Alaska Department of Environmental Conservation

AIR QUALITY MODELING SUBMITTAL CHECKLIST
PSD Permit Applications

The Alaska Department of Environmental Conservation (ADEC) developed this checklist to remind you, the Prevention of Significant Deterioration (PSD) permit applicant, of the modeling-related elements that you will likely need to submit with your PSD permit application. You are not required to use it – nor does it impose any type of regulatory requirement. We are only providing the checklist as a courtesy. You likewise do not need to submit this checklist with your application. We have our own checklists that we use for reviewing ambient demonstrations.

The checklist describes the various items that PSD applicants typically need to submit in order for ADEC to review the ambient demonstrations elements of 18 AAC 50.306(b) – i.e., the source impact analysis required under 40 CFR 52.21(k), the pre-construction monitoring analysis required under 40 CFR 52.21(m)(1), the additional impact analysis required under 40 CFR 52.21(o), and when applicable, the Class I analysis required under 40 CFR 52.21(p). The checklist also references the ambient demonstrations required under the minor permit provisions in 18 AAC 50.540(c)(2) and 18 AAC 50.540(k)(3)(C), since some projects trigger the PSD requirements for some pollutants and the minor permit requirements for other pollutants.

The checklist provides a recommended format for providing a written description of your ambient demonstration. However, it does not address all scenarios that could arise, or conversely, it may list non-applicable items. ADEC therefore encourages applicants to tailor their write-up to just the applicable provisions, rather than addressing each element of the checklist. For example, there is no merit in discussing nitrogen dioxide (NO_2) modeling techniques if your application only triggers the sulfur dioxide (SO_2) modeling requirements. However, if a topic could be applicable for the given project classification, but you believe it is not in your particular case, then it's best to state why you believe it's not applicable rather than just ignoring it.

Additional information regarding air quality modeling and permitting may be obtained from ADEC's Air Permit Program (APP) web-site at http://dec.alaska.gov/air/ap/mainair.htm. Additional information regarding pollutant and meteorological monitoring may be obtained from ADEC's Air Monitoring & Quality Assurance (AM&QA) web-site at http://dec.alaska.gov/air/am/am_airqual-guidQA.htm.

Check each box upon completion of the indicated item

Ambient Demonstration Narrative

☐ All of the applicable elements described in the ambient demonstration narrative (Narrative) section are complete and ready to be submitted with the permit application.

If you developed a stand-alone document for the Narrative:

☐ The document clearly identifies the permittee, the project name, and report date, in either a cover page or header format. If you used a consultant to prepare the demonstration, provide their name as well.

☐ The document includes a brief description of the project and the triggered permit classifications.

1.   Background Information

☐   The Narrative contains the background information needed to provide the appropriate context for the ambient demonstration.

1.1   Project Location

☐   The permit application and/or the stand-alone ambient demonstration document includes a map that shows where in Alaska the stationary source is, or will be, located.

☐   The Narrative provides the distances to the nearest Class I areas. (See 18 AAC 50.015(c)(2) for the list of Alaska's Class I areas.)

☐   The Narrative identifies the Air Quality Control Region in which the stationary source is, or will be, located (see 18 AAC 50.015(c)(1) and http://dec.alaska.gov/air/ap/docs/aq-regions.pdf); *or*

  ☐   An increment analysis is not required and therefore, there is no need to identify the Air Quality Control Region.

☐   The Narrative identifies all non-attainment areas that the stationary source is, or will be, located in/near (see 18 AAC 50.015(b)); *or*

  ☐   The stationary source is not, or will not be, located in/near a non-attainment area.

1.2   Project Classification and Ambient Demonstration Requirements

☐   The Narrative describes/lists which of the applicable permit classifications require an ambient assessment. The Narrative also describes/lists any ambient assessments requested by ADEC, or a Federal Land Manager (FLM), under a discretionary provision.

Note: The following tables can be used to identify the triggered pollutants, and the resulting pollutants and averaging periods that you modeled. You may copy and paste the tables into your Narrative, or just use them to guide you in describing the applicable pollutants and averaging periods.

