



NAAQS Interactive Source Inventory Development

If the permit granting authority determines that a modeling study is necessary prior to the issuance of a construction permit, the applicant will be required to submit a compliant National Ambient Air Quality Standards (NAAQS) demonstration for each pollutant that exceeds the significant impact levels contained within 10 CSR 6.060(11)(D) Table 4.

The NAAQS compliance demonstration must consider emissions from the proposed or modified source, monitored background concentrations and existing “interactive” sources. The modeled emission rates must reflect the maximum allowable operating conditions based upon federally enforceable emission limits and operating levels, for each pollutant, and averaging time.

If the facility under consideration is a new construction, the applicant will be required to provide site specific data for each proposed emission unit that will be located at the site. For existing sources that are being modified, the applicant must provide site specific data for each proposed emission unit in addition to each existing unit that will be located at the site upon the completion of the proposed construction project. This data satisfies the first component that must be considered when conducting a NAAQS compliance demonstration as noted above.

Monitored background values are included in the air quality analysis to account for the impact due to unidentified emission sources and naturally occurring emission sources that are not explicitly being modeled. The selection of an appropriate monitored background value is important and can impact the outcome of the air quality analysis. Additional details on data selection can be found within the following document: [Background Concentrations](#).

Lastly, to determine the impact due to existing “interactive” sources, the applicant must include off-site emission sources that may significantly impact the air quality within the region of the source being permitted. This data can be obtained from the department’s Air Pollution Control Program upon written request. According to Section 8.2.3 of Appendix W, “[The Guideline on Air Quality Models](#)” states that “The impact of the nearby sources should be examined at locations where interactions between the plume of the point source under consideration and those of nearby sources (plus natural background) can occur. Significant locations include: (1) the area of maximum impact of the point source; (2) the area of maximum impact of nearby sources; and (3) the area where all sources combine to cause maximum impact.” For Prevention of Significant Deterioration permit reviews, the initial interactive source inventory may include sources within 50-kilometers of the furthest extent of the significant impact area if it is anticipated that plume interactions between the permitted source and the interactive source are likely to occur. For minor source permit reviews, the initial inventory may include sources within 25-kilometers.

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It is important to note that the use of the 50-kilometer and 25-kilometer buffers is a starting point for interactive source inventory development. It does not suggest that every source within the buffer zone will be included in the interactive source inventory. Source characterizations, terrain data, meteorological conditions and emissions levels will be taken into consideration and will influence the number of sources that are included in the inventory that is provided to the applicant.

The NAAQS inventories are derived from potential emission estimates that are obtained from the MoEIS emissions reporting database. The MoEIS database contains emissions information provided by facilities across the state in order to fulfill the reporting requirements contained with 10 CSR 6.110. Each source within the inventory should be explicitly modeled and should not be modified unless prior approval has been obtained from the Construction Permit Modeling Unit. To avoid delays, applicants should request an inventory as soon as possible. Inventory requests are filled in the order in which the requests are received.

Applicants can expect to receive the requested inventory in a model ready Excel format, refer to Table 1, entitled “NAAQS Interactive Source Inventory Example-Particulate Matter Less Than Ten Microns (PM₁₀).” The following data elements will be included in each inventory that is provided for incorporation into the NAAQS modeling study.

- **Facility ID**
 - Unique, nine digit value that describes the state, county and four digit facility identification number contained within MoEIS.
- **Facility Name**
 - Facility name provided by the facility.
- **Site Name**
 - Site name provided by the facility.
- **Permit Type**
 - Type of operating permit that the facility is required to submit.
- **Model ID**
 - Unique identifier that should be input into the air quality model. This identifier should be referenced when requesting emissions clarifications from the Construction Permit Modeling Unit in the event that the data appears to be erroneous.
- **Release Type**
 - The release type associated with each emission point describes how the emissions are being released into atmosphere. In addition, this keyword defines what release parameters must be provided as input into the air quality model. Interactive source inventories may contain up to three types of releases: point, volume or area.



