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PSD AIR PERMIT APPLICATION
Modeling Report

Greenfield Steel Mill

NUCOR®

Nucor / Apple Grove, WV Plant

March 2022

Project 213601.0130

Trinity Consultants

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1. EXECUTIVE SUMMARY

Nucor is proposing to construct a greenfield steel making plant in Apple Grove, West Virginia. The proposed project requires a Prevention of Significant Deterioration (PSD) permit as a new PSD major source. Projected-related emissions increases are anticipated to exceed the PSD significant emission rate (SER) thresholds for particulate matter (PM), particulate matter with an aerodynamic diameter of 10 microns (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns ($PM_{2.5}$), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), volatile organic compounds (VOCs), and greenhouse gases (GHG) in terms of carbon dioxide equivalents (CO_2e).[1] This report details the air quality analysis that was completed in support of the PSD permit application.

The area immediately surrounding the proposed facility is designated as attainment for all applicable National Ambient Air Quality Standards (NAAQS) and is designated as Class II in terms of its PSD area classification.[2] The PSD permitting requirements therefore require a Class II air quality analysis for PM_{10}, $PM_{2.5}$, CO, SO_2, NO_2, and lead. Additionally, analyses are required for secondary $PM_{2.5}$ and ozone when emissions of precursor pollutants exceed the applicable PSD Significant Emission Rates (SERs). Finally, two Class I areas, namely Otter Creek Wilderness and Dolly Sods Wilderness, are located within 300 kilometers (km) of the proposed project. Therefore, a Class I SIL analysis was performed to assess the potential impact of the proposed project on these Class I areas.

In summary, this air quality analysis demonstrates for the Class II area that emissions of the applicable pollutants from the proposed project will not: 1) Cause or significantly contribute to a violation of the NAAQS; 2) Cause or significantly contribute to a violation of incremental standards; or 3) Cause any other adverse impacts to the surrounding area (i.e., impacts on soil and vegetation, visibility degradation, etc.). As detailed in the air dispersion modeling protocol that was submitted to and approved by WVDEP,[3] the methodologies discussed in this report are consistent with applicable guidance provided at both the state and federal level for PSD projects.

The results of the air quality analysis presented in this report can be summarized as follows:

- The proposed project does not cause any ambient impacts of CO above either the 1-hr or 8-hr Class II Significant Impact Level (SIL).
- Maximum ambient impacts of SO_2 are estimated to be above the SILs for the 1-hr and 24-hr averaging periods. The proposed project does not cause or contribute to any exceedance of the 1-hr SO_2 NAAQS. Impacts are also below all applicable Class II PSD Increments for SO_2.
- Maximum ambient impacts of NO_2 are estimated to be above the SILs for both the 1-hr and annual averaging periods. The proposed project does not cause or contribute to any exceedance of the 1-hr or annual NO_2 NAAQS. Impacts are also below all applicable Class II PSD Increments for NO_2.
- Maximum ambient impacts of PM_{10} are estimated to be above the SILs for both the 24-hr and annual averaging periods. Impacts are below all applicable NAAQS and Class II PSD Increments.
- Maximum ambient impacts of $PM_{2.5}$ are estimated to be above the SILs for both the 24-hr and annual averaging period. Impacts are below the annual and 24-hr NAAQS. Additionally, impacts are below the Class II PSD Increments.

[1] For this project, CO_2e denotes carbon dioxide equivalents and is calculated as the sum of the four well-mixed GHGs (CO_2, CH_4, N_2O, and SF_6) with applicable global warming potentials per 40 CFR 98 applied.

[2] Attainment designations can be found at 40 CFR 81.349.

[3] Protocol approval sent via e-mail from Jon McClung of WVDEP to William Bruscino of Trinity Consultants on 1/13/2022.

- Maximum ambient impacts of lead are below the Rolling 3-Month Average NAAQS.
- Maximum ambient impacts of the proposed project on the formation of ozone result in impacts below the NAAQS.
- Maximum ambient impacts of secondary $PM_{2.5}$, when combined with concentrations from emissions of direct $PM_{2.5}$, are below NAAQS and Class II PSD Increments.
- The proposed project does not cause any ambient impacts of NO_2, SO_2, $PM_{2.5}$, or PM_{10} above their respective Class I SILs.

Nucor will provide all relevant model input and output files associated with this air quality analysis to WVDEP.

2. PSD MODELING PROCEDURES

The following sections detail the methods and models used to demonstrate that the proposed project will not cause or contribute to a violation 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 approved modeling protocol:[4]

- *Guideline on Air Quality Models* 40 CFR 51, Appendix W (EPA, Revised, January 17, 2017)
- User's Guide for the AMS/EPA Regulatory Model – AERMOD, (EPA, April 2021)
- AERMOD Implementation Guide (EPA, July 2021)
- 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)
- *Draft Guidance for Ozone and Fine Particulate Matter Modeling* (EPA, Memorandum from Mr. Richard A. Wayland, February 10, 2020)
- 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, December 2, 2016) and associated errata document (February 2017)
- 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)
- 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, June 22, 2007)

Part C of Title I of the Clean Air Act, 42 U.S.C. §§7470-7492, is the statutory basis for the PSD program. EPA has codified 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. Mason County, where the facility will be located, is currently designated as "attainment" or "unclassifiable" for all criteria pollutants.[5]

The proposed greenfield project is considered a new major source under PSD since at least one pollutant exceeds the PSD major source threshold, and the proposed project emissions increases for other criteria pollutants and GHGs exceed their respective PSD SERs.

[4] Protocol approval sent via e-mail from Jon McClung of WVDEP to William Bruscino of Trinity Consultants on 1/13/2022.

[5] 40 CFR 81.349

The project emission rates trigger PSD permitting for multiple criteria pollutants with established Significant Impact Levels (SILs), NAAQS, and/or PSD Increment standards, specifically CO, SO_2, NO_2, Lead, PM_{10}, and $PM_{2.5}$.[6] The project also triggers PSD permitting for NOx and VOC, which are precursors to ozone, for which a SIL and NAAQS have been established. Because sources and emissions in the proposed project are subject to the ambient air quality assessment requirements of the PSD program, modeling is required to meet specific objectives. Modeling will be used to demonstrate that emissions of CO, SO_2, NO_2, Lead, PM_{10}, and $PM_{2.5}$ pollutants after the proposed project is completed will not:

1) cause or significantly contribute to a violation of the NAAQS,

2) cause or significantly contribute to ambient concentrations that are greater than allowable PSD Increments, or

3) cause any other additional adverse impacts to the surrounding area (i.e., impairment to visibility, soils and vegetation and air quality impacts from general commercial, residential, industrial, and other growth associated with the facility expansion).

To facilitate this analysis (and allow it to be commensurate with the requirements to which the WVDEP adheres), dispersion modeling methodologies will be followed that are consistent with EPA procedures specified in the *Guideline on Air Quality Models (Guideline)*.[7]

2.1 Class II Significance and NAAQS Analysis

The Significance Analysis was conducted to determine whether the emissions associated with the proposed new construction could cause a significant impact upon the area surrounding the facility. "Significant" impacts are defined by design concentration thresholds commonly referred to as the Significant Impact Level (SIL).

For this project, as a greenfield site, significance modeling includes all new facility emission units at their potential to emit emission rates. The only exception is that only the worst-case emergency equipment (e.g., emergency generator) was modeled as part of the significance analysis. Refer to Section 3.4 for additional details about this approach.

Table 2-1 lists the SIL, NAAQS, and Class II PSD Increments for all relevant NSR regulated pollutants for this project which will be undergoing PSD permitting.[8]

[6] The pollutants PM, VOC and CO_{2e} currently have no effective NAAQS or PSD Increment standards.

[7] 40 CFR 51, Appendix W, *Guideline on Air Quality Models*, and 45 CSR 14-10

[8] Class I analyses are addressed in Sections 5. Neither PM nor CO_{2e} have any applicable NAAQS or PSD Increment standards.

Table 2-1. Significant Impact Levels, NAAQS, PSD Class II Increments, and Significant Monitoring Concentrations for Relevant Criteria Air Pollutants

Pollutant	Averaging Period	PSD Class II SIL (µg/m³)	Primary NAAQS (µg/m³)	Secondary NAAQS (µg/m³)	Class II PSD Increment (µg/m³)	Significant Monitoring Concentration (µg/m³)
PM_{10}	24-hr	5	150 (1)	--	30	10
	Annual	1	--	--	17	--
$PM_{2.5}$	24-hr	1.2 (2)	35 (4)	--	9 (3)	-- (2)
	Annual	0.2 (2)	12 (5)	15	4 (3)	--
NO_2	1-hr	7.5	188 (6)	--	N/A	--
	Annual	1	100 (7)	100	25	14
SO_2	1-hr	7.8	196 (8)	--	--	--
	3-hr	25	--	1,300 (9)	512 (9)	--
	24-hr	5	--	--	91 (9)	13
	Annual	1	--	--	20 (7)	--
CO	1-hr	2,000	40,000 (9)	--	N/A	--
	8-hr	500	10,000 (9)	--	N/A	575
Ozone (10)	8-hr	1 ppb	70 ppb	70 ppb	N/A	--
Lead	Rolling 3-Month Avg.	--	0.15	0.15	--	0.1

(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, Significant Monitoring Concentrations (SMCs), 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 and SMCs 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 vacated the SMC and remanded the SIL values back to EPA for reconsideration. EPA has provided guidance (August 2016) and a finalized memo (April 2018) which recommended use of a 24-hr $PM_{2.5}$ SIL of 1.2 µg/m³, and an annual SIL of 0.2 µg/m³. EPA responded to the vacature of the SMCs by indicating that existing background monitors should be sufficient to fulfill the ambient monitoring requirements for $PM_{2.5}$.

(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-hr 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).

(8) 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations (highest fourth high modeled output).

(9) Not to be exceeded more than once per calendar year (highest second high modeled output).

(10) Ozone addressed through evaluation of the MERPs, as discussed in Section 7.1.

The highest modeled concentrations (H1H) from all given modeling years for each pollutant-averaging time is compared to the SIL level shown in Table 2-1 to determine if the ambient air impact is significant.[9] In the case of 24-hr and annual $PM_{2.5}$, 1-hr NO_2, and 1-hr SO_2 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.[10]

When the highest modeled concentrations (H1H) are less than the applicable SIL, further analyses (NAAQS and PSD Increment) are not required for that pollutant-averaging period. 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 following modeling output options for each PSD triggering pollutant and averaging period were used to determine the design concentration in the NAAQS analysis:

- The modeled maximum annual arithmetic mean over the full five years was used to demonstrate compliance with the annual NO_2 standard.
- The five-year average of the 98th percentile daily maximum (i.e., 8th highest over full five years) 1-hr concentration was used to demonstrate compliance with the 1-hr NO_2 standard.
- The modeled maximum sixth-highest 24-hour concentration over the full five years was used to demonstrate compliance with the 24-hr PM_{10} standard.
- The five-year average of the 98th percentile daily maximum (i.e., 8th highest over full five years) 24-hr concentration was used to demonstrate compliance with the 24-hr $PM_{2.5}$ standard.
- The modeled annual maximum arithmetic mean impact at each receptor averaged over the full 5 years was used to demonstrate compliance with the annual $PM_{2.5}$ standard.
- The five-year average of the 99th percentile daily maximum (i.e., 4th highest over full five years) 1-hr concentration was used to demonstrate compliance with the 1-hr SO_2 standard.
- The modeled maximum 3-month rolling arithmetic mean concentration from among the five years were used to demonstrate compliance with the Rolling 3-Month Average Lead standards using LEADPOST software developed by U.S. EPA.[11]

2.2 Class II Increment Analysis

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. SO_2, NO_2, PM_{10}, and $PM_{2.5}$ modeling yielded impacts in excess of the SIL and as such, a refined Class II Increment analysis was completed to demonstrate compliance with the Class II increments for SO_2, NO_2, PM_{10}, and $PM_{2.5}$ (shown in Table 2-1).

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[9] Ozone is addressed through application of the MERPs as discussed in Section 7.1 and is not directly modeled. Also, for $PM_{2.5}$, the secondary $PM_{2.5}$ from applicable precursor pollutants (e.g., NO_X and SO_2) will be added to the modeled impacts for comparison to the SILs, as addressed through the MERPs discussed in Section 7.2**Error! Reference source not found.**.

[10] EPA modeling guidance for $PM_{2.5}$ (February 2020) has indicated that the same modeling procedures for the NAAQS SIL analysis should be used for the Increment SIL analysis.

[11] https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

The following modeling output options for each PSD triggering pollutant and averaging period were used to determine the design concentration in the incremental analyses:

- The modeled maximum first-highest annual concentrations over the full five years were used to demonstrate compliance with the annual NO_2, annual SO_2, annual PM_{10}, and annual $PM_{2.5}$ Class II PSD Increment standards.
- The modeled maximum second-highest 24-hour concentrations out of the five years modeled were used to demonstrate compliance with the 24-hr PM_{10}, 24-hr $PM_{2.5}$, and 24-hr SO_2 Class II Increment standards.

2.3 Background Concentrations

Ambient background monitoring concentrations are necessary for any required full NAAQS analysis for the facility. Nearby ambient background monitoring stations were reviewed, and monitors for SO_2, NO_2, PM_{10}, $PM_{2.5}$, and ozone concentrations were selected on the basis of monitor sites with data for the required pollutants, proximity, and representativeness (based on similar land use and geographical setting). The following stations were chosen as appropriately representative ambient background monitoring stations for the pollutants indicated. The monitors selected are:

- $PM_{2.5}$/Ozone/SO_2/NO_2 – Ashland Site (AQS Site ID 21-019-0017)
- PM_{10} – Ironton Site (AQS Site ID 39-087-0012)

Table 2-2 below summarizes the background concentration used in the NAAQS analysis.

Table 2-2. Selected Background Concentrations

Pollutant	Averaging Period	Monitor	Background Concentration [12] ($\mu g/m^3$)
SO_2	1-Hour	Ashland (21-019-0017)	14.83
NO_2	1-Hour	Ashland (21-019-0017)	Varies
	Annual	Ashland (21-019-0017)	8.91
$PM_{2.5}$	24-Hour	Ashland (21-019-0017)	15.57
	Annual	Ashland (21-019-0017)	7.70
PM_{10}	24-Hour	Ironton (39-087-0012)	25.33
Lead	Rolling 3-Month Avg.	--	See Discussion Below
Ozone	8-Hour	Ashland (21-019-0017)	61 ppb

2.3.1 $PM_{2.5}$/PM_{10} and Ozone Background Monitors

The Huntington site (AQS Site ID 54-011-0007) was initially proposed for ozone and $PM_{2.5}$ consideration due to its proximity, about 35 km southwest, and similar geographic location to the proposed facility. However, given that it does not yet have a complete 3-yr set of measurements, Nucor has used Ashland site (AQS Site ID 21-019-0017) since it is the second closest monitor to the proposed site. It should be noted that both 24-hr and annual background values from Ashland site are higher than the previously proposed Huntington site.

[12] Values obtained from U.S. EPA AirData: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report

For PM_{10} background, the Ironton monitor was chosen, as again it is the closest PM_{10} monitor to the proposed facility, about 45 km southwest, and has a similar geographic location adjacent to the Ohio River.

2.3.2 SO_2 and NO_2 Background Monitors

For SO_2 background, the nearest monitors to the proposed site are located in Cheshire, OH and Point Pleasant, WV, approximately 33 km north of the proposed facility and within the vicinity of the Gavin Power Plant. Given that the Gavin Power Plant is included in the regional inventory for the site, using the Cheshire or Point Pleasant monitors would result in "double-counting" of nearby source impacts. The next closest SO_2 monitor is in Ashland, KY approximately 46 km southwest of the proposed facility. The location of this monitor would not be subject to the same nearby source influences described above and is expected to provide a more representative estimate of SO_2 background. For NO_2 background, the Ashland, KY monitor is the closest NO_2 monitor to the proposed site, approximately 46 km southwest. Therefore, Nucor is proposing to use the Ashland monitoring station for both NO_2 and SO_2 background concentrations.

For pollutants where diurnal and seasonal patterns of monitored concentrations are frequently present (i.e., 1-hour NO_2, 1-hour SO_2, and 24-hour $PM_{2.5}$), Nucor evaluated the design values for each pollutant and averaging period for use in the modeling. Nucor relied on refined background concentrations in accordance with EPA guidance for the 1-hr NO_2 NAAQS analysis. For this pollutant, more refined "second tier" background concentrations were used. Concentration values that vary by season and hour of day were used for 1-hour NO_2. The temporarily varying concentration values were developed based on recommendations in current EPA guidance.[13,14]

2.3.3 Lead Background Monitors

For lead background, the nearest monitors to the proposed site are located in Marietta, OH (AQS Site ID 39-167-0008) and Columbus, OH (AQS Site ID 39-049-0039) approximately 104 km and 160 km away from the proposed facility, respectively. The design values for the Marietta monitor and Columbus monitor are 0.0 and 0.01 $\mu g/m^3$, respectively. Non-negligible lead emissions only occur from relatively few types of sources. Therefore, to account for the background concentration, Nucor has included relatively distant regional sources of lead in the NAAQS model in lieu of adding a background concentration. Nucor has included in the lead NAAQS analysis the regional sources that were included for the $PM_{2.5}$ 24-hr and Annual NAAQS analysis. More specifically, the Gavin Power Plant and Kyger Creek Power Plant which both emit lead are included in the lead NAAQS analysis.

As noted in Section 2.4 and shown in Table 6-3, the maximum rolling 3-month average concentration across the 5 year period modeled including regional sources is well below the significant monitoring concentration for lead (i.e., 0.1 $\mu g/m^3$). As such, Nucor believes that this approach conservatively accounts for the background lead concentration in the area.

2.4 Ambient Monitoring Requirements

Under current U.S. EPA policies, the maximum impacts attributable to the emissions increases from a project must be assessed against significant monitoring concentrations to determine whether pre-construction monitoring should be considered. A pre-construction air quality analysis using continuous monitoring data can be required for pollutants subject to PSD review per 40 CFR § 52.21(m). The significant

[13] https://www.epa.gov/sites/default/files/2015-07/documents/appwno2_2.pdf

[14] https://www.epa.gov/system/files/documents/2021-09/revised_draft_guidance_for_o3_pm25_permit_modeling.pdf

monitoring concentrations are provided in 40 CFR § 52.21(i)(5)(i) and are listed in Table 2.1. If either the predicted modeled impact from the proposed project or the existing ambient concentration is less than the significant monitoring concentration, the permitting agency has the discretionary authority to exempt an applicant from pre-construction ambient monitoring.

It should be noted that the maximum estimated rolling 3-month average concentration for lead from the NAAQS analysis (see Table 6-3 for summary of results) which includes regional sources is below the significant monitoring concentration of 0.1 $\mu g/m^3$. As such, Nucor is exempt from pre-construction ambient monitoring for lead.

When not exempt, an applicant may provide existing data representative of ambient air quality in the affected area or, if such data are not available, collect background air quality data. However, this requirement can be waived if representative background data have been collected and are available. To satisfy the PSD pre-construction monitoring requirements, Nucor proposes that existing monitoring data provide reasonable estimates of the background pollutant concentrations for the pollutants of concern. The representativeness of existing monitoring data was outlined further in Section 2.3. For this reason, Nucor believes that pre-construction monitoring will not be required for this project and formally requests that WVDEP waive this requirement.

3. MODELED EMISSION SOURCES

All emission sources of criteria pollutants for which PSD is triggered, with the exception of VOC and NO_X as a precursor to ozone which are assessed in the ozone impacts analysis presented in Section 7.1, were evaluated in the Class II Area PSD air quality analyses. A list of all emission sources at the proposed facility is included in Appendix B along with the corresponding source designation used in the modeling files, emission rates, and source parameters. The AERMOD dispersion model allows for emission points to be represented as point, area, or volume sources. The following subsections describe the source characterization and discharge parameters associated with each emissions source at the proposed facility.

3.1 Unobstructed Point Sources

For point sources with unobstructed vertical releases, it is appropriate to use actual stack parameters (i.e., height, diameter, discharge gas temperature, and gas exit velocity) in the modeling analyses. Appendix B provides the stack parameters for all emission sources represented as point sources.

3.2 Flare Sources

The two flares at the proposed facility (i.e., flares associated with Vacuum Tank Degasser #1 and #2) were modeled as point sources in accordance with the procedure outlined in Section 2.1.2 of the AERSCREEN User's Guide.[15]

3.3 Fugitive Sources

Fugitive emissions sources are modeled as volume sources requiring the release height, initial lateral dimension, σ_{y0}, and initial vertical dimension, σ_{z0}, to be specified as source parameters. These parameters vary depending on the volume source's characteristics such as whether it will be a surface-based or elevated source.

The fugitive sources included in this air dispersion modeling analysis include the facility roadways, Melt Shop fugitives, Cold Mill fugitives, Scrap Unloading, DRI Unloading, various Stockpiles, Slag Processing, and various material transfer operations. The release parameters for these sources were calculated in accordance with the guidance provided in Section 3.3.2.2. of AERMOD User's Guide.[16]

3.4 Emergency Equipment - Worst-Case Engine

The emergency engines at the proposed site will be load tested periodically (only a single engine would run at a given hour) and will only be run periodically over the course of the year for maintenance and readiness testing. Due to the intermittent operational run time of these units, Nucor has identified the engine that would result in worst-case offsite concentrations and included it in the SIL, Increment, and NAAQS analysis.

Nucor executed a model including just the 6 emergency engines each modeled at 1 g/s without any special option for NO_2 (i.e., without ARM2). Highest first high values for 1-hr, 3-hr, 8-hr, 24-hr, and annual averaging period for each engine were reviewed as a conservative estimation of the impacts. EMGEN6 was

[15] https://gaftp.epa.gov/Air/aqmg/SCRAM/models/screening/aerscreen/aerscreen_userguide.pdf

[16] https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf

identified to be the worst-case engine for all averaging periods. As such, only EMGEN6 was included in the SIL, Increment, and NAAQS models.

3.5 Regional Source Inventory (Class II Modeling)

Dispersion modeling for the significance analysis was conducted for all new sources using hourly or annual potential CO, SO_2, PM_{10}, $PM_{2.5}$, lead, and NO_X emission rates, where applicable, based on the averaging period of the underlying NAAQS or PSD Increment standard. As per PSD modeling requirements, for any off-site air concentration impact calculated that is greater than the SIL for a given pollutant, the radius of the significant impact area (SIA) was determined based on the extent to where the farthest receptor is located at which the SIL is exceeded. Thus, the SIA encompasses a circle centered on the facility with a radius extending out to either (1) the farthest location where the emissions of a pollutant causes a significant ambient [i.e., modeled impact above the SIL on a high-first-high (H1H) basis] or (2) a maximum distance of 50 km, whichever is less.[17]

Under EPA's previous guidance in Section IV.C.1 of the draft *New Source Review Manual* applicable to "deterministic" NAAQS, all sources within the SIA no matter how small or distant would be included in the regional inventory, and the remaining sources outside of the SIA but within 50 km would be assumed to potentially contribute to ground-level concentrations within the SIA and would be evaluated for possible inclusion in the NAAQS analysis.[18] For deterministic NAAQS like the annual NO_2 standard, this procedure is generally still valid and was used in cases where modeled impacts from the Significance Analysis exceed the SIL. The SIA for each pollutant and averaging period was determined and results are summarized in Table 5-3 and Table 5-4. Sources in the raw inventories provided by state agencies were first screened to remove sources located outside of the radius of impact (ROI) [i.e., the significant impact area (SIA) plus 50 km (or 10 km for 1-hour NO_2 and SO_2, as discussed below)]. The remaining sources within the ROI were then screened based on an emissions (Q) over distance (d) screening technique such as the "20D" procedure to identify small and distant sources that could be excluded from the NAAQS analysis because they were not anticipated to impact receptors in the SIA.[19]

For short-term probabilistic NAAQS like the 1-hour NO_2 and 1-hr SO_2 standards, this procedure often produces an inordinately large number of regional inventory sources due to larger SIA distances caused by peak hourly impacts during certain low frequency meteorological events. Recognizing the limitations of the NSR Manual procedure developed at a time when no probabilistic 1-hour NAAQS were in effect, EPA now recommends a different regional inventory screening procedure focusing primarily on the concentration gradient of the source and professional judgement by the dispersion modeler. As indicated in Appendix W, EPA 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 [and] in most cases, the few nearby sources will be located within the first 10 to 20 km from the source(s) under consideration." As such, for 1-hour NO_2 and 1-hr SO_2 regional inventories, sources within SIA plus 10 km of Nucor were included in an initial regional inventory and then 20D screening is applied to arrive at final inventories.

SO_2, NO_X, PM_{10} and $PM_{2.5}$ regional source inventories were compiled for the NAAQS and PSD Increment analyses. Source locations, stack parameters, annual operating hours, and potential emissions data were

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[17] This is the maximum extent of the applicability of the AERMOD Model as per the *Guideline on Air Quality Models*.

[18] EPA, *New Source Review Workshop Manual*, Draft October 1990, available at http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf

[19] 57 FR 8079, March 6, 1992.

obtained from WVDEP, Ohio EPA (OEPA), Kentucky Division of Air Quality (KY DAQ), and/or file reviews of specific facilities. Where there were data gaps (e.g., missing stack parameters), reasonable engineering estimation was utilized.

Nucor has evaluated whether any sources eliminated by the "20D" rule were in close enough proximity to one another that they could be considered a "cluster." GIS software was used to determine whether any group of sources within the ROI should be considered a cluster. Density-Based Spatial Clustering of Applications with Noise (DBSCAN) methodology with minimum cluster size of 2 and distance of 1 km was used. Twenty (20) clusters were identified that were within the maximum ROI across different pollutants and averaging periods. Table C-5 in Appendix C summarizes the aggregated Q/d values for these clusters. The sources within the cluster excluded from the inventory on the basis of their individual facility Q/d value were further evaluated for possible inclusion in the NAAQS/PSD Increment analyses if the aggregate Q/d for a cluster exceeds 20. Cluster #2 which includes Marathon Catlettsburg Refinery (MPC CBG Refinery) was the only cluster that was identified to require further evaluation for annual NO_2 NAAQS. Given that without MPC CBG Refinery in the clusters, the Q/d will be below 20, the fact that MPC CBG Refinery is included in the Annual NO_2 NAAQS analysis, and the distance from Nucor to the cluster is 49.6 km, Nucor does not believe any other sources from this cluster should be included in the NAAQS analysis.

3.5.1 Missing Source Parameters

After completing the screening analysis, the remaining inventory sources were evaluated to determine whether any refinement to the data set was warranted or if the source could be removed from the inventory based on site-specific considerations. During the review of the regional source inventory, Nucor identified that source parameters for fugitive emissions was missing from the provided information. Following approach was used for missing data:

- For plantwide fugitive sources, a pseudo-point source was used with a stack diameter of 0.01 m and exit velocity of 0.01 m/s.
- Where no temperature information was available, ambient temperature was assumed.
- Depending on the nature of fugitive emissions (e.g., coal piles vs. process fugitives/building fugitives), a stack height of 10 ft or 30 ft was used.

3.5.2 Use of "Mitsubishi Method" for APG

The "Mitsubishi Method" was employed to demonstrate compliance at on-property receptors on APG's facility, which is located just north of the proposed Nucor facility.[20] Specifically, Nucor and all regional sources were modeled to obtain total concentrations at all receptor locations except the receptors that fall on APG's non-ambient air property (i.e., APG's property just north of the proposed site). For these receptors at APG's facility, the contribution from APG's sources was subtracted from the total concentrations (i.e., for this subset of receptors, a separate model was executed with all regional sources excluding APG's sources) because compliance with ambient air quality standards is not required for emissions from facilities within their own ambient air boundary.

[20] U.S. EPA Memorandum from Robert D. Bauman (Chief SO2/Particulate Matter Programs Branch) to Gerald Fontenot (Chief Air Programs Branch, Region VI), *Ambient Air,* October 17, 1989

3.5.3 Increment Consuming Regional Sources

Actual emissions from PSD major sources that commenced construction after the major source baseline date[21] and actual emission increases at any stationary source occurring after the minor source baseline date must be included in the increment analysis. Given that Nucor is the first major PSD source in the region, the minor source baseline date has not been established yet and the only potential emissions that would need to be evaluated in the increment analysis is any actual emissions from PSD major sources in the area that are not part of the baseline.

Nucor has reviewed the 2019 and 2020 Emission Inventory that WVDEP provided[22] and 2018 and 2019 Emission Inventory downloaded from Ohio EPA's website[23] to identify potential PSD major sources in the region. Table 3-1 below summarizes the sources that were within the maximum ROI (i.e., SIA + 50 or 10 km as discussed in Section 3.5) for all pollutants and averaging periods.

Table 3-1. List of Potential Source for Inclusions in Increment Analysis

State	Source Name	Construction Date [24]
WV	Mountaineer Power Plant	1974
WV	Appalachian Power Company – John E Amos Plant	1971-1973
OH	Kyger Creek Power Plant	1950s
OH	General James M. Gavin Power Plant	1974
WV	Felman Production – New Heaven Plant	1966

As noted above, all of the potential sources commenced construction prior to the earliest major source baseline date (i.e., 1975 for PM_{10} and SO_2) and therefore are already included in the baseline concentration. As such, no regional sources were included in the increment analysis.

[21] January 6, 1975 for PM_{10} and SO_2, February 8, 1988 for NO_2, and October 20, 2010 for $PM_{2.5}$.

[22] Provided by Stephanie Hammonds via email in response to Freedom of Information Act (FOIA) Requests submitted on 10/7/2021 and 2/16/2022.

[23] https://epa.ohio.gov/divisions-and-offices/air-pollution-control/reports-and-data/download-eis-data-and-reports

[24] Construction dates were extracted from publicly available information and/or existing permits.

4. AIR DISPERSION MODELING METHODOLOGY

This section describes the modeling procedures and data resources utilized in the setup of the Class II Area air quality modeling analyses. The techniques utilized are consistent with current EPA guidance.

4.1 Model Selection – AERMOD

For Class II area modeling, a number of modeling guidelines are available to facilitate and provide detail on the methodologies required for conducting dispersion modeling for the proposed Nucor plants.

Dispersion models estimate 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 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 under consideration, Nucor used 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 (v21112) of the AERMOD modeling system is 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.[25] 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.[26] 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.[27]

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.

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[25] 40 CFR Part 51, Appendix W, *Guideline on Air Quality Models*, Appendix A.1 AMS/EPA Regulatory Model (AERMOD).

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

[27] 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.

AERMAP (v18081) 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 (v21112) 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.

Nucor used the BREEZE®-AERMOD software, 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 21112), AERMET (dated 21112), AERMINUTE (dated 15272) and AERMAP (dated 18081) to estimate ambient impacts from the modeled sources in the Class II Area.

4.2 Tiered NO_2 Dispersion Modeling Methodology

In the "Models for Nitrogen Dioxide" section of the *Guideline* (Section 4.2.3.4), U.S. EPA recommends a tiered screening approach for estimating annual NO_2 impacts from point sources in PSD modeling analyses. Use of the tiered approach to NO_2 modeling for the 1-hour and annual NO_2 standard (SIL, NAAQS, and PSD Increment) will be considered. The approach used in each of the three tiers is described briefly below.

1. Under the initial and most conservative Tier 1 screening level, all NO_X emitted is modeled as NO_2 which assumes total conversion of NO (main chemical form of NO_X) to NO_2.
2. For the Tier 2 screening level, U.S. EPA recommends multiplying the Tier 1 results by the Ambient Ratio Method 2 (ARM2), which provides estimates of representative equilibrium ratios of NO_2/NO_X based on ambient levels of NO_2 and NO_X derived from national data from the EPA's Air Quality System (AQS). The ARM2 function, which is a default option within the latest version of AERMOD, will be used to complete this multiplication. The default minimum ambient NO_2/NO_X ratio of 0.5 and maximum ambient ratio of 0.9 will be used for this methodology.
3. Since the impact of an individual NO_X source on ambient NO_2 depends on the chemical environment into which the source's plume is emitted, modeling techniques that account for this atmospheric chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM) can be considered under the most accurate and refined Tier 3 approach identified by U.S. EPA. Additional model inputs required for the use of OLM or PVMRM could include source-specific in-stack NO_2/NO_X ratios, ambient equilibrium NO_2/NO_X ratios, and background ozone concentrations.

Nucor utilized ARM2 for modeling NO_2 for the 1-hr and annual SIL and 1-hr and annual NO_2 NAAQs modeling assessments using all regulatory default options.

4.3 Rural/Urban Option Selection in AERMOD

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.[28]

The first method discussed in Section 5.1 of the *AERMOD Implementation Guide* (and in Section 7.2.1.1.b of the Guideline on Air Quality Models, Appendix W) is called the "land use" technique because it examines the various land use within 3 km of a source and quantifies the percentage of area in various land use categories. If greater than 50% of the land use in the prescribed area is considered urban, then the urban option should be used in AERMOD. However, EPA cautions against the use of the "land use" technique for sources close to a body of water because the water body may result in a predominately rural land use classification despite being located in an urban area. If necessary, the second recommended urban/rural classification method in Appendix W Section 7.2.1.1.b is the Population Density Procedure. This technique evaluates the total population density within 3-kilometers of a source. If the population density is greater than 750 people per square kilometer, then EPA recommends the use of urban dispersion coefficients.

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 (v20060) was used for the extraction of the land-use values in the domain. The results of the land use analysis evaluation are described herein. 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 approximately 95.2% of the area can be classified as rural, rural dispersion coefficients were used. AERSURFACE files, land cover files, etc. utilized in this urban versus rural assessment will be provided to WVDEP.

Table 4-1. Summary of Land Use Analysis

Category ID	Category Description	Percent	Dispersion Class
11	Open Water	7.6%	Rural
21	Developed, Open Space	2.6%	Rural
22	Developed, Low Intensity	3.9%	Rural
23	Developed, Medium Intensity	2.9%	Urban
24	Developed, High Intensity	1.8%	Urban
31	Barren Land	0.1%	Rural
41	Deciduous Forest	48.4%	Rural
42	Evergreen Forest	0.0%	Rural
43	Mixed Forest	1.9%	Rural
52	Shrub/Scrub	1.2%	Rural
71	Grassland/Herbaceous	0.4%	Rural
81	Pasture/Hay	18.5%	Rural
82	Cultivated Crops	9.5%	Rural
90	Woody Wetlands	0.9%	Rural
95	Emergent Herbaceous Wetlands	0.0%	Rural
	Total	**100%**	

[28] 40 CFR Part 51, Appendix W, the Guideline on Air Quality Models (January 2017) – Section 7.2.1.1(b)(i)

Category ID	Category Description	Percent	Dispersion Class
	Urban	4.8%	
	Rural	95.2%	

4.4 Building Downwash Analysis

The *Guideline* requires the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources. The exhaust from stacks that are located within specified distances of buildings may be subject to "aerodynamic building downwash" under certain meteorological conditions. This determination is made by comparing actual stack height to the Good Engineering Practice (GEP) stack height. The modeled emission units were evaluated in terms of their proximity to nearby structures.

In accordance with recent AERMOD updates, an emission point is assumed to be subject to the effects of downwash at all release heights even if the stack height is above the U.S. EPA formula height, which is defined by the following formula:

$$H_{GEP} = H + 1.5L, \text{ where:}$$

where,

H_{GEP} = GEP stack height,
H = structure height, and
L = lesser dimension of the structure (height or maximum projected width).

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.

Direction-specific equivalent building dimensions used as input to the AERMOD model to simulate the impacts of downwash were calculated using the U.S. EPA-sanctioned Building Profile Input Program (BPIP-PRIME), version 04274 and used in the AERMOD Model.[29] 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 and has been adapted to incorporate the PRIME downwash algorithms.[30]

A GEP analysis of all modeled point sources in relation to each building was performed to evaluate which building has the greatest influence on the dispersion of each stack's emissions. The GEP height for each stack calculated using the dominant structure's height and maximum projected width will also be determined. According to U.S. EPA dispersion modeling guidance, stacks with actual heights greater than either 65 meters or the calculated GEP height, whichever is greater, generally cannot take credit for their full stack height in a PSD modeling analysis. All modeled source stacks at the proposed Nucor facility are less than 65 meters tall and therefore meet the requirements of GEP and credit for the entire actual height of each stack is used in this modeling analysis.

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[29] Earth Tech, Inc., Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model, November 1997, http://www.epa.gov/scram001/7thconf/iscprime/useguide.pdf.