Project Classification	Pollutants Assessed Due to Project Classification							Comments
	NO_2	SO_2	PM-10	PM-2.5	CO	O_3	Pb	
PSD (18 AAC 50.306)	☐	☐	☐	☐	☐	☐	☐	
18 AAC 50.502(c)(2)(A)	☐	☐	☐	☐	--	--	--	
18 AAC 50.502(c)(2)(B)	--	☐	--	--	--	--	--	
18 AAC 50.502(c)(3)	☐	☐	☐	☐	☐	--	--	
18 AAC 50.502(c)(4)	☐	☐	☐	☐	☐	--		
18 AAC 50.508(3)	☐	☐	☐	☐	☐	☐	☐	
18 AAC 50.508(6)	☐	☐	☐	☐	☐	☐	☐	

Regulatory Provision	Pollutants Assessed Due to Department Request							Comments
	NO$_2$	SO$_2$	PM-10	PM-2.5	CO	O$_3$	Pb	
18 AAC 50.540(c)(2)(D)	☐	☐	☐	☐	☐	☐	☐	
18 AAC 50.201(a)	☐	☐	☐	☐	☐	☐	☐	
18 AAC 50.540(l)	☐ (1-hour NO$_2$)							
Other:	☐	☐	☐	☐	☐	☐	☐	

1.3   Modeling Protocol

☐   The Narrative provides the date of the modeling protocol, and the date of ADEC's approval of the protocol; or, if applicable, states that a modeling protocol was not developed/reviewed for this project.

   ☐   The Narrative describes all variations from the approved protocol and why you believe these variations were needed. Check here ☐ if N/A.

2.   Existing Air Quality Data

☐   The Narrative summarizes the approach used to fulfill the pre-construction monitoring requirement in 40 CFR 52.21(m)(1), and then provides the details of each technique.

The Narrative (check the applicable box or boxes):

☐   Describes the pre-construction monitoring effort, including the following: where the monitoring station was located (include a scaled map that shows where the station was located relative to the stationary source – and other nearby sources, if applicable), the start/end dates of the monitoring period, the date of ADEC's approval of the data as PSD-quality, and a table that compares the measured design values to the applicable Alaska Ambient Air Quality Standard (AAAQS);

☐   Describes the surrogate dataset (state or show on a map where the monitoring station was collected and why you believe the data set meets the PSD pre-construction monitoring requirements, the start/end dates of the monitoring period, the date of ADEC's approval of the data as PSD-quality, and a table that compares the measured design values to the applicable AAAQS);

☐   Describes/references the approach used to demonstrate that the project impacts, or existing concentrations, are less than the applicable significant monitoring concentrations (SMCs) in 40 CFR 52.21(i)(5), and includes a table that compares the modeled/measured concentrations to the SMCs;

☐   States that the PSD-triggered pollutant is exempt from the pre-construction monitoring requirement, per 40 CFR 52.21(i)(5)(iii).

3.   Source Impact Analysis

☐   The Narrative clearly identifies the pollutants and averaging periods that you assessed in the Source Impact Analysis required under 40 CFR 52.21(k), and if applicable, the ambient demonstration requirement under 18 AAC 50.540(c)(2) and/or 18 AAC 50.540(k)(3)(C).

Note: The following table can be used to identify the pollutants and averaging periods that you modeled. You may copy and paste the table into your Narrative, or just use it to help organize your thoughts.

Averaging Period	Modeled Pollutants & Averaging Periods								Comments
	NO$_2$	SO$_2$	PM-10	PM-2.5	CO	O$_3$	Pb	Other	
1-hr	☐	☐	--	--	☐	--	--	☐	
3-hr	--	☐	--	--	--	--	--	☐	
8-hr	--	--	--	--	☐	☐	--	☐	
24-hr	--	☐	☐	☐	--	--	--	☐	
3-month	--	--	--	--	--	--	☐	☐	
Annual	☐	☐	--	☐	--	--	--	☐	

3.1 Approach

☐ The Narrative summarizes the approaches used to fulfill the Source Impact Analysis.

Possible aspects that you may need to discuss are illustrated through the following questions:

- Did you conduct a screening-level assessment, and/or a refined assessment?
- Did you conduct a project impact analysis, and/or a cumulative impact analysis, for the near-field AAAQS demonstrations?
- Did you conduct a project impact analysis, and/or a cumulative impact analysis, for the near-field PSD increment demonstrations?
  - What are the applicable baseline dates for the triggered pollutants?
  - If you conducted a cumulative increment analysis, what assumptions or techniques did you use to ensure that you did not overstate the baseline concentrations or increment expansion?
- What approach did you use to assess the long-range impacts at a Class I area, if applicable?
- If you are required to assess the impacts from secondarily formed pollutants, did you rely on existing technical information, or did you conduct a source-specific photochemical modeling analysis?
- Did you use a post-processing algorithms/program/spreadsheet to sort/process the results?