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- Point
 - Stack driven release points.
- Volume
 - Fugitive releases such as conveyors, grain elevators, doorway openings, silo bin vents, etc.
- Area
 - Fugitive releases from haul roads and storage piles.
- Detailed descriptions of the release parameters for each release type are described under the “Release Parameters” heading.
- **Easting**
 - East/west, x-coordinate of the source location in meters,
 - NAD83 datum, and
 - Zone 15 coordinate system.
- **Northing**
 - North/south, y-coordinate of the source location in meters,
 - NAD83 datum, and
 - Zone 15 coordinate system.
- **Elevation**
 - Base elevation of the source, z-coordinate, in meters.
- **Emission Rate**
 - Potential to emit for each emission point within the inventory based upon maximum allowable emissions or federally enforceable limits contained within construction permits, operating permits, or other enforceable documents such as consent decrees, state requirements or federal requirements. The emission rate units for each release type will be provided as follows:
 - Point
 - Grams/second.
 - Volume
 - Grams/second.
 - Area
 - Grams/second/meter².
- **Release Parameters**
 - The release parameters that must be input into the air quality model based upon release type. The NAAQS interactive source inventory will contain the following information by source type.
 - Point



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- Stack height in meters,
- Stack exit temperature in degrees Kelvin,
- Stack exit velocity in meters/second, and
- Stack diameter in meters.
- Volume
 - Release height in meters,
 - Initial lateral dimension in meters, and
 - Initial vertical dimension in meters
- Area
 - Release height in meters,
 - X-dimension in meters,
 - Y-dimension in meters,
 - Orientation angle in degrees from true north, and
 - Initial vertical dimension in meters.

Release type examples using the data contained within Table 1 are provided at the end of this document.



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**Table 1
NAAQS Interactive Source Inventory Example
Particulate Matter Less Than Ten Microns (PM₁₀)**

Facility ID	Facility Name	Site Name	Permit Type	Model ID	Release Type	Easting	Northing	Elevation	Emission Rate	Release Parameters				
292170001	Vernon Limestone	Moundville Quarry	Intermediate	Vernon1	Point	382833.1	4188488.6	267.0	3.51E-02	7.98	298.00	6.10	0.91	
292170001	Vernon Limestone	Moundville Quarry	Intermediate	Vernon2	Area	382833.1	4188488.6	267.0	2.65E-05	2.55	10.00	100.00	0.00	2.37
292170001	Vernon Limestone	Moundville Quarry	Intermediate	Vernon3	Area	382833.1	4188488.6	267.0	5.85E-06	2.00	63.61	63.61	0.00	0.00
292170001	Vernon Limestone	Moundville Quarry	Intermediate	Vernon4	Volume	382833.1	4188488.6	267.0	4.03E-02	1.5	0.6977	1.395		
292170001	Vernon Limestone	Moundville Quarry	Intermediate	Vernon5	Volume	382833.1	4188488.6	267.0	1.98E-01	2.5	1.1628	2.3256		
292170002	Mo. Power Co.	Walker Turbine	Part 70	Vernon6	Point	382281.1	4177994.0	249.9	3.50E+02	51.2	417.37	10.82	3.2	
292170002	Mo. Power Co.	Walker Turbine	Part 70	Vernon7	Point	382281.1	4177994.0	249.9	9.65E-02	17.1	357.9	4.28	0.90	
292170002	Mo. Power Co.	Walker Turbine	Part 70	Vernon8	Point	382281.1	4177994.0	249.9	9.65E-02	17.1	357.9	4.28	0.90	
292170002	Mo. Power Co.	Walker Turbine	Part 70	Vernon9	Point	382281.1	4177994.0	249.9	2.15E+01	48.6	428.00	9.48	2.8	
292170002	Mo. Power Co.	Walker Turbine	Part 70	Vernon10	Point	382281.1	4177994.0	249.9	3.50E+02	51.2	417.37	10.82	3.2	
292170003	Jersey Grain & Feed	Milo Elevator	Basic	Vernon11	Volume	377214.5	4235982.6	277.3	9.01E-01	5.0	1.1628	4.651		
292170003	Jersey Grain & Feed	Milo Elevator	Basic	Vernon12	Volume	377214.5	4235982.6	277.3	1.20E+00	.03	0.6977	2.791		
292170003	Jersey Grain & Feed	Milo Elevator	Basic	Vernon13	Area	377214.5	4235982.6	277.3	8.15E-05	2.55	10.00	100.00	0.00	2.37



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Table Examples

Examples of the each release type based upon the data within Table 1 are provided below.

