
Annual Emissions Inventory Report Standard and Guidance Document: 2022, 2023 and 2024 Emissions Inventory Years

Version 3.0 (January 2023)



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Abbreviations and Acronyms

A – Activity rate

AEIR – Annual Emissions Inventory Report

AEIRF – Annual Emissions Inventory Report Form

AEIR Form – Annual Emissions Inventory Report Form

AEIR Program – Annual Emissions Inventory Reporting Program

AEIRQMD – Annual Emissions Inventory Report Quantification Methodology Document

AEIRSOC – Annual Emissions Inventory Report Statement of Certification

AEIR Standard – Annual Emissions Inventory Report Standard and Guidance Document

AEPA – Alberta Environment and Protected Areas

AER – Alberta Energy Regulator

AMD – Alberta Air Monitoring Directive

AMS – Area and Mobile Source Code

AQMS – Air Quality Management System

ASL – Above Sea Level

BPIP – Building Profile Input Program

C – Concentration

CAAQS – Canadian Ambient Air Quality Standards

CAC – Criteria Air Contaminant

CAS – Chemical Abstracts Service

CE – Control Efficiency

CEMS – Continuous Emission Monitoring System

CEPA – *Canadian Environmental Protection Act*

CFCs – Chlorofluorocarbons

CO – Carbon Monoxide

CO₂ – Carbon Dioxide

COP - Code of Practice

D – Process Parameter

E – Emissions

ECCC – Environment and Climate Change Canada

EF – Emission Factor

EI – Emissions Inventory

EIS – Annual Emissions Inventory Report Standard and Guidance Document Clause

EPA – Environmental Protection Agency

EPEA – *Environmental Protection and Enhancement Act*

ESP – Electrostatic Precipitator

Ext. – Extension

FAQ – Frequently Asked Questions

FC – Filter Collection Mass

FGD – Flue-Gas Desulphurization

FOIPPA – *Freedom of Information and Protection of Privacy Act*

GIS – Geographical Information System

H₂S – Hydrogen Sulphide

hp – Horsepower

ID – Identification

ISO – International Standards Organization

K – Kelvin

kg – Kilogram

km – Kilometre

km² – Square Kilometre

kPa – Kilopascal

kW – Kilowatt

lb – Pound

LDAR – Leak Detection and Repair

LNG – Liquefied Natural Gas

M – Mass

m – Metre

m² – Metres Squared

m³ – Cubic Metres

MDL – Method Detection Limit

m/s – Metres Per Second

MW – Molecular Weight

MWh – Megawatt-hours

N₂O – Nitrous Oxide

n/a – Not Applicable

NAD – North American Datum

NAICS – North American Industry Classification System

NE – Northeast

NEC – Not Elsewhere Classified

NH₃ – Ammonia

NO – Nitric Oxide

NO₂ – Nitrogen Dioxide

NO_x – Oxides of Nitrogen

NPRI – National Pollutant Release Inventory

NPS – Non-Point Source

NRU – Naphtha Recovery Unit

NSCR – Non-Selective Catalytic Reduction

NV – Number of Values

NW – Northwest

O – Operating Condition

PAHs – Polycyclic Aromatic Hydrocarbons

PDF – Portable Document Format

PEMS – Predictive Emission Monitoring System

P.Eng. – Professional Engineer, registered with The Association of Professional Engineers and Geoscientists of Alberta

PM – Particulate Matter

PM₁₀ – Particulate Matter Less Than or Equal to 10 Micrometres in Diameter

PM_{2.5} – Particulate Matter Less Than or Equal to 2.5 Micrometres in Diameter

Q – Volumetric Flow Rate

Q&A – Questions and Answers

QA/QC – Quality Assurance and Quality Control

RC – AMD Reporting Chapter Clause

REDA – Responsible Energy Development Act

SAGD – Steam Assisted Gravity Drainage

SCC – Source Classification Code

SCR – Selective Catalytic Reduction

SE – Southeast

SO₂ – Sulphur Dioxide

SO₃ – Sulphur Trioxide

SO₄ – Sulphate

SOC – Statement of Certification

SO_x – Sulphur Oxides

SP – Speciation Profile

SRU – Sulphur Recovery Unit

STP – Standard Temperature and Pressure

SW – Southwest

T – Operating Time

TOCs – Total Organic Compounds

TPM – Total Particulate Matter (smaller than 100 micrometres in diameter)

TSP – Total Suspended Particulates (smaller than 100 micrometres in diameter)

UE – Unspeciated Emissions

UEF – Uncontrolled Emission Factor

µm - Micrometres

U.S. – United States

USB – Universal Serial Bus

UTM – Universal Transverse Mercator

V – Volume

VOC – Volatile Organic Compound

Definitions from AMD Chapter 1

The following definitions are from Chapter 1: Introduction of the Alberta Air Monitoring Directive. These definitions are repeated below for information purposes, as they directly apply to the content covered by this document. The Alberta Air Monitoring Directive should be consulted for the final and current definitions of these terms. **Additional definitions, specific to the Annual Emissions Inventory Reporting Program, are included in the various sections of the Annual Emissions Inventory Report Standard and Guidance Document.**

Select AMD Chapter 1 Definitions:

“Act” means the *Environmental Protection and Enhancement Act*, RSA 2000, c. E-12, as amended from time to time;

“air emission” means the release of a substance or substances into the atmosphere;

“air emission non-point source” means an area, on-road mobile, non-road mobile, volume, line or group of point sources responsible for the release of a substance to the atmosphere, which cannot be practically inventoried as separate individual sources or release points because they are too small, too large, too numerous, too geographically dispersed, or because they are non-stationary. Non-point sources include, but are not limited to, materials handling, mine face, mine fleet, solid mine tailings, non-stationary equipment, fugitive leaks, road dust, space heating, storage tanks and liquid tailings ponds;

“air emission release point” means a stationary source responsible for the release of a substance to the atmosphere that can be practically traced back to a single identifiable source, such as, but not limited to, a smokestack;

“annual actual air emissions” means the actual, measured or estimated quantity of a substance being emitted to the atmosphere from a source during a specific calendar year;

“approval” means an approval issued under the Act in respect of an activity, and includes the renewal of or an amendment to an approval;

“CEMS Code” means the Alberta Continuous Emission Monitoring System Code (Alberta Environment and Parks 2021), as amended from time to time;

“Continuous Emission Monitoring System” means the equipment as a system required to analyze, measure, and provide, on a continuous basis, a permanent record of emission and other parameters as established by the CEMS Code;

“Department” means the responsible Government of Alberta department, as designated under the Act;

“Director” means a person designated as a Director for the purposes of the Act;

“industrial operation” means any facility, plant, site, mine, structure or thing where an activity listed in the Activities Designation Regulation occurs, including all the buildings, equipment, machinery and vehicles that are an integral part of the activity;

“maximum air emissions” means the maximum rate at which a substance is emitted to the atmosphere from a source, factoring in emission limits, equipment specifications, or other relevant information;

“normal air emissions” means the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions;

“person responsible” means (i) the owner of a facility that is the subject of an approval or other authorization under the *Environmental Protection and Enhancement Act*, (ii) the holder of an approval or other authorization under the *Environmental Protection and Enhancement Act*, (iii) the Alberta airshed, or (iv) any other person specified in any other part of the AMD;

“pollution control technology or equipment” means any technology, process or piece of equipment which captures, reduces, limits or destroys air pollutants from an exhaust stream or other source before it is emitted into the atmosphere;

“Regulator” means a person who is vested with a power, duty or function under the *Environmental Protection and Enhancement Act* and includes, without limiting the generality of the foregoing: (i) a designated Director or other official, (ii) the responsible Government of Alberta department, as designated under the *Environmental Protection and Enhancement Act*, and (iii) the Alberta Energy Regulator, as designated under the *Responsible Energy Development Act*;

“Reporting Chapter” means the Reporting Chapter (Chapter 9) of the AMD;

“submit” means the transfer of files or documents containing the required content. Examples include, but are not limited to, the transfer of files via an electronic reporting system, emailing of reports, or sending files on a flash drive. Note that sending a link to a File Transfer Protocol site would not constitute submission to the Regulator, as the files or documents are not actually transferred from the person responsible to the Regulator; and

“substance” means any matter, as defined in EPEA, that (i) is capable of becoming dispersed in the environment, and/or (ii) is capable of becoming transformed in the environment.

1.0 Introduction

1.1 Purpose of the AEIR Standard

The purpose of the Annual Emissions Inventory Report Standard and Guidance Document (AEIR Standard) is to assist EPEA approved industrial operations with meeting the annual emissions inventory reporting requirements set out in the Air Monitoring Directive (AMD) Reporting Chapter and the Substance Release Regulation. Although mainly a guidance document, the AEIR Standard is also a reporting standard and does have some mandatory requirements that are required to be met or followed.

Note: For the Annual Emissions Inventory Reporting Program, an “industrial operation” is the industrial facility as defined by its EPEA approval. This may be different from how the industrial facility is defined under other reporting programs, such as the National Pollutant Release Inventory.

1.2 Document Structure and Mandatory Requirements

The AEIR Standard is primarily intended to help industrial operations with preparing and submitting their Annual Emissions Inventory Report (AEIR), which includes the following three components:

- Annual Emissions Inventory Report Form (AEIR Form);
- Quantification Methodology Document (QMD); and
- Statement of Certification (SOC).

The AEIR Standard provides step-by-step instructions (see Sections 4 – 21) on the various tasks necessary to meet the requirements of the Annual Emissions Inventory Reporting Program (AEIR Program). The AEIR Standard also provides guidance on what information is required in each of the fields contained in the AEIR Form. Explanation and guidance are provided in the AEIR Standard using non-clause regular (non-italicized) text.

In addition to guidance, the AEIR Standard also specifies a few mandatory requirements, which are enforceable and legally binding. The mandatory requirements set out in the AEIR Standard are indexed and written in *italicized* clause text.

Clauses in the AEIR Standard use the numbering format “*EIS #-A*”, where:

- “EIS” indicates the clause is in the AEIR Standard;
- “#” gives the section number according to the document’s outline numbering; and
- “A” provides an alphabetical listing of the clauses in that section of the document.

Note: Clauses EIS 17-A and EIS 17-B are voluntary requirements for the 2022, 2023 and 2024 inventory years (AEIR submissions due by September 30, 2023, September 30, 2024 and September 30, 2025).

The AEIR Standard also references clauses in the AMD Reporting Chapter. The AMD Reporting Chapter clause references are in the format RC 7-(letter) and also represent mandatory requirements, which are enforceable and legally binding.

The clauses contained in Section 7 of the AMD Reporting Chapter often reference the AEIR Form for the detailed elements required to be reported (e.g., clauses using “as specified in the Annual Emissions Inventory Report Form”). In such cases, the referenced requirements in the AEIR Form would also be mandatory requirements, which are enforceable and legally binding.

1.3 Document Contents

The AEIR Standard is intended to be read in full and treated as a whole and complete document. Table 1 below provides brief descriptions of the contents of the various sections of the AEIR Standard.

Table 1: AEIR Standard Section Descriptions.

Section	Description of Section
1.0 Introduction	Provides an introduction to the AEIR Standard, including purpose, structure, contents and amendments.
2.0 Overview of the AEIR Program	Provides an overview of the reporting program, including: the purpose, regulatory authority, scope of the program and program contact information.
3.0 Sources, Equipment, Substances, Reporting Thresholds and Overall Information	Provides general information on the specific reporting requirements, such as: sources that are required to be included, the reportable substances, the types of emission rates, the reporting thresholds, the de minimis, negligible sources and substances, etc.
4.0 Initial Preparation Steps (Steps 1 – 4)	Covers the initial inventory development and reporting steps, including: reviewing the requirements, defining the geographic boundary of the industrial operation, identifying relevant sources of information and preparing/planning.
5.0 Administrative Information (Steps 5a – 5j)	Covers the requirements and tasks for gathering and reporting the required administrative information.
6.0 Release Point Information (Steps 6a – b)	Covers the requirements and tasks for gathering and reporting the required release point information.
7.0 Non-Point Source Information (Steps 7a – c)	Covers the requirements and tasks for gathering and reporting the required non-point source information.
8.0 Non-Point Source Additional Information (Step 8a – e)	Covers the requirements and tasks for gathering and reporting specific additional information that is required for select types of non-point sources.
9.0 Unit, Process and Equipment Information (Steps 9a - c)	Covers the requirements and tasks for gathering and reporting the required unit, process and equipment information.
10.0 Pollution Control Technology and Equipment Information (Steps 10a – c)	Covers the requirements and tasks for gathering and reporting the required pollution control technology and equipment information.
11.0 Emission Limit Information (Steps 11a - c)	Covers the requirements and tasks for gathering and reporting the required normal, emergency and upset limit information.
12.0 Temporal Operating and Emitting Information (Steps 12a - b)	Covers the requirements and tasks for gathering and reporting the required temporal operating information.
13.0 Source Monitoring Information (Steps 13a - c)	Covers the requirements and tasks for gathering and reporting the required source monitoring information.
14.0 Identify Applicable Schedule 2 Substances (Step 14)	Covers identifying the applicable Schedule 2 substances for the industrial operation.
15.0 Identify Applicable Quantification Methods (Step 15)	Covers identifying the applicable quantification methods for determining the annual actual, normal and maximum emission rates.
16.0 Emissions Quantification (Steps 16a - d)	Covers the requirements and tasks for quantifying and reporting the required annual actual, normal and maximum emission rates.
17.0 Other Information to be Reported (Steps 17a - i)	Covers the requirements and tasks for gathering and reporting select other required information.
18.0 Quality Assurance and Quality Control Activities (Steps 18a - d)	Provides guidance and suggestions on the quality assurance and quality control activities for the AEIR.
19.0 Prepare Quantification Methodology Document (Steps 19a - d)	Covers preparing the Quantification Methodology Document, including providing information on: required content, suggestions for overall format and content and carrying out checks on the Quantification Methodology Document prior to submission.
20.0 Complete AEIR Form, Final Review and Certification (Steps 20a – c)	Covers the remaining tasks for finalizing and certifying the AEIR Form.
21.0 Submit the AEIR (Step 21)	Covers submission of the AEIR Form, Quantification Methodology Document and Statement of Certification.
22.0 Department Review, Notifications, Resubmissions and Auditing	Provides information on department review, error/issue notification, revisions and resubmission of AEIRs and auditing.
23.0 Record Keeping and Confidentiality	Provides information on recording keeping requirements and requesting confidentiality.
24.0 Reporting for Subsequent Inventory Years	Provides information on reporting under the AEIR Program in subsequent years.
Appendix A: Optional Methodology - PM Size Distributions	Provides information on an additional optional quantification method.

Section	Description of Section
Appendix B: References	Provides references for the AEIR Standard.
Appendix C: AEIR Form Field Descriptions	Provides descriptions of the AEIR Form fields for each worksheet of the AEIR Form.
Appendix D: Reported Common Equipment, Controls, Non-Point Sources, and Schedule 2 Substances by Sector	Provides tables listing reported common units, processes and equipment; pollution controls; non-point sources; and Schedule 2 substances by sector.

1.4 Document Version

The guidance and requirements set out in this version of the AEIR Standard (Version 3.0, January 2023) apply for the 2022, 2023 and 2024 inventory years, which require submissions of AEIRs in the 2023, 2024 and 2025 calendar years. Future revised versions of the AEIR Standard may be published for reporting for future inventory years.

1.5 Amendments from Previous Version

The following is a list of revisions made to this version of the AEIR Standard:

- Updated the inventory years to 2022, 2023 and 2024 (various sections).
- Updated the department name and acronym (various sections).
- Minor edits, such as correcting typos and spelling (various sections).
- Updated Figure 2 to reflect current processes (Section 2.6).
- Updated question/comment processes (Section 2.9).
- Updated Figure 3 to reflect current processes (Section 2.9).
- Added clarification that all three sizes of particulate matter are to be reported, when one or more sizes of particulate matter are being reported (Sections 3.3 and 3.13).
- Added note on determining normal rates for emergency/upset sources (Sections 3.6 and 15.4).
- Added clarification that the 15% change threshold for updating normal and maximum rates does not apply if the annual or normal rates would be larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates are to be updated even if the change is less than 15% (Sections 3.6, 15.4, 15.5 and 24).
- Added the EPEA approval and Alberta Authorizations Viewer as potential information sources (Section 4.3).
- Added guidance on AER Facility IDs and AER Approval (Licence) numbers (Section 5.1).
- Add guidance that renewable natural gas is included in the Biofuels sector category (Section 5.2).
- Added note on locating plant capacity information (Section 5.2).
- Added note that release points that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 6).
- Added note that the hours of annual operation field for the release points is specific to the inventory year and are to be updated annually for the specific inventory year (Section 6.2).
- Added note on updating stack parameters using source monitoring data (Sections 6.2 and 13.2).
- Added note that the release point names should include "stack" or "vent", as the stack/vent is the release point (Section 6.2).
- Added note that non-point sources that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 7).
- Added note that the hours of annual operation field for the non-point sources is specific to the inventory year and are to be updated annually for the specific inventory year (Section 7.2).
- Added note that large storage tanks are to be inventoried and reported as separate non-point sources in the AEIR Form (Section 7.2).
- Added note that nearly all EPEA approved industrial operations will have storage tanks located on their plant sites (Sections 7.2 and 8.1).
- Added guidance on where to find storage tank information (Sections 7.2 and 8.1).
- Added guidance that storage tanks being excluded from worksheet 3.7.1 are to be identified in the QMD (Section 8.1 and 19.2).
- Added guidance on determining which storage tanks are to be reported in worksheet 3.7.1 (Section 8.1).

- Added note on which sectors typically have storage tanks (Section 8.1).
- Added note that storage tanks that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 8.1).
- Added note on which sectors typically have storage piles (Section 8.2).
- Added note on which sectors typically have mine fleets (Section 8.3).
- Added note on using site-specific sulphur content values (if available) for estimating mine fleet SO₂ emissions (Section 8.3).
- Added note on using the Environment and Climate Change Canada methodology for estimating particulate matter emissions from mine fleets (Section 8.3).
- Added note on which sectors typically have mine faces (Section 8.4).
- Added note on which sectors typically have tailings ponds (Section 8.5).
- Added note that units, processes and equipment that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 9).
- Added note that the hours of annual operation field for the units, processes and equipment is specific to the inventory year and are to be updated annually for the specific inventory year (Section 9.2 and 9.3).
- Added note that pollution controls that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 10).
- Added note that the hours of annual operation field for the pollution controls is specific to the inventory year and are to be updated annually for the specific inventory year (Sections 10.2 and 10.3).
- Added note that source testing dates are to be identified in the QMD when using the Source Testing Annual Method (Section 15.3.3).
- Added an additional Source Testing Annual Method example calculation (Section 15.3.3).
- Added note that zero values from when the CEMS monitored source was not operating should not be included when calculating the normal rate based on the CEMS data. (Section 15.4.1).
- Added note that source testing dates are to be identified in the QMD when using the Average of Several Source Samples Normal Method (Section 15.4.2).
- Added note that source testing dates are to be identified in the QMD when using the Single Source Sample Normal Method (Section 15.4.3).
- Added note that zero values from when the source was not operating should not be included when calculating the normal rate based on the annual actual rates, when using the Average of Several Annual Actuals Normal Method. (Section 15.4.4).
- Added note that zero values from when the source was not operating should not be included when calculating the normal rate based on the annual actual rates, when using the Single Annual Actual Normal Method (Section 15.4.5).
- Added an additional Historical Maximum Method example calculation (Section 15.5.4).
- Added note that clauses RC 7-T and RC 7-U require getting pre-authorization from the Director prior to changing from one emission factor to another emission factor (Sections 15.6 and 17.3).
- Added note that if changing from one emission factor to another emission factor, the method change request is to include both the previously used and the proposed emission factor (Section 15.6).
- Added note on what happens if the person responsible does not get pre-authorization for changes in quantification methods (Sections 15.6 and 17.3).
- Added note on what happens if the person responsible does not get pre-authorization for use of non-standard quantification methods (Section 15.7).
- Added guidance on checking the list of release points and non-point sources included in the AEIR Form against the emitting sources identified in the industrial operation's EPEA approval/renewal application (Section 18.1).
- Added guidance on checking the list of storage tanks included in the AEIR Form against the list of storage tanks in the industrial operation's EPEA approval/renewal application (Section 18.1).
- Added suggested QA/QC check to compare the list of sources against the tables in Appendix D that list common units, processes and equipment; pollution controls; and non-point sources by sector (Section 18.1).
- Added suggested QA/QC check to compare the list of applicable Schedule 2 substances against the tables in Appendix D that list common Schedule 2 substances by sector (Section 18.1).
- Added suggested QA/QC check to make sure that all emission factors used in the determining the emissions rates have been included in the QMD (Section 18.1).

- Added some additional suggested QA/QC checks (Section 18.1).
- Added guidance on sample calculations to be included in the QMD (Section 19.1).
- Added note that Clause RC 7-W requires that all emission factors used in determining the emission rates be included in the QMD (Section 19.1 and 19.2).
- Added note that in order to be considered complete, an AEIR submission needs to contain three documents: (a) a completed AEIR Form for the inventory year; (b) a signed Statement of Certification; and (c) a Quantification Methodology Document for the inventory year (Section 20.2).
- Added note that the AEIR Statement of Certification is to be signed (either physically or digitally) and submitted as a separate PDF document and not just an image file included in the AEIR Form (Sections 20.3 and 21.3).
- Added note on submission auto-reply confirmation emails (Section 21.4).
- Updated Figure 8 to reflect current processes (Section 21.4).
- Added note that release points, non-point sources, equipment and pollution controls that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year (Section 24).
- Added note on obtaining guidance prior to removing previously included information from the AEIR Form for the current inventory year (Section 24).
- Updated website URLs (various sections).

2.0 Overview of the AEIR Program

2.1 Purpose of the Reporting Program

Alberta is a highly industrialized province with a growing population. Consequently, Alberta has seen higher levels of air emissions than elsewhere in Canada. To ensure good environmental outcomes within sustainable environmental limits, and allowing sustained growth, the Government of Alberta tracks industrial sources of emissions in the province that may be affecting Alberta's ambient air quality.

To this end, the AEIR Program is established to collect detailed, consistent, high quality air emissions data from large EPEA-approved industrial operations in the province. To continue and enhance economic growth, the Government of Alberta must be able to show that new industrial operations, and expansions at existing industrial operations, can be sustainably accommodated throughout the province. This will ensure an appropriate balance between economic growth and environmental protection. The AEIR Program helps support these outcomes.

The information collected through the AEIR Program is used for meeting various business requirements of the Government of Alberta, and its associated agencies, including:

- Ensuring the Government of Alberta has sufficient information for tracking of substance releases and emissions performance for large industry;
- Supporting science-based policy development;
- Informing responses to potential future non-achievement of the Canadian Ambient Air Quality Standards and the required management and planning actions;
- Supporting the development of environmental standards, limits and objectives;
- Helping measure progress towards meeting key Alberta policy and environmental outcomes;
- Updating the provincial air emissions inventory;
- Providing inputs into photochemical modelling and emissions projections;
- Supporting negotiations with the federal and provincial governments on air management agreements and industrial standards;
- Supporting Land-use Framework regional plans and air quality management frameworks;
- Informing provincial environmental monitoring, evaluation and reporting; and
- Supporting the overall Alberta Cumulative Effects Management System.

The AEIR Program also supports Alberta's efforts to improve regulatory environmental assessments and reduce red tape by:

- Improving the efficiency and consistency of the regulatory system;
- Providing an improved internal database, which will help streamline analyses and data requests during approval assessments and reviews;
- Improving confidence in regulatory air dispersion modelling, enabling more timely decisions on EPEA approval/renewal applications; and
- Supporting special studies and regional initiatives, including potential future regional development bubbles.

2.2 Alberta Air Emissions Inventory

The information collected under the AEIR Program only covers a subset of the sources of air emissions in the province. This reporting program is therefore only one part of the overall provincial air emissions inventory, called the Alberta Air Emissions Inventory. Figure 1 shows the various components of the Alberta Air Emissions Inventory, with the portion of the provincial inventory covered by the AEIR Program highlighted in the olive coloured box. In addition to the information collected through the AEIR Program, the provincial inventory also includes air emissions and related information for: EPEA Code of Practice registered facilities, non-EPEA Approved or Code of Practice registered facilities, small upstream oil and gas facilities, non-industrial area and mobile sources and various natural sources. The provincial inventory also includes various related supporting datasets (e.g., meteorological, temporal, spatial, etc.). The Alberta Air Emissions Inventory is intended to cover all major air emission sources in Alberta and within each of Alberta's Air Zones.

