



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

AERA-02

Qualitative Information Checklist Air Emissions Risk Analysis (AERA)

Doc Type: Air Emissions Risk Assessment – External Documentation

Instructions on AERA Form 02b

Purpose: This form serves as a checklist for submitting all necessary qualitative AERA materials prior to submitting an air permit application (pre-app) or with an air permit application (post-app). This form also documents the Minnesota Pollution Control Agency (MPCA) AERA qualitative review. ***MPCA staff will fill out areas in italics during their review, indicating deficiencies and advising the applicant on how they can be remedied.*** Instructions on how to fill out this form and example maps are in the AERA-02b form. For more information on the AERA process, see the “AERA Guidance” on the MPCA website at <http://www.pca.state.mn.us/ktqh42a>. An AERA submitted with an air permit application is not considered “substantially complete” until **all** necessary quantitative and qualitative information has been submitted and MPCA staff have determined that appropriate methods have been used. **Submitting AERA materials for review prior to submitting an air permit application is highly recommended** so that site specific suggestions from MPCA staff can be included in AERA materials submitted with an air permit application.

Facility Information

1. AQ Facility ID No.: _____
2. SIC Code: _____
3. Date(s) of pre-application submittal: _____
(mm/dd/yyyy)
4. Date(s) of permit application submittal: _____
(mm/dd/yyyy)
5. Facility name: _____
6. Facility location
Street address: _____
City: _____ State: MN Zip code: _____ County: _____
7. Proposer: _____ Phone: _____ E-mail: _____
8. AERA Preparer: _____ Phone: _____ E-mail: _____

Are there differences between the qualitative AERA materials submitted pre-app and those submitted post-app?

☐ Yes ☐ No ☐ NA If yes, please explain the differences:

MPCA Review Question: Are there differences between the qualitative AERA materials submitted pre-app and those submitted post-app? ☐ Yes ☐ No ☐ NA If yes, please explain the differences:

MPCA Overall Summary of Qualitative AERA Review

Names of MPCA AERA reviewer(s): _____

Submittal date (mm/dd/yyyy)	Pre-app review date (mm/dd/yyyy)	Overall pre-app qualitative determination (Select Yes for adequate, No for deficient, and enter reviewer's initials)	Post-app completeness review date (mm/dd/yyyy)	Overall post-app qualitative completeness determination (Select Yes for substantially complete, No for incomplete, and enter reviewer's initials)	**Technical accuracy review date (mm/dd/yyyy)	**Technical accuracy determination and reviewer's initials
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____

MPCA overall pre-app qualitative AERA review notes including comments on deficiencies and how they can be remedied:

MPCA overall post-app qualitative AERA review notes including comments on deficiencies and how they can be remedied:

****MPCA overall qualitative AERA technical accuracy review notes including comments on deficiencies and how they can be remedied:**

Project Description

Please describe existing conditions, proposed facility changes, and any past AERA, permitting or environmental review. Include information about types of air permits, types of environmental review and other pertinent information.

Has the facility had past compliance issues, complaints or community concerns? ☐ Yes ☐ No

If yes, please summarize:

Maps

Maps provide a pictorial representation of information and allow for significant abbreviation of text submittals. **Each of the following required maps should be standardized with a title, reference, date, legend, scale north arrow, and appropriate radius.** Additional information can be added to clarify the maps or facility surroundings. A site visit is recommended to verify information.

What is the minimum stack height modeled? _____ meters

What is the maximum stack height modeled? _____ meters

Sensitive receptors:

- ☐ Provide a map with the appropriate radius (see below, instructions in form AERA-02b and AERA guidance) around the facility and surrounding area with the following features: facility, nearby residents, schools, daycares, public recreation areas (e.g., playgrounds, swimming pools, tennis courts, city parks, etc.), nursing homes, hospitals, and other locations where sensitive receptors congregate.