[30] 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.

BPIP input, output, and summary files which include all building dimensions and information included within the model, will be provided to WVDEP.

4.5 Elevated Terrain

A designation of terrain at a particular receptor is source-dependent, since it depends on an individual source's effective plume height. AERMOD is capable of estimating impacts in both simple and complex terrain. Elevations for discrete receptors required by AERMOD were determined using the AERMAP terrain preprocessor (version 18081). Common base elevation equivalent to the proposed facility final grade level was used for all sources within the proposed facility's property boundary. AERMAP also calculates receptor hill height parameters required by AERMOD. Terrain elevations from the U.S. Geological Survey (USGS) 1 arc-second National Elevation Dataset (NED) data were used for the AERMAP processing of receptors and inventory sources.[31] The data was converted from ArcGrid to GeoTIFF format in accordance with recent guidance provided by U.S. EPA.[32] The NED data extended well beyond the extent of the modeled receptor grids to properly calculate the receptor elevations and hill-height scales.

4.6 Meteorological Data

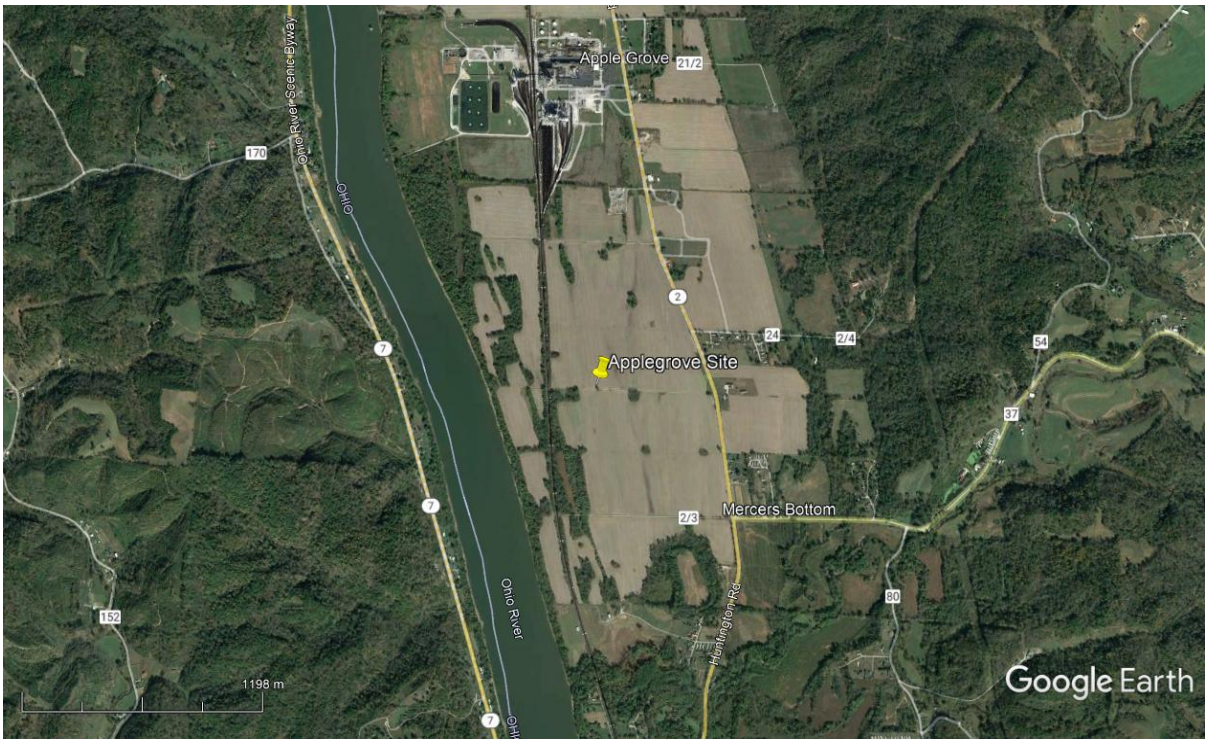
For performing the Class II modeling in AERMOD, meteorological data must be preprocessed to put it into a format that AERMOD can use. This was accomplished using the AERMET processor (Version 21112) along with nearby sets of National Weather Service (NWS) data from surface and upper air stations. The AERSURFACE program (Version 20060) was used to generate the three critical parameters used in AERMET, namely, albedo, Bowen Ratio (ratio of sensible heat to latent heat), and the surface roughness. Values for those land use parameters were tabulated for both the meteorological data site and proposed project site to confirm that the airport NWS stations are reasonably representative of the project site.
For the proposed Apple Grove location, the closest surface meteorological data station is the Huntington Tri-State Airport (KHTS, WBAN #3860) located about 46 kilometers to the southeast. Given the location of the project site, there are very few representative meteorological data options available. Figure 4-1 and Figure 4-2 present aerial images of the immediate area surrounding the airport station and project locations, respectively.

[31] The National Map server – available at https://viewer.nationalmap.gov/basic

[32] Interim Access and Process for Use of 1992 NLCD and NED - https://www.epa.gov/scram/interim-access-and-process-use-1992-nlcd-and-ned

Figure 4-1. Aerial Image of Huntington Airport

Figure 4-2. Aerial Image of Apple Grove Site Location



As shown, both sites are located in rural areas in rolling terrain. Table 4-2 presents a comparison of the albedo, Bowen ratio and surface roughness for each location.

Table 4-2. Comparison of Land Use Parameters – Huntington vs. Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility] Albedo (%)	Percent Diff. [(Facility-NWS)/Facility] Bowen Ratio (%)	Percent Diff. [(Facility-NWS)/Facility] Surface Roughness[1] (%)
0-30	0.163	0.693	0.148	0.160	0.633	0.111	-1.56%	-9.49%	-33.86%
30-60	0.163	0.693	0.274	0.160	0.633	0.112	-1.56%	-9.49%	-145.19%
60-90	0.163	0.693	0.143	0.160	0.633	0.103	-1.56%	-9.49%	-39.27%
90-120	0.163	0.693	0.127	0.160	0.633	0.109	-1.56%	-9.49%	-16.06%
120-150	0.163	0.693	0.450	0.160	0.633	0.114	-1.56%	-9.49%	-295.60%
150-180	0.163	0.693	0.358	0.160	0.633	0.121	-1.56%	-9.49%	-194.85%
180-210	0.163	0.693	0.155	0.160	0.633	0.107	-1.56%	-9.49%	-45.54%
210-240	0.163	0.693	0.232	0.160	0.633	0.027	-1.56%	-9.49%	-767.29%
240-270	0.163	0.693	0.263	0.160	0.633	0.023	-1.56%	-9.49%	-1029.03%
270-300	0.163	0.693	0.148	0.160	0.633	0.028	-1.56%	-9.49%	-423.89%
300-330	0.163	0.693	0.072	0.160	0.633	0.148	-1.56%	-9.49%	51.02%
330-360	0.163	0.693	0.096	0.160	0.633	0.109	-1.56%	-9.49%	11.90%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.632**	**0.093**	**-1.56%**	**-9.49%**	**-121.97%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

The albedo and Bowen ratio are very comparable at both sites. There are some sectors where the surface roughness varies between the two locations, which is almost always the case when comparing greenfield industrial sites to airports. The Huntington airport has forested areas within the 1-km surface roughness evaluation radius which is driving the average values up. In the case of the project site, the surface roughness based on the 2016 NLCD data is an underestimate since the as-built site will have numerous buildings and roughness elements. Once constructed, the site will have surface roughness even more similar to Huntington airport.

In order to evaluate the potential impact of post-construction land use changes, Nucor used the ARCVIEW GIS program to modify the land use cells in the 2016 NLCD to reflect as-built land use types. The latest version of AERSURFACE utilizes three (3) types of land use files (land cover, impervious surface, and tree canopy). Nucor revised these files to reflect the post-construction land use parameters and then ran AERSURFACE again, using the modified land use files. Table 4-3 presents the surface characteristic comparison after construction of the proposed mill.

Table 4-3. Comparison of Land Use Parameters – Huntington vs. Modified Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility] Albedo (%)	Percent Diff. [(Facility-NWS)/Facility] Bowen Ratio (%)	Percent Diff. [(Facility-NWS)/Facility] Surface Roughness[1] (%)
0-30	0.163	0.693	0.148	0.160	0.635	0.261	-1.56%	-9.06%	43.25%
30-60	0.163	0.693	0.274	0.160	0.635	0.162	-1.56%	-9.06%	-69.14%
60-90	0.163	0.693	0.143	0.160	0.635	0.139	-1.56%	-9.06%	-3.07%
90-120	0.163	0.693	0.127	0.160	0.635	0.151	-1.56%	-9.06%	16.23%
120-150	0.163	0.693	0.450	0.160	0.635	0.188	-1.56%	-9.06%	-139.36%
150-180	0.163	0.693	0.358	0.160	0.635	0.223	-1.56%	-9.06%	-60.31%
180-210	0.163	0.693	0.155	0.160	0.635	0.126	-1.56%	-9.06%	-22.77%
210-240	0.163	0.693	0.232	0.160	0.635	0.031	-1.56%	-9.06%	-654.47%
240-270	0.163	0.693	0.263	0.160	0.635	0.026	-1.56%	-9.06%	-909.62%
270-300	0.163	0.693	0.148	0.160	0.635	0.036	-1.56%	-9.06%	-308.28%
300-330	0.163	0.693	0.072	0.160	0.635	0.204	-1.56%	-9.06%	64.50%
330-360	0.163	0.693	0.096	0.160	0.635	0.234	-1.56%	-9.06%	58.91%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.635**	**0.148**	**-1.56%**	**-9.06%**	**-38.42%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

As shown in Table 4-3, the land use characteristics at the airport and facility will be much more comparable when considering the changes due to construction, with the surface roughness values differing by less than 40% on average. Based on the above land use comparisons, Nucor believes the meteorological conditions at Huntington Tri-State Airport are representative of those expected at the proposed Apple Grove site location.

To further supplement these land use comparisons, Nucor conducted a sensitivity analysis as referenced in Section 3.1.1 of the *AERMOD Implementation Guide*. The analysis included two sets of meteorological data for the site, the first incorporating the land use parameters for the proposed site and the second using the land use parameters for the representative airport location. Using these sets of meteorological data, Nucor modeled representative emission sources (i.e., a volume source, a point source, an elevated point source) from the proposed facility for both short term and long-term averaging periods. Nucor compared these results to determine the significance of the differences in concentrations resulting from differences in the surface characteristics between the proposed site location and the nearby airport. Nucor validated the sensitivity analysis with WVDEP prior to conducting significance modeling and the results are provided in this report. Results of the sensitivity analysis is presented in Appendix D.

The most recent, readily available full five years of meteorological data is 2016-2020. These years will be used in the air quality modeling analysis. The latest version of AERMET (version 21112) will be used to incorporate 1-minute ASOS wind data using EPA's AERMINUTE (version 15272) meteorological data preprocessor. Standard surface NWS data will be obtained from the index of published data sets available from the National Climatic Data Center (NCDC) for the appropriate years[33]. The proposed project site utilized upper air data from Pittsburgh International Airport (KPIT, WBAN #94823). Those upper air data will be obtained from the National Oceanic and Atmospheric Administration NOAA/ESRL Radiosonde Database[34]

[33] ftp://ftp.ncdc.noaa.gov/pub/data/noaa/

[34] http://www.esrl.noaa.gov/raobs/

and the one-minute/five-minute wind speed and wind direction data for the same surface station from NCDC[35].

Because the meteorology generated by AERMET relies on the land surface in the vicinity of the NWS surface site, land cover/land use data (National Land Cover Data, NLCD) will be determined from that available from the United States Geological Survey through the MRLC Consortium viewer platform[36]. The AERSURFACE program (Version 20060) was used to generate the three critical parameters used in AERMET, namely, albedo, Bowen Ratio (ratio of sensible heat to latent heat), and the surface roughness parameter. These will be based on wet, dry, and average moisture conditions as determined by comparing the seasonal rainfall amounts to the 30-year averages and using the upper and lower 30th percentiles of average rainfall based on 1991-2020 data for the nearest recording NWS site.

A minimum threshold wind speed of 0.5 m/s (the lowest wind speed that will be allowed in the generated meteorological data set) was implemented in AERMET, as suggested in Section 4.6.2.2 of the latest *AERMET User's Guide*.[37] All hours with wind speeds below this value will be treated as "calm" in AERMOD.

As discussed in this section, Nucor utilized five years' worth of surface data from the Huntington Tri-State Airport (KHTS, WBAN #3860) and five years' worth of upper air data from the Pittsburgh International Airport (KPIT, WBAN# 94823).

4.7 Coordinate System

In all modeling analyses conducted by Nucor, the location of emission sources, structures, and receptors were represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central 500 km meridian of each UTM zone, where the world is divided into 36 north-south zones). The datum for the Nucor modeling analysis is based on North American Datum 1983 (NAD 83). UTM coordinates for this analysis all reside within UTM Zone 17 which served as the reference point for all data as well as all regional receptors and sources.

4.8 Receptor Grids

For the Class II air dispersion modeling analyses, ground-level concentrations were calculated from the fence line out to either 20 km for the 1-hour CO, 8-hour CO, 3-hour SO_2, 24-hour SO_2, annual SO_2, annual NO_2, annual PM_{10}, 24-hour PM_{10}, annual $PM_{2.5}$, 24-hour $PM_{2.5}$, and Rolling 3-Month Average Lead analyses or 50 km for the 1-hour NO_2 and SO_2 analyses using a series of nested receptor grids. These receptors were used in the Significance analysis, in the PSD increment modeling, and in the overall NAAQS modeling. The following nested grids were used to determine the extent of significance:

- **Fence Line Grid:** "Fence line" grid consisting of evenly-spaced receptors 50 meters apart placed along the main property boundary of the facility,

[35] ftp://ftp.ncdc.noaa.gov/pub/data/asos-onemin

[36] http://www.mrlc.gov/viewerjs/

[37] EPA, *User's Guide for the AERMOD Meteorological Preprocessor (AERMET)*, EPA-454/B-21-004, U.S. Environmental Protection Agency, Research Triangle Park, NC, April 2021.

- **Fine Cartesian Grid:** A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property and beyond the fence line,

- **Medium Cartesian Grid:** A "medium" grid containing 500-meter spaced receptors extending from 3 km to 10 km from the center of the facility, exclusive of receptors on the fine grid,

- **Coarse Cartesian Grid:** A "coarse grid" containing 1,000-meter spaced receptors extending from 10 km to 30 km from the center of the facility for 1-hr NO_2 and SO_2 OR to 20 km from the center of the facility for all other pollutants and averaging periods, exclusive of receptors on the fine and medium grids, and

- **Very Coarse Cartesian Grid:** A "very coarse grid" containing 2,500-meter spaced receptors extending from 30 km to 50 km from the center of the facility for 1-hr NO_2 and SO_2, exclusive of receptors on the fine, medium, and coarse grids.

This configuration and extent captured the area of maximum modeled concentrations which falls in an area with at least 100-meter receptor density. As such, no change to the proposed receptor grid was necessary. Concentration plots depicting the maximum modeled concentrations and surrounding impacts are presented in Appendix A and show the location of the maximum impact for each pollutant and averaging period from the SIL analyses.

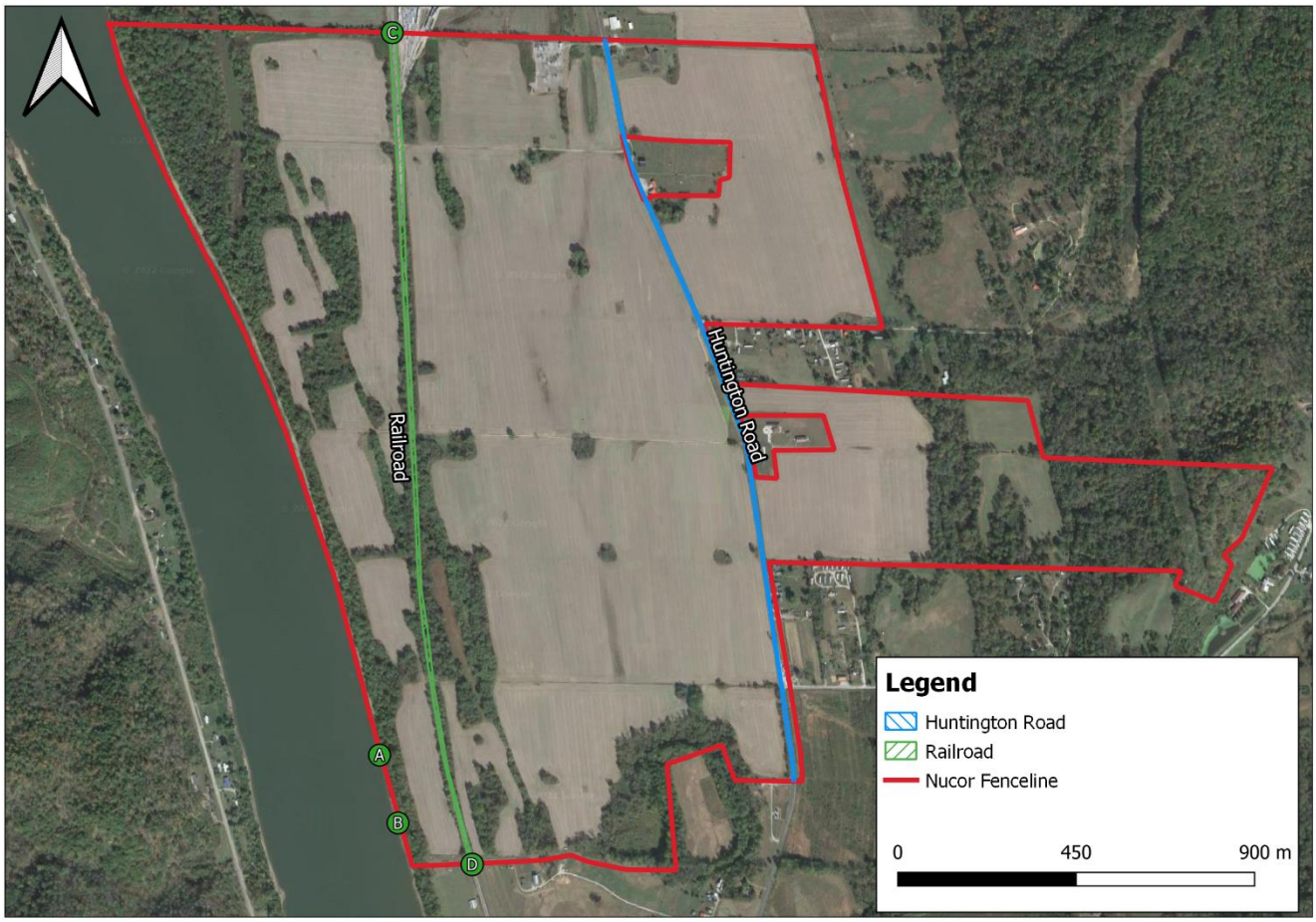
The full NAAQS and PSD increment analyses were conducted using only receptor locations at which impacts calculated for the facility sources (including secondary impacts for $PM_{2.5}$ as discussed in Section 7.2) exceed the SIL for the respective pollutant and averaging time. As compliance with the PSD increment analysis and NAAQS is only required in areas regulated as "ambient air," in developing the receptor grid for the modeling analysis, Nucor excluded all company owned property to which general public access is restricted because it is fenced or access is otherwise restricted, and thus, is not considered "ambient air."

Figure 4-3 displays the property boundaries for the proposed facility. At the Apple Grove site, a main railroad line (entry/exit points labeled "C" and "D") passes through the center of the property. Nucor notes that railroad tracks and rights-of-way are private property and access by the general public is considered trespassing per W. Va. Code § 61-3B-3. This rule states, "It is an unlawful trespass for any person to knowingly, and without being authorized, licensed or invited, to enter or remain on any property, other than a structure or conveyance, as to which notice against entering or remaining is either given by actual communication to such person or by posting, fencing or cultivation."

Additionally, points labeled "A" and "B" show the location of scrap and DRI barge unloading operations, respectively. While barges are docked at these locations, a minimum distance of 100 ft is to be maintained for any vessel traveling in the river. As such, the closest receptors are placed 100 ft away from these operations.

For the proposed facility location, Nucor will restrict general public access via physical fencing, signage at all entry and exit points, remote monitoring (e.g., 24-hour video surveillance), and on-site security staffing. Remote monitoring will provide Nucor constant surveillance of all facility access points and dedicated security staff will respond immediately to any potential trespassing incidents. Furthermore, Nucor intends to establish routine security patrols to allow passageway to authorized personnel while monitoring and further deterring unauthorized general public access at all entry and exit points. Through these security measures, Nucor will preclude general public access and minimize all transient access to the proposed facility property. Therefore, Nucor will exclude receptors from the industrial plant roadways and main line railroads that cross the facility property.

Figure 4-3. Property Boundaries of Nucor's Proposed Apple Grove, WV Property



5. CLASS I AREA DISPERSION MODELING ANALYSIS

There are two Class I areas within 300 km of the proposed facility, Otter Creek Wilderness and Dolly Sods Wilderness. Shenandoah National Park and James River Face Wilderness are located outside, but relatively close to, the 300 km screening range. The closest Class I area is Otter Creek Wilderness, approximately 200 km from the proposed location (east of Apple Grove). 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.

5.1 Class I AQRVs

The Federal Land Managers (FLM) of these Class I areas 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 surface deposition of sulfur and nitrogen.

Table 5-1. Class I Q/D Analysis [a]

Class I Area	NO_X Emissions (tpy)	SO_2 Emissions (tpy)	H_2SO_4 Emissions (tpy)	PM_{10} Emissions (tpy)	Sum of Emissions (tpy)	Distance to Class I Area (km)	Q/D (tpy/km)	Q/D >10?
Otter Creek Wilderness	700.86	360.99	--	624.86	1,686.71	220	7.67	No
Dolly Sods Wilderness						240	7.03	No
Shenandoah National Park						302	5.59	No
James River Face Wilderness						318	5.30	No

a. The calculated annual emissions include sum of all SO_2, NO_X, and PM_{10} emitting equipment that can operate simultaneously at the plant and assumes 8,760 hours of operation using maximum short term emission rate with the exception of emergency engines. Only 100 hours of emergency generator maintenance and testing authorized under NSPS JJJJ is included.

The new source contributions to the emissions increases are based on the maximum hourly potential emission rates extrapolated to an annual basis assuming continuous operation, and thus, are consistent with FLM guidance for establishing the Q/D ratio based on the maximum daily emission rate extrapolated to an annual basis rather than the annual potential emission rates which may consider inherent constraints on annual production of fuel usage. The FLM's AQRV Work Group (FLAG) guidance states that a Q/D value of ten (10) or less indicates that AQRV analyses will generally not be required.[38] As shown in Table 5-1, the Q/D calculations for each Class I area are less than the Q/D threshold established by the *FLAG 2010* document. Accordingly, no refined AQRV modeling was performed.

5.2 Class I Significance Analysis

In addition to the AQRV analysis, Nucor has evaluated PSD Increment consumption at the affected Class I areas. Nucor performed this evaluation using a screening methodology that is commonly applied. This

[38] National Park Service, U.S. Department of the Interior, Federal Land Mangers' Air Quality Related Values Work Group (FLAG), Phase I Report–Revised (2010), National Resource Report NPS/NRPC/NRR_2010/232, October 2010.

methodology relies on the same Significance analysis model input parameters applied for the Class II area assessments. Modeling in AERMOD will be performed by placing an arc of receptors at a distance of 50 km in the direction each Class I area within 300 km, to demonstrate that impacts are below the Class I SILs. The Class I SILs for the pollutants expected to exceed their respective SERs and for which there is a SIL are presented in Table 5-2. Nucor utilized the $PM_{2.5}$ Class I Area SIL contained in EPA's "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program" (April 2018) for this PSD air quality analysis.

Table 5-2. Class I PSD SILs

Pollutant	Averaging Period	Class I SIL (µg/m³)
NO_2	1-Hour	NA
	Annual	0.10
PM_{10}	24-Hour	0.32
	Annual	0.16
$PM_{2.5}$	24-Hour	0.27
	Annual	0.05
SO_2	1-Hour	NA
	3-Hour	1.00
	24-Hour	0.20
	Annual	0.10

A Class I area significance analysis was conducted. Secondary $PM_{2.5}$ impacts were considered for combined (primary/secondary) impacts as discussed in Section 7.2. A summary of the results of the significance analysis are provided in Table 5-3 and Table 5-4. All pollutants triggering PSD review for which there is an established PSD Class I SIL/Increment were evaluated and as shown, all of the modeled impacts were well below their respective Class I SILs. Note that this analysis is very conservative in that modeled impacts are evaluated at a distance of 50 km from the proposed source, but the closest Class I area is 200 km away.

Table 5-3. Class I Significance Results for PM_{10}, SO_2, and NO_2

Pollutant	Averaging Period	SIL (µg/m³)	Maximum Impact (µg/m³)	Exceed SIL?
PM_{10}	24-hr	0.32	0.29	No
	Annual	0.16	0.02	No
NO_2	Annual	0.10	0.02	No
SO_2	3-hr	1.00	0.76	No
	24-hr	0.20	0.13	No
	Annual	0.10	0.01	No

Table 5-4. Class I Significance Results for $PM_{2.5}$

Pollutant	Averaging Period	SIL (µg/m³)	Maximum Impact (µg/m³)	Secondary Impact [a] (µg/m³)	Total Impact (µg/m³)	Exceed SIL?
$PM_{2.5}$	24-hr	0.27	0.195	0.064	0.259	No
	Annual	0.05	0.015	0.002	0.017	No

b. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

6. CLASS II AREA DISPERSION MODELING ANALYSIS

This section summarizes the results of the Class II Area modeling analyses. As discussed in Section 2, the Class II Area modeling analysis is conducted in three principal steps: 1) the Significance Analysis, 2) the NAAQS Analysis, and 3) the PSD Class II Increment Analysis. The following subsections present dispersion modeling results from each of the three components of the Class II Area modeling analysis.

6.1 Class II Significance Impact Analysis Results

As discussed in Section 2, the SIL analysis was conducted to determine if refined NAAQS and Class II Increment modeling analyses would be required. As shown in Table 6-1 and Table 6-2, the maximum modeled impacts were above the SILs for all pollutants and averaging periods with the exception of 1-hr and 8-hr CO and 3-hr and Annual SO_2. Accordingly, cumulative NAAQS and incremental analyses were conducted for $PM_{2.5}$, PM_{10}, SO_2, and NO_2.

Table 6-1. Class II Significance Results for CO, PM_{10}, SO_2, and NO_2

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	Maximum Impact ($\mu g/m^3$)	Exceed SIL?	SIA (km)
PM_{10}	24-hr	5	28.9	**Yes**	3.15
	Annual	1	5.6	**Yes**	2.01
CO	1-hr	2,000	1,138.7	No	--
	8-hr	500	106.7	No	--
NO_2	1-hr	7.5	92.1	**Yes**	29.22
	Annual	1	5.4	**Yes**	2.62
SO_2	1-hr	7.8	19.1	**Yes**	3.38
	3-hr	25	12.5	No	--
	24-hr	5	5.5	**Yes**	0.73
	Annual	1	0.9	No	--

Table 6-2. Class II Significance Results for $PM_{2.5}$

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	Maximum Impact ($\mu g/m^3$)	Secondary Impact [a] ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Exceed SIL?	SIA (km)
$PM_{2.5}$	24-hr	1.2	7.94	0.184	8.1	**Yes**	9.71
	Annual	0.2	2.77	0.006	2.8	**Yes**	8.55

a. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

6.2 Class II NAAQS Analysis

The NAAQS analysis for NO_2, SO_2, lead, PM_{10}, and $PM_{2.5}$ was conducted using the approach described in Section 2 with the emissions and stack parameter data shown in Appendix B for the proposed facility emission sources as well as those provided in Appendix C for nearby sources. The modeling results presented in Table 6-3 demonstrate that the NAAQS will not be exceeded in the region surrounding the proposed facility for any pollutant or averaging period.

Table 6-3. Class II NAAQS Analysis Results

Pollutant	Averaging Period	Modeled Concentration (µg/m³)	Background Concentration [a] (µg/m³)	Secondary Impact [b] (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)	Exceeds NAAQS?
PM_{10}	24-hr	33.44	25.33	--	58.78	150	No
$PM_{2.5}$	24-hr	10.27	15.57	0.184	26.02	35	No
	Annual	2.86	7.70	0.006	10.56	12	No
NO_2	1-hr	140.72	Incl. in Model	--	140.72	188	No
	Annual	8.54	8.91	--	17.45	100	No
SO_2	1-hr	14.79	14.83	--	29.62	196	No
Lead	Rolling 3-Month Avg.	2.37E-03	--	--	2.37E-03	0.15	No

a. Refer to Section 2.3 for detailed discussion of selected background concentrations.
b. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

As described in Section 3.5.2, Nucor utilized the "Mitsubishi Method" for 1-hr NO_2, 24-hr and Annual $PM_{2.5}$ NAAQS analysis. The results shown in Table 6-3 are the maximum for receptors on APG property without APG sources or all other receptors with all sources included in the analysis.

6.3 Class II Increment Analysis

A Class II Increment analysis was conducted for NO_2, SO_2, $PM_{2.5}$, and PM_{10}. As described in Section 3.5.3, there are no existing increment consuming sources in the area. As such, only Nucor sources were modeled in the Class II Increment analysis. The results of the increment analysis are detailed in Table 6-4.

Table 6-4. Class II Increment Analysis Results

Pollutant	Averaging Period	Cumulative Model Impact (µg/m³)	Secondary Impact [a] (µg/m³)	Total Concentration (µg/m³)	Class II PSD Increment (µg/m³)	Exceeds PSD Increment?
PM_{10}	24-hr	28.00	--	28.00	30	No
	Annual	5.59	--	5.59	17	No
$PM_{2.5}$	24-hr	8.15	0.184	8.34	9	No
	Annual	2.89	0.006	2.90	4	No
NO_2	Annual	5.45	--	5.45	25	No
SO_2	24-hr	3.96	--	3.96	91	No

a. Secondary impact based on MERP analysis. Refer to Section 7.2 for detailed discussion.

7. SECONDARY POLLUTANT FORMATION

Secondary pollutant formation is also required to be addressed in the PSD review process. When precursor emissions for ozone (VOC and NO_X) and/or $PM_{2.5}$ (SO_2 and NO_X) trigger PSD review, ozone and secondary $PM_{2.5}$ ambient impacts must be reviewed. 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).

The latest revisions to the *Guideline*, which was recently published in the Federal Register on January 17, 2017, recommend the use of Model Emissions Rate for Precursors (MERPs)[39] to evaluate a proposed project's impact on ozone levels in the surrounding airshed. The *Guideline* establishes a two-tiered demonstration approach for addressing single-source impacts on ozone. Tier 1 demonstrations involve use of technically credible relationships between emissions and ambient impacts based on existing modeling studies deemed sufficient for evaluating a project source's impacts. Tier 2 demonstrations involve case-specific application of chemical transport modeling (e.g., with an Eulerian grid or Lagrangian model). MERPs are a type of Tier 1 demonstration that represent a level of increased precursor emissions that is not expected to contribute to significant levels of ozone. In other words, project emissions are compared against MERP values to determine whether the project emissions would have a significant impact on ozone levels. To derive a MERP value, a model predicted relationship between precursor emissions from hypothetical sources and their downwind maximum impacts is combined with a critical air quality threshold using a predefined equation. In this analysis, Nucor is relying upon pre-established MERPs values based on prior photochemical grid modeling as the primary indicator that the project is not expected to cause or contribute to a violation of the ozone NAAQS.

7.1 Ozone

A Tier 1 demonstration approach in the *Guideline* relies on the use of MERPs. The U.S. EPA discusses this approach in detail in the *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* (hereafter referred to as *MERPs Guidance*).[40] The guidance is relevant for the PSD program and focuses on assessing the ambient impacts of precursors of ozone (and $PM_{2.5}$) for purposes of that program. MERPs can be viewed as a Tier 1 demonstration tool under the PSD permitting program that provides a straightforward and representative way to relate maximum source impacts with a critical air quality threshold (e.g., a significant impact level or SIL).[41] Specifically, the MERP framework may be used to describe an emission rate of an individual precursor (such as NO_x or VOC for ozone) that is expected to result in a change in the level of ambient ozone that would be less than a specific air quality threshold for ozone that a permitting authority adopts and chooses to use in determining whether a projected impact causes or contributes to a violation of

[39] *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*, available via: https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf

[40] U.S. EPA, *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*, EPA-454/R-19-003 (April 30, 2019). Office of Air Quality Planning and Standards, Research Triangle Park, NC.

[41] *MERPs Guidance*, pg. 5.

the ozone NAAQS, such as the ozone SIL recommended by the U.S. EPA.[42] In short, MERPs are intended to be used with SILs as analytical tools for PSD air quality analyses, and if necessary, a cumulative impacts analysis[43] including background air quality.

The nearest hypothetical source modeled by EPA to the Nucor Apple Grove facility was found in EPA's MERPs View Qlik website and was located in Boyd County, Kentucky approximately 50 km southwest of the Nucor facility location. This hypothetical source location has similar terrain and surrounding land use to the Nucor facility. The Boyd County location is also generally within the same air shed and as such is expected to be subject to similar atmospheric chemistry and secondary pollutant formation processes as the area surrounding the Nucor facility. Therefore, the Boyd County source was determined as the most representative hypothetical source in EPA's compiled photochemical modeling dataset and used in this Tier-1 modeling analysis.

The available Boyd County hypothetical source with emissions closest to source-wide emissions from the Nucor facility was used. For NO_X, the taller stack option of the two available (i.e., 90 meters) was used because the majority of emissions of NO_X from the proposed facility will be from the EAF baghouses which have release heights of 65 meters above ground level. Therefore, the 90 meter hypothetical source will better represent the majority of NO_X emissions from the facility than the 10 meter hypothetical source. For VOC, there was only a 10 meter hypothetical source for Boyd County; therefore, this hypothetical source was used.

Table 7-1 shows the selected MERPs values for the Boyd County hypothetical source, the calculated ozone MERPs, project emissions increases of NO_X and VOC, and estimated ozone impact associated with the Nucor facility. In Table 7-2 the calculated MERPs concentrations are added to the background ozone concentration taken from the Ashland, Kentucky monitor (21-016-0017), which demonstrates compliance with the Ozone 8-hour NAAQS.

Table 7-1. Ozone SIL Analysis

Averaging Period	Precursor	Critical Air Quality Threshold (ppb)	Modeled ER from Hypo. Source[a] (tpy)	Modeled Impact from Hypo. Source[a] (ppb)	Ozone MERP (tpy)	Net Emissions Increase (tpy)	% of Critical Air Quality Threshold	Ozone Project Impact (ppb)	SIL (ppb)
8-hour	NO_X	1.0	1,000	3.794	264	760.7	288.6	2.89	
	VOC	1.0	500	0.170	2,939	183.5	6.2	0.06	
							Total	**2.95**	**1.0**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website. Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and VOC for the project.

[42] *MERPs Guidance*, pg. 10.

Table 7-2. Ozone NAAQS Analysis

Averaging Period	Pollutant	Ozone Project Impact (ppb)	Ozone Background Conc.[a] (ppb)	Cumulative Ozone Impact (ppb)	NAAQS (ppb)
8-hour	Ozone	2.95	61	**63.9**	**70**

[a] Three-year average for 2018-2020 of the annual 4th highest daily maximum 8-hour concentrations measured at the Ashland, KY monitor (21-019-0017).

7.2 Secondary $PM_{2.5}$

$PM_{2.5}$ precursor pollutants (e.g., NO_X, SO_2) can undergo photochemical reactions with ambient gases such as NH_3 or VOC resulting in the formation of secondary $PM_{2.5}$ downwind of a stationary industrial source. The creation of $PM_{2.5}$ by secondary mechanisms increases the total concentration by adding to the direct emissions of $PM_{2.5}$ from a facility. Two of the largest constituents of secondarily-formed $PM_{2.5}$ are sulfates (SO_4) and nitrates (NO_3), both of which are formed from their respective precursor pollutants (SO_2 for SO_4 and NO_X for NO_3).