Note: Organize and outline the discussion as warranted for your given project. If you describe the details of these elements in separate parts of the application, summarize where the various elements may be found (e.g., the direct impact analysis is discussed in the body of the Narrative, and the photochemical modeling analysis is discussed in Appendix XYZ of the Narrative).

☐ The Narrative either summarizes the various operating scenarios that you assessed, or notes that you assessed the worst-case scenario (e.g., assumed continuous operation of all emissions units (EUs) in order to minimize the need for subsequent permit restrictions).

3.2 Model Selection

☐ The Narrative identifies the computer dispersion model(s), including the version number(s), used in the source impact analysis.

☐ The Narrative discusses all modifications to the model source code, and why you believe those changes are warranted. Check here ☐ if N/A.

☐ Copies of the modified source code and executables are included with the submittal to ADEC.

☐   When using an alternative modeling technique, the Narrative either:

    1) References the EPA and ADEC approvals obtained during the pre-application phase of the project – see 18 AAC 50.215(c)(2); or

    2) References an appendix that contains the demonstration required under Section 3.2 of the *Guideline on Air Quality Models* (*Guideline*) – see 18 AAC 50.215(c)(1).

Check here ☐ if you did not use an alternative modeling technique and the above items are non-applicable.

☐   The Narrative discusses the model switches/options that you selected for your analysis, as warranted.

Note: the details associated with the various switches/options may be described later in the Narrative.

3.3   Modeling Domain

☐   The Narrative describes the modeling domain and how it was determined.

3.4   Meteorological Data

☐   The Narrative describes the meteorological data used to conduct the Source Impact Analysis, and how it was processed.

Note: The various aspects that you should discuss depend on the type of data that you used and how it was processed. There are two basic categories of meteorological data under the 2005 version of the Guideline currently adopted by reference in 18 AAC 50.040(f): screening and refined.[1] The refined category is further divided between site-specific data, and National Weather Service (NWS) or equivalent data. The types of questions that you may need to address under each of these categories are provided below. There is also a section on "Generally Applicable Items to Discuss" and another section on "Data Processed with AERMET."

Review the applicable topics and then draft the meteorological data discussion with sufficient detail for ADEC, and the public, to understand what data you used, why you believe it represents the plume transport conditions at your stationary source, and how you processed the data into a model-ready format. Aspects that you previously discussed or provided in an approved Modeling Protocol may be referenced in the Narrative, rather than fully repeated.

Screening Meteorology

- Was MAKEMET used to generate the screening meteorology? If not, what did you use?

- Is the screening meteorology representative of the meteorological conditions routinely experienced at the application site?

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[1] ADEC has not yet adopted the 2016 update to the *Guideline*, which allows the use of prognostic meteorological data for situations where representative NWS data is not available and it may be cost prohibitive or infeasible to collect site-specific data. Future revisions may therefore be coming to this checklist and ADEC's other modeling guidance.

Refined Meteorology

Previously Processed Data

- Did you download AERMOD-ready meteorological data from ADEC's web-site (http://dec.alaska.gov/air/ap/AERMOD_Met_Data.htm)? If so:
  - Which dataset did you use?
  - Why do you think that data is representative?
  - Was the posted data processed with the current version of AERMET/AERMINUTE?

- Did you use a previously posted dataset that you freshened by reprocessing the data with the current version of AERMET/AERMINUTE? If so,
  - Which dataset did you use?
  - Why do you think that data is representative?
  - Did you obtain the AERMET/AERMINUTE input and data files from ADEC?
  - Did you revise any switches/settings in the input files?
  - Which version of AERMET/AERMINUTE did you use?

- Did you use a dataset that was previously processed for another permit application at your stationary source? If so,
  - Which application?
  - Where and when was the data originally collected?
  - Is the previous processing technique still valid/current?
  - Did you freshen the dataset by reprocessing the data with the current version of AERMET/AERMINUTE? If so,
    - Did you revise any switches/settings in the input files, and
    - Which version of AERMET/AERMINUTE did you use?