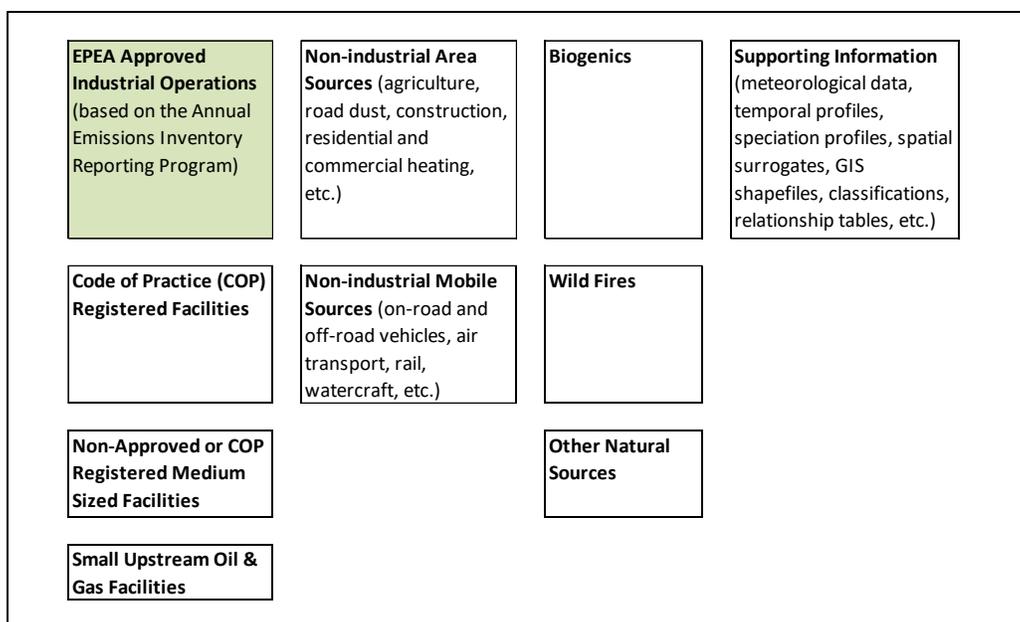


Figure 1: Components of the Alberta Air Emissions Inventory.

2.3 Regulatory Requirements

The legal requirements of the AEIR Program are administered under the authority of the *Environmental Protection and Enhancement Act*, the Substance Release Regulation, the Air Monitoring Directive and individual EPEA authorizations. The specific individual requirements are set out in the AMD Reporting Chapter (Section 7, clauses RC 7-A through RC 7-GG), this AEIR Standard, the AEIR Form and the Substance Release Regulation.

As per clause RC 7-A, EPEA approved industrial operations are required to annually carry out an emissions inventory of the sources (release points and non-point sources) emitting substances into the atmosphere and the quantities of substances being emitted by these sources. The emissions quantification requirements for the Annual Emissions Inventory are specified in clauses RC 7-D and RC 7-E. As per clause RC 7-B, the Annual Emissions Inventory for the industrial operation is required to be completed by September 30 of the year following the year in which the inventory is to cover.

As per clause RC 7-C, if any the reporting thresholds specified in Table 1 of the AMD Reporting Chapter were exceeded (based on the Annual Emissions Inventory for the industrial operation), then the industrial operation is required to complete and submit an AEIR. As per clause RC 7-F, the AEIR is required to be completed and submitted to the Director by September 30 of the year following the year in which the AEIR is to cover.

Note: Failure to: (a) carry out the required Annual Emissions Inventory; (b) complete the required Annual Emissions Inventory by the deadline; (c) complete the required AEIR; or (d) submit the required AEIR by the deadline; each represents a non-compliance with the regulatory requirements set out by the industrial operation's EPEA approval, the Air Monitoring Directive and the Substance Release Regulation. Such instances as (a), (b), (c) or (d) may result in the Regulator initiating an enforcement action against the person responsible for the industrial operation.

2.4 Due Date

As per clause RC 7-F, the AEIR (including the completed AEIR Form, the Quantification Methodology Document and signed and dated Statement of Certification) is required to be submitted by September 30 of the reporting year (the calendar year following the inventory calendar year). This means that the AEIR needs to be received electronically by 11:59 PM on September 30 of the reporting year.

Note: If the reporting threshold has been exceeded for an inventory year (e.g., 2022), then the person responsible would need to complete and submit an AEIR to the Director containing the required data covering January 1 to December 31 of the inventory year (e.g., 2022) by September 30 of the following year (e.g., 2023). If the reporting threshold is exceeded again in the next year (e.g., 2023), then another AEIR would be required covering January 1 to December 31 of the next inventory year (e.g., 2023) and would need to be submitted to the Director by September 30 of the following year (e.g., 2024).

2.5 Who do These Requirements Apply to?

The following questions and answers will help determine whether the AEIR Program requirements apply to your industrial operation, and who would be responsible for completing and submitting the AEIR.

1. Does your industrial operation have an EPEA approval?

- If yes, then your industrial operation may need to complete and submit an AEIR. Proceed to question 2.
- If no, then an AEIR is **not** required. The AEIR Program requirements do not currently apply to industrial operations without an EPEA approval.

Note: For the AEIR Program, an “industrial operation” is the industrial facility as defined by its EPEA approval. This may be different from how the industrial facility is defined under other reporting programs, such as the National Pollutant Release Inventory.

2. Did your industrial operation exceed any of the emissions reporting thresholds (specified in Table 1 of the Reporting Chapter) in the previous calendar year?

- If yes, then your industrial operation is required to complete and submit an AEIR.
- If no, then an AEIR is **not** required. The AEIR Program requirements do not apply to industrial operations without an EPEA approval and only apply to those EPEA approved industrial operations exceeding the reporting thresholds.

Note: Information on the reporting thresholds and comparing against the reporting thresholds is provided in Sections 3.7 and 3.8 of the AEIR Standard.

3. Which sectors do the AEIR Program requirements potentially cover?

Industrial sectors potentially covered by AEIR Program include, but are not necessarily limited to, the following:

- Biofuels;
- Cement and Concrete - Cement Manufacture;
- Cement and Concrete - Lime Manufacture;
- Chemicals – Fertilizer;
- Chemicals – Other Chemical Manufacture;
- Chemicals – Petrochemicals;
- Electric Power and Heating – Biomass and Biogas;
- Electric Power and Heating – Coal;
- Electric Power and Heating – Diesel;
- Electric Power and Heating – Natural Gas;
- Electric Power and Heating – Other;
- Electric Power and Heating – Waste Heat;
- Food and Beverage Manufacture and Processing;

- Manufacturing – General;
- Metal Manufacture and Processing;
- Mining and Quarrying – Coal Mining and Processing;
- Mining and Quarrying – Other Mineral Mining, Quarrying and Processing;
- Oil & Gas – Light or Medium Crude Oil Production and Processing;
- Oil & Gas – Heavy Crude Oil Production and Processing;
- Oil & Gas – Natural Gas Production and Processing;
- Oil & Gas – Other;
- Oil Sands – In-situ Extraction and Processing;
- Oil Sands – Mining, Processing and Upgrading;
- Oil Sands - Non-Thermal Primary or Enhanced Recovery;
- Other Industrial Sectors;
- Petroleum Products – Bulk Storage Terminals;
- Petroleum Products – Transportation and Distribution;
- Petroleum Products – Refining;
- Pulp and Paper – Paper Mill;
- Pulp and Paper – Pulp Mill;
- Railcar Servicing;
- Waste Management;
- Wastewater Treatment; and
- Wood Products.

Note: Definitions of the above sector categories are provided in Section 5.2 of the AEIR Standard.

4. Who is the party responsible for preparing and submitting the AEIR?

It is the legal responsibility of the person responsible for the industrial operation to report under the AEIR Program. Who actually prepares and submits the AEIR is up to the person responsible (e.g., it could be prepared by staff at the approval holder's company, staff at the operator company, staff onsite at the industrial operation, a consultant working on their behalf, etc.). Regardless of who prepares and submits the AEIR, the person responsible is legally accountable for meeting the reporting requirements and for the information contained in the AEIR. Delegating the reporting to another party, without a legal ownership transfer of the industrial operation to the other party, would not transfer the obligation to report or the requirement to ensure the representativeness of the information being reported.

5. Who is the person responsible?

The person responsible is defined in Chapter 1: Introduction of the AMD. Restated here for information purposes: "person responsible" means (i) the owner of a facility that is the subject of an approval or other authorization under the *Environmental Protection and Enhancement Act*, (ii) the holder of an approval or other authorization under the *Environmental Protection and Enhancement Act*, (iii) the Alberta airshed, or (iv) any other person specified in any other part of the AMD.

For the AEIR Program, the person responsible will be the owner/approval holder of the industrial operation. Alberta airsheds and other persons specified in the AMD are **not** required to submit AEIRs. The AEIR Program only applies to EPEA approved industrial operations.

2.6 Duty to Report and Failure to Report

The AEIR Program requires self-reporting. **The person responsible for an EPEA approved industrial operation is required to annually carry out an emissions inventory and then assess whether or not the industrial operation has exceeded the reporting thresholds for the AEIR Program.** The person responsible will **not** be receiving an annual information order letter telling them the industrial operation exceeded the reporting thresholds and that they are required to complete and submit an AEIR. The person responsible is the one required to annually assess and make the determination of whether or not the industrial operation exceeded the reporting thresholds and is therefore required to report under the AEIR Program. The requirements for annually preparing an emissions inventory and carrying out any necessary reporting under the AEIR Program are set out in the AMD Reporting Chapter and the Substance Release Regulation.

If an EPEA approved industrial operation exceeded the reporting thresholds for the previous calendar year, then the person responsible for the industrial operation is required to prepare an AEIR (including the completed AEIR Form, Quantification Methodology Document and signed Statement of Certification) and submit the required documents by September 30 of the year following the inventory year. Figure 2 shows the general process for reporting under the AEIR Program. Failure to submit the required AEIR Report by the deadline would be a contravention of the person responsible's legal responsibilities under the industrial operation's EPEA approval, the Air Monitoring Directive and the Substance Release Regulation.

If an EPEA approved industrial operation did not exceed the reporting thresholds for the previous calendar year, then the person responsible for the industrial operation is **not** required to prepare and submit an AEIR by September 30 of the year following the inventory year. However, it is recommended that the person responsible send an email notification to emissions.inventory@gov.ab.ca to indicate the required Annual Emissions Inventory for the industrial operation was completed, but the reporting thresholds were not exceeded for the specific inventory year. This voluntary notification will help with tracking of expected submissions and will help avoid unnecessary follow up with industrial operations that did not submit because they did not exceed the reporting thresholds for the inventory year.

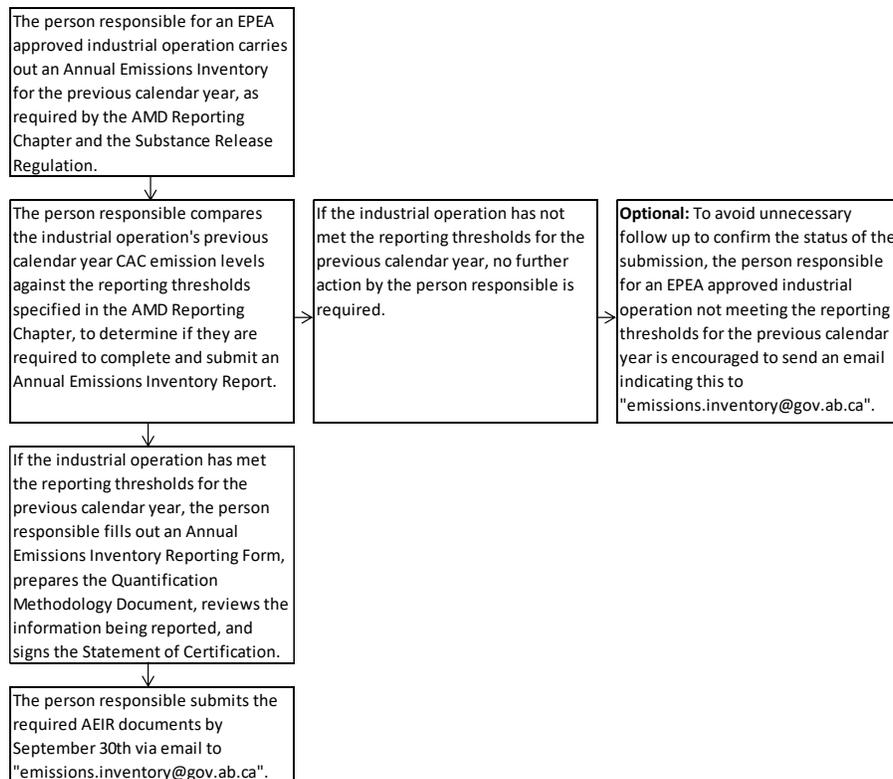


Figure 2: Process Diagram for Reporting Under the AEIR Program.

Note: Failure to: (a) carry out the required Annual Emissions Inventory; (b) complete the required Annual Emissions Inventory by the deadline; (c) complete the required AEIR; or (d) submit the required AEIR by the deadline; each represents a non-compliance with the regulatory requirements set out by the industrial operation's EPEA approval, the Air Monitoring Directive and the Substance Release Regulation. Such instances as (a), (b), (c) or (d) may result in the Regulator initiating an enforcement action against the person responsible for the industrial operation.

2.7 Reporting During and After Changes in Ownership

In accordance with Section 11 of the Approvals and Registrations Procedure Regulation (Alberta Regulation 113/93), in the event that an industrial operation is being sold or transferred to a new owner or operator, the original approval holder is required to comply with the reporting requirements, and all other registration or approval terms and conditions, until the approval is transferred by the written consent of the Director.

If an industrial operation is being sold or transferred to a new owner or operator, the original approval holder is therefore required to comply with the requirements of the AEIR Program, as set out in the AMD Reporting Chapter and Substance Release Regulation, until the approval is formally transferred by the written consent of the Director. Environmental records relating to reporting under the AEIR Program should be provided by the original owner to the new owner once the sale is complete. If the new owner of the industrial operation is missing relevant environmental records for the previous calendar year, then they should contact the previous owner to obtain it.

2.8 Level of Effort Expected

The information covered by the AEIR Program is fairly standard for what is typically included in source-level emissions inventories for large industrial facilities. Most of the required information should have been compiled and examined as part of the industrial operation's regulatory approval/renewal application; ongoing operational and maintenance activities; and efforts for meeting EPEA approval terms and conditions, AER Directives, and other regulatory and non-regulatory monitoring and reporting programs (e.g., National Pollutant Release Inventory reporting requirements under CEPA).

The person responsible should already know: the industrial operation's sources of air emissions, the equipment associated with these sources, the pollution controls that are in place, the monitoring that is being carried out, the substances typically being emitted to the atmosphere and what operational activity information is available. The person responsible for the industrial operation is in the best position to provide the Regulator with what is representative and reasonably accurate in terms of the air emissions from the industrial operation and required related information.

The person responsible is expected to use due diligence and make "a reasonable level of effort" to comply with the AEIR Program requirements. The person responsible is required to provide the best information available for the industrial operation. Generally speaking, monitoring/measurements will provide the most representative and accurate information. As such, monitoring/measurement methods would typically be selected over estimation methods. However, the AEIR Program is not limited to just using monitoring or measurement information, but also includes the use of estimations. Estimations are often used for emissions inventories when specific monitoring/measurement information is not available. Section 15 of the AEIR Standard provides information on the various emission quantification methods that are acceptable to use for the AEIR Program.

Generally speaking, "a reasonable level of effort" is what a reasonable person would do in an individual circumstance to meet a requirement, taking all factors into account. This differs from "best effort", which would require doing almost anything if something is even remotely possible. Under EPEA, the person responsible is required to take reasonable steps to meet the requirements set out in EPEA and the associated regulations, codes, directives, standards, etc. The following examples demonstrate what "a reasonable level of effort" would typically require:

Example 1:

An industrial operation does not monitor/measure air emissions of all the Schedule 1 and applicable Schedule 2 substances being emitted by all the sources at the industrial operation. The person responsible asks the Regulator whether they only need to include the monitored/measured sources and substances for reporting under the AEIR Program. The person responsible is informed that this would **not** meet their regulatory reporting requirements and would **not** represent “a reasonable level of effort”, as there are reasonable steps that could be taken to attempt to determine the required information for the non-monitored/measured sources and substances.

Non-monitoring/measurement quantification methods (e.g., estimations) can provide representative and reasonably accurate values, and would at least provide the best information available. The person responsible therefore uses applicable estimation methods to quantify the required air emission rates for the non-monitored/measured sources and substances. The person responsible includes both the monitored/measured and the estimated air emission rates in the AEIR for the industrial operation.

Note: Information on Schedule 1 and 2 substances is provided in Sections 3.3 and 3.4 of the AEIR Standard.

Example 2:

An industrial operation does not have monitoring equipment on all sources and operational parameters at its plant site. The person responsible asks the Regulator whether it is necessary (for reporting under the AEIR Program) to install monitoring equipment on all the industrial operation’s sources and operational activities. The person responsible is informed that installing monitoring equipment on every single source at an industrial operation, or adding meters to all operational activity parameters, in order to better quantify the required air emission rates **would go beyond a reasonable level of effort** and is **not** required for the AEIR Program.

A reasonable level of effort would instead typically require quantification of the required air emission rates for non-monitored/measured sources and substances (excluding negligible sources and substances) using other applicable quantification methods (e.g., emission factors, models, calculations, engineering judgement, source allocation, information from equipment manufacturers, etc.). Non-monitoring/measurement quantification methods (e.g., estimations) can provide representative and reasonably accurate values, and would at least provide the best information available. The person responsible therefore uses applicable estimation methods to quantify the required air emission rates for the non-monitored/measured sources and substances. The person responsible includes both the monitored/measured and the estimated air emission rates in the AEIR for the industrial operation.

Note: Information on negligible sources and substances are discussed in Sections 3.12 and 3.13 of the AEIR Standard.

Note: In some rare instances, certain required identification information (but excluding quantities of air emissions) may only be available via direct examination of operating equipment or the equipment’s identification plate. If direct examination is required, only a reasonable level of effort is required to obtain the identification information. The industrial operation is **not** expected to shutdown the equipment or related processes in order to be able to obtain identification information on operating equipment. If the industrial operation cannot reasonably obtain this identification information, then it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. The industrial operation does **not** need to request an exception if equipment identification information cannot be reasonably obtained. Once such information gaps have been identified for the industrial operation, they should be addressed during the next reasonable opportunity (such as during a future scheduled shutdown). Once obtained, the missing information would be provided in the next AEIR.

Previous Years AEIR Form:

For reporting under the AEIR Program, it is intended that the previously completed AEIR Form for the industrial operation can be used for reporting for subsequent inventory years. Unless otherwise specified in Section 3.9 of the AEIR Standard, the same Microsoft Excel AEIR Form as the previous year can be used for the subsequent inventory year, provided the required updates to the reported information are made.

Although the previous year's AEIR Form can be used, the person responsible does need to review the previous year's information to identify:

- (a) any information that needs to be updated (e.g., contact information, changes in operational information, year specific release incidents, year specific source monitoring, year specific major source or plant shutdowns, etc.);
- (b) any information that needs to be added (e.g., new sources, equipment, substances being emitted, etc.);
- (c) any previously reported information that no longer applies (e.g., sources or equipment no longer operating, substances no longer being emitted, etc.); and
- (d) the annual actual emission rates that need to be updated to reflect the new inventory year's emissions.

The normal and maximum emission rates typically will not change every year, but could require updates if there have been changes at the industrial operation or its typical or maximum operating conditions. Any new, temporarily shut-down or decommissioned release points or non-point sources are required to be identified along with their revised emission rates. Any Director-authorized changes in quantification methodologies for the subsequent inventory year are also required to be reflected in the AEIR Form and in the Quantification Methodology Document.

2.9 Contact the Alberta Air Emissions Inventory Program

Comments or questions on the AEIR Program should be directed to: emissions.inventory@gov.ab.ca.

Figure 3 shows the AEIR Program question/comment process. Submitted questions/comments are logged as they are received. They are then sent to the appropriate department staff member. If necessary, a written response will be prepared and will be sent via email to the person submitting the question/comment. Response times will vary depending on the number of other questions/comments received during that time, and on the complexity of the specific issue being asked about.

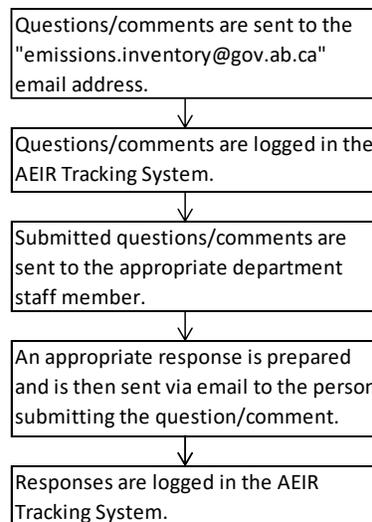


Figure 3: AEIR Question/Comment Process Diagram.

3.0 Sources and Equipment, Substances, Reporting Thresholds and Overall Information

3.1 Inventory Year and Reporting Year

The “inventory year” is the calendar year (January 1 to December 31) to which the AEIR is to cover. If any of the reporting thresholds were exceeded for the inventory year, then an AEIR is required to be completed and submitted by September 30th of the reporting year. The “reporting year” is the calendar year directly following the inventory year. The person responsible will typically not fully prepare the AEIR until the reporting year, as the AEIR will need to cover all of the inventory year. If the reporting thresholds were exceeded for the inventory year (e.g., 2022), then the AEIR would be prepared and submitted by September 30th of the reporting year (e.g., 2023).

3.2 Sources, Equipment and Pollution Controls to Include for the AEIR Program

3.2.1 General Sources, Equipment and Controls to Include

Industrial operations typically have many separate individual and integrated combinations of sources, equipment and pollution controls. Information on gathering and reporting required information for sources, equipment and pollution controls is covered in the AEIR Standard. See Section 6.0 for release points, Sections 7.0 and 8.0 for non-point sources, Section 9.0 for units/processes/equipment and Section 10.0 for pollution control technologies and equipment.

Under the AEIR Program, the person responsible is generally required to include the following in the AEIR:

- All release points and non-point sources (together just referred to as “sources”) at the industrial operation;
- All units, processes and equipment (together just referred to as “equipment”) related to the sources at the industrial operation (i.e., units/process/equipment that generate effluent that is directly or indirectly emitted to the atmosphere via the sources); and
- All pollution control technologies and equipment (together just referred to as “controls”) at the industrial operation.

Note: Air emission release points are defined in AMD Chapter 1 as “a stationary source responsible for the release of a substance to the atmosphere that can be practically traced back to a single identifiable source, such as, but not limited to, a smokestack”.

Note: Air emission non-point sources are defined in AMD Chapter 1 as “an area, on-road mobile, non-road mobile, volume, line or group of point sources responsible for the release of a substance to the atmosphere, which cannot be practically inventoried as separate individual sources or release points because they are too small, too large, too numerous, too geographically dispersed, or because they are non-stationary”.

Note: Units, processes and equipment are not defined in AMD Chapter 1. The standard dictionary definitions for these terms would therefore apply.

Note: Pollution controls and technologies are defined in AMD Chapter 1 as “any technology, process or piece of equipment which captures, reduces, limits or destroys air pollutants from an exhaust stream or other source before it is emitted into the atmosphere”.

This would include:

- All sources, equipment and controls that operated during the inventory year;
- All sources, equipment and controls that were temporarily shut-down or temporarily not operating during the inventory year;
- All EPEA authorized but not yet constructed or operating sources, equipment and controls; and
- Any permanently shut-down or decommissioned sources, equipment or controls that were previously included for reporting under the AEIR Program.

Although the person responsible is required to include all sources at the industrial operation, **the person responsible is not expected to identify and report for very minor sources at their site that are not primarily for the industrial activities (i.e., sources that are not an integral part of the activities)**. For example, an industrial operation would typically exclude sources like: staff barbeques, staff appliances, foreman or maintenance staff vehicles operating onsite, etc. **The exception would be if a very minor source were specifically identified as an authorized source in the industrial operation's EPEA approval. Such a very minor source would then need to be identified in the AEIR Form, but would likely be considered a negligible source of annual actual emissions.** Information on negligible sources is provided in Section 3.12 of the AEIR Standard.

For the AEIR Program, the person responsible is required to identify and report all sources at the industrial operation that:

- a) Are necessary to carry out the industrial activities (e.g., stacks/vents from the industrial equipment, industrial processes, on-site power generation, etc.);
- b) Are primarily for supporting the industrial activities (e.g., on-site transportation of extracted materials, loading and unloading, materials handling, etc.); and
- c) Result from the industrial activities (e.g., liquid tailings ponds, fugitive leaks, venting, spills and accidents, dust from storage piles, dust from unpaved roads $\geq 10,000$ VKT, etc.).

Note: It is **not** necessary to include in the AEIR any sources, equipment or controls that were permanently shut-down or decommissioned prior to 2018 (the first AEIR inventory year). It is also **not** necessary to include in the AEIR any planned future sources, equipment or controls that have not yet been approved (authorized as part of the industrial operation's EPEA approval).

Note: The available information on the EPEA authorized but not yet constructed or operating sources, equipment or controls is to be reported in the AEIR. Information that should be available includes: source locations, source parameter information (as per approval/renewal application and modelling), associated equipment and controls, established emission/operating limits, expected operating periods, maximum and/or normal emission rates (as per approval/renewal application and modelling), etc.