The current guideline model for Class II Area air dispersion modeling, AERMOD, does not account for many of the complex atmospheric physical and chemical mechanisms that influence $PM_{2.5}$ formation. For example, when run in the regulatory default mode, AERMOD does not account for the size or mass of particulate emissions and, therefore, does not account for the difference in gravitational settling and deposition rates that occur for different particle sizes. No chemical transformation schemes are implemented in AERMOD which could predict secondary $PM_{2.5}$ formation from atmospheric processes.

Based on the MERP guidance offered by EPA, Nucor has prepared a site-specific secondary $PM_{2.5}$ impact assessment to comprehensively demonstrate precursor emissions from the proposed project will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS or PSD increment standards.

The nearest hypothetical source modeled by EPA to the Nucor Apple Gove facility was found in EPA's MERPs View Qlik website and was located in Boyd County, Kentucky approximately 50 km southwest of the Nucor facility location. This hypothetical source location has similar terrain and surrounding land use to the Nucor facility. The Boyd County location is also generally within the same air shed and as such is expected to be subject to similar atmospheric chemistry and secondary pollutant formation processes as the area surrounding the Nucor facility. Therefore, the Boyd County source was determined as the most representative hypothetical source in EPA's compiled photochemical modeling dataset and used in this Tier-1 modeling analysis.

The available Boyd County hypothetical source with emissions closest to source-wide emissions from the Nucor facility was used. For NO_X and SO_2 the taller stack option of the two available (i.e., 90 meters) was used because the majority of emissions of NO_X and SO_2 from the proposed facility will be from the EAF baghouses which have release heights of 65 meters above ground level. Therefore, the 90 meter hypothetical source will better represent the majority of NO_X and SO_2 emissions from the facility than the 10 meter hypothetical source.

Table 7-3 shows the selected near-field MERPs values for the Boyd County hypothetical source, the calculated $PM_{2.5}$ MERPs, project emissions increases of NO_X and SO_2, and estimated $PM_{2.5}$ impact associated with the project.

Table 7-3. $PM_{2.5}$ MERPs Analysis – Near-Field

Averaging Period	Precursor	Critical Air Quality Threshold ($\mu g/m^3$)	Modeled ER from Hypo. Source[a] (tpy)	Modeled Impact from Hypo. Source[a] ($\mu g/m^3$)	$PM_{2.5}$ MERP (tpy)	Net Emissions Increase (tpy)	% of Critical Air Quality Threshold	Secondary $PM_{2.5}$ Project Impact ($\mu g/m^3$)
24-hour	NO_X	1.2	1,000	0.079	15,183	760.7	5.010	**0.06013**
24-hour	SO_2	1.2	1,000	0.343	3,502	362.0	10.337	**0.12404**
Annual	NO_X	0.2	1,000	0.005	44,419	760.7	1.713	**0.00343**
Annual	SO_2	0.2	1,000	0.007	26,874	362.0	1.347	**0.00269**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website. Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and SO_2 for the project.

In Table 7-4 and Table 7-5 the calculated MERPs concentrations are added to the modeled NAAQS and Class II PSD Increment analysis results for $PM_{2.5}$ shown in Sections 6.2 and 6.3 to show that $PM_{2.5}$ impacts remain below relevant standards after consideration of the impacts of secondary formation of $PM_{2.5}$.

Table 7-4. $PM_{2.5}$ NAAQS Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] ($\mu g/m^3$)	Secondary $PM_{2.5}$ Project Impact ($\mu g/m^3$)	$PM_{2.5}$ Background Conc.[3] ($\mu g/m^3$)	Cumulative $PM_{2.5}$ Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
24-hour	PM2.5	10.27	0.184	15.6	**26.0**	**35**
Annual	PM2.5	2.86	0.006	7.7	**10.6**	**12**

[1] Evaluated the five-year average 8th highest maximum 24-hour output for comparison against the NAAQS.

[2] Evaluated average modeled annual arithmetic mean impact over the five years modeled for comparison against the NAAQS.

[3] The 24-hour and annual average background concentrations are based on ambient monitoring data from the Ashland, Kentucky site (Site ID 21-019-0017) for the three year period from 2018 to 2020. The 24-hour average background concentration is the average 8th highest daily maximum concentration over the 2018 to 2020 period, consistent with the form of the 24-hour $PM_{2.5}$ NAAQS. The annual average background concentration is the average annual arithmetic mean concentration from 2018 to 2020.

Table 7-5. $PM_{2.5}$ PSD Increment Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] ($\mu g/m^3$)	Secondary $PM_{2.5}$ Project Impact ($\mu g/m^3$)	Cumulative $PM_{2.5}$ Impact ($\mu g/m^3$)	Class II PSD Increment ($\mu g/m^3$)
24-hour	PM2.5	8.15	0.184	**8.34**	**9**
Annual	PM2.5	2.89	0.006	**2.90**	**4**

[1] Evaluated the 2nd highest 24-hour average modeled impact over the five years modeled for comparison against the PSD Increment.

[2] Evaluated highest modeled annual arithmetic mean impact over the five years modeled for comparison against the PSD Increment.

The closest Class I area to the proposed Nucor facility (Otter Creek Wilderness) is located 220 km distant. Table 7-6 shows the selected MERPs values for the Boyd County hypothetical source at a distance of 220 km, the calculated $PM_{2.5}$ MERPs, project emissions increases of NO_X and SO_2, and estimated Class I $PM_{2.5}$ impact associated with the project. In Table 7-7 the calculated MERPs concentrations are added to the modeled Class I PSD Increment analysis results for $PM_{2.5}$ shown in Section 1 show that $PM_{2.5}$ impacts remain below the Class I PSD Increment standards for $PM_{2.5}$ after consideration of the impacts of secondary formation of $PM_{2.5}$.

Table 7-6. $PM_{2.5}$ MERPs Analysis – Class I

Averaging Period	Precursor	Critical Air Quality Threshold ($\mu g/m^3$)	Modeled ER from Hypo. Source[a] (tpy)	Modeled Impact from Hypo. Source[a] ($\mu g/m^3$)	$PM_{2.5}$ MERP (tpy)	Net Emissions Increase (tpy)	% of Critical Air Quality Threshold	Secondary $PM_{2.5}$ Project Impact ($\mu g/m^3$)
24-hour	NO_X	0.27	1,000	0.049	5,482	760.7	13.877	**0.03747**
24-hour	SO_2	0.27	1,000	0.073	3,690	362.0	9.811	**0.02649**
Annual	NO_X	0.05	1,000	0.0012	40,940	760.7	1.858	**0.00093**
Annual	SO_2	0.05	1,000	0.0023	21,802	362.0	1.660	**0.00083**

[a] Hypothetical source is lower release height source located in Boyd County, Kentucky from EPA's MERPs View Qlik website at a distance of 220 km (the distance to the closest Class I area from the project location). Hypothetical source emission rate represents the closest value available in MERPs View Qlik to the source-wide PTE for NO_X and SO_2 for the project.

Table 7-7. $PM_{2.5}$ Class I PSD SIL Analysis Considering Secondary Formation

Averaging Period	Pollutant	Primary $PM_{2.5}$ Project Impact[1,2] ($\mu g/m^3$)	Secondary $PM_{2.5}$ Project Impact ($\mu g/m^3$)	Cumulative $PM_{2.5}$ Impact ($\mu g/m^3$)	Class I SIL ($\mu g/m^3$)
24-hour	PM2.5	0.195	0.064	0.259	**0.27**
Annual	PM2.5	0.015	0.002	0.017	**0.05**

[1] Evaluated the highest 24-hour average modeled impact over the five years modeled for comparison against the Class I SIL.

[2] Evaluated highest modeled annual arithmetic mean impact over the five years modeled for comparison against the Class I SIL.

8. ADDITIONAL IMPACTS ANALYSIS

Three additional impacts analyses are performed as part of the PSD permitting action. These are: 1) a growth analysis, 2) a soil and vegetation analysis, and 3) a visibility analysis.

8.1 Growth Analysis

The purpose of the growth analysis is to quantify project associated growth; that is, to predict how much new growth is likely to occur in order to support the source or modification under review, and then to estimate the air quality impacts from this growth. The Nucor facility is expected to increase full-time employment after the construction phase of the project is completed. However, the proposed project at the Nucor facility is anticipated to have a limited growth impact on Mason County, WV with the potential to contribute to adverse air quality impacts for the PSD triggering pollutants with an applicable NAAQS or PSD Increment (i.e., SO_2, PM_{10}, $PM_{2.5}$, CO, NO_X). Many of the workers to be hired for the facility construction and operations will already reside and conduct business in the region surrounding the Nucor facility, and thus are not expected to cause significant growth-related air quality impacts. While some workers are likely to currently reside outside the region and thus may commute or move to the area, any related potential air quality impacts from these out-of-town workers are too small to be reasonably quantifiable.

Furthermore, the installation of the plant is not expected to significantly contribute to substantial residential or commercial growth that would cause quantifiable air quality impacts. For non-Nucor industrial growth, the affected sources would be covered under their own Clean Air Act permitting processes to address potential air quality impacts of the PSD-triggering for Nucor's project. Finally, the existing ambient air quality within the region surrounding the Nucor facility can readily accommodate any additional direct or indirect growth which may occur from the proposed facility without this project-associated growth causing or contributing to violations of the NAAQS or PSD increment. In reviewing the past several years of ambient background concentrations, ambient air quality has been steady or gradually improved. Therefore, Nucor would not expect any growth attributable to this proposed project to cause quantifiable air quality impacts.

8.2 Soil and Vegetation Analysis

The EPA developed the secondary NAAQS (shown in Table 2-1) to represent levels that provide protection for public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. As a general rule, if ambient concentrations from a PSD project are found to be less than the secondary NAAQS, emissions from that project will not result in harmful effects to either soil or vegetation.[44]

Nucor has demonstrated compliance with the secondary NAAQS by complying with the SILs for CO (1-hr and 8-hr) and SO_2 (24-hr) and with the NAAQS for PM_{10} (24-hr), $PM_{2.5}$ (24-hr and annual), NO_2 (annual), and ozone (8-hr) indicating that the proposed Nucor facility will not cause or contribute to adverse impacts on soils, vegetation, and animals.

[44] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, New Source Review Workshop Manual, Research Triangle Park, North Carolina, October 1990.

8.3 Plume Visibility Analysis

This additional impacts analysis also addresses impacts on visibility at a potentially sensitive Class II area resulting from any coherent emission plumes from sources at the Nucor Apple Grove facility associated with the project. To demonstrate that local visibility impairment does not result from operation of the new operations after the proposed project is completed, Nucor is using the EPA VISCREEN Model following the guidelines published in the *Workbook for Plume Visual Impact Screening and Analysis* to assess potential plume impairment.[45] The primary variables that affect whether a plume is visible or not at a certain location are (1) quantity of emissions, (2) type of emissions, (3) relative location of source and observer, and (4) the background visibility range. The VISCREEN model is designed to determine whether a plume from a facility may be visible from a given vantage point using these four variables to determine the level of impact. One potentially sensitive Class II area was chosen to address visibility impairment, namely Beech Fork State Park located approximately 40 km to the south southwest of the Nucor facility. Beech Fork State Park is the closest state park to the proposed Nucor facility with primarily recreational, outdoor attractions. Because potential NO_X and PM_{10} emissions from the proposed project trigger PSD review, all VISCREEN visibility affecting pollutants emitted by the proposed project were considered in the analysis. Direct emissions of primary NO_2, Soot, and Primary SO_4 were treated as zero emissions (the VISCREEN default) due to either their accounting elsewhere (NO_X) or due to the nature of the source not producing measurable quantities of these pollutants.

Two levels of visibility screening are available in the VISCREEN Model. Level-1 is designed to provide a conservative estimate of plume visual effects and Level-2 provides a more realistic estimate of visual effects based on more detailed information about the source, meteorology, and area of interest. A Level-2 analysis is typically only completed if a Level-1 analysis indicates the screening criteria are exceeded. As such, a Level-2 analysis was not applied for the project.

For views at the observer location selected, calculations are performed by the model for two assumed plume-viewing backgrounds: the horizon sky and a dark terrain object. VISCREEN assumes that the terrain object is black and located adjacent to the plume on the side of the centerline opposite the observer. The VISCREEN model output shows separate tables for inside and outside of the sensitive area. Each table contains several variables: theta, azi, distance, alpha, critical and actual plume ΔE, and critical and actual plume contrast. These variables are defined as:

1. *Theta* - Scattering angle (the angle between direction solar radiation and the line of sight). If the observer is looking directly at the sun, theta equals zero degrees. If the observer is looking away from the sun, theta equals 180 degrees.
2. *Azi* - The azimuthal angle between the line connecting the observer and the line of sight.
3. *Alpha* - The vertical angle between the line of sight and the plume centerline.
4. *ΔE* - Used to characterize the perceptibility of a plume on the basis of the color difference between the plume and a viewing background. A ΔE less than 2.0 signifies that the plume is not perceptible.
5. *Contrast* - The contrast at a given wavelength of two colored objects such as plume/sky or plume/terrain. A value less 0.05 signifies that the plume is not perceptible by contrast or color.

The analysis is considered satisfactory if ΔE and Green Contrast are less than critical screening values of 2.0 and 0.05, respectively. Note that these thresholds are applied in this analysis, even though screening criteria are properly applied at Class I areas, not sensitive receptors located in Class II areas.

[45] *Workbook for Plume Visual Impact Screening and Analysis (Revised)*, EPA-450/R-92-023, U.S. Environmental Protection Agency, Research Triangle Park, NC, October 1992.

VISCREEN conducts four (4) tests of screening calculations. The first two tests refer to visual impacts caused by plume parcels located ***inside*** the boundaries of the given area. Tests of impacts inside the boundary are used to determine visual impacts when integral vistas are not protected.[46] The last two tests are for plume parcels located ***outside*** the boundaries of the area. The tests of visual impacts outside the boundaries of Class I areas are only required if analyses for protected integral vistas are required. An integral vista is a view from a location inside a Class I area of landscape features located outside the boundaries of the Class I area.[47] There are no integral vistas of concern outside the state park evaluated in this analysis. Therefore, only the results for inside the boundaries of the area are evaluated. Note that the typical approach for establishing a minimum and maximum distance to the Class I area (i.e. the min/max distance along plume centerlines offset 11.25 degrees from the observer line) could not be used due to the limited size of Beech Fork State Park. As such, it was conservatively assumed that the minimum and maximum distances to Beech Fork State Park were the true minimum and maximum distances to the boundary of the park, rather than only the minimum and maximum distances where the park boundary intersects the plume centerlines.

For a Level 1 screening analysis using VISCREEN, default particulate size and density and worst-case meteorological conditions of F stability with a 1.0 m/s wind speed were used. These worst-case meteorological conditions were assumed to persist for up to 12 hours with a wind direction that would transport the plume directly adjacent to the observer causing the highest, most conservative level of loss of contrast (ΔE) and color obscuration. Direct particulate and NO_X emissions increases associated with the proposed project were used as inputs to the model. PM_{10} emissions were used to represent direct particulate as PM_{10} has the highest, net emissions increase from among the available PM species (PM, PM_{10}, and $PM_{2.5}$). Remaining Level-1 input parameters were set to those values specified by the VISCREEN user's manual as listed in Table 8-1.[48] As directed in the *Workbook for Plume Visual Impact Screening and Analysis*, a background visual range of 20 km was used for the area where the Nucor facility is located.

Table 8-1. Inputs to the VISCREEN Model for the Level-1 Visibility Impairment Analyses

Parameter	Input Value
Particulate Emission Rate	142.62 lb/hr
NO_X Emission Rate	159.41 lb/hr
Default VISCREEN primary NO_2, soot & H_2SO_4 Rate	0 lb/hr
Distance between Nucor & observer	40.0 km
Distance between Nucor & nearest Beech Fork SP boundary	40.0 km
Distance between Nucor & farthest Beech Fork SP boundary	47.0 km
Background ozone (default)	0.04 ppm
Background visual range	20 km

The Level-1 screening technique was adequate to demonstrate that the plume impairment values were below the ΔE and Green Contrast critical screening values of 2.0 and 0.05, respectively. Therefore, the visibility impacts of the proposed project were deemed acceptable. Table 8-2 shows the results of the Level-1 VISCREEN modeling analysis.

[46] Workbook for Plume Visual Impact Screening and Analysis, p. 27.

[47] *Ibid*.

[48] EPA OAQPS, Tutorial Package for the VISCREEN Model, Research Triangle Park, NC, June 1992.

Table 8-2. VISCREEN Model Level-1 Visibility Impairment Analyses for Project on Beech Fork State Park

Background	Theta	Azimuthal	Distance (km)	Alpha	Delta E Criteria	Plume	Contrast Criteria	Plume
Inside Class II Area								
Sky	10	84	40	84	2.00	1.444	0.05	0.014
Sky	140	84	40	84	2.00	0.248	0.05	-0.009
Terrain	10	84	40	84	2.00	0.460	0.05	0.005
Terrain	140	84	40	84	2.00	0.104	0.05	0.004