- Did you use the previously processed 1993-1994 Tyonek platform (Sunfish) data in an OCD analysis? If so,
  - Is the data adequately representative of the meteorological conditions at your project's location?
  - Does the dataset contain shore-side data from the west-side of Cook Inlet (e.g., data from the Beluga River power plant), or from the east-side of Cook Inlet (e.g., data from Agrium)?

National Weather Service (NWS) or Equivalent Data

- Where are the surface and upper air stations located, and what five-year data period did you use?

- Why do believe the data represents the plume transport conditions at your stationary source?

- Did you confirm the anemometer height?

- Did you initially process the data with AERMINUTE? If so,
  - What version of AERMINUTE did you use, and
  - What date did you use for the Ice Free Wind (IFW) setting?

Site-Specific Meteorology

- Where, and for how long, was the surface data collected, and what were the measured/calculated parameters?

- Did ADEC review and approve the data as PSD-quality?

- Where is the concurrent upper air data from?

- What program(s) did you use to process the meteorological data? (Include the version number.)

Generally Applicable Items to Discuss

- Discuss any variations in the data or processing technique from what you previously described in an approved modeling protocol, along with your justification for those variations.

- When using refined meteorological data, it can be very helpful to:
  o Provide a topographical map that shows where the meteorological tower is located relative to the stationary source, and
  o Provide a wind rose of the modeled meteorological data (or a wind rose overlaid on the topographical map)

Data Processed with AERMET

- You should answer the following questions when using AERMET to process the meteorological data:

  o Did you use the current version of AERMET? (Provide the version number)

  o Did you allow/use data substitution, and if so, for what parameters and did you do so in a manner that is consistent with EPA guidance?

  o When using site-specific data, what did you use as the wind-speed threshold (THRESHOLD), and how did you select that value?

  o When using NWS, or equivalent data, did you randomize the wind direction?
    - *Note: The randomization option should be used for processing hourly NWS data, but it should not be used for processing 1-minute ASOS data.*

  o Did you use the adjusted surface friction velocity (ADJ_u*) option? If so,
    - Did you use turbulence measurements, such as standard deviation of horizontal wind direction and/or standard deviation of vertical wind speed?
      Note: The use of turbulence measurements with ADJ_u constitutes an alternative modeling technique that requires case-specific approval under 18 AAC 50.215(c).*

  o How did you derive the surface characteristics, and what are they?
    - Did you use the *ADEC Guidance re AERMET Geometric Means* for deriving the surface characteristics?
      - Did you provide figures that illustrate the local land cover within the area/sectors that you used to derive the surface parameters, and/or aerial photos, to help justify your selection?
      - Are you providing an electronic copy of any spreadsheet that you developed for calculating the surface characteristics?
    - If your stationary source is located on the North Slope or other places where tundra is the predominant land cover, did you derive your surface characteristics from the values provided in Section 2.6.4.2 of the *ADEC Modeling Review Procedures Manual*?

3.5   Coordinate System

Note: You do not need to include a "Coordinate System" section if it's clearly non-applicable (e.g., you only used AERSCREEN for your modeling analysis). It's better to keep the Narrative focused and succinct, than to include empty place-holders. Check here ☐ if the Coordinate System section is not needed.

☐   The Narrative describes the coordinate system that you used for the modeling analysis.

☐   The receptor coordinate system/datum is consistent with the EU coordinate system/datum.

3.6   Land Use Analysis

Note: You do not need to include a "Land Use Analysis" section if it's clearly non-applicable (e.g., the modeling domain is clearly rural or overwater), which is the typical case. Check here ☐ if the Land Use section is not needed.

☐   The Narrative describes the land use around the stationary source and if required by the model, whether the area was treated as rural or urban in that analysis.

   ☐   The Narrative describes how you determined the land use classification (e.g., Auer method or population density).

3.7   Terrain

Note: You do not need to include a "Terrain" section if it's clearly non-applicable (e.g., your modeling domain is overwater) or you stated under the Approach section that you assumed flat terrain for the analysis. Check here ☐ if the Terrain section is not needed.

☐   The Narrative describes how terrain was handled in the modeling analysis, and the source and resolution of the terrain data.

☐   The application includes a topographical map of the modeling domain.