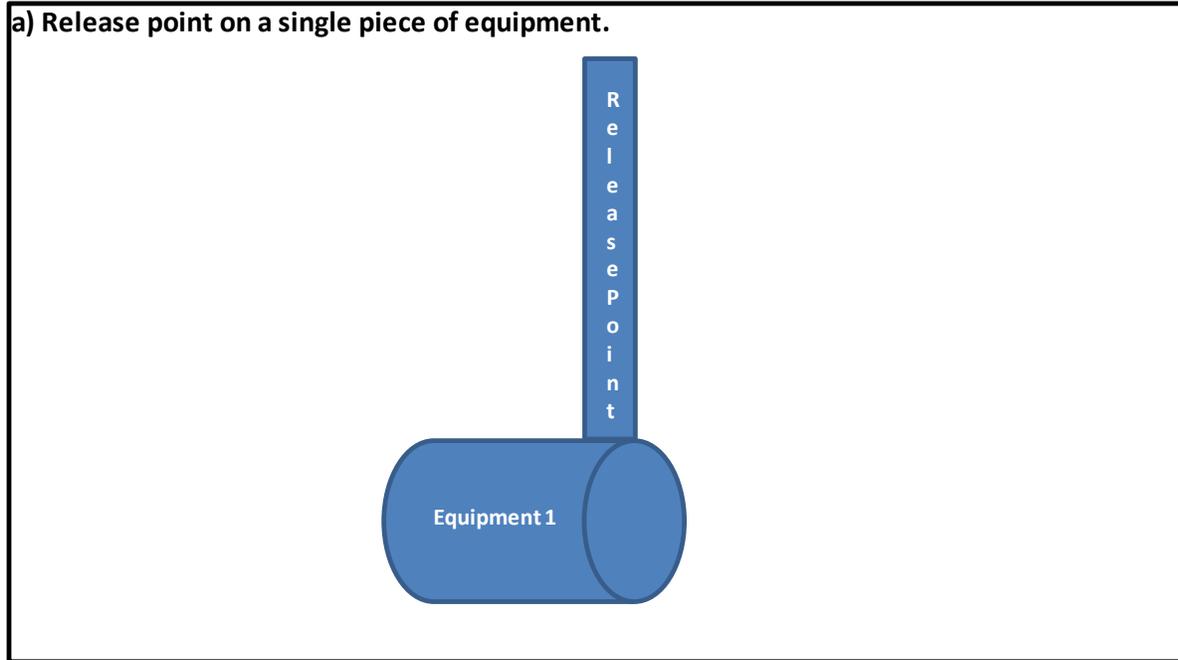
Note: For non-point sources, information on units, processes and equipment is only required for large point sources aggregated and being reported as the "Combined Large Point Sources" non-point source type. If no sources were aggregated as "Combined Large Point Sources", then no non-point source unit/process/equipment information is required for the AEIR Form. See Section 9.3 of the AEIR Standard.

3.2.2 Examples of Sources, Equipment and Controls to Include

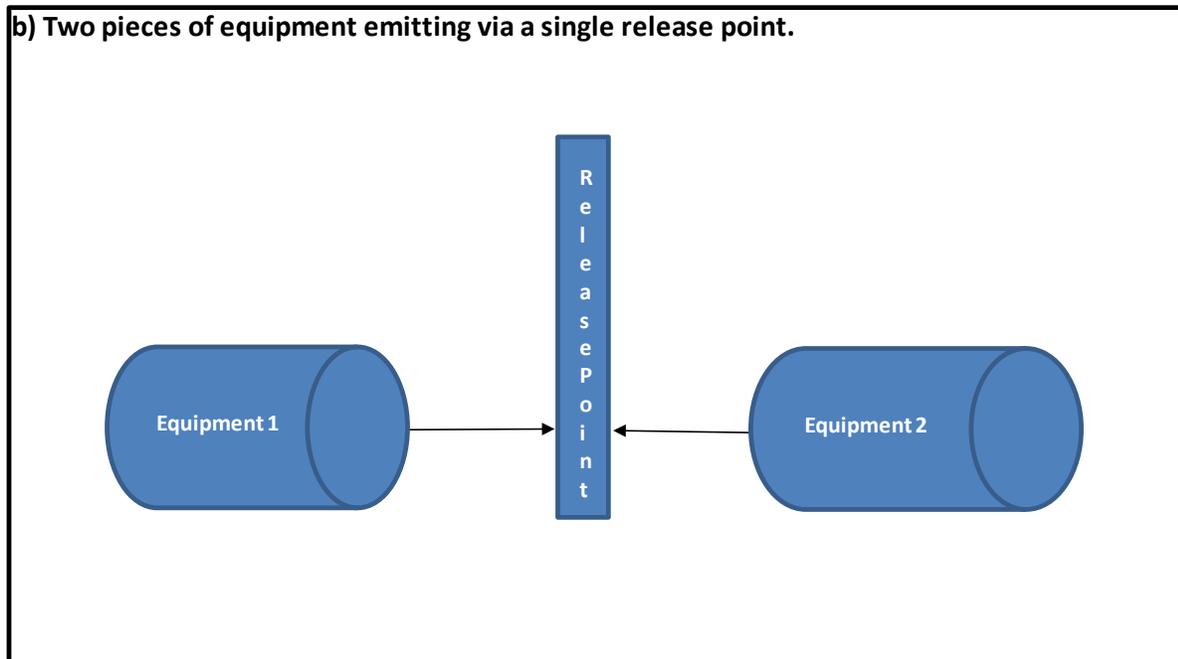
A source could be a single piece of equipment that emits directly to the atmosphere. Several pieces of equipment could emit to the atmosphere via a single shared source. There can be one or more pollution controls associated with various pieces of equipment and the source. There can be multiple combinations of various equipment and controls tied to a single source. Equipment and controls can also be associated with more than one source, either normally or under specific operating conditions.

Figure 4 provides a few simplified example diagrams showing the equipment and pollution controls that might be associated with a single release point at an industrial operation. These examples do not cover all potential emission pathways or combinations of equipment and controls associated with a source. There are many additional pathways and combinations that could apply to the equipment, controls and sources at an industrial operation that are to be included in the AEIR.

Figure 4: Examples of Equipment Associated with a Single Release Point.

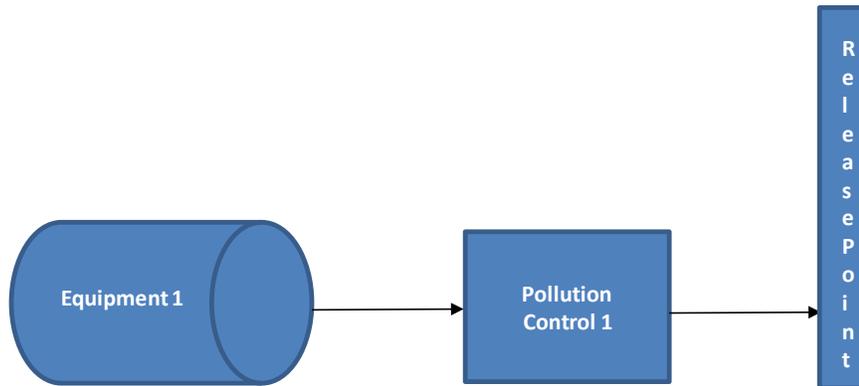


In example a), industrial equipment 1 emits to the atmosphere via the release point. This is the simple case of a stack being on or directly attached to the equipment. Industrial equipment 1 and the release point would both need to be included in the AEIR Form (in worksheets 2.0 and 2.1).



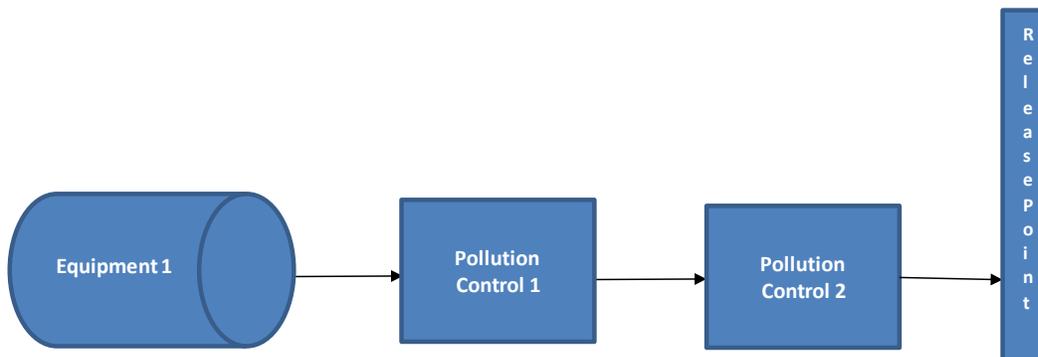
In example b), industrial equipment 1 and industrial equipment 2 emit to the atmosphere via the same release point. Industrial equipment 1, industrial equipment 2 and the release point would all need to be included in the AEIR Form (in worksheets 2.0 and 2.1).

c) One piece of equipment with one pollution control emitting via a release point.



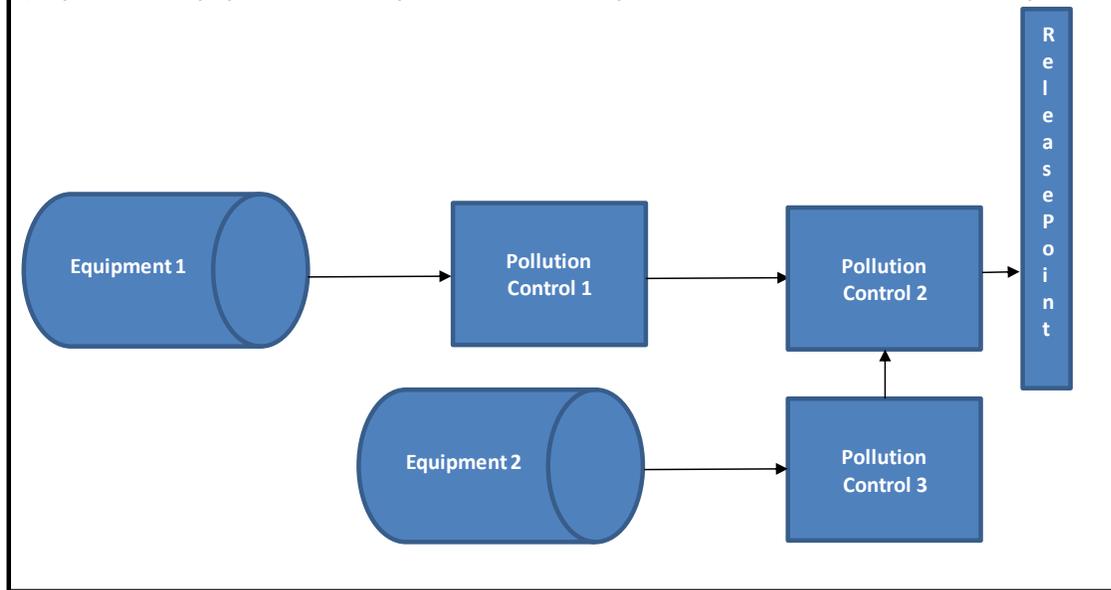
In example c), the effluent from industrial equipment 1 passes through pollution control 1 before emitting to the atmosphere via the release point. Industrial equipment 1, pollution control 1 and the release point would all need to be included in the AEIR Form (in worksheets 2.0, 2.1 and 2.2).

d) One piece of equipment with two pollution controls emitting via a release point.



In example d), the effluent from industrial equipment 1 passes through pollution control 1 and then through pollution control 2 before emitting to the atmosphere via the release point. Industrial equipment 1, pollution control 1, pollution control 2 and the release point would all need to be included in the AEIR Form (in worksheets 2.0, 2.1 and 2.2).

e) 2 pieces of equipment with separate and shared pollution controls and one release point.



In example e), the effluent from industrial equipment 1 passes through pollution control 1 and pollution control 2 before emitting to the atmosphere via the release point. The effluent from industrial equipment 2 passes through pollution control 3 and then through pollution control 2 before emitting to the atmosphere via the release point. Industrial equipment 1, industrial equipment 2, pollution control 1, pollution control 2, pollution control 3 and the release point would all need to be included in the AEIR Form (in worksheets 2.0, 2.1 and 2.2).

Note: Going beyond the example in Figure 4 e), a piece of equipment could also potentially emit to more than one release point (either normally or under certain operating conditions). In this case, the unit/process/equipment descriptive information would be entered for each release point of the equipment (copy and paste the unit/process/equipment information for each applicable release point row in worksheet 2.2).

Note: Going beyond the example in Figure 4 e), a backup/alternate pollution control may be used under certain operating conditions. In this case, the pollution control technology and equipment descriptive information would be entered for each associated release point (copy and paste the control information for each applicable release point row in worksheet 2.3).

Note: Information on specific operational, release and shutdown incidents for specific release points and associated equipment may also need to be included in the AEIR Form. See Sections 5.6 and 5.7 of the AEIR Standard.

3.2.3 Reported Common Equipment, Controls and Non-Point Sources

The tables in Appendix D provide lists of reported common units, processes and equipment; pollution controls and non-point sources by sector. These lists were developed based on previous AEIR submissions. The information reported by other industrial operations in a sector may help to identify which units, processes and equipment; pollution controls; and non-point sources may be applicable to another industrial operation in the same sector. However, not all industrial operations in a sector will necessarily have the same units, processes and equipment; pollution controls; and non-point sources. Individual industrial operations may also have additional units, processes and equipment; pollution controls; and/or non-point sources; that are not included in the tables in Appendix D.

3.3 Schedule 1 Substances

If an industrial operation is required to report under the AEIR Program (See Sections 3.7 and 3.8 on reporting thresholds), then reporting air emissions of all the Schedule 1 substances is required regardless of whether the reporting threshold for each individual Schedule 1 substance has been exceeded. While emissions reporting is required for each Schedule 1 substance, not all industrial operations will have quantifiable amounts of emissions of all these substances. In such cases, there is the option to declare a Schedule 1 substance as negligible and exclude it from emissions quantification and emissions reporting. See Section 3.13 of the AEIR Standard for information on negligible Schedule 1 substances.

Note: Just because a Schedule 1 substance is emitted by the industrial operation does not mean it is emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the Schedule 1 substance would have emissions of the Schedule 1 substance to report. The de minimis for the Schedule 1 substances may also factor into determining which sources will have air emissions of a specific substance to report via the AEIR Form.

Note: See Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources.

Schedule 1 substances are specified in Appendix B of the AMD Reporting Chapter, but are repeated in Table 2 below for information purposes. Schedule 1 substances include the eight criteria (common) air contaminants emitted in Alberta. Definitions, descriptions and some important notes on these eight substances are provided below.

Table 2: Common Air Contaminant Substance List.

Name	CAS or NPRI Substance Number
Sulphur dioxide	7446-09-5
Nitrogen oxides (expressed as nitrogen dioxide)	11104-93-1
Carbon monoxide	630-08-0
Total Particulate Matter	NA - M08
Particulate Matter <= 10 Microns	NA - M09
Particulate Matter <= 2.5 Microns	NA - M10
Volatile Organic Compounds	NA - M16
Ammonia (total)	NA - 16

Sulphur Dioxide

Sulphur dioxide (SO₂) is a gas produced from the combustion or processing of sulphur-containing materials. SO₂ is part of the sulphur oxide (SO_x) family of gases, however, the AEIR Program only requires reporting for SO₂.

Note: Quantities of the other gases in the SO_x family (i.e., sulphite, sulphur trioxide [SO₃] and sulphate [SO₄]) released are **not** to be included when reporting SO₂ emissions under the AEIR Program.

Nitrogen Oxides

Nitrogen oxides (NO_x) are a group of reactive gases composed of nitrogen and oxygen, specifically nitric oxide (NO) and nitrogen dioxide (NO₂). NO_x is typically produced from the reaction of nitrogen and oxygen gases during combustion. Both NO and NO₂ are to be expressed on an NO₂-equivalent basis before the individual quantities are combined for reporting of the total NO_x release.

Note: The AEIR Program requires reporting for NO_x emissions not just NO₂ emissions. NO_x is a mixture of both NO and NO₂.

Note: Reporting emissions of nitrogen oxides on an NO₂-equivalent basis is consistent with reporting of NO_x emissions under the NPRI, which is also done on an NO₂-equivalent basis. If the available quantification methodologies do not allow quantifying both separately, then quantifying just NO₂ is sufficient. If NO and NO₂ are separately quantified, then they must be expressed on an NO₂-equivalent basis before the individual quantities are combined for reporting of the total NO_x release.

Note: Nitrous oxide (N₂O) is **not** to be included when reporting NO_x emissions under the AEIR Program.

Note: Voluntary reporting of NO₂/NO_x in-stack ratio information is covered in Sections 17.7 and 17.9 of the AEIR Standard. Although this is only a voluntary requirement, representative NO₂/NO_x in-stack ratios are fundamental information for air quality modelling and should be based on the most accurate information available. The use of incorrect in-stack ratios in an air quality modelling assessment may lead to incorrect conclusions and unnecessary regulatory action. If NO₂/NO_x in-stack ratios are available, it is strongly recommended that they be included in the AEIR.

Carbon Monoxide

Carbon monoxide (CO) is a colourless, odourless and toxic gas. CO is mainly formed by the incomplete combustion of hydrocarbon-based fuels used by various industrial and non-industrial sources.

Note: Carbon dioxide (CO₂) is **not** to be included when reporting carbon monoxide emissions under the AEIR Program.

Particulate Matter

Particulate matter (PM) means particles that can be breathed into the body through the nose or throat. The diameter of particulate matter ranges between ~0.002 and ~100 µm. For the AEIR Program, only primary (directly emitted) particulate matter needs to be considered for reporting of air emissions. Quantities of secondary particulate matter, formed in the atmosphere, are **not** to be included in the reported PM emission values.

Three size fractions of particulate matter are covered under the AEIR Program:

- Total Particulate Matter (TPM), which is particulate matter with a diameter less than 100 micrometres;
- Particulate matter with a diameter less than or equal to 10 micrometres (PM₁₀); and
- Particulate matter with a diameter less than or equal to 2.5 micrometres (PM_{2.5}).

The sources of PM can vary somewhat by size fraction. PM is produced from mechanical actions (e.g., digging, crushing, grinding, loading/unloading and movement of materials, etc.) and other surface disturbances (e.g., land disturbance during construction, wind blown dust from piles and disturbed land, etc.). PM results from vehicles traveling on paved and unpaved roads. PM_{2.5} is also emitted from various combustion sources.

Note: The TPM mass fraction includes the PM₁₀ and PM_{2.5} mass, while PM₁₀ includes the PM_{2.5} mass. Reported PM_{2.5} or PM₁₀ emissions should **not** be larger than TPM emissions. PM_{2.5} emissions should **not** be larger than PM₁₀ emissions.

Note: TPM, PM₁₀ and PM_{2.5} emissions are to be reported on a dry basis. Only filterable particulate matter needs to be included in the AEIR. Condensable PM should **not** be included when reporting PM emissions under the AEIR Program.

Note: TPM may also be known as TSP (Total Suspended Particulates).

Note: As the larger sizes of PM include the smaller sizes, if reporting one (or more) size of particulate matter, then all three sizes of particulate matter are to be reported for the specific source.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) are an aggregate grouping of more than 1,000 organic substances that readily volatilize and undergo photochemical reactions in the atmosphere.

For the AEIR Program, VOCs are to be inventoried and reported as the total quantity of VOCs (total VOCs) that participate in atmospheric photochemical reactions. Substances that are specified as excluded from total VOCs (in Section 65 of Schedule 1 of the List of Toxic Substances established under CEPA) should also be excluded for reporting under the AEIR Program.

As total VOCs can include many different species, the specific sources can vary greatly. Typical sources of VOCs include: various industrial processes, combustion of fossil fuels, storage of petroleum products, leaks and evaporation of petroleum products, oil and gas venting and flaring, use of solvents, application of paints and surface coatings, off-gassing of disturbed oil-bearing substances, liquid tailings ponds, waste management, cleaning and sanitation, etc.

Note: For the AEIR Program, VOCs do **not** include photochemically non-reactive compounds such as methane, ethane and the chlorofluorocarbons (CFCs).

Note: The complete list of substances excluded from total VOCs can be found at:

<https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/substances-list/toxic/schedule-1.html>.

Note: Total organic compounds (TOCs) and VOCs do **not** have the same definition. All VOCs can be considered TOCs, but not all TOCs are considered VOCs.

Note: Total VOCs include any substance that meets the definition of VOCs above (except for substances excluded from total VOCs), even if it is not listed as a reportable separate VOC species in Schedule 2 of the AMD Reporting Chapter. This means that the total VOC value being reported under the AEIR Program is to include any known amounts of unresolved VOCs.

Ammonia

Ammonia (NH₃) is a colourless gaseous compound of nitrogen and hydrogen with a characteristic pungent smell. Typical sources include chemical manufacturing, waste management and application, wastewater treatment, air pollution controls, industrial refrigeration and various industrial processes.

Note: Ammonium (NH₄) is **not** to be included when reporting ammonia emissions under the AEIR Program.

3.4 Schedule 2 Substances

Schedule 2 of the AEIR Program includes various types of substances, including: metals/metalloids, polycyclic aromatic hydrocarbons, reduced sulphur compounds, individual species of volatile organic compounds, etc. The list of Schedule 2 substances can be found in Appendix C of the AMD Reporting Chapter, and for information purposes is also repeated in Section 14.2 of the AEIR Standard.

The Regulator recognizes that industrial operations in Alberta emit various substances and emit these substances at different emission levels. The Regulator is not expecting every industrial operation to inventory, quantify and report on every Schedule 2 substances. Only those Schedule 2 substances that are actually applicable or relevant to the industrial operation are required to be quantified and reported under the AEIR Program.

Note: The tables in Appendix D have lists of Schedule 2 substances reported by industrial operations in each of the major sectors. These lists may help to identify the Schedule 2 substances potentially applicable for an industrial operation. However, not all industrial operations in a sector will necessarily emit the same Schedule 2 substances. Individual industrial operations may also emit additional Schedule 2 substances that are not included in the tables in Appendix D.

Note: Just because a Schedule 2 substance is determined to be applicable for the industrial operation does not mean it is applicable to or emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the Schedule 2 substance would have emissions of the Schedule 2 substance to report. The de minimis for the Schedule 2 substances may also factor into determining which sources will have air emissions of a specific substance to report via the AEIR Form.

Note: See Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources.

As stated in Section 7.2.1 of the AMD Reporting Chapter, applicable Schedule 2 substances are those substances (listed in Schedule 2), which the industrial operation emits to the atmosphere in amounts that can be quantified with reasonable effort, and would include, at a minimum, the:

- Substances that are part of the industrial operation's current approval emission limits, monitoring, or reporting requirements;
- Substances whose air emissions were reported by the industrial operation to another regulatory or non-regulatory reporting program, such as the National Pollutant Release Inventory, for the same calendar year; and
- Substances whose air emissions have otherwise been quantified by the industrial operation for the same calendar year.

Note: "Substances whose air emissions have otherwise been quantified by the industrial operation for the same calendar year" would include results from monitoring, additional estimations, special studies, etc. carried by out by or for the industrial operation, which identified the industrial operation is emitting a Schedule 2 substance. The Schedule 2 substance would be applicable if it is found to be being emitted in non-negligible amounts.

Note: Assessing the negligibility of a Schedule 2 substance that has been otherwise quantified by the industrial operation should be done in a manner similar to the negligibility assessments used for the Schedule 1 substances. For example, if a Schedule 2 substance is being emitted at, or greater than, half the available reporting threshold for the substance for programs such as the National Pollutant Release Inventory, then the substance would be applicable. If a Schedule 2 substance is found to be applicable for the industrial operation, then the air emissions are to be reported via the AEIR Form.

Note: Reported values of zero to the National Pollutant Release Inventory would not make the substance applicable to the industrial operation, as zero emissions for the entire industrial operation (for the inventory year) would be a negligible amount. Reporting small (but non-zero) values would potentially meet the criteria for "substances whose air emissions were reported by the industrial operation to another regulatory or non-regulatory reporting program", but would still be subject to negligibility assessments.

There are likely documents available and previously prepared information for the industrial operation that can help identify the applicable Schedule 2 substances. The substances emitted by the release points and non-point sources may be identified in the EPEA approval, the EPEA approval/renewal application and the associated regulatory dispersion modelling information for the industrial operation. Environment monitoring and reporting carried out by (or for) the industrial operation (such as CEMS, stack sampling, fugitive monitoring, annual EPEA approvals reporting and reporting to the National Pollutant Release Inventory, etc.) may also provide insight into the substances being emitted by the release points and non-point sources. Information from the industrial operation's industrial equipment manufacturers and suppliers of fuels/input materials may also provide insight into the potentially applicable Schedule 2 substances being emitted.