Stack height less than 50 meters: 1.5 kilometers (approximately one mile) radius

Stack height between 50 and 100 meters: 3 kilometers (approximately two miles) radius

Stack height greater than 100 meters: 10 kilometers (approximately six miles) radius

- ☐ How close are the nearest residents? _____ meters

General neighborhood information:

- ☐ What is the population density surrounding the facility? _____ persons/square mile
- ☐ Provide a map of census and demographic information, such as population density if there is considerable variation within the appropriate radius (see sensitive receptor map criteria above).
- ☐ Additional information about the surrounding community: _____
- ☐ Is the facility located in an area described by Minn. Stat. §116.07, subd. 4a? ☐ Yes ☐ No

Check the map of South Minneapolis at (<http://www.pca.state.mn.us/index.php/view-document.html?gid=14029>) to determine if the facility is in the described area. If yes, contact a MPCA supervisor or manager for a pre-app meeting/call.

Nearby permitted air emission facilities:

Provide a map and/or list below, of the permitted air emission facilities and following information, within the proper radius (below) of the facility.

List of nearby permitted air emission facilities within...

Stack height less than 50 meters: 1.5 kilometers (approximately one mile) radius

Stack height between 50 and 100 meters: 3 kilometers (approximately two miles) radius

Stack height greater than 100 meters: 10 kilometers (approximately six miles) radius

Nearby facility name	Type of permit (registration, state, Title V)	Approximate distance from project to nearby facility	Reference

Zoning:

- ☐ Provide a zoning map of the area within ten kilometers of the facility. Supplemental maps with relevant ordinances informing potential exposures (e.g. raising chickens in town or prohibitions of livestock, etc.) may be helpful. If this information is not provided, the MPCA cannot make assumptions regarding zoning restrictions. If land is not zoned and ordinances are not available, a detailed land use map is sufficient.

or

- ☐ Describe zoning within ten kilometers of the facility, if a zoning map is not available: _____

Land use:

- ☐ Provide a map showing current land use within ten kilometers of the facility. Land use maps include information such as areas of residential, commercial, and industrial use, farms, forests and waterways. If no map is provided, the most restrictive land use will be assumed. It is also helpful to know if the land is used for other purposes than those designated on the land use maps. If farms are currently located within ten kilometers of the facility, indicate what type of farming occurs (e.g. beef farming, dairy cows, chickens, urban gardening). The MPCA considers "reasonable potential future land use." According to U.S. Environmental Protection Agency's (EPA) Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP), three examples of reasonable potential future land use are:

- Rural area characterized as undeveloped open fields could reasonably be expected to become farmland if it can support agricultural activities.
- Rural area currently characterized by open fields and intermittent housing could reasonably be expected to become a residential subdivision.
- An area currently characterized as an industrial area would **not** reasonably be expected to become farmland.

Risk receptor information and isopleths:

- ☐ No risk isopleth map was included because neither an Emission Rate/Chemical Health Index (Q/CHI) nor a receptor grid-based HHRAP-type analysis was done.
- ☐ If conducting a more refined analysis such as the Q/CHI analysis or HHRAP-based analysis, provide a map showing a risk isopleth for each exposure scenario with a risk result above 0.1 (0.1 in 100,000 for cancer estimates). Locations of all receptors for whom risks are estimated should be indicated on the map, including the maximum acute (hourly) receptor and the maximum chronic (annual).
- ☐ If additional risk receptor scenario(s) were included please explain them and how they were chosen:

Persistent Bioaccumulative Toxic chemicals (PBTs):

Facilities emitting PBTs should provide a map showing the following features:

- ☐ No PBTs are emitted thus none of the following maps were provided.
- ☐ Fishable water bodies

A water body may be considered "fishable" if it typically contains water year-round in a year that receives at least 75 percent of the normal annual precipitation for that area. Provide a map showing lakes, rivers and streams within the following appropriate radius depending on the stack height. For facilities with stack heights less than 100 meters, a map should be provided showing lakes, rivers and streams within a 3 km radius (approximately 2 miles). For facilities with stack heights greater than 100 meters, show lakes, rivers and streams for the area within a 10 km radius (6 miles). Also, show water bodies outside the specified area that may be fed by rivers and streams lying within the radius of interest. It is also useful to know if the water body has public access.