APPENDIX A. SIGNIFICANCE ANALYSIS FIGURES

Figure A-1. 24-hr PM2.5 SIL Impacts

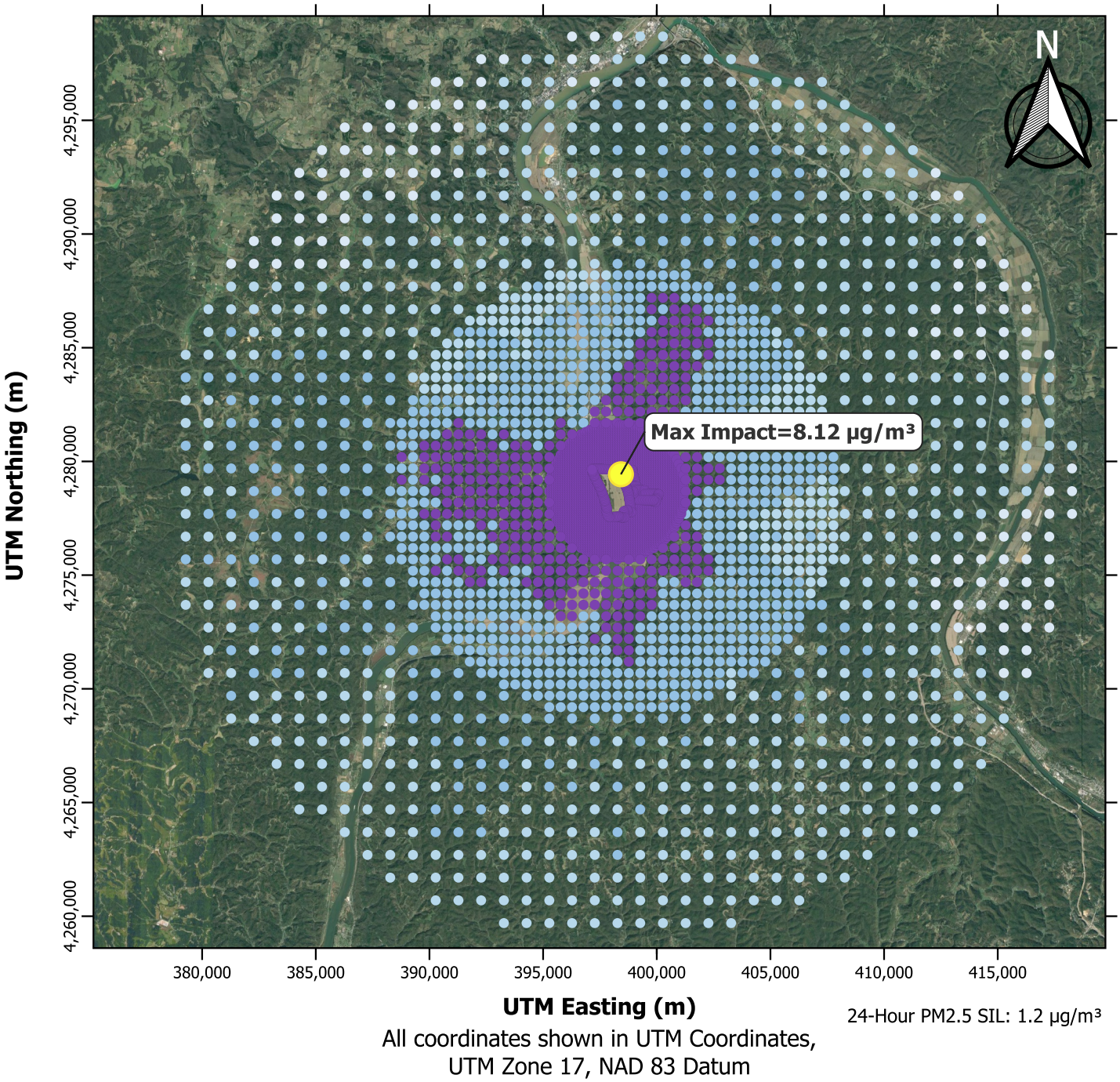


Figure A-2. Annual PM2.5 SIL Impacts

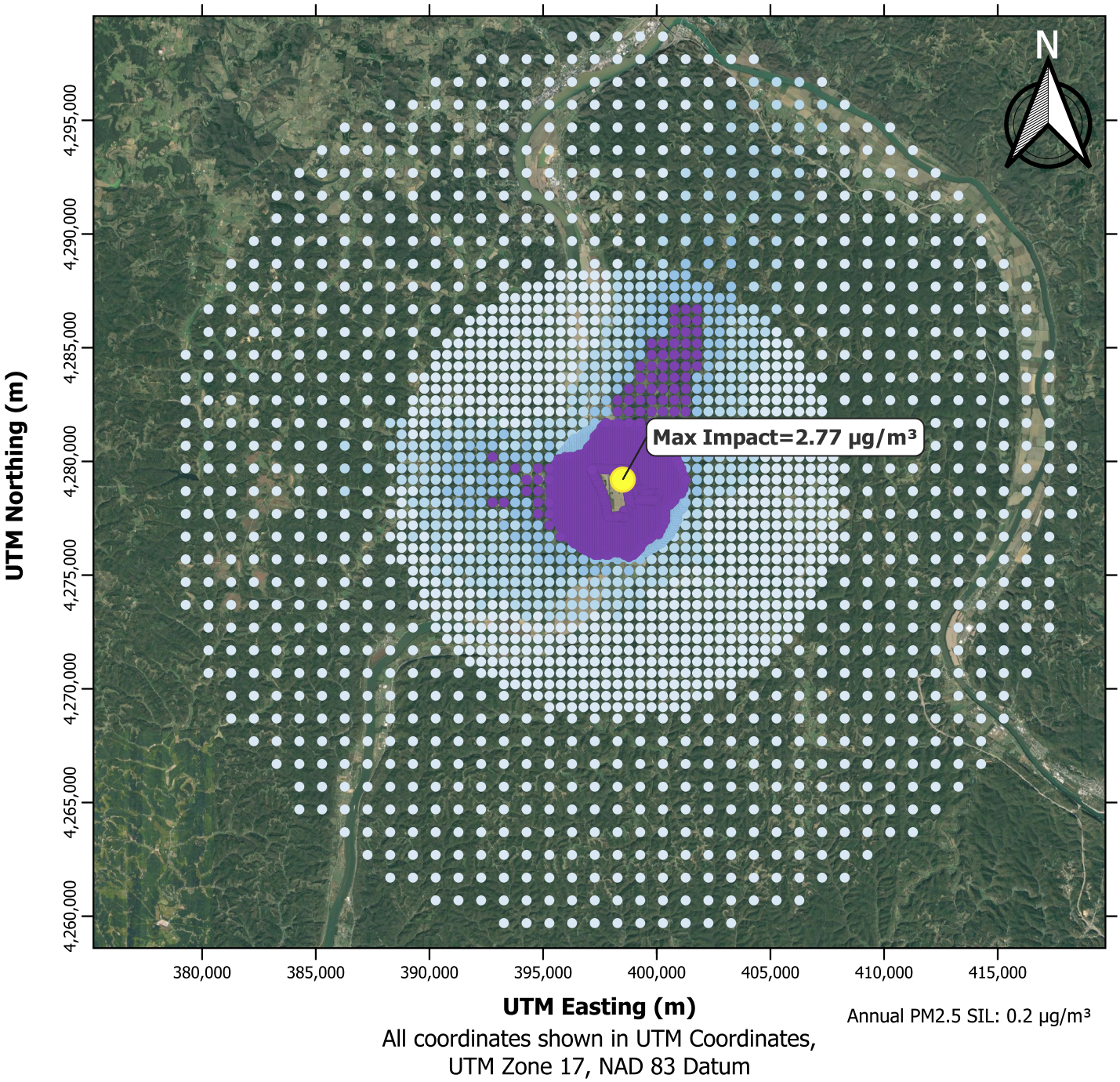


Figure A-3. 1-hr CO SIL Impacts

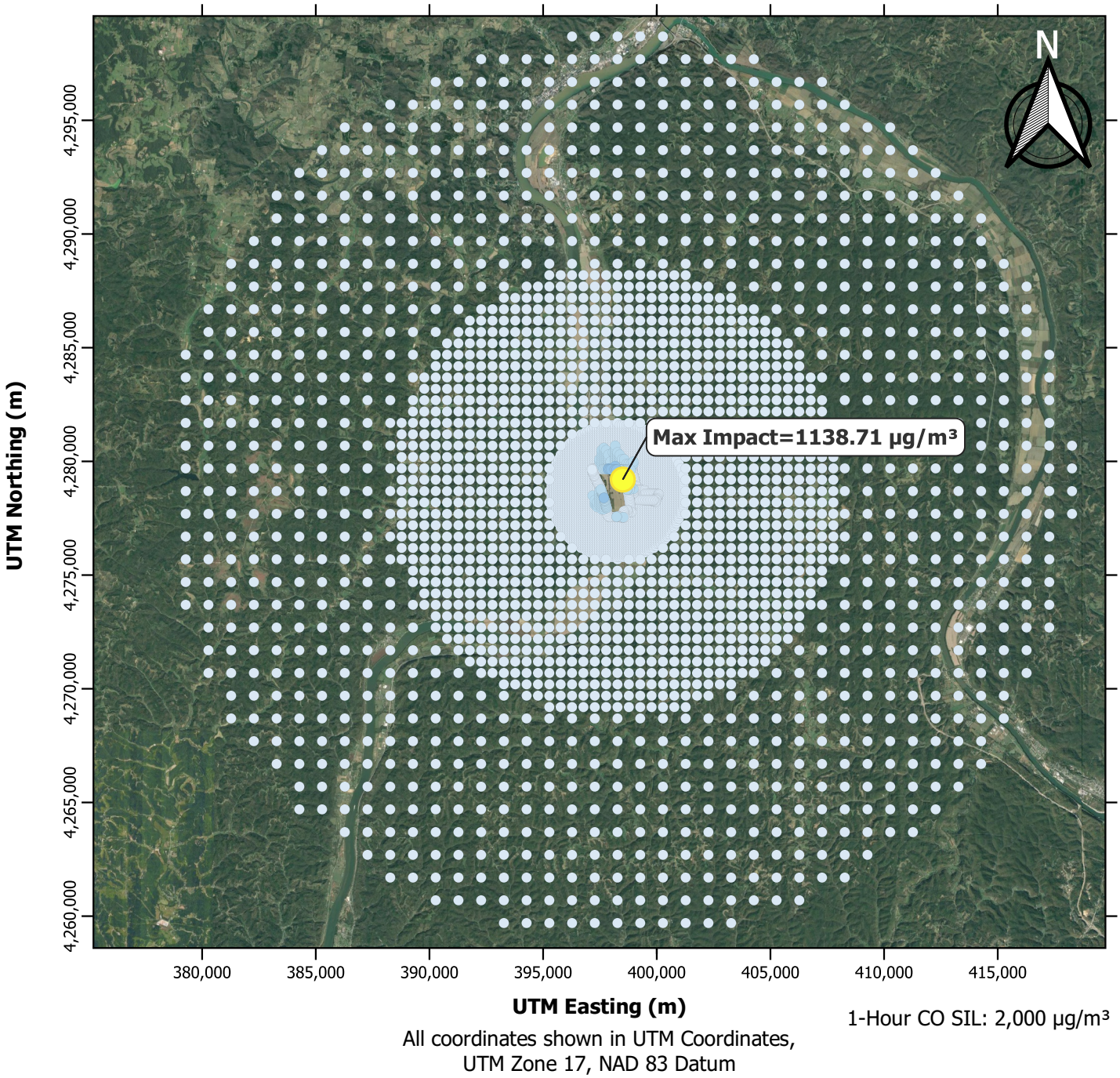


Figure A-4. 8-hr CO SIL Impacts

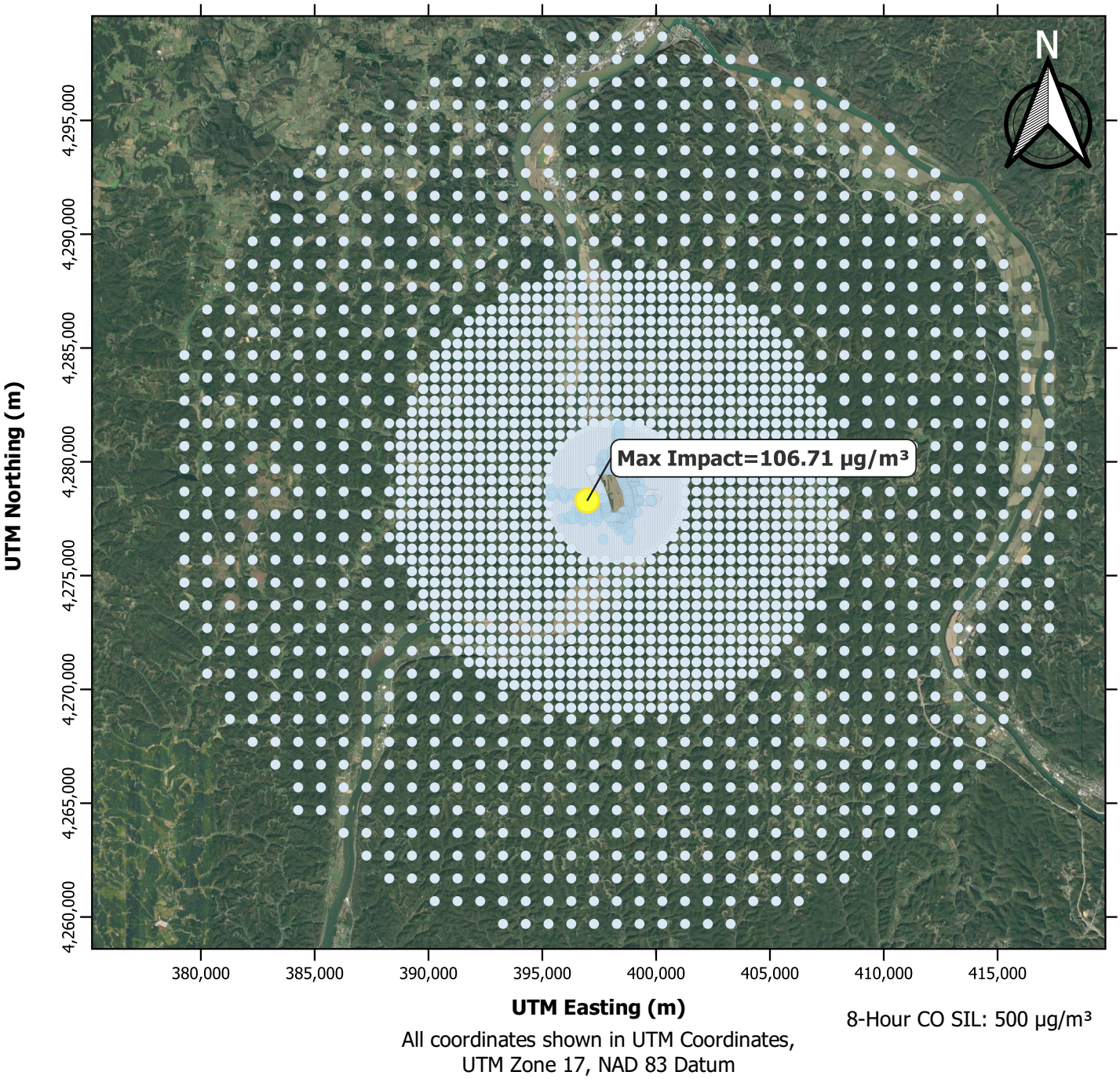


Figure A-5. 1-hr NO2 SIL Impacts

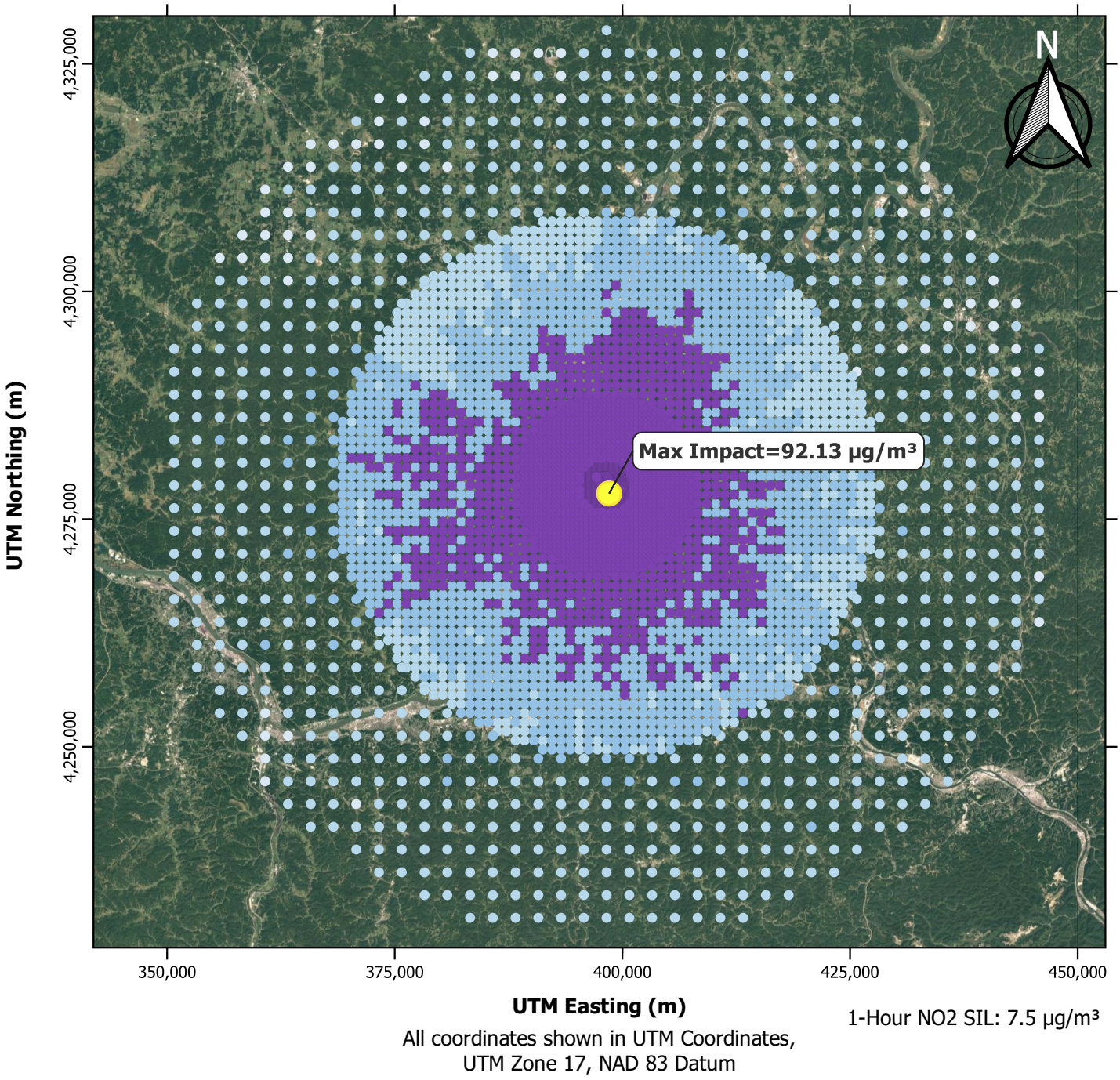


Figure A-6. Annual NO2 SIL Impacts

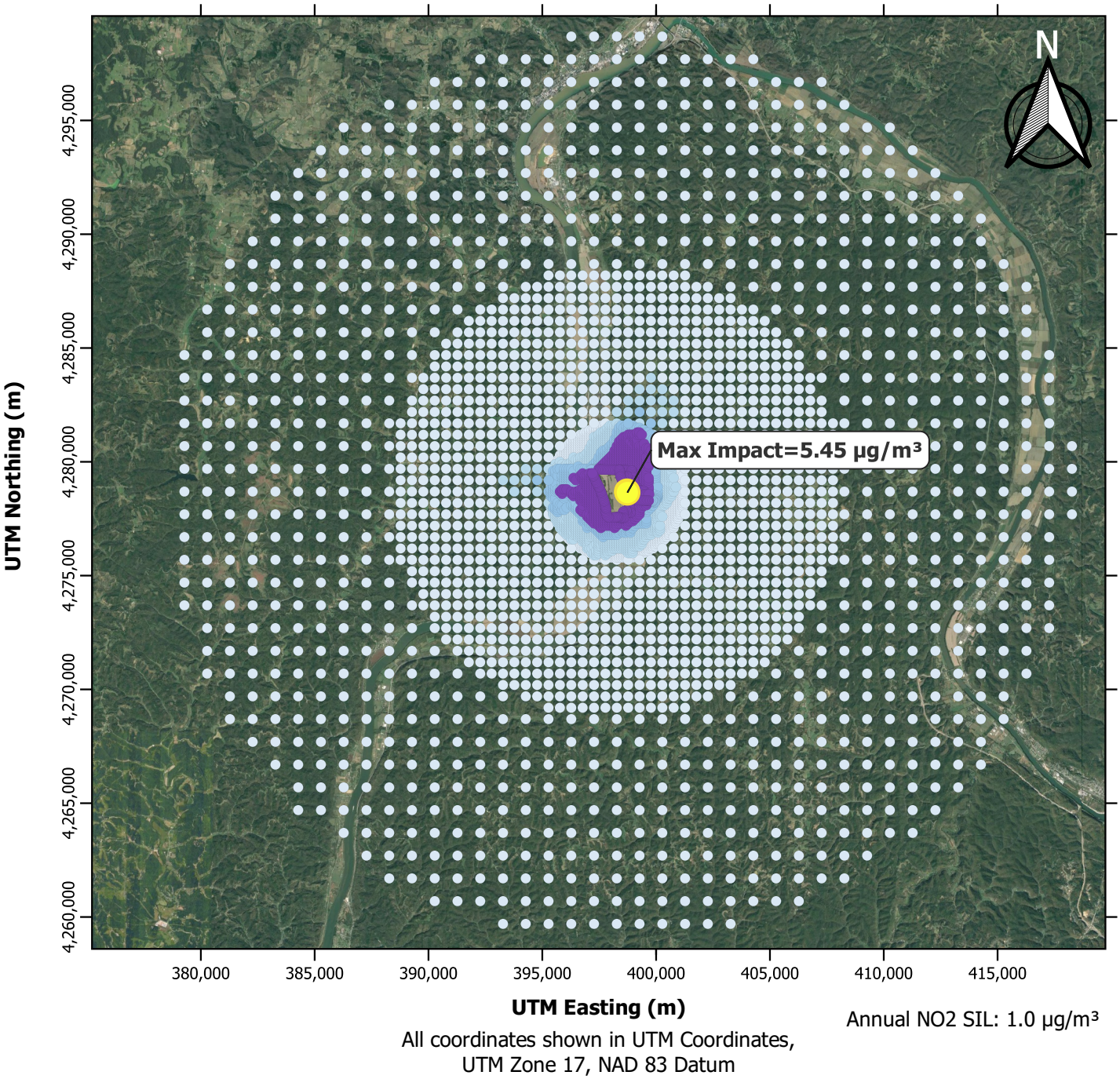


Figure A-7. 1-hr SO2 SIL Impacts

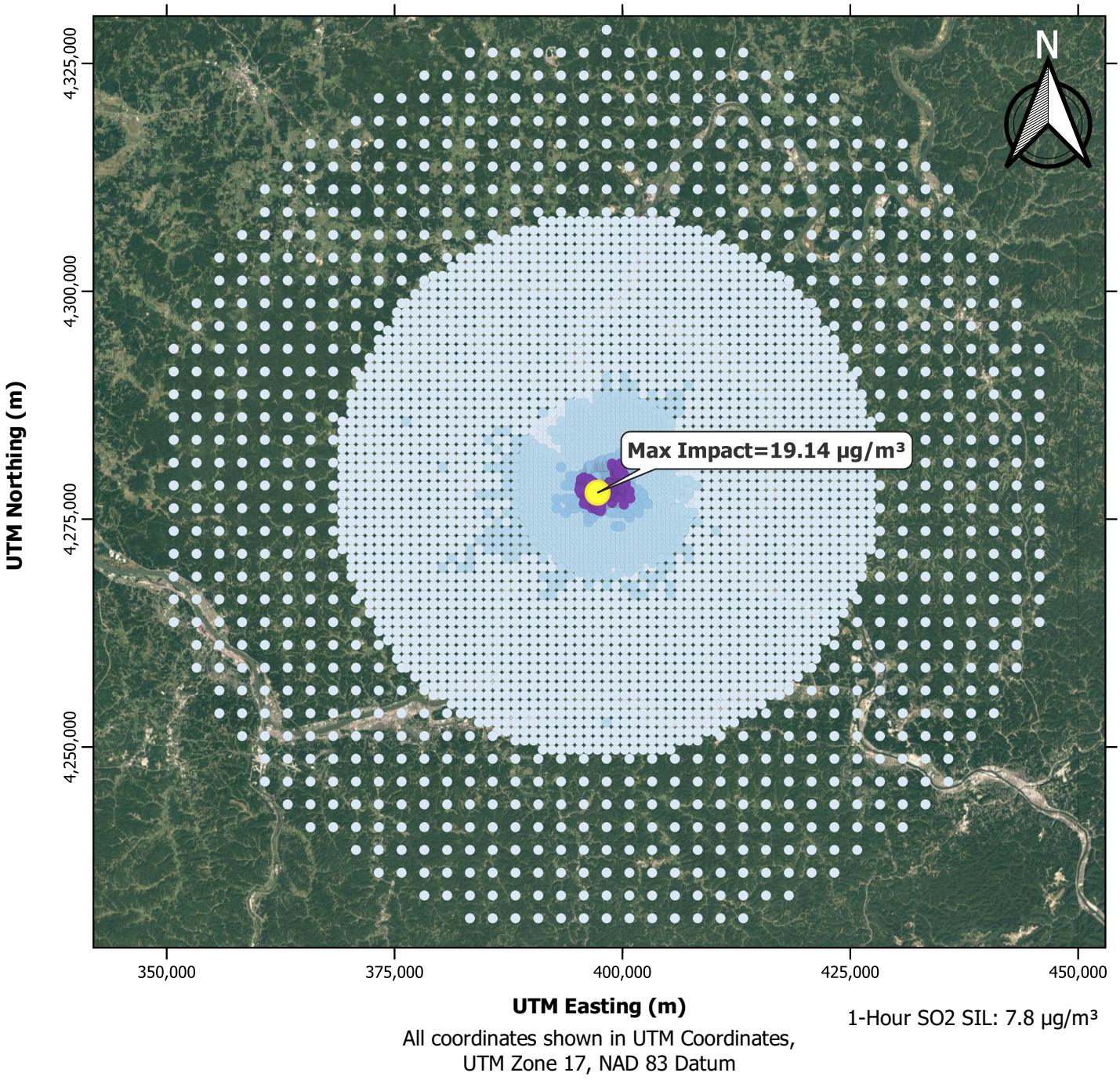


Figure A-8. 3-hr SO2 SIL Impacts

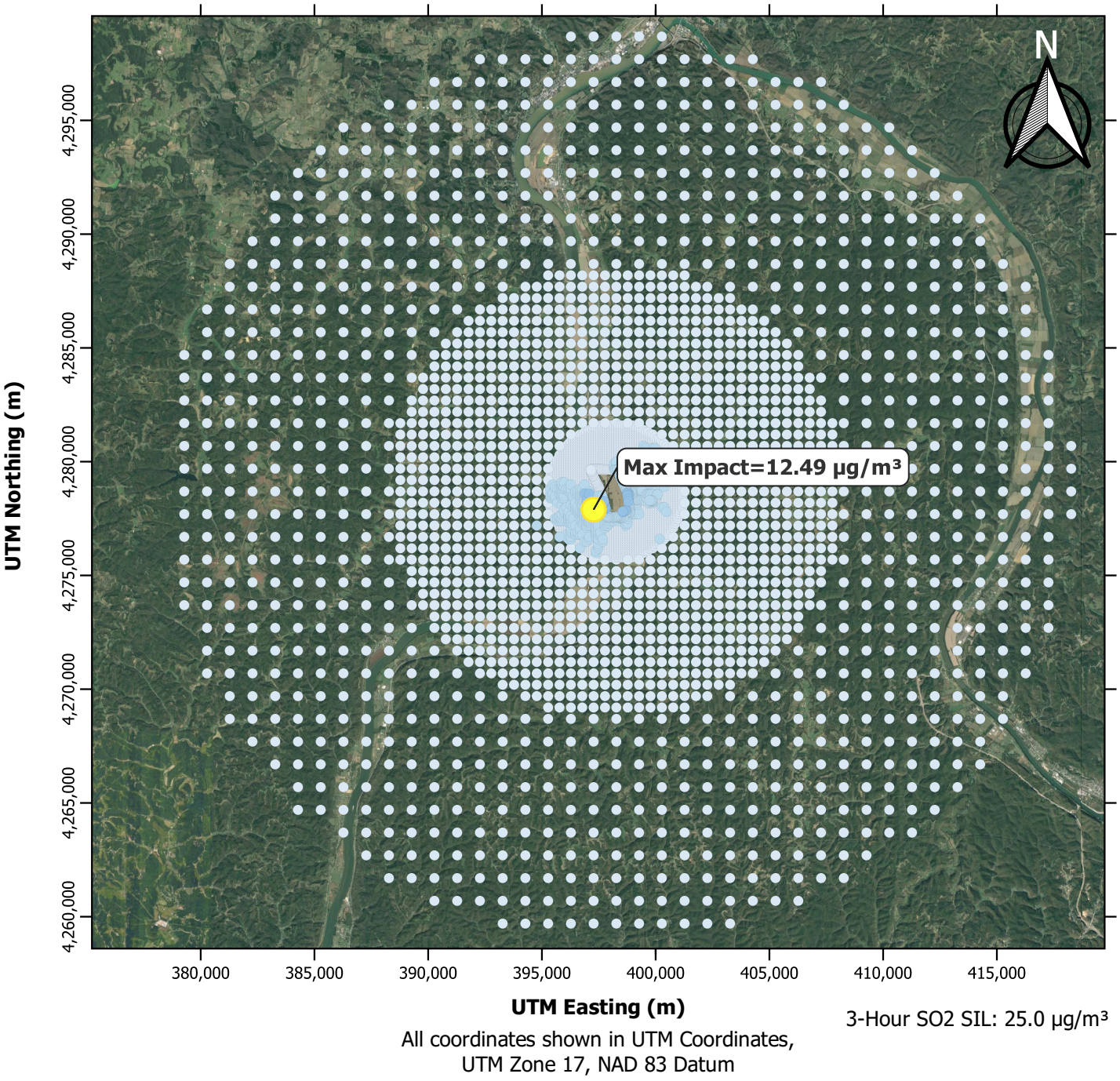


Figure A-9. 24-hr SO2 SIL Impacts

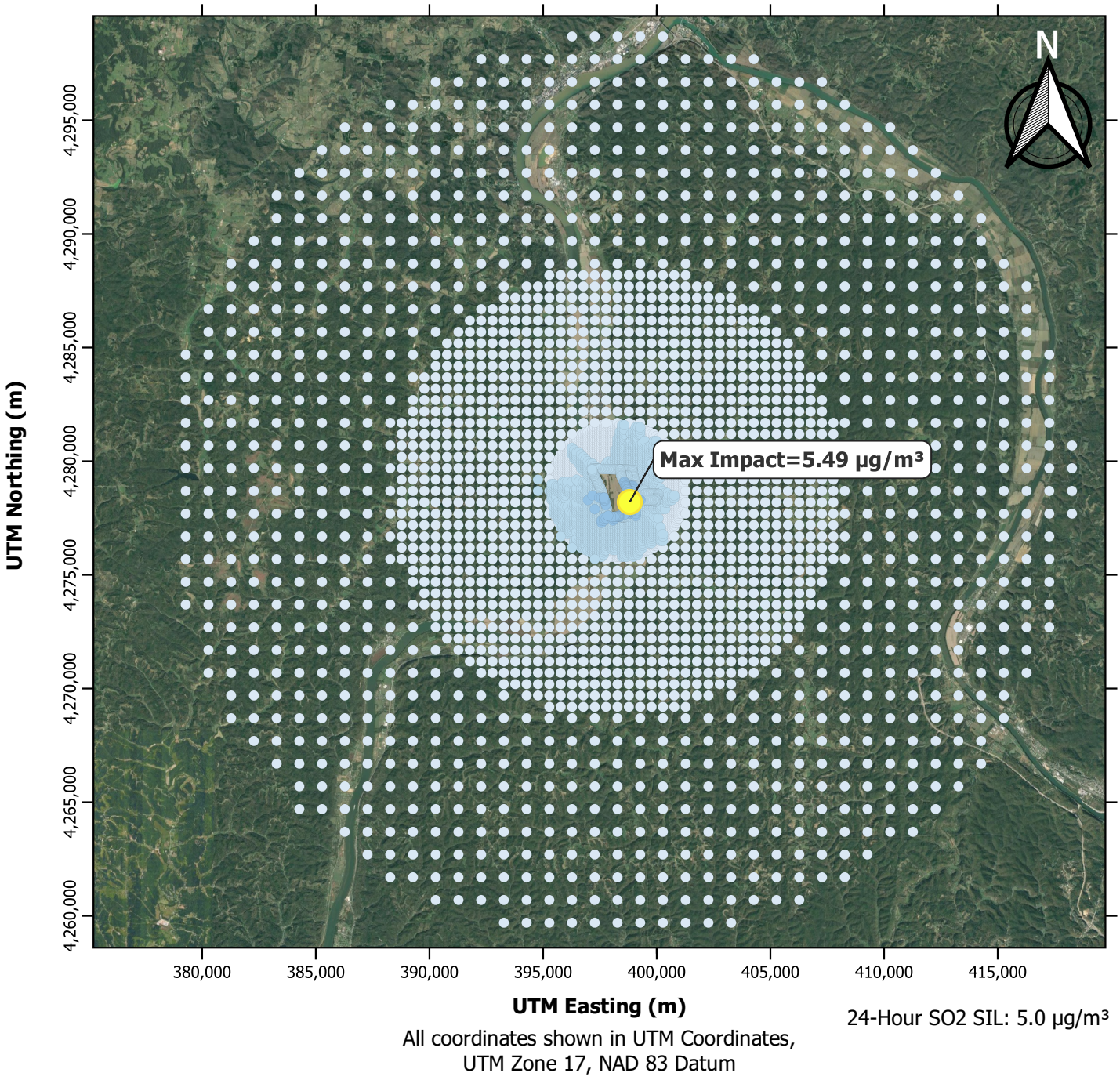


Figure A-10. Annual SO2 SIL Impacts

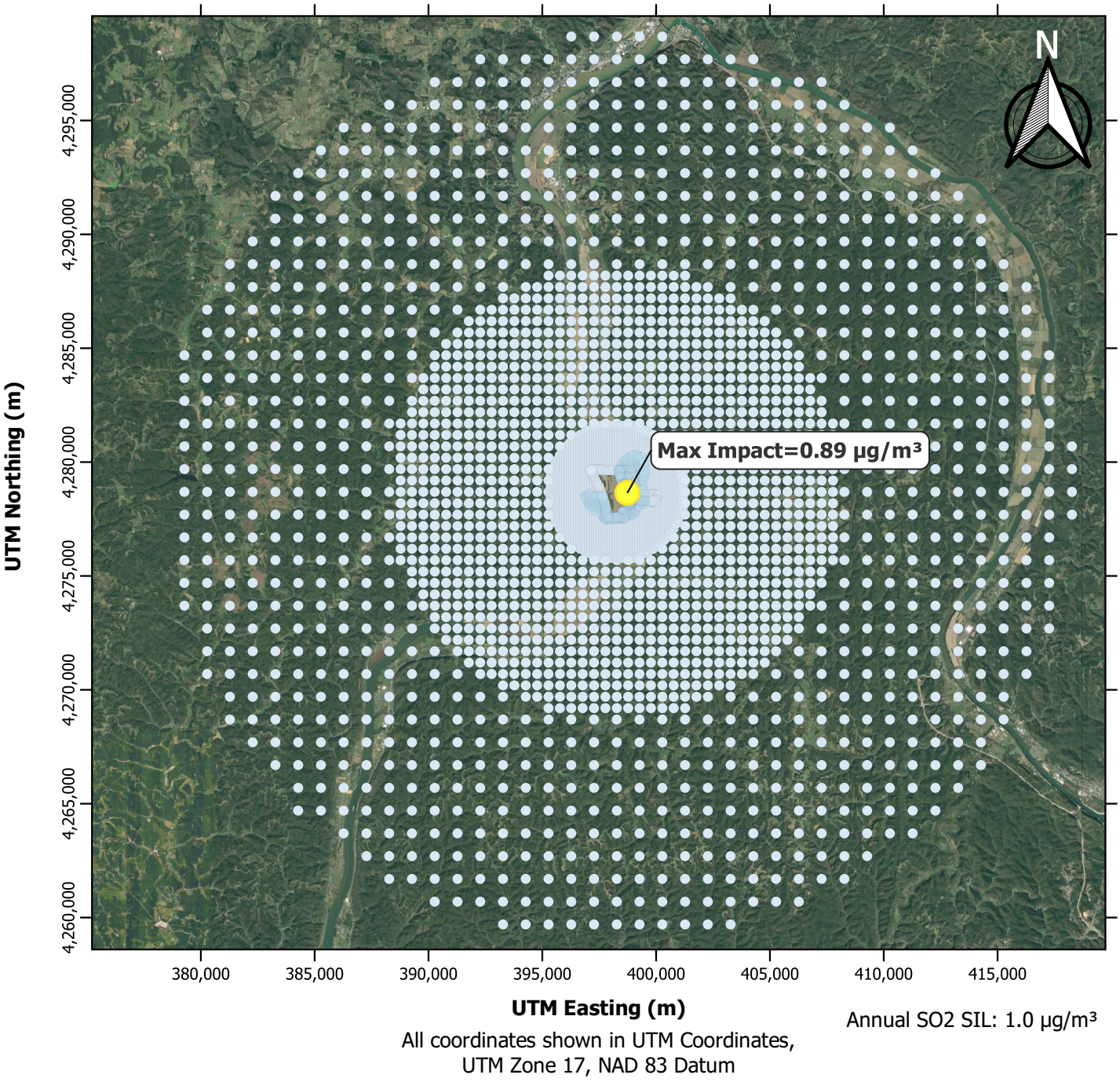


Figure A-11. 24-hr PM10 SIL Impacts

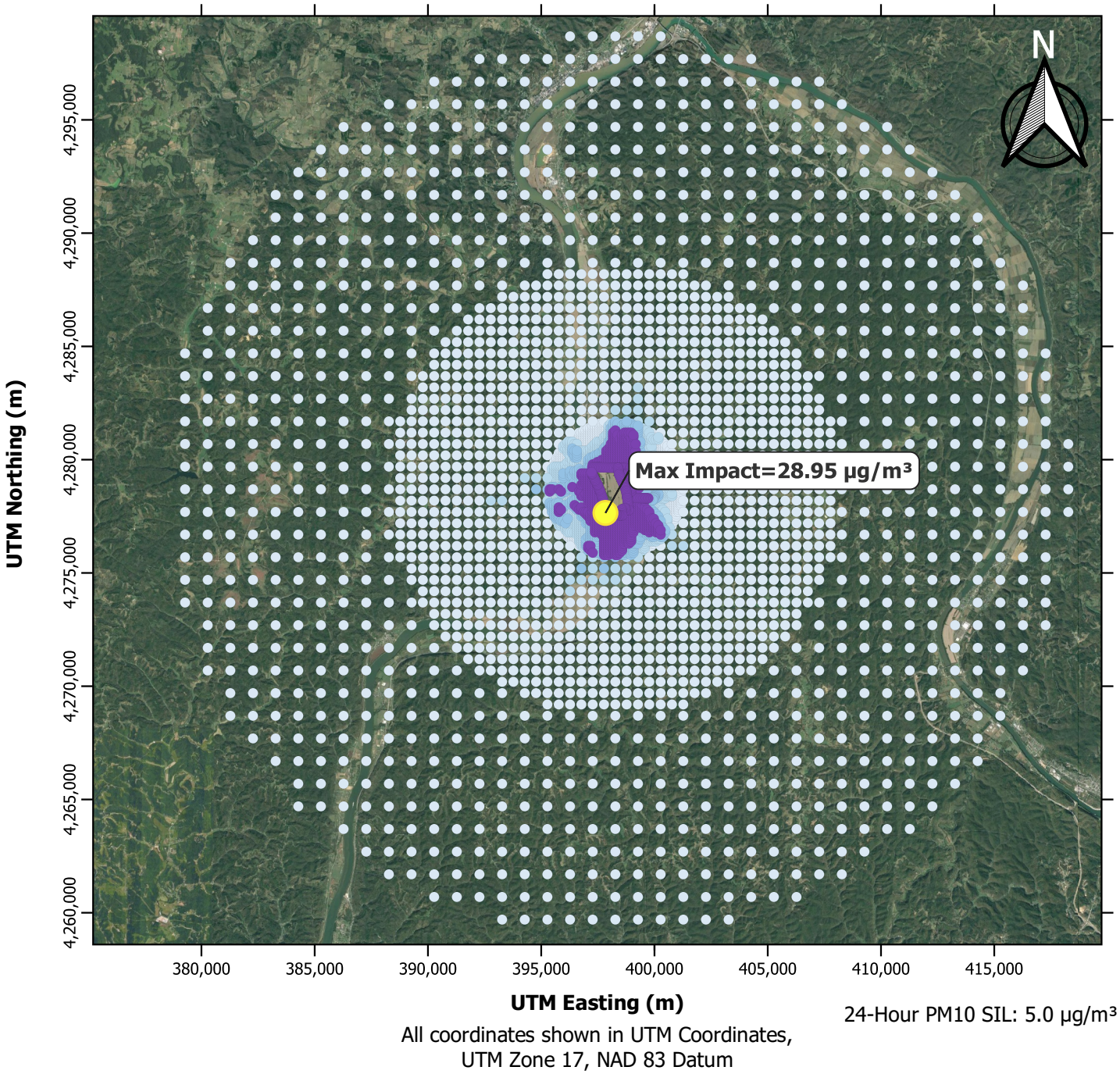
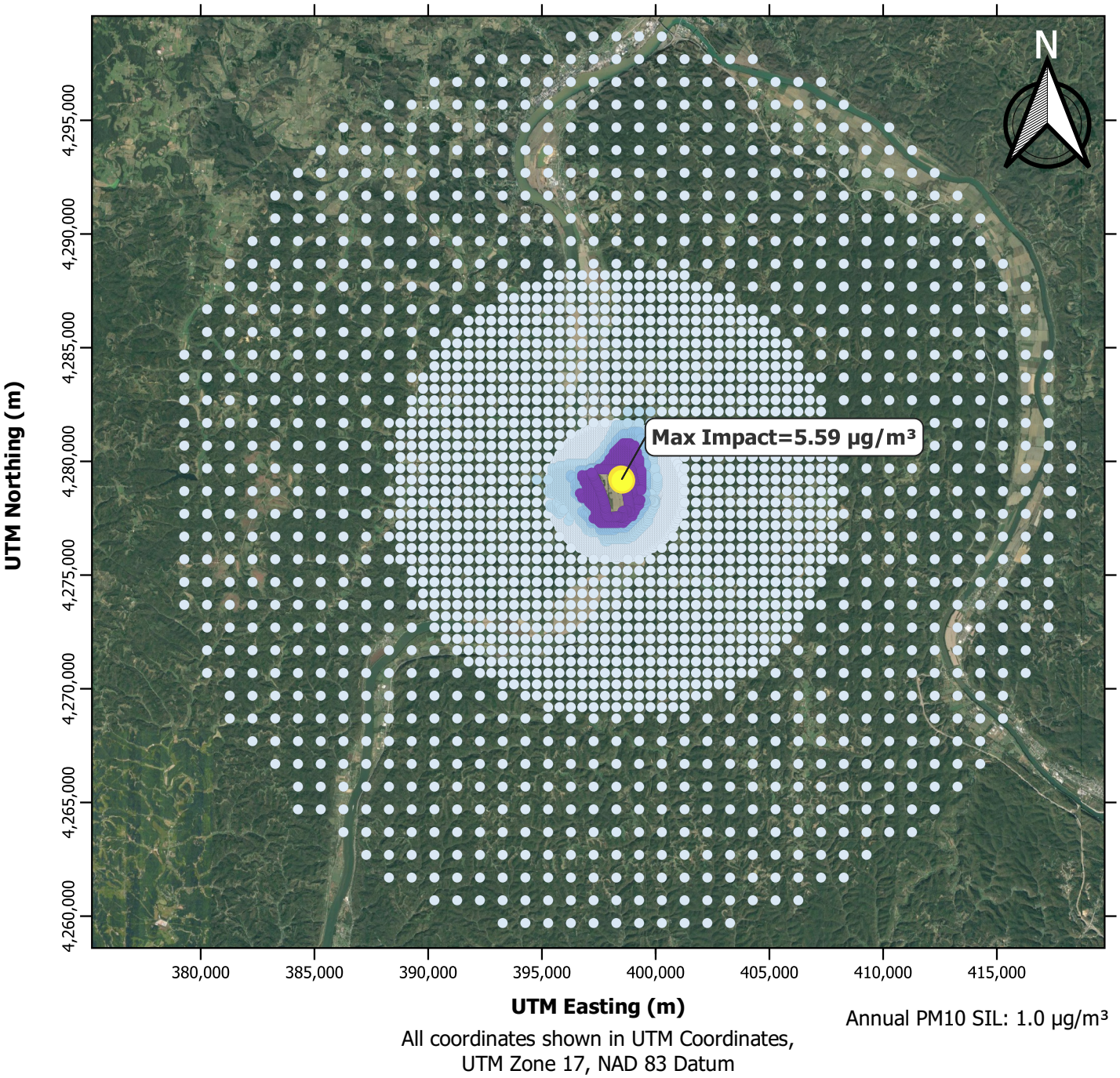


Figure A-12. Annual PM10 SIL Impacts



APPENDIX B. NUCOR SOURCE PARAMETERS

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
BHST1	Furnace Baghouse #1	Point
BHST2	Furnace Baghouse #2	Point
EAFVF1	EAF Baghouse 1 Dust Silo	Point
EAFVF2	EAF Baghouse 2 Dust Silo	Point
TFST1	Hot Mill Tunnel Furnace 1	Point
RMBH	Rolling Mill	Point
TCMST1	Tandem Cold Mill Mist Eliminator	Point
CGLST1	CGL1 - Cleaning Section	Point
CGLST2	CGL1 - Passivation Section	Point
CGLST3	CGL2 - Cleaning Section	Point
CGLST4	CGL2 - Passivation Section	Point
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2	Point
STM	Stand Alone Temper Mill	Point
GALVFN1	Galvanizing Furnace 1	Point
GALVFN2	Galvanizing Furnace 2	Point
PLST1	Pickling Line Mist Scrubber 1	Point
PKLSB	Pickle Line Scale Breaker Baghouse	Point
DRIDCK1	DRI Unloading Dock 1	Point
DRIDCK2	DRI Unloading Dock 2	Point
DRIVF1	DRI Silo 1 Baghouse	Point
DRIBV1	DRI Silo 1 Bin Vent	Point
DRIVF2	DRI Silo 2 Baghouse	Point
DRIBV2	DRI Silo 2 Bin Vent	Point
DRIVF3	DRI Silo 3 Baghouse	Point
DRIBV3	DRI Silo 3 Bin Vent	Point
DRIVF4	DRI Silo 4 Baghouse	Point
DRIBV4	DRI Silo 4 Bin Vent	Point
DRIDB1	DRI Day Bin 1	Point
DRIDB2	DRI Day Bin 2	Point
DRICONV	DRI Transfer Conveyors	Point
LIMEDUMP	Lime Dump Station	Point
CRBNDMP	Carbon Dump Station	Point
ALLYDMP	Alloy Handling Station	Point
LCB	Lime, Carbon, and Alloy Silos	Point
SLGCUTBH	Slag Cutting	Point
CT1	Melt Shop ICW Cooling Tower	Point
CT2	Melt Shop DCW Cooling Tower	Point
CT3	Rolling Mill ICW Cooling Tower	Point
CT4	Rolling Mill DCW Cooling	Point
CT5	Rolling Mill/Quench ACC Cooling	Point
CT6	Light Plate DCW	Point
CT7	Heavy Plate DCW	Point
CT8	Air Separation Cooling	Point
ASP1	Water Bath Vaporizer	Point
EMGEN1	Emergency Generator	Point
EMGEN2	Emergency Generator	Point
EMGEN3	Emergency Generator	Point

Nucor West Virginia Mill
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Appendix A: Source Parameters and Emission Rates

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
EMGEN4	Emergency Generator	Point
EMGEN5	Emergency Generator	Point
EMGEN6	Emergency Generator	Point
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	
MSFUG2		
MSFUG3		
MSFUG4		
MSFUG5		
MSFUG6		
MSFUG7		
MSFUG8		
MSFUG9		
GALFUG1	Cold Mill Monovent - Annealing Furnaces	Volume
GALFUG2		Volume
GALFUG3		Volume
GALFUG4		Volume
GALFUG5		Volume
GALFUG6		Volume
GALFUG7		Volume
GALFUG8		Volume
GALFUG9		Volume
GALFUG10		Volume
GALFUG11		Volume
GALFUG12		Volume
GALFUG13		Volume
GALFUG14		Volume
GALFUG15		Volume
GALFUG16		Volume
GALFUG17		Volume
GALFUG18		Volume
SLGSKP	Slag Stockpiles	Volume
SCRPSKP1	Scrap Stockpile #1	Volume
SCRPSKP2	Scrap Stockpile #2	Volume
SCRPSKP3	Scrap Stockpile #3	Volume
ALLOYF	Alloy Handling Fugitives	Volume
CARBONF	Carbon Handling Fugitives	Volume
LIMEF	Lime Handling Fugitives	Volume
DRIDOCKF	DRI Dock Fugitives	Volume
BULKDRI1	DRI Silo 1 Loadout	Volume
BULKDRI2	DRI Silo 2 Loadout	Volume
SCRPDCK	Barge Scrap Unloading Fugitives	Volume
SCRPRAIL	Rail Scrap Unloading Fugitives	Volume
SCRPB34	Barge Scrap Pile Loading	Volume
SCRPB35	Barge Scrap Pile Loadout	Volume
SCRPB36	Rail Scrap Pile Loading	Volume
SCRPB37	Rail Scrap Pile Loadout	Volume
SCRPB38	Truck Scrap Pile Loading	Volume
SCRPB39	Truck Scrap Pile Loadout	Volume
SCRPB40	Scrap Charging	Volume

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-1. Modeled Source ID Index

Model ID	Description	Source Type
SLGPRCS	Slag Processing	Volume
SLAGCUTNG	Slag Cutting in Processing Area	Volume

Nucor West Virginia Mill
PSD Air Quality Analysis Report
Appendix A: Source Parameters and Emission Rates

Table B-2. Summary of Point Source Parameters

Point Sources

Emission Point ID	Description	UTM East	UTM North	Elevation	Stack Height	Stack Temperature	Stack Diameter	Flow rate	Exit Velocity	Stack Height	Stack Temperature	Exit Velocity	Stack Diameter
		m	m	m	ft	F	ft	cfm	fps	m	K	m/s	m
Melt Shop Complex													
BHST1	Furnace Baghouse #1	398,168.90	4,277,941.80	171.11	213.25	260.33	23.36	1,541,096	59.93	65.00	400.00	18.27	7.12
BHST2	Furnace Baghouse #2	398,187.00	4,277,917.30	171.61	213.25	260.33	23.36	1,541,096	59.93	65.00	400.00	18.27	7.12
EAFVF1	EAF Baghouse 1 Dust Silo	398,208.20	4,277,957.70	172.61	114.83	Ambient	5.51	1,000	0.70	35.00	-0.1	0.21	1.68
EAFVF2	EAF Baghouse 2 Dust Silo	398,232.30	4,277,934.60	172.72	114.83	Ambient	5.51	1,000	0.70	35.00	-0.1	0.21	1.68
Hot Mill Complex													
TFST1	Hot Mill Tunnel Furnace 1	398,464.30	4,278,247.90	177.74	164.04	1075.73	6.00	77,182	45.50	50.00	853.00	13.87	1.83
RMBH	Rolling Mill	398,172.50	4,278,610.50	175.33	213.25	140.00	4.00	111,830	148.32	65.00	333.15	45.21	1.22
Cold Mill Complex													
TCMST1	Tandem Cold Mill Mist Eliminator	397,988.70	4,279,059.70	175.92	213.25	100.13	5.00	217,774	184.85	65.00	311.00	56.34	1.52
CGLST1	CGL1 - Cleaning Section	398,230.30	4,279,074.00	177.05	150.00	139.73	2.07	7,063	35.08	45.72	333.00	10.69	0.63
CGLST2	CGL1 - Passivation Section	398,249.10	4,279,082.40	176.94	150.00	139.73	2.07	8,829	43.85	45.72	333.00	13.37	0.63
CGLST3	CGL2 - Cleaning Section	398,287.00	4,278,983.30	176.36	150.00	139.73	2.07	7,063	35.08	45.72	333.00	10.69	0.63
CGLST4	CGL2 - Passivation Section	398,304.90	4,278,936.30	176.31	150.00	139.73	2.07	8,829	43.85	45.72	333.00	13.37	0.63
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2	398,306.20	4,279,199.30	176.67	213.25	90.05	4.00	52,972	70	65.00	305.40	21.41	1.22
STM	Stand Alone Temper Mill	398,355.40	4,278,964.50	176.83	150.00	90.00	4.00	42,378	56	45.72	305.37	17.13	1.22
GALVFN1	Galvanizing Furnace 1	398,230.20	4,279,013.50	176.92	150.00	440.33	5.25	19,303	14.87	45.72	500.00	4.53	1.60
GALVFN2	Galvanizing Furnace 2	398,284.60	4,279,038.50	176.32	150.00	440.33	5.25	19,303	14.87	45.72	500.00	4.53	1.60
PLST1	Pickling Line Mist Scrubber 1	398,161.50	4,278,797.70	175.62	150.00	343.00	2.95	10,930	26.65	45.72	445.93	8.12	0.90
PKLSB	Pickle Line Scale Breaker Baghouse	398,119.00	4,278,937.10	175.53	213.25	Ambient	4.92	52,972	46.41	65.00	-0.1	14.15	1.50
Material Handling													
DRIDCK1	DRI Unloading Dock 1	397861.60	4277673.80	160.87	20.00	Ambient	1.50	2,000	18.86	6.10	-0.1	5.75	0.46
DRIDCK2	DRI Unloading Dock 2	397865.70	4277665.10	160.87	20.00	Ambient	1.50	2,000	18.86	6.10	-0.1	5.75	0.46
DRIVF1	DRI Silo 1 Baghouse	398236.60	4277792.70	171.83	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV1	DRI Silo 1 Bin Vent	398243.90	4277792.70	172.05	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF2	DRI Silo 2 Baghouse	398240.80	4277770.40	171.62	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV2	DRI Silo 2 Bin Vent	398248.90	4277771.50	171.91	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF3	DRI Silo 3 Baghouse	398257.30	4277798.10	172.34	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV3	DRI Silo 3 Bin Vent	398264.70	4277798.10	172.44	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIVF4	DRI Silo 4 Baghouse	398261.80	4277775.90	172.36	120.00	Ambient	3.00	1,200	2.83	36.58	-0.1	0.86	0.91
DRIBV4	DRI Silo 4 Bin Vent	398269.30	4277776.30	172.44	93.00	Ambient	0.30	148	34.90	28.35	-0.1	10.64	0.09
DRIDB1	DRI Day Bin 1	398387.80	4278045.20	176.32	146.00	Ambient	1.00	1,200	25.46	44.50	-0.1	7.76	0.30
DRIDB2	DRI Day Bin 2	398420.20	4278057.40	175.00	146.00	Ambient	1.00	1,200	25.46	44.50	-0.1	7.76	0.30
DRICONV	DRI Transfer Conveyors	398368.00	4277982.00	175.85	110.00	Ambient	1.00	1,200	25.46	33.53	-0.1	7.76	0.30
LIMEDUMP	Lime Dump Station	398225.70	4278083.00	172.93	50.00	Ambient	0.67	2,000	95.40	15.24	-0.1	29.08	0.20
CRBNDMP	Carbon Dump Station	398219.80	4278079.80	172.76	50.00	Ambient	0.67	2,000	95.40	15.24	-0.1	29.08	0.20
ALLYDMP	Alloy Handling Station	398235.90	4278088.10	173.25	40.00	Ambient	0.67	3,800	181.26	12.19	-0.1	55.25	0.20
LCB	Lime, Carbon, and Alloy Silos	398323.80	4278180.10	176.76	213.25	Ambient	6.00	38,000	22.40	65.00	-0.1	6.83	1.83
SLGCUTBH	Slag Cutting	398569.40	4278040.20	177.34	80.00	119.93	6.00	100,000	58.87	24.38	322.00	17.94	1.83
Misc.													
CT1	Melt Shop ICW Cooling Tower	398528.90	4278390.70	178.38	41.24	120.00	34.00	1,157,894	21.26	12.57	322.04	6.48	10.36
CT2	Melt Shop DCW Cooling Tower	398517.30	4278421.90	178.52	31.92	120.00	16.00	252,156	20.90	9.73	322.04	6.37	4.88
CT3	Rolling Mill ICW Cooling Tower	398397.40	4278672.00	177.41	27.92	120.00	16.00	318,139	26.37	8.51	322.04	8.04	4.88
CT4	Rolling Mill DCW Cooling	398341.20	4278660.90	176.67	39.90	120.00	24.00	561,317	20.68	12.16	322.04	6.30	7.32
CT5	Rolling Mill/Quench ACC Cooling	398363.90	4278673.40	177.10	39.90	120.00	34.00	1,237,843	22.72	12.16	322.04	6.93	10.36
CT6	Light Plate DCW	398445.10	4278786.60	178.13	39.90	120.00	18.00	310,000	20.30	12.16	322.04	6.19	5.49
CT7	Heavy Plate DCW	398460.20	4278793.70	178.17	10.63	120.00	14.00	200,000	21.65	3.24	322.04	6.60	4.27
CT8	Air Separation Cooling	399048.10	4278662.70	180.78	29.27	120.00	20.00	400,000	21.22	8.92	322.04	6.47	6.10
ASP1	Water Bath Vaporizer	399049.40	4278688.50	180.20	20.00	400.00	1.00	2,726	57.85	6.10	477.59	17.63	0.30
EMGEN1	Emergency Generator	398272.10	4278066.50	174.42	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15

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Appendix A: Source Parameters and Emission Rates

Table B-2. Summary of Point Source Parameters

Point Sources

Emission Point ID	Description	UTM East	UTM North	Elevation	Stack Height	Stack Temperature	Stack Diameter	Flow rate	Exit Velocity	Stack Height	Stack Temperature	Exit Velocity	Stack Diameter
		m	m	m	ft	F	ft	cfm	fps	m	K	m/s	m
EMGEN2	Emergency Generator	398352.80	4278485.80	175.53	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN3	Emergency Generator	398348.30	4278499.30	175.53	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN4	Emergency Generator	398231.20	4278844.80	175.63	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN5	Emergency Generator	398235.70	4278820.70	175.59	10.00	997.00	0.49	1,177	104.04	3.05	809.26	31.71	0.15
EMGEN6	Emergency Generator	398243.10	4278800.90	175.61	8.00	965.00	1.30	1,177	14.78	2.44	791.48	4.51	0.40

Notes:
All coordinates are Universal Transverse Mercator (UTM) coordinates based on North American Datum 1983 (NAD 83) and reside within UTM Zone 17.