3.8   EU Inventory

Note: In some cases, you may want to combine the EU Inventory and EU Release Parameter topics in order to streamline the discussion. The combined approach could be especially beneficial when dealing with extremely small inventories, or an inventory that only has identical units.

☐   The Narrative provides a complete list of the modeled project sources, and if applicable, all other EUs at the stationary source that were modeled in a cumulative impact analysis.

   ☐   The Narrative lists the individual EUs that are characterized as a single source for modeling purposes (e.g., EUs that share a common stack; fugitive sources that are characterized as a common volume, area, or open pit source; etc.). Check here ☐ if N/A.

   ☐   When using source names in the model input file that differ from the EU designation in the application/permit, the Narrative provides a cross-reference between the source names and EU designations. Check here ☐ if N/A.

☐   The Narrative lists which EUs will operate under each scenario (or conversely, which EUs would not be operated under a given scenario). Check here ☐ if you did not vary the EU inventory or level of operation by operating scenario.

☐ The Narrative clearly identifies all increment consuming and increment expanding EUs for each pollutant. Check here ☐ if N/A – i.e., you did not conduct an increment analysis.

☐ The Narrative lists the sources of secondary emissions that were modeled, even though they are not part of the stationary source (see 40 CFR 52.21(b)(18) and 40 CFR 52.21(k)). Check here ☐ if N/A.

☐ The Narrative lists all EUs that are part of the project/stationary source that emit the modeled pollutant, but were not specifically modeled. The Narrative also states why these EUs were not modeled – see the following partial list of possible reasons. Check here ☐ if N/A.

    ☐ Intermittently used oilfield support equipment and/or construction equipment rated at less than 400 bhp/2.8 MMBtu/hr were excluded under Policy and Procedure 04.02.105 and 04.02.104, respectively.

3.9 EU Release Parameters

Note: You may want to create separate headers for the EU inventory and release parameter discussions, especially when dealing with large inventories and/or multiple source types (e.g., point, area, and volume). In some cases, additional sub-headings may be warranted.

☐ The Narrative identifies the source type that you assumed for each modeled source (e.g., point, area, volume, buoyant line, open pit).

☐ The Narrative presents or references the modeled emission rates for each modeled source.

    ☐ The modeled emission rates match or exceed the maximum emission rates that would be authorized under the requested permit.

    ☐ The Narrative clearly identifies all operating assumptions used to restrict a modeled emission rate, or if applicable, states that you assumed continuous operation at the maximum emission rate.

    ☐ Startup and shutdown emissions are accounted for. Check here ☐ if N/A.

    ☐ The Narrative provides the actual emissions for all baseline or increment expanding EUs and describes how those emissions were determined/obtained. Check here ☐ if N/A – i.e., you did not model baseline or increment expanding EUs.

☐ The Narrative provides the release parameters for each modeled source, or references a spreadsheet that contains this information.

☐ The Narrative describes where or how you obtained the exhaust characteristics for the point sources. Check here ☐ if you did not model any point sources.

    ☐ The modeling analysis did <u>not</u> use stack heights that exceed Good Engineering Practice Stack Height (GEP) – see 18 AAC 50.990(42).

    ☐ The emission rates, exhaust flow rates, and exit temperatures used in the compliance demonstration reflect the worst-case scenario from a load screening analysis. Check here ☐ if a load screening analysis was not warranted.

    ☐ EUs with rain caps or non-vertical discharges are characterized in a manner that is consistent with current EPA/ADEC guidance. The Narrative also provides the actual stack parameters for those EUs where adjustments were made prior to model input. Check here ☐ if none of the modeled EUs have caps/non-vertical discharges.

    Note: Rain caps that do not hinder the vertical movement of a plume, such as a counter-weighted flapper, should not be treated as a capped stack (see Section 2.7.1 of the ADEC Modeling Review Procedures Manual).

☐ The Narrative describes the approach used for deriving/obtaining the area, volume, buoyant line, and open pit parameters, as applicable. Check here ☐ if you did not model any of these types of sources.

☐ The Narrative provides the baseline parameters for those EUs that have had physical or operational changes subsequent to the baseline date (e.g., increase to the stack height or a change in the stack orientation). Check here ☐ if the release parameters have not changed, or if you did not conduct an increment analysis.

3.10 Pollutant-Specific Modeling Issues

PM Modeling

☐ The Narrative provides the applicable parameters used to account for particle deposition and describes how or where you obtained the parameters. Check here ☐ if N/A.

PM-2.5 Modeling

☐ The Narrative explains how you assessed the secondary PM-2.5 impacts from your NOx and SO_2 emissions. Check here ☐ if N/A.

NO_2 Modeling

☐ The Narrative explains which approach you used for estimating your ambient NO_2 impacts, and if applicable, discusses how or where you obtained the ancillary information needed to use that technique (e.g., the in-stack NO_2/NOx ratio, the ambient ozone concentrations). Check here ☐ if N/A.

O_3 Modeling

☐ The Narrative explains how you assessed the O_3 impacts from your NOx and VOC pre-cursor emissions. Check here ☐ if N/A.

3.11 Building Downwash

☐ The Narrative describes how building downwash was included in the analysis, or if warranted, why it was not included.

☐ The application includes a scaled plot plan of the stationary source that shows where the exhaust stacks and buildings are located.

☐ For complex building/structure configurations, the application includes cross-section diagrams/photos that illustrate where the exhaust stacks are located relative to the structure. Check here ☐ if a cross-section diagram/photo isn't warranted for this project.

Note: ADEC encourages applicants to use consistent coordinates and base elevations in the BPIP-PRIME run as in the AERMOD runs. While consistency it not required, it does help to expedite ADEC's review of the modeling files.

3.12 Ambient Air Boundary

☐ The Narrative describes the ambient air boundary and the means for restricting public access to the non-ambient air areas. If applicable, the Narrative discusses how all nuisances were addressed, such as stationary sources located within a stationary source or right-of-ways that may exist within the property boundary.

☐ The Narrative discusses whether worker housing areas located within the ambient air boundary were treated as ambient air locations, and if not, why not. Check here ☐ if you do not provide on-site housing for your employees.

☐ If the stationary source is located on leased, unfenced land, the application includes a copy of the land-owners' permission for you to control access (including their own access) within the ambient air boundary. Check here ☐ if N/A.

3.13 Receptor Grid

☐ The Narrative describes the receptor locations (e.g., range and spacing of each receptor grid), and if applicable, whether the grid is consistent with the grid presented in the approved modeling protocol.

    ☐ The receptor grid has sufficient density to identify the maximum concentrations (e.g., the grid density increases in areas with increased concentration gradients).

    ☐ The modeling analysis includes receptors at all ambient air locations within the ambient air boundary (e.g., worker housing areas). Check here ☐ if N/A.

☐ The Narrative discusses whether actual terrain elevations are used for each receptor, and if so, how the elevations were determined. Check here ☐ if the Narrative already stated that flat-terrain was assumed or the receptors are located at overwater locations, either of which makes the elevation topic non-applicable.

☐ The Narrative includes a scaled map(s) or aerial photograph(s) that shows where the receptors are located relative to the ambient air boundary, and if applicable, all ambient air locations within the boundary. Check here ☐ if you only used AERSCREEN for your modeling analysis and a map/photo is not needed to illustrate the resulting single line of receptors.

3.14 Off-site Impacts

Note: Off-site impacts only need to be accounted for in a cumulative impact assessment. Skip this topic if you only conducted a project impact analysis. Check here ☐ if that's the case.

☐ The Narrative describes how the impacts from off-site sources (anthropogenic/natural) are accounted for in the cumulative AAAQS analysis and cumulative increment analysis, as applicable.

    ☐ The Narrative describes how you determined which off-site sources would be represented through modeling and which would be represented through ambient monitoring data.

    ☐ The Narrative includes a map that shows the location of all off-site stationary sources within the modeling domain. Check here ☐ if there are no off-site stationary sources within the modeling domain.

☐ The Narrative describes where or how you obtained the emission rates and release parameters for the modeled off-site inventory, and if applicable, states whether you included downwash for the point sources. Check here ☐ if you did not model any off-site sources.

☐ The Narrative describes where the ambient monitoring data was collected, the applicable monitoring period, whether the data meets the applicable quality assurance requirements, and which regulatory agency reviewed the data (e.g., ADEC or EPA). Check here ☐ if you did not need ambient monitoring data (e.g., you only conducted a cumulative increment analysis).

    ☐ The Narrative addresses the following issues, as applicable.

        • How you obtained the data if you did not collect it.