- ☐ No fishable water bodies are within the appropriate radius thus no map was provided. If water bodies are present within the appropriate radius, please explain why they would not be considered fishable:

☐ Farming locations

While land use maps provide the MPCA with general information, it is recognized that agricultural land use does not equate to actually having farms present. Provide a map showing the specific locations of farms within the specified area.

Stack height less than 50 meters:	1.5 kilometers (approximately one mile)
Stack height between 50 and 100 meters:	3 kilometers (approximately two miles)
Stack height greater than 100 meters:	10 kilometers (approximately six miles)

If no information is available regarding land use, the default assumption will be that a farmer could be impacted by facility emissions, and the farmer's risks will be used as a basis for decisions. If land use indicates that farms do not exist within the appropriate radius, only resident risks will be assessed. Resident exposures could include ingesting chickens, eggs, or other livestock that are raised on the property if allowed by ordinances. Additional exposure guidance is provided in the instructions provided in Form 2b.

When available, provide additional information about farms surrounding the facility. For example:

- ☐ What crops are grown on the farm?
- ☐ What animals are raised?
- ☐ Is it a small family farm?
- ☐ Is it a large commercial farm?
- ☐ No farms are within the appropriate radius thus no map was provided.

Exposure Information

1. Is there a fence surrounding the facility? ☐ Yes ☐ No
2. Is access to the property restricted? ☐ Yes ☐ No
Describe:
3. Does the facility rent or lease portions of property for farming or other purposes that could provide exposure to public? ☐ Yes ☐ No
If yes, describe:
4. Is there a fishable water body on farming property? ☐ Yes ☐ No
5. Describe access to the water bodies (within appropriate radius)? ☐ Public ☐ Private property
Describe:
6. Is it possible for emissions from diesel trucks idling on the facility property to be equivalent or greater than 2 or more trucks idling continuously for an hour or longer? ☐ Yes ☐ No
If yes please briefly describe the conditions under which trucks idle on the property, the maximum number of trucks expected to be idling on the property at the same time, for how long, and approximate distance to the maximally impacted receptor. Also, describe any proposed diesel emission reduction steps, such as steps described in an idling prevention plan or the use of retrofitted equipment. A "yes" response serves as a prompt for further consideration but does not automatically imply the need for further quantitative analysis.
Describe:

Please describe any additional site specific uncertainties related to the emissions, dispersion modeling, toxicity benchmarks or exposure assumptions used in the AERA:

Please describe any additional analysis (e.g. a mineral fibers analysis) performed beyond what is described in the guidance:

Quick Reference Table (See AERA-02b Instructions for additional information)

Qualitative section	What to include	Resources
Receptors and sensitive populations	Schools, daycares, recreation centers/playgrounds, nursing homes, hospitals, and residence locations	Aerial photos from sites referenced above or local records, databases.
General neighborhood information	Population and nearest residents if not addressed under Receptors and Sensitive Populations.	U.S. Census Bureau: http://www.census.gov/ Minnesota Census Quick Facts: http://quickfacts.census.gov/qfd/maps/minnesota_map.html and http://www.census.gov/census2000/states/mn.html
Nearby facilities	Map and/or list of permitted facilities with air emissions; not limited to facilities with air permits	Minnesota Environmental Data Access: http://www.pca.state.mn.us/data/edaAir/ What's In My Neighborhood?: http://www.pca.state.mn.us/backyard/neighborhood.html
Zoning	Description of zoning within a 10 km radius where available	Zoning maps are searchable on the internet for most counties in Minnesota – use your preferred search engine to find "MN zoning maps"
Land use	Provide map showing land use within a 10 km radius including farming, forests, residential and industrial areas. It is recommended to verify information with a site visit.	Minnesota County Land Use Maps: http://www.mnplan.state.mn.us/maps/LandUse/ Minnesota Land Use and Cover: http://www.mngeo.state.mn.us/landuse/