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Appendix A: Source Parameters and Emission Rates

Table B-3. Summary of Volume Source Parameters

Volume Sources

Emission Point ID	Description	Number of Sources	UTM East m	UTM North m	Elevation m	Type of Volume Source	Length m	Width m	Volume Source Length m	Vertical Dimension m	Building Height m	Release Height m	Initial Lateral Dimension m	Initial Vertical Dimension m
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	9	398,405.00	4,278,123.50	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG2			398,417.20	4,278,129.10	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG3			398,430.30	4,278,134.60	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG4			398,443.10	4,278,139.50	175	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG5			398,456.00	4,278,144.70	176	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG6			398,467.80	4,278,150.30	177	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG7			398,480.60	4,278,155.60	177	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG8			398,492.60	4,278,160.50	178	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
MSFUG9			398,503.40	4,278,164.80	178	Elevated Source on or Adjacent to a Building	90	10	30	--	42.67	44.17	6.98	21.24
GALFUG1	Cold Mill Monovent - Annealing Furnaces	18	398,221.90	4,279,111.40	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG2			398,224.80	4,279,099.80	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG3			398,230.10	4,279,089.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG4			398,234.80	4,279,077.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG5			398,240.30	4,279,065.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG6			398,244.90	4,279,052.60	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG7			398,250.40	4,279,039.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG8			398,255.10	4,279,028.70	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG9			398,259.60	4,279,017.20	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG10			398,269.50	4,278,989.00	177	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG11			398,273.60	4,278,977.00	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG12			398,278.00	4,278,965.60	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG13			398,283.60	4,278,953.90	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG14			398,288.50	4,278,942.50	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG15			398,293.10	4,278,931.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG16			398,297.40	4,278,918.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG17			398,302.10	4,278,906.80	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
GALFUG18			398,308.10	4,278,894.10	176	Elevated Source on or Adjacent to a Building	90	10	30	--	30.48	31.98	6.98	15.57
SLGSKP	Slag Stockpiles	1	398,575.50	4,278,032.30	177	Surface Base	110	110	110	6	--	3.05	25.62	2.84
SCRPSKP1	Scrap Stockpile #1	3	398,010.50	4,278,458.00	173	Surface Base	50	50	50	6	--	3.05	11.71	2.84
SCRPSKP2	Scrap Stockpile #2		397,991.30	4,278,286.90	171	Surface Base	50	50	50	6	--	3.05	11.71	2.84
SCRPSKP3	Scrap Stockpile #3		397,992.80	4,278,078.50	171	Surface Base	50	50	50	6	--	3.05	11.71	2.84
ALLOYF	Alloy Handling Fugitives	1	398,233.20	4,278,086.00	173	Surface Base	3.5	14.0	7	5	--	4.57	1.62	2.13
CARBONF	Carbon Handling Fugitives	1	398,218.20	4,278,077.80	173	Surface Base	1.1	2.1	2	1	--	1.39	0.35	0.65
LIMEF	Lime Handling Fugitives	1	398,224.30	4,278,081.60	173	Surface Base	1.1	2.1	2	1	--	1.39	0.35	0.65
DRIDOCKF	DRI Dock Fugitives	1	397,863.90	4,277,668.90	161	Surface Base	2.3	3.5	3	6	--	6.10	0.66	2.84
BULKDRI1	DRI Silo 1 Loadout	1	398,227.80	4,277,788.90	171	Surface Base	1.9	1.9	2	4	--	3.66	0.43	1.70
BULKDRI2	DRI Silo 2 Loadout	1	398,232.40	4,277,764.40	171	Surface Base	1.9	1.9	2	4	--	3.66	0.43	1.70
SCRPDCK	Barge Scrap Unloading Fugitives	1	397,861.70	4,277,834.30	164	Surface Base	3.5	7.0	5	5	--	4.57	1.15	2.13
SCRPRAIL	Rail Scrap Unloading Fugitives	1	398,109.80	4,278,186.20	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB34	Barge Scrap Pile Loading	1	398,091.10	4,278,225.30	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB35	Barge Scrap Pile Loadout	1	398,090.20	4,278,245.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB36	Rail Scrap Pile Loading	1	398,090.30	4,278,273.10	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB37	Rail Scrap Pile Loadout	1	398,082.30	4,278,307.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB38	Truck Scrap Pile Loading	1	398,075.00	4,278,325.70	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SCRPB39	Truck Scrap Pile Loadout	1	398,067.80	4,278,350.20	173	Surface Base	3	7	5	5	--	4.57	1.15	2.13

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Appendix A: Source Parameters and Emission Rates

Table B-3. Summary of Volume Source Parameters

Volume Sources

Emission Point ID	Description	Number of Sources	UTM East m	UTM North m	Elevation m	Type of Volume Source	Length m	Width m	Volume Source Length m	Vertical Dimension m	Building Height m	Release Height m	Initial Lateral Dimension m	Initial Vertical Dimension m
SCRPB40	Scrap Charging	1	398,071.70	4,278,277.10	172	Surface Base	3	7	5	5	--	4.57	1.15	2.13
SLGPRCS	Slag Processing	1	398,438.80	4,278,010.10	175	Elevated Source not on or Adjacent to a Building	157	127	141	35	--	10.67	32.85	8.14
SLAGCUTNG	Slag Cutting in Processing Area	1	398,492.20	4,278,031.00	176	Elevated Source not on or Adjacent to a Building	61	61	61	3	--	3.05	14.18	0.71

Notes:
All coordinates are Universal Transverse Mercator (UTM) coordinates based on North American Datum 1983 (NAD 83) and reside within UTM Zone 17.

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Appendix A: Flare Parameters

Table B-4. Summary of Flare Parameters

Flare Sources

Emission Point ID	Description	UTM East m	UTM North m	Elevation m	Heat Release Cal/s	Heat Loss --	Stack Height ft	Stack Temperature F	Stack Diameter ft	Flow rate cfm	Exit Velocity fps	Effective Stack Height m	Stack Temperature K	Exit Velocity m/s	Stack Diameter m
Melt Shop Complex															
VTDST1	Vacuum Tank Degasser Flare 1	398,350.80	4,278,065.50	176.16	865996	0.55	150.00	1831.73	0.62	--	65.62	48.86	1273.00	20.00	0.19
VTDST2	Vacuum Tank Degasser Flare 2	398,331.50	4,278,112.20	176.47	865996	0.55	150.00	1831.73	0.62	--	65.62	48.86	1273.00	20.00	0.19

Notes:
Flare parameters were calculated in accordance with Section 2.1.2. of "AERSCREEN User's Guide, April 2021"

Table B-5. Summary of Volume Source Parameters and Emission RatesFor Roadways

Volume Sources

Emission Point ID	Description	Number of Volume Sources	Truck Width m	Truck Height m	Width of Plume m	Top of Plume Height m	Initial Lateral Dimension m	Initial Vertical Dimension m	Release Height m	PM_{10} ST (g/s)	PM_{10} LT (g/s)	$PM_{2.5}$ ST (g/s)	$PM_{2.5}$ LT (g/s)
FUGD-PAVED	Paved Roads 1 to 10	455	3.0	3.0	18	5.10	8.37	2.37	2.55	0.000737	0.000737	0.000119	0.000119
FUGD-UNPAVED	Unpaved Roads 11 to 19												

Notes:
Typical haul truck width (3.0 m) and height (3.0 m) taken from U.S. EPA's Haul Road Workgroup Final Report (12/2011).

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Appendix A: Source Parameters and Emission Rates

Table B-6. Summary of Modeled Point Source and Flare Source Emission Rates

Point Sources

Emission Point ID	Description	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead
		ST (lb/hr)	LT (tpy)	ST (lb/hr)	LT (tpy)	ST (lb/hr)	ST (lb/hr)	LT (tpy)	ST (lb/hr)	LT (tpy)	LT (tpy)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	LT (g/s)
Melt Shop Complex																					
BHST1	Furnace Baghouse #1	56.86	249.38	38.99	171.00	328.15	49.19	215.45	49.19	215.45	0.32	7.163924	7.173681	4.912405	4.919095	41.346079	6.197805	6.197805	6.197805	6.197805	9.223E-03
BHST2	Furnace Baghouse #2	56.86	249.38	38.99	171.00	328.15	49.19	215.45	49.19	215.45	0.32	7.163924	7.173681	4.912405	4.919095	41.346079	6.197805	6.197805	6.197805	6.197805	9.223E-03
VTDST1	Vacuum Tank Degasser Flare 1	0.84	3.69	0.01	0.03	5.38	0.07	0.33	0.07	0.33	--	0.105998	0.106142	0.000917	0.000918	0.677239	0.009435	0.009448	0.009435	0.009448	--
VTDST2	Vacuum Tank Degasser Flare 2	0.84	3.69	0.01	0.03	5.38	0.07	0.33	0.07	0.33	--	0.105998	0.106142	0.000917	0.000918	0.677239	0.009435	0.009448	0.009435	0.009448	--
EAFVF1	EAF Baghouse 1 Dust Silo	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
EAFVF2	EAD Baghouse 2 Dust Silo	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
Hot Mill Complex																					
TFST1	Hot Mill Tunnel Furnace 1	10.50	45.99	0.09	0.39	12.35	1.12	4.90	1.12	4.90	0.00	1.322978	1.322978	0.011117	0.011117	1.556444	0.140821	0.140821	0.140821	0.140821	9.265E-06
TFST2	Hot Mill Tunnel Furnace 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RMBH	Rolling Mill	--	--	--	--	--	10.09	44.19	5.04	22.10	--	--	--	--	--	--	1.271311	1.271311	0.635656	0.635656	--
Cold Mill Complex																					
TCMST1	Tandem Cold Mill Mist Eliminator	--	--	--	--	--	11.44	50.09	11.44	50.09	--	--	--	--	--	--	1.440986	1.440986	1.440986	1.440986	--
CGLST1	CGL1 - Cleaning Section	--	--	--	--	--	0.16	0.69	0.16	0.69	--	--	--	--	--	--	0.019840	0.019840	0.019840	0.019840	--
CGLST2	CGL1 - Passivation Section	--	--	--	--	--	0.24	1.05	0.24	1.05	--	--	--	--	--	--	0.030293	0.030293	0.030293	0.030293	--
CGLST3	CGL2 - Cleaning Section	--	--	--	--	--	0.16	0.69	0.16	0.69	--	--	--	--	--	--	0.019840	0.019840	0.019840	0.019840	--
CGLST4	CGL2 - Passivation Section	--	--	--	--	--	0.24	1.05	0.24	1.05	--	--	--	--	--	--	0.030293	0.030293	0.030293	0.030293	--
SPMST123	Skin Pass Mill Baghouse #1 Skin Pass Mill Baghouse #2 Skin Pass Mill Baghouse #3	--	--	--	--	--	4.21	18.46	2.11	9.23	-- -- --	--	--	--	--	--	0.531077	0.531077	0.265539	0.265539	-- -- --
STM	Stand Alone Temper Mill	--	--	--	--	--	0.93	4.05	0.50	2.20	--	--	--	--	--	--	0.116638	0.116638	0.063179	0.063179	--
GALVFN1	Galvanizing Furnace 1	3.20	14.02	0.04	0.16	5.27	0.48	2.09	0.48	2.09	0.00	0.403193	0.403193	0.004743	0.004743	0.664083	0.060084	0.060084	0.060084	0.060084	3.953E-06
GALVFN2	Galvanizing Furnace 2	3.20	14.02	0.04	0.16	5.27	0.48	2.09	0.48	2.09	0.00	0.403193	0.403193	0.004743	0.004743	0.664083	0.060084	0.060084	0.060084	0.060084	3.953E-06
PLST1	Pickling Line Mist Scrubber 1	--	--	--	--	--	0.62	2.70	0.62	2.70	--	--	--	--	--	--	0.077597	0.077597	0.077597	0.077597	--
PLST2	Pickling Line Mist Scrubber 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CMBLR1	Pickling Line Boiler 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CMBLR2	Pickling Line Boiler 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CMBLR3	Pickling Line Boiler 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PKLSB	Pickle Line Scale Breaker Baghouse	--	--	--	--	--	1.36	5.97	1.36	5.97	--	--	--	--	--	--	0.171626	0.171626	0.171626	0.171626	--
Material Handling																					
DRIDCK1	DRI Unloading Dock 1	--	--	--	--	--	0.02	0.08	0.01	0.04	--	--	--	--	--	--	0.002160	0.002160	0.001058	0.001058	--
DRIDCK2	DRI Unloading Dock 2	--	--	--	--	--	0.02	0.08	0.01	0.04	--	--	--	--	--	--	0.002160	0.002160	0.001058	0.001058	--
DRIVF1	DRI Silo 1 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV1	DRI Silo 1 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF2	DRI Silo 2 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV2	DRI Silo 2 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF3	DRI Silo 3 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV3	DRI Silo 3 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIVF4	DRI Silo 4 Baghouse	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIBV4	DRI Silo 4 Bin Vent	--	--	--	--	--	0.00	0.01	0.00	0.00	--	--	--	--	--	--	0.000160	0.000160	0.000078	0.000078	--
DRIDB1	DRI Day Bin 1	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRIDB2	DRI Day Bin 2	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
DRICONV	DRI Transfer Conveyors	--	--	--	--	--	0.01	0.05	0.01	0.02	--	--	--	--	--	--	0.001296	0.001296	0.000635	0.000635	--
LIMEDUMP	Lime Dump Station	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
CRBNDMP	Carbon Dump Station	--	--	--	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--	0.010800	0.010800	0.010800	0.010800	--
ALLYDMP	Alloy Handling Station	--	--	--	--	--	0.16	0.71	0.16	0.71	--	--	--	--	--	--	0.020520	0.020520	0.020520	0.020520	--
LCB	Lime, Carbon, and Alloy Silos	--	--	--	--	--	1.63	7.13	1.63	7.13	--	--	--	--	--	--	0.205197	0.205197	0.205197	0.205197	--
SLGCUTBH	Slag Cutting	--	--	--	--	--	0.86	3.75	0.86	3.75	--	--	--	--	--	--	0.107998	0.107998	0.107998	0.107998	--
Misc.																					
CT1	Melt Shop ICW Cooling Tower	--	--	--	--	--	0.20	0.86	0.20	0.86	--	--	--	--	--	--	0.024619	0.024619	0.024619	0.024619	--
CT2	Melt Shop DCW Cooling Tower	--	--	--	--	--	0.02	0.10	0.02	0.10	--	--	--	--	--	--	0.002793	0.002793	0.002793	0.002793	--
CT3	Rolling Mill ICW Cooling Tower	--	--	--	--	--	0.03	0.14	0.03	0.14	--	--	--	--	--	--	0.004024	0.004024	0.004024	0.004024	--
CT4	Rolling Mill DCW Cooling	--	--	--	--	--	0.09	0.37	0.09	0.37	--	--	--	--	--	--	0.010771	0.010771	0.010771	0.010771	--
CT5	Rolling Mill/Quench ACC Cooling	--	--	--	--	--	0.34	1.48	0.34	1.48	--	--	--	--	--	--	0.042609	0.042609	0.042609	0.042609	--
CT6	Light Plate DCW	--	--	--	--	--	0.03	0.13	0.03	0.13	--	--	--	--	--	--	0.003787	0.003787	0.003787	0.003787	--
CT7	Heavy Plate DCW	--	--	--	--	--	0.01	0.05	0.01	0.05	--	--	--	--	--	--	0.001420	0.001420	0.001420	0.001420	--
CT8	Air Separation Cooling	--	--	--	--	--	0.05	0.23	0.05	0.23	--	--	--	--	--	--	0.006628	0.006628	0.006628	0.006628	--
ASP1	Water Bath Vaporizer	1.08	4.72	0.01	0.03	0.91	0.08	0.36	0.08	0.36	0.00	0.135880	0.135880	0.000815	0.000815	0.114139	0.010327	0.010327	0.010327	0.010327	6.794E-07
EMGEN1	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN2	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN3	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN4	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN5	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--
EMGEN6	Emergency Generator	8.82	0.44	0.01	0.00	17.64	0.68	0.03	0.68	0.03	--	1.111111	0.012684	0.001037	0.000012	2.222222	0.085217	0.000973	0.085217	0.000973	--

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Appendix A: Source Parameters and Emission Rates

Table B-7. Summary of Modeled Volume Source Emission Rates

Volume Sources

Emission Point ID	Description	Number of Sources	NO_2		SO_2		CO	PM_{10}		$PM_{2.5}$		Lead
			ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	ST (g/s)	LT (g/s)	ST (g/s)	LT (g/s)	LT (g/s)
MSFUG1	Hot Mill Monovent - Melt Shop Fugitives + Casting Fugitives	9	0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG2			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG3			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG4			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG5			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG6			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG7			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG8			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
MSFUG9			0.284177	0.284291	0.058657	0.058736	0.651906	0.031236	0.031257	0.031236	0.031257	1.089E-04
GALFUG1	Cold Mill Monovent - Annealing Furnaces	18	0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG2			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG3			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG4			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG5			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG6			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG7			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG8			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG9			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG10			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG11			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG12			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG13			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG14			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG15			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG16			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG17			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
GALFUG18			0.038499	0.038499	0.000453	0.000453	0.063411	0.005737	0.005737	0.005737	0.005737	3.774E-07
SLGSKP	Slag Stockpiles	1	--	--	--	--	--	0.029382	0.029382	0.004449	0.004449	--
SCRPSKP1	Scrap Stockpile #1	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
SCRPSKP2	Scrap Stockpile #2	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
SCRPSKP3	Scrap Stockpile #3	1	--	--	--	--	--	0.018467	0.018467	0.002796	0.002796	--
ALLOYF	Alloy Handling Fugitives	1	--	--	--	--	--	0.005481	0.001940	0.000830	0.000294	--
CARBONF	Carbon Handling Fugitives	1	--	--	--	--	--	0.001095	0.001095	0.000166	0.000166	--
LIMEF	Lime Handling Fugitives	1	--	--	--	--	--	0.002190	0.002190	0.000332	0.000332	--
DRIDOCKF	DRI Dock Fugitives	1	--	--	--	--	--	0.011669	0.001485	0.001767	0.000225	--
BULKDRI1	DRI Silo 1 Loadout	1	--	--	--	--	--	0.001485	0.001485	0.000225	0.000225	--
BULKDRI2	DRI Silo 2 Loadout	1	--	--	--	--	--	0.001485	0.001485	0.000225	0.000225	--
SCRPDCK	Barge Scrap Unloading Fugitives	1	--	--	--	--	--	0.011340	0.003115	0.003251	0.000893	--
SCRPRAIL	Rail Scrap Unloading Fugitives	1	--	--	--	--	--	0.003780	0.000415	0.001084	0.000119	--
SCRPB34	Barge Scrap Pile Loading	1	--	--	--	--	--	0.032643	0.008967	0.004943	0.001358	--
SCRPB35	Barge Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.008967	0.002266	0.001358	--
SCRPB36	Rail Scrap Pile Loading	1	--	--	--	--	--	0.006529	0.001196	0.000989	0.000181	--
SCRPB37	Rail Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.001196	0.002266	0.000181	--
SCRPB38	Truck Scrap Pile Loading	1	--	--	--	--	--	0.010881	0.001793	0.001648	0.000272	--
SCRPB39	Truck Scrap Pile Loadout	1	--	--	--	--	--	0.014961	0.001793	0.002266	0.000272	--
SCRPB40	Scrap Charging	1	--	--	--	--	--	0.011955	0.011955	0.001810	0.001810	--
SLGPRCS	Slag Processing	1	--	--	--	--	--	0.047838	0.019660	0.027472	0.011290	--
SLAGCUTNG	Slag Cutting in Processing Area	1	0.029647	0.029647	0.000178	0.000178	0.024903	0.002253	0.002253	0.002253	0.002253	1.482E-07

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Table B-8. Summary of Modeled Buildings

Polygon Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft
MISC	Misc. Building	398184.7000	4278053.2000	566.77	40.00

Circular Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft	Radius ft
DRI3	DRI Silo #3	398261.4000	4277798.5000	565.62	130.00	30.00
DRI4	DRI Silo #4	398266.1000	4277777.4000	565.68	130.00	30.00
DRI1	DRI Silo #1	398240.3000	4277793.0000	564.24	130.00	30.00
DRI2	DRI Silo #2	398245.3000	4277772.0000	563.65	130.00	30.00
DRIDAY1	DRI Day Bin #1	398387.5000	4278045.3000	578.51	130.00	12.00
DRIDAY2	DRI Day Bin #2	398420.1000	4278057.8000	574.15	130.00	12.00
DRI_BIN	DRI Bin	398368.3000	4277982.2000	576.94	130.00	30.00

Rectangular Buildings

Building ID	Building Description	UTM East m	UTM North m	Elevation ft	Height ft	X Length ft	Y Length ft	Angle
MELT1	Meltshop Building #1	398564.4000	4278126.2000	582.97	140.00	361.22	908.14	-112.50
MELT2	Meltshop Building #2	398565.5000	4278279.3000	584.61	140.00	354.00	110.24	157.90
MELT3	Meltshop Building #3	398239.5000	4278697.9000	575.72	80.00	135.17	1777.56	157.90
MELT4	Meltshop Building #4	398165.6000	4278668.7000	575.53	80.00	1090.55	129.27	67.50
MELTBAG2	Meltshop Baghouse #2	398266.8000	4277959.6000	566.57	80.00	278.54	66.27	157.80
MELTBAG1	Meltshop Baghouse #1	398240.9000	4277984.3000	566.57	80.00	260.17	68.57	157.70
ADMIN	Admin Building	398598.1000	4278841.7000	584.97	40.00	124.02	186.35	157.80
COLD5	Cold Mill Building #5	398515.8000	4278890.3000	584.68	60.00	235.56	783.79	-111.80
COLD3	Cold Mill Building #3	398279.4000	4279202.7000	579.66	60.00	243.11	931.76	-111.90
COLD2	Cold Mill Building #2	398069.4000	4279115.8000	575.16	60.00	122.05	1384.84	157.90
COLD1	Cold Mill Building #1	397995.2000	4279086.0000	576.18	60.00	750.66	138.78	67.60
COLD6	Cold Mill Building #6	398095.0000	4279125.5000	576.35	60.00	102.36	327.43	156.70
COLD7	Cold Mill Water Treatment Building	398474.2000	4278790.7000	584.78	40.00	48.88	115.81	-110.30
ROLL1	Rolling Mill Water Treatment Building #1	398340.8000	4278679.6000	579.79	40.00	49.54	110.24	158.10
ROLL2	Rolling Mill Water Treatment Building #2	398363.7000	4278696.2000	581.27	40.00	44.62	130.91	158.50
ROLL3	Rolling Mill Water Treatment Building #3	398401.8000	4278681.3000	582.38	40.00	47.57	39.04	159.00
CASTER1	Caster Wastewater Treatment Building #1	398487.7000	4278486.0000	585.76	40.00	87.60	49.21	156.80
CASTER2	Caster Wastewater Treatment Building #2	398477.8000	4278435.9000	584.94	40.00	81.36	48.88	-20.40
CASTER3	Caster Wastewater Treatment Building #3	398490.8000	4278404.4000	585.86	40.00	201.12	51.84	-21.10
CASTER4	Caster Wastewater Treatment Building #4	398560.3000	4278396.9000	585.60	40.00	53.48	201.44	-113.10
COLD4	Cold Mill Building #4	398393.5000	4278917.5000	583.17	100.00	1010.17	445.21	-112.10

APPENDIX C. REGIONAL SOURCE PARAMETERS

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-1. Significant Impact Area

Pollutant	Averaging Period	Distance (km)
NO_2	1-hr	29.22
	Annual	2.62
SO_2	1-hr	3.38
	3-hr	N/A-Below SIL
	24-hr	0.76 -No NAAQS
	Annual	N/A-Below SIL
CO	1-hour	N/A-Below SIL
	8-hour	N/A-Below SIL
$PM_{2.5}$	24-hr	9.71
	Annual	8.55
PM_{10}	24-hr	3.15
	Annual	2.01-No NAAQS
Lead	Rolling 3- Month Avg.	N/A-No SIL

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-2. Summary of Proposed Sources

NAAQS

Facility ID	Name	1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	24-hr PM_{10}	Rolling 3-month Avg. Lead
54-053-00054	WV-APG Polytech LLC	X	X	X	X	X	X	
54-053-00007	WV-ICL-North America Inc - GALLIPOLIS FERRY PLANT	X						
54-079-00072	WV-TOYOTA MOTOR MANUFACTURING WV INC.	X						
54-079-00006	WV-APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	X	X					
54-053-00009	WV-APPALACHIAN POWER - MOUNTAINEER PLANT		X					
0627000046	OH-Shelly Liquid Division	X						
0664000074	OH-Shelly Material Plant 2 formerly Allied Corp Plant No 9	X						
0627000003	OH-Ohio Valley Electric Corp., Kyger Creek Station	X	X		X	X	X	X
0627010056	OH-General James M. Gavin Power Plant	X	X		X	X	X	X
2101900004	KY-MPLX Terminals LLC - Catlettsburg Refining		X					

Increment

Facility ID	Name	Annual NO_2	24-hr SO2	24-hr $PM_{2.5}$	Annual $PM_{2.5}$	24-hr PM_{10}	Annual PM_{10}
None							

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2018						2019					
						NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	--	--	--	--	--	--	26.70	0.53	18.81	5.17	5.17	1.87E-04
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	--	--	--	--	--	--	16.83	0.20	13.72	1.20	1.20	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	--	--	--	--	--	--	17.27	0.01	43.97	12.45	21.86	5.00E-05
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	--	--	--	--	--	--	2.52	0.49	13.71	0.26	0.26	--
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	--	--	--	--	--	--	0.90	0.21	4.12	7.65	9.21	--
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	--	--	--	--	--	--	58.36	0.39	53.38	24.87	60.21	3.30E-04
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	--	--	--	--	--	--	137.83	28.46	251.00	57.89	62.25	3.76E-01
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	--	--	--	--	--	--	4,666.81	3,517.65	993.29	72.71	97.60	5.53E-02
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	--	--	--	--	--	--	--	--	--	--	--	--
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	--	--	--	--	--	--	4.37	0.03	3.67	1.09	6.01	--
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	--	--	--	--	--	--	7.78	115.56	462.22	14.42	37.60	3.29E-03
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	--	--	--	--	--	--	0.28	34.41	106.55	43.17	43.89	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	--	--	--	--	--	--	3,588.68	4,600.31	824.09	72.60	122.38	4.07E-02
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	--	--	--	--	--	--	130.52	0.56	78.32	42.85	42.85	--
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	--	--	--	--	--	--	46.55	0.49	67.83	4.64	4.64	--
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	--	--	--	--	--	--	14.14	0.01	2.51	0.38	0.38	--
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	--	--	--	--	--	--	725.72	0.16	56.60	7.70	7.70	--
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	--	--	--	--	--	--	50.13	0.94	58.10	8.98	9.00	7.00E-04
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	--	--	--	--	--	--	65.35	1.28	70.33	26.83	26.83	3.40E-02
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	--	--	--	--	--	--	1.03	9.60E-04	4.98	0.04	0.04	--
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	--	--	--	--	--	--	3.52	8.00E-04	0.53	0.07	0.07	--
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	--	--	--	--	--	--	25.75	0.47	27.42	3.87	3.90	3.00E-04
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	--	--	--	--	--	--	375.42	0.16	24.43	7.76	7.76	--
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	--	--	--	--	--	--	47.89	0.04	13.08	2.46	2.46	--
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	--	--	--	--	--	--	0.69	0.22	339.47	0.42	0.42	--
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	--	--	--	--	--	--
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	--	--	--	--	--	--	17.20	0.25	21.12	47.29	50.16	1.20E-04
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	--	--	--	--	--	--	22.77	0.03	3.63	0.05	0.05	--
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	--	--	--	--	--	--	112.26	0.81	17.80	8.91	8.91	--
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	--	--	--	--	--	--	43.50	0.27	12.28	9.71	11.49	--
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	--	--	--	--	--	--	0.22	1.10E-03	0.53	0.05	0.05	--
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	--	--	--	--	--	--	3.37	0.02	2.83	0.23	0.23	--
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	--	--	--	--	--	--	3.13	--	1.00E-03	0.02	0.02	--
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	--	--	--	--	--	--	63.99	0.48	50.84	5.35	5.35	4.00E-04

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2018						2019					
						NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	7.73	0.05	6.49	55.85	56.44	--	7.73	0.05	6.49	57.27	57.86	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	--	--	--	--	--	--	0.92	0.08	6.37	--	--	8.00E-04
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	6,665.68	4,970.10	636.57	669.68	725.03	4.60E-02	5,374.70	3,746.70	513.33	641.59	687.91	4.60E-02
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	8,053.06	27,591.88	1,609.84	1,234.48	2,044.02	2.50E-01	7,344.36	26,473.98	1,392.93	645.54	825.40	2.21E-01
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	--	--	--	--	--	--	--	--	--	--	--	--
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	0.22	1.30E-03	0.18	3.32	3.32	--	0.18	1.10E-03	0.15	3.21	3.21	--
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	--	--	--	--	--	--
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	--	--	--	--	--	--	--	--	--	--	--	--
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	0.10	6.00E-04	0.08	0.40	0.40	--	0.09	5.00E-04	0.07	0.34	0.34	--
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	37.99	0.31	51.32	2.94	2.94	--	18.98	0.19	31.19	3.12	3.12	--
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	186.00	2.62	255.00	17.83	17.83	--	140.00	1.92	221.70	25.61	25.61	--
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	0.15	0.63	0.07	--	--	--	--	--	--	--	--	--
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	269.66	20.03	78.09	175.12	190.46	--	294.70	21.13	84.76	184.79	200.21	--
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	7.19	3.66	5.07	0.53	0.57	--	6.71	3.61	3.13	0.49	0.53	--
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	1.57	0.21	7.19	--	1.69	--	1.57	0.21	7.19	--	1.69	--
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	25.80	0.12	16.91	22.90	22.90	--	72.28	0.33	44.88	25.42	25.42	--
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	753.77	1,898.88	60.72	208.39	232.49	3.70E-01	749.98	1,700.13	44.72	240.61	266.02	2.50E-01
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	--	--	--	--	--	--	0.25	0.08	0.37	0.01	0.18	--
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	--	--	6.41	6.84	18.58	--	--	--	6.48	6.22	16.41	--
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	0.03	0.25	--	--	--	--	0.03	0.25	--
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	1.28	3.28	--	--	--	--	1.28	3.30	--
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	2.91	0.07	13.75	0.03	0.03	--	1.16	0.06	14.56	PTE-0.2	PTE-0.43	--
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	2.93	0.02	2.63	0.15	0.21	1.36E-05	2.14	0.01	1.83	0.04	0.16	1.06E-05
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	PTE-3.37	PTE-0.22	PTE-0.73	PTE-0.04	PTE-0.24	--	PTE-3.37	PTE-0.22	PTE-0.73	PTE-0.04	PTE-0.24	--
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	1.41	0.18	7.11	0.48	1.54	3.35E-05	2.81	0.37	14.22	0.95	3.08	6.71E-05
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	39.29	11.37	25.84	1.20	1.97	1.90E-04	166.21	1.95	53.85	1.41	2.10	4.28E-05
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	PTE-9.48	PTE-42.58	--	--	--	--	PTE-9.48	PTE-42.58	--
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	PTE-26.77	PTE-1.77	PTE-5.77	PTE-45.21	PTE-81.66	--	PTE-26.77	PTE-1.77	PTE-5.77	PTE-45.21	PTE-81.66	--
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	8.83E-03	1.06E-04	0.01	0.04	0.10	--	8.83E-03	1.06E-04	0.01	0.04	0.10	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	1,045.50	157.58	742.02	171.92	179.59	--	1,066.68	201.10	698.94	173.81	181.50	--
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	0.25	0.84	--	--	--	--	0.25	0.84	--
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	PTE-14.74	PTE-2.75	PTE-7.72	PTE-2.7	PTE-19.56	--	PTE-14.74	PTE-2.75	PTE-7.72	PTE-2.7	PTE-19.56	--
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	69.82	0.30	7.07	6.65E-03	4.10	--	80.29	0.30	7.25	6.62E-03	4.11	--
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	0.01	0.05	3.49E-03	1.40E-03	1.40E-03	--	0.01	0.04	3.00E-03	1.20E-03	1.20E-03	--
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	0.50	4.78E-03	0.41	0.30	1.76	--	0.27	1.86E-03	0.23	0.21	0.38	--
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	PTE-4.65	PTE-17.62	--	--	--	--	PTE-4.65	PTE-17.62	--
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	PTE-0.61	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--	PTE-0.61	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	248.17	85.61	55.22	14.82	136.75	1.31E-03	262.71	93.52	57.07	16.63	156.04	1.31E-03

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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2018						2019					
						NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	--	--	--	--	--	--
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	6.30E-03	0.03	--	--	--	--	2.87E-03	0.01	--
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	--	--	--	--	--	--
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	0.06	0.37	--	--	--	--	0.15	0.93	--
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	1.96	4.34	--	--	--	--	1.23	2.73	--
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	--	--	--	--	--	--	PTE-0.14	PTE-0.05	PTE-0.04	PTE-0.01	PTE-0.01	--
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	PTE-0.63	PTE-0.04	PTE-0.14	PTE-0.04	PTE-0.04	--	PTE-0.63	PTE-0.04	PTE-0.14	PTE-0.04	PTE-0.04	--
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	PTE-0.52	PTE-0.03	PTE-0.11	PTE-0.03	PTE-0.04	--	PTE-0.52	PTE-0.03	PTE-0.11	PTE-0.03	PTE-0.04	--
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	0.16	6.98E-04	0.04	0.36	0.67	--	0.16	6.98E-04	0.04	0.36	0.67	--
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	--	PTE-0.16	PTE-0.53	PTE-0.17	PTE-0.17	--	--	PTE-0.16	PTE-0.53	PTE-0.17	PTE-0.17	--
2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	PTE-46.57	PTE-210.62	--	--	--	--	PTE-46.57	PTE-210.62	--
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	PTE-5.78	PTE-35.85	--	--	--	--	0.08	0.46	--
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	PTE-53.08	PTE-134.26	--	--	--	--	PTE-53.08	PTE-134.26	--
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	3.69	19.74	--	--	--	--	3.69	19.73	--
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	1.36	3.82	--	--	--	--	1.36	3.82	--
2101900601	Marathon	4,253,488	351,007	KY	53.7	--	--	--	--	--	--	--	--	--	--	--	--
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	PTE-5.01	PTE-14.52	--	--	--	--	PTE-5.01	PTE-14.52	--
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	PTE-459.13	PTE-2831.74	--	--	--	--	PTE-459.13	PTE-2831.74	--
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	0.62	3.88E-03	0.52	1.11	2.48	--	0.52	3.30E-03	0.43	0.83	1.87	--
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	2.26	65.21	0.31	8.38	8.42	--	3.25	96.60	0.38	12.01	12.05	--
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	9.90	0.50	16.22	1.09	1.09	3.80E-07	19.56	1.07	20.20	2.28	2.28	6.50E-07
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--	PTE-0.65	PTE-0.04	PTE-0.14	PTE-0.05	PTE-0.05	--
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	PTE-0.13	PTE-0.17	PTE-0.03	PTE-0	PTE-0	--	PTE-0.13	PTE-0.17	PTE-0.03	PTE-0	PTE-0	--
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	6.33	0.04	5.32	2.30	14.17	1.08E-05	4.35	0.03	3.66	2.32	12.92	PTE-0
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	--	--	--	2.65E-04	9.46E-04	--	--	--	--	5.71E-03	0.02	--
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.12	0.79	--
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	PTE-5.8	PTE-38.7	--
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.11	0.73	--
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.11	0.73	--
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	--	--	--	--	--	--
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--	--	PTE-0.05	PTE-0.16	PTE-0.05	PTE-0.05	--
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	PTE-15.69	PTE-21.28	--	--	--	--	PTE-15.69	PTE-21.28	--
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	--	--	--	--	--	--	PTE-0.54	PTE-0.15	PTE-0.12	PTE-0.01	PTE-0.01	--
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	21.79	62.91	118.72	5.45	5.45	--	14.30	41.27	77.88	3.58	3.67	--
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	PTE-0.62	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--	PTE-0.62	PTE-0.04	PTE-0.13	PTE-0.04	PTE-0.04	--
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	PTE-52.03	PTE-0.31	PTE-55.76	PTE-0.99	PTE-0.99	--	1.29	7.75E-03	1.33	0.02	0.02	--
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	PTE-14.52	PTE-0.02	PTE-10.43	PTE-1.49	PTE-1314.66	--	1.96E-03	3.36E-06	1.64E-03	7.95E-05	1.00E-03	--

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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020 NO_x	2020 SO_2	2020 CO	2020 $PM_{2.5}$	2020 PM_{10}	2020 Lead	2-yr Annual Averaged Actual Emissions (tpy) NO_x	2-yr Annual Averaged Actual Emissions (tpy) SO_2	2-yr Annual Averaged Actual Emissions (tpy) CO	2-yr Annual Averaged Actual Emissions (tpy) $PM_{2.5}$	2-yr Annual Averaged Actual Emissions (tpy) PM_{10}	2-yr Annual Averaged Actual Emissions (tpy) Lead	20D
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	28.93	0.58	20.07	5.64	5.64	2.06E-04	27.82	0.56	19.44	5.40	5.40	1.96E-04	24
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	15.10	0.19	13.10	1.21	1.21	--	15.96	0.20	13.41	1.21	1.21	--	268
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	22.23	6.64E-03	57.82	11.40	20.29	4.00E-05	19.75	9.72E-03	50.89	11.92	21.07	4.50E-05	330
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	2.52	0.48	13.71	0.26	0.26	--	2.52	0.48	13.71	0.26	0.26	--	620
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	0.91	0.21	4.13	7.64	9.14	--	0.91	0.21	4.13	7.65	9.18	--	624
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	41.14	2.77	37.08	20.83	50.01	6.10E-04	49.75	1.58	45.23	22.85	55.11	4.70E-04	654
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	114.51	27.03	239.32	54.09	58.09	4.36E-01	126.17	27.75	245.16	55.99	60.17	4.06E-01	686
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	4,873.00	4,240.69	1,083.75	200.72	262.07	6.86E-02	4,769.91	3,879.17	1,038.52	136.72	179.84	6.19E-02	722
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	43.81	8.10E-03	5.33	0.67	0.67	--	43.81	8.10E-03	5.33	0.67	0.67	--	744
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	3.84	0.02	3.22	1.03	5.86	--	4.11	0.02	3.45	1.06	5.93	--	762
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	9.31	160.24	552.98	12.12	31.38	3.29E-03	8.55	137.90	507.60	13.27	34.49	3.29E-03	792
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	0.28	34.43	114.25	43.17	43.89	--	0.28	34.42	110.40	43.17	43.89	--	806
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	2,464.97	2,611.07	531.83	49.84	88.54	2.91E-02	3,026.83	3,605.69	677.96	61.22	105.46	3.49E-02	828
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	116.23	0.50	69.74	37.41	37.41	--	123.38	0.53	74.03	40.13	40.13	--	860
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	80.93	0.88	93.53	8.35	8.35	--	63.74	0.69	80.68	6.49	6.49	--	880
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	23.25	0.01	3.58	0.55	0.55	--	18.69	0.01	3.04	0.46	0.46	--	886
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	403.25	0.19	40.86	5.94	5.94	--	564.49	0.17	48.73	6.82	6.82	--	894
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	3.95	4.20E-03	5.59	0.44	0.44	--	27.04	0.47	31.84	4.71	4.72	7.00E-04	900
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	20.93	0.39	22.79	9.02	9.02	1.04E-02	43.14	0.84	46.56	17.92	17.92	2.22E-02	902
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	1.05	9.70E-04	5.09	0.04	0.04	--	1.04	9.65E-04	5.03	0.04	0.04	--	904
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	0.33	1.00E-04	0.05	6.90E-03	6.90E-03	--	1.93	4.50E-04	0.29	0.04	0.04	--	906
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	25.75	0.47	27.42	3.87	3.90	3.00E-04	25.75	0.47	27.42	3.87	3.90	3.00E-04	908
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	--	--	--	--	--	--	--	--	--	--	--	--	916
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	449.15	0.18	28.28	11.40	11.40	--	412.29	0.17	26.36	9.58	9.58	--	970
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	38.65	0.03	10.66	2.40	2.40	--	43.27	0.03	11.87	2.43	2.43	--	970
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	0.66	0.30	265.55	0.47	0.47	--	0.68	0.26	302.51	0.44	0.44	--	974
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	--	--	--	--	--	--	978
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	--	--	--	--	--	--	986
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	28.90	1.10	21.69	46.95	49.78	1.10E-04	23.05	0.67	21.40	47.12	49.97	1.15E-04	998
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	22.22	0.03	3.73	0.09	0.09	--	22.49	0.03	3.68	0.07	0.07	--	998
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	111.75	0.81	17.84	8.87	8.87	--	112.00	0.81	17.82	8.89	8.89	--	1,010
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	25.08	0.34	7.62	8.44	10.02	--	34.29	0.31	9.95	9.08	10.75	--	1,026
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	0.23	1.20E-03	0.54	0.06	0.06	--	0.23	1.15E-03	0.54	0.06	0.06	--	1,042
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	3.74	0.02	3.14	0.29	0.29	--	3.56	0.02	2.99	0.26	0.26	--	1,044
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	3.61	--	7.00E-04	0.02	0.02	--	3.37	--	8.50E-04	0.02	0.02	--	1,052
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	59.81	0.49	44.92	3.67	3.67	3.00E-04	61.90	0.49	47.88	4.51	4.51	3.50E-04	1,058

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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020						2-yr Annual Averaged Actual Emissions (tpy)						20D
						NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	--	--	--	--	--	--	7.73	0.05	6.49	56.56	57.15	--	452
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	--	--	--	--	--	--	0.92	0.08	6.37	--	--	8.00E-04	484
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	--	--	--	--	--	--	6,020.19	4,358.40	574.95	655.63	706.47	4.60E-02	590
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	--	--	--	--	--	--	7,698.71	27,032.93	1,501.39	940.01	1,434.71	2.36E-01	672
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	--	--	--	--	--	--	--	--	--	--	--	--	844
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	--	--	--	--	--	--	0.20	1.20E-03	0.17	3.26	3.26	--	870
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	--	--	--	--	--	--	870
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	--	--	--	--	--	--	--	--	--	--	--	--	874
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	--	--	--	--	--	--	0.09	5.50E-04	0.08	0.37	0.37	--	878
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	--	--	--	--	--	--	28.49	0.25	41.26	3.03	3.03	--	900
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	--	--	--	--	--	--	163.00	2.27	238.35	21.72	21.72	--	1,010
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	--	--	--	--	--	--	0.15	0.63	0.07	--	--	--	1,042
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	--	--	--	--	--	--	282.18	20.58	81.42	179.95	195.33	--	1,088
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	--	--	--	--	--	--	6.95	3.63	4.10	0.51	0.55	--	1,098
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	--	--	--	--	--	--	1.57	0.21	7.19	--	1.69	--	1,136
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	--	--	--	--	--	--	49.04	0.23	30.90	24.16	24.16	--	1,142
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	--	--	--	--	--	--	751.88	1,799.50	52.72	224.50	249.25	3.10E-01	1,150
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	--	--	--	--	--	--	0.25	0.08	0.37	0.01	0.18	--	1,176
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	--	--	--	--	--	--	--	--	6.44	6.53	17.50	--	1,192
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	--	--	--	--	--	--	0.03	0.25	--	882
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	--	--	--	--	--	--	1.28	3.29	--	892
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	894
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	--	--	--	--	--	--	2.03	0.06	14.16	0.12	0.23	--	898
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	--	--	--	--	--	--	2.54	0.01	2.23	0.10	0.19	1.21E-05	902
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	--	--	--	--	--	--	3.37	0.22	0.73	0.04	0.24	--	916
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	--	--	--	--	--	--	2.11	0.28	10.66	0.71	2.31	5.03E-05	918
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	--	--	--	--	--	--	102.75	6.66	39.85	1.30	2.03	1.16E-04	934
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	--	--	--	--	--	--	9.48	42.58	--	942
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	--	--	--	--	--	--	26.77	1.77	5.77	45.21	81.66	--	944
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	--	--	--	--	--	--	8.83E-03	1.06E-04	0.01	0.04	0.10	--	954
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	--	--	--	--	--	--	1,056.09	179.34	720.48	172.86	180.54	--	962
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	--	--	--	--	--	--	0.25	0.84	--	962
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	--	--	--	--	--	--	14.74	2.75	7.72	2.70	19.56	--	974
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	--	--	--	--	--	--	75.06	0.30	7.16	6.63E-03	4.11	--	978
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	984
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	986
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	--	--	--	--	--	--	0.01	0.05	3.25E-03	1.30E-03	1.30E-03	--	998
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	--	--	--	--	--	--	0.38	3.32E-03	0.32	0.26	1.07	--	1,004
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	--	--	--	--	--	--	4.65	17.62	--	1,012
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	--	--	--	--	--	--	0.61	0.04	0.13	0.04	0.04	--	1,016
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	--	--	--	--	--	--	255.44	89.57	56.14	15.73	146.39	1.31E-03	1,018

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Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2020						2-yr Annual Averaged Actual Emissions (tpy)						20D
						NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	NO_x	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	--	--	--	--	--	--	1,018
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	--	--	--	--	--	--	4.58E-03	0.02	--	1,018
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	--	--	--	--	--	--	1,020
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,022
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	--	--	--	--	--	--	0.10	0.65	--	1,024
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	--	--	--	--	--	--	1.59	3.53	--	1,028
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	--	--	--	--	--	--	0.07	0.03	0.02	5.00E-03	5.00E-03	--	1,030
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	--	--	--	--	--	--	0.63	0.04	0.14	0.04	0.04	--	1,034
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,036
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	--	--	--	--	--	--	0.52	0.03	0.11	0.03	0.04	--	1,036
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	--	--	--	--	--	--	0.16	6.98E-04	0.04	0.36	0.67	--	1,040
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	--	--	--	--	--	--	--	0.16	0.53	0.17	0.17	--	1,044
2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	--	--	--	--	--	--	46.57	210.62	--	1,046
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	--	--	--	--	--	--	2.93	18.16	--	1,048
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	--	--	--	--	--	--	53.08	134.26	--	1,048
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	--	--	--	--	--	--	3.69	19.74	--	1,058
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	--	--	--	--	--	--	1.36	3.82	--	1,066
2101900601	Marathon	4,253,488	351,007	KY	53.7	--	--	--	--	--	--	--	--	--	--	--	--	1,074
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	--	--	--	--	--	--	5.01	14.52	--	1,076
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	--	--	--	--	--	--	459.13	2,831.74	--	1,078
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	1,098
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	--	--	--	--	--	--	0.57	3.59E-03	0.48	0.97	2.18	--	1,102
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	--	--	--	--	--	--	2.76	80.90	0.34	10.19	10.24	--	1,104
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	--	--	--	--	--	--	14.73	0.78	18.21	1.68	1.68	5.15E-07	1,108
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	--	--	--	--	--	--	0.65	0.04	0.14	0.05	0.05	--	1,108
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	--	--	--	--	--	--	0.13	0.17	0.03	--	--	--	1,114
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	--	--	--	--	--	--	5.34	0.03	4.49	2.31	13.54	5.39E-06	1,118
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	--	--	--	--	--	--	--	--	--	2.99E-03	0.01	--	1,124
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.40	--	1,128
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	2.90	19.35	--	1,128
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.36	--	1,128
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	--	--	--	--	--	--	0.06	0.36	--	1,128
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	--	--	--	--	--	--	1,140
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	--	--	--	--	--	--	0.05	0.16	0.05	0.05	--	1,144
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	--	--	--	--	--	--	15.69	21.28	--	1,146
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	--	--	--	--	--	--	0.27	0.08	0.06	5.00E-03	5.00E-03	--	1,156
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	--	--	--	--	--	--	18.04	52.09	98.30	4.52	4.56	--	1,184
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	--	--	--	--	--	--	0.62	0.04	0.13	0.04	0.04	--	1,188
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	--	--	--	--	--	--	26.66	0.16	28.55	0.51	0.51	--	1,192
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	--	--	--	--	--	--	7.26	0.01	5.22	0.75	657.33	--	1,198

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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
54-053-00054	APG Polytech LLC	4,280,000	398,000	WV	1.2	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	Include - Inside SIA	
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	4,292,000	396,000	WV	13.4	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4,272,200	413,500	WV	16.5	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00007	HUNTINGTON ALLOYS - A SPECIAL METALS CO.	4,252,300	379,200	WV	32.7	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00009	Steel Dynamics, Inc. - SWVA, INC.	4,253,700	375,000	WV	34.3	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	4,258,400	428,200	WV	36.1	Include - >20D	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-079-00046	Cranberry Pipeline Corporation - HEIZER COMPRESSOR STATION	4,263,990	432,480	WV	37.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-011-00062	BIMBO BAKERIES USA, INC.	4,252,400	370,900	WV	38.1	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-053-00004	Felman Production Inc. - NEW HAVEN PLANT	4,312,200	419,700	WV	39.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00049	Armstrong World Industries - Millwood Facility	4,307,000	427,200	WV	40.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4,314,700	419,000	WV	41.4	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00043	CONSTELLIUM ROLLED PRODUCTS - RAVENSWOOD	4,309,662	428,417	WV	43.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00062	Columbia Gas - Mount Olive	4,287,900	441,400	WV	44.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00047	Columbia Gas - LANHAM 4C4590	4,259,000	438,000	WV	44.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00012	Cranberry Pipeline Corporation - BEECH FORK COMPRESSOR STATION	4,239,790	375,350	WV	45.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00022	MPLX Terminals LLC - KENOVA-TRISTATE TERMINAL	4,252,037	361,215	WV	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-035-00003	Columbia Gas - RIPLEY 4C4560	4,303,563	440,150	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-043-00002	Columbia Gas - HUBBALL 4C4510	4,229,000	396,000	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	

Nucor West Virginia Steel Mill
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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis?						
						1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
0627000046	Shelly Liquid Division	4,301,287	400,751	OH	22.6	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant No 9	4,303,001	398,437	OH	24.2	Include - Inside SIA	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	4,308,073	402,203	OH	29.5	Include - >20D	Include - >20D	Exclude - Outside ROI	Include - >20D	Include - >20D	Include - >20D	Include to represent background
0627010056	General James M. Gavin Power Plant	4,312,357	401,208	OH	33.6	Include - >20D	Include - >20D	Exclude - Outside ROI	Include - >20D	Include - >20D	Include - >20D	Include to represent background
0744010055	Ergon - Ironton LLC.	4,263,575	359,050	OH	42.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640010011	CEDAR HEIGHTS CLAY CO	4,304,456	363,285	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000187	Superior Marine Ways - South Point	4,251,874	364,016	OH	43.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640010010	CEDAR HEIGHTS CLAY CO	4,305,501	363,496	OH	43.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0640005007	Columbia Pipeline Group-Oak Hill Compressor Station	4,309,752	365,749	OH	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0682000057	Rolling Hills Generating, LLC	4,327,457	384,638	OH	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0773000222	Mae Materials LLC	4,297,633	349,834	OH	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0640025002	Blackstone Asphalt Inc	4,328,332	370,515	OH	56.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0773000080	ALTIVIA Petrochemicals, LLC	4,273,035	341,544	OH	57.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0773000182	Haverhill Coke Company LLC	4,274,031	341,079	OH	57.5	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
0660010027	Mar-Zane Plant No 10	4,332,892	375,143	OH	58.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
0640020059	Beech Hollow Landfill	4,332,695	372,900	OH	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900107	Stein Inc	4,262,229	354,330	KY	47.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900044	Harsco Metals ARI LLC	4,262,995	353,370	KY	47.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900123	Verizon Wireless - Winslow Cell Tower Engine	4,256,914	354,376	KY	49.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900051	Verizon Wireless - Raceland Cell Tower Engine	4,266,999	350,536	KY	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900004	Progress Rail Raceland Corp	4,267,957	349,409	KY	50.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	

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Table C-3. Full Screening Analysis

Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	Annual PM2.5	24-hr PM10	Rolling 3-month Avg Lead
2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900127	Verizon Wireless - South Ashland Cell Tower Engine	4,255,498	352,903	KY	51.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900133	AT&T Mobility - WV272 Cell Tower Engine	4,257,601	351,200	KY	51.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900030	Contech Construction Products Inc	4,256,439	351,498	KY	52.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900054	CSX Russell Railyard - Greenup Co	4,268,082	347,306	KY	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900081	By Inc	4,241,204	362,078	KY	52.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900601	Marathon	4,253,488	351,007	KY	53.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900124	Verizon Wireless - Summit	4,253,157	349,811	KY	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900126	Verizon Wireless - South Cannonsburg	4,248,106	352,241	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900131	Verizon Wireless - Cannonsburg	4,251,126	350,102	KY	55.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2108909068	Mountain Materials Inc Greenup Slag Plant #101 Portable	4,269,461	342,974	KY	56.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2108900055	Verizon Wireless - Greenup Cell Tower Engine	4,270,514	339,605	KY	59.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	0	PLANTWIDE FUGITIVES	WV	WV_1_1	419,000	4,314,700	590	3.0	0.01	0.01	-0.01
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	1	UNIT 1 STACK	WV	WV_1_2	419,000	4,314,700	590	304.8	13.0	15.12	327
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	2	AUX 1 & 2 COMMON STACK	WV	WV_1_3	419,000	4,314,700	590	91.4	3.4	26.82	604
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4	Coping Power Emergency Generator Exhaust	WV	WV_1_4	419,000	4,314,700	590	6.7	0.3	36.88	736
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	5	Engines Exhausts (2) for Emergency Fire	WV	WV_1_5	419,000	4,314,700	590	2.1	0.01	0.01	255
54-053-00054	APG Polytech LLC	0	PLANTWIDE FUGITIVES	WV	WV_2_1	398,017	4,280,174	580	9.1	0.01	0.01	-0.01
54-053-00054	APG Polytech LLC	3	CP-3 BORN HEATER	WV	WV_2_2	398,017	4,280,174	580	30.5	1.2	7.59	561
54-053-00054	APG Polytech LLC	4	CP-3 BONO HEATER	WV	WV_2_3	398,017	4,280,174	580	7.6	0.5	7.55	533
54-053-00054	APG Polytech LLC	5	CP-4 BORN HEATER	WV	WV_2_4	398,017	4,280,174	580	30.5	1.2	6.08	561
54-053-00054	APG Polytech LLC	6	CP-2 BORN Heater	WV	WV_2_5	398,017	4,280,174	580	3.0	0.1	0.16	294
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	0	PLANTWIDE FUGITIVES	WV	WV_3_1	428,200	4,258,400					255
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	1	AUX 1 STACK	WV	WV_3_2	428,200	4,258,400	585	31.7	2.1	36.58	659
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	13	UNIT 1 STACK	WV	WV_3_3	428,200	4,258,400	585	275.2	10.3	15.24	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	14	UNIT 2 STACK	WV	WV_3_4	428,200	4,258,400	585	275.2	10.3	15.24	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	2	AUX 3 STACK	WV	WV_3_5	428,200	4,258,400	585	61.0	2.1	32.92	604
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	3	UNIT 3 STACK	WV	WV_3_6	428,200	4,258,400	585	275.2	13.0	15.30	326
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	Cop Emerg Gen Exhst	Coping Power Emergency Generator Exhaust	WV	WV_3_7	428,200	4,258,400	585	4.4	0.3	108.84	736
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	17	UNIT III T-41	WV	WV_4_1	396,000	4,292,000	597	13.7	0.1	11.7	297
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	29	B-5A	WV	WV_4_2	396,000	4,292,000	597	21.3	1.0	21.5	441
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	30	B-6	WV	WV_4_3	396,000	4,292,000	597	12.2	1.1	13.6	436
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	31	F-5	WV	WV_4_4	396,000	4,292,000	597	4.3	0.5	9.4	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	32	F-6	WV	WV_4_5	396,000	4,292,000	597	4.3	0.5	7.3	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	34	F-8	WV	WV_4_6	396,000	4,292,000	597	5.5	0.3	2.8	555
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	37	B-183	WV	WV_4_7	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	39	B-231	WV	WV_4_8	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	40	B-296	WV	WV_4_9	396,000	4,292,000	597	0	0.01	0.01	-0.01
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	1	LMSC-0010	WV	WV_5_1	413,500	4,272,200	575	14.3	0.8	19.5	302
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	2	ENGINE TEST CELLS	WV	WV_5_2	413,500	4,272,200	575	14.3	0.8	1.0	811
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	3	LMSC-0011	WV	WV_5_3	413,500	4,272,200	575	14.3	0.8	20.9	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4	LMSC-0012	WV	WV_5_4	413,500	4,272,200	575	14.3	0.8	20.0	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	5	LMSC-0013	WV	WV_5_5	413,500	4,272,200	575	14.3	0.8	21.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	8	LMDC-0002	WV	WV_5_6	413,500	4,272,200	575	14.3	0.6	22.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	9	LMSC-0005	WV	WV_5_7	413,500	4,272,200	575	14.3	0.6	22.9	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	11	LMDC-0003	WV	WV_5_8	413,500	4,272,200	575	14.3	0.6	21.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	14	LMSC-0017	WV	WV_5_9	413,500	4,272,200	575	14.3	0.6	20.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	17	LMWB-0006	WV	WV_5_10	413,500	4,272,200	575	11.9	0.3	1.1	310
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	18	SC-0059	WV	WV_5_11	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	20	JMTS-0181	WV	WV_5_12	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	21	LMWB-0002	WV	WV_5_13	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	22	JMZK-0011	WV	WV_5_14	413,500	4,272,200	575	11.9	0.3	0.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	23	WB-0074	WV	WV_5_15	413,500	4,272,200	575	12.2	0.3	5.1	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	24	LMZY-0155	WV	WV_5_16	413,500	4,272,200	575	14.3	0.7	4.8	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	25	NLSC-0216	WV	WV_5_17	413,500	4,272,200	575	14.3	0.6	20.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	26	LMSC-0001	WV	WV_5_18	413,500	4,272,200	575	12.8	0.8	3.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	29	LMWB-0028	WV	WV_5_19	413,500	4,272,200	575	11.9	0.6	0.5	328
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	30	WB-0091	WV	WV_5_20	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	31	WB-0093	WV	WV_5_21	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	32	WB-0092	WV	WV_5_22	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	33	JMSB-0003	WV	WV_5_23	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	34	LMWB-0060	WV	WV_5_24	413,500	4,272,200	575	3.0	0.3	0.9	320
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	35	NL-0018	WV	WV_5_25	413,500	4,272,200	575	11.3	0.6	0.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	36	PB-0001	WV	WV_5_26	413,500	4,272,200	575	11.3	0.6	0.4	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	37	JMSB-0001	WV	WV_5_27	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	38	LMSB-0002	WV	WV_5_28	413,500	4,272,200	575	10.4	0.3	5.6	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	39	ZY-0446	WV	WV_5_29	413,500	4,272,200	575	14.3	0.8	0.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	40	LMZY-0157	WV	WV_5_30	413,500	4,272,200	575	14.3	0.7	20.2	303
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	41	LMZY-0158	WV	WV_5_31	413,500	4,272,200	575	14.3	0.8	14.6	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	42	LMZY-0159	WV	WV_5_32	413,500	4,272,200	575	14.3	0.7	9.3	301
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	43	LMZY-0160	WV	WV_5_33	413,500	4,272,200	575	14.3	0.7	8.8	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	44	LMZY-0161	WV	WV_5_34	413,500	4,272,200	575	14.3	0.7	9.1	301
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	46	LMZY-0260	WV	WV_5_35	413,500	4,272,200	575	14.3	0.8	0.3	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	47	LMWB-0105	WV	WV_5_36	413,500	4,272,200	575	14.3	0.4	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	48	LMWB-071	WV	WV_5_37	413,500	4,272,200	575	14.3	0.8	0.3	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	49	LMWB-072	WV	WV_5_38	413,500	4,272,200	575	14.3	0.4	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	50	LMWB-073	WV	WV_5_39	413,500	4,272,200	575	14.3	0.4	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	51	LMWB-074	WV	WV_5_40	413,500	4,272,200	575	14.3	0.4	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	52	JHFH-0003	WV	WV_5_41	413,500	4,272,200	575	11.3	0.1	1.7	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	53	JHFH-0004	WV	WV_5_42	413,500	4,272,200	575	10.4	0.3	0.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	54	JHZE-0003 1&2	WV	WV_5_43	413,500	4,272,200	575	10.4	0.3	6.5	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	55	JHZE-0003 3	WV	WV_5_44	413,500	4,272,200	575	10.4	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	56	LMWB-0107	WV	WV_5_45	413,500	4,272,200	575	14.3	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	58	JMZK-0058	WV	WV_5_46	413,500	4,272,200	575	14.3	0.3	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	64	JMTS-0072	WV	WV_5_47	413,500	4,272,200	575	11.3	0.3	1.7	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	65	MZ-WB	WV	WV_5_48	413,500	4,272,200	575	14.3	0.3	32.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	66	MZ-SB	WV	WV_5_49	413,500	4,272,200	575	14.3	0.3	5.5	309
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	67	TS-172	WV	WV_5_50	413,500	4,272,200	575	11.3	0.4	0.2	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	68	WB-068	WV	WV_5_51	413,500	4,272,200	575	14.3	0.6	0.5	300
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	69	WB-0094	WV	WV_5_52	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	70	WB-0095	WV	WV_5_53	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	71	WB-0096	WV	WV_5_54	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	72	WB-098	WV	WV_5_55	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	73	WB-0109	WV	WV_5_56	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	74	WB-0097	WV	WV_5_57	413,500	4,272,200	575	9.1	0.4	3.6	305
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	998	NOT A REAL STACK	WV	WV_5_58	413,500	4,272,200	575	0	0.01	0.01	-0.01

Nucor West Virginia Steel Mill
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Regional Source Inventory

Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B001	Unit #1 Boiler	OH	OH_1_1	402,257	4,308,093	586	253.0	7.5	15.3	326
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B002	Unit #2 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B003	Unit #3 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B004	Unit #4 Boiler	OH	OH_1_4	402,248	4,308,099	586	253.0	9.2	15.2	326
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B005	Unit #5 Boiler	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F001	Existing Plant Parking Areas and Roadways	OH	OH_1_6	402,248	4,308,099	586	3.05	0.01	0.01	-0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F002	Existing Coal Storage Area	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F003	Coal Handling Facilities	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F006	Flue Gas Desulfurization(FGD)Limestone Handling System	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F007	Limestone and Gypsum Storage Piles	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F008	Gypsum Handling System	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F010	Residual Waste Landfill Roadways	OH								
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F012	Flue Gas Desulfurization(FGD) Landfill	OH								
0627010056	General James M. Gavin Power Plant	B001	Unit 1 Auxiliary Steam Boiler	OH	OH_2_1	403,277	4,310,126	573	91.4	3.35	26.82	422.04
0627010056	General James M. Gavin Power Plant	B002	Unit 2 Auxiliary Steam Boiler	OH	OH_2_2	403,345	4,310,254	572	91.4	3.35	26.82	422.04
0627010056	General James M. Gavin Power Plant	B003	Unit 1 Main Boiler	OH	OH_2_3	403,277	4,310,126	573	253.0	12.8	14.9	716
0627010056	General James M. Gavin Power Plant	B004	Unit 2 Main Boiler	OH	OH_2_4	403,345	4,310,254	572	253.0	12.8	14.9	716
0627010056	General James M. Gavin Power Plant	P006	Unit 1 Cooling Tower	OH	OH_2_5	403,345	4,310,254	572	15.2	2.1	9.1	-0.01
0627010056	General James M. Gavin Power Plant	P007	Unit 2 Cooling Tower	OH	OH_2_6	403,345	4,310,254	572	15.2	2.1	9.1	-0.01
0627010056	General James M. Gavin Power Plant	P008	SO3 Mitigation System	OH	OH_2_7	403,345	4,310,254	572	4.6	1.2	15.2	-0.01
0627010056	General James M. Gavin Power Plant	P902	Limestone and Lime Handling Systems	OH	OH_2_8	403,345	4,310,254	572	4.6	1.2	15.2	-0.01
0627010056	General James M. Gavin Power Plant	F001	Coal Handling Operations	OH	OH_2_9	402,490	4,310,397	576	3.0	0.01	0.01	-0.01
0627010056	General James M. Gavin Power Plant	F002	Flue Gas Desulfurization (FGD) Storage Piles and Landfill Operations	OH		402,920	4,310,285	576				
0627010056	General James M. Gavin Power Plant	F003	Roadways and Parking Areas	OH		402,920	4,310,285	576				
0627010056	General James M. Gavin Power Plant	F007	Coal Storage Piles	OH		402,920	4,310,285	576				
0627000046	Shelly Liquid Division	B001	Boiler/Heater	OH	OH_3_5	400751	4301287	561	9.144	1.524	20	288.71
0627000046	Shelly Liquid Division	F001	Roadways and Parking Areas	OH								
0627000046	Shelly Liquid Division	J001	Truck Loading	OH								
0627000046	Shelly Liquid Division	J002	Truck Loading	OH								
664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F001	Roadways and Parking Areas	OH	OH_5_4	398437	4303001	565	9.144	1.524	20	288.71
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F002	Storage Piles	OH								
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	P901	Rotary Drum Dryer	OH								
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B023	#11 Boiler	KY	KY_1_1	360,727	4,248,935	560	2.1	45.7	5.8	449
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B024	#13 Package Boiler	KY	KY_1_2	360,727	4,248,935	560	1.6	22.9	19.9	431
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B025	#14 Package Boiler	KY	KY_1_3	360,727	4,248,935	560	1.6	22.9	19.9	434
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT01	Petrochem Cooling Tower (#1) East	KY	KY_1_4	360,727	4,248,935	560	6.7	16.9	9.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT02	Petrochem Cooling Tower (#2) West	KY	KY_1_5	360,727	4,248,935	560	6.7	16.9	9.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT04	Lube Plant Cooling Tower	KY	KY_1_6	360,727	4,248,935	560	7.3	19.9	12.5	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT05	North Area Cooling Tower (#3) Middle	KY	KY_1_7	360,727	4,248,935	560	6.7	13.5	7.4	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT06	North Area Cooling Tower (#1) East	KY	KY_1_8	360,727	4,248,935	560	6.7	14.4	9.2	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT07	North Area Cooling Tower (#3) Middle	KY	KY_1_9	360,727	4,248,935	560	7.3	19.9	13.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT08	North Area Cooling Tower (#2) West	KY	KY_1_10	360,727	4,248,935	560	5.5	16.9	9.8	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT09	Gas Con Area Cooling Tower	KY	KY_1_11	360,727	4,248,935	560	7.3	18.1	12.7	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT10	HF Alky Area Cooling Tower	KY	KY_1_12	360,727	4,248,935	560	7.3	16.2	10.6	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT11	FCCU Area Cooling Tower	KY	KY_1_13	360,727	4,248,935	560	8.5	12.6	8.5	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT12	SRU/DDS Cooling Tower	KY	KY_1_14	360,727	4,248,935	560	7.9	18.3	11.9	286
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT13	Portable Temporary Cooling Tower Replacement Cell	KY	KY_1_15	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG001	Radio Tower #2 Emergency (50kW) Generator	KY	KY_1_16	360,727	4,248,935	560	0.1	1.2	22.5	924
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG002	Radio Tower #1 Emergency (75kW) Generator	KY	KY_1_17	360,727	4,248,935	560	0.1	1.2	25.8	844
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG101	Firewater Pump House Engine	KY	KY_1_18	360,727	4,248,935	560	0.1	3.7	30.6	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG102	Firewater Pump House Engine	KY	KY_1_19	360,727	4,248,935	560	0.1	3.7	30.6	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG103	Firelake Firewater Pump Engine	KY	KY_1_20	360,727	4,248,935	560	0.1	3.7	45.8	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG104	Hcoal Firewater Pump Engine	KY	KY_1_21	360,727	4,248,935	560	0.1	3.7	60.7	728
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG105	Firelake Firewater Pump Engine	KY	KY_1_22	360,727	4,248,935	560	0.1	6.1	271.8	791
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG106	Firelake Firewater Pump Engine	KY	KY_1_23	360,727	4,248,935	560	0.1	6.1	271.8	751
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG107	Firelake Firewater Pump Engine	KY	KY_1_24	360,727	4,248,935	560	0.1	1.5	271.8	751
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG201	Lube Area Flare Knockout Drum Pump Engine	KY	KY_1_25	360,727	4,248,935	560	0.1	1.5	24.7	300
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG302	Water Pump Engine at the Centrifuge	KY	KY_1_26	360,727	4,248,935	560	0.1	2.4	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG303	Godwin Pump Engine Viney Branch	KY	KY_1_27	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG305	FCC Hill Run-off Water Pump Engine	KY	KY_1_28	360,727	4,248,935	560	0.1	0.9	6.9	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG306	Compressor engine(1) at #10 boiler house	KY	KY_1_29	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG307	Compressor engine(2) at #10 boiler house	KY	KY_1_30	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG308	South End AI Compressor engine	KY	KY_1_31	360,727	4,248,935	560	0.1	2.1	110.0	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG309	HCoal Storm Water Pump Engine	KY	KY_1_32	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG310	East Viney Tunnel Sump Pump Engine	KY	KY_1_33	360,727	4,248,935	560	0.1	1.5	15.3	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG311	Blowdown Ponds Pump engine	KY	KY_1_34	360,727	4,248,935	560	0.1	1.5	7.2	783
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP001	--	KY	KY_1_35							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP002	--	KY	KY_1_36							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP003	Dissolved Air Flotation Unit	KY	KY_1_37	360.727	4,248.935					298
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP017	FCC Regenerator	KY	KY_1_38	360,727	4,248,935	560	3.7	53.3	14.9	577
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP019	FCCU Fresh Catalyst Hopper	KY	KY_1_39	360,727	4,248,935	560	0.2	32.0	8.4	298
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP020	FCCU Spent Catalyst Shipping Bin (Offsite)	KY	KY_1_40	360,727	4,248,935	560	0.2	7.0	1.4	311
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP028	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_41	360,727	4,248,935	560	0.3	25.0	3.0	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP029	FCCU Spent Catalyst Hopper	KY	KY_1_42	360,727	4,248,935	560	0.2	25.9	11.7	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP030	FCCU Catalyst Hopper (Truck unloading)	KY	KY_1_43	360,727	4,248,935	560	0.4	31.1	14.5	366
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP031	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_44	360,727	4,248,935	560	0.2	29.9	12.6	311
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP034	FCCU SOx control addition Hopper	KY	KY_1_45	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP035	FCCU NOx /Super Z Addition Hopper	KY	KY_1_46	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP14	--	KY	KY_1_47							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP16	--	KY	KY_1_48							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP17	--	KY	KY_1_49							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP18	--	KY	KY_1_50							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP19	--	KY	KY_1_51							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP20	--	KY	KY_1_52							255
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL02	NNA Flare	KY	KY_1_53	360.727	4,248.935	560	0.9	45.7	1.0	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL03	HF Alky Flare	KY	KY_1_54	360,727	4,248,935	560	0.9	75.9	0.7	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL04	FCC Flare	KY	KY_1_55	360,727	4,248,935	560	0.4	22.9	2.7	768

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Table C-4. Source Parameters

Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	Easting (m)	Northing (m)	Elevation (ft)	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature K
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL05	Lube Area Flare	KY	KY_1_56	360,727	4,248,935	560	0.9	61.0	1.0	922
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG200	Sulfur solidification in the earthen pit and disposition of solid sulfur in land fill	KY	KY_1_57	360,727	4,248,935	560				561
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG201	Solid and liquid sulfur hauling to landfill	KY	KY_1_58	360,727	4,248,935	560				303
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H003	CCR#2 Guardcase Heater	KY	KY_1_59	360,727	4,248,935	560	2.1	45.7	4.5	674
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H004	Aliphatics Hot Oil Heater	KY	KY_1_60	360,727	4,248,935	560	1.8	24.7	8.9	537
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H005	Asphalt Heaters for Tank 119	KY	KY_1_61	360,727	4,248,935	560	0.8	17.1	10.3	866
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H006	Asphalt Heaters for Tank 118	KY	KY_1_62	360,727	4,248,935	560	0.8	17.2	10.3	865
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H007	ADS Charge Heater	KY	KY_1_63	360,727	4,248,935	560	1.4	20.4	4.5	515
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H008	ADS #2 Tower Reboiler	KY	KY_1_64	360,727	4,248,935	560	1.1	35.1	3.5	643
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H009	SHU Hot Oil Heater	KY	KY_1_65	360,727	4,248,935	560	1.1	13.7	16.8	785
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H010	SHU/SPU Hot Oil Heater	KY	KY_1_66	360,727	4,248,935	560	1.3	20.4	10.4	633
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H011	SHU Reactor Charge Heater	KY	KY_1_67	360,727	4,248,935	560	1.1	13.7	17.7	589
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H012	SPU Reactor Charge Heater	KY	KY_1_68	360,727	4,248,935	560	1.2	29.0	1.9	575
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H013	Benzene Recycle Column Reboiler	KY	KY_1_69	360,727	4,248,935	560	1.8	42.7	6.0	518
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H014	Cumene Reboiler	KY	KY_1_70	360,727	4,248,935	560	1.1	33.8	3.6	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H015	Lube Vacuum Charge Heater	KY	KY_1_71	360,727	4,248,935	560	2.1	53.3	5.5	428
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H017	#5 Crude Charge Heater	KY	KY_1_72	360,727	4,248,935	560	2.8	76.2	10.1	566
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H018	LEP Dehexanizer Reboiler	KY	KY_1_73	360,727	4,248,935	560	2.8	76.2	10.1	602
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H019	#4 Vacuum Heater	KY	KY_1_74	360,727	4,248,935	560	2.4	53.3	5.9	552
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H020	No.4 Vacuum Charge Heater	KY	KY_1_75	360,727	4,248,935	560	2.8	76.2	6.0	482
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H021	#3 Crude Charge Heater	KY	KY_1_76	360,727	4,248,935	560	2.9	53.3	6.1	644
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H022	#3 Crude Charge Heater	KY	KY_1_77	360,727	4,248,935	560	2.9	53.3	5.3	630
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H023	Sat Gas Fractionator Reboiler	KY	KY_1_78	360,727	4,248,935	560	2.8	39.9	3.0	484
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H024	Asphalt Mix Heater	KY	KY_1_79	360,727	4,248,935	560	1.3	33.5	1.8	820
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H025	SDA Hot Oil Heater	KY	KY_1_80	360,727	4,248,935	560	1.3	33.5	3.5	587
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H026	ISOM Unit Heaters	KY	KY_1_81	360,727	4,248,935	560	2.1	50.3	6.1	546
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H027	ISOM Regenerator Vapor Super Heater	KY	KY_1_82	360,727	4,248,935	560	0.6	15.2	3.6	422
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H028	HF Alky Isostripper Reboiler	KY	KY_1_83	360,727	4,248,935	560	2.1	76.2	5.0	466
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H029	HF Alky Hot Oil Heater	KY	KY_1_84	360,727	4,248,935	560	0.6	12.2	2.3	564
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H030	NPT Charge & Reboiler	KY	KY_1_85	360,727	4,248,935	560	1.9	76.2	7.7	583
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H031	HPCCR Reactor Heater	KY	KY_1_86	360,727	4,248,935	560	2.4	54.9	9.1	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H032	HPCCR Reactor Heater	KY	KY_1_87	360,727	4,248,935	560	2.4	54.9	8.2	545
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H033	HPCCR Reactor Heater	KY	KY_1_88	360,727	4,248,935	560	2.4	54.9	7.4	495
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H034	LPVGO Hydrotreater Charge Heater	KY	KY_1_89	360,727	4,248,935	560	1.8	61.3	5.9	540
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H035	LPVGO Hydrotreater Charge Heater	KY	KY_1_90	360,727	4,248,935	560	1.8	61.3	6.0	523
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H036	LPVGO Stripper Reboiler	KY	KY_1_91	360,727	4,248,935	560	2.2	63.1	5.7	469
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H037	HPVGO Charge Heater	KY	KY_1_92	360,727	4,248,935	560	1.8	56.4	8.3	689
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H038	HPVGO Charge Heater	KY	KY_1_93	360,727	4,248,935	560	1.8	56.4	8.2	714
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H039	SRU#1 Thermal Oxidizer	KY	KY_1_94	360,727	4,248,935	560	1.6	76.2	10.3	539
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H040	FCC Startup Heater (direct-fired)	KY	KY_1_95	360,727	4,248,935	560	2.4	53.3	1.2	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H041	FCC Heat Recovery Units	KY	KY_1_96	360,727	4,248,935	560	2.9	70.1	23.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H042	Cumene Column Reboiler	KY	KY_1_97	360,727	4,248,935	560	1.6	54.9	6.4	533
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H043	DDS Reactor Charge Heater	KY	KY_1_98	360,727	4,248,935	560	1.5	53.3	6.6	612
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H044	DDS Reactor Charge Heater	KY	KY_1_99	360,727	4,248,935	560	1.5	53.3	6.6	622
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H045	DDS Reactor Stripper Reboiler	KY	KY_1_100	360,727	4,248,935	560	2.1	53.3	5.8	556
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H046	CCR #2 Charge Heater	KY	KY_1_101	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H047	CCR #2 No. 1 Interheater	KY	KY_1_102	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H048	CCR #2 No. 2 Interheater	KY	KY_1_103	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H049	CCR #2 No. 3 Interheater	KY	KY_1_104	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H050	CCR #2 Reboiler	KY	KY_1_105	360,727	4,248,935	560	3.5	64.9	8.5	550
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H051	KDS Unit Charge Heater	KY	KY_1_106	360,727	4,248,935	560	1.5	53.3	8.3	505
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H052	Lube Plant Asphalt Oxidizer Fume Burner	KY	KY_1_107	360,727	4,248,935	560	2.1	53.3	5.5	428
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H055	Asphalt Tank Heaters (3) for Tank 16	KY	KY_1_108	360,727	4,248,935	560	0.2	17.1	0.0	755
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H056	Asphalt Tank Heaters (3) for Tank 31	KY	KY_1_109	360,727	4,248,935	560	0.2	17.1	0.0	755
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H058	Asphalt Tank Heaters (3) for Tank 72	KY	KY_1_110	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H064	Asphalt Tank Heaters (3) for Tank 833	KY	KY_1_111	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H065	Asphalt Tank Heaters (3) for Tank 849	KY	KY_1_112	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H067	Asphalt Tank Heaters (2) for Tank 871	KY	KY_1_113	360,727	4,248,935	560	0.2	17.1	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H068	Pitch Tank Heaters (2) for Tank 808	KY	KY_1_114	360,727	4,248,935	560	0.2	17.1	0.0	394
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H069	Asphalt Tank Heater (1) for Tank 67	KY	KY_1_115	360,727	4,248,935	560	0.2	17.1	0.0	478
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H071	Asphalt Tank Heaters (1 ea) for Tank 69, 70 and 71	KY	KY_1_116	360,727	4,248,935	560	0.2	16.2	0.0	450
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H072	Asphalt Tank Heaters (2) for Tank 872	KY	KY_1_117	360,727	4,248,935	560	0.2	17.1	0.0	478
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H073	Condensate Naphtha Splitter Reboiler	KY	KY_1_118	360,727	4,248,935	560	1.6	53.3	4.8	586
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H076	#2 SRU Thermal Oxidizer	KY	KY_1_119	360,727	4,248,935	560	1.1	64.9	22.2	539
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H078	Asphalt Tank Heater (T172)	KY	KY_1_120	360,727	4,248,935	560	9.1	0.01	0.01	355
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H079	Portable thermal oxidizer-tank cleaning	KY	KY_1_121	360,727	4,248,935	560	1.2	12.2	10.3	700
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H080	Portable thermal oxidizer-tank cleaning	KY	KY_1_122	360,727	4,248,935	560	1.2	12.2	10.3	700
2101900004	MPLX Terminals LLC - Catlettsburg Refining	T172	1-6-TK-172 - Asphalt Tank	KY	KY_1_123	360,727	4,248,935	560				297
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-1	New Solvent Truck Rack and Solvent (A&A) Railcar Rack	KY	KY_1_124	360,727	4,248,935	560	2.1	18.3	0.3	1089
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-2	Light Oil Dock VDU	KY	KY_1_125	360,727	4,248,935	560	0.6	10.7	1.9	394
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VEPR01	Crude Dock VEPR Blower	KY	KY_1_126	360,727	4,248,935	560	9.1	0.01	0.01	297

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

						Short Term Emission Rates						Long Term Emission Rates					
Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	0	PLANTWIDE FUGITIVES	WV	WV_1_1	--	--	--	8.03	1.52	--	--	--	--	35.17	6.68	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	1	UNIT 1 STACK	WV	WV_1_2	688.45	823.04	154.14	15.76	12.26	0.01	3,015.40	3,604.90	675.13	69.03	53.70	0.03
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	2	AUX 1 & 2 COMMON STACK	WV	WV_1_3	2.53	0.18	0.63	0.29	0.19	--	11.07	0.79	2.77	1.27	0.85	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	4	Coping Power Emergency Generator Exhaust	WV	WV_1_4	Intermittent Sources are excluded from Short Term Model.						0.35	0.00	0.05	--	--	--
54-053-00009	APPALACHIAN POWER - MOUNTAINEER PLANT	5	Engines Exhausts (2) for Emergency Fire	WV	WV_1_5	Intermittent Sources are excluded from Short Term Model.						0.02	0.01	0.01	--	--	--
54-053-00054	APG Polytech LLC	0	PLANTWIDE FUGITIVES	WV	WV_2_1	0.96	0.01	0.54	0.54	0.54	0.00	4.20	0.06	2.35	2.37	2.37	0.00
54-053-00054	APG Polytech LLC	3	CP-3 BORN HEATER	WV	WV_2_2	2.17	0.04	1.26	0.26	0.26	0.00	9.52	0.16	5.53	1.16	1.16	0.00
54-053-00054	APG Polytech LLC	4	CP-3 BONO HEATER	WV	WV_2_3	1.00	0.01	0.84	0.13	0.13	0.00	4.40	0.03	3.69	0.58	0.58	0.00
54-053-00054	APG Polytech LLC	5	CP-4 BORN HEATER	WV	WV_2_4	2.20	0.04	1.28	0.22	0.22	0.00	9.64	0.16	5.60	0.97	0.97	0.00
54-053-00054	APG Polytech LLC	6	CP-2 BORN Heater	WV	WV_2_5	0.02	0.04	0.52	0.07	0.07	0.00	0.07	0.15	2.26	0.32	0.32	0.00
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	0	PLANTWIDE FUGITIVES	WV	WV_3_1	--	--	--	3.71	2.13	--	--	--	--	16.23	9.31	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	1	AUX 1 STACK	WV	WV_3_2	1.71	0.12	0.43	0.20	0.13	--	7.48	0.53	1.87	0.86	0.58	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	13	UNIT 1 STACK	WV	WV_3_3	222.64	135.68	57.26	7.13	5.59	0.00	975.17	594.27	250.80	31.25	24.47	0.01
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	14	UNIT 2 STACK	WV	WV_3_4	281.13	263.24	70.40	6.94	5.42	0.00	1,231.36	1,152.99	308.36	30.39	23.75	0.02
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	2	AUX 3 STACK	WV	WV_3_5	1.55	0.11	0.39	0.18	0.12	--	6.78	0.48	1.70	0.78	0.52	--
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS	3	UNIT 3 STACK	WV	WV_3_6	581.56	486.51	108.57	22.90	17.82	0.01	2,547.22	2,130.90	475.55	100.30	78.07	0.03
54-079-00006	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	Cop Emerg Gen Exhst	Coping Power Emergency Generator Exhaust	WV	WV_3_7	0.44	0.00	0.06	0.00	0.00	--	1.91	0.01	0.25	0.02	0.02	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	17	UNIT III T-41	WV	WV_4_1	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	29	B-5A	WV	WV_4_2	0.59	0.00	0.54	0.05	0.05	--	2.56	0.02	2.38	0.21	0.21	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	30	B-6	WV	WV_4_3	2.55	0.02	2.13	0.19	0.19	--	11.16	0.07	9.35	0.85	0.85	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	31	F-5	WV	WV_4_4	0.31	0.01	0.26	0.02	0.02	--	1.35	0.07	1.13	0.10	0.10	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	32	F-6	WV	WV_4_5	0.13	0.01	0.11	0.01	0.01	--	0.59	0.03	0.49	0.02	0.02	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	34	F-8	WV	WV_4_6	0.01	0.00	0.01	0.00	0.00	--	0.04	0.00	0.03	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	37	B-183	WV	WV_4_7	0.03	0.00	0.01	0.00	0.00	--	0.14	0.01	0.03	0.01	0.01	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	39	B-231	WV	WV_4_8	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
54-053-00007	ICL-North America Inc - GALLIPOLIS FERRY PLANT	40	B-296	WV	WV_4_9	0.02	0.00	0.00	0.00	0.00	--	0.08	0.00	0.00	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	1	LMSC-0010	WV	WV_5_1	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	2	ENGINE TEST CELLS	WV	WV_5_2	4.25	0.00	11.56	0.21	0.12	--	18.62	0.00	50.65	0.94	0.53	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	3	LMSC-0011	WV	WV_5_3	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	4	LMSC-0012	WV	WV_5_4	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	5	LMSC-0013	WV	WV_5_5	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	8	LMDC-0002	WV	WV_5_6	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	9	LMSC-0005	WV	WV_5_7	--	--	--	0.02	0.01	--	--	--	--	0.11	0.06	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	11	LMDC-0003	WV	WV_5_8	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	14	LMSC-0017	WV	WV_5_9	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	17	LMWB-0006	WV	WV_5_10	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	18	SC-0059	WV	WV_5_11	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	20	JMTS-0181	WV	WV_5_12	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	21	LMWB-0002	WV	WV_5_13	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	22	JMZK-0011	WV	WV_5_14	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	23	WB-0074	WV	WV_5_15	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	24	LMZY-0155	WV	WV_5_16	--	--	--	0.02	0.01	0.00	--	--	--	0.07	0.04	0.00
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	25	NLSC-0216	WV	WV_5_17	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	26	LMSC-0001	WV	WV_5_18	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	29	LMWB-0028	WV	WV_5_19	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	30	WB-0091	WV	WV_5_20	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	31	WB-0093	WV	WV_5_21	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	32	WB-0092	WV	WV_5_22	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	33	JMSB-0003	WV	WV_5_23	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	34	LMWB-0060	WV	WV_5_24	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	35	NL-0018	WV	WV_5_25	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	36	PB-0001	WV	WV_5_26	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	37	JMSB-0001	WV	WV_5_27	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	38	LMSB-0002	WV	WV_5_28	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	39	ZY-0446	WV	WV_5_29	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	40	LMZY-0157	WV	WV_5_30	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	41	LMZY-0158	WV	WV_5_31	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	42	LMZY-0159	WV	WV_5_32	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	43	LMZY-0160	WV	WV_5_33	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	44	LMZY-0161	WV	WV_5_34	--	--	--	0.02	0.01	--	--	--	--	0.07	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	46	LMZY-0260	WV	WV_5_35	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	47	LMWB-0105	WV	WV_5_36	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	48	LMWB-071	WV	WV_5_37	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	49	LMWB-072	WV	WV_5_38	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	50	LMWB-073	WV	WV_5_39	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	51	LMWB-074	WV	WV_5_40	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	52	JHFH-0003	WV	WV_5_41	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	53	JHFH-0004	WV	WV_5_42	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	54	JHZE-0003 1&2	WV	WV_5_43	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	55	JHZE-0003 3	WV	WV_5_44	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	56	LMWB-0107	WV	WV_5_45	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	58	JMZK-0058	WV	WV_5_46	--	--	--	0.00	0.00	--	--	--	--	0.01	0.01	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	64	JMTS-0072	WV	WV_5_47	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	65	MZ-WB	WV	WV_5_48	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	66	MZ-SB	WV	WV_5_49	--	--	--	0.02	0.01	--	--	--	--	0.08	0.04	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	67	TS-172	WV	WV_5_50	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	68	WB-068	WV	WV_5_51	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	69	WB-0094	WV	WV_5_52	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	70	WB-0095	WV	WV_5_53	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	71	WB-0096	WV	WV_5_54	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	72	WB-098	WV	WV_5_55	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	73	WB-0109	WV	WV_5_56	--	--	--	0.00	0.00	--	--	--	--	0.01	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	74	WB-0097	WV	WV_5_57	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
54-079-00072	TOYOTA MOTOR MANUFACTURING WV INC.	998	NOT A REAL STACK	WV	WV_5_58	0.26	0.00	0.06	4.27	2.42	--	1.13	0.01	0.25	18.71	10.58	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
Regional Source Inventory

Table C-4. Source Parameters

						Short Term Emission Rates						Long Term Emission Rates					
Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B001	Unit #1 Boiler	OH	OH_1_1	280.61	206.95	17.84	33.85	32.93	0.00	1,229.07	906.46	78.13	148.27	144.24	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B002	Unit #2 Boiler	OH		293.73	214.70	30.91	33.44	32.53	0.00	1,286.53	940.40	135.41	146.47	142.49	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B003	Unit #3 Boiler	OH		263.68	188.63	27.34	32.38	29.45	0.00	1,154.94	826.22	119.75	141.83	128.99	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B004	Unit #4 Boiler	OH	OH_1_4	272.40	195.51	28.09	31.22	28.40	0.00	1,193.11	856.35	123.02	136.76	124.38	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	B005	Unit #5 Boiler	OH		264.05	189.27	27.09	31.28	28.45	0.00	1,156.55	828.99	118.66	137.01	124.62	0.01
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F001	Existing Plant Parking Areas and Roadways	OH	OH_1_6	--	--	--	0.19	0.11	--	--	--	--	0.83	0.46	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F002	Existing Coal Storage Area	OH		--	--	--	1.06	0.60	--	--	--	--	4.64	2.63	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F003	Coal Handling Facilities	OH		--	--	--	1.35	0.29	--	--	--	--	5.93	1.26	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F006	Flue Gas Desulfurization(FGD)Limestone Handling System	OH		--	--	--	0.08	0.03	--	--	--	--	0.37	0.12	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F007	Limestone and Gypsum Storage Piles	OH		--	--	--	0.14	0.06	--	--	--	--	0.62	0.25	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F008	Gypsum Handling System	OH		--	--	--	0.02	0.00	--	--	--	--	0.08	0.02	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F010	Residual Waste Landfill Roadways	OH		--	--	--	0.48	0.05	--	--	--	--	2.10	0.20	--
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	F012	Flue Gas Desulfurization(FGD) Landfill	OH		--	--	--	0.03	0.00	--	--	--	--	0.12	0.02	--
0627010056	General James M. Gavin Power Plant	B001	Unit 1 Auxiliary Steam Boiler	OH	OH_2_1	0.37	0.05	0.19	0.11	0.08	0.00	1.64	0.23	0.82	0.50	0.33	0.00
0627010056	General James M. Gavin Power Plant	B002	Unit 2 Auxiliary Steam Boiler	OH	OH_2_2	0.32	0.05	0.16	0.11	0.07	0.00	1.42	0.20	0.71	0.46	0.31	0.00
0627010056	General James M. Gavin Power Plant	B003	Unit 1 Main Boiler	OH	OH_2_3	796.86	2,891.82	162.62	242.33	129.40	0.03	3,490.25	12,666.15	712.29	1,061.42	566.79	0.11
0627010056	General James M. Gavin Power Plant	B004	Unit 2 Main Boiler	OH	OH_2_4	960.14	3,279.99	179.81	201.70	147.07	0.03	4,205.40	14,366.35	787.57	883.46	644.15	0.13
0627010056	General James M. Gavin Power Plant	P006	Unit 1 Cooling Tower	OH	OH_2_5	--	--	--	1.10	1.10	--	--	--	--	4.81	4.81	--
0627010056	General James M. Gavin Power Plant	P007	Unit 2 Cooling Tower	OH	OH_2_6	--	--	--	1.21	1.21	--	--	--	--	5.32	5.32	--
0627010056	General James M. Gavin Power Plant	P008	SO3 Mitigation System	OH	OH_2_7	--	--	--	0.08	0.08	--	--	--	--	0.37	0.37	--
0627010056	General James M. Gavin Power Plant	P902	Limestone and Lime Handling Systems	OH	OH_2_8	--	--	--	--	--	--	--	--	--	--	--	--
0627010056	General James M. Gavin Power Plant	F001	Coal Handling Operations	OH	OH_2_9	--	--	--	0.26	0.04	--	--	--	--	1.13	0.17	--
0627010056	General James M. Gavin Power Plant	F002	Flue Gas Desulfurization (FGD) Storage Piles and Landfill Operations	OH		--	--	--	11.08	1.66	--	--	--	--	48.55	7.28	--
0627010056	General James M. Gavin Power Plant	F003	Roadways and Parking Areas	OH		--	--	--	2.16	0.24	--	--	--	--	9.46	1.04	--
0627010056	General James M. Gavin Power Plant	F007	Coal Storage Piles	OH		--	--	--	6.52	0.98	--	--	--	--	28.54	4.28	--
0627000046	Shelly Liquid Division	B001	Boiler/Heater	OH	OH_3_5	1.76	0.01	1.48	0.27	0.13	--	7.73	0.05	6.49	1.18	0.59	--
0627000046	Shelly Liquid Division	F001	Roadways and Parking Areas	OH		--	--	--	6.03	6.03	--	--	--	--	26.40	26.40	--
0627000046	Shelly Liquid Division	J001	Truck Loading	OH		--	--	--	0.79	0.79	--	--	--	--	3.46	3.46	--
0627000046	Shelly Liquid Division	J002	Truck Loading	OH		--	--	--	0.18	0.18	--	--	--	--	0.80	0.80	--
664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F001	Roadways and Parking Areas	OH	OH_5_4	--	--	--	--	--	--	--	--	--	--	--	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	F002	Storage Piles	OH		--	--	--	--	--	--	--	--	--	--	--	--
0664000074	Shelly Material Plant 2 formerly Allied Corp Plant	P901	Rotary Drum Dryer	OH		0.21	0.02	1.45	--	--	0.00	0.92	0.08	6.37	--	--	0.00
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B023	#11 Boiler	KY	KY_1_1	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B024	#13 Package Boiler	KY	KY_1_2	6.07	0.07	1.29	0.95	0.95	--	26.58	0.30	5.67	4.18	4.18	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	B025	#14 Package Boiler	KY	KY_1_3	4.97	0.06	0.04	0.78	0.78	--	21.78	0.27	0.18	3.43	3.43	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT01	Petrochem Cooling Tower (#1) East	KY	KY_1_4	--	--	--	0.03	0.02	--	--	--	--	0.12	0.10	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT02	Petrochem Cooling Tower (#2) West	KY	KY_1_5	--	--	--	0.02	0.02	--	--	--	--	0.08	0.07	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT04	Lube Plant Cooling Tower	KY	KY_1_6	--	--	--	0.01	0.01	--	--	--	--	0.06	0.06	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT05	North Area Cooling Tower (#3) Middle	KY	KY_1_7	--	--	--	2.18	1.95	--	--	--	--	9.55	8.56	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT06	North Area Cooling Tower (#1) East	KY	KY_1_8	--	--	--	1.52	1.36	--	--	--	--	6.66	5.97	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT07	North Area Cooling Tower (#3) Middle	KY	KY_1_9	--	--	--	3.77	3.38	--	--	--	--	16.53	14.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT08	North Area Cooling Tower (#2) West	KY	KY_1_10	--	--	--	1.01	0.90	--	--	--	--	4.42	3.96	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT09	Gas Con Area Cooling Tower	KY	KY_1_11	--	--	--	2.12	1.90	--	--	--	--	9.30	8.34	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT10	HF Alky Area Cooling Tower	KY	KY_1_12	--	--	--	1.90	1.70	--	--	--	--	8.31	7.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT11	FCCU Area Cooling Tower	KY	KY_1_13	--	--	--	0.18	0.16	--	--	--	--	0.80	0.72	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT12	SRU/DDS Cooling Tower	KY	KY_1_14	--	--	--	1.48	1.33	--	--	--	--	6.50	5.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	CT13	Portable Temporary Cooling Tower Replacement Cell	KY	KY_1_15	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG001	Radio Tower #2 Emergency (50kW) Generator	KY	KY_1_16	0.01	0.00	0.05	0.00	0.00	--	0.04	0.00	0.22	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG002	Radio Tower #1 Emergency (75kW) Generator	KY	KY_1_17	0.03	0.00	0.00	0.00	0.00	--	0.12	0.00	0.02	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG101	Firewater Pump House Engine	KY	KY_1_18	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG102	Firewater Pump House Engine	KY	KY_1_19	0.01	0.00	0.00	0.00	0.00	--	0.06	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG103	Firelake Firewater Pump Engine	KY	KY_1_20	0.01	0.00	0.00	0.00	0.00	--	0.05	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG104	Hcoal Firewater Pump Engine	KY	KY_1_21	0.02	0.00	0.00	0.00	0.00	--	0.08	0.00	0.02	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG105	Firelake Firewater Pump Engine	KY	KY_1_22	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG106	Firelake Firewater Pump Engine	KY	KY_1_23	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG107	Firelake Firewater Pump Engine	KY	KY_1_24	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG201	Lube Area Flare Knockout Drum Pump Engine	KY	KY_1_25	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG302	Water Pump Engine at the Centrifuge	KY	KY_1_26	0.02	0.00	0.01	0.00	0.00	--	0.08	0.00	0.06	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG303	Godwin Pump Engine Viney Branch	KY	KY_1_27	0.00	0.00	0.00	0.00	0.00	--	0.00	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG305	FCC Hill Run-off Water Pump Engine	KY	KY_1_28	0.00	0.00	0.00	0.00	0.00	--	0.01	0.00	0.01	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG306	Compressor engine(1) at #10 boiler house	KY	KY_1_29	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG307	Compressor engine(2) at #10 boiler house	KY	KY_1_30	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG308	South End AI Compressor engine	KY	KY_1_31	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG309	HCoal Storm Water Pump Engine	KY	KY_1_32	0.01	0.00	0.01	0.00	0.00	--	0.05	0.00	0.04	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG310	East Viney Tunnel Sump Pump Engine	KY	KY_1_33	0.03	0.00	0.01	0.00	0.00	--	0.11	0.00	0.02	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	ENG311	Blowdown Ponds Pump engine	KY	KY_1_34	0.14	0.00	0.03	0.01	0.01	--	0.60	0.00	0.13	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP001	--	KY	KY_1_35	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP002	--	KY	KY_1_36	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP003	Dissolved Air Flotation Unit	KY	KY_1_37	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP017	FCC Regenerator	KY	KY_1_38	23.58	23.80	1.81	2.74	2.48	--	103.27	104.23	7.94	12.00	10.87	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP019	FCCU Fresh Catalyst Hopper	KY	KY_1_39	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP020	FCCU Spent Catalyst Shipping Bin (Offsite)	KY	KY_1_40	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP028	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_41	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP029	FCCU Spent Catalyst Hopper	KY	KY_1_42	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP030	FCCU Catalyst Hopper (Truck unloading)	KY	KY_1_43	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP031	FCCU Fresh/Spent Catalyst Hopper	KY	KY_1_44	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP034	FCCU SOx control addition Hopper	KY	KY_1_45	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP035	FCCU NOx /Super Z Addition Hopper	KY	KY_1_46	--	--	--	0.00	0.00	--	--	--	--	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP14	--	KY	KY_1_47	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP16	--	KY	KY_1_48	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP17	--	KY	KY_1_49	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP18	--	KY	KY_1_50	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP19	--	KY	KY_1_51	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	EP20	--	KY	KY_1_52	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL02	NNA Flare	KY	KY_1_53	7.58	0.27	3.62	1.33	1.33	--	33.21	1.19	15.84	5.82	5.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL03	HF Alky Flare	KY	KY_1_54	1.18	0.01	4.51	0.17	0.17	--	5.18	0.06	19.74	0.74	0.74	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL04	FCC Flare	KY	KY_1_55	2.55	0.08	4.94	0.37	0.37	--	11.16	0.34	21.64	1.63	1.63	--

Nucor West Virginia Steel Mill
PSD Air Dispersion Modeling
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Table C-4. Source Parameters

						Short Term Emission Rates						Long Term Emission Rates					
Facility ID	Facility Name	Emission Unit ID	Emission Unit Description	State	Model Source ID	NOx (lb/hr)	SO2 (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	Lead (lb/hr)	NOx (tpy)	SO2 (tpy)	CO (tpy)	PM10 (tpy)	PM2.5 (tpy)	Lead (tpy)
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FL05	Lube Area Flare	KY	KY_1_56	1.74	0.87	8.86	0.30	0.30	--	7.63	3.79	38.82	1.33	1.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG200	Sulfur solidification in the earthen pit and disposition of solid sulfur in land fill	KY	KY_1_57	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	FUG201	Solid and liquid sulfur hauling to landfill	KY	KY_1_58	--	--	--	0.01	0.00	--	--	--	--	0.06	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H003	CCR#2 Guardcase Heater	KY	KY_1_59	11.92	0.29	8.28	0.75	0.75	--	52.22	1.28	36.28	3.28	3.28	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H004	Aliphatics Hot Oil Heater	KY	KY_1_60	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H005	Asphalt Heaters for Tank 119	KY	KY_1_61	0.39	0.00	0.33	0.03	0.03	--	1.71	0.01	1.44	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H006	Asphalt Heaters for Tank 118	KY	KY_1_62	0.39	0.00	0.33	0.03	0.03	--	1.71	0.01	1.44	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H007	ADS Charge Heater	KY	KY_1_63	0.12	0.00	0.10	0.01	0.01	--	0.52	0.01	0.44	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H008	ADS #2 Tower Reboiler	KY	KY_1_64	0.08	0.00	0.07	0.01	0.01	--	0.36	0.01	0.30	0.03	0.03	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H009	SHU Hot Oil Heater	KY	KY_1_65	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H010	SHU/SPU Hot Oil Heater	KY	KY_1_66	1.47	0.04	1.23	0.11	0.11	--	6.43	0.19	5.40	0.49	0.49	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H011	SHU Reactor Charge Heater	KY	KY_1_67	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H012	SPU Reactor Charge Heater	KY	KY_1_68	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H013	Benzene Recycle Column Reboiler	KY	KY_1_69	3.99	0.12	3.35	0.30	0.30	--	17.49	0.53	14.69	1.33	1.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H014	Cumene Reboiler	KY	KY_1_70	1.27	0.04	1.07	0.10	0.10	--	5.56	0.17	4.67	0.42	0.42	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H015	Lube Vacuum Charge Heater	KY	KY_1_71	2.82	0.08	5.34	0.48	0.48	--	12.37	0.35	23.37	2.11	2.11	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H017	#5 Crude Charge Heater	KY	KY_1_72	34.20	0.31	20.52	1.86	1.86	--	149.81	1.34	89.89	8.13	8.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H018	LEP Dehexanizer Reboiler	KY	KY_1_73	4.45	0.06	3.74	0.34	0.34	--	19.48	0.24	16.37	1.48	1.48	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H019	#4 Vacuum Heater	KY	KY_1_74	2.94	0.22	0.07	0.52	0.52	--	12.88	0.97	0.31	2.29	2.29	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H020	No.4 Vacuum Charge Heater	KY	KY_1_75	6.88	0.24	0.08	0.58	0.58	--	30.12	1.06	0.34	2.52	2.52	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H021	#3 Crude Charge Heater	KY	KY_1_76	6.75	0.51	0.16	1.23	1.23	--	29.56	2.22	0.72	5.38	5.38	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H022	#3 Crude Charge Heater	KY	KY_1_77	7.22	0.50	0.16	1.22	1.22	--	31.62	2.20	0.72	5.34	5.34	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H023	Sat Gas Fractionator Reboiler	KY	KY_1_78	5.23	5.13	1.23	0.92	0.92	--	22.93	22.48	5.39	4.01	4.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H024	Asphalt Mix Heater	KY	KY_1_79	0.22	0.04	1.12	0.10	0.10	--	0.94	0.17	4.92	0.45	0.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H025	SDA Hot Oil Heater	KY	KY_1_80	1.61	0.06	1.35	0.12	0.12	--	7.05	0.26	5.92	0.54	0.54	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H026	ISOM Unit Heaters	KY	KY_1_81	9.02	0.24	6.19	0.56	0.56	--	39.49	1.06	27.11	2.45	2.45	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H027	ISOM Regenerator Vapor Super Heater	KY	KY_1_82	0.06	0.00	0.05	0.00	0.00	--	0.27	0.01	0.23	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H028	HF Alky Isostripper Reboiler	KY	KY_1_83	7.54	0.22	0.07	0.52	0.52	--	33.02	0.96	0.31	2.28	2.28	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H029	HF Alky Hot Oil Heater	KY	KY_1_84	1.08	0.03	0.91	0.08	0.08	--	4.73	0.15	3.97	0.36	0.36	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H030	NPT Charge & Reboiler	KY	KY_1_85	10.68	0.34	8.97	0.81	0.81	--	46.79	1.49	39.31	3.56	3.56	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H031	HPCCR Reactor Heater	KY	KY_1_86	4.49	0.39	10.42	0.94	0.94	--	19.69	1.71	45.63	4.13	4.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H032	HPCCR Reactor Heater	KY	KY_1_87	4.89	0.37	9.84	0.89	0.89	--	21.40	1.62	43.09	3.90	3.90	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H033	HPCCR Reactor Heater	KY	KY_1_88	3.85	0.34	9.21	0.83	0.83	--	16.88	1.51	40.33	3.65	3.65	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H034	LPVGO Hydrotreater Charge Heater	KY	KY_1_89	3.33	0.12	0.04	0.28	0.28	--	14.61	0.52	0.16	1.22	1.22	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H035	LPVGO Hydrotreater Charge Heater	KY	KY_1_90	3.84	0.12	0.04	0.29	0.29	--	16.83	0.52	0.17	1.25	1.25	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H036	LPVGO Stripper Reboiler	KY	KY_1_91	2.57	0.12	0.04	0.28	0.28	--	11.24	0.52	0.17	1.23	1.23	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H037	HPVGO Charge Heater	KY	KY_1_92	2.72	0.20	0.06	0.47	0.47	--	11.92	0.87	0.28	2.07	2.07	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H038	HPVGO Charge Heater	KY	KY_1_93	2.56	0.17	0.06	0.41	0.41	--	11.21	0.72	0.24	1.82	1.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H039	SRU#1 Thermal Oxidizer	KY	KY_1_94	0.89	1.08	0.75	0.07	0.07	--	3.90	4.73	3.27	0.30	0.30	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H040	FCC Startup Heater (direct-fired)	KY	KY_1_95	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H041	FCC Heat Recovery Units	KY	KY_1_96	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H042	Cumene Column Reboiler	KY	KY_1_97	2.75	0.13	3.77	0.34	0.34	--	12.06	0.59	16.51	1.49	1.49	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H043	DDS Reactor Charge Heater	KY	KY_1_98	1.28	0.08	2.07	0.19	0.19	--	5.60	0.34	9.08	0.82	0.82	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H044	DDS Reactor Charge Heater	KY	KY_1_99	1.31	0.08	2.10	0.19	0.19	--	5.72	0.35	9.20	0.83	0.83	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H045	DDS Reactor Stripper Reboiler	KY	KY_1_100	3.57	0.22	5.89	0.53	0.53	--	15.66	0.98	25.79	2.33	2.33	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H046	CCR #2 Charge Heater	KY	KY_1_101	2.48	0.18	5.03	0.46	0.46	--	10.86	0.78	22.05	1.99	1.99	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H047	CCR #2 No. 1 Interheater	KY	KY_1_102	2.88	0.21	5.85	0.53	0.53	--	12.63	0.92	25.64	2.32	2.32	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H048	CCR #2 No. 2 Interheater	KY	KY_1_103	2.25	0.17	4.57	0.41	0.41	--	9.87	0.73	20.03	1.81	1.81	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H049	CCR #2 No. 3 Interheater	KY	KY_1_104	1.16	0.08	2.35	0.21	0.21	--	5.06	0.37	10.28	0.93	0.93	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H050	CCR #2 Reboiler	KY	KY_1_105	0.54	0.04	1.09	0.10	0.10	--	2.36	0.17	4.78	0.43	0.43	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H051	KDS Unit Charge Heater	KY	KY_1_106	0.94	0.14	0.00	0.32	0.32	--	4.14	0.59	0.01	1.41	1.41	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H052	Lube Plant Asphalt Oxidizer Fume Burner	KY	KY_1_107	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H055	Asphalt Tank Heaters (3) for Tank 16	KY	KY_1_108	0.06	0.00	0.05	0.00	0.00	--	0.25	0.00	0.21	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H056	Asphalt Tank Heaters (3) for Tank 31	KY	KY_1_109	0.04	0.00	0.03	0.00	0.00	--	0.17	0.00	0.15	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H058	Asphalt Tank Heaters (3) for Tank 72	KY	KY_1_110	0.04	0.00	0.03	0.00	0.00	--	0.17	0.00	0.14	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H064	Asphalt Tank Heaters (3) for Tank 833	KY	KY_1_111	0.06	0.00	0.05	0.00	0.00	--	0.25	0.00	0.21	0.02	0.02	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H065	Asphalt Tank Heaters (3) for Tank 849	KY	KY_1_112	0.11	0.00	0.09	0.01	0.01	--	0.49	0.00	0.42	0.04	0.04	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H067	Asphalt Tank Heaters (2) for Tank 871	KY	KY_1_113	0.03	0.00	0.02	0.00	0.00	--	0.12	0.00	0.10	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H068	Pitch Tank Heaters (2) for Tank 808	KY	KY_1_114	0.01	0.00	0.01	0.00	0.00	--	0.04	0.00	0.03	0.00	0.00	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H069	Asphalt Tank Heater (1) for Tank 67	KY	KY_1_115	0.38	0.00	0.32	0.03	0.03	--	1.67	0.01	1.40	0.13	0.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H071	Asphalt Tank Heaters (1 ea) for Tank 69, 70 and 71	KY	KY_1_116	0.47	0.00	0.39	0.04	0.04	--	2.05	0.01	1.72	0.16	0.16	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H072	Asphalt Tank Heaters (2) for Tank 872	KY	KY_1_117	0.03	0.00	0.02	0.00	0.00	--	0.12	0.00	0.10	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H073	Condensate Naphtha Splitter Reboiler	KY	KY_1_118	0.76	0.11	2.85	0.26	0.26	--	3.32	0.47	12.47	1.13	1.13	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H076	#2 SRU Thermal Oxidizer	KY	KY_1_119	1.77	2.16	1.49	0.13	0.13	--	7.77	9.45	6.52	0.59	0.59	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H078	Asphalt Tank Heater (T172)	KY	KY_1_120	0.03	0.00	0.02	0.00	0.00	--	0.13	0.00	0.11	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H079	Portable thermal oxidizer-tank cleaning	KY	KY_1_121	--	--	--	--	--	--	--	--	--	--	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	H080	Portable thermal oxidizer-tank cleaning	KY	KY_1_122	0.04	0.00	0.02	0.00	0.00	--	0.17	0.01	0.11	0.01	0.01	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	T172	1-6-TK-172 - Asphalt Tank	KY	KY_1_123	--	--	--	0.00	--	--	--	--	--	0.01	--	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-1	New Solvent Truck Rack and Solvent (A&A) Railcar Rack	KY	KY_1_124	0.28	0.00	0.47	0.04	0.04	--	1.23	0.01	2.06	0.19	0.19	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VDUI-2	Light Oil Dock VDU	KY	KY_1_125	0.05	0.00	0.08	0.01	0.01	--	0.20	0.00	0.34	0.03	0.03	--
2101900004	MPLX Terminals LLC - Catlettsburg Refining	VEPR01	Crude Dock VEPR Blower	KY	KY_1_126	0.16	0.03	0.15	0.01	--	--	0.72	0.12	0.65	0.05	--	--

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Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy)						20D
							NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
1	2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	--	--	--	1.28	3.29	--	892
	2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	2.03	0.06	14.16	0.12	0.23	--	898
	2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	3.37	0.22	0.73	0.04	0.24	--	916
Cluster #1						**45.1**	**5.40**	**0.28**	**14.89**	**1.44**	**3.76**	**--**	**902**
2	2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	1,056.09	179.34	720.48	172.86	180.54	--	962
	2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	255.44	89.57	56.14	15.73	146.39	1.31E-03	1,018
	2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	--	--	--	4.65	17.62	--	1,012
	2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	--	--	--	0.25	0.84	--	962
	2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	--	--	--	--	--	--	1,020
	2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	75.06	0.30	7.16	6.63E-03	4.11	--	978
	2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	0.01	0.05	3.25E-03	1.30E-03	1.30E-03	--	998
	2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	0.61	0.04	0.13	0.04	0.04	--	1,016
	2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	0.07	0.03	0.02	5.00E-03	5.00E-03	--	1,030
	2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	14.74	2.75	7.72	2.70	19.56	--	974
	54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	0.68	0.26	302.51	0.44	0.44	--	974
	54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	23.05	0.67	21.40	47.12	49.97	1.15E-04	998
	54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	412.29	0.17	26.36	9.58	9.58	--	970
	54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	112.00	0.81	17.82	8.89	8.89	--	1,010
	54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	--	--	--	--	--	--	986
	54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	--	--	--	--	--	--	978
Cluster #2 with Catlettsburg Refinery						**49.6**	**1,950.03**	**273.97**	**1,159.75**	**262.27**	**437.99**	**1.43E-03**	**993**
Cluster #2 without Catlettsburg Refinery						**49.6**	**893.94**	**94.64**	**439.27**	**89.41**	**257.45**	**1.43E-03**	**993**
3	2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	102.75	6.66	39.85	1.30	2.03	1.16E-04	934
	2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	26.77	1.77	5.77	45.21	81.66	--	944
	2101900107	Stein Inc	4,262,229	354,330	KY	47.1	--	--	--	9.48	42.58	--	942
	2101909257	Marquet Terminals Inc - Portable Plant	4,262,341	354,200	KY	47.2	3.28	0.87	2.84	1.52	4.95	--	944
Cluster #3						**47.1**	**132.80**	**9.30**	**48.46**	**57.51**	**131.22**	**1.16E-04**	**941**
4	2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	18.04	52.09	98.30	4.52	4.56	--	1,184
	2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	26.66	0.16	28.55	0.51	0.51	--	1,192
	2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	7.26	0.01	5.22	0.75	657.33	--	1,198
Cluster #4						**59.6**	**51.96**	**52.26**	**132.07**	**5.77**	**662.40**	**--**	**1,191**
5	2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	5.34	0.03	4.49	2.31	13.54	5.39E-06	1,118
	2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	14.73	0.78	18.21	1.68	1.68	5.15E-07	1,108
Cluster #5						**55.7**	**20.07**	**0.82**	**22.70**	**3.99**	**15.22**	**5.90E-06**	**1,113**

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Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy)						20D
							NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
6	2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	2.54	0.01	2.23	0.10	0.19	1.21E-05	902
	2101900028	Permits Inc 810-8010	4,255,985	359,614	KY	45.0	--	--	--	12.26	116.12	--	900
Cluster #6						**45.1**	**2.54**	**0.01**	**2.23**	**12.36**	**116.31**	**1.21E-05**	**901**
7	2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	2.11	0.28	10.66	0.71	2.31	5.03E-05	918
	2101900119	AKJ Industries - Ashland	4,261,074	355,659	KY	46.3	--	--	--	--	--	--	926
Cluster #7						**46.1**	**2.11**	**0.28**	**10.66**	**0.71**	**2.31**	**5.03E-05**	**922**
8	2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	--	--	--	0.03	0.25	--	882
	2101900120	Veolia Water Services - Ashland KY Facility	4,258,177	359,483	KY	44.1	14.02	0.08	11.77	1.07	1.07	--	882
	2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	0.65	0.04	0.14	0.05	0.05	--	894
	0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	--	--	--	--	--	--	870
Cluster #8						**44.1**	**14.67**	**0.12**	**11.91**	**1.15**	**1.37**	**--**	**882**
9	2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	--	--	--	4.58E-03	0.02	--	1,018
	2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	--	--	--	0.10	0.65	--	1,024
	2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	--	--	--	1.59	3.53	--	1,028
	2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	--	--	--	--	--	--	1,018
Cluster #9						**51.1**	**--**	**--**	**--**	**1.70**	**4.20**	**--**	**1,022**
10	2101900081	By Inc	4,241,204	362,078	KY	52.3	--	--	--	46.57	210.62	--	1,046
	2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	--	--	--	53.08	134.26	--	1,048
	2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	--	--	--	2.93	18.16	--	1,048
Cluster #10						**52.4**	**--**	**--**	**--**	**102.58**	**363.04**	**--**	**1,047**
11	2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	--	--	--	15.69	21.28	--	1,146
	2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	--	--	--	--	--	--	1,140
	2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	--	0.05	0.16	0.05	0.05	--	1,144
	2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	0.27	0.08	0.06	5.00E-03	5.00E-03	--	1,156
Cluster #11						**57.3**	**0.27**	**0.13**	**0.22**	**15.75**	**21.34**	**--**	**1,147**
12	2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.40	--	1,128
	2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	--	--	--	2.90	19.35	--	1,128
	2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.36	--	1,128
	2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	--	--	--	0.06	0.36	--	1,128
Cluster #12						**56.4**	**--**	**--**	**--**	**3.07**	**20.48**	**--**	**1,128**

Nucor West Virginia Steel Mill
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Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	2-yr Annual Averaged Actual Emissions (tpy)						20D
							NO_X	SO_2	CO	$PM_{2.5}$	PM_{10}	Lead	
13	2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	2.76	80.90	0.34	10.19	10.24	--	1,104
	2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	0.57	3.59E-03	0.48	0.97	2.18	--	1,102
	2108900032	Sun Chemical Corp	4,268,800	345,111	KY	54.2	101.63	135.77	35.67	20.32	23.65	--	1,084
	2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	--	--	--	459.13	2,831.74	--	1,078
	2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	--	--	--	3.69	19.74	--	1,058
	2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	--	--	--	1.36	3.82	--	1,066
	2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	--	--	--	5.01	14.52	--	1,076
	2108900048	Midwestern Biofuels LLC	4,268,730	345,672	KY	53.7	--	--	--	1.66	11.26	--	1,074
	2108900049	Marquet Terminals Inc	4,268,660	346,082	KY	53.3	1.17	7.03E-03	0.98	0.36	0.43	5.86E-06	1,066
	2108900053	South Shore BioFuels LLC	4,268,929	346,230	KY	53.1	30.66	0.18	25.75	43.83	78.21	--	1,062
Cluster #13						**53.9**	**136.78**	**216.86**	**63.22**	**546.53**	**2,995.78**	**5.86E-06**	**1,077**
15	2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	--	0.05	0.16	0.05	0.05	--	1,036
	2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	0.52	0.03	0.11	0.03	0.04	--	1,036
Cluster #15						**51.8**	**0.52**	**0.08**	**0.27**	**0.08**	**0.09**	**--**	**1,036**
117	0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	282.18	20.58	81.42	179.95	195.33	--	1,088
	0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	6.95	3.63	4.10	0.51	0.55	--	1,098
Cluster #117						**54.7**	**289.13**	**24.21**	**85.52**	**180.46**	**195.89**	**--**	**1,093**
151	54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	61.90	0.49	47.88	4.51	4.51	3.50E-04	1,058
	54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	3.37	--	8.50E-04	0.02	0.02	--	1,052
Cluster #151						**52.8**	**65.27**	**0.49**	**47.88**	**4.53**	**4.53**	**3.50E-04**	**1,055**
152	54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	3.56	0.02	2.99	0.26	0.26	--	1,044
	54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	34.29	0.31	9.95	9.08	10.75	--	1,026
	54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	0.23	1.15E-03	0.54	0.06	0.06	--	1,042
Cluster #152						**51.9**	**38.07**	**0.33**	**13.47**	**9.39**	**11.07**	**--**	**1,037**
153	54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	27.04	0.47	31.84	4.71	4.72	7.00E-04	900
	54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	1.04	9.65E-04	5.03	0.04	0.04	--	904
	54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	25.75	0.47	27.42	3.87	3.90	3.00E-04	908
Cluster #153						**45.2**	**53.83**	**0.95**	**64.29**	**8.61**	**8.66**	**1.00E-03**	**904**
154	54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	0.91	0.21	4.13	7.65	9.18	--	624
	54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	2.52	0.48	13.71	0.26	0.26	--	620
Cluster #154						**31.1**	**3.43**	**0.69**	**17.84**	**7.91**	**9.44**	**--**	**622**
155	54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	564.49	0.17	48.73	6.82	6.82	--	894
	54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	43.14	0.84	46.56	17.92	17.92	2.22E-02	902
Cluster #155						**44.9**	**607.63**	**1.01**	**95.29**	**24.74**	**24.74**	**2.22E-02**	**898**

Nucor West Virginia Steel Mill
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Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
1	2101900003	CRHC Mansbach Metal LLC	4,260,022	357,988	KY	44.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900110	Valvoline LLC	4,259,998	357,600	KY	44.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900114	Windstream Corp - Ashland Facility	4,259,918	356,645	KY	45.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #1						**45.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
2	2101900004	MPLX Terminals LLC - Catlettsburg Refining	4,248,935	360,727	KY	48.1	Exclude - Outside ROI	Include - >20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900014	Calgon Carbon Corp	4,244,572	360,775	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900021	Greenbrier Minerals LLC - Big Sandy Dock Facility	4,245,676	360,187	KY	50.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900044	Coal Equity Inc - Transload Terminal (810-8023)	4,248,873	360,752	KY	48.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900099	Marathon Pipeline LLC - Campbells Branch Station	4,246,375	359,010	KY	51.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900117	Air Products & Chemicals Inc - Catlettsburg Hydrogen Plant	4,248,642	359,874	KY	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900121	Union Tank Car Co - Catlettsburg Mini Shop	4,246,661	360,301	KY	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900130	Verizon Wireless - Neal Tower	4,245,556	359,954	KY	50.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900141	AT&T Mobility - Savage Branch Cell Tower Engine	4,245,421	359,148	KY	51.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101909269	Brandenburg Industrial Service Co - Portable Crusher	4,248,511	360,285	KY	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00009	ASHLAND LLC. - NEAL, WV	4,247,778	360,879	WV	48.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00010	BRASKEM AMERICA NEAL PLANT	4,246,300	360,600	WV	49.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00014	Columbia Gas - KENOVA 4C3350	4,248,000	361,000	WV	48.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00080	BIG SANDY PEAKER PLANT	4,245,000	360,900	WV	50.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00112	Marathon Petroleum - Butane Cavern	4,247,200	360,600	WV	49.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00118	Marathon Petroleum - Neal Propane Cavern	4,247,736	360,688	WV	48.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #2 with Catlettsburg Refinery						**49.6**	**Exclude - Outside ROI**	**Include - >20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
Cluster #2 without Catlettsburg Refinery						**49.6**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
3	2101900005	AK Steel Corp - West Works Ashland	4,262,115	354,753	KY	46.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900102	Marquis Terminal Inc	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900107	Stein Inc	4,262,229	354,330	KY	47.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101909257	Marquet Terminals Inc - Portable Plant	4,262,341	354,200	KY	47.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #3						**47.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
4	2101900113	Boyd Co Sanitary Landfill	4,248,402	347,611	KY	59.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
	2101900134	Big Run Power Producers LLC	4,248,394	347,122	KY	59.6	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - Outside ROI	
	2101909079	Rumpke of KY Inc - Portable Plant	4,248,636	346,669	KY	59.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	
Cluster #4						**59.6**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	
5	2101900013	Huntington Alloys Corp	4,236,364	361,995	KY	55.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900106	TN Gas Pipeline Co Station 114	4,236,979	362,103	KY	55.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #5						**55.7**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	

Nucor West Virginia Steel Mill
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Table C-5. List of Clusters

Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
6	2101900016	Hardin Street Marine LLC - Marine Repair Facility	4,255,084	360,011	KY	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900028	Permits Inc 810-8010	4,255,985	359,614	KY	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #6						**45.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
7	2101900019	Mountain Enterprises Inc - Ashland Plant 13	4,260,826	356,160	KY	45.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900119	AKJ Industries - Ashland	4,261,074	355,659	KY	46.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #7						**46.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
8	2101900027	AK Steel Corp - Coke Plant	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900120	Veolia Water Services - Ashland KY Facility	4,258,177	359,483	KY	44.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900125	Verizon Wireless - Ashland SE Cell Tower Engine	4,258,336	358,655	KY	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	0744000168	McGinnis, Inc. - Sheridan Shipyard/Marine Ways	4,258,321	360,043	OH	43.5	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #8						**44.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
9	2101900035	SNR River Ops LLC - Lockwood Dock Facility	4,243,178	362,014	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900079	Riverway South Inc (810-8030)	4,242,777	362,032	KY	51.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900093	CW Coal Sales Inc (810-8042)	4,242,321	362,251	KY	51.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900115	Marathon Petroleum Co LLC - Big Sandy Asphalt Terminal	4,243,604	361,650	KY	50.9	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #9						**51.1**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
10	2101900081	By Inc	4,241,204	362,078	KY	52.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900094	Appalachian Mining & Reclamation LLC (810-8032)	4,241,082	362,003	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2101900098	Big Sandy Development Co (810-8040)	4,241,176	361,907	KY	52.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #10						**52.4**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
11	2101900095	The Wells Group LLC	4,250,552	348,560	KY	57.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900116	Liquid Transport LLC	4,251,782	348,233	KY	57.0	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900122	Verizon Wireless - Princess	4,250,754	348,506	KY	57.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101900140	Ashland Service Center	4,250,983	347,717	KY	57.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #11						**57.3**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
12	2101909340	TLT Resources Corp - Portable Screen No 1	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909405	TLT Resources Corp - Portable Screen No 2	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909443	Michael E Cornett dba C & C Construction - Portable Screen No 5	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2101909444	Michael Cornett dba C & C Construction - Portable Screen No 6	4,248,473	350,883	KY	56.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #12						**56.4**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	

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Cluster ID	Facility ID	Name	UTM N (m)	UTM E (m)	State	Distance from Site (km)	Include in NAAQS Analysis? 1-hr NO_2	Annual NO_2	1-hr SO_2	24-hr PM2.5	PM2.5	24-hr PM10	Rolling 3-month Avg Lead
13	2108900001	Veolia North America Regeneration Services LLC	4,268,914	344,101	KY	55.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900014	Pregis Innovative Packaging Inc	4,268,820	344,221	KY	55.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900032	Sun Chemical Corp	4,268,800	345,111	KY	54.2	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900035	Greenup Boyd Co Riverport Authority Salt Storage Facility	4,268,591	345,502	KY	53.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900036	Great Lakes Minerals LLC	4,268,715	346,446	KY	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2108900037	Vesuvius USA	4,268,529	346,078	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900038	The Wells Group LLC	4,268,577	345,572	KY	53.8	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900048	Midwestern Biofuels LLC	4,268,730	345,672	KY	53.7	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900049	Marquet Terminals Inc	4,268,660	346,082	KY	53.3	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	2108900053	South Shore BioFuels LLC	4,268,929	346,230	KY	53.1	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #13						**53.9**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
15	2108900050	Verizon Wireless - Flatwoods	4,263,860	348,833	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	2108900052	AT&T Mobility - Flatwoods Fountain	4,263,843	348,808	KY	51.8	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #15						**51.8**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
117	0744000150	Hanging Rock Energy Facility	4,270,785	344,622	OH	54.4	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
	0744000173	Americas Styrenics	4,271,137	343,999	OH	54.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	
Cluster #117						**54.7**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	
151	54-039-00003	UNION CARBIDE CORP -SO CHARLESTON FAC.	4,246,872	440,597	WV	52.9	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00102	Covestro LLC - SOUTH CHARLESTON	4,246,600	439,900	WV	52.6	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #151						**52.8**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
152	54-039-00004	UNION CARBIDE CORPORATION - UCC TECHNOLOGY PARK OPERATIONS	4,245,700	438,700	WV	52.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00011	Clearon Corp. - South Charleston Plant	4,246,600	438,300	WV	51.3	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00618	Univation Technologies, LLC, South Charleston Catalyst Plant	4,245,454	438,402	WV	52.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #152						**51.9**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
153	54-039-00005	UNION CARBIDE CORPORATION-INSTITUTE	4,248,800	431,900	WV	45.0	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00682	Specialty Products - Institute	4,248,754	432,189	WV	45.2	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-039-00692	Altivia - Institute	4,248,310	432,000	WV	45.4	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #153						**45.2**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
154	54-079-00103	Waste Management - DISPOSAL SERVICE, INC. SANITARY LANDFILL	4,250,300	410,900	WV	31.2	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-079-00105	ALLIED WASTE SYCAMORE LANDFILL, LLC	4,250,300	410,400	WV	31.0	Exclude - <20D	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #154						**31.1**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	
155	54-099-00013	Columbia Gas - CEREDO 4C3360	4,248,000	366,000	WV	44.7	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
	54-099-00081	Appalachian Power Company - CEREDO ELECTRIC GENERATING STATION	4,247,500	366,000	WV	45.1	Exclude - Outside ROI	Exclude - <20D	Exclude - Outside ROI	Exclude - <20D	Exclude - <20D	Exclude - <20D	
Cluster #155						**44.9**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - Outside ROI**	**Exclude - <20D**	**Exclude - <20D**	**Exclude - <20D**	

APPENDIX D. RESULT OF SENSITIVITY ANALYSIS

Trinity Consultants

MEMORANDUM

To: Jon McClung, West Virginia DEP (WVDEP)

cc: Sean Alteri, Nucor

From: Bill Bruscino, Trinity Consultants

Date: February 9, 2022

RE: Sensitivity Analysis – Land Use Impact on AERMOD Outputs

Trinity Consultants (Trinity) submitted an air dispersion modeling protocol for a proposed Nucor Corporation steel mill in Apple Grove, West Virginia on January 12, 2022. As discussed in Section 2.6 of the protocol, Trinity has completed a sensitivity analysis, as referenced in Section 3.1.1 of the *AERMOD Implementation Guide*, of land use characteristics between the project location and the airport from which meteorological data are proposed for use in air dispersion modeling for the new mill. The analysis included two sets of meteorological data for the proposed site, the first incorporating the estimated after project land use parameters for the proposed site and the second using the land use parameters for the representative airport location. The following sections describe the air dispersion methodologies and information that were used in this analysis followed by a presentation of the results and conclusion.

Model Selection

The latest version (21112) of the AERMOD modeling system was used to estimate maximum ground-level concentrations in this analysis. AERMOD is a refined, steady-state (both emissions and meteorology over a one hour time step), multiple source, Gaussian dispersion model that is the preferred model for industrial sources in this type of air quality analysis.[1] 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.[2] 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.[3]

BREEZE®-AERMOD software, developed by Trinity Consultants, was used to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (dated 21112), AERMET (dated 21112), AERMINUTE (dated 15272) and AERMAP (dated 18081) to estimate ambient impacts from the modeled sources.

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

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

[3] 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.

Building Downwash

The *Guideline*[4] requires the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources. The exhaust from stacks that are located within specified distances of buildings may be subject to "aerodynamic building downwash" under certain meteorological conditions. This determination is made by comparing actual stack height to the Good Engineering Practice (GEP) stack height. The modeled emission units and associated stacks and vents at the proposed facility were evaluated in terms of their proximity to nearby structures. All locations and dimensions of the buildings that were used in the modeling analysis are reported in the BPIP files contained in the modeling files that will be provided to West Virginia DEP.

An emission point is assumed to be subject to the effects of downwash at all release heights even if the release height is above the U.S. EPA formula height, which is defined by the following formula:

$$H_{GEP} = H + 1.5 \times L$$

Where:

H_{GEP}	=	EPA formula height,
H	=	structure height, and
L	=	lesser dimension of the structure (height or maximum projected width).

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.

Direction-specific equivalent building dimensions used as input to the AERMOD model to simulate the impacts of downwash are calculated using the *BREEZE®*-AERMOD software, developed by Trinity Consultants. This software incorporates the EPA-sanctioned Building Profile Input Program (BPIP-PRIME). Using the building coordinates and dimensions for all on-site structures, a GEP analysis of all stacks included in the sensitivity analysis in relation to each building for each of the 36 wind directions was performed to evaluate which building height and dimensions have the greatest influence in terms of building downwash (enhanced dispersion) on each source's emissions.

Coordinate System

The location of emission sources, structures, and receptors are represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central 500 km meridian of each UTM zone, where the world is divided into 36 north-south zones). The datum for the modeling analysis is based on North American Datum 1983 (NAD 83). UTM coordinates for this analysis all reside within UTM Zone 17 which will serve as the reference point for all data.

Treatment of Terrain

Terrain elevations were considered in the modeling analysis. The elevations of receptors, buildings, and sources refined the modeling output concentrations between the sources at one elevation and receptor locations at various other elevations at the fence line and beyond. This was accomplished through the use of the AERMOD terrain preprocessor called AERMAP (latest version 18081), which generates base elevations above mean sea level of sources, buildings, and/or receptors as specified by the user. For all offsite receptors, AERMAP determined the base elevation of each and an effective hill height scale that helps determine the magnitude of each source plume-elevated terrain feature interaction. AERMOD uses both of

[4] U.S. EPA: Guideline on Air Quality Models, 40 CFR Part 51 - Appendix W (Revised, January 17, 2017)

these receptor-related values to calculate the effect of terrain on each plume. Terrain elevations from the U.S. Geological Survey (USGS) 1 arc-second (approximately 30 meter resolution) National Elevation Dataset (NED) data were used for the AERMAP processing of receptors, buildings, and evaluated emission sources.[5] The data was obtained in GeoTIFF format in accordance with recent guidance provided by U.S. EPA.[6]

Receptor Grids

The following nested grids was used in this analysis consistent with the approved modeling protocol:

- **Fence Line Grid:** "Fence line" grid consisting of evenly-spaced receptors 50 meters apart placed along the main property boundary of the facility,
- **Fine Cartesian Grid:** A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property and beyond the fence line,
- **Medium Cartesian Grid:** A "medium" grid containing 500-meter spaced receptors extending from 3 km to 10 km from the center of the facility, exclusive of receptors on the fine grid,
- **Coarse Cartesian Grid:** A "coarse grid" containing 1,000-meter spaced receptors extending from 10 km to 30 km from the center of the facility, exclusive of receptors on the fine and medium grids, and
- **Very Coarse Cartesian Grid:** A "very coarse grid" containing 2,500-meter spaced receptors extending from 30 km to 50 km from the center of the facility, exclusive of receptors on the fine, medium, and coarse grids.

Modeled Emission Sources

Using these two sets of meteorological data, representative emission sources from the proposed facility for both short term and long-term averaging periods were modeled. Four (4) representative sources were modeled in this analysis, a surface-based volume source, a volume source on building, a relatively short point source, and an elevated point source. Table 1 below summarizes the source characteristics that were used in this analysis. For the purpose of this analysis and emission rate of 1 lb/hr was modeled for all sources.

Table 1. Source Parameters

Source ID	Source 1	Source 2	Source 3	Source 4
Source Type	Point	Point	Volume – Surface Based	Volume – Elevated Source on a Building
UTM East (m)	398,351.00	398,168.90	398,495.70	398,405.00
UTM North (m)	4,278,923.00	4,277,941.80	4,277,995.90	4,278,123.50
Elevation (ft)	579.79	561.38	575.79	574.31
Stack Height (ft)	80.00	184.00		
Exhaust Temperature (F)	90.10	260.00		

[5] The National Mapserver available at https://viewer.nationalmap.gov/basic

[6] Data Sources and Conversion of Elevation Data for AERMAP - https://gaftp.epa.gov/Air/aqmg/SCRAM/models/related/aermap/Access_and_Conversion_of_Elevation_Data_for_AERMAP.pdf

Source ID	Source 1	Source 2	Source 3	Source 4
Exit Velocity (fps)	94.92	58.00		
Stack Diameter (ft)	3.00	23.36		
Release Height (ft)			5.63	70.00
Initial Lateral Dimension (ft)			115.32	133.20
Initial Vertical Dimension (ft)			5.23	65.12

Meteorological Data

The land use characteristics (i.e., albedo, surface roughness and Bowen ratio) for the proposed site and the Huntington Tri-State Airport (KHTS, WBAN #3860) was presented in the modeling protocol and are summarized in Table 2 below for reference.

Table 2. Comparison of Land Use Parameters – Huntington vs. Modified Apple Grove

Sector (degrees)	Huntington Airport Albedo (unitless)	Huntington Airport Bowen Ratio (unitless)	Huntington Airport Surface Roughness (m)	Nucor Applegrove Albedo (unitless)	Nucor Applegrove Bowen Ratio (unitless)	Nucor Applegrove Surface Roughness (m)	Percent Diff. [(Facility-NWS)/Facility] Albedo (%)	Percent Diff. [(Facility-NWS)/Facility] Bowen Ratio (%)	Percent Diff. [(Facility-NWS)/Facility] Surface [1] Roughness (%)
0-30	0.163	0.693	0.148	0.160	0.635	0.261	-1.56%	-9.06%	43.25%
30-60	0.163	0.693	0.274	0.160	0.635	0.162	-1.56%	-9.06%	-69.14%
60-90	0.163	0.693	0.143	0.160	0.635	0.139	-1.56%	-9.06%	-3.07%
90-120	0.163	0.693	0.127	0.160	0.635	0.151	-1.56%	-9.06%	16.23%
120-150	0.163	0.693	0.450	0.160	0.635	0.188	-1.56%	-9.06%	-139.36%
150-180	0.163	0.693	0.358	0.160	0.635	0.223	-1.56%	-9.06%	-60.31%
180-210	0.163	0.693	0.155	0.160	0.635	0.126	-1.56%	-9.06%	-22.77%
210-240	0.163	0.693	0.232	0.160	0.635	0.031	-1.56%	-9.06%	-654.47%
240-270	0.163	0.693	0.263	0.160	0.635	0.026	-1.56%	-9.06%	-909.62%
270-300	0.163	0.693	0.148	0.160	0.635	0.036	-1.56%	-9.06%	-308.28%
300-330	0.163	0.693	0.072	0.160	0.635	0.204	-1.56%	-9.06%	64.50%
330-360	0.163	0.693	0.096	0.160	0.635	0.234	-1.56%	-9.06%	58.91%
All	**0.163**	**0.693**	**0.205**	**0.160**	**0.635**	**0.148**	**-1.56%**	**-9.06%**	**-38.42%**

[1] Percent Difference [(Facility-NWS)/Facility] compares the average of the overall albedo, Bowen ratio, and surface roughness values for the Huntington Airport to the proposed Apple Grove site.

As seen in Table 2, the only characteristic with any substantial variation between the two locations is surface roughness. To better examine the effect that the surface roughness variations have on model output, an AERMOD analysis was performed for two sets of meteorological data, one using the surface parameters from each land use analysis.

Discussion of Results and Conclusion

Table 3 below shows the maximum of modeled concentrations over 5 years and the percent difference relative to the airport land use case. Source 3 is a ground level volume source that represents types of sources that mostly commonly emit fugitive particulate matter emissions. Particulate matter only has ambient air quality standards with 24-hour and annual averaging periods, so results are only shown for these two averaging periods for this source. As presented in Table 3, the model output concentrations varied by less than 17% for the point sources and by less than 32% for the volume sources when considering the high 1st high 1-hour, 3-hour, 8-hour, 24-hour, monthly, and annual average concentrations.

Table 3. Results Summary – Huntington vs. Modified Apple Grove

Averaging Period			Source ID			
			Source 1	**Source 2**	**Source 3**	**Source 4**
H1H	**1HR**	Airport LU (µg/m^3)	8.03	0.18	N/A	16.58
		Site LU (µg/m^3)	9.34	0.19	N/A	18.89
		Difference (%)	**16%**	**5%**	**N/A**	**14%**
	3HR	Airport LU (µg/m^3)	5.08	0.07	N/A	9.67
		Site LU (µg/m^3)	5.87	0.08	N/A	11.42
		Difference (%)	**16%**	**15%**	**N/A**	**18%**
	8HR	Airport LU (µg/m^3)	3.30	5.37E-02	N/A	6.29
		Site LU (µg/m^3)	3.65	5.09E-02	N/A	7.28
		Difference (%)	**11%**	**-5%**	**N/A**	**16%**
	24HR	Airport LU (µg/m^3)	2.36	0.03	22.94	3.35
		Site LU (µg/m^3)	2.60	0.03	24.12	3.56
		Difference (%)	**10%**	**9%**	**5%**	**6%**
	Monthly	Airport LU (µg/m^3)	0.80	5.41E-03	N/A	0.57
		Site LU (µg/m^3)	0.84	5.39E-03	N/A	0.75
		Difference (%)	**5%**	**0%**	**N/A**	**31%**
	Annual	Airport LU (µg/m^3)	0.47	2.12E-03	2.12	0.34
		Site LU (µg/m^3)	0.49	2.22E-03	1.57	0.41
		Difference (%)	**4%**	**5%**	**-26%**	**19%**

Due to the insignificant variations in AERMOD output and relative similarities in land use characteristics between the airport and the proposed site, it can be concluded that use of airport land use information is representative and appropriate for use in modeling of the proposed new mill.

All AERMOD input and output and meteorological data files that were used in this sensitivity analysis will be provided to WVDEP.