- **Example #1-Point Source Release**
 - **Facility ID**
 - 292170002
 - 29 = State of Missouri,
 - 217 = Vernon County, and
 - 0002 = Facility ID.
 - **Facility Name**
 - Mo. Power Co.
 - Facility provided name within MoEIS.
 - **Site Name**
 - Walker Turbine
 - Facility provide site name within MoEIS.
 - **Permit Type**
 - Part 70
 - Operating permit type assigned to the facility.
 - **Model ID**
 - Vernon6
 - Model identifier assigned by the Construction Permit Modeling Unit.
 - **Release Type**
 - Point
 - Stack driven release. Stack height, temperature, exit velocity and diameter provided in the "Release Parameter" portion of the table.
 - **Easting**
 - 382281.1
 - X-coordinate of the facility center in meters.
 - **Northing**
 - 4177994.0
 - Y-coordinate of the facility center in meters.
 - **Elevation**
 - 249.9
 - Base elevation of the facility in meters.
 - **Emission Rate**
 - 3.50E+02
 - Grams/second emission rate.
 - **Release Parameters**
 - 51.2
 - Stack height in meters.
 - 417.37
 - Stack exit temperature in degrees Kelvin.
 - 10.82
 - Stack exit velocity in meters/second.
 - 3.2
 - Stack diameter in meters.



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- **Example #2-Volume Source Release**
 - **Facility ID**
 - 292170003
 - 29 = State of Missouri,
 - 217 = Vernon County, and
 - 0003 = Facility ID.
 - **Facility Name**
 - Jersey Grain & Feed
 - Facility provided name within MoEIS.
 - **Site Name**
 - Milo Elevator
 - Facility provide site name within MoEIS.
 - **Permit Type**
 - Basic
 - Operating permit type assigned to the facility.
 - **Model ID**
 - Vernon11
 - Model identifier assigned by the Construction Permit Modeling Unit.
 - **Release Type**
 - Volume
 - Fugitive emissions release. Release height, initial lateral dimension and initial vertical dimension provided in the “Release Parameter” portion of the table.
 - **Easting**
 - 377214.5
 - X-coordinate of the facility center in meters.
 - **Northing**
 - 4235982.6
 - Y-coordinate of the facility center in meters.
 - **Elevation**
 - 277.3
 - Base elevation of the facility in meters.
 - **Emission Rate**
 - 9.01E-01
 - Grams/second emission rate.
 - **Release Parameters**
 - 5.0
 - Release height in meters.
 - 1.1628
 - Initial lateral dimension in meters.
 - 4.651
 - Initial vertical dimension in meters.



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- **Example #3-Area Source Release**
 - **Facility ID**
 - 292170001
 - 29 = State of Missouri,
 - 217 = Vernon County, and
 - 0001 = Facility ID.
 - **Facility Name**
 - Vernon Limestone
 - Facility provided name within MoEIS.
 - **Site Name**
 - Moundville Quarry
 - Facility provide site name within MoEIS.
 - **Permit Type**
 - Intermediate
 - Operating permit type assigned to the facility.
 - **Model ID**
 - Vernon2
 - Model identifier assigned by the Construction Permit Modeling Unit.
 - **Release Type**
 - Area
 - Fugitive emissions release. Release height, x-coorindate, y-coordiante, angle and initial vertical dimension provided in the "Release Parameter" portion of the table.
 - **Easting**
 - 382833.1
 - X-coordinate of the facility center in meters.
 - **Northing**
 - 4188488.6
 - Y-coordinate of the facility center in meters.
 - **Elevation**
 - 267.0
 - Base elevation of the facility in meters.
 - **Emission Rate**
 - 2.65E-05
 - Grams/second/meter² emission rate.
 - **Release Parameters**
 - 2.55
 - Release height in meters.
 - 10.0
 - X-coordiante in meters.
 - 100.0
 - Y-coordiante in meters.
 - 0
 - Orientation angle in degrees.
 - 2.37
 - Initial vertical dimension in meters.