Qualitative section	What to include	Resources
Risk receptor information and isopleths	Maps can be generated using AERMOD when using the Q/CHI methodology. Maps can be produced for each exposure time and scenario, e.g. acute inhalation, by overlaying the risk isopleths with an aerial photograph of the area.	AERMOD software http://www.lakes-environmental.com/ISCAERMOD/ISCAERFeatures.html Aerial photographs obtained from either the Agency or other GIS-based source.
Fishable water bodies	Provide map with labels of fishable water bodies. Information on accessibility to water body should be provided when available.	Lake Finder: http://www.dnr.state.mn.us/lakefind/index.html
Farming locations	Provide map showing farming locations surrounding facility. Additional information regarding crop types, animals raised, number of animals, farm size, and other qualitative information about the farm may be provided.	Minnesota County Land Use Maps: http://www.mnplan.state.mn.us/maps/LandUse/

MPCA Review Instructions

Specific section/document review

MPCA staff will summarize their review of specific sections/support documents by marking either “Yes” for adequate or “No” for deficient in the pre-app sections, or “Yes” for substantially complete or “No” for incomplete in the post-app sections, along with their initials. They will add comments on deficiencies and how they can be remedied in the summary section. When there are multiple submittals, include each new submittal date in the table with the corresponding review dates and comments, thus keeping a log of submittals.

Overall adequacy/completeness summary

If **all** of the necessary sections/documents are present and follow the appropriate methods (i.e., follows the AERA, emissions and modeling guidance) MPCA staff will mark the appropriate overall summary section with either “Yes” for adequate in the pre-app section, or “Yes” for substantially complete in the post-app section. Otherwise they will mark “No” for deficient in the pre-app AERA submittal determination section or “No” for incomplete in the post-app AERA determination section. They will add comments on deficiencies and how they can be remedied in the overall summary section. Remember an AERA submitted with an air permit application is not considered “substantially complete” until **all** necessary quantitative and qualitative information has been submitted, and MPCA staff have determined that appropriate methods have been used. **Please summarize these results in the AERA-01 form.** The AERA-01 form will be shared with the permit engineer conducting the permit application completeness review. If deficiencies are noted in this form during the completeness review then this form should also be shared with the permit engineer who will share it with the applicant.

MPCA qualitative review summary

Submittal date(s) (mm/dd/yyyy)	Pre-app review date(s) (mm/dd/yyyy)	Pre-app adequacy	Post-app completeness review date(s) (mm/dd/yyyy)	Post-app completeness	Technical accuracy review date(s) (mm/dd/yyyy)	Technical accuracy	Information
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Project description
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Summary of compliance, complaints, and/or community concerns
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Sensitive receptors map and nearby residences
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Census data/population density map or information
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Determination on whether the facility is subject to Minn. Stat. 116.07, Subd4a (the Phillips neighborhood)

Submittal date(s) (mm/dd/yyyy)	Pre-app review date(s) (mm/dd/yyyy)	Pre-app adequacy	Post-app completeness review date(s) (mm/dd/yyyy)	Post-app completeness	Technical accuracy review date(s) (mm/dd/yyyy)	Technical accuracy	Information
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Map or list of permitted air emission facilities at proper radius
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Map or description of zoning within 10km of the facility
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Map showing current land use within 10km
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Risk receptor information and isopleth maps if applicable (check NA only if a RASS was used)
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Map of fishable water bodies
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Map of farming locations
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Exposure information
		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No Init: _____	Description of additional site specific uncertainty or additional analysis

MPCA qualitative review questions:

Is all the necessary information present? ☐ Yes ☐ No

Based on the modeled stack heights, do the maps show the appropriate radius? ☐ Yes ☐ No

Did they follow the guidance in presenting this information? ☐ Yes ☐ No

Is the information correct? ☐ Yes ☐ No

☐ Yes, a site visit was conducted by the following MPCA staff on (mm/dd/yyyy): _____

MPCA qualitative review notes: