's observations and review comments on the MZX Tech LLC Revised Modeling protocol dated November 2025, provided for your review and/or consideration. All issues have been resolved and MZX Tech can proceed with modeling activities.

This may not include any questions, comments, or concerns that the MDEQ or EPA Permitting sections may have. We appreciate MZX Tech's attention to these matters. Should you have any questions or need further information, please do not hesitate to contact myself PBradley@mdeq.ms.gov or Rodney Cuevas RCuevas@mdeq.ms.gov

Cc:

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PSD MODELING PROTOCOL
Greenfield Simple Cycle Combustion Turbine Project

MZX Tech LLC
Southaven, MS

Prepared by:

TRINITY CONSULTANTS
1701 Centerview Drive
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Little Rock, AR 72211
(501) 225-6400

November 2025

Project 250401.5102

TABLE OF CONTENTS

1. INTRODUCTION

MZX Tech LLC (MZX) is proposing to construct and operate a new greenfield major source consisting of simple cycle combustion turbines and pressure reduction systems (the "Facility") that will provide electricity to its data center located in Shelby County, Tennessee. The Facility will be located at 2875 Stanton Rd S, DeSoto County, Southaven Mississippi. Three (3) turbine models will be used for the site, the Solar PGM-130, Solar Titan 350, and Proenergy 6000 PE. Additionally, ten (10) PLUM Pressure Reduction Systems (PRSs) will be installed to regulate the pressure of incoming natural gas and condition the natural gas for use in the combustion turbines. The CT units and PRS units will fire natural gas as fuel.

The proposed project will require a Prevention of Significant Deterioration (PSD) permit as a new major source. Project-related emissions are anticipated to exceed the PSD significant emission rate (SER) thresholds for total particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), total particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen oxides (NO_X), volatile organic compounds (VOC), sulfur dioxide (SO_2), carbon monoxide (CO), and greenhouse gases (GHG) in terms of carbon dioxide equivalents (CO_2e). Therefore, the PSD permit for the Facility will require an air quality/dispersion modeling analysis to demonstrate that the Facility will not cause or contribute to an exceedance of a National Ambient Air Quality Standard (NAAQS) or PSD increment.

A dispersion modeling protocol has been prepared following available policy and guidance. Trinity Consultants (Trinity), on behalf of MZX, has prepared this protocol describing the proposed methodologies and data resources to be used for any modeling compliance demonstration for the potential project. This protocol includes an overview of the required PSD modeling analyses, and a detailed description of the methodology proposed. The analyses include evaluation and consideration of NAAQS, PSD Increment, additional impacts analyses, visibility and non-air quality impacts, as well as consideration of impacts to Class I Areas.

The following figures show the approximate location of the proposed MZX facility, as well as the approximate facility boundary area that would be utilized in the modeling analysis.

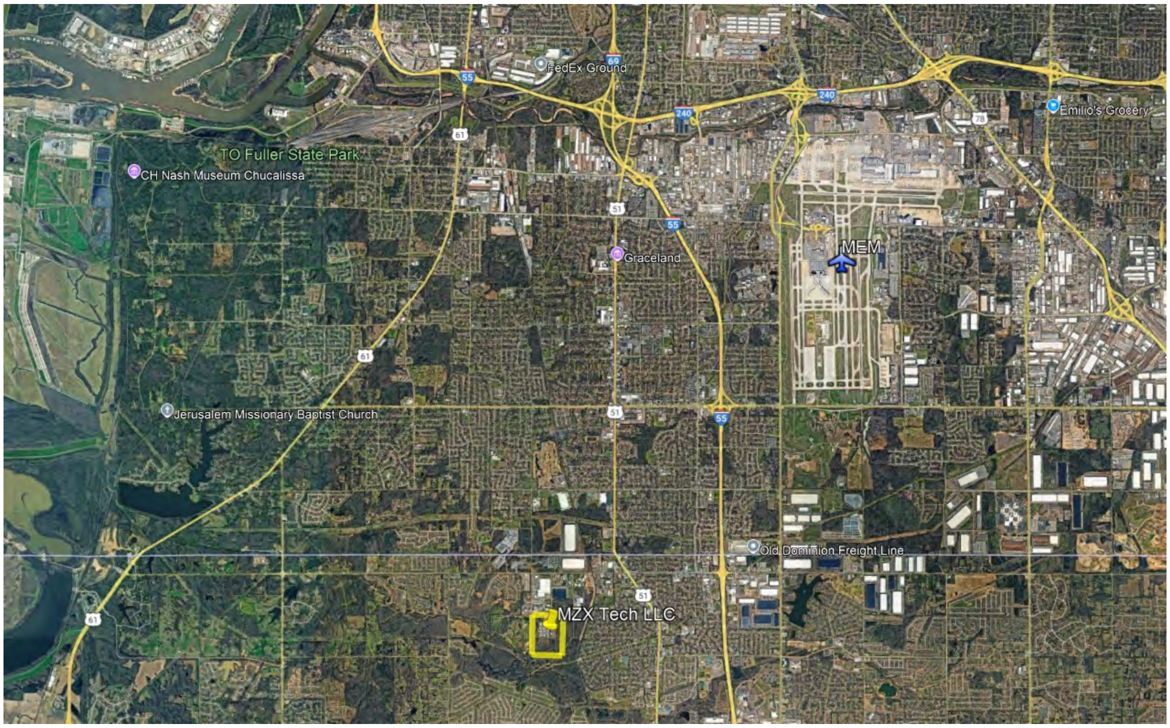

Figure 1-1. MZX Area Map

Figure 1-2 depicts the ambient boundary area of the proposed MZX facility. The entire boundary area indicated below will be fenced to restrict and control access to MZX property.

Figure 1-2. MZX Ambient Boundary Area

1.1 PSD Applicability

Part C of Title I of the Clean Air Act, 42 U.S.C. §§7470-7492, is the statutory basis for the PSD program. The U.S. Environmental Protection Agency (EPA) has codified PSD definitions, applicability, and requirements in 40 CFR Part 52.21. PSD is one component of the New Source Review (NSR) permitting program applicable in areas that are designated in attainment of the NAAQS. DeSoto County, where the facility is located, is currently designated as unclassifiable or in attainment for all criteria pollutants.[1] The state of Mississippi has received approval from EPA for its PSD permitting program as an authorized component of its state implementation plan (SIP). Accordingly, the Mississippi Department of Environmental Quality (MDEQ) is the PSD permitting authority for DeSoto County.

MZX is requesting authorization to construct and operate an assortment of simple-cycle combustion turbines and supporting equipment. Since the proposed facility will be a major source under the PSD permitting program, emissions from the proposed project must be evaluated and compared to the SER thresholds for regulated pollutants under the PSD program. MZX has evaluated emissions increases of CO, NO_X, filterable PM, total PM_{10}, total $PM_{2.5}$, CO_2e, SO_2, and VOC resulting from the proposed project for comparison to their respective PSD SER to determine whether PSD permitting is required, as identified in Table 1-1.

Table 1-1. Proposed Project Emissions Increases

Pollutant	Project Emissions (tpy)	PSD Significant Emission Rate (tpy)	PSD Triggered? (Yes/No)
Filterable PM	19.6	25	No
Total PM_{10}	19.6	15	Yes
Total $PM_{2.5}$	19.5	10	Yes
SO_2	156.5	40	Yes
NO_X	423.4	40	Yes
VOC	417.4	40	Yes
CO	364.2	100	Yes
CO_2e	6,410,729	75,000	Yes

Since the project potential emissions of total PM_{10}, total $PM_{2.5}$, NO_X, VOC, SO_2 and CO exceed their respective SERs, the proposed project is required to undergo PSD review for each pollutant. Because these pollutants trigger PSD permitting, PSD review is also required for CO_2e because the calculated CO_2e project emission increases exceed the applicable SER.

1.2 Project Emissions

MZX has voluntarily elected to implement Lowest Achievable Emission Rate (LAER) for NO_X emissions from the turbines. Best Available Control Technology (BACT) will be applied to the remaining pollutants. These will be discussed in detail in the MZX PSD Permit Application, Volume 1, but preliminary data have been summarized in Tables 1-2 through 1-4 below.

[1] 40 CFR §81.325

Table 1-2. Solar PGM-130 and Solar Titan 350 Combustion Turbines BACT (or LAER) Summary

Pollutant	Available Technology	BACT (or LAER) Emission Limitation / Work Practice
NO_X (LAER)	SCR	2 ppm (15% O_2)
CO	Oxidation Catalyst	2 ppm (15% O_2)
VOC	Good combustion practices, gaseous fuels	2 ppm (15% O_2)
SO_2	Use pipeline natural gas	Use pipeline natural gas not to exceed 1 gr S per 100 scf
PM	Good combustion practices, gaseous fuels	5% Opacity
GHG	Energy efficient design	120 lb CO_2/MMBtu

Table 1-3. Proenergy 6000 PE Combustion Turbines BACT (or LAER) Summary

Pollutant	Available Technology	BACT (or LAER) Emission Limitation / Work Practice
NO_X (LAER)	SCR	2 ppm (15% O_2)
CO	Oxidation Catalyst	4 ppm (15% O_2)
VOC	Good combustion practices, gaseous fuels	2.5 ppm (15% O_2)
SO_2	Use pipeline natural gas	Use pipeline natural gas not to exceed 1 gr S per 100 scf
PM	Good combustion practices, gaseous fuels	5% Opacity
GHG	Energy efficient design	120 lb CO_2/MMBtu

Table 1-4. PLUM Pressure Reduction System BACT Summary

Pollutant	Available Technology	BACT Emission Limitation / Work Practice
NO_X	Exclusive use of natural gas, good combustion practices, and low NO_X burners	0.049 lb/MMBtu
CO	Exclusive use of natural gas and good combustion practices	0.082 lb/MMBtu
VOC	Exclusive use of natural gas and good combustion practices	Exclusive use of natural gas
SO_2	Use of clean fuels with inherently low sulfur content	Use pipeline natural gas not to exceed 1 gr S per 100 scf
PM	Exclusive use of natural gas and good combustion practices	Exclusive use of natural gas
GHG	Exclusive use of natural gas and good combustion practices	Exclusive use of natural gas

2. PSD MODELING ANALYSES

Trinity has prepared this modeling protocol to describe the modeling methodologies and data resources that will be used to evaluate the project's short-range (less than 50 kilometers from plant) air quality impacts in Class II areas as well as long range, regional impacts (50 to 300 kilometers from plant) to Class I area visibility, soils, and vegetation.

The dispersion modeling analyses will be conducted in consideration of the following guidance documents in addition to direct regulatory guidance provided by MDEQ:

- *Guideline on Air Quality Models* 40 CFR 51, Appendix W (EPA, Revised, November 29, 2024)
- User's Guide for the AMS/EPA Regulatory Model – AERMOD, (EPA, November 2024)
- AERMOD Implementation Guide (EPA, last revised November 2024)
- New Source Review Workshop Manual (EPA, Draft, October 1990)
- Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS (EPA, Memorandum from Mr. Stephen Page, March 23, 2010)
- Revised Draft Guidance for Ozone and Fine Particulate Matter Modeling (EPA, Memorandum from Mr. Richard A. Wayland, September 20, 2021)
- *Revised Policy on Exclusions from "Ambient Air"* (EPA, Memorandum from Mr. Andrew R. Wheeler, December 2, 2019)
- *Guidance for $PM_{2.5}$ Permit Modeling* (EPA, Memorandum from Mr. Stephen Page, May 20, 2014)
- Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA, Memorandum from Mr. Richard A Wayland, April 30, 2019)
- Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Mr. Peter Tsirigotis, April 17. 2018)
- Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (EPA Memorandum from Mr. Richard Wayland, April 30. 2024)
- Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. Tyler Fox, March 1, 2011); and
- Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard (EPA, Memorandum from Mr. R. Chris Owen and Roger Brode, September 30, 2014).
- Interpretation of "Ambient Air" in Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD) (EPA, Memorandum from Stephen D. Page to Regional Air Division Directors, June 22, 2007).
- *Q/D Screening Method* (ADEC/AQM, Mr. Alan E. Schuler, June 19, 1997)

Tasks performed in a standard PSD modeling analysis are presented in the flowchart in Figure 2-1.

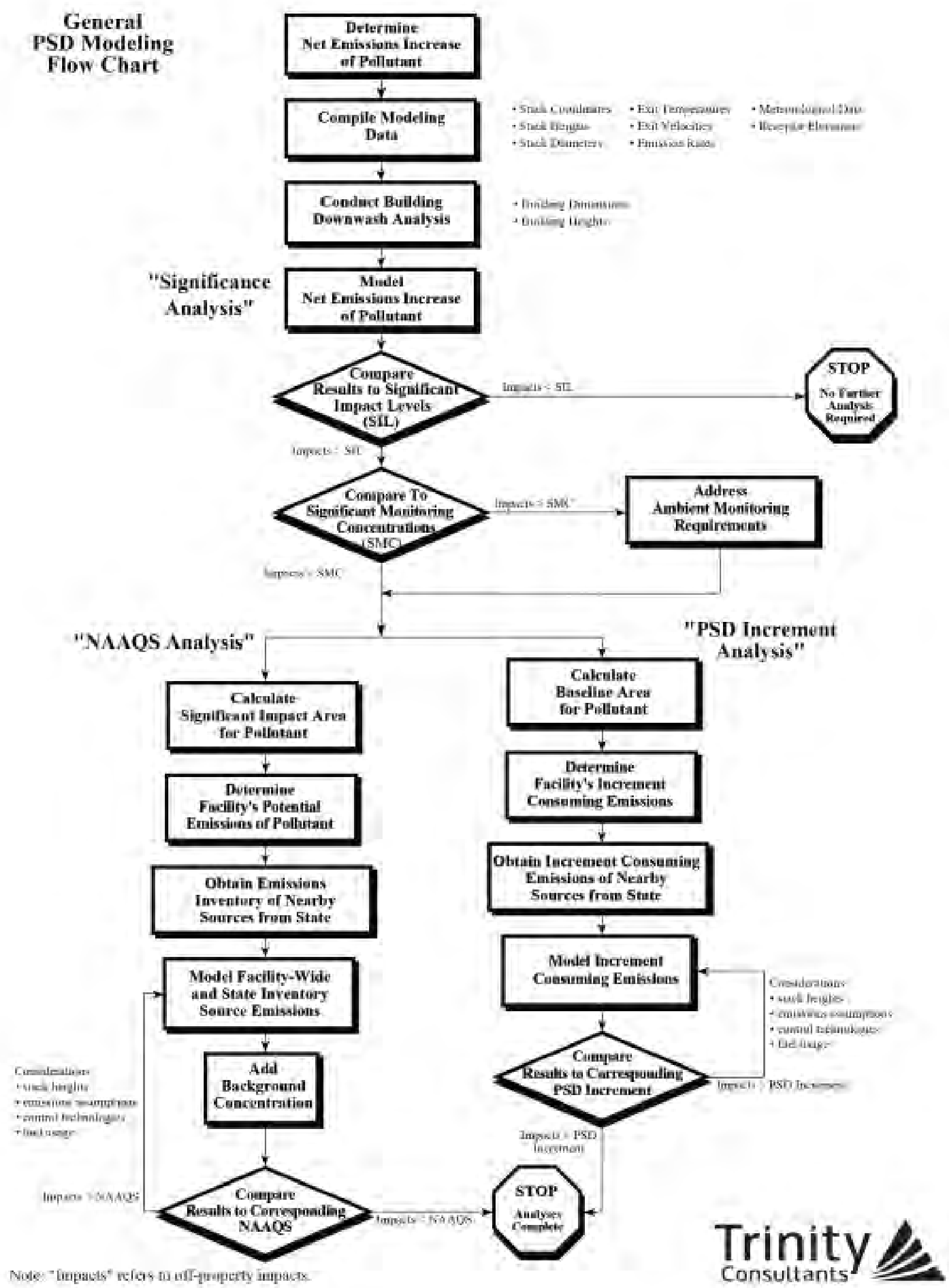

Figure 2-1. PSD Modeling Flow Chart

2.1 Modeled Source Scenarios

MZX will model the project-associated sources for the significance analysis. For any off-site impact calculated in the significance modeling analysis greater than the significant impact level (SIL) established by EPA for a given pollutant, a NAAQS/Increment analysis incorporating nearby sources is required (full or cumulative impact analysis). For the cumulative impact analysis, all sources at the facility and the appropriate inventory sources will be included.

Modeling analysis for each ambient-air standard will utilize inputs that represent the most conservative, or a “worst-case”, operating scenario. The “worst-case” operating scenario, for modeling purposes, represents the load and ambient temperature conditions when worst-case concentrations occur because combustion turbine performance varies with generation load and temperature. Rather than modeling various individual load scenarios (e.g., 50%, 75%, 100%), MZX will present a single, conservative modeling case. This case will pair the highest potential emission rates (which typically occur at high loads) with the poorest plume dispersion characteristics (e.g., the lowest exhaust temperature and velocity, which typically occur at lower loads). The intent of this hybrid approach is to create a scenario that is more conservative than any single, real-world operating condition. If compliance is demonstrated under this overly conservative scenario, it can be assumed that the facility is in compliance under all other operating loads.

The stack parameters selected to represent “worst-case” are provided in Table 2-1.

Table 2-1. Modeled Source Parameters

Proposed Unit	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Inside Diameter (m)
350	24.4	740.3	22.4	3.35
130	15.2	766.5	21.5	2.74
Proenergy	25.0	617.6	23.8	3.05
Plum	7.6	477.6	2.0	0.61

The MZX facility is designed to be a continuous power generation site, it is not a peaking or other type of site where it will undergo frequent startup and shutdown activity. Further, the startup/shutdown cycle for each Solar unit completes in ten (10) minutes and each Proenergy unit completes in thirty (30) minutes and there will be no more than six (6) planned startup/shutdown events in a given year. Given the extremely infrequent nature of those conditions, startup/shutdown events could be excluded from the model based on EPA’s Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2, as discussed on page 8 (bold added for emphasis):

“However, the intermittent nature of the actual emissions associated with emergency generators and startup/shutdown in many cases, when coupled with the probabilistic form of the standard, could result in modeled impacts being significantly higher than actual impacts would realistically be expected to be for these emission scenarios. The potential overestimation in these cases results from the implicit assumption that worst-case emissions will coincide with worst-case meteorological conditions based on the specific hours on specific days of each of the years associated with the modeled design value based on the form of the hourly standard.”

And also Page 9 (bold added for emphasis):

“Given the implications of the probabilistic form of the 1-hour NO_2 NAAQS discussed above, we are concerned that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself. As a result, we feel that it would be inappropriate to implement the 1-hour NO_2 standard in such a manner and recommend that compliance demonstrations for the 1-hour NO_2 NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. EPA believes that existing modeling guidelines provide sufficient discretion for reviewing authorities to exclude certain types of intermittent emissions from compliance demonstrations for the 1-hour NO_2 standard under these circumstances.”

However, in order to ensure the protection of public health across all situations, EPA also discusses alternatives to exclusion on p.11:

“Another approach that may be considered in cases where there is more uncertainty regarding the applicability of this guidance would be to model impacts from intermittent emissions based on an average hourly rate, rather than the maximum hourly emission. For example, if a proposed permit includes a limit of 500 hours/year or less for an emergency generator, a modeling analysis could be based on assuming continuous operation at the average hourly rate, i.e., the maximum hourly rate multiplied by 500 hours/8760 hours. This approach would account for potential worst-case meteorological conditions associated with emergency generator emissions by assuming continuous operation, while use of the average hourly emission represents a simple approach to account for the probability of the emergency generator actually operating for a given hour.”

MZX will utilize an even more conservative emission approach to account for the infrequent nature of startup and shutdown activities at the facility. Since no more than five (5) combustion turbines of each model type (e.g., Solar 130, Solar 350, Proenergy) will be in startup mode in any given hour, MZX’s approach consists of determining which (five) 5 sources represent the “worst-case” modeled impact during startup.

The five (5) “worst-case” sources will be determined by modeling all combustion turbines at a unit emission rate of 1 gram per second (g/s) to determine which combustion turbines have the highest predicted impact (by turbine type). MZX will then model a scenario where the five Solar 350s, five Solar 130s, and five ProEnergy turbines with the worst-case impacts are in startup mode within the same hour. The modeled emission rate for these units will be a blended hourly rate, calculated by combining the short-duration (e.g., 10 or 30 minutes) startup emissions with the normal maximum hourly rate for the remainder of that hour. The resulting SIL and full impact models, if necessary, will thus include a total of fifteen (15) combustion turbines at emission rates assuming one startup every hour for short term averaging periods, and the remaining twenty-six (26) combustion turbines will be modeled at normal operating emission rates. For annual averaging periods, all combustion turbines will be modeled at annualized emission rates equivalent to the total annual emissions estimated for the type of combustion turbine plus the total annual startup and shutdown emissions for the type of combustion turbine. By using this modeling approach, it is acknowledged and accepted that the final permit will include an enforceable operational limit restricting the facility to having no more than five of each turbine type in startup or shutdown mode during any given hour.

2.2 Model Selection

Dispersion models predict downwind pollutant concentrations by simulating the evolution of the pollutant plume over time and space for specific set of input data. These data inputs include the pollutant's emission rate, source parameters, terrain characteristics, and atmospheric conditions.

According to the 40 CFR 51, Appendix W (the *Guideline)*, the extent to which a specific air quality model is suitable for the evaluation of source impacts depends on (1) the meteorological and topographical complexities of the area; (2) the level of detail and accuracy needed in the analysis; (3) the technical competence of those undertaking such simulation modeling; (4) the resources available; and (5) the accuracy of the database (i.e., emissions inventory, meteorological, and air quality data).

Taking these factors into consideration, MZX will use the AERMOD modeling system to represent all project emissions sources at the facility. AERMOD is the default model for evaluating impacts attributable to industrial facilities in the near-field (i.e., source receptor distances of less than 50 km) and is the recommended model in the *Guideline*.

2.2.1 AERMOD

The latest version (24142) of the AERMOD modeling system will be used to estimate maximum ground-level concentrations in all Class II Area analyses for this application. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and was promulgated in December 2005 as the preferred model for use by industrial sources in this type of air quality analysis.[2] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[3] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[4]

The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the dispersion and post-processing module. AERMAP is the terrain pre-processor that is used to import terrain elevations for selected model objects and to generate the receptor hill height scale data that are used by AERMOD to drive advanced terrain processing algorithms. National Elevation Dataset (NED) data available from the United States Geological Survey (USGS) are utilized to interpolate surveyed elevations onto user specified receptor, building, and source locations in the absence of more accurate site-specific (i.e., site surveys, GPS analyses, etc.) elevation data. AERMET generates a separate surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the meteorological site shown to be representative of the application site.

[2] 40 CFR Part 51, Appendix W, Guideline on Air Quality Models, Appendix A.1 AMS/EPA Regulatory Model (AERMOD).

[3] Earth Tech, Inc., *Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model*, Concord, MA.

[4] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised)*, Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

MZX will use the BREEZE® graphical interface, developed by Trinity Consultants, to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (dated 24142) and AERMAP (dated 24142) and provides capability for image-generation. Using the procedures outlined in the *Guideline* as a reference, the AERMOD dispersion modeling for this project will be performed using only regulatory default options.

2.2.2 Urban Versus Rural Dispersion Options

Classification of land use in the immediate area surrounding a facility is important in determining the appropriate dispersion coefficients to select for a particular modeling application. The selection of either rural or urban dispersion coefficients for a specific application should follow one of two procedures. These include a land use classification procedure or a population-based procedure to determine whether the area is primarily urban or rural.[5]

Of the two methods, the land use procedure is considered more definitive. The land use within the total area circumscribed by a 3-km radius circle around the facility was classified using the land use typing scheme proposed by Auer. If land use types 23 (Developed, Medium Intensity) or 24 (Developed, High Intensity) account for 50% or more of the circumscribed area, urban dispersion coefficients should be used. Otherwise, rural dispersion coefficients are appropriate.

AERSURFACE (v24142) was used for the extraction of the land-use values in the domain. The results of the land use analysis evaluation were as follows.

Each USGS NLCD 2016 land use class was compared to the most appropriate Auer land use category to quantify the total urban and rural area. Table 2-2 summarizes the results of this land use analysis. As shown, approximately 82% of the area can be classified as rural, which is well over the 50% threshold established in the Auer procedure. There, rural dispersion coefficients will be used in AERMOD.

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[5] 40 CFR Part 51, Appendix W, the Guideline on Air Quality Models (November 2024) – Section 7.2.1.1(b)(i)

Table 2-2. Summary of Land Use Analysis

Category ID	Category Description	Number of Grid Cells	Percent	Dispersion Class
11	Open Water	68	0.2%	Rural
21	Developed, Open Space	7,593	24.2%	Rural
22	Developed, Low Intensity	8,098	25.8%	Rural
23	Developed, Medium Intensity	4,284	13.6%	Urban
24	Developed, High Intensity	1,466	4.7%	Urban
31	Barren Land	1	0.0%	Rural
41	Deciduous Forest	276	0.9%	Rural
42	Evergreen Forest	54	0.2%	Rural
43	Mixed Forest	3,719	11.8%	Rural
52	Shrub/Scrub	257	0.8%	Rural
71	Grassland/Herbaceous	23	0.1%	Rural
81	Pasture/Hay	3,054	9.7%	Rural
82	Cultivated Crops	340	1.1%	Rural
90	Woody Wetlands	2,105	6.7%	Rural
95	Emergent Herbaceous Wetlands	60	0.2%	Rural
	Total	31,398	100%	
	Urban		18.3%	
	Rural		81.7%	

2.2.3 Building Downwash Analysis

AERMOD incorporates the PRIME downwash algorithms. Direction specific building parameters required by AERMOD are calculated using the BPIP-PRIME preprocessor (version 04274). MZX structures will be built into the model and downwash influences will be evaluated appropriately.

2.2.4 Receptor Grid and Coordinate System

The entire MZX facility property will be fenced. Modeled concentrations will be calculated at ground-level receptors placed along the facility fenceline and on a variable Cartesian receptor grid. Fenceline receptors will be spaced no further than 50 meters apart. Beyond the fenceline, receptors will be spaced 100 meters apart on a Cartesian grid extending out to a distance sufficient to resolve the maximum concentration, but at least extending outward to 5 km in all directions. Additionally, less refined receptor grids will extend from the finest grid out to 10 km in each direction, with receptors spaced 250 meters apart from 5 km to 8 km from the facility and 500 meters from 8 km to 10 km from the facility. If the SIL is exceeded for any pollutant, additional modeling will be performed to determine the size of the significant impact area (SIA).

In general, the receptors will cover a region extending from all edges of the facility fenceline to the point where impacts from the project are no longer significant. For any pollutants exceeding the Class II SIL, any receptors with impacts greater than or equal to the SIL will be included in the cumulative modeling for demonstrating the Facility will not cause or contribute to an exceedance of the NAAQS and PSD Increments. If an air quality standard is exceeded, the MAXDCONT option in AERMOD will be used to determine if the proposed project is significant (above the corresponding SIL) at the receptors exceeding the standard.

Receptor elevations and hill heights required by AERMOD will be determined using the AERMAP terrain preprocessor (version 24142). Terrain elevations from the USGS 1-arc second NED will be used for AERMAP processing. In all modeling analysis data files, the location of emission sources, structures, and receptors will be represented in the UTM coordinate system, zone 15, NAD-83.

2.2.5 Meteorological Data

Given that site-specific meteorological data is not available for the proposed site, surface data collected by a representative meteorological site will be used. According to Appendix W, the selection of meteorological data to be used in the modeling analysis should be based on spatial and climatological (temporal) representativeness. The representativeness of the data is based on the following:

1. The proximity of the meteorological monitoring site to the area under consideration;
2. The complexity of terrain;
3. The exposure of the meteorological site; and
4. The period during which data are collected.

Site-specific meteorological data or data from National Weather Service (NWS) stations, universities, Federal Aviation Administration (FAA) stations, military stations, and others should be used if possible.[6] The determination of representativeness of site-specific data for AERMOD applications cannot be based solely on proximity.[7] According to Appendix W, the implementation of NWS Automated Surface Observing Stations (ASOS) in the early 1990's should not preclude the use of NWS ASOS data if such a station is determined to be representative of the modeled area.[8] Given that site-specific meteorological data is not available for the MZX site, surface data collected by a representative meteorological site will be used. Surface meteorological sites located within 120 km of the proposed site with available comprehensive meteorological data during the 2019-2023 period were evaluated.

[6] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised November 29, 2024.

[7] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, Memorandum from Mr. Peter Tsirigotis, Research Triangle Park, North Carolina, April 17, 2018.

[8] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised November 29, 2024.

Table 2-3. Meteorological Surface Stations Near Proposed Facility

Met Station ID	WBAN ID	Site Description	Base Elevation (m)	Distance from MZX (km)	Recoverability 2019-2023
AWM	53959	WEST MEMPHIS MUNICIPAL	63.7	24.2	92.19%
MEM	13893	MEMPHIS	76.8	6.9	99.18%
OLV	13815	OLIVE BRANCH	124.1	22.3	91.65%
NQA	93839	MILLINGTON REGIONAL	102.4	43.4	88.75%
UTM	23903	TUNICA MUNICIPAL	57.0	42.9	59.92%
CKM	00314	CLARKSDALE COUNTY	51.6	84.5	69.41%
JBR	03953	JONESBORO MUNICIPAL	79.9	112.9	89.78%
HKA	53869	BLYTHEVILLE MUNICIPAL	77.5	110.7	95.06%

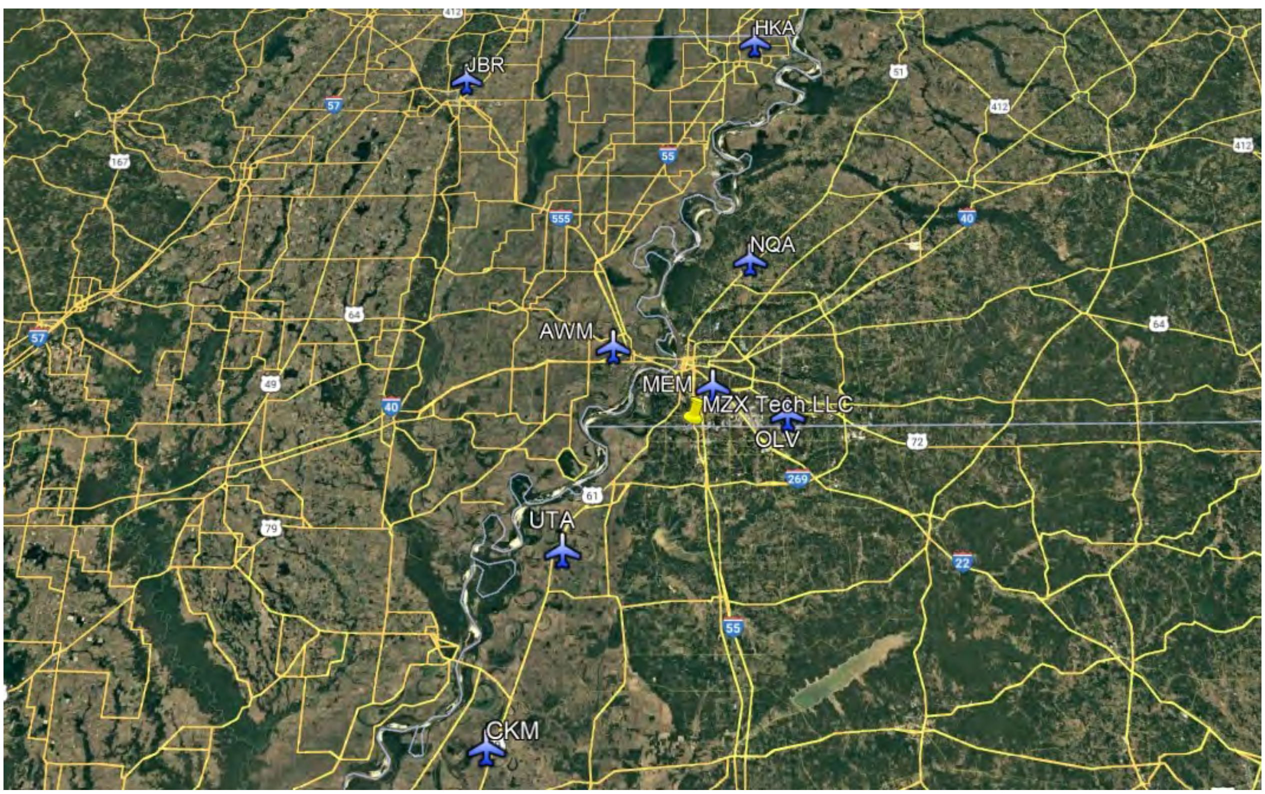

Figure 2-2. Meteorological Surface Stations Near Proposed Facility

All sites were analyzed for data completeness with AERMET using the latest available 5-year data set for each site. Based on the results, the three sites with the greatest recoverability (AWM, MEM, HKA) were analyzed further to determine recoverability by quarter over the 5-year period (2019-23). MEM showed greater than 90% recoverability for every quarter of each year. AWM showed less than 90% for one quarter and just above 90% for at least two more quarters during the 5-year period. HKA also showed less than 90% recoverability for one quarter and had several quarters below 95%. Given that MEM has complete, recent data and is in such close proximity to the MZX site, MEM was reviewed to confirm representativeness.

Regulatory application of AERMOD necessitates careful evaluation of the meteorological data for input to AERMET. Data representativeness, in the case of AERMOD, means utilizing data of an appropriate type for constructing realistic boundary layer profiles.[9] Calculations of the boundary layer parameters are dependent on the surface characteristics in the vicinity of the modeled facility. The surface characteristics are quantified by the assignment of three variables: albedo, Bowen ratio, and surface roughness length.

AERSURFACE was used to determine surface characteristics using land cover data from the U.S. Geological Survey (USGS) National Land Cover Data (NLCD) 2016 archives and look-up tables of surface characteristics that vary by land cover type and season.[10] The surface variables were set to vary by season using 12 sectors. For the AERSURFACE analysis, the mean of the surface characteristics generated for average moisture conditions at each of the nearby meteorological stations were compared to the proposed MZX site. The results of the AERSURFACE analysis showed that MEM site has surface characteristics comparable to the proposed MZX site.

Table 2-4. Surface Characteristics of Selected Meteorological Stations

Meteorological Station ID	Mean Albedo	Mean Bowen Ratio	Mean Surface Roughness
Proposed MZX Site	0.160	0.697	0.163
MEM	0.170	0.883	0.042

The MEM meteorological site was also evaluated with a land cover analysis, a terrain analysis, a climate analysis, and a wind-rose analysis. For the land cover analysis, a one kilometer (km) radius was centered on the meteorological tower location, and the land use was categorized based on the 2019 NLCD.[11] Impervious and canopy differences among the sites were also examined. The results showed that the MEM site had similar spatial distribution of land use, impervious coverage, and canopy coverage to MZX.

From the results of all analyses, the MEM NWS site was chosen to best represent the land use, terrain and exposure of the MZX site. According to Appendix W, Section 8.4.2(b), the surface characteristics input to AERMET should be representative of the land cover in the vicinity of the meteorological data, i.e., the location of the meteorological tower for measured data.[12] Therefore, surface characteristics representative

[9] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised November 29, 2024.

[10] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *User's Guide for AERSURFACE Tool*, Research Triangle Park, North Carolina, EPA 454/B-20-008, February 2020.

[11] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised November 29, 2024.

[12] Ibid.

of the MEM NWS site will be used in AERMET. The area surrounding the proposed site and the MEM NWS is shown in Figure 2-3.

Figure 2-3. MZX Site and MEM Site

Characterization of surface moisture conditions for the NWS MEM site for each year of meteorology is presented in Table 2-5. The surface moisture conditions were determined by comparing precipitation for the period of data to be processed to the 30-year climatological record, selecting "wet" conditions if precipitation is in the upper 30th percentile, "dry" conditions if precipitation is in the lower 30th percentile, and "average" conditions if precipitation is in the middle 40th percentile.[13]

[13] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *AERMOD Implementation Guide*, Research Triangle Park, North Carolina, EPA 454/B-23-009, 2023.

Table 2-5. Average Yearly Surface Moisture Conditions for MEM

Year	Annual Precipitation [1]	Surface Moisture Classification [2]
2019	73.14	WET
2020	58.85	AVG
2021	51.80	AVG
2022	51.96	AVG
2023	51.96	AVG

1. https://www.ncdc.noaa.gov/cdo-web/search.
2. https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time- series.

According to Appendix W, the EPA has integrated the ADJ_U* option into AERMET as a regulatory option to address issues with model over-prediction of ambient concentrations from some sources associated with under-prediction of the surface friction velocity (u*) during light wind, stable conditions.[14] The ADJ_U* option is specifically recommended for sources using standard NWS airport meteorological data, site-specific meteorological data without turbulence parameters, or prognostic meteorological inputs derived from prognostic meteorological models. The ADJ_U* option will be used in AERMET Stage 3.

For upper air data, the closest upper air station is located at the NWS in North Little Rock, AR. Twice daily soundings from the NWS KLZK for the 2019-2023 period will be used in AERMET.

The proposed facility is located in DeSoto County, MS. The nearest and most representative meteorological stations are the Memphis International Airport surface station (ID 13893) and the North Little Rock upper air station (ID 3952). The meteorological data set to be utilized for these analyses covers the time period from 2019 to 2023, and includes meteorological data processed with the ADJ_U* option of AERMET using AERMET v24142. The data was processed and prepared using the surface characteristics of the Memphis International Airport surface station. A surface station elevation of 271 ft will be utilized in the modeling analyses.

2.2.6 Source Types and Parameters

The AERMOD dispersion model allows for emission units to be represented as point, area, or volume sources. Point sources with unobstructed vertical releases will be modeled with their actual stack parameters (i.e., height, diameter, exhaust gas temperature, and gas exit velocity). All proposed emission sources will have vertical, unobstructed stacks and will be modeled as such.

2.2.7 GEP Stack Height Analysis

EPA has promulgated stack height regulations that restrict the use of stack heights in excess of “Good Engineering Practice” (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This essentially prevents the use of excessively tall stacks to reduce ground-level pollutant concentrations.

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure. The wind direction-specific downwash dimensions

[14] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guideline on Air Quality Models*, Appendix W, Revised November 29, 2024.

and the dominant downwash structures used in this analysis are determined using BPIP. In general, the lowest GEP stack height for any source is 65 meters by default.[15] A preliminary evaluation has indicated that none of the proposed emission unit stacks will exceed GEP height.

2.2.8 Ozone and $PM_{2.5}$ Formation

In April 2018, the EPA released guidance recommending SILs for ozone and $PM_{2.5}$.[16] Although this guidance was not a final agency action and did not create any binding requirements on permitting authorities, permit applicants, or the public, the recommended SILs could be used to demonstrate that a proposed source does not cause or contribute to an exceedance of the NAAQS or PSD increments. On April 30, 2024, the EPA provided supplemental guidance to the SILs for ozone and $PM_{2.5}$ which retained the SILs for ozone and 24-hour $PM_{2.5}$ and recommended new, lower SILs for annual $PM_{2.5}$.[17] MZX will use the latest recommended Class II SILs for ozone and $PM_{2.5}$ to assess potential secondary pollutant impacts from the proposed facility.

In July 2022, the EPA provided final guidance on how to implement the modeling requirements for ozone and $PM_{2.5}$.[18] To make the required NAAQS or PSD increment demonstration, proposed sources should provide a full accounting of the combined impacts of each allowable precursor (and the direct component of $PM_{2.5}$) emissions on ambient concentrations of the relevant ozone and $PM_{2.5}$ NAAQS if any precursor(s) (or the direct component of $PM_{2.5}$) would be emitted in a significant amount. In other words, for ozone, if either NO_X or VOC precursor emissions would be emitted in a significant amount (i.e., above their SER), then both precursors should be included in the assessment of ozone impacts. For $PM_{2.5}$, if a source would emit a significant amount of one or more of NO_X, SO_2, or direct $PM_{2.5}$ emissions, then the source should include NO_X and SO_2 precursor as well as direct $PM_{2.5}$ emissions in the assessment of $PM_{2.5}$ impacts. Primary impacts of $PM_{2.5}$ will be estimated with the AERMOD modeling system.

To estimate ozone and total $PM_{2.5}$ impacts, the EPA released final guidance on the use of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 demonstration tool.[19] The tool relates single source impacts on secondary pollutants (ozone and secondary $PM_{2.5}$) with an air quality threshold to determine if such an impact causes or contributes to an exceedance of the appropriate NAAQS and PSD Increments.[20] MERPs reflect levels of increased precursor emissions that are not expected to cause a significant contribution to ozone and $PM_{2.5}$. In practice, MERPs are intended to be used with SILs as analytical tools for PSD air quality analyses.

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[15] 40 CFR §51.100(ii)

[16] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, Memorandum from Mr. Peter Tsirigotis, Research Triangle Park, North Carolina, April 17, 2018.

[17] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, Research Triangle Park, North Carolina, 2024.

[18] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance for Ozone and Fine Particulate Matter Permit Modeling*, Research Triangle Park, North Carolina, July 2022.

[19] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program*, Research Triangle Park, North Carolina, 2019.

[20] Ibid.

The Shelby County (Memphis) hypothetical source is chosen as the representative source for the ozone MERPs analysis. The greater metropolitan Memphis area is less than 20 km from the project location, and the project site and hypothetical source are in the same regional area for influences on ozone formation from VOC and NO_X emissions. The appropriate tpy/stack height combination will be chosen for the pollutants in question and the calculations conducted will be consistent with EPA guidance to evaluate project-based impacts compared to the ozone SIL. If a refined analysis for ozone becomes necessary, then the procedures provided in EPA guidance will be utilized to evaluate project-based impacts compared to existing background concentrations of ozone and the ozone NAAQS.

The modeling report to be provided with the permit application for this project will include a Tier 1 assessment for secondary $PM_{2.5}$ in accordance with EPA's MERPs guidance, using the above discussed Shelby County, TN hypothetical source. Project based emissions for NO_X and SO_2 will be used to derive an applicable concentration contribution to the significance modeling results for $PM_{2.5}$. If significance modeling results for $PM_{2.5}$ exceed the SILs, then NAAQS based secondary $PM_{2.5}$ impacts will be included. For any required $PM_{2.5}$ PSD Increment evaluation, offsite source NO_2 and SO_2 emissions from increment consumers from the regional inventory will be utilized to derive an estimated secondary $PM_{2.5}$ impact as part of the PSD Increment evaluation. Precursor based emission impacts on all $PM_{2.5}$ modeling for this project will be considered.

2.2.8.1.1 Ozone Assessment

Ozone impacts for the SILs analysis will be calculated as the sum of the ratio of precursor emissions to the MERPs. If the sum of the ratios is less than 1, then ozone impacts are below the ozone SIL and no cumulative analysis is necessary.

$$\left(\frac{NOX\ Emissions}{NOX\ MERP}\right) + \left(\frac{VOC\ Emissions}{VOC\ MERP}\right) < 1$$

If ozone impacts are greater than one part per billion (1 ppb), a cumulative ozone impact analysis will be performed following EPA guidance. If a cumulative ozone analysis is needed, the 3-year monitoring design value will be added to the product of the ozone SIL with the ratio of the proposed emission increases of each precursor to its representative MERP. If the calculated cumulative ozone impacts do not exceed the NAAQS, precursor emissions from MZX will not cause or contribute to an exceedance of the ozone NAAQS.

2.2.8.1.2 Secondary $PM_{2.5}$ Assessment

Combined primary and secondary impacts of $PM_{2.5}$ for the 24-hour and annual SILs analyses will be assessed using the highest modeled primary $PM_{2.5}$ concentration, the applicable Class II SILs, precursor emissions, and the representative MERPs. The EPA MERPs equations will be used for estimating secondary $PM_{2.5}$.

If $PM_{2.5}$ impacts are greater than the SIL thresholds, a cumulative $PM_{2.5}$ impact analysis will be performed. For the NAAQS analysis, the monitoring design value will be added to the project's highest modeled $PM_{2.5}$ impacts from the cumulative analyses and to representative MERP ratios.

For the PSD increment consumption analysis, the direct and the secondary component of $PM_{2.5}$ increment consumption from the proposed project as well as direct $PM_{2.5}$ emissions and precursor emissions from any nearby $PM_{2.5}$ increment sources will be included. No background monitoring values will be applied.

If the cumulative total 24-hour and annual $PM_{2.5}$ impacts do not exceed the corresponding NAAQS or the PSD Increments, emissions from MZX will not cause or contribute to an exceedance of the $PM_{2.5}$ standards.

2.2.9 NO_2 Modeling Approach

The revised *Guideline* now indicates Ambient Ratio Method 2 (ARM2) has replaced ARM as the regulatory default Tier 2 NO_2 modeling method. MZX proposes to utilize ARM2 for modeling NO_2 for the 1-hour and annual SIL and NAAQs modeling assessments, and for the annual PSD increment modeling assessment. Should further refinement be needed with Tier 3 modeling methods, such as the Ozone Limiting Method (OLM) or Plume Volume Molar Ratio Method (PVMRM), MZX will contact the MDEQ.

2.2.10 $PM_{2.5}$ Precursor Emissions Modeling

The April 2019 EPA guidance document titled *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program* establishes Tier 1 procedures for demonstrating that a project will not cause or contribute to ambient air quality impacts of $PM_{2.5}$ associated with secondary $PM_{2.5}$ emissions. The modeling report to be provided with this permit application will include a Tier 1 assessment for secondary $PM_{2.5}$ in accordance with the most recent EPA MERPs guidance. Precursor based emission impacts on all $PM_{2.5}$ modeling for this project will be calculated and added to the direct $PM_{2.5}$ impacts determined from the AERMOD model in all SIL and cumulative analyses (if required).

2.3 Class II Significance and NAAQS Analysis

The Significance Analysis is conducted to determine whether emissions increases associated with the potential project could cause a significant impact on the area surrounding the facility. “Significance” is analyzed based on modeling only the new, modified, or associated sources comprising the project; no existing unmodified or associated sources, nor regional facility sources, are included.

“Significant” impacts are defined by design concentration thresholds commonly referred to as the SILs. MZX will model the project associated sources for significance. All project associated sources for the potential project will be new facility sources, and thereby modeled as part of the significance analysis, at their potential emission rates.

Table 2-6. lists the SIL, NAAQS, and Class II PSD Increments for all relevant NSR regulated pollutants for the potential project, subject to modeling, which will be undergoing PSD permitting.[21]

[21] Class I analyses are addressed in a following section.

Table 2-6. Significant Impact Levels, NAAQS, Class II PSD Increments, and Significant Monitoring Concentrations for Relevant NSR Regulated Pollutants

Pollutant	Averaging Period	PSD Class II SIL ($\mu g/m^3$)	Primary and Secondary NAAQS ($\mu g/m^3$)	Class II PSD Increment ($\mu g/m^3$)
PM_{10}	24-hour	5	150	30
	Annual	1	--	17
$PM_{2.5}$	24-hour	1.2	35	9
	Annual	0.13	9	4
SO_2	1-hour	7.8	196	--
	3-hour	25	1,300	512
	24-hour	5	365	91
	Annual	1	80	20
NO_2	1-hour	7.5	188	--
	Annual	1	100	25
Ozone	8-hour	1 ppb	137	--
CO	1-hour	2,000	40,000	--
	8-hour	500	10,000	--

The highest design concentrations out of all given modeling years for each pollutant-averaging time is then compared to the SIL shown in Table 2-6 to determine if the ambient air impact is significant. In the case of 24-hour and annual $PM_{2.5}$ evaluations, EPA guidance states that the applicant should determine the maximum concentration at each receptor per year, then average those values on a receptor-specific basis over the 5 years of meteorological data prior to comparing with the appropriate SIL. This methodology will be used for both the $PM_{2.5}$ NAAQS and Increment SIL analyses.

The Facility will also evaluate current air quality conditions via an evaluation of monitoring data from the extensive network of ambient $PM_{2.5}$ monitors in the Memphis area and northern Mississippi, the existing ambient monitoring network to satisfy the ambient $PM_{2.5}$ monitoring requirements.

2.4 Class II Cumulative Impact Analysis

When modeled design concentrations are less than the applicable SIL, further analyses are not required for that pollutant-averaging period because, according to EPA guidance, the impact is within the natural variability of ambient concentrations and therefore will not cause or contribute to any exceedance of the NAAQS or PSD Increments. If modeled impacts are greater than the SIL, a full NAAQS and PSD Increment analysis is required for that pollutant and averaging period to demonstrate that the project neither causes nor contributes to any exceedances.

The PSD regulations were enacted primarily to “prevent significant deterioration” of air quality in areas of the country where the air quality was better than the NAAQS. Therefore, to promote economic growth in areas where attainment of the NAAQS occurs, some deterioration in ambient air concentrations is allowed. To achieve this goal, the EPA established PSD Increments for PM_{10}, $PM_{2.5}$, SO_2, and NO_2. The PSD Increments are further broken into Class I, II, and III Increments. Since all short-term Class II Increments (Table 2-7) are not to be exceeded more than once per year, the high second high (H2H) modeled impacts for 24-hour averaging periods for respective pollutants from among the five modeled meteorological years will be compared against the short-term Increment. The highest annual average concentrations will be compared against the annual Increment.

Table 2-7. Class II Increments

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

2.4.1 Regional Source Inventory (Class II Modeling)

For any off-site impact calculated in the Significance Analysis that is greater than the SIL for a given pollutant, a NAAQS/Increment analysis incorporating nearby sources is required. The initial SIA radius will be the radius of the pollutant-specific largest distance to which the SIL is exceeded. These distances are anticipated to be less than 10 km for PM_{10}, $PM_{2.5}$, and NO_2 (including 1-hr NO_2).

MZX proposes to limit all off-site inventory sources for consideration to only those sources within 50 km of the proposed facility. A comprehensive emissions inventory of all nearby point sources will be requested from MDEQ. Nearby sources will also be requested from the Shelby County Health Department (SCHD) and the Arkansas Division of Environmental Quality (ADEQ). This inventory will be used to determine which nearby sources will be included in the cumulative impact modeling. All nearby sources of the pollutant within the SIA will be included in the modeling regardless of the level of emissions. For nearby sources up to 50 km outside the SIA, a Q/D (emission rate/distance) screening assessment will be used to determine the additional sources to be modeled. Application of the Q/D assessment involves determining the total annual emission rate (Q) of all sources at a nearby plant and dividing by its distance (D) from the proposed MZX site. If the ratio is greater than or equal to 20, the nearby source will be included in the NAAQS/Increment analysis. Clusters of sources will also be evaluated for inclusion in the modeling if they have a combined Q/D greater than or equal to 20. Sources with a Q/D less than 20 and sources beyond 50 km will be indirectly accounted for in the background monitored concentration. No building downwash will be performed for these sources.

Limiting the extent and scope of the modeling inventory is supported by EPA statements in the most recently revised Appendix W. Alternative methods for inventory development may be used in accordance with the *Guideline* which states that:

> "*The number of nearby sources to be explicitly modeled in the air quality analysis is expected to be few except in unusual situations. The determination of nearby sources through the application of the EPA's recommended framework calls for the exercise of professional judgment by the appropriate reviewing authority…"*.[22]

[22] Appendix W, Section 8.3.3.b.iii

Given use of ambient monitoring and background data within the greater Memphis area, many of the nearby source emissions will likely already be accounted for within the ambient background monitoring concentrations, which further supports the use of a limited inventory area for the modeling assessment.

If a PSD increment consumption analysis is required, the construction date of the nearby sources that met the criteria for inclusion in the NAAQS analysis will be reviewed, and all sources which were constructed after the major source baseline date will be included in the PSD increment consumption analysis.

2.4.2 Ambient Background Monitors

It is anticipated that only 1-hour NO_2 impacts will exceed their SIL value, which would require the selection of ambient background concentrations to be included in the cumulative modeling analysis. However, given the vacatur of the $PM_{2.5}$ significant monitoring concentration (SMC), per 40 CFR 51.166(i)(5) and 40 CFR 52.21(i)(5)(i)(K), there are no specific pre-construction monitoring exemptions available for $PM_{2.5}$. Given the availability of current, high-quality data from existing state-run monitoring networks, MZX is proposing that no preconstruction monitoring be required for $PM_{2.5}$. Additionally, since the project emissions increase will exceed 100 tpy for both NO_X and VOC (precursors to ozone), MZX has selected a background monitor for ozone. Ambient background monitoring concentrations are necessary for any required full NAAQS analysis for the facility. Nearby ambient background monitoring stations were reviewed, and the following sections describe the stations that were chosen as appropriately representative ambient background monitoring stations. Locations of the selected background monitors are shown in Figure 2-4.

2.4.2.1 NO_2 Background Monitor

The following site was selected as an appropriately representative background monitor for NO_2:

NO_2 – LH Polk and Colonial Dr., Marion Site (AQS Site ID 05-035-0005)

The Marion site is the closest geographically to the MZX site (located less than 30km to the northwest) and has valid data through the most recent monitoring year (2024). Marion is in a similar climatological region and is surrounded by similar residential and light industrial landuse types. It is classified as a near road monitor and as such provides a more conservative background value for use in the NO_2 modeling analysis.

While background concentrations in the form of the NAAQS standards will be derived for use in the NAAQS modeling analyses results summaries, background concentrations may be derived for use in the NAAQS analyses based on a season and hour-of-day approach. Available EPA guidance (e.g., *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard, September 2014*) would be used for derivation of the season and hour of day background concentrations.

2.4.2.2 $PM_{2.5}$ Background Monitor

The following site was selected as an appropriately representative background monitor for $PM_{2.5}$:

$PM_{2.5}$ – Memphis 6388 Haley Rd., Shelby Farms Site (AQS Site ID 47-157-0075)

$PM_{2.5}$ backgrounds are not explicitly needed for any modeling based on preliminary results however a monitor is being provided to address pre-construction monitoring requirements.

To satisfy the need for any pre-construction monitoring, the Shelby Farms Site was chosen for $PM_{2.5}$ consideration as it was not a “near road” monitor, was in a geographic location more similar to the area around the proposed site than other monitors in the Memphis area, and it is considered an urban scale monitor, considering more regional scale impacts to the monitor. While not the geographically closest ambient $PM_{2.5}$ monitor to the proposed site, this monitoring location is in a more representative geographic area (e.g., not in high traffic or downtown Memphis area), than other more nearby monitors, when compared to the MZK facility location.

2.4.2.3 Ozone Background Monitor

The following site was selected as an appropriately representative background monitor for ozone:

Ozone – 5 East South St., Hernando Site (AQS Site ID 28-033-0002)

As discussed in Section 2.2.8.1, projected ozone impacts using the conservative MERP methodology are expected to be well below the EPA-recommended SIL value, thus precluding the need for any cumulative ozone NAAQS review.

However, since the project emissions increase will exceed 100 tpy for both NO_X and VOC (precursors to ozone), a regional characterization of ozone background will be provided. The Hernando Site was chosen for ozone consideration as it is not a “near road” monitor, is in a geographic location similar to the area around the proposed site, and it is the geographically closest ambient ozone monitor to the proposed site. The most recent design value period is 2022-2024. The 2022-2024 design value (71 parts per billion [ppb]) is above the ozone NAAQS for the Hernando monitor; however the area continues to be designated attainment for ozone. Further, with the 2025 ozone season ending on October 31, preliminary monitoring data indicates that the 2023-2025 design value will again be below the 70 ppb NAAQS. In any case, the proposed project will not be significant for ozone, therefore will not contribute significantly to degradation of the ozone NAAQS in the area.

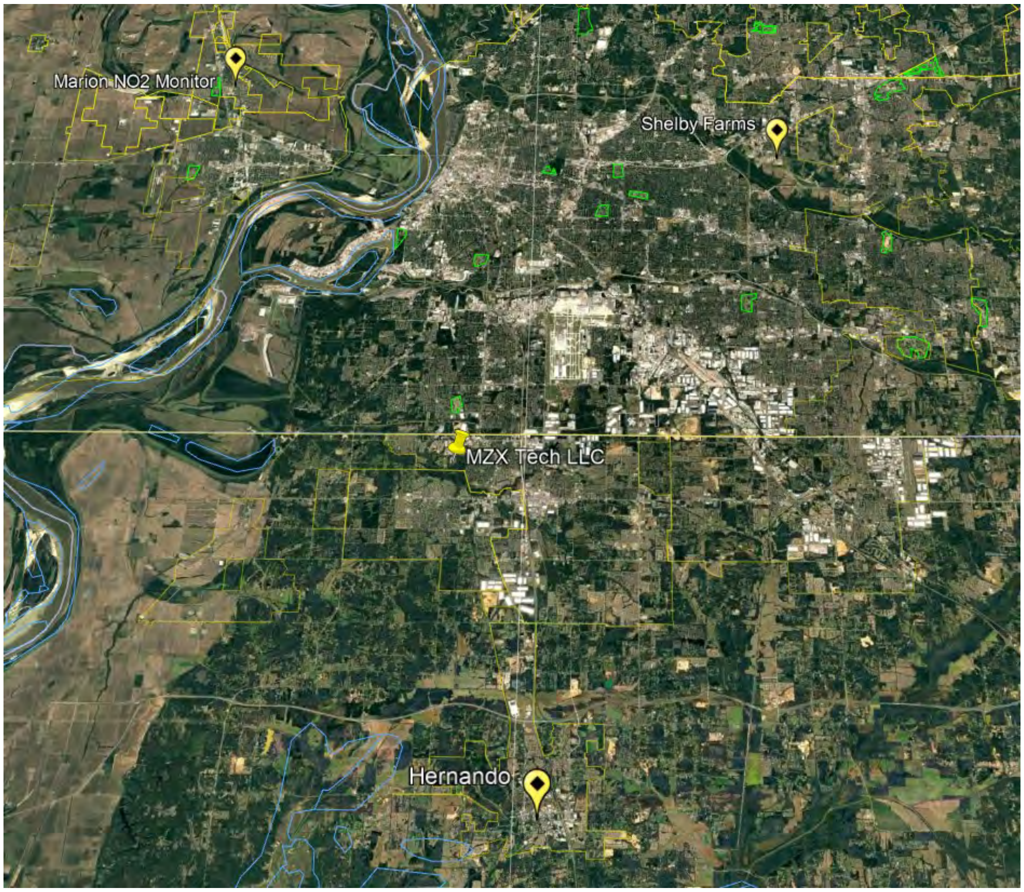

Figure 2-4. Location of Selected Background Monitors

2.5 Class I Area Impact Analysis

The Class I Area Impact Analysis is conducted to determine whether emissions increases associated with the potential project could cause a significant impact on pristine areas of the United States, such as national parks, forests, and wildlife refuges.

2.5.1 Class I Significance Analysis

With the Class I Significance Analysis, applicants must show that the proposed project will not cause or contribute to exceedances of any Class I SILs. Additional AERMOD modeling will be performed to assess potential impacts on the Class I SILs. Since AERMOD is EPA's preferred model for assessing impacts at distances up to 50 km, and the nearest Class I area is located over 200 km away, a 360-degree receptor ring will be placed at 50 km from the project site. If the concentrations at these receptors fall below the Class I SILs, the concentrations at the Class I areas would likewise be below the SILs.

$PM_{2.5}$ impacts are a combination of primary impacts directly from the stack and secondarily-formed component based on the project's NO_x and SO_2 emissions. As an alternative to the overly conservative modeled screening approach using AERMOD (described above), there is a second level assessment outlined in EPA's latest MERPs guidance document.[23] Table 2-8 below (taken from Table 1 of that guidance document), provides primary $PM_{2.5}$ impacts using the hypothetical source photochemical modeling that was originally used in support of the secondary $PM_{2.5}$ MERP framework. This approach is still considered conservative since the primary $PM_{2.5}$ modeling was conducted without any plume-depleting processes enabled in the photochemical model.

Table 2-8. Primary $PM_{2.5}$ Impacts for Hypothetical Source Photochemical Modeling

$PM_{2.5}$ Emission Rate (tpy)	Distance from source (km)	Highest Daily Average Concentration (µg/m3) tall stack	Highest Daily Average Concentration (µg/m3) surface release	Highest Annual Average Concentration (µg/m3) tall stack	Highest Annual Average Concentration (µg/m3) surface release
100	300	0.0117	0.0123	0.0008	0.0009
100	200	0.0223	0.0212	0.0016	0.0015
100	100	0.0537	0.0445	0.007	0.0049
150	300	0.018	0.0184	0.0012	0.0013
150	200	0.0328	0.0311	0.0024	0.0022
150	100	0.0807	0.0632	0.0102	0.0073
500	300	0.061	0.0625	0.0044	0.0045
500	200	0.1167	0.1095	0.0087	0.0078
500	100	0.2717	0.2536	0.0379	0.0238
1000	300	0.1186	0.1217	0.0087	0.0089
1000	200	0.23	0.2161	0.0175	0.0157
1000	100	0.5445	0.5009	0.0731	0.0477

MZX confirmed that the values tabulated in Table 2-8 above conservatively represent the worst-case impacts from any of the modeled hypothetical sources.[24] In addition to the primary impacts discussed above, an applicant must consider secondarily-formed $PM_{2.5}$ from project emissions of NO_x and SO_2. In this analysis, the project emissions increases will be multiplied by the ratio of the modeled concentrations to the modeled emission rates for a hypothetical source to estimate project related secondary $PM_{2.5}$ concentrations. Since the Class I areas are more than 50km distant, the distance-dependent data for hypothetical sources will be obtained from EPA's MERPs View Qlik website.[25]

2.5.2 Class I AQRV Area Analysis

Class I areas are federally protected areas for which more stringent air quality standards apply to protect unique natural, cultural, recreational, and/or historic values. The Class I area of primary concern for the proposed facility is the Mingo Wilderness in Missouri, as it is the closest Class I area to the facility. The Mingo Wilderness is located approximately 215 km away from the proposed facility. The following Class I areas are located within 300 km of the proposed facility (with the approximate distance to the proposed facility listed) [26]:

[23] https://www.epa.gov/sites/default/files/2020-09/documents/epa-454_r-19-003.pdf

[24] Email from George Bridgers (USEPA) to Jonathan Hill (Trinity) on December 12, 2024.

[25] www.epa.gov/scram/merps-view-qlik

[26] All distances approximate and based on data obtained from the Class I Area distance tool as published by the FL DEP at https://floridadep.gov/air/air-business-planning/content/class-i-areas-map

- Mingo National Wildlife Refuge (215 km)
- Sipsey Wilderness (233 km)

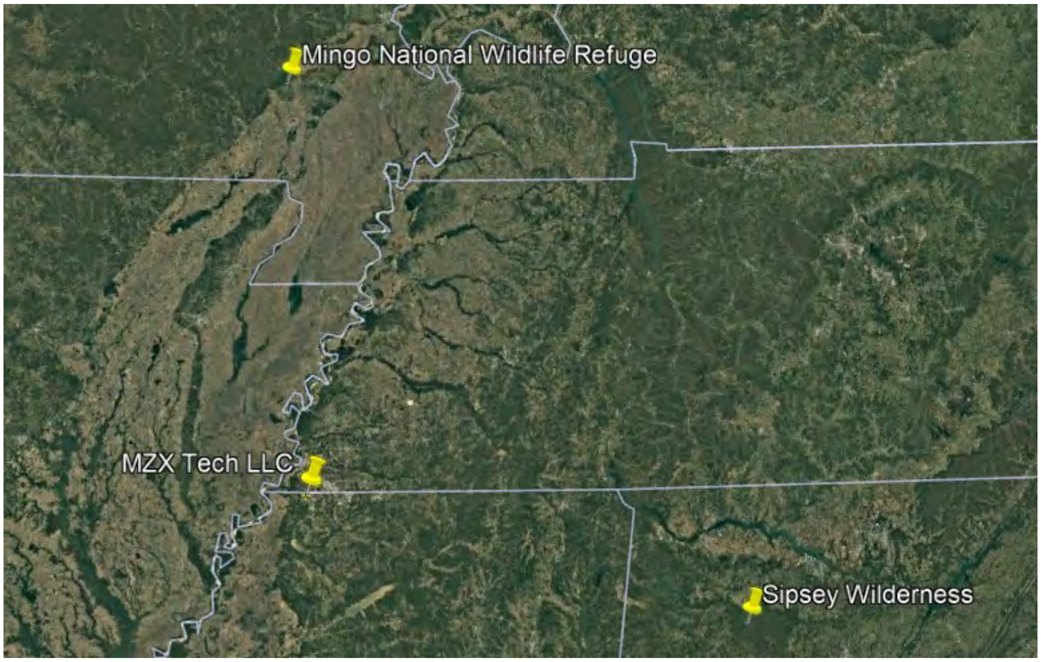

Figure 2-5. Class I Areas Within 300 km of MZX

All other Class I areas are located at distances greater than 300 km from the proposed facility.

The Federal Land Managers (FLM) have the authority to protect air quality-related values (AQRVs), and to consider in consultation with the permitting authority whether a proposed major emitting facility will have an adverse impact on such values. AQRVs for which PSD modeling is typically conducted include visibility and deposition of sulfur and nitrogen.

The ratio of emissions to Class I distance (e.g., Q/D) for this project for the Class I areas within 300 km was estimated in order to determine if the FLM will require a full AQRV analysis. The FLM's AQRV Work Group (FLAG) 2010 guidance states that a Q/D value of ten or less indicates that AQRV analyses should not be required.[27] Initial screening criteria were calculated for the Class I areas using proposed MZX plant maximum daily emissions estimates (based on lb/day scaled up to tpy) and are presented in Table 2-9.

[27] U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. *Federal land managers' air quality related values work group (FLAG): phase I report, revised (2010)*. Natural Resource Report NPS/NRPC/NRR, 2010/232. National Park Service, Denver, Colorado.

Table 2-9. Class I Q/D Screening Analysis

	Mingo Wilderness Area	Sipsey Wilderness Area
SO_2 (tpy)	156.53	156.53
NO_X (tpy)	474.58	474.58
PM_{10} (tpy)	20.99	20.99
H_2SO_4 (tpy)	0.15	0.15
Total Emissions (tpy)	652.25	652.25
Distance (km)	215	233
Q/d	3.03	2.80

The Q/D ratio for all Class I areas within 300 km of the facility was evaluated and demonstrated that impacts will be far below 10 and as such, AQRV analyses will not be required for this project.

2.6 Additional Impact Analysis

The PSD regulations require an additional impacts analysis for each pollutant emitted by a source, including the analysis of the effects of emissions on soils, vegetation and visibility caused by any increase in emissions from the source and from associated growth. The depth of the analysis performed generally depends on existing air quality, the quantity of air emissions, and the sensitivity of local soils and vegetation. The additional analysis will follow EPA's guidance provided in the New Source Review Workshop Manual.[28]

An economic growth analysis is intended to assess the amount of new growth that is likely to occur in support of the proposed project and to estimate emissions resulting from associated growth. Associated growth relates to any residential and commercial/industrial growth that may result from the proposed project. Residential growth depends on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. No significant air quality degradation due to associated growth will be expected.

The potential for soil and vegetation impacts from increased emissions from MZX will be evaluated on recreationally and commercially valuable vegetation located in the area. The criteria for evaluating impacts on soils and vegetation will be taken from the EPA's, "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals".[29] Estimated ambient impacts from MZX will be compared to minimum impact levels for effects on sensitive vegetation as suggested by the EPA. These screening values represent the minimum concentrations at which adverse growth effects or tissue injury in exposed vegetation are reported. Likewise, the potential for soil impacts will also be assessed. State-of-the-art construction equipment and emission controls will be used to keep potential air pollutant impacts less than ambient air quality standards, which are protective of secondary effects on soils and vegetation. Therefore, no adverse impacts to soils or vegetation within the site vicinity are anticipated.

To assess near-field visual impacts from MZX at Class II sensitive areas, the methodology and assumptions outlined in the FLAG report and the EPA's Workbook for Plume Visual Screening and Analysis will be

[28] U.S. Environmental Protection Agency, *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*, Research Triangle Park, North Carolina, Draft, October 1990.

[29] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals*, Research Triangle Park, North Carolina, 1980.

reviewed. As directed by MDEQ, the nearest sensitive areas within 20 km of MZX will be evaluated for VISCREEN modeling. The sensitive areas will include regional and international airports as well as state and national parks.

Table 2-10. Class II Sensitive Areas Within 20 km of MZX

Class II Sensitive Area	Distance from MZX (km)
T.O. Fuller State Park	11.1
Isle-a-port Airport (AP)	14.3
Memphis Intl. AP	6.9
Old Forest State Natural Area	18.9

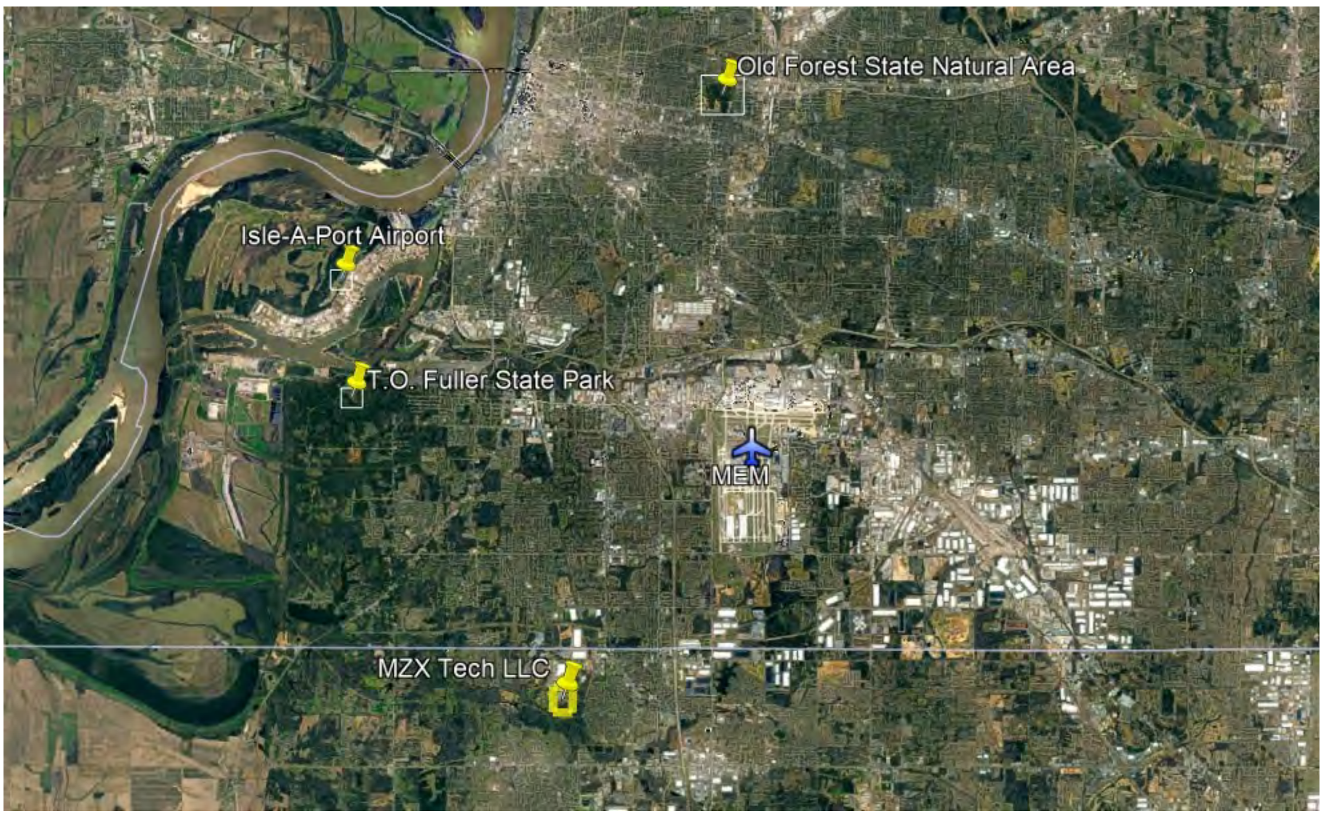

Figure 2-6. Class II Sensitive Areas Within 20 km of MZX

3. SUMMARY AND APPROVAL OF MODELING PROTOCOL

MZX is supplying this written preliminary protocol so that MDEQ can formally comment on, approve the methodologies to be used for this analysis, and request any additional information. MZX requests a written response to this protocol as soon as possible. All modeling files and reports will be provided electronically, as part of the permit application.

APPENDIX C. EMISSIONS INFORMATION FOR MODELING

Table C.1 - MZX CO Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	8.76	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.23	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	8.76	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.23	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.23	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.23	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.23	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.23	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	8.76	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	8.76	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	8.76	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.23	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.23	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.23	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.23	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.23	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.11	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	2.74	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.11	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	2.74	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.11	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	2.74	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.11	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.11	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.11	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.11	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	2.74	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.11	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	2.74	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.11	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.11	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.11	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.11	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.57	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	5.23	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	5.23	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	5.23	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	5.23	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.57	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.57	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	5.23	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.05	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.05	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.05	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.05	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.05	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.05	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.05	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.05	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.05	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.05	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.05	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.05	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.05	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.05	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.05	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.05	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.05	7.6	477.59	1.97	0.61

Table C.2 - MZX PM_{10} Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.0176	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.0176	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.0176	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.0176	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.0176	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.0176	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.0176	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.0176	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.0176	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.0176	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.0176	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.0176	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.0176	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.0176	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.0176	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.0176	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0088	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.0088	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.0088	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.0088	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.0088	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0088	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0088	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0088	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0088	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0088	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0088	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0088	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0088	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0088	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0088	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0088	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0088	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.0214	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.0214	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.0214	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.0214	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.0214	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.0214	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.0214	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.0214	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0003	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0003	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0003	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0003	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61

Table C.3 - MZX SO_2 Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.1323	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.1323	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.1323	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.1323	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.1323	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.1323	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.1323	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.1323	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.1323	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.1323	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.1323	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.1323	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.1323	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.1323	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.1323	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.1323	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0630	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.0630	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.0630	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.0630	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.0630	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0630	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0630	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0630	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0630	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0630	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0630	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0630	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0630	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0630	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0630	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0630	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0630	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.1625	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.1625	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.1625	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.1625	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.1625	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.1625	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.1625	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.1625	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0004	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0004	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0004	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0004	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0004	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0004	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0004	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0004	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0004	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0004	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0004	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0004	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0004	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0004	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0004	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0004	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0004	7.6	477.59	1.97	0.61

Table C.4 - MZX NO_2 Point Sources (1-hr Averaging Period)

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.82	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.38	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.82	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.38	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.38	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.38	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.38	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.38	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.82	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.82	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.82	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.38	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.38	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.38	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.38	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.38	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.18	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.28	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.18	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.28	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.18	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.28	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.18	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.18	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.18	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.18	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.28	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.18	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.28	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.18	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.18	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.18	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.18	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.47	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	2.58	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	2.58	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	2.58	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	2.58	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.47	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.47	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	2.58	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.03	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.03	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.03	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.03	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61

Table C.4b - MZX NO_2 Point Sources (Annual Averaging Period)

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.34	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.34	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.34	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.34	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.34	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.34	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.34	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.34	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.34	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.34	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.34	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.34	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.34	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.34	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.34	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.34	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.16	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.16	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.16	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.16	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.16	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.16	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.16	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.16	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.16	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.16	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.16	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.16	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.16	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.16	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.16	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.16	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.16	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.46	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.46	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.46	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.46	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.46	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.46	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.46	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.46	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.03	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.03	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.03	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.03	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.03	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.03	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.03	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.03	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.03	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.03	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.03	7.6	477.59	1.97	0.61

Table C.5 - MZX $PM_{2.5}$ Point Sources

Model ID	Description	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TUR18	350	770,118.3	3,874,628.4	259.1	0.0176	24.4	740.37	22.42	3.35
TUR19	350	770,118.3	3,874,661.6	264.9	0.0176	24.4	740.37	22.42	3.35
TUR20	350	770,118.3	3,874,694.8	268.5	0.0176	24.4	740.37	22.42	3.35
TUR21	350	770,118.3	3,874,728.0	288.0	0.0176	24.4	740.37	22.42	3.35
TUR22	350	770,118.3	3,874,761.2	288.5	0.0176	24.4	740.37	22.42	3.35
TUR23	350	770,118.3	3,874,794.4	289.3	0.0176	24.4	740.37	22.42	3.35
TUR24	350	770,262.3	3,874,777.6	292.1	0.0176	24.4	740.37	22.42	3.35
TUR25	350	770,262.3	3,874,810.8	292.0	0.0176	24.4	740.37	22.42	3.35
TUR26	350	770,227.4	3,874,618.7	273.7	0.0176	24.4	740.37	22.42	3.35
TUR27	350	770,227.4	3,874,651.9	273.4	0.0176	24.4	740.37	22.42	3.35
TUR28	350	770,227.4	3,874,685.1	267.7	0.0176	24.4	740.37	22.42	3.35
TUR29	350	770,227.4	3,874,718.3	277.3	0.0176	24.4	740.37	22.42	3.35
TUR30	350	770,227.4	3,874,751.5	289.3	0.0176	24.4	740.37	22.42	3.35
TUR31	350	770,227.4	3,874,784.7	289.6	0.0176	24.4	740.37	22.42	3.35
TUR32	350	770,363.5	3,874,770.6	291.2	0.0176	24.4	740.37	22.42	3.35
TUR33	350	770,363.5	3,874,803.8	291.5	0.0176	24.4	740.37	22.42	3.35
TUR1	130	770,262.4	3,874,613.0	285.6	0.0088	15.2	766.48	21.46	2.74
TUR2	130	770,369.4	3,874,613.0	268.6	0.0088	15.2	766.48	21.46	2.74
TUR3	130	770,262.4	3,874,629.5	286.7	0.0088	15.2	766.48	21.46	2.74
TUR4	130	770,369.4	3,874,629.5	269.0	0.0088	15.2	766.48	21.46	2.74
TUR5	130	770,262.4	3,874,646.0	287.2	0.0088	15.2	766.48	21.46	2.74
TUR6	130	770,369.4	3,874,646.0	270.5	0.0088	15.2	766.48	21.46	2.74
TUR7	130	770,262.4	3,874,662.5	285.6	0.0088	15.2	766.48	21.46	2.74
TUR8	130	770,369.4	3,874,662.5	273.5	0.0088	15.2	766.48	21.46	2.74
TUR9	130	770,262.4	3,874,679.0	281.7	0.0088	15.2	766.48	21.46	2.74
TUR10	130	770,369.4	3,874,679.0	277.9	0.0088	15.2	766.48	21.46	2.74
TUR11	130	770,262.4	3,874,695.5	278.4	0.0088	15.2	766.48	21.46	2.74
TUR12	130	770,369.4	3,874,695.5	283.4	0.0088	15.2	766.48	21.46	2.74
TUR13	130	770,261.8	3,874,716.5	277.8	0.0088	15.2	766.48	21.46	2.74
TUR14	130	770,368.8	3,874,716.5	289.1	0.0088	15.2	766.48	21.46	2.74
TUR15	130	770,261.8	3,874,733.0	288.2	0.0088	15.2	766.48	21.46	2.74
TUR16	130	770,368.8	3,874,733.0	290.5	0.0088	15.2	766.48	21.46	2.74
TUR17	130	770,261.8	3,874,749.5	290.6	0.0088	15.2	766.48	21.46	2.74
TUR34	Proenergy	770,194.0	3,875,130.1	288.7	0.0214	21.3	617.59	23.77	3.05
TUR35	Proenergy	770,194.0	3,875,150.5	288.6	0.0214	21.3	617.59	23.77	3.05
TUR36	Proenergy	770,194.0	3,875,063.3	288.8	0.0214	21.3	617.59	23.77	3.05
TUR37	Proenergy	770,194.0	3,875,083.2	288.7	0.0214	21.3	617.59	23.77	3.05
TUR38	Proenergy	770,194.0	3,874,994.9	288.6	0.0214	21.3	617.59	23.77	3.05
TUR39	Proenergy	770,194.0	3,875,016.2	288.4	0.0214	21.3	617.59	23.77	3.05
TUR40	Proenergy	770,194.0	3,874,927.5	288.4	0.0214	21.3	617.59	23.77	3.05
TUR41	Proenergy	770,194.0	3,874,949.9	288.4	0.0214	21.3	617.59	23.77	3.05
PLUM2	PLUM2	770,159.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3	PLUM3	770,249.0	3,874,845.0	290.6	0.0003	7.6	477.59	1.97	0.61
PLUM4	PLUM4	770,159.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7	PLLUM7	770,189.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8	PLUM8	770,129.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9	PLUM9	770,189.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10	PLUM10	770,129.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1	PLUM1	770,249.0	3,874,865.0	290.2	0.0003	7.6	477.59	1.97	0.61
PLUM5	PLUM5	770,219.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6	PLUM6	770,219.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61
PLUM2B	PLUM2	770,161.0	3,874,865.0	288.3	0.0003	7.6	477.59	1.97	0.61
PLUM3B	PLUM3	770,251.0	3,874,845.0	290.7	0.0003	7.6	477.59	1.97	0.61
PLUM4B	PLUM4	770,161.0	3,874,845.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM7B	PLLUM7	770,191.0	3,874,865.0	288.9	0.0003	7.6	477.59	1.97	0.61
PLUM8B	PLUM8	770,131.0	3,874,865.0	287.9	0.0003	7.6	477.59	1.97	0.61
PLUM9B	PLUM9	770,191.0	3,874,845.0	289.2	0.0003	7.6	477.59	1.97	0.61
PLUM10B	PLUM10	770,131.0	3,874,845.0	288.0	0.0003	7.6	477.59	1.97	0.61
PLUM1B	PLUM1	770,251.0	3,874,865.0	290.4	0.0003	7.6	477.59	1.97	0.61
PLUM5B	PLUM5	770,221.0	3,874,865.0	288.7	0.0003	7.6	477.59	1.97	0.61
PLUM6B	PLUM6	770,221.0	3,874,845.0	289.1	0.0003	7.6	477.59	1.97	0.61

Table C.6 - Offsite NO_2 Point Sources

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
RKLNA	Arcosa LW BR, LLC	746,870.0	3,888,350.0	66.48	8.48E+00	30.48	329.82	21.88	1.52
RKLNB	Arcosa LW BR, LLC	746,870.0	3,888,370.0	66.57	1.07E+00	24.38	327.59	12.19	0.76
RKLNC	Arcosa LW BR, LLC	746,850.0	3,888,350.0	66.16	5.73E+00	30.48	329.82	21.88	1.52
MSNOX1	Texas Gas Transmissions LLC	759,098.0	3,865,424.0	62.77	1.05E+00	12.19	766.67	17.37	1.83
MSNOX3	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	6.79E+00	9.45	622.22	48.77	0.49
MSNOX4	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	7.90E+00	9.45	622.22	48.77	0.49
MSNOX5	Texas Gas Transmissions LLC	759,024.0	3,865,329.0	62.49	7.45E+00	9.45	622.22	48.77	0.49
MSNOX6	Texas Gas Transmissions LLC	759,025.0	3,865,298.0	62.39	8.07E+00	9.45	622.22	48.77	0.49
MSNOX7	Texas Gas Transmissions LLC	759,000.0	3,865,298.0	62.58	4.21E+00	9.45	583.33	32.61	0.58
MSNOX8	Texas Gas Transmissions LLC	759,000.0	3,865,298.0	62.58	3.65E+00	9.45	583.33	32.61	0.58
MSNOX9	Texas Gas Transmissions LLC	759,001.0	3,865,267.0	62.56	3.88E+00	9.45	583.33	32.61	0.58
MSNOX10	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX11	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX12	Texas Gas Transmissions LLC	758,999.0	3,865,328.0	62.69	1.97E+00	5.79	751.67	24.69	0.20
MSNOX15	Texas Gas Transmissions LLC	759,124.0	3,865,394.0	62.94	4.66E-02	6.71	533.33	3.05	0.61
MSNOX16	Texas Gas Transmissions LLC	759,075.0	3,865,331.0	62.67	2.65E-02	4.27	533.33	3.05	0.46
MSNOX18	Texas Gas Transmissions LLC	758,974.0	3,865,297.0	63.03	6.30E-03	6.71	533.33	7.01	0.15
MSNOX19	Baptist Memorial Hospital	774,141.9	3,873,758.5	94.18	2.08E+00	3.05	0.00	0.01	0.30
MSNOX20A	JT Shannon Lumber Co.	771,492.4	3,871,923.5	87.85	4.10E-01	10.67	491.67	12.19	0.76
MSNOX20B	JT Shannon Lumber Co.	771,491.3	3,871,905.1	87.65	4.00E-02	15.24	491.67	12.19	0.61
MSNOX21	TVA Southaven	770,302.0	3,876,411.3	85.86	3.04E+00	45.72	361.11	20.73	5.49
MSNOX22	TVA Southaven	770,302.0	3,876,358.5	85.87	3.04E+00	45.72	361.11	20.73	5.49
MSNOX23	TVA Southaven	770,302.0	3,876,305.4	85.90	3.04E+00	45.72	361.11	20.73	5.49
MSNOX24	TVA Southaven	770,334.9	3,876,306.2	85.90	2.12E-01	27.74	561.11	10.09	0.66
MSNOX26	Rite Hite Products	773,278.0	3,872,067.0	82.76	1.45E-01	3.05	0.00	0.01	0.30
MSNOX27	Trunkline Gas Co., LLC	792,126.3	3,848,740.9	102.88	1.28E+01	11.58	672.22	14.93	0.61
MSNOX28	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX29	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX30	Trunkline Gas Co., LLC	792,100.3	3,848,740.3	102.91	1.28E+01	11.58	672.22	14.93	0.61
MSNOX31	Trunkline Gas Co., LLC	792,076.1	3,848,708.8	105.66	1.15E+01	11.89	672.22	50.90	0.41
MSNOX32	Trunkline Gas Co., LLC	792,076.1	3,848,708.8	105.66	1.15E+01	11.89	672.22	50.90	0.41
MSNOX33	Trunkline Gas Co., LLC	792,051.2	3,848,707.3	106.59	1.15E+01	11.89	672.22	50.90	0.41
MSNOX34	Trunkline Gas Co., LLC	792,121.1	3,848,894.9	106.78	5.42E+01	14.02	672.22	9.14	1.83
MSNOX35	Trunkline Gas Co., LLC	792,168.6	3,848,988.9	102.02	3.02E-02	6.10	866.67	34.14	0.25
MSNOX36	Trunkline Gas Co., LLC	792,002.7	3,848,613.2	105.56	2.52E-02	1.22	1005.56	2.01	0.15
MSNOX37	Trunkline Gas Co., LLC	792,049.3	3,848,738.3	106.54	1.89E-02	4.57	644.44	30.48	0.30
MSNOX38	Trunkline Gas Co., LLC	792,049.3	3,848,738.3	106.54	1.89E-02	4.57	644.44	30.48	0.30
MSNOX39	Trunkline Gas Co., LLC	792,144.4	3,848,957.4	102.98	1.89E-02	4.57	644.44	30.48	0.30
MSNOX40	Trunkline Gas Co., LLC	792,200.6	3,848,805.4	100.70	2.52E-03	3.05	644.44	30.48	0.30
MSNOX41	Trunkline Gas Co., LLC	792,174.6	3,848,803.9	103.15	2.52E-03	3.05	644.44	30.48	0.30
MSNOX42	Trunkline Gas Co., LLC	792,002.7	3,848,613.2	105.56	1.51E-02	3.05	255.56	0.01	0.30
MSNOX43	Niteo Products LLC	776,541.5	3,856,525.0	110.92	1.59E-01	3.05	491.67	12.19	0.30
MSNOX44	Nidec Motor Corporation	773,683.0	3,868,716.0	96.56	1.64E-03	3.05	491.67	12.19	0.30
MSNOX45	SXP Shulz Xtruded Products	776,679.0	3,857,023.2	120.15	1.27E-01	3.05	491.67	12.19	0.30
MSNOX46	Evercompounds LLC	786,112.0	3,876,564.4	97.80	1.76E-02	3.05	491.67	12.19	0.30
TNNOX01	TVA Allen	760,344.0	3,884,227.0	66.15	5.36E+00	53.30	359.00	17.30	6.71
TNNOX02	TVA Allen	760,341.0	3,884,181.0	66.23	5.36E+00	53.30	359.00	17.30	6.71
TNNOX03	TVA Allen	760,309.0	3,884,139.0	66.28	2.00E+00	15.20	526.00	10.40	1.22
TNNOX04	TVA Allen	760,061.0	3,884,120.0	65.22	1.10E-01	4.57	679.00	19.80	0.41
TNNOX05	TVA Allen	760,061.0	3,884,116.0	65.19	1.10E-01	4.57	679.00	19.80	0.41
TNNOX06	TVA Allen	760,060.0	3,884,112.0	65.15	1.10E-01	4.57	679.00	19.80	0.41
TNNOX07	Valero Refining Co. TN, LLC	765,865.3	3,886,440.0	70.57	1.10E+00	30.50	616.48	6.10	3.20
TNNOX08	Valero Refining Co. TN, LLC	765,925.9	3,886,526.1	70.60	5.60E-01	44.20	588.71	7.80	1.68
TNNOX09	Valero Refining Co. TN, LLC	765,810.2	3,886,325.6	69.57	3.78E+00	86.00	449.82	7.00	4.21
TNNOX10	Valero Refining Co. TN, LLC	765,882.7	3,886,436.5	70.33	1.05E+00	46.60	616.48	7.90	2.35
TNNOX11	Valero Refining Co. TN, LLC	765,882.7	3,886,436.5	70.33	8.40E-01	46.60	616.48	7.90	2.35
TNNOX12	Valero Refining Co. TN, LLC	765,934.7	3,886,525.9	70.58	3.10E-01	35.10	616.48	9.20	1.13
TNNOX13	Valero Refining Co. TN, LLC	765,915.3	3,886,526.5	70.63	3.90E-01	30.50	616.48	6.10	0.98
TNNOX14	Valero Refining Co. TN, LLC	765,879.8	3,886,539.2	70.68	8.60E-01	45.70	644.26	8.80	1.59
TNNOX15	Valero Refining Co. TN, LLC	766,004.1	3,886,486.6	69.55	1.48E+00	29.00	605.37	5.50	1.68
TNNOX16	Valero Refining Co. TN, LLC	766,010.9	3,886,530.7	70.99	1.05E+00	49.70	605.37	6.10	2.65
TNNOX17	Valero Refining Co. TN, LLC	765,952.0	3,886,443.6	69.73	8.00E-02	16.80	644.26	4.90	0.61
TNNOX18	Valero Refining Co. TN, LLC	765,962.8	3,886,436.8	69.69	1.80E-01	53.30	866.48	5.80	0.76
TNNOX19	Valero Refining Co. TN, LLC	765,936.4	3,886,430.3	70.12	1.35E+00	53.30	533.15	9.10	2.13
TNNOX20	Valero Refining Co. TN, LLC	765,827.7	3,886,336.7	69.53	3.30E-01	40.50	572.04	6.10	1.37
TNNOX21	Valero Refining Co. TN, LLC	765,965.9	3,886,523.3	70.35	4.00E-01	34.10	605.37	14.50	1.37
TNNOX22	Valero Refining Co. TN, LLC	765,715.2	3,886,522.6	73.07	1.30E-01	30.50	615.93	6.00	1.07

Table C.6 - Offsite NO_2 Point Sources (continued)

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TNNOX23	Valero Refining Co. TN, LLC	766,075.0	3,886,382.2	68.77	1.30E-01	45.70	866.48	15.50	0.76
TNNOX24	Valero Refining Co. TN, LLC	765,877.3	3,886,329.4	69.50	1.40E-01	33.50	699.82	7.90	1.10
TNNOX25	Valero Refining Co. TN, LLC	765,877.3	3,886,329.4	69.50	1.80E-01	36.60	720.93	8.30	1.13
TNNOX26	Valero Refining Co. TN, LLC	766,054.7	3,886,374.1	68.76	7.96E+00	53.30	399.26	13.80	1.86
TNNOX27	Valero Refining Co. TN, LLC	765,796.2	3,886,171.5	71.36	1.77E+00	30.50	427.59	12.70	2.29
TNNOX28	Valero Refining Co. TN, LLC	765,834.5	3,886,597.9	70.71	6.10E+00	60.80	337.04	13.60	3.05
TNNOX29	Valero Refining Co. TN, LLC	765,409.8	3,886,431.1	69.62	4.80E-01	18.30	422.04	20.00	0.24
TNNOX30	Valero Refining Co. TN, LLC	766,729.6	3,886,458.0	68.64	2.20E-01	18.30	848.59	3.30	3.66
TNNOX31	Valero Refining Co. TN, LLC	765,456.4	3,886,496.4	71.27	1.57E+00	64.00	1273.15	20.00	2.02
TNNOX32	Valero Refining Co. TN, LLC	765,364.9	3,886,273.6	68.50	1.62E+00	61.00	1273.15	20.00	1.17
TNNOX33	Nucor, Inc.	758,505.0	3,881,388.9	64.92	1.13E+00	60.96	683.15	10.06	1.83
TNNOX34	Nucor, Inc.	758,990.4	3,881,254.3	63.97	3.50E-01	24.38	560.93	8.53	0.91
TNNOX35	Nucor, Inc.	758,921.9	3,881,254.3	64.08	5.60E-01	30.48	644.26	9.75	1.22
TNNOX36	Nucor, Inc.	758,430.1	3,882,122.1	65.33	6.74E+00	51.51	380.37	13.68	6.10
TNNOX37	Nucor, Inc.	758,747.5	3,882,204.2	64.97	2.15E+00	59.95	689.43	10.49	2.25
TNNOX38	Nucor, Inc.	758,601.0	3,882,148.2	65.17	1.30E-01	8.23	505.40	0.01	0.98
TNNOX39	Nucor, Inc.	758,579.3	3,882,125.1	65.21	1.30E-01	46.02	1273.00	20.00	1.55
TNNOX40	Nucor, Inc.	758,458.0	3,881,886.0	65.03	2.60E-01	1.98	422.04	15.24	0.15
TNNOX41	Nucor, Inc.	759,172.7	3,882,296.5	64.19	2.80E-01	9.45	366.48	9.14	0.61
TNNOX43	Nucor, Inc.	759,299.2	3,882,262.9	63.99	2.30E-01	9.45	366.48	9.14	0.61
TNNOX44	The Solae Company	784,455.0	3,882,172.3	88.78	3.60E-01	17.37	341.11	16.94	1.56
TNNOX45	The Solae Company	784,455.0	3,882,172.3	88.78	7.00E-01	21.33	450.00	18.00	1.07
TNNOX46	The Solae Company	784,455.0	3,882,172.3	88.78	5.60E-01	11.28	561.11	2.88	0.76
TNNOX47	The Solae Company	784,455.0	3,882,172.3	88.78	8.50E-01	20.12	433.89	13.97	1.07
TNNOX48	The Solae Company	784,455.0	3,882,172.3	88.78	5.00E-01	9.14	441.67	5.49	0.76
TNNOX49	The Solae Company	784,455.0	3,882,172.3	88.78	6.20E-01	12.19	355.56	87.31	0.10
TNNOX50	The Solae Company	784,455.0	3,882,172.3	88.78	3.20E-01	31.09	361.11	917.24	0.25
TNNOX51	The Solae Company	784,455.0	3,882,172.3	88.78	9.40E-01	35.36	362.22	43.38	1.37
TNNOX52	The Solae Company	784,455.0	3,882,172.3	88.78	9.90E-01	45.72	331.11	32.61	1.52
TNNOX53	The Solae Company	784,455.0	3,882,172.3	88.78	4.40E-01	21.33	366.67	34.35	0.92
TNNOX54	The Solae Company	784,455.0	3,882,172.3	88.78	5.30E-01	36.27	363.89	16.78	1.59
TNNOX55	The Solae Company	784,455.0	3,882,172.3	88.78	5.30E-01	36.27	363.89	16.78	1.59
TNNOX56	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.00E-01	11.12	447.22	0.01	0.71
TNNOX57	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.80E-01	11.83	447.22	2.97	0.61
TNNOX58	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.21E+00	14.63	466.67	3.96	1.37
TNNOX59	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.04E+00	16.46	466.67	4.72	1.22
TNNOX60	PMC Biogenix	776,904.6	3,895,730.0	79.60	5.80E-01	15.24	466.67	3.20	1.22
TNNOX61	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.40E-01	18.29	461.11	0.91	0.56
TNNOX62	PMC Biogenix	776,904.6	3,895,730.0	79.60	7.00E-02	18.29	461.11	0.91	0.56
TNNOX63	PMC Biogenix	776,904.6	3,895,730.0	79.60	2.00E-02	6.40	461.11	0.52	0.36
TNNOX64	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.50E-01	12.19	477.78	9.14	1.01
TNNOX65	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.00E-01	35.05	461.11	0.24	1.22
TNNOX66	PMC Biogenix	776,904.6	3,895,730.0	79.60	9.00E-02	30.48	497.22	1.52	0.46
TNNOX67	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	10.67	497.22	0.49	0.76
TNNOX68	PMC Biogenix	776,904.6	3,895,730.0	79.60	6.00E-02	6.80	497.22	0.91	0.52
TNNOX69	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	6.86	497.22	0.79	0.46
TNNOX70	PMC Biogenix	776,904.6	3,895,730.0	79.60	4.00E-02	6.86	497.22	0.49	0.76
TNNOX71	PMC Biogenix	776,904.6	3,895,730.0	79.60	1.20E-01	7.77	497.22	0.79	0.76
TNNOX72	Memphis Cellulose LLC	776,829.8	3,895,012.5	78.60	3.45E+00	16.76	597.22	14.57	1.43
TNNOX73	Memphis Cellulose LLC	776,826.2	3,895,012.4	78.77	2.40E-01	5.36	495.00	12.19	0.38
TNNOX74	Memphis Cellulose LLC	776,826.2	3,895,012.4	78.77	2.52E+00	9.14	255.56	12.19	1.00
TNNOX75	Memphis Cellulose LLC	776,829.8	3,895,012.5	78.60	3.45E+00	18.29	527.78	13.50	1.31
TNNOX76	Covoro Mining Solutions, LLC	774,854.0	3,906,740.9	72.72	1.80E-01	21.33	288.89	19.51	0.10
TNNOX77	Covoro Mining Solutions, LLC	774,826.8	3,906,801.8	73.04	8.11E+01	25.91	533.33	39.62	0.76
TNNOX78	Covoro Mining Solutions, LLC	774,826.8	3,906,801.8	73.04	1.43E+01	25.91	288.89	35.05	1.07
TNNOX79	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX80	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX81	Covoro Mining Solutions, LLC	774,852.1	3,906,802.6	73.04	1.86E+00	10.67	558.33	39.62	0.61
TNNOX82	Covoro Mining Solutions, LLC	774,882.1	3,906,649.3	72.76	4.00E-02	15.24	288.89	4.57	0.15
TNNOX83	Covoro Mining Solutions, LLC	775,002.8	3,906,838.0	72.86	1.80E-01	13.72	433.33	14.02	0.30
TNNOX84	Covoro Mining Solutions, LLC	774,850.2	3,906,864.2	72.94	3.43E+00	30.48	422.22	7.92	2.13
TNNOX85	Covoro Mining Solutions, LLC	774,850.2	3,906,864.2	72.94	3.43E+00	30.48	422.22	7.92	2.13
TNNOX86	Covoro Mining Solutions, LLC	774,875.5	3,906,865.0	72.88	6.76E+00	30.48	452.22	3.81	1.45
TNNOX87	Covoro Mining Solutions, LLC	774,900.7	3,906,865.7	72.81	6.76E+00	18.29	452.22	13.41	1.45
TNNOX88	Federal Express Corporation	776,470.9	3,884,522.5	77.46	2.10E-01	22.86	505.56	11.19	0.46
TNNOX89	Federal Express Corporation	776,470.9	3,884,522.5	77.46	1.55E+00	22.86	505.56	11.19	0.46
TNNOX92	Federal Express Corporation	776,470.9	3,884,522.5	77.46	3.60E-01	22.86	505.56	11.19	0.46

Table C.6 - Offsite NO_2 Point Sources (continued)

Model ID	Facility ID	UTM x (m)	UTM y (m)	Elevation (m)	Emission Rate (g/s)	Stack Height (m)	Stack Temp (K)	Stack Velocity (m/s)	Stack Diameter (m)
TNNOX95	Federal Express Corporation	776,470.9	3,884,522.5	77.46	4.90E-01	9.14	422.22	12.19	1.00
TNNOX96	MSC Airport Authority	775,512.4	3,882,140.2	89.61	8.50E-01	9.14	422.22	12.19	1.00
TNNOX97	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX98	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX99	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX100	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX101	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00
TNNOX102	Methodist South Hospital	771,719.0	3,880,775.0	86.21	1.00E-02	9.14	422.22	12.19	1.00

APPENDIX D. ELECTRONIC MODELING FILES