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| Minnesota Pollution Control Agency (MPCA), 520 Lafayette Road North, St. Paul, MN 55155-4194 | Cumulative air  emissions risk analysis form  AERA-19b  Air Emissions Risk Analysis (AERA)  *Doc Type: Air Emissions Risk Assessment – External Documentation* |

**Purpose:** This form describes the cumulative analysis in an AERA. Cumulative AERAs are intended to provide information about risks from sources of air toxics that may interact with the project in such a way as to cause potential cumulative effects. Consult the Minnesota Pollution Control Agency’s (MPCA) AERA guidance for instructions on completing this form. The AERA guidance can be found on the MPCA’s AERA website at <https://www.pca.state.mn.us/business-with-us/air-emissions-risk-analysis-aera>.

**Contents:**

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**Instructions:** Check appropriate boxes below by clicking on them. Response areas may be expanded as needed. All AERA documents must be submitted electronically. Spreadsheets should not be submitted in PDF format. The AERA will be deemed incomplete if all requested forms and support documents are not included.

**This form is submitted as part of a:**

Protocol/workplan

Completed AERA

Facility information

|  |  |  |  |
| --- | --- | --- | --- |
| Facility name: | Example Facility | TEMPO AI number: | 1234 |

Qualitative cumulative analysis information

The proposer/AERA preparer needs to fill out the table below:

| **Submitted** | | **Submittal date(s)** (mm/dd/yyyy) | **Information** |
| --- | --- | --- | --- |
|  |  | 01/01/2023 | A map with locations and/or coordinates of potential air emission sources within 10 kilometers (km). Maps can be found on the “What’s In My Neighborhood” at <https://www.pca.state.mn.us/about-mpca/whats-in-my-neighborhood> |
|  | N/A |  | A map with locations and/or coordinates of nearby monitoring stations of customized data. |
|  |  |  | A map with locations of maximum risks and/or coordinates and descriptions (e.g., along eastern fence). |

|  |  |  |
| --- | --- | --- |
| **1.** | **Zip code population density of the most impacted area from the project/modification (can be found at** | |
|  | [**http://www.city-data.com/**](http://www.city-data.com/)**):** | 12345 |
| **2.** | **What type of ambient monitoring data are used?**  (MPCA risk assessment staff need to be contacted for risk estimates associated with ambient monitoring data from representative population density categories.) | |
|  | MPCA-generated low population density data  MPCA-generated intermediate population density data  Customized | |
| **3.** | **If data are customized, briefly explain how and why?** | |
|  |  | |
| **4.** | **Indicate all of the off-site sources this data set is being used to reflect:** | |
|  | Mobile  Area  Point  Background sources | |
| **5.** | **What off-site sources are modeled?** | |
|  | For each off-site point source within 10 km, briefly (one page or less) discuss why it is or is not modeled. In addition, for off-site point sources of potential concern that are not modeled but emit pollutants not reflected in the monitoring data set (see “How to Conduct a Cumulative Air Emissions Risk Analysis”, AERA guide, pg. 42), include any available information about distance to the potentially most impacted area, emissions profile, process and fuel type, historical regulatory compliance, public complaints, dispersion characteristics (stack height, prevailing wind direction, etc.). | |
|  | For each off-site point source within 10 km, briefly (one page or less) discuss why it is or is not modeled. In addition, for off-site point sources of potential concern that are not modeled but emit pollutants not reflected in the monitoring data set (see “How to Conduct a Cumulative Air Emissions Risk Analysis”), include any available information about distance to the potentially most impacted area, emissions profile, process and fuel type, historical regulatory compliance, public complaints, dispersion characteristics (stack height, prevailing wind direction).  The following facilities are within 10km of the proposed project but were not modeled. These facilities have registration permits or no specific air toxics data and due to their distance from the area of maximum impact of the proposed project and level of emissions are not expected to cause any cumulative effects beyond what would be captured with representative monitoring data. Facility A, Facility B, Facility C.  Facility D has a Title V Permit and is approximately 8km from the area of maximum impact of the proposed project. MPCA has emissions data from a toxic release inventory but the facility has not been modeled previously. An analysis of the possible health effects from Facility D at the area of maximum impact for the proposed project may be necessary, depending on their emissions and dispersion characteristics. The MPCA is gathering more information about their emissions, regulatory compliance, public complaints and dispersion characteristics in order to determine how to characterize the potential cumulative impacts from this facility.  Facility E has a Title V Permit, is 1 km from the area of maximum impact for the proposed project and was modeled in 2000 as part of an AERA. As indicated by a dispersion factor of zero at a distance of 1km using the look up dispersion factors in the RASS sheet, no impact is expected at the area of maximum impact beyond what would be capture with representative monitoring data.  Facility F has a Title V Permit is 0.5 km from the area of maximum impact from the proposed project and was modeled for a PSD permit in 2000. The risks from Facility F were modeled and are summarized in section 15 of this sheet. | |

Quantitative Results

**Summary table of cumulative** **quantitative risk results**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Inhalation cancer risk** | **Inhalation chronic non-cancer  hazard index \*** | **Inhalation acute hazard index \*** |
| Ambient monitoring data | 4.8 | 1.6 | 4.1 |
| Modeled off-site sources (separated by source) | 0 | 0 | 0 |
| Total proposed facility (from AERA) | 2 | 0.2 | 0.2 |
| Total cumulative sum | 6.8 | 1.8 | 5.3 |
| % contribution from proposal of total cumulative sum | 29% | 13% | 4% |

*\*If hazard indices are above one, separate by health endpoints.*

**Summary table of proposed facility endpoint specific risk (if required):**

|  |  |  |
| --- | --- | --- |
| **Endpoint** | **Chronic non-cancer hazard index** | **Acute hazard index** |
| Auditory |  |  |
| Blood / Hematological |  |  |
| Bone / Teeth |  |  |
| Cardiovascular |  |  |
| Digestive |  |  |
| Eyes | 0.32 | 0.1 |
| Immune |  |  |
| Kidney |  |  |
| Liver |  |  |
| Neurological |  |  |
| Reproductive / Developmental / Endocrine |  |  |
| Respiratory | 0.41 | 0.22 |
| Skin |  |  |

**Briefly (one page or less) discuss uncertainties specific to the cumulative analysis for this project.**

This proposed modification is part of an overall emissions reduction effort resulting from a public initiative to reduce air toxics in the area.

The health risks from the proposed modification are “X” percent of potential cumulative cancer risk.