- Whether you culled the data to create a sub-set that better represents the non-modeled concentrations, and if so, the approach that you used for culling the data.
- Whether you used the maximum measured concentration or the design value.

☐ The Narrative provides the value used to represent each background concentration.

3.15 Design Concentrations

☐ The Narrative describes which modeled output value was compared to each significant impact level (SIL), SMC, AAAQS, and increment, as applicable. For example, did you use the highest value, or a ranked value? Was the value averaged over multiple years, or was the highest value from any year used?

Note: Be aware that the allowed approach can vary by pollutant, averaging period, and regulatory threshold. Provide supporting justification for your approach, if warranted.

3.16 Post-Processing

Note: Most applicants do not post-process their modeling results. Check here ☐ if that's the case, and then skip this topic.

☐ The Narrative describes all post-processing techniques that you used for processing the modeled results (e.g., a Monte Carlo approach for determining the likely impact from portable sources that are only temporarily operated on a sporadic basis).

3.17 Results and Discussion

☐ The Narrative compares the concentrations derived under the Source Impact Analysis to the applicable thresholds (e.g., the SIL, AAAQS, increment). Clearly labeled tables are used to summarize the results when multiple pollutants/averaging periods have been modeled.

☐ The Narrative discusses how you demonstrated that your stationary source does not cause or contribute to a violation of an AAAQS/increment for those design concentrations that exceed the AAAQS/increment. Check here ☐ if N/A.

4. Additional Impact Analysis

☐ The Narrative describes the visibility analysis conducted under 40 CFR 52.21(o)(1)

☐ The visibility analysis was performed in accordance with EPA's *Workbook for Plume Visual Impact and Screening Analysis (revised).*

Note: The visibility analysis conducted under 40 CFR 52.21(o)(1) should not be confused with the Class I visibility/regional haze analysis that may be required by a FLM under 40 CFR 52.21(p).

☐ The Narrative describes the soil and vegetation analysis conducted under 40 CFR 52.21(o)(1)

☐ The Narrative provides an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial and other grown associated with the source or modification, as required under 40 CFR 52.21(o)(2).

5.   Class I Area Analysis

Note: Only include the Class I area analysis section if you conducted a Class I analysis under 40 CFR 52.21(p). Check here ☐ *if you were not required to provide a Class I analysis under this provision.*

☐ The Narrative identifies all Class I areas that could potentially be impacted by the project.

  ☐ The Narrative includes a scaled map that shows where the Class I areas are located relative to the stationary source.

☐ The Narrative summarizes the pre-application interaction with the FLM and their recommendations regarding the air quality related value (AQRV) analysis that should be submitted under 40 CFR 52.21(p).

☐ The Narrative describes the analyses conducted to demonstrate that the project would not have an adverse impact on the AQRVs (including visibility) of a Class I area.

  ☐ The approach for conducting the AQRV analyses is consistent with the guidance contained in the *Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report* (revised October 2010).

Electronic Data

☐ An electronic copy of all modeling input, output, and data files used to develop the source impact analysis, the additional impact analysis, and if applicable, the Class I analysis, have been assembled for submittal to ADEC.

The files will be transmitted to ADEC via (check the applicable box or boxes):

  ☐ Electronically through email or a secure web-site
  ☐ CD/DVD
  ☐ Thumb-drive
  ☐ External hard-drive

Note: Applicants sometimes forget to transmit their AERMAP, AERSURFACE, AERMET, AERMINUTE, and/or BPPIPRIME input, output, and data files, as applicable, with their AERMOD modeling files. If you conducted an AERMOD modeling analysis, please double-check to make sure that you have assembled a comprehensive package of your work. Check here ☐ *if you did not conduct an AERMOD analysis.*

  ☐ We have double-checked the assembled files to make sure that the package not only includes the dispersion modeling files, but also the pre-processor files that we used or generated in order to develop our source impact analysis.

☐ The electronic package either includes a "readme" text/PDF file that describes the submitted files, or has a limited number of electronic files that can be easily discerned.

Note: if you have numerous files, please provide them in clearly labeled folders. Jumbled submittals and cryptic file/folder names tend to slow down the review process. Clearly laid out submittals allow us to expedite our review.

☐ The permit application either includes an electronic copy of the spreadsheet used to develop the modeled emission rates, or the modeling analysis only regards a couple of EUs and the derivation of the modeled emission rates are clearly shown in the application.