The person responsible for the industrial operation is in the best position to know and understand which substances are used, stored, generated and emitted by the industrial operation. **Additional information and examples of identifying applicable Schedule 2 substances can be found in Section 14 of the AEIR Standard.**

3.5 Additional Prescribed Substances

Clauses RC 7-D (c) and RC 7-E (c) permit the Director to specify additional applicable substances in the AEIR Standard as mandatory for emissions reporting via the AEIR. **No additional mandatory applicable substances are currently being prescribed in the AEIR Standard for the 2022, 2023 or 2024 inventory years.**

Clauses RC 7-D (d) and RC 7-E (d) also permit the Director to specify additional substances as mandatory for emissions reporting via the AEIR. These additional mandatory substances would be specified in a written notice from the Director to the person responsible for the industrial operation. Any additional substances prescribed to be included in the AEIR via written notice from the Director are not covered by the AEIR Standard.

3.6 Types of Emission Rates

The AEIR Program requires reporting of three types of emission rates (annual actual, normal and maximum), each of which are required for different specific purposes. For release points, all three types of emission rates are required to be reported for each Schedule 1 substance (excluding any negligible Schedule 1 substances), as well as any applicable Schedule 2 substances. For non-point sources, only annual actual emission rates are required for each Schedule 1 substance (excluding any negligible substances) and any applicable Schedule 2 substances.

Note: Just because a Schedule 1 or applicable Schedule 2 substance is emitted by the industrial operation does not mean it is emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the Schedule 1 or applicable Schedule 2 substance would have emissions of the substance to report. The de minimis for the Schedule 1 and Schedule 2 substances may also factor into determining which sources will have air emissions of a specific substance to report via the AEIR Form.

Note: See Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources.

The following are descriptions of the three types of emission rates:

Annual Actual Emissions

As defined in AMD Chapter 1: "annual actual air emissions" means the actual, measured or estimated quantity of a substance being emitted to the atmosphere from a source during a specific calendar year. The terminology of "actual" does not necessarily mean that the value has been measured or derived from monitoring data. An estimated value can be, and is often, used to determine the annual actual air emission rate. Annual actual air emissions are simply meant to capture a representative emission rate for the specific inventory year for the industrial operation (for the specific source and substance). Information on the quantification methods used for determining annual actual emission rates is provided in Section 15.3 of the AEIR Standard. The following is an example of an annual actual emission rate for a source and substance:

Example:

The 2022 total quantity of SO₂ emitted from Stack A was estimated using a materials balance calculation and found to be 1,560 tonnes. 1,560 tonnes/year is reported as the 2022 annual actual SO₂ emission rate for Stack A in the AEIR Form.

Note: Annual actual air emissions are required for release points and non-point sources and are to be reported in tonnes/year.

Note: As EPEA approved future sources are not operating/emitting, they will not have annual actual emission rates for the inventory year. However, approved future sources should have maximum and normal emission rates to report in the AEIR Form.

Note: As temporarily shutdown sources are not operating/emitting, they will typically not have annual emission rates for the inventory year. However, temporarily shutdown sources should have maximum and normal emission rates to report in the AEIR Form.

Note: Annual actual air emissions are specific to individual inventory years and will need to be updated annually (assuming the reporting thresholds were exceeded in the subsequent inventory years).

Normal Emissions

As defined in AMD Chapter 1: “normal air emissions” means the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions. Normal air emissions are intended to capture the usual, average or typical air emission rate (for the specific source and substance), as determined during normal (usual, average or typical) operating conditions (for the source). Information on the quantification methods used for determining normal emission rates is provided in Section 15.4 of the AEIR Standard. The following is an example of a normal emission rate for a source and substance:

Example:

Stack testing was used to determine that Stack A typically emits 0.025 tonnes/hour of NO_x under normal operating conditions. Stack A typically operates 24 hours day and thus 0.60 tonnes/day (from 0.025 tonnes/hour * 24 hours) is reported as the normal NO_x emission rate for Stack A in the AEIR Form.

Note: Normal rates do not necessary represent the actual amount released for a specific 24-hour period. These are typically calculated as an hourly rate based on normal operations/emissions for the source and then the hourly rate is assumed to be constant for the full 24-hour period.

Note: Normal emission rates are the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions for the source. The normal emission rate for an emergency/upset source would therefore be the average/typical rate when the emergency/upset source is operating (turned on and emitting) for a one-hour period. For reporting the normal rate in tonnes/day, the one-hour rate should be assumed to be constant for a full 24-hour period (even if the emergency/upset source would not typically operate for a full 24 hour period).

Note: Normal air emissions are only required for release points and are to be reported in tonnes/day.

Note: If available (from the EPEA approval/renewal application or modelling), approved future (not yet constructed or operating) release point normal (typical, expected) emission rates are to be reported via the AEIR Form.

Note: Temporarily shutdown sources will still have normal rates, as normal rates just represent the emission rates at normal operations for the source (when operating).

Note: Normal emission rates typically will not change every year. However, these rates will need to be updated if there are changes to what would be the representative normal or average emission rate for the specific source and substance. The representative normal emission rate is up to the person responsible. The normal emission rate should be updated if the normal emission rate has increased or decreased more than 15% from the previous year's reported normal emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less than 15%.

Maximum Emissions

As defined in AMD Chapter 1: "maximum air emissions" means the maximum rate at which a substance is emitted to the atmosphere from a source, factoring in emission limits, equipment specifications, or other relevant information. The maximum emission rate is to be determined using the applicable emission and operating limits set out in the industrial operation's EPEA approval terms and conditions (for the specific source and substance). The following is an example of an approval limit maximum emission rate for a source and substance:

Example:

Stack A has an approval limit that sets out that a maximum of 83 kg/hour of SO₂ can be emitted by Stack A during normal operating conditions. 83 kg/hour is reported as the maximum SO₂ emission rate for Stack A in the AEIR Form.

Note: Maximum rates do not necessarily represent the actual amount released for a specific one hour period. These are typically calculated as an hourly rate based on maximum operations/emissions (or the approval limit) for the source.

Note: If a source has both a normal operation emission limit and an upset/emergency operation emission limit, the normal operation emission limit is to be used for determining the maximum air emission rate. In cases where a source is only ever operating under upset/emergency conditions, there would only be one type of limit and that is what would be used for the maximum emission rate for the AEIR.

Note: Normal emission limits are to be reported in the "Normal Emission Limit" worksheets (worksheets 2.3.1 and 3.4.1) of the AEIR Form. Upset and emergency limits are to be reported in the "Emergency or Upset Emission Limits" worksheets (worksheets 2.3.2 and 3.4.2) of the AEIR Form.

Note: Plant and combined sources limits are to be reported in the "Plant or Combined Source Limits" worksheet (Worksheet 1.20) of the AEIR Form.

Where no emission or operating limits apply, the industrial operation is to determine the maximum emission rate using other applicable methods. In such cases, maximum air emissions are meant to capture a representative maximum potential emission rate for the industrial operation (for the specific source and substance). Information on the quantification methods used for determining maximum emission rates is provided in Section 15.5 of the AEIR Standard. The following is an example of a non-approval emission limit maximum emission rate for a source and substance:

Example:

Based on design information provided by the equipment manufacturer, the equipment using Stack A could emit a maximum of 65 kg/hour of SO₂. 65 kg/hour is reported as the maximum SO₂ emission rate for Stack A in the AEIR Form.

Note: Maximum air emissions are only required for release points and are to be reported in kilograms/hour.

Note: When no emission limit applies for a source and substance, a representative maximum emission rate is to be determined by the person responsible based on other methods (e.g., equipment design or capability, other manufacturer information, historical maximum, engineering estimate, or other appropriate maximum emission value).

Note: If available (from the EPEA approval/renewal application, modelling or approval), approved future (not yet constructed or operating) release point maximum emission rates are to be reported via the AEIR Form.

Note: Temporarily shutdown sources will still have maximum rates, as maximum rates just represent maximum potential rates for the source (when operating).

Note: Maximum emission rates typically will not change every year. However, these rates will need to be updated if there are changes to the approval limit or to what would be the representative maximum emission rate for the specific source and substance. If there is no applicable approval limit, the representative maximum emission rate is up to the person responsible. The non-approval emission limit maximum emission rate should be updated if the maximum emission rate has increased or decreased more than 15% from the previous year's reported maximum emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less 15%.

3.7 Reporting Thresholds

The reporting thresholds for the AEIR Program are specified in Table 1 of the AMD Reporting Chapter and are repeated in Table 3 below for information purposes only. The AMD Reporting Chapter should always be consulted to verify the reporting thresholds for the AEIR Program. The examples below show what to do when the reporting thresholds have been exceeded for an inventory year, as well as what to do if the reporting thresholds were not exceeded for an inventory year. Information and examples on carrying out comparisons against the Schedule 1 reporting thresholds is provided in Section 3.8 of the AEIR Standard.

Table 3: AMD AEIR Reporting Thresholds.

Pollutant	Total annual actual air emissions from the industrial operation
Sulphur Dioxide	20 tonnes
Nitrogen Oxides (expressed as NO ₂)	20 tonnes
Carbon Monoxide	20 tonnes
Total Particulate Matter	20 tonnes
Particulate Matter <= 10 Microns	0.5 tonnes
Particulate Matter <= 2.5 Microns	0.3 tonnes
Volatile Organic Compounds	10 tonnes
Ammonia	10 tonnes

Note: The reporting thresholds in Table 3 are specific to the AEIR Program and may or may not be the same as the reporting thresholds used in other regulatory and non-regulatory reporting programs.

Example 1: What if reporting thresholds were exceeded?

If any of the Schedule 1 reporting thresholds were exceeded by the industrial operation for the inventory year, then the completion and submission of an AEIR is required. Information and examples on carrying out comparisons against the Schedule 1 reporting thresholds is provided in Section 3.8 of the AEIR Standard.

If any of the Schedule 1 reporting thresholds were exceeded, then all of the Schedule 1 substances are required to be reported in the AEIR Form. This is regardless of whether the individual substance's reporting threshold has been exceeded. However, if the industrial operation does not actually emit one of the individual Schedule 1 substances (e.g., sulphur dioxide or ammonia) or only emits a Schedule 1 substance in very small amounts, then the industrial operation can identify the Schedule 1 substance as negligible in worksheet 1.23 of the AEIR Form and exclude it from reporting. More information on negligible Schedule 1 substances is provided in Section 3.13 of the AEIR Standard.

Example 2: What if reporting thresholds were not exceeded?

If none of the Schedule 1 reporting thresholds were exceeded by the industrial operation for the inventory year, then the industrial operation is **not** required to complete or submit an AEIR. No further action is required by the person responsible for the industrial operation. **However, it is recommended that the person responsible submit an email to emissions.inventory@gov.ab.ca to confirm that the industrial operation completed the required Annual Emissions Inventory, but did not exceed the reporting thresholds for the specific inventory year.** This voluntary notification will help with tracking of expected submissions and will help avoid unnecessary follow up with industrial operations that did not submit because they did not exceed the reporting thresholds for the inventory year.

If this optional email notification is being provided to emissions.inventory@gov.ab.ca, the following information should be included:

- 1) Identification of the industrial operation (including the EPEA approval #) the notification is for;
- 2) Indication that the Annual Emissions Inventory (as required by clauses RC 7-A and RC 7-B of the AMD Reporting Chapter) was prepared for the inventory year; and
- 3) Indication that it has been determined that none of the Schedule 1 reporting thresholds were exceeded by the industrial operation for the specific inventory year.

This notification is not mandatory, but is important to assist in the tracking of submissions and to help focus Regulator follow-up efforts on those industrial operations that exceeded the reporting thresholds and did not report, rather than industrial operations that fulfilled their requirement to prepare an Annual Emissions Inventory and simply did not exceed the reporting thresholds for the specific inventory year.

3.8 Comparing Annual Actual Emissions Against Reporting Thresholds

Once the Annual Emissions Inventory for the industrial operation has been completed (as required by clauses RC 7-A and RC 7-B), the total annual actual air emissions of each Schedule 1 substance can be determined. The total annual actual air emissions of a Schedule 1 substance are calculated by summing together the annual actual emissions quantified for the inventory year for all of the release points and non-point sources that emitted the Schedule 1 substance. The calculated total annual actual air emissions for the Schedule 1 substance can then be compared against the reporting threshold specified for the substance. This process is then repeated for each of the Schedule 1 substances. If the total annual actual air emissions of any Schedule 1 substance are in excess of the threshold levels specified for the substance, then an AEIR is required to be completed and submitted by the submission deadline.

Note: Just because a Schedule 1 substance is emitted by the industrial operation does not mean it is emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the Schedule 1 substance would have emissions of the substance to include in the determination of the total annual actual air emissions.

Note: For the purposes of assessing against the reporting thresholds, no sources that emit a Schedule 1 substance should be excluded if the industrial operation is typically emitting at or near the reporting threshold levels (e.g., emitting around 20 tonnes of NO_x per year). The de minimis and negligible source options are **not** be used to exclude industrial operations from reporting under the AEIR Program. The de minimis and negligible sources options

are intended to help focus the efforts of those industrial operations that are required to report under the AEIR Program on the larger sources of air emissions at the industrial operation.

Note: See Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources.

The following examples show comparisons of total annual actual air emissions against the Schedule 1 reporting thresholds to determine whether an AEIR is required for an industrial operation.

Example 1:

The person responsible completed the Annual Emissions Inventory for Industrial Operation A and determined it emitted a total of 250 tonnes of NO_x in 2022 from all its release points and non-point sources. The reporting threshold for NO_x is 20 tonnes/year. As the 250 tonnes emitted in 2022 exceeds the 20 tonne/year reporting threshold, an AEIR for 2022 is required to be completed for Industrial Operation A and needs to be submitted by September 30, 2023. Industrial Operation A also exceeded the reporting thresholds for several of the other Schedule 1 substances, but regardless an AEIR would be required just based on total annual actual NO_x emissions. The emissions information being reporting in the AEIR will need to include all eight Schedule 1 substances (except any deemed negligible) and any applicable Schedule 2 substances.

Example 2:

The person responsible completed the Annual Emissions Inventory for Industrial Operation B and determined it emitted a total of 50 tonnes of NO_x in 2022 from all its release points and non-point sources. The reporting threshold for NO_x is 20 tonnes/year. As the 50 tonnes emitted in 2022 exceeds the 20 tonne/year reporting threshold, an AEIR for 2022 is required to be completed for Industrial Operation B and needs to be submitted by September 30, 2023. The industrial operation did not exceed any of the reporting thresholds for the other Schedule 1 substances, however, the industrial operation is still required to submit an AEIR based on exceeding the NO_x reporting threshold. Even though only the NO_x reporting threshold was exceeded, the emissions information being reporting in the AEIR will need to include all eight Schedule 1 substances (except any deemed negligible) and any applicable Schedule 2 substances.

Example 3:

The person responsible completed the Annual Emissions Inventory for Industrial Operation C and determined that the total annual actual air emissions of each Schedule 1 substance did not exceed any of the Schedule 1 substance reporting thresholds in 2022. Therefore, no AEIR for 2022 is required for Industrial Operation C. The person responsible for Industrial Operation C decides to send an optional email notification to emissions.inventory@gov.ab.ca to indicate the required Annual Emissions Inventory for Industrial Operation C was completed, but the reporting thresholds were not exceeded for the 2022 inventory year.

3.9 AEIR Form

As per clause RC 7-G, the AEIR is to be completed and submitted using the provided AEIR Form. AEIR Form Version 1.0 (August 2018) is the version that is to be used for the 2022, 2023 and 2024 inventory years (for reporting in 2023, 2024 and 2025). This version of the AEIR Form is available for download via the AMD Resources website: <https://www.alberta.ca/amd-resources.aspx>.

The AEIR Form is currently a customized Microsoft Excel workbook developed by Alberta Environment and Protected Areas. The AEIR Form consists of several worksheets with mandatory and optional fields. The AEIR Form is organized using groupings of related worksheets. The following bullets describe the groupings of the AEIR Form worksheets:

- **Intro Worksheet (grey coloured):** Provides introductory information, including: an introduction to the AEIR Form, submission instructions, information on blank and not applicable fields, tips for working with the AEIR Form, where to submit questions on the AEIR Form, FOIPPA disclaimer and the copyright statement. No data entry is required for the Intro Worksheet.
- **Administrative Worksheets (1.1-1.23, yellow coloured):** Provides mandatory and optional fields for reporting administrative information for the industrial operation.
- **Release Point Worksheets (2.0-2.6.6, light green coloured):** Provides mandatory and optional fields for reporting information on release points, related equipment, pollution controls, limits, temporal operation, source monitoring and emission rates.
- **Non-Point Source Worksheets (3.0-3.8.6, blue coloured):** Provides mandatory and optional fields for reporting information on non-point sources, related equipment, pollution controls, limits, temporal operation, source monitoring, specific other non-point sources and emission rates.
- **Other Worksheets (4.1-4.10, pink coloured):** Provides mandatory and optional fields for reporting other information covered by the AEIR Form.
- **Certification Worksheet (purple coloured):** Provides the Statement of Certification for printing and signing. Alternatively, a PDF version of the Statement of Certification, which can be digitally signed, is available on the AMD Resources website.
- **Extra Worksheets (green coloured):** Provides worksheets for the reporting of additional emission rates in the AEIR Form. No additional emission rates are required to be reported via these worksheets for the 2022, 2023 or 2024 inventory years.
- **Blank Worksheets (red coloured):** Provides worksheets for the reporting of additional information in the AEIR Form. No mandatory addition information is required to be reported via these worksheets for the 2022, 2023 or 2024 inventory years. NO₂/NO_x in-stack ratio information is being requested for voluntary reporting for the 2022, 2023 and 2024 inventory years.

As per clause RC 7-J, the specific formatting and units for reporting are specified in the individual fields in the AEIR Form. The AEIR Form, including the workbook itself and the contained worksheets, is locked and password protected to prevent modification. This is done in order to ensure the integrity of the reported data when it is imported into the internal Regulator database. As per clause RC 7-H, the person responsible for the industrial operation is **not** permitted to modify the AEIR Form (except for visual changes as described below).

Any unauthorized modifications to the AEIR Form, beyond entering required information or making visual changes, will render it invalid. An unauthorized modified AEIR Form will **not** be accepted and will **not** satisfy the requirements of the AMD. Which cells are unlocked for data entry, the cell data types and the available columns and rows are the elements that cannot be changed in the AEIR Form. However, the visual formatting of the worksheets can be altered (if desired by the user). For example: text size, font, column and row heights, zoom level, displayed decimal places and row/column freezing can be altered by the user.

Note: If you do change the visual format of any of the cells in the AEIR Form, then you must ensure that the change meets the data validation restrictions for the cell (see Appendix C for the cell data type and condition restrictions). Otherwise, the AEIR Form worksheet will generate an error and you will need to undo the formatting change. For example, if you change the number of decimal places displayed, then you must ensure that the number of decimal places fits the cell data validation restrictions (e.g., cannot add decimal places to a cell that is restricted to a whole number).

Information on Blank Fields (cells) and Not Applicable Fields (cells):

- The fields in the AEIR Form are mandatory, however, not all fields will be applicable in all cases. Fields that may not always be applicable are identified with "if applicable".
- It is acceptable to leave fields (cells) blank in the AEIR Form if they are identified with "if applicable" and are in fact not applicable.
- For text fields (cells) in the AEIR Form, it is acceptable to enter "n/a" if they are identified with "if applicable" and are in fact not applicable.

- "n/a" should **not** be entered in a numeric field in the AEIR Form when the field is not applicable. As these fields only accept a numeric value, they should instead be left blank if they are not applicable.
- It is acceptable to leave emission rate (annual actual, normal or maximum) fields blank in the AEIR Form if the substance is not being emitted by the specific release point or non-point source, or by any source at the industrial operation. "n/a" should **not** be entered in an emission rate field if the substance is not being emitted or has been identified as negligible in worksheet 1.23, as the field only accepts a numeric value.
- Some worksheets have a yes/no selection box that can be used to indicate if the entire worksheet is not applicable for the industrial operation for the specific inventory year.

Tips for Working with the AEIR Form:

- You can use the "Tab" key on your keyboard to move between cells that allow data entry.
- You can adjust the height and width of the rows and columns in a worksheet. This can be done by right-clicking on one or more numbered rows or lettered columns, selecting "Row Height..." or "Column Width..." and then entering the desired height or width value.
- You can adjust the zoom level of each individual worksheet in order to make the displayed information smaller or larger. This can be done by going to the "View" Menu Tab in Excel, clicking on the "Zoom" button and then selecting the desired zoom level.
- You can adjust the font and size of the text in one or more cells/rows/columns in a worksheet by selecting the cells/rows/columns, going to the "Home" Menu Tab in Excel and either changing the font or text size using the provided dropdown menus or by using the increase/decrease font size or "Format Cell Font" buttons.
- You can adjust the number of decimal places displayed in cells (excluding text and whole number fields) by using the increase or decrease decimal buttons. Note that this does not change the number of decimal places stored in the cell, just what is displayed. The cell will store whichever number of decimal places are entered (up to a maximum of 14 decimal places).
- For larger worksheets, the columns or rows can be frozen or unfrozen to make it easier to tell which column/row you are working on. The first or second columns are frozen by default in some worksheets. Freezing/unfreezing columns/rows can be changed by selecting the rows/columns to be frozen/unfrozen, going to the "View" Menu Tab in Excel and changing the options in the "Freeze Panes" button.
- Alternating rows are coloured either white or grey to make it easier to read across the row. This can be changed by selecting the row(s) and using the "Fill Colour" button in the "Home" Menu Tab in Excel.
- The "Release Point Descriptive Name" and "Non-Point Source Descriptive Name" values carry forward to other applicable worksheets in the AEIR Form.
- When copying and pasting data into the AEIR Form from other Excel workbooks or other external program files, it is recommended that the paste "Values" function always be used to ensure that only the value being copied into the AEIR Form is transferred. The AEIR Form uses set formatting and data types, and using the paste "Values" function ensures that inconsistent formatting and incorrect data types are not copied into the AEIR Form.
- To use the paste "Values" function, simply copy the information and then right-click on the cell you want to paste the information into, next use the provided "Values" button that appears under the "Paste Options" menu list. Alternatively, right-click on the cell you want to paste the information into and select "Paste Special" from the menu list and then select the Paste => "Values" option.
- If you encounter issues with a cell, such as a formatting error or cell text selection, try hitting the escape "Esc" key to exit the cell.
- The AEIR Form is an electronic (digital) form and is not designed to be printed out on paper. However, the user can set specific print area selections for individual worksheets of the AEIR Form and print them out (if desired by the user).
- A PDF version of the Statement of Certification, which can be digitally signed, is available on the AMD Resources website.

Note: If you encounter ongoing errors or issues with the AEIR Form, please contact emissions.inventory@gov.ab.ca for assistance. You may need to send (via email) your draft AEIR Form in order for AEPA staff to try to fix the errors or issues being encountered.

Previous Years AEIR Form:

For reporting under the AEIR Program, it is intended that the previously completed AEIR Form for the industrial operation can be used for reporting for subsequent inventory years. Unless otherwise specified in this section of the AEIR Standard, the same Microsoft Excel AEIR Form as the previous year can be used for the subsequent inventory year, provided the required updates to the reported information are made.

Although the previous year's AEIR Form can be used, the person responsible does need to review the previous year's information to identify:

- (a) any information that needs to be updated (e.g., contact information, changes in operational information, year specific release incidents, year specific source monitoring, year specific major source or plant shutdowns, etc.);
- (b) any information that needs to be added (e.g., new sources, equipment, substances being emitted, etc.);
- (c) any previously reported information that no longer applies (e.g., sources or equipment no longer operating, substances no longer being emitted, etc.); and
- (d) the annual actual emission rates that need to be updated to reflect the new inventory year's emissions.

The normal and maximum emission rates typically will not change every year, but could require updates if there have been changes at the industrial operation or its typical or maximum operating conditions. Any new, temporarily shut-down or decommissioned release points or non-point sources are required to be identified along with their revised emission rates. Any Director-authorized changes in quantification methodologies for the subsequent inventory year are also required to be reflected in the AEIR Form and in the Quantification Methodology Document.

3.10 Significant Figures and Rounding

The overall requirements for significant figures and rounding of air emissions data are covered in Section 3.2.2 of the AMD Reporting Chapter. This section of the AEIR Standard provides specific information on appropriate rounding of emission values for the AEIR Program.

Significant figure evaluations and associated rounding/truncating should be carried out **prior to** entering any emission value into the AEIR Form. The AEIR Form is set to only display a specific number of decimal places in certain cells, but each numeric cell will store whichever number of decimal places are entered (except cells requiring whole numbers). As many decimal places as you like can be entered (up to 14, which is the maximum number of decimal places that can be stored in an Excel cell), but it may not be appropriate to use all the decimal places available from a calculation or measurement.

Prior to entering an emission value into the AEIR Form:

- All CEMS data are to be rounded to the appropriate significant figures, based on the analyzer's actual measurement capability;
- All PEMS data should be reported to the same level of significance as the CEMS data used to construct the PEMS;
- All source sampling air emissions data are to be rounded to the appropriate significant figures for the affected data in accordance with the Alberta Stack Sampling Code;
- All other measured air emissions data are to be rounded to the appropriate number of significant figures, based on the analyzer's actual measurement capability or the method used to obtain the data; and
- All calculated air emissions data are to be rounded using the smallest number of significant figures from any of the data used in the calculation (excluding whole numbers, such as # of readings, # of hours in a day, # of days in the month, etc.).

The following general rounding conventions are to be used for reporting via the AEIR Form:

- (a) when the digit following the last significant figure is equal to or greater than five, the last significant figure is to be increased by one and the digits to its right are to be truncated; and
- (b) when the digit following the last significant figure is less than five, the last significant figure is to remain unchanged and the digits to its right are to be truncated.

For example, if there are two significant figures:

- 1.27 should be rounded up to 1.3 and then entered into the AEIR Form;
- 1.250 should be rounded up to 1.3 and then entered into the AEIR Form;
- 1.248 should be rounded down to 1.2 and then entered into the AEIR Form; and
- 1.23 should be rounded down to 1.2 and then entered into the AEIR Form.

Note: Plant or combined source, release point and non-point source emission limits and performance targets being entered into the AEIR Form should **not** be rounded. These limits and performance targets should be entered using the number of decimal places specified by, or referenced in, the EPEA approval. However, maximum emission rates that are determined based on limits should use the appropriate number of significant figures for the calculated maximum emission rate value.

Note: All geographic latitude and longitude locations are required to be reported to a minimum precision of five decimal places (e.g., 53.53610, -113.50340).

3.11 Reported Units and Unit Conversions

As per clause RC 7-J, the units of reporting are specified in the individual fields in the AEIR Form. In some cases, it may be necessary to convert numeric values prior to entering them into the AEIR Form. The overall requirements for air emission unit conversions are covered in Section 3.2.3 of the AMD Reporting Chapter. This section of the AEIR Standard provides information on the required reporting units and time periods, and the appropriate unit conversions, for the AEIR Program. As per clause RC 3-EE, unit conversions for air emissions data are to be done using generally accepted scientific principles.

The three different types of emission rates (annual actual, normal and maximum) for release points each have different required units and time periods. Only one type of emission rate is required for non-point sources (annual actual). The measured or estimated emission values being quantified for the industrial operation may therefore need to be converted to the required units and time periods prior to being entered into the AEIR Form. Annual actual emission rates are to be reported in tonnes per year, normal emission rates are to be reported in tonnes per day and maximum emission rates are to be reported in kilograms per hour.

The following provides some common unit and time period conversion factors for the three types of emission rates:

Annual Actual Emission Rate (tonnes/year)

- 1 gram = 0.000001 tonne
- 1 kilogram = 0.001 tonne
- 1 lb = 0.00045359237 tonne
- 1 short ton = 0.90718474 tonne
- 1 second = 3.17098 e⁻⁸ years
- 1 minute = 1.90259 e⁻⁶ years
- 1 hour = 0.000114155 years
- 1 day = 0.00273973 years

Normal Emission Rate (tonnes/day)

1 gram = 0.000001 tonne
1 kilogram = 0.001 tonne
1 lb = 0.00045359237 tonne
1 short ton = 0.90718474 tonne
1 second = 1.15741 e⁻⁵ days
1 minute = 0.000694444 days
1 hour = 0.0416667 days
1 year = 365 days

Maximum Emission Rate (kilograms/hour)

1 tonne = 1000 kilograms
1 gram = 0.001 kilograms
1 lb = 0.453592 kilograms
1 short ton = 907.185 kilograms
1 second = 0.000277778 hour
1 minute = 0.0166667 hour
1 day = 24 hour
1 year = 8,760 hour

Note: In addition to air emission unit conversions, other unit conversions may be necessary for some fields required by the AEIR Form. For example, unit conversions may be necessary for: stack parameters (height, diameter, temperature, and exit velocity), operating time periods, power ratings, geographic coordinates, etc.

Geographical Coordinates

The AEIR Form requires locations for the industrial operation, release points and non-point sources. All these locations are to be reported in geographic decimal latitude and longitude coordinates in NAD83, to a minimum precision of five decimal places. The exception is for building tier corners/vertices (in worksheet 1.11 of the AEIR Form), which are to be reported in UTM northings and eastings. Various free conversion tools are available online for converting coordinates to latitude and longitude. Following any conversions, it is strongly recommended that the converted coordinates be checked using a free or commercial mapping or GIS software tool to confirm the converted locations are correct and representative.

3.12 De Minimis and Negligible Sources

De Minimis Values

The person responsible is expected to exercise due diligence and make “a reasonable level of effort” in complying with the AEIR Program requirements. The person responsible is required to provide the best information available for the industrial operation. This is **not** limited to just measurement or monitoring information, but could also involve the use of estimations. In some instances, there may be one or more very small sources of a substance at an industrial operation where the level of effort required to annually quantify actual emissions of the substance from such sources may greatly outweigh the environmental benefit of reporting the emissions.

The following de minimis values have therefore been set for the AEIR Program:

- The person responsible for the industrial operation is expected to account for **at least 98%** of the total annual actual emissions of each Schedule 1 substance. The person responsible must therefore **not**

exclude more than 2% of the industrial operation's total annual actual emissions of a Schedule 1 substance from reporting.

- The person responsible for the industrial operation is expected to account for **at least 95%** of the total annual actual emissions of each applicable Schedule 2 substance. The person responsible must therefore **not exclude more than 5%** of the industrial operation's total annual actual emissions of an applicable Schedule 2 substance from reporting.

Note: De minimis values only apply for annual actual emission rates, not normal or maximum emission rates.

The de minimis values are intended to help focus the person responsible's efforts on the larger sources of air emissions at the industrial operation, while ensuring that the vast majority (95-98%) of the annual actual emissions of each relevant substance are quantified and reported. The de minimis values are intended to set maximum amounts that could potentially be excluded, but are not specifically intended such that the person responsible for an industrial operation is by default always excluding 2-5% of the annual actual emissions of each substance.

Negligible Sources

Related to the established de minimis values, there can potentially be instances where one or more very small sources at an industrial operation only emit very small amounts of the substances covered by the AEIR Program. The level of effort required to annually quantify actual emissions from such sources may greatly outweigh the environmental benefit of reporting the emissions. In such cases, there is the option to declare an entire source (a release point or non-point source) as negligible and exclude it from annual actual emissions quantification and reporting for all the Schedule 1 and applicable Schedule 2 substances.

Note: Negligible source values only apply for annual actual emission rates, not for normal or maximum emission rates. A source that is deemed negligible for a specific inventory year may still have normal and maximum rates, as these represent emission rates for normal operations of the source (when operating) and maximum potentials for the source (when operating). These rates may be available from the EPEA approval/renewal application, regulatory dispersion modelling or the negligibility assessment.

Note: Approved future sources do not need to be declared negligible, as they are not operating and therefore simply do not have any annual actual emission rates for the inventory year. Approved future sources may still have normal and maximum rates, as these represent emission rates for normal operations of the source (when operating) and maximum potentials for the source (when operating). These rates may be available from the EPEA approval/renewal application, regulatory dispersion modelling or the negligibility assessment.

Note: Just because a Schedule 1 or Schedule 2 substance is emitted by the industrial operation does not mean it is emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the specific substance would have annual actual emissions of the Schedule 1 or Schedule 2 substance to report. It is **not** necessary to assess and declare a source as negligible just because it does not emit an individual substance. Source negligibility is to be assessed based on the conditions in Table 4. The de minimis for the Schedule 1 and Schedule 2 substances may also factor into determining which sources will have annual actual emissions of a specific substance to report via the AEIR Form.

Declaring a source as negligible should only be done for those sources that are minor equipment, or are infrequently operating, and that truly are negligible emitters of the substances covered under the AEIR Program. There needs to be some assessment done by the person responsible for the industrial operation in order to declare a source as negligible. This assessment does not need to be overly extensive and the person responsible would typically already know which sources would potentially be negligible, based on past emissions inventories and regulatory reporting. Such pre-existing information would typically be used to support declaring a source as negligible. The assessment would simply use such information to provide a short explanation for declaring a source as negligible (see Examples 1 and 2 below).

Under the AEIR Program, a negligible source for a specific inventory year is an individual release point or a non-point source at the industrial operation that only emitted **all Schedule 1 and all applicable Schedule 2 substances in very small amounts in the specific inventory year.** Essentially, negligible sources for a specific inventory year are those negligible for all Schedule 1 and any applicable Schedule 2 substances for the specific inventory year. **In order to be deemed negligible, a source is required to meet conditions 1 and 2 set out in Table 4 and the industrial operation is required to meet conditions 3 and 4 set out in Table 4.**

Table 4: Conditions Required for Deeming a Source as Negligible.

Condition 1	Source (a release point or a non-point source) constitutes a minor piece of equipment, process or unit for the industrial operation or is operating/emitting very infrequently during the specific inventory year.
Condition 2	Source (a release point or a non-point source) emits in very small total amounts for the specific inventory year, typically accounting for less than 1% of the industrial operation's total annual actual emissions of each Schedule 1 and applicable Schedule 2 substance.
Condition 3	For each Schedule 1 substance, the total annual actual emissions (for the specific inventory year) of all sources being declared negligible at the industrial operation (plus any other sources where the emissions of the Schedule 1 substance are being excluded from reporting) do not exceed 2% of the industrial operation's total annual actual emissions (for the specific inventory year) of the substance.
Condition 4	For each applicable Schedule 2 substance, the total annual actual emissions (for the specific inventory year) of all sources being declared negligible at the industrial operation (plus any other sources where the emissions of the Schedule 2 substance are being excluded from reporting) do not exceed 5% of the industrial operation's total annual actual emissions (for the specific inventory year) of the substance.

Conditions 1 and 2 are specific to the individual source, while conditions 3 and 4 are specific to the total industrial operation's annual actual emissions of each Schedule 1 and applicable Schedule 2 substance (for the specific inventory year). The negligibility assessment involves identifying which sources were minor or infrequently operating for the specific inventory year (condition 1) and are also only emitting small amounts of each substance for the specific inventory year (condition 2). Conditions 3 and 4 simply require adding together the estimated annual actual emissions for the specific inventory year from all the sources being deemed negligible (based on conditions 1 and 2) for the substance (plus any other sources where the emissions are being excluded from reporting). This is done in order to ensure that the de minimis values are met and therefore relevant amounts of emissions are **not** being excluded.

One or more small or minor sources at an industrial operation can potentially be deemed negligible and excluded from reporting of annual actual emissions. This can be done if conditions 1 and 2 are met for the source, and if the overall required reporting percentages of the substance's annual actual emissions are met (a minimum of 98% of the total annual actual emissions for the specific inventory year of each Schedule 1 substance are being accounted for and reported, and a minimum of 95% of the total annual actual emissions for the specific inventory year of each applicable Schedule 2 substance are being accounted for and reported).

Note: Flares are not to be considered negligible sources, regardless of whether they operated infrequently during the inventory year. The exception would be if a flare did not operate at all during the inventory year.

Note: If the total annual actual emissions (for the specific inventory year) of all sources being declared negligible exceeds 2% for a Schedule 1 substance or 5% for a Schedule 2 substance, then one or more of the negligible sources (or one or more of the other sources where the emissions of the substance were being excluded from reporting) are required to be treated as non-negligible. The annual actual emissions from the now non-negligible source would then need to be quantified and reported, such that the overall required reporting percentages of the substance's emissions are met.

The basis for identifying a source as negligible needs to be described in the fields in worksheet 1.22 of the AEIR Form (e.g., small or infrequent source, only emitting small amounts, overall required reporting percentages met) and any supporting information is to be included in the Quantification Methodology Document. The information that

should be included to justify a source or sources as being negligible would be (for example): a very brief description of the source and how it operated during the year, a rough estimate of the source's range of annual emissions and the basis for the estimated range of emissions.

The following examples show the assessment and finding of sources as negligible:

Example 1:

An emergency generator operated only 4 hours during the inventory year. The industrial operation has existing emission estimates for the generator. These are based on engine size, normal and maximum operating conditions, EPA emission factors and estimated hourly fuel use data. The emergency generator emits NO_x at rate of 15 kg/hour under normal operating conditions (for the source) and 30 kg/hour under maximum operating conditions (for the source). As the generator only operated 4 hours for the year, the generator's stack potentially emitted between 60 to 120 kg during the 4 hours it operated during the inventory year. This was much less than 1% of the industrial operation's total annual actual NO_x emissions of each of the Schedule 1 substances. The other Schedule 1 substances were emitted by the generator in much smaller quantities than NO_x. The emergency generator does not emit any of the Schedule 2 substances applicable to the industrial operation. No other sources are being deemed negligible or otherwise excluded from emissions reporting at the industrial operation.

The emergency generator can be deemed a negligible source for the inventory year as:

- It operated only a small number of hours during the year (meets condition 1);
- It emitted less than 1% of the industrial operation's total annual actual emissions (for the specific inventory year) of each Schedule 1 and applicable Schedule 2 substance (meets condition 2); and
- Declaring it negligible will not result in excluding more than 2% of total annual emissions (for the specific inventory year) of any Schedule 1 substance or more than 5% of total annual emissions (for the specific inventory year) of any applicable Schedule 2 substance (meets conditions 3 and 4).

In the AEIR Form, the person responsible for the industrial operation would need to identify the emergency generator's stack as a Release Point; the emergency generator as the Unit, Process or Equipment that emits using the Release Point; and provide the required identification and description information in worksheets 2.0, 2.1, etc. The person responsible would need to identify this source as negligible and provide the required information in worksheet 1.22 of the AEIR Form and in the relevant section of the Quantification Methodology Document. Annual actual emissions reporting is not required for the emergency generator for the inventory year. However, the normal and maximum rates would be reported for this source in the AEIR Form.

Example 2:

An industrial operation has ten small natural gas fuelled space heaters located in several onsite buildings. These space heaters are being treated collectively as a single non-point source for the industrial operation. These space heaters mainly just emit NO_x and CO in very small amounts, relative to the other sources at the industrial operation. The space heaters operated a typical amount of ~3,000 hours during the inventory year. Based on their typical combined total annual natural gas use and EPA emission factors, these space heaters cumulatively emitted about 0.75 tonnes of NO_x and 0.60 tonnes of CO during the inventory year. The other Schedule 1 substances are all emitted by the space heaters in much smaller quantities than NO_x and CO. The space heaters do not emit any of the Schedule 2 substances applicable to the industrial operation. These space heaters together account for <1% of the industrial operation's NO_x and CO emissions. No other sources are being deemed negligible or otherwise excluded from emissions reporting at the industrial operation.

These combined small space heaters can be deemed a negligible source for the inventory year as:

- The space heaters are small pieces of equipment (meets condition 1);
- The space heaters together emit less than 1% of the industrial operation's total annual actual emissions (for the specific inventory year) of each Schedule 1 and applicable Schedule 2 substance (meets condition 2); and
- Declaring the combined space heater source as negligible will not result in excluding more than 2% of total annual emissions (for the specific inventory year) of any Schedule 1 substance or more than 5% of total annual emissions (for the specific inventory year) of any applicable Schedule 2 substance (meets conditions 3 and 4).

In the AEIR Form, the person responsible for the industrial operation would need to identify the combination of small space heaters as a Non-Point Source (type Space Heaters (multiple)) and provide the required identification and description information in worksheets 3.0, 3.1, etc. The person responsible would need to identify this source as negligible and provide the required information in worksheet 1.22 of the AEIR Form and in the relevant section of the Quantification Methodology Document. Annual actual emissions reporting is not required for these combined small space heaters for the inventory year. As non-point sources are not required to have normal or maximum rates, normal and maximum rates for this non-point source would not need to be reported in the AEIR Form.

Note: The person responsible will need to annually check their negligible source determinations to ensure that previously identified negligible sources have not substantially changed for the subsequent inventory year, and to confirm that they can still be considered negligible and excluded from annual actual emissions quantification and reporting. If a previously negligible source is found to be no longer negligible for a subsequent inventory year, then the source's annual actual emissions are required to be quantified for the subsequent inventory year and reported in the AEIR Form.

Note: For the purposes of assessing against the reporting thresholds, no sources that emit a Schedule 1 substance should be excluded if the industrial operation is typically emitting at or near the reporting threshold levels (e.g., emitting around 20 tonnes of NO_x per year). The de minimis and negligible source options are **not** be used to exclude industrial operations from reporting under the AEIR Program. The de minimis and negligible sources options are intended to help focus the efforts of those industrial operations that are required to report under the AEIR Program on the larger sources of air emissions at the industrial operation.

3.13 Negligible Schedule 1 Substances

If any of the reporting thresholds have been met, then air emissions of all eight Schedule 1 substances are required to be reported regardless of whether the reporting threshold for each individual Schedule 1 substance has been met. While emissions reporting is required for each Schedule 1 substance, not all industrial operations will have quantifiable amounts of emissions of all eight of these substances. In such cases, there is the option to declare a Schedule 1 substance as negligible and exclude it from emissions quantification and emissions reporting.

There needs to be some assessment done by the person responsible for the industrial operation to declare a Schedule 1 substance as negligible. This assessment does not need to be overly extensive and the person responsible would typically already know which Schedule 1 substances would potentially be negligible, based on past emissions inventories and regulatory reporting. The assessment would simply use such information to provide a short explanation for declaring a Schedule 1 substance as negligible (see Example below).

Note: Just because a Schedule 1 substance is emitted by the industrial operation does not mean it is emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the specific Schedule 1 substance would have emissions of the Schedule 1 substance to report. The de minimis for the Schedule 1 substances may also factor into determining which sources will have air emissions of a specific substance to report via the AEIR Form.

Note: For Schedule 2 substances, only applicable Schedule 2 substances need to be reported (see Section 14 of the AEIR Standard) and therefore it is **not** necessary to identify any Schedule 2 substances as negligible if they are not applicable to your industrial operation. Non-applicable Schedule 2 substances do **not** need to be identified or reported in the AEIR Form.

In general, a Schedule 1 substance can be deemed negligible if the annual actual emissions of the substance for the industrial operation total less than half the annual reporting threshold (and would likely always be less than half the reporting threshold). Table 5 provides the values that can be used to help identify if any of the Schedule 1 substances can be deemed negligible.

Note: As the larger sizes of PM include the smaller sizes, if reporting one (or more) size of particulate matter, then all three sizes of particulate matter are to be reported for the specific source.

Table 5: Schedule 1 Substance Negligible Assessment Values.

Pollutant	Total annual actual air emissions at the industrial operation are less than:
Sulphur Dioxide	10 tonnes
Nitrogen Oxides (expressed as NO ₂)	10 tonnes
Carbon Monoxide	10 tonnes
Total Particulate Matter	10 tonnes
Particulate Matter <= 10 Microns	0.25 tonnes
Particulate Matter <= 2.5 Microns	0.15 tonnes
Volatile Organic Compounds	5 tonnes
Ammonia	5 tonnes

The basis for identifying the Schedule 1 substance as negligible needs to be described in the fields in worksheet 1.23 of the AEIR Form and any supporting information is to be included in the Quantification Methodology Document. The information that should be included to justify a Schedule 1 substance as being negligible would be (for example): a description of the lack of any sources, fuels or materials related to the substance; a rough estimate of the range of the annual actual emissions of the substance (e.g., <1 tonne); and the basis for the estimated range of emissions.

The following example shows the assessment and finding of a Schedule 1 substance as negligible:

Example:

Industrial operation ABC does not process materials containing sulphur, does not otherwise use sulphur onsite and only combusts a small amount of fuels containing sulphur. Industrial operation ABC, therefore, likely will only have a small amount of SO₂ emissions for the inventory year, as compared to the 20 tonne reporting threshold, and will likely always only have a small amount of SO₂ emissions for an inventory year (unless there is a change to the industrial operation's sources, equipment, industrial processes, fuels used, etc.).

The person responsible assesses whether SO₂ is negligible for the industrial operation by using previous emission estimates done for the site. The assessment determines the annual actual air emissions of SO₂ for the industrial operation totals just over 3.4 tonne/year. SO₂ can be declared a negligible Schedule 1 substance as 3.4 tonnes for the total annual actual air emissions is much less than the 10 tonne negligible assessment value for SO₂. SO₂ can therefore be excluded from AEIR emissions quantification and emissions reporting.

The person responsible identifies SO₂ as being declared negligible in worksheet 1.23 of the AEIR Form. The person responsible provides the following explanation on the basis for determining the substance as negligible in worksheet 1.23 of the AEIR Form:

“SO₂ has been deemed to be a negligible Schedule 1 substance for the facility. The facility lacks any major SO₂ sources and only emits a small amount of SO₂ from several small combustion sources. Total annual SO₂ emissions for the entire facility have been previously quantified as roughly 3.4 tonnes per year. This is significantly smaller than both the 20 tonne per year reporting threshold and the 10 tonne per year negligible assessment value for SO₂ set out in section 3.13 of the guidance document.”

The person responsible also includes the required information on the negligible Schedule 1 substance in the relevant section of the Quantification Methodology Document.

Note: The person responsible will need to annually check their negligible Schedule 1 substance determinations to ensure that previously identified negligible substances have not substantially changed for the subsequent inventory year (e.g., due to changes in the industrial operation’s sources, equipment, industrial processes, fuels used, etc.) and to confirm that they can still be considered negligible and excluded from emissions quantification and emissions reporting. If a previously negligible Schedule 1 substance is found to be no longer negligible for a subsequent inventory year, then the emissions of this Schedule 1 substance (from release points and non-point sources) are required to be quantified for the subsequent inventory year and reported in the AEIR Form.

3.14 Method Detection Limit

When using source monitoring or other measurement data in preparing an emissions inventory, the issue can arise where a measured value is observed but is below the Method Detection Limit (MDL) of the specific monitor, sensor or testing method. The MDL is the smallest amount of a monitored substance that can produce an instrument response beyond the noise of the overall measurement. Individual monitors, sensors and testing methods will all have their own specified detection limits, which may vary from other similar monitors, sensors and testing methods.

A measurement below the MDL does not necessarily mean the substance is present or not present, just that it cannot be known whether the measured value is because the substance is present or just resulting from the noise of the measurement. When dealing with measurements below the MDL for reporting under the AEIR Program, the following rules should be used:

- a) If it is known or reasonably expected that the substance is in fact present in the materials or process stream, then a value of half the MDL should be used in the emission calculations for the AEIR.
- b) If there is no reason to believe that the substance is in fact present, on the basis of the materials and processes involved, then it can be assumed that the measured value below the MDL is not real and that the actual amount of the substance is zero. In such a case, the measured value below the MDL can be excluded from the emissions calculations and reporting for the AEIR.

3.15 Environmental Standards

The International Standards Organization (ISO) provides a standard (ISO 14064) for preparing greenhouse gas emissions inventories at an organization (e.g., industrial operation) level. Although covering different types of substances (greenhouse gases vs. air pollutants), many of the same principles, steps and documentation efforts do apply to both greenhouse gas and air pollutant emissions inventories. For the AEIR Program, the ISO standard is **not** required to be followed and **no** ISO certification is required. However, ISO 14064 (and/or other similar environmental management standards) may provide useful principles and guidance for preparing the required air pollutant emissions inventory under the AEIR Program.

4.0 Initial Preparation Steps (Steps 1 – 4)

Once it has been determined that the industrial operation has exceeded the reporting thresholds for the inventory year (see Sections 3.7 and 3.8 of the AEIR Standard), preparation for completing the required AEIR should begin. Initial preparation should include becoming familiar with the regulatory requirements and AEIR Program recommended steps, determining the scope of the inventory, identifying what information is available for the industrial operation and planning out the required work. The following subsections (4.1-4.4) of the AEIR Standard outline the recommended initial preparation steps (Steps 1 to 4) for the AEIR.

Sections 5.0 – 21.0 of the AEIR Standard outline and describe the recommended steps (Steps 5 to 21) for completing the AEIR, including: gathering and preparing the various types of required information, filling out the AEIR Form, selecting quantification methods, quantifying the emission rates, preparing the Quantification Methodology Document, checking the information being reported, signing the Statement of Certification and submitting the AEIR.

4.1 Review of Regulatory Requirements and AEIR Program Recommended Steps (Step 1)

Note: Prior to Step 1, the person responsible should have confirmed the industrial operation has exceeded the Schedule 1 reporting thresholds for the AEIR Program for the specific inventory year. Information and examples on carrying out comparisons against the Schedule 1 reporting thresholds is provided in Section 3.8 of the AEIR Standard.

The first initial preparation step for the AEIR involves becoming familiar with the various regulatory requirements applicable to the AEIR Program. This should, at a minimum, involve reviewing the emissions inventory and emissions reporting requirements set out in Section 7 of the AMD Reporting Chapter and the Substance Release Regulation. Next, the AEIR Standard and the AEIR Form should be reviewed. This will help with understanding the AEIR Program recommended steps, specific reporting formats, data elements to be included in the AEIR Form, definitions, source and method categories, deadlines and process for submission, required Quantification Methodology Document contents, and required certification of the reported information.

The following is a list of the recommended steps for preparing and completing the AEIR (with references to the associated sections of the AEIR Standard):

Steps 1 - 4: Initial Preparation

Step 1: Review of Regulatory Requirements and AEIR Program Recommended Steps => See Section 4.1

Step 2: Define the Geographic Boundary => See Section 4.2

Step 3: Identify Potentially Relevant Sources of Information => See Section 4.3

Step 4: Prepare and Plan => See Section 4.4

Step 5: Administrative Information

Step 5 a) Gather and Enter Administrative Information => See Section 5.1

Step 5 b) Gather and Enter Sector, Activity and Product Capacity Information => See Section 5.2

Step 5 c) Gather and Enter Location Information => See Section 5.3

Step 5 d) Gather and Enter Building Information => See Section 5.4

Step 5 e) Gather and Enter Contact Information => See Section 5.5

Step 5 f) Gather and Enter Information on Operational and Release Issues and Incidents => See Section 5.6

Step 5 g) Gather and Enter Information on Major Source and Plant Shutdowns => See Section 5.7

Step 5 h) Gather and Enter Information on Plant and Combined Source Limits and Performance Targets => See Section 5.8

Step 5 i) Identification and Reporting of Negligible Sources => See Section 5.9

Step 5 j) Identification and Reporting of Negligible Substances => See Section 5.10

Step 6: Release Point Information

Step 6 a) Identify Release Points and Substances Being Emitted => See Section 6.1

Step 6 b) Gather and Enter Information on Release Points => See Section 6.2

Step 7: Non-Point Source Information

Step 7 a) Identify Non-Point Sources and Substances Being Emitted => See Section 7.1

Step 7 b) Gather and Enter Information on Non-Point Sources => See Section 7.2

Step 7 c) Gather and Enter Parameter and Spatial Information for Non-Point Sources => See Section 7.3

Step 8: Non-Point Source Additional Information

Step 8 a) Gather and Enter Information on Storage Tanks => See Section 8.1

Step 8 b) Gather and Enter Information on Exposed Storage Piles => See Section 8.2

Step 8 c) Gather and Enter Information on Mine Fleets => See Section 8.3

Step 8 d) Gather and Enter Information on Mine Faces => See Section 8.4

Step 8 e) Gather and Enter Information on Tailings Ponds => See Section 8.5

Step 9: Unit, Process and Equipment Information

Step 9 a) Identify Units, Processes and Equipment => See Section 9.1

Step 9 b) Gather and Enter Information on Units, Processes and Equipment – Release Points => See Section 9.2

Step 9 c) Gather and Enter Information on Units, Processes and Equipment – Non-Point Sources => See Section 9.3

Step 10: Pollution Control Technology and Equipment Information

Step 10 a) Identify Pollution Control Technologies and Equipment => See Section 10.1

Step 10 b) Gather and Enter Information on Release Point Pollution Control Technologies and Equipment => See Section 10.2

Step 10 c) Gather and Enter Information on Non-Point Source Pollution Control Technologies and Equipment => See Section 10.3

Step 11: Emission Limit Information

Step 11 a) Identify Emission Limits => See Section 11.1

Step 11 b) Gather and Enter Information on Normal Emission Limits => See Section 11.2

Step 11 c) Gather and Enter Information on Emergency or Upset Emission Limits => See Section 11.3

Step 12: Temporal Operating and Emitting Information

Step 12 a) Identify Temporal Operating and Emitting Information => See Section 12.1

Step 12 b) Gather and Enter Temporal Operating and Emitting Information – Release Points => See Section 12.2

Step 12 c) Gather and Enter Temporal Operating and Emitting Information – Non-Point Sources => See Section 12.3

Step 13: Source Monitoring Information

Step 13 a) Identify Source Monitoring Information => See Section 13.1

Step 13 b) Gather and Enter Release Point Source Monitoring Information => See Section 13.2

Step 13 c) Gather and Enter Non-Point Source Monitoring Information => See Section 13.3

Step 14: Identify Applicable Schedule 2 Substances => See Section 14

Step 15: Identify Applicable Quantification Methods => See Section 15

Step 16: Emissions Quantification

Step 16 a) Gather Supporting Information => See Section 16.1

Step 16 b) Quantify and Report Annual Actual Emission Rates for Schedule 1 and Schedule 2 Substances => See Section 16.2

Step 16 c) Quantify and Report Normal Emission Rates for Schedule 1 and Schedule 2 Substances => See Section 16.3

Step 16 d) Quantify and Report Maximum Emission Rates for Schedule 1 and Schedule 2 Substances => See Section 16.4

Step 17: Other Information to be Reported

Step 17 a) Check Schedule 1 Totals => See Section 17.1

Step 17 b) Provide Explanations for Changes in Emissions => See Section 17.2

Step 17 c) Provide Descriptions of Authorized Method Changes => See Section 17.3

Step 17 d) Provide Descriptions of Significant Modifications => See Section 17.4

Step 17 e) Provide Descriptions of Emission Reduction Efforts => See Section 17.5

Step 17 f) Provide Comments and Additional Information => See Section 17.6

Step 17 g) Report Any Director Prescribed Additional Information => See Section 17.7

Step 17 h) Report Any Additional Emission Rates => See Section 17.8

Step 17 i) Report Any Additional Information Using the AEIR Form => See Section 17.9

Step 18: Quality Assurance and Quality Control Activities

Step 18 a) Identify and Select the QA/QC Procedures to be Used => See Section 18.1

Step 18 b) Carry Out the Selected QA/QC Procedures => See Section 18.2

Step 18 c) Document the QA/QC Results => See Section 18.3

Step 18 d) Check for Common Issues with AEIR Submissions => Section 18.4

Step 19: Prepare Quantification Methodology Document (QMD)

Step 19 a) Review Quantification Methodology Document Required Content => See Section 19.1

Step 19 b) Review Quantification Methodology Document Suggested Content and Format => See Section 19.2

Step 19 c) Prepare the Quantification Methodology Document => See Section 19.3

Step 19 d) Check for Common Issues and Carry Out QMD QA/QC Checks => See Section 19.4

Step 20: Complete AEIR Form, Final Review and Certification

Step 20 a) Finish Entering All Data Into the AEIR Form => See Section 20.1

Step 20 b) Conduct a Final Review of the Completed AEIR Form and Quantification Methodology Document => See Section 20.2

Step 20 c) Complete and Sign the Statement of Certification => See Section 20.3

Step 21: Submit the AEIR => See Section 21.0

4.2 Define the Geographic Boundary (Step 2)

The second initial preparation step for the AEIR involves defining the geographic boundary or scope of the emissions inventory. This will clarify exactly what falls within the inventory and reporting requirements, as set out by the AMD Reporting Chapter, and what falls outside of the requirements. The geographic boundary usually encompasses all the release points and non-point sources associated with the industrial operation. In most cases, the geographic boundary will be the fenceline of the industrial operation. The person responsible is to carry out the emissions inventory and report according to the definition of their industrial operation as set out in their EPEA approval (e.g., should include integrated cogeneration sharing the same approval, should include any related operations sharing the same approval, etc.).

The geographic boundary of an industrial operation (such as the fenceline) may overlap with the geographic boundary of other industrial operations (with separate EPEA approvals), as separately approved industrial operations can sometimes be located on the same plant site. While the geographic boundary can cover the same geographic space where the other industrial operation is located, the emissions inventory itself should not include the release points or non-point sources for the other industrial operation (with a separate EPEA approval). Those sources will be inventoried and reported separately, according to the other industrial operation's EPEA approval definition.

In some rare instances, two separate EPEA approved industrial operations may have been given authorization to carry out combined environmental reporting. If your industrial operation is carrying out combined reporting with another EPEA approved industrial operation (for reporting under EPEA), it is recommended that you contact the Alberta Air Emissions Inventory Program (see Section 2.9 of the AEIR Standard) to confirm how to define the geographic boundary and report under the AEIR Program for the two EPEA approved industrial operations.

In some rare instances, a single EPEA approved industrial operation may have been given authorization to carry out separate environmental reporting for different parts of the industrial operation. If the industrial operation is carrying out separate reporting for different parts of the same operation (for reporting under EPEA), it is recommended that you contact the Alberta Air Emissions Inventory Program (see Section 2.9) to confirm how to define the geographic boundary of your industrial operation for the purposes of reporting under the AEIR Program.

4.3 Identify Potentially Relevant Sources of Information (Step 3)

There will likely be many existing sources of information and data for your industrial operation that could potentially be used for emissions inventory development and reporting under the AEIR Program. The third initial preparation step for the AEIR therefore involves identifying potentially relevant sources of information and data. Existing information is critical for meeting the inventory and reporting requirements, and will also help to identify any information gaps. Identified gaps can then be used to determine what and how additional information will be collected or developed. Utilizing existing information (where appropriate) can greatly reduce the resources required to develop the emissions inventory, by avoiding duplicated efforts and ensuring efficient use of limited resources by focusing on the identified data gaps.

Relevant sources of information and data for the industrial operation could include:

- The EPEA approval for the industrial operation (see the Alberta Authorizations Viewer: <https://avw.alberta.ca/ApprovalViewer.aspx>), which will provide the list of authorized sources, required pollution controls, required monitoring and reporting, emission limits, minimum stack heights, etc.
- EPEA approval/renewal application and EIA information (e.g., sources, stack parameters, emission rates, other modelling inputs, etc.);
- Recent EPEA approval reports and source monitoring information (e.g., monthly/annual reports, CEMS monitoring data, Stack Sampling Reports, Fugitive Monitoring Reports, other source monitoring reports, etc.);
- Emissions inventories prepared for other reporting programs (e.g., NPRI, monthly/annual approvals reporting, Specified Gas Reporting Program/Technology Innovation and Emissions Reduction Program – for source and activity information, etc.);
- Equipment inventories and available activity records (e.g., fuel use, production data, etc.);
- Emission measurement and estimation methodology documentation and procedures for the industrial operation (e.g., company/facility developed quantification methodologies, etc.);
- Relevant company and industrial operation procedures (e.g., data storage and handling, environmental reporting, report approval and sign-off, etc.); and
- Other information and data (e.g., spatial GIS information, relevant metadata, etc.).

Note: Air emissions inventories represent a robust and well-developed science. There is therefore considerable information on planning and developing air emissions inventories available from various online sources. Reviewing such online emissions inventory information may be useful as a preparatory step as well.

Previous Years AEIR Form:

For reporting under the AEIR Program, it is intended that the completed AEIR Form for the industrial operation can be used for reporting for subsequent inventory years. Unless otherwise specified in Section 3.9 of the AEIR Standard, the same Microsoft Excel AEIR Form as the previous year can be used for the subsequent inventory year, provided the required updates to the reported information are made.

Although the previous year's AEIR Form can be used, the person responsible does need to review the previous year's information to identify:

- (a) any information that needs to be updated (e.g., contact information, changes in operational information, year specific release incidents, year specific source monitoring, year specific major source or plant shutdowns, etc.);
- (b) any information that needs to be added (e.g., new sources, equipment, substances being emitted, etc.);
- (c) any previously reported information that no longer applies (e.g., sources or equipment no longer operating, substances no longer being emitted, etc.); and
- (d) the annual actual emission rates that need to be updated to reflect the new inventory year's emissions.

The normal and maximum emission rates typically will not change every year, but could require updates if there have been changes at the industrial operation or its typical or maximum operating conditions. Any new, temporarily shut-down or decommissioned release points or non-point sources are required to be identified along with their revised emission rates. Any Director-authorized changes in quantification methodologies for the subsequent inventory year are also required to be reflected in the AEIR Form and in the Quantification Methodology Document.

4.4 Prepare and Plan (Step 4)

Adequate preparation and planning efforts are necessary to fully and efficiently meet the requirements of the AEIR Program. The next initial preparation step for the AEIR therefore involves developing a written work plan for the specific industrial operation. This written work plan should contain the various sets of procedures that will be followed in order to develop the emissions inventory and prepare the AEIR. This work plan will greatly help in preparing the required AEIR. This work plan will also help in preparing AEIRs in future years, where the same procedures for the industrial operation can likely be followed.

The written work plan will help to ensure that the inventory development and reporting runs smoothly and is completed by the deadline (September 30th). It will also help to ensure that the required resources are available when they are needed and that any issues are identified early on and can be properly addressed. The written work plan should include:

- Overall information gathering and data collection plans;
- A list of the specific tasks required for each part of the inventory development and reporting (e.g., tasks for: gathering the required information, quantifying the emission rates, filling out the AEIR Form, preparing the Quantification Methodology Document, carrying out QA/QC activities, final review, preparing the Statement of Certification and submitting the AEIR);
- A schedule for each part of the inventory development and reporting, with specific tasks and timelines assigned to each staff member carrying out the required work;
- A list of major milestones;
- A schedule of any required internal meetings;
- Issue handling procedures (e.g., what to do when: an error is discovered, required records are missing, there is conflicting information or numbers, specific tasks are running late, etc.);
- A listing of, and timelines for, any required information technology resources;
- The timelines and required payments for any external resources (e.g., environmental consultants, source monitoring contractors, etc.), if external resources are being used; and
- Specific timelines for management approval and sign-off on the AEIR, particularly the Statement of Certification.

Note: The general rule when preparing an emissions inventory is to spend the most time and effort on the largest sources and the substances of most concern. Smaller sources and lower priority substances cannot be ignored, but the most accurate and representative information is most critical for the largest sources and substances of most concern. For example, an industrial operation's EPEA approval would typically require source monitoring of large sources for select substances, whereas smaller sources and other substances may be typically quantified using estimation methods. The work plan developed for the AEIR might therefore reflect some time and effort prioritization for the largest sources, substances of most concern and the identified data gaps.

5.0 Administrative Information (Steps 5a – 5j)

5.1 Gather and Enter Administrative Information (Step 5a)

Clause RC 7-K sets out the general types of administrative information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional administrative fields that need to be completed. The required information includes identification and description of the specific AEIR, reporting company and industrial operation. The next step in preparing the AEIR therefore involves gathering the required administrative information and entering it into the AEIR Form. The following describes the administrative information required in worksheet 1.1 - 1.4 of the AEIR Form.

Worksheet 1.1 – 1.4: Industrial Operation – Administrative Information

1.1 AEIR Identification Information

This section of the AEIR Form requires specification of the year the inventory applies to, the date of the AEIR and an indication of whether or not it is a resubmission of a previously submitted AEIR. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 13 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.1: AEIR Identification Information, including data types and conditions.

Inventory Year
2022

This field requires entering the inventory year, which is the year of emissions that the AEIR covers (e.g., 2022 emissions). This field must not be left blank.

Date of the Annual Emissions Inventory Report
September 30, 2023

This field requires entering the “Date of the Annual Emission Inventory Report”, which is the date the AEIR was completed (sometime just before the AEIR is submitted to the Regulator). Typically, this is would be the date of sign-off on the Statement of Certification, as the report cannot be changed following certification by the Certifying Official. If a change was needed, the AEIR would need to be re-reviewed and a new Statement of Certification would need to be signed by the Certifying Official. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). This field must not be left blank.

Is this an Annual Emissions Inventory Report resubmission? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the AEIR is a resubmission (with corrections to address a specific issue or deficiency). The “Date of the Annual Emission Inventory Report” field would also need to be updated to reflect the new date of the amended AEIR. This field must not be left as “<Choose One>”.

1.2 Reporting Company Information

This section of the AEIR Form requires reporting of information on the company that owns or operates the industrial operation. The required information includes the company’s legal name, trade name and mailing address. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 14 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.2: Company Information, including data types and conditions.

Company Legal Name

Alberta 123456 Corporation

This field requires entering the legal name of the company that owns or operates the industrial operation. The legal name of the company is the registered corporate name of the company (e.g., a numbered company) and may or may not be the same name the company operates or conducts business under. As all companies will have a legal name, this field must not be left blank.

Note: If more than one company legally owns (or operates) the industrial operation, enter the company legal name for the majority owner or largest percentage owner in this section of the AEIR Form. If a second company owns or operates the industrial operation, then this is to be indicated using the 2nd Company Information fields in the AEIR Form. If more than two companies own or operate the industrial operation, then the additional company information is to be included in the Quantification Methodology Document (See Section 19 of the AEIR Standard).

Company Trade Name

AEP Bitumen and Power

This field requires entering the trade name of the company that owns or operates the industrial operation. The trade name is the name under which the company operates or conducts business. The trade name may be the same as the legal name, or it may be different. As all companies will have a name under which they operate or conduct business, this field must not be left blank.

Company Mailing Address

9820 – 106 Street

This field requires entering the mailing address of the company that owns or operates the industrial operation. This field must not be left blank.

Company City/District/Municipality/County
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Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the company that owns or operates the industrial operation. This field must not be left blank.

Company Province/Territory

Alberta

This field requires entering the province/territory of the company that owns or operates the industrial operation. This field must not be left blank.

Company Country

Canada

This field requires entering the country of the company that owns or operates the industrial operation. This field must not be left blank.

Company Postal Code

T5K 2J6

This field requires entering the postal code of the company that owns or operates the industrial operation. This field must not be left blank.

Is there a second owner/operating company? (Y/N)
No

This field is a dropdown menu for selecting "Yes" or "No" to indicate if there is a second owner or operating company for the industrial operation. This field must not be left as "<Choose One>".

Note: For companies outside of Canada, the province and postal code fields can be used to report the appropriate local equivalents for the other country (e.g., state and zip code).

Note: If there is no second owner or operating company, the subsequent 2nd company information fields are not required to be filled in.

2nd Company Legal Name
Alberta 654321 Corporation

This field requires entering the legal name of the 2nd company that owns or operates the industrial operation. The legal name of the company is the registered corporate name of the company (e.g., a numbered company) and may or may not be the same name the company operates or conducts business under. As all companies will have a legal name, this field must not be left blank (if reporting a 2nd company).

2nd Company Trade Name
AEP B&P Industries

This field requires entering the trade name of the 2nd company that owns or operates the industrial operation. The trade name is the name under which the company operates or conducts business. The trade name may be the same as the legal name, or it may be different. As all companies will have a name under which they operate or conduct business, this field must not be left blank (if reporting a 2nd company).

2nd Company Mailing Address
9820 – 106 Street

This field requires entering the mailing address of the 2nd company that owns or operates the industrial operation. This field must not be left blank (if reporting a 2nd company).

2nd Company City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the 2nd company that owns or operates the industrial operation. This field must not be left blank (if reporting a 2nd company).

2nd Company Province/Territory
Alberta

This field requires entering the province/territory of the 2nd company that owns or operates the industrial operation. This field must not be left blank (if reporting a 2nd company).

2nd Company Country
Canada

This field requires entering the country of the 2nd company that owns or operates the industrial operation. This field must not be left blank (if reporting a 2nd company).

2nd Company Postal Code
T5K 2J6

This field requires entering the postal code of the 2nd company that owns or operates the industrial operation. This field must not be left blank (if reporting a 2nd company).

Note: For companies outside of Canada, the province and postal code fields can be used to report the appropriate local equivalents for the other country (e.g., state and zip code).

Note: If more than two companies own or operate the industrial operation, then the additional company information is to be included in the QMD (See Section 19 of the AEIR Standard).

1.3 Industrial Operation Identification Information

This section of the AEIR Form requires reporting of identification information for the industrial operation, including: the industrial operation's name, the EPEA approval holder (the person responsible), the EPEA Approval #, 2nd EPEA Approval # (if applicable), any NPRI IDs, a description of any differences between the EPEA approved industrial operation and NPRI facility (ies), AER Facility IDs and whether the industrial operation is a formal and current member of an Alberta Airshed. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 15 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.3: Industrial Operation Identification Information, including data types and conditions.

Industrial Operation Name
Oxbridge Facility

This field requires entering the name of the specific industrial operation (facility) that the AEIR Form is being submitted for. This would typically be the name of the facility as specified in the industrial operation's EPEA approval. This field must not be left blank.

EPEA Approval Holder(s)
AEP Bitumen and Power

This field requires entering the name(s) of the company (ies) that holds the EPEA approval for the specific industrial operation that the AEIR Form is being submitted for. This will typically be the same as the person responsible for the industrial operation. This would typically be the name of the approval holder company as specified in the industrial operation's EPEA approval. This field must not be left blank.

EPEA Approval #
12345

This field requires entering the master EPEA approval number for the specific industrial operation that the AEIR Form is being submitted for. This is to be reported as a whole number numeric value without any of the amendment/renewal numbers (which are typically indicated with a dash and number following the master approval number). This field must not be left blank. No spaces, dashes, etc. should be entered in this field. Approval numbers range from 1 to ~490000.

2nd EPEA Approval # (if applicable)
555555

This field requires entering a second master EPEA approval number, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is to be reported as a whole number numeric value without any of the amendment/renewal numbers (which are typically indicated with a dash and number

following the master approval number). No spaces, dashes, etc. should be entered in this field. Approval numbers range from 1 to ~490000.

Note: A 2nd EPEA approval # should only be entered when authorization has been given by the Alberta Air Emissions Inventory Program to report two industrial operations with separate EPEA approval numbers together (e.g., two on-site or integrated operations).

NPRI ID (if applicable)

55555

This field requires entering the National Pollutant Release Inventory (NPRI) identification number, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is to be reported as a whole number numeric value. No spaces, dashes, etc. should be entered in this field. NPRI IDs range from 1 to ~550000.

Note: NPRI IDs are of critical importance, as they are needed to prevent double counting of facilities in the provincial air emissions inventory.

2nd NPRI ID (if applicable)

55558

This field requires entering a second National Pollutant Release Inventory (NPRI) identification number, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is to be reported as a whole number numeric value. No spaces, dashes, etc. should be entered in this field. NPRI IDs range from 1 to ~550000.

As the NPRI uses a different definition of a facility and has different reporting rules and requirements, some EPEA approved industrial operations may equate (partly or wholly) to more than one NPRI reporting facility. This field is only necessary if an industrial operation has more than one NPRI ID.

List any additional NPRI IDs applicable to the industrial operation (if more than two NPRI IDs apply)
--

n/a

This field requires entering any additional National Pollutant Release Inventory (NPRI) identification numbers, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is a text field that can accept both numeric and text (e.g., commas, spaces, etc.) information.

As the NPRI uses a different definition of a facility and has different reporting rules and requirements, some EPEA approved industrial operations may equate (partly or wholly) to more than one NPRI reporting facility. This field is only necessary if an industrial operation has more than two NPRI IDs.

If applicable, provide a brief description of any differences between the EPEA approved industrial operation and the NPRI facility/facilities.

The oil sands mining and cogeneration parts of the facility are separate NPRI facilities and thus each have a separate NPRI ID. The two NPRI facilities combined equate to the single EPEA approved industrial operation (covers the same sources).

This field requires providing a brief description of any differences between the EPEA approved industrial operation and the NPRI facility or facilities that equate (partly or wholly) to the industrial operation. This is a text field that can accept both numeric and text information.

As the NPRI uses a different definition of a facility and has different reporting rules and requirements, some EPEA approved industrial operations may be reporting differently to the NPRI. Understanding the

differences in what is covered by the AEIR Program and the NPRI is of critical importance for preventing double counting of facilities (and sources) in the provincial air emissions inventory.

Note: Differences between EPEA approved and NPRI facilities may result from differences between an activity or individual EPEA approval definition and how the facility is defined when reporting to the NPRI. This can result in missing or additional sources, different facility boundaries, an industrial operation being a single facility in one program or two or several facilities in the other program, etc. A single EPEA approved industrial operation may equate (partly or wholly) to one or more NPRI reporting facilities (and vice versa).

If applicable, list any AER Facility ID(s) for the industrial operation (list all that apply)
--

ABOS00555555

This field requires listing any Alberta Energy Regulator (AER) facility identification numbers, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is a text field that can accept both numeric and text information.

AER Facility IDs apply to the following types of facilities/equipment: batteries, compressor stations, custom treating facilities, sweet and sour gas processing plants, gas gathering systems, injection/disposal facilities, meter stations, oil sands processing plants, pipelines, refineries, tank terminals, waste plants, well sites and water sources. These Facility IDs are in the format of ABCS0000033, ABBT9982091, ABGP0001034, etc.

As the AER may define some energy sector facilities differently than an individual EPEA approval, an EPEA approved industrial operation may equate (partly or wholly) to one or more AER facilities. More than one AER identification number can therefore be entered into this field. If the industrial operation has more than one applicable AER Facility ID, then each of the applicable AER Facility IDs should be entered (separated by a comma and a space). For example: "ABCS0000033, ABGP0001034". AER Report ST102 provides a complete list of all active and inactive AER facilities in the province (excluding well sites). ST102 includes AER Facility IDs.

Note: AER IDs are of critical importance, as they are needed to prevent double counting of facilities (and sources) in the provincial air emissions inventory.

AER Approval # (if applicable)

F55555

This field requires listing any Alberta Energy Regulator (AER) Approval (Licence) numbers, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. This is a text field that can accept both numeric and text information.

AER Approval (Licence) numbers apply to the following types of facilities/equipment: batteries, compressor stations, custom treating facilities, sweet and sour gas processing plants, gas gathering systems, injection/disposal facilities, meter stations, oil sands processing plants, pipelines, refineries, tank terminals, waste plants, well sites and water sources. These Approval (Licence) numbers are in the format of F48884, F50653, F50657, etc.

If the industrial operation has more than one applicable AER Approval (Licence) number, then each of the applicable AER Approval (Licence) numbers should be entered (separated by a comma and a space). For example: "F48884, F50653". AER Report ST102 provides a complete list of all active and inactive AER facilities in the province (excluding well sites). ST102 includes AER Approval (Licence) numbers.

Is this industrial operation a formal member of an Alberta Airshed? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the industrial operation is a formal and current member of an Alberta Airshed. An industrial operation may be located within the boundaries of an Alberta Airshed and not be a formal member of the airshed, so location alone should not determine what is entered in this field. “Yes” would be selected only if the industrial operation is a formal and current member of an Alberta Airshed. This field must not be left as “<Choose One>”.

Note: For the purposes of the AEIR Program, a formal member of an Alberta Airshed is an industrial operation required by their EPEA approval to participate in ambient monitoring through an Alberta Airshed, or an industrial operation that otherwise provides funding to an Alberta Airshed for the purposes of carrying out ambient monitoring in their region.

If applicable, which Alberta Airshed?
Alberta Capital Airshed Alliance

This field is a dropdown menu for selecting the specific Alberta Airshed that the industrial operation is a member of, if applicable. The “Other (New Airshed Zone)” option should be selected if the airshed the industrial operation is a member of is not in the provided dropdown list.

1.4 Industrial Operation Temporal Information

This section of the AEIR Form requires reporting of temporal information for the industrial operation, including: the date of first commercial operation, decommission date, expected shutdown or decommission year for the industrial operation, operating status, operating condition, typical operating schedule, approximate total hours of operation for the year and the monthly operational/emitting hours or percentages. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 16 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.4: Industrial Operation Temporal Information, including data types and conditions.

Date of First Commercial Operation
January 1, 1999

This field requires entering the date of first commercial operation for the industrial operation. In terms of reporting under the AEIR Program, this will be the date when the industrial operation first began emitting. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). This field must not be left blank.

Note: If the exact date of first commercial operation is not available for an older industrial operation, then it is acceptable to provide a reasonable estimate for the date of first commercial operation (e.g., can estimate if it is 30, 40, 50, etc. years old and then convert that to an approximate year and assume January 1st). A reasonable effort must be made and the best available information is to be provided.

Decommission Date (if applicable)
January 5, 2022

This field requires entering the decommission date for the industrial operation. This field would only be filled out if an industrial operation reporting under the AEIR Program exceeded the reporting thresholds for an

inventory year and also decommissioned in that same inventory year. In terms of reporting under the AEIR Program, this will be the date when the industrial operation is permanently turned off (no longer emitting). This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Expected Shutdown or Decommission Year for the Industrial Operation
2035

This field requires entering the expected shutdown or decommission year for the industrial operation. This does not need to be a definite date or completely accurate, just an estimate of when the industrial operation could be expected to close. For example, this shutdown/decommission year could be based on: a specifically planned closing date, the expected lifespan of the plant, the typical lifespan of the type of industrial operation, etc. In terms of reporting under the AEIR Program, this expected shutdown/decommission year will be the expected future year when the industrial operation is permanently turned off (no longer emitting). The expected shutdown year is necessary for use in provincial emission forecasts and projections. This field must not be left blank.

Note: As projections and forecasts typically do not go beyond 50 years, if not otherwise known and if the industrial operation is expected to continue to operate for the next several decades, then 50 years plus the current year can be used as a default maximum value (if appropriate). For example, 2072 could be used as a default value for the 2022 inventory year, provided the industrial operation is expected to continue to operate for several more decades and a more representative shutdown year is not available.

Operating Status (for the inventory year)
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the industrial operation for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”. This field must not be left as “<Choose One>”.

“Operating” should be selected if the industrial operation was operating during the inventory year. This would be the selection that applies to nearly all the industrial operations reporting under the AEIR Program.

“Temporarily shut-down” should be selected if the industrial operation was operating briefly during the year and exceeded the reporting thresholds, then temporarily shutdown for most of the year, but is not in the process of decommissioning or being permanently closed. This option should be selected when the industrial operation was temporarily shut-down but is expected to begin operating again in the next year or two.

“Decommissioned” should be selected in the rare case when an industrial operation reporting under the AEIR Program exceeded the reporting thresholds for an inventory year and also decommissioned in that inventory year. In this case, the industrial operation will report for the inventory year, but will not be reporting for future inventory years (will no longer be operating).

“Not yet constructed/operating” should be selected in the rare case where the industrial operation exceeded the reporting thresholds for the inventory year, but the industrial operation was not yet fully constructed or operating.

Operating Condition (for the inventory year)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the industrial operation for the inventory year. The provided options include: “Normal”, “Start-up”, “High Annual Variability”, “Turnaround”, “Upset” and “Low Annual Output”. This field must not be left as “<Choose One>”.

“Normal” would be the selection for most industrial operations reporting under the AEIR Program and simply means that the industrial operation operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in production or emissions, but the specific inventory year was fairly representative of how the industrial operation normally operates/emits.

“Start-up” would be selected when the industrial operation (or its major units, processes or equipment) was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on the total emissions of the industrial operation.

“Turnaround” would be selected when the industrial operation (or its major units, processes or equipment) was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on the total emissions of the industrial operation.

“Upset” would be selected when the industrial operation (or its major units, processes or equipment) experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on the total emissions of the industrial operation.

“Low Annual Output” would be selected when the industrial operation operated below normal levels, overall having a lower than normal annual output for the products or activities occurring onsite and this had a significant impact (higher or lower) on the total emissions of the industrial operation. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where an industrial operation has high variation in operation/production/emissions nearly every year and thus while it is operating in its typical fashion, there is simply no normal operating condition for the industrial operation.

Note: “Significant impact (higher or lower)” on total emissions would be a large enough impact that the operating condition of the industrial operation would not be considered normal/average/typical for the inventory year.

Operating Schedule (# of days per week)
7

This field requires entering the number of days (1 - 7) per week the industrial operation typically operates/emits. This field must not be left blank.

Operates During Holidays? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the industrial operation typically operates/emits during statutory holidays. This field must not be left as “<Choose One>”.

Does the industrial operation typically operate 24-hours a day? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the industrial operation typically operates/emits 24-hours a day. This field must not be left as “<Choose One>”.

Weekday Start Time (if not operating 24-hours day)
8:15

This field requires entering the typical weekday start time for the industrial operation. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the industrial operation does not operate/emit 24-hours a day.

Weekday End Time (if not operating 24-hours day)
16:30

This field requires entering the typical weekday end time (closing for the day time) for the industrial operation. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the industrial operation does not operate/emit 24-hours a day.

Operates on Weekends? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the industrial operation typically operates/emits on weekends. This field must not be left as "<Choose One>".

Weekend Start Time (if operates on weekends and not 24-hours day)
8:15

This field requires entering the typical weekend start time for the industrial operation. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the industrial operation operates/emits on weekends and does not operate/emit 24-hours a day.

Weekend End Time (if operates on weekends and not 24-hours day)
16:30

This field requires entering the typical weekend end time (closing for the day time) for the industrial operation. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the industrial operation operates/emits on weekends and does not operate/emit 24-hours a day.

Approximate Hours of Operation for the Year
1,950

This field requires entering the approximate number of hours of operation for the industrial operation for the inventory year (between 1 and 8,760 hours, or between 1 and 8,784 hours for a leap year). This field must not be left blank.

Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?
Hours

This field is a dropdown menu for specifying whether the monthly operating information (in the subsequent fields) is being reported in "Hours" or "Percentage". This field must not be left as "<Choose One>".

For "Hours" this will be the approximate total number of hours of operation for the industrial operation for the individual month. Collectively the monthly hours should add up to the total "Approximate Hours of Operation for the Year". For "Percentage" this will be the percent of total annual hours of operation/emissions for the industrial operation that occurred during the individual month. For example, 10% of the operating time/emissions for the industrial operation occurred during January, 5% during February, 9% during March, 3% during April, etc. The monthly operating/emitting percentages should add up to 100%. The operational/emitting hours/percentages for the industrial operation will be used for temporal profiles when utilizing the reported annual actual emission rates at timescales smaller than the entire year.

January Hours of Operation or Operating/Emitting Percentage
168.0

This field requires entering the approximate number of hours of operation for the industrial operation occurring during January of the inventory year, or entering the approximate percent of total annual operation/emissions that occurred during January. This field must not be left blank.

Note: The same field as “January” described above is required for reporting the approximate number of hours of operation, or approximate percent of total annual operation/emissions, for the industrial operation occurring during the other months (February – December) of the inventory year. These fields are not repeated here to limit repetition in the AEIR Standard.

Sum of Monthly (autosum, no input required)
1,950.0

This field automatically sums the twelve sets of monthly hours of operation or monthly operating/emitting percentages. This field shows the annual total hours of operation for the industrial operation (would be 8,760 or less, except for a leap year) or annual total operating/emitting percentage (100%). No input is required for this field, but the result should be checked for reasonableness (e.g., should not be more than the total number of hours of the year, not more than 100% when monthly percent operation/emission values were reported).

Note: If specified in worksheet 2.4 or 3.5 of the AEIR Form, release points and non-point sources that are identified as continuously operating in the AEIR Form will be assigned the temporal profile of the industrial operation (assumed to operate the same as the entire industrial operation). If the industrial operation’s temporal information should not be used for a specific source, then temporal information for the specific source is required to be reported in worksheets 2.4 or 3.5.

Note: As some major sources or plant units may undergo extended shutdowns during a calendar year, worksheet 1.19 (Major Source or Plant Shutdowns) of the AEIR Form requires reporting of such shutdowns and may be used to adjust the temporal profile for the industrial operation or applicable release points and non-point sources.

5.2 Gather and Enter Sector, Activity and Product Capacity Information (Step 5b)

Classification information for the industrial operation is required as per clause RC 7-K and as specified by the AEIR Form. This includes reporting information on the industrial operation’s sector, primary and secondary activities, and primary and secondary product capacities. The next step in preparing the AEIR therefore involves gathering the required classification information and entering it into the AEIR Form. The following describes the classification information required in worksheet 1.5 - 1.7 of the AEIR Form.

Worksheet 1.5 – 1.7: Industrial Operation – Sector, Activity and Product Capacity Information

1.5 Industrial Operation Sector Information

This section of the AEIR Form requires reporting of sector classification information for the industrial operation. This includes identifying the sector class and NAICS code for the industrial operation. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 17 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.5: Industrial Operation Sector Information, including data types and conditions.

Sector (select the most appropriate sector category)

Oil Sands - Mining, Processing and Upgrading
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This field is a dropdown menu with selections for specifying the sector category for the industrial operation. The sector category definitions are provided below. The most appropriate sector category should be selected for the industrial operation. This field must not be left as "<Choose One>".

An industrial operation may fall within more than one of the provided sectors, but the sector representing the main type of activity the industrial operation carries out is to be selected in this field. The subsequent primary and secondary activities fields in the AEIR Form will capture the additional activities of the industrial operation. Note that an "Other Industrial Sector" category is available for any industrial operation not covered by the other provided sector categories. There are also "other" subcategories within some of the sector categories that may apply for industrial operations that do not fall within the more specific categories.

Sector Category Definitions:

Biofuels – an industrial operation that produces fuels from biological materials, such as plant matter or waste products. This sector category includes the production of renewable natural gas.

Cement and Concrete - Cement Manufacture – an industrial operation that manufactures cement.

Cement and Concrete - Lime Manufacture – an industrial operation that manufactures lime or other calcium carbonate derivatives as a saleable product.

Chemicals - Fertilizer – an industrial operation that manufactures a substance or a mixture of substances that contains one or more compounds of nitrogen, phosphorus, potassium or other plant food and is sold or represented for use as a plant nutrient.

Chemicals - Other Chemical Manufacture – an industrial operation that manufactures organic or inorganic chemicals, excluding: fertilizer manufacturing plants, petrochemical manufacturing plants, petroleum refineries and gas processing plants.

Chemicals - Petrochemicals – an industrial operation that manufactures organic chemical substances produced from petroleum-based materials, excluding petroleum refineries and gas processing plants.

Electric Power and Heating - Biomass and Biogas – an industrial operation that primarily produces steam or electric power using biomass or biogas as its main fuel.

Electric Power and Heating - Coal – an industrial operation that primarily produces steam or electric power using coal as its main fuel.

Electric Power and Heating - Diesel – an industrial operation that primarily produces steam or electric power using diesel as its main fuel.

Electric Power and Heating - Natural Gas – an industrial operation that primarily produces steam or electric power using natural gas as its main fuel.

Electric Power and Heating - Other – any other industrial operation that primarily produces steam or electric power that is not covered by the other Electric Power and Heating categories.

Electric Power and Heating - Waste Heat – an industrial operation that primarily recovers waste heat and may transform it into electric power.

Food and Beverage Manufacture and Processing – an industrial operation that manufactures or processes food or beverage products, including: distilleries, malting plants, meat plants, rendering plants, milk products plants, oil seed processing plants, sugar refineries and vegetable plants.

Manufacturing - General – any other industrial operation involved in manufacturing goods that is not covered by the other manufacturing sector categories.

Metal Manufacture and Processing – an industrial operation that produces or processes metals.

Mining and Quarrying - Coal Mining and Processing – an industrial operation involved in the excavation or working of a surface or subsurface for the purpose of recovering or processing coal.

Mining and Quarrying - Other Mineral Mining, Quarrying and Processing – an industrial operation involved in the excavation or working of a surface or subsurface for the purpose of recovering or processing minerals, excluding: coal, oil sands or an oil bearing substance.

Oil & Gas - Light or Medium Crude Oil Production and Processing – an industrial operation focused on the production or processing of light or medium crude oil.

Oil & Gas - Heavy Crude Oil Production and Processing – an industrial operation focused on the production or processing of heavy crude oil.

Oil & Gas - Natural Gas Production and Processing – an industrial operation focused on the production or processing of natural gas.

Oil & Gas - Other – Any other EPEA approved oil or gas production or processing industrial operation that is not covered by the other Oil & Gas sector categories.

Oil Sands - In-situ Extraction and Processing – an industrial operation that uses heat to reduce the viscosity of bitumen to allow flow for pumping to the surface for processing or transport.

Oil Sands - Mining, Processing and Upgrading – an industrial operation that uses surface mining to extract bitumen for processing, upgrading or transport. Bitumen upgraders without surface mines are also included in this sector category.

Oil Sands - Non-Thermal Primary or Enhanced Recovery – an industrial operation that extracts bitumen from reservoirs with flows sufficient to be recovered from wellbores either on its own or with the injection of fluids into the reservoir.

Other Industrial Sector – any other industrial operation not covered by the other provided sector categories.

Petroleum Products - Bulk Storage Terminals – an industrial operation focused on the storage of refined petroleum products, with total storage capacity of 10,000 cubic metres or more.

Petroleum Products - Transportation and Distribution – an industrial operation focused on the transportation and distribution of petroleum products.

Petroleum Products - Refining – an industrial operation that manufactures hydrocarbon products from oil, heavy oil, crude bitumen or synthetic crude oil. This sector category excludes bitumen upgraders, which fall under the “Oil Sands - Mining, Processing and Upgrading” category.

Pulp and Paper - Paper Mill – an industrial operation that manufactures paper products.

Pulp and Paper - Pulp Mill – an industrial operation that manufactures pulp products.

Railcar Servicing – an industrial operation focused on the interior cleaning and servicing of rail cars.

Waste Management – an industrial operation focused on the management of waste materials.

Wastewater Treatment – an industrial operation tasked with the physical, chemical, biological or radiological treatment of water or wastewater.

Wood Products – an industrial operation that produces plywood, oriented strand board, particle board or other panel board products or that preserves or protects wood or wood products through the use of wood treatment chemicals. This category excludes paper and pulp mills, which have their own sector categories.

NAICS Code (six-digit)
211142

This field requires entering the six-digit NAICS code for the industrial operation. The most appropriate NAICS code should be selected for the industrial operation. This field must not be left blank.

The North American Industry Classification System (NAICS) is a standardized coding system for industrial activities occurring in North America. NAICS codes are hierarchical, with groupings at the 2-digit, 3-digit, 4-digit, 5-digit and 6-digit levels. The first two digits represent the overall sector. The first three digits represent the subsector. The first four digits represent the industry. The first five digits represent the industry group. The overall six digits of a NAICS code are specific to the Canadian industry an industrial operation belongs to.

Unlike most other standardized codes and categories, a dropdown menu is not provided in the AEIR Form for NAICS codes. This is simply due to the large number of available NAICS codes and the potential for these codes to change over time. A supporting document on AEIR Form codes, including available NAICS codes, is provided on the AMD Resources website (see: AMD AEIR Codes Table.xlsx). This Excel file lists the codes and text descriptions of their corresponding sector. Excel filtering, searches and lookups can be used to help identify the most appropriate NAICS code. Additional information on NAICS codes is available from Statistics Canada, see: <http://www.statcan.gc.ca/pub/12-501-x/12-501-x2016001-eng.pdf>.

Note: Industrial operations that also report to the National Pollutant Release Inventory may have already identified the most appropriate NAICS code for their industrial operation and could potentially use that selection for reporting under the AEIR Program.

Note: NAICS codes are reviewed and revised by Statistics Canada every few years. The supporting document on AEIR Form codes (AMD AEIR Codes Table.xlsx) on the AMD Resources website should be consulted for the current list of NAICS codes to use for the AEIR Program.

2nd NAICS Code (six-digit) (if applicable)
221112

This field requires entering a second six-digit NAICS code for the industrial operation, in cases where a single NAICS code is not sufficient to represent the industrial activities occurring at an industrial operation. For example, an industrial operation could have two different types of manufacturing occurring that fall under different six-digit NAICS codes or an industrial operation could produce a primary product and also generate and sell electricity to the electric grid.

1.6 Industrial Operation Activity Information

This section of the AEIR Form requires reporting of general activity information for the industrial operation, including identifying the primary and secondary activities for the industrial operation. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 18 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.6: Industrial Operation Activity Information, including data types and conditions.

Primary Activities (individually list each one)
--

Oil Sands Mining

This field requires listing the individual primary activities of the industrial operation. Rather than the predefined sector and NAICS categories, the primary activity fields are intended to capture more specific activity information. The person responsible is able to enter the individual primary activities applicable to their specific industrial operation. Primary activities are the main industrial activities occurring onsite, essentially why the industrial operation exists. For example, the primary activity of a large oil sands mine would typically be listed as something like “Oil Sands Mining” in this field.

Primary activity information should be specified/described in the industrial operation’s EPEA approval and/or included in the industrial operation’s EPEA approval/renewal application. Up to ten primary activities for the industrial operation can be entered into the AEIR Form, although one to two primary activities would typically be entered. This field must not be left blank.

Secondary Activities (if applicable, individually list each one)

Electric Power Generation

This field requires listing the individual secondary activities of the industrial operation. Rather than the predefined sector and NAICS categories, the secondary activity fields are intended to capture more specific activity information. The person responsible is able to enter the individual secondary activities applicable to their specific industrial operation. Secondary activities are those industrial activities occurring onsite that are not the primary activity or activities of the industrial operation. These secondary activities are not the main reason the industrial operation exists, but often occur as a result or by-product of the primary activities.

For example, an industrial operation may primarily be involved in mining and processing of bitumen, but could also generate electricity that is both used onsite and sold to the electric grid. In this case, the primary activity would be oil sands mining, while the secondary activity entered into this field would typically be something like “Electric Power Generation”.

Secondary activity information should be specified/described in the industrial operation’s EPEA approval and/or have been included in the industrial operation’s EPEA approval/renewal application. Up to ten secondary activities for the industrial operation can be entered into the AEIR Form, although many industrial operations will only have primary activities to identify.

1.7 Industrial Operation Product Capacity Information

This section of the AEIR Form requires reporting of general information on the primary and secondary products of the industrial operation. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field. Annual production data are **not** required to be reported in the AEIR Form. The person responsible is simply required to identify the individual primary and secondary products of the industrial operation and enter the specified capacity information.

Note: Table 19 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.7: Industrial Operation Product Capacity Information, including data types and conditions.

Note: Capacity information is typically included in the EPEA approval/renewal application for the industrial operation. If appropriate, the capacity information from the EPEA approval/renewal application can likely be used in worksheet 1.7.

Note: The product capacities being reported should be whatever is representative for the individual industrial operation. If the person responsible feels that a non-standard product (e.g., a throughput) is a more representative product for the site than a final outgoing product, then this non-standard product can be used for reporting the maximum/rated and average/normal capacities in worksheet 1.7 of the AEIR Form.

Note: For industrial operations that do not produce or distribute a product (e.g., only receives and stores materials), the approximate annual amount the industrial operation receives/stores is what should be reported (e.g., typically receives and stores 100,000 m³ of solid waste per year, etc.).

Products of the Industrial Operation (individually list each primary and secondary product)
Oil equivalent

This field requires listing the individual primary and secondary products of the industrial operation. Primary and secondary products are typically (but not always) the outputs of the industrial operation. For industrial operations that do not produce or distribute a product, the products can be reported as the materials received and stored onsite at the industrial operation. General product information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and that product information can be reported in the AEIR Form if it is still representative for the industrial operation.

Primary or Secondary (select)
Primary

This field provides a dropdown menu to select whether the product is a primary or secondary product of the industrial operation. Primary products are the main products of the industrial operation, essentially why the industrial operation exists or operates. Secondary products are other products that are produced by the industrial operation, those that are not the result of the primary activity or activities of the industrial operation. These secondary products may occur as a result or by-product of the industrial activities. This field must not be left blank.

Plant Design Maximum or Rated Capacity - Quantity
150,000.00

This field requires entering the plant design maximum or rated capacity quantities for each of the individual primary and secondary products. This would be the maximum production of the specific product. For example, 150,000 barrels of oil equivalent per day. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. This field must not be left blank.

Plant Average/Normal Capacity - Quantity
125,000.00

This field requires entering the plant average or normal capacity quantities for each of the individual primary and secondary products. This would be the average or normal production of the specific product. For example, the industrial operation normally produces 125,000 barrels of oil equivalent per day. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. This field must not be left blank.

Capacity - Units
barrels

This field requires entering the specific units for the reported maximum/rated and average/normal product capacities. Examples of capacity units would include: barrels, MWh, tonnes, kilograms, m³, etc. This field must not be left blank.

Capacity - Timescale
per day

This field requires entering the specific timescale for the reported maximum/rated and average/normal product capacities. Examples of capacity timescales would include: per day, per hour, per week, per month, per year, etc. This field must not be left blank.

5.3 Gather and Enter Location Information (Step 5c)

Clause RC 7-K sets out the general types of location information for the industrial operation that is required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional location fields that need to be completed. This includes reporting information on the industrial operation's geographic location, legal land description and boundary. The next step in preparing the AEIR therefore involves gathering the required location information and entering it into the AEIR Form. The following describes the location information required in worksheet 1.8-1.10 of the AEIR Form.

Worksheet 1.8 - 1.10: Industrial Operation – Location Information

1.8 Industrial Operation Location Information

This section of the AEIR Form requires reporting of location information for the industrial operation, including: the latitude, longitude and base elevation for a single point representing the industrial operation. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 20 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.8: Industrial Operation Location Information, including data types and conditions.

Industrial Operation Base Elevation (m ASL)
671

This field requires entering a base elevation value for the industrial operation. A single geographic point is to be selected to represent the entire industrial operation. This elevation value is to be reported in metres above sea level (m ASL). This value would typically be the base elevation of the latitude/longitude coordinate pair reported in the next two fields. This field must not be left blank.

Industrial Operation Latitude (Decimal, NAD 83)
53.53610

This field requires entering a geographic latitude value for the industrial operation. A single geographic point is to be selected to represent the entire industrial operation. This point is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places. This is the first half of the paired coordinate value for the industrial operation, with the longitude value being reported in the next field. This field must not be left blank.

This point may be selected as whichever point the person responsible feels best represents the general location of the industrial operation. For example, this point location could be the industrial operation's front gate, geographic centre, main building, etc. This point location will be used by the Regulator to classify the entire industrial operation according various geographic boundaries (e.g., Air Zones, management areas, census divisions, census subdivisions, census metropolitan areas, etc.) as part of the provincial air emissions inventory.

Note: The industrial operation's geographic point location (latitude and longitude) must be within the boundaries of the specific industrial operation. The selected point must not be an off-site location (e.g., the company's head office).

Industrial Operation Longitude (Decimal, NAD 83)
-113.50340

This field requires entering a geographic longitude value for the industrial operation in geographic decimal NAD 83, to a minimum precision of five decimal places. This is the second half of the paired coordinate value for the industrial operation, with the latitude value already reported in the previous field. This field must not be left blank.

1.9 Industrial Operation Legal Land Description

This section of the AEIR Form requires reporting of the legal land description of the industrial operation, including: legal subdivision, quarter section, section, township, range and meridian. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 21 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.9: Industrial Operation Legal Land Description, including data types and conditions.

Note: The legal land description location of the industrial operation should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and that location can be reported as the legal land description of the industrial operation in the AEIR Form. The legal land description is also typically identified in the industrial operation's EPEA approval.

Note: If the boundaries of the industrial operation cover more than a single subdivision, quarter section or section, then the most representative subdivision, quarter section or section should be selected and reported (e.g., could select the area covering the largest portion of the industrial operation to represent the location, etc.).

Note: The legal land description for the industrial operation should be entered to the level appropriate for the industrial operation. For example, if the quarter section or subdivision are not appropriate, then they can be left blank in the AEIR Form.

Legal Subdivision
10

This field requires entering the legal subdivision portion of the legal land description for the industrial operation.

Quarter Section
SE

This field requires entering the quarter section portion of the legal land description for the industrial operation.

Section
32

This field requires entering the section portion of the legal land description for the industrial operation.

Township
52

This field requires entering the township portion of the legal land description for the industrial operation.

Range
24

This field requires entering the range portion of the legal land description for the industrial operation.

Meridian
4

This field requires entering the meridian portion of the legal land description for the industrial operation.

1.10 Simplified Industrial Operation Boundary Information

This section of the AEIR Form requires reporting of a simplified boundary for the industrial operation. The source of information used for the industrial operation simplified boundary being reported in the AEIR Form is up to the person responsible. The simplified boundary could be based on information provided in the industrial operation's EPEA approval/renewal application, actual constructed physical boundaries, fenceline, GIS spatial file developed for the site, etc. The simplified boundary does not need to be completely accurate or a perfect representation of the industrial operation, as the actual boundaries of an industrial operation can be fairly complex and this section of the AEIR Form is just meant to capture a simplified boundary. However, the simplified boundary being reported would typically encompass all the sources (release points and non-point sources) at the industrial operation.

The simplified boundary is to be reported as a series of geographic latitude (Decimal, NAD 83) and longitude (Decimal, NAD 83) vertex locations, together making up a simple polygon boundary for the industrial operation. A minimum of four and a maximum of twenty vertex coordinate sets can be reported. These should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner). The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 22 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.10: Simplified Industrial Operation Boundary, including data types and conditions.

Note: As the AEIR Form requires locations to be reported in geographic decimal latitude and longitude coordinates in NAD83, converting from UTM or other projected units may be required. Various free conversion tools are available online for converting coordinates from UTM to latitude and longitude. Following any conversions, it is strongly recommended that the converted coordinates be checked using a free or commercial mapping or GIS tool to confirm the locations are correct and representative.

Note: A minimum of four and a maximum of twenty vertex pairs can be reported for the simplified boundary. These fields are only intended to capture a simplified boundary, and therefore there should not be more than twenty vertex pairs reported.

Note: For industrial operations with more than one discrete plant site (e.g., in-situ oil sands facilities with several distinct and distant plant sites), it is recommended that the simplified boundary coordinates for one plant site be entered in the fields in worksheet 1.8-1.10, and then the simplified boundary coordinates for each of the other plant sites be entered in either worksheet "Blank2", "Blank3" or "Blank4" of the AEIR Form. This additional information must be noted in the AEIR submission to ensure it is manually added to the internal Regulator Database. Please contact emissions.inventory@gov.ab.ca for additional information on reporting simplified boundary coordinates for several discrete plant sites.

Number of Industrial Operation Boundary Vertices
4

This field requires entering the number of vertices being reported for the simplified boundary of the industrial operation. This is the number of vertex coordinate pairs that will be entered into the subsequent fields. This field must not be left blank.

Industrial Operation Boundary Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the simplified boundary of the industrial operation. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places. This field must not be left blank.

Industrial Operation Boundary Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the simplified boundary of the industrial operation. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places. This field must not be left blank.

Note: The same latitude and longitude fields described above are required for reporting the industrial operation's other simplified boundary vertex locations (vertices 2 to 4, and up to 20). These fields are not repeated here to limit repetition in the AEIR Standard.

5.4 Gather and Enter Building Information (Step 5d)

Clause RC 7-K sets out the general types of building information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional building information fields that need to be completed. The required fields include: building name, associated release points, number of tiers, base elevation, number of corners/vertices, corner/vertex height and corner/vertex coordinates. For building dimensions, a minimum of four and typically a maximum of sixteen vertex coordinate sets can be reported in the AEIR Form. These should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

The next step in preparing the AEIR involves gathering the required building information and entering it into the AEIR Form. The following describes the building information required in worksheet 1.11 of the AEIR Form.

Worksheet 1.11: Industrial Operation Building Dimensions

This section of the AEIR Form requires reporting available information on any buildings that may potentially cause building downwash. If a release point (stack) is located on the top of a building, or adjacent to a tall building, the size and dimensions of the building may need to be considered. Building downwash may occur if the height of the top of the stack is less than 2 ½ times the height of the building upon which it sits. It may also be necessary to consider adjacent buildings if they are within a distance of 5 times the lesser of the projected building width or peak building height from the stack. This distance is called the building's region of influence. If a release point (stack) is located near more than one building, information on several buildings may be required.

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 23 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.11: Industrial Operation Building Dimensions, including data types and conditions.

Note: You are **not** required to enter information on all buildings at or around the industrial operation. The AEIR Form only requires reporting information on buildings that may potentially cause building downwash. This assessment should have been done as part of the approval/renewal application for your industrial operation (as per the requirements and formula specified in the Alberta Air Quality Model Guideline). If no assessment of building downwash has ever been conducted for the industrial operation (as either no buildings met the criteria for assessment or the assessment was otherwise not required), then building information is **not** required to be entered into the AEIR Form.

Note: Although not specifically required for reporting under the AEIR Program, an assessment of building downwash could be otherwise required for the industrial operation as part of regulatory requirements, other modelling assessments or studies investigating ambient air quality issues.

Note: If an assessment of building downwash for the industrial operation is carried out in subsequent years, worksheet 1.11 of the AEIR Form would need to be updated as part of the AEIR being submitted for the subsequent inventory year.

Has a building effects (downwash) assessment been carried out for the industrial operation? (Y/N)
Yes

This field is a dropdown menu that requires selecting “Yes” or “No” to indicate if a building effects (downwash) assessment has been carried out for the industrial operation. This field must not be left as “<Choose One>”. If no assessment of building downwash has ever been conducted for the industrial operation (as either no buildings met the criteria for assessment or the assessment was otherwise not required), then the subsequent building information fields in worksheet 1.11 of the AEIR Form are **not** required to be completed (as the information will not be available).

Note: To report buildings or building tiers with more than 16 vertices, report the first 16 vertices in a single row, then add any subsequent vertices (17, 18, etc.) in the next row. The building name, release point descriptive names number of tiers, building dimensions, tier #, number of tier corners/vertices and UTM zone would be the same in both the first and second rows for the building/building tier.

Note: If you have more than 100 buildings to include in Worksheet 1.11, then you will need to request a supplemental building dimensions worksheet that allows for reporting of up to an additional 200 buildings. This supplemental worksheet can be requested by emailing: emissions.inventory@gov.ab.ca. Please be sure to note the inclusion of this supplemental form in your AEIR submission, as it will need to be manually loaded into the Regulator’s database.

Building Description

Building Name
Main Powerhouse Building

This field requires entering the name of the building being reported. If reporting building information, this field must not be left blank.

Release Point Descriptive Names (if applicable, list all for any Release Point or Points located on the Building)
Combined Boiler Control Stack

This field requires listing the descriptive names of the release point(s) that are located on the building. Note that a building may have more than one release point located on it. If there are no release points on a building (adjacent building), this field can be left blank or n/a can be entered.

Note: The “Release Point Descriptive Names” must be called the same as what was entered in worksheet 2.0 of the AEIR Form. For example, boiler stack 1 and boiler stack 2 in worksheet 2.0 would be listed as boiler stack 1 and boiler stack 2 in this field (if they are both located on the building).

Note: As required stack information (release point base elevation, release point height and release point geographic coordinates) is being reported in worksheet 2.0 of the AEIR Form, the stack (release point) fields related to the building downwash assessment have not been included (repeated) in worksheet 1.11 of the AEIR Form.

Number of Tiers for the Building
1

This field requires entering the number of tiers for the building. If reporting building information, this field must not be left blank.

Building Base Elevation (m ASL)
671.0

This field requires entering a base elevation value for the building being reported. A single geographic point is to be selected to represent the elevation of the entire building. This elevation value is to be reported in metres above sea level (m ASL). If reporting building information, this field must not be left blank.

Corner / Vertex Height and Location Information

Tier #
1

This field requires entering the tier being reported for the building, which the subsequent corner/vertex fields will be reported for. If reporting building information, this field must not be left blank.

Note: Additional tiers for the building should be entered in the subsequent rows in the AEIR Form, with the same building name used. For example, a building with two tiers would have two entries in worksheet 1.11, with the same information entered, except for the “Tier #” and “Tier Corner/Vertex Heights” and “Tier Corner/Vertex UTM” eastings and northings.

Number of Tier Corners/Vertices
4

This field requires entering the number of corners or vertices being reported for the tier of the building. This is the number of corner/vertex coordinate pairs that will be entered into the subsequent fields. If reporting building information, this field must not be left blank.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

UTM Zone
12

This field requires entering the UTM zone for the corner/vertex UTM coordinates. If reporting building information, this field must not be left blank.

Tier Corner/Vertex 1 Height (m)
10.0

This field requires entering the height of the corner/vertex in metres. The height is measured from ground level. If reporting building information, this field must not be left blank.

Tier Corner/Vertex 1 UTM Easting (NAD 83, m)
344146.0

This field requires entering the UTM easting coordinate for the first tier corner/vertex of the building being reported. This is to be reported in NAD 83 in metres. If reporting building information, this field must not be left blank.

Tier Corner/Vertex 1 UTM Northing (NAD 83, m)
5935866.0

This field requires entering the UTM northing coordinate for the first tier corner/vertex of the building being reported. This is to be reported in NAD 83 in metres. If reporting building information, this field must not be left blank.

Note: The same corner/vertex easting and northing fields described above are required for reporting the building's other corner/vertex locations (corners/vertices 2 to 4, and typically up to 16). These fields are not repeated here to limit repetition in the AEIR Standard.

5.5 Gather and Enter Contact Information (Step 5e)

Clause RC 7-K sets out the general types of contact information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional contact information fields that need to be completed. The required information includes: the mailing address for the industrial operation and contact information for: the technical contact, the certifying official, the public contact and any consultants that worked on preparing the AEIR. The next step in preparing the AEIR therefore involves gathering the required contact information and entering it into the AEIR Form. The following describes the contact information required in worksheet 1.12-1.17 of the AEIR Form.

Worksheet 1.12 - 1.17: Industrial Operation – Contact Information

1.12 Industrial Operation Mailing Address

This section of the AEIR Form requires reporting of the mailing address for the industrial operation, including: street address, city/district/municipality/county, province/territory, country and postal code. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 24 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.12: Industrial Operation Mailing Address, including data types and conditions.

Industrial Operation Mailing Address
9820 – 106 Street

This field requires entering the mailing address of the industrial operation. This field must not be left blank.

Industrial Operation City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the industrial operation's mailing address. This field must not be left blank.

Industrial Operation Province/Territory
Alberta

This field requires entering the province/territory of the industrial operation's mailing address. This field must not be left blank.

Industrial Operation Country
Canada

This field requires entering the country of the industrial operation's mailing address. This field must not be left blank.

Industrial Operation Postal Code
T5K 2J6

This field requires entering the postal code of the industrial operation's mailing address. This field must not be left blank.

Note: For companies outside of Canada, the province and postal code fields can be used to provide the appropriate local equivalents for the other country (e.g., state and zip code).

1.13 Industrial Operation Technical Contact for the AEIR

This section of the AEIR Form requires reporting of contact information for the technical contact for the AEIR. The technical contact is the person at the industrial operation that is submitting the AEIR, or that the Regulator should contact with questions regarding the submitted AEIR information. The fields required for the technical contact include: first name, last name, professional designation (if applicable), position/title, telephone # and extension, email address, mailing address, city/district/municipality/county, province/territory, country and postal code. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 25 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.13: Industrial Operation Technical Contact, including data types and conditions.

Technical Contact - First Name
John

This field requires entering the first name of the technical contact. This field must not be left blank.

Technical Contact - Last Name
Doe

This field requires entering the last name of the technical contact. This field must not be left blank.

Technical Contact - Professional Designation (if applicable)
P.Eng.

This field requires entering the professional designation of the technical contact, if applicable.

Technical Contact - Position/Title
Environmental Coordinator

This field requires entering the position or title of the technical contact. This field must not be left blank.

Technical Contact - Telephone Number
555-555-5555

This field requires entering the business telephone number of the technical contact. This field must not be left blank.

Technical Contact - Telephone Ext. (if applicable)
123

This field requires entering the business telephone number extension of the technical contact, if applicable.

Technical Contact - Fax Number (if applicable)
555-555-5555

This field requires entering the business fax number of the technical contact, if applicable.

Technical Contact - Email Address
john.doe@company.com

This field requires entering the business email address of the technical contact. This field must not be left blank.

Technical Contact - Mailing Address
9820 – 106 Street NW

This field requires entering the business mailing address of the technical contact. This field must not be left blank.

Technical Contact - City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the technical contact's business mailing address. This field must not be left blank.

Technical Contact - Province/Territory
Alberta

This field requires entering the province/territory of the technical contact's business mailing address. This field must not be left blank.

Technical Contact - Country
Canada

This field requires entering the country of the technical contact's business mailing address. This field must not be left blank.

Technical Contact - Postal Code
T5K 2J6

This field requires entering the postal code of the technical contact's business mailing address. This field must not be left blank.

Note: For companies outside of Canada, the province and postal code fields can be used to provide the appropriate local equivalents for the other country (e.g., state and zip code).

1.14 Industrial Operation Certifying Official for the AEIR

The AEIR is required to be certified by the person responsible prior to being submitted to the Regulator. This certification is done through review and sign-off by a Certifying Official. Additional information on certification of the AEIR is provided in Section 20.3 of the AEIR Standard. For the AEIR Program, the certifying official is defined as follows:

Certifying Official – an individual with the legal authority to bind the person responsible and sign-off on environmental reports for the industrial operation. This could be a staff member working at the industrial operation (e.g., an environmental engineer, plant manager, etc.), an external contractor working for the person responsible (e.g., environmental consultant who prepares environmental reports for the industrial operation), a senior manager at head office, etc.

Note: The specific individual who will be the Certifying Official for the industrial operation is not prescribed by the Regulator. It is up to the person responsible to determine who will be the Certifying Official for their AEIR. It simply needs to be someone with authority to sign-off on environmental reports and that can bind the person responsible. The Certifying Official for reporting under the AEIR Program could likely be the same individual who signs off on other environmental reports submitted under EPEA for the industrial operation.

This section of the AEIR Form requires reporting of contact information for the Certifying Official for the AEIR. The fields required for the Certifying Official include: first name, last name, professional designation (if applicable), position/title, telephone # and extension, email address, mailing address, city/district/municipality/county, province/territory, country and postal code. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 26 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.14: Industrial Operation Certifying Official, including data types and conditions.

Certifying Official - First Name
Jane

This field requires entering the first name of the Certifying Official. This field must not be left blank.

Certifying Official - Last Name
Doe

This field requires entering the last name of the Certifying Official. This field must not be left blank.

Certifying Official - Professional Designation (if applicable)
P.Eng.

This field requires entering the professional designation of the Certifying Official, if applicable.

Certifying Official - Position/Title
Director of Operations

This field requires entering the position or title of the Certifying Official. This field must not be left blank.

Certifying Official - Telephone Number
555-555-5555

This field requires entering the business telephone number of the Certifying Official. This field must not be left blank.

Certifying Official - Telephone Ext. (if applicable)
123

This field requires entering the business telephone number extension of the Certifying Official, if applicable.

Certifying Official - Fax Number (if applicable)
555-555-5555

This field requires entering the business fax number of the Certifying Official, if applicable.

Certifying Official - Email Address
jane.doe@company.com

This field requires entering the business email address of the Certifying Official. This field must not be left blank.

Certifying Official - Mailing Address
9820 – 106 Street NW

This field requires entering the business mailing address of the Certifying Official. This field must not be left blank.

Certifying Official - City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the Certifying Official's business mailing address. This field must not be left blank.

Certifying Official - Province/Territory
Alberta

This field requires entering the province/territory of the Certifying Official's business mailing address. This field must not be left blank.

Certifying Official - Country
Canada

This field requires entering the country of the certifying official's business mailing address. This field must not be left blank.

Certifying Official - Postal Code
T5K 2J6

This field requires entering the postal code of the Certifying Official's business mailing address. This field must not be left blank.

Note: For companies outside of Canada, the province and postal code fields can be used to provide the appropriate local equivalents for the other country (e.g., state and zip code).

1.15 Industrial Operation Public Contact for the AEIR

This section of the AEIR Form requires reporting of contact information for the public contact for the AEIR. The public contact is the individual designated by the person responsible to whom the Regulator should direct inquiries from the public on the submitted AEIR information. The public contact would typically be a public relations staff member for the company or could be the same as the technical contact for the AEIR. It is up to the person responsible to determine to whom public inquiries should be directed. The fields required for the public contact include: first name, last name, professional designation (if applicable), position/title, telephone # and extension, email address, mailing address, city/district/municipality/county, province/territory, country and postal code.

Note: For the purposes of administering the AEIR Program, **the contact information for the Public Contact could potentially be provided to a member of the public inquiring about the information submitted in an AEIR for the industrial operation.** This is necessary in order to be able to properly direct inquiries on an industrial operation's AEIR, as well as for meeting Section 4 of the Disclosure of Information Regulation, whereby a person requesting information may be required to first contact and request the information directly from the person responsible.

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 27 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.15: Industrial Operation Public Contact, including data types and conditions.

Public Contact - First Name
Bob

This field requires entering the first name of the public contact. This field must not be left blank.

Public Contact - Last Name
Young

This field requires entering the last name of the public contact. This field must not be left blank.

Public Contact - Professional Designation (if applicable)
n/a

This field requires entering the professional designation of the public contact, if applicable.

Public Contact - Position/Title
Public Relations Officer

This field requires entering the position or title of the public contact. This field must not be left blank.

Public Contact - Telephone Number
555-555-5555

This field requires entering the business telephone number of the public contact. This field must not be left blank.

Public Contact - Telephone Ext. (if applicable)
123

This field requires entering the business telephone number extension of the public contact, if applicable.

Public Contact - Fax Number (if applicable)
555-555-5555

This field requires entering the business fax number of the public contact, if applicable.

Public Contact - Email Address
bob.young@company.com

This field requires entering the business email address of the public contact. This field must not be left blank.

Public Contact - Mailing Address
9820 – 106 Street NW

This field requires entering the business mailing address of the public contact. This field must not be left blank.

Public Contact - City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the public contact's business mailing address. This field must not be left blank.

Public Contact - Province/Territory
Alberta

This field requires entering the province/territory of the public contact's business mailing address. This field must not be left blank.

Public Contact - Country
Canada

This field requires entering the country of the public contact's business mailing address. This field must not be left blank.

Public Contact - Postal Code
T5K 2J6

This field requires entering the postal code of the public contact's business mailing address. This field must not be left blank.

Note: For companies outside of Canada, the province and postal code fields can be used to provide the appropriate local equivalents for the other country (e.g., state and zip code).

1.16 Consultant Working on Preparing the AEIR

If a consultant was used to prepare the Annual Emissions Inventory or the AEIR, then information on the consultant **is required** to be provided in the AEIR Form. If a consultant was not used for the Annual Emissions Inventory or the AEIR, then most of the fields in this section of the AEIR Form are **not required**. The fields required in this section of the AEIR Form include: indication of whether a consultant was used, the name of the consulting company, first name, last name, professional designation (if applicable), position/title, telephone # and extension, email address, mailing address, city/district/municipality/county, province/territory, country and postal code.

Note: The consultant would be a consultant hired to work on or prepare the Annual Emissions Inventory or the AEIR. It is not necessary to include the various onsite contractors who may be involved in collecting the various pieces of

information necessary for preparing the AEIR (e.g., would not need to identify contractors carrying out stack sampling, undertaking fugitive leak detection, etc.).

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 28 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.16: Consultant Preparing the AEIR, including data types and conditions.

Was a consultant used for the preparation of the Annual Emissions Inventory and/or the AEIR? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if a consultant was used in preparing the Annual Emissions Inventory and/or the AEIR. If "No", the subsequent consultant fields are not required to be completed. This field must not be left as "<Choose One>".

1st Consulting Company Name
Happy Environmental Consulting Company

This field requires entering the name of the consulting company used (if one was used). If reporting consultant information, this field must not be left blank.

1st Consultant - First Name
Steve

This field requires entering the first name of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - Last Name
Smith

This field requires entering the last name of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - Professional Designation (if applicable)
P.Eng.

This field requires entering the professional designation of the consultant, if applicable.

1st Consultant - Position/Title
Environmental Engineer Consultant

This field requires entering the position or title of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - Telephone Number
555-555-5555

This field requires entering the business telephone number of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - Telephone Ext. (if applicable)
123

This field requires entering the business telephone number extension of the consultant, if applicable.

1st Consultant - Fax Number (if applicable)
555-555-5555

This field requires entering the business fax number of the consultant, if applicable.

1st Consultant - Email Address
steve.smith@happyenviro.ca

This field requires entering the business email address of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - Mailing Address
10025 106 St NW

This field requires entering the business mailing address of the consultant. If reporting consultant information, this field must not be left blank.

1st Consultant - City/District/Municipality/County
Edmonton

This field requires entering the city/district/municipality/county (whichever is most applicable) of the consultant's business mailing address. If reporting consultant information, this field must not be left blank.

1st Consultant - Province/Territory
Alberta

This field requires entering the province/territory of the consultant's business mailing address. If reporting consultant information, this field must not be left blank.

1st Consultant - Country
Canada

This field requires entering the country of the consultant's business mailing address. If reporting consultant information, this field must not be left blank.

1st Consultant - Postal Code
T5J 1G4

This field requires entering the postal code of the consultant's business mailing address. If reporting consultant information, this field must not be left blank.

Note: For companies outside of Canada, the province and postal code fields can be used to provide the appropriate local equivalents for the other country (e.g., state and zip code).

1.17 Other Consultant Working on Preparing the AEIR

If a second consultant was used to prepare the Annual Emissions Inventory or the AEIR, then information on the second consultant **is required** to be provided in the AEIR Form. If a second consultant was not used for the Annual Emissions Inventory or the AEIR, then most of the fields in this section of the AEIR Form are **not required** to be completed. The fields required in this section of the AEIR Form include: indication of whether a second consultant was used, the name of the consulting company, first name, last name, professional designation (if applicable), position/title, telephone # and extension, email address, mailing address, city/district/municipality/county, province/territory and postal code.

Note: The 2nd consultant fields are **not** intended for additional people within the same consulting firm. These fields are to be used for reporting information on a second consulting firm that worked on the same or different components of the Annual Emissions Inventory or AEIR.

Note: The 2nd consultant would be a consultant hired to work on or prepare the Annual Emissions Inventory or the AEIR. It is not necessary to include the various onsite contractors who may be involved in collecting the various pieces of information necessary for preparing the AEIR (e.g., would not need to identify contractors carrying out stack sampling, undertaking fugitive leak detection, etc.).

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 29 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.17: Other Consultant Preparing the AEIR, including data types and conditions.

Was a 2nd consultant used for the preparation of the Annual Emissions Inventory and/or the AEIR? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if a second consultant was used in preparing the Annual Emissions Inventory and/or the AEIR. This field must not be left as “<Choose One>”.

Note: The same consultant contact information fields described above for the 1st consultant are required for reporting the contact information for the 2nd consultant. These fields are not repeated here to limit repetition in the AEIR Standard.

5.6 Gather and Enter Information on Operational and Release Issues and Incidents (Step 5f)

Clause RC 7-K sets out the general types of operational and release issue/incident information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional issue and incident fields that need to be completed. This includes the following information: Energy & Environmental Response Centre reference #s (if applicable), dates and times of the events, durations, brief descriptions of the events, brief descriptions of the event’s impact on air emissions, which release points or non-point sources were associated with the events, whether any emergency sources were operated because of the events and identification of the substances released during the events. The next step in preparing the AEIR therefore involves gathering the required operational and release issue/incident information and entering it into the AEIR Form.

Not all operational or release issues and incidents at the industrial operation that occurred during the inventory year need to be identified. Minor operational or release issues/incidents would generally not need to be identified. The person responsible would typically include in this worksheet contraventions related to: emission limits, pollution control equipment, unauthorized or accidental air releases, etc. The person responsible would also typically include in this worksheet any operational and release issues having a large impact on the industrial operation’s air emissions (could include issues that did not constitute a contravention). This worksheet of the AEIR Form provides the opportunity to give context on year-specific issues that impacted the industrial operation's air emissions.

Note: Reporting of operational and release issues and incidents in worksheet 1.18 of the AEIR Form is not a replacement for immediate reporting of contraventions and exceedances or a replacement for 7-day letters.

Note: The "operational and release issues and incidents" would only include those impacting air emissions (excludes non-air related contraventions, issues and incidents).

The following are the operational and release issue/incident fields required in worksheet 1.18 of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheet 1.18: Operational and Release Issues and Incidents at the Industrial Operation

Note: Table 30 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.18: Operational and Release Issues and Incidents, including data types and conditions.

Did any operational or release issues/incidents occur during the inventory year? (Y/N)

Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether there were any operational or release issues or incidents that occurred during the inventory year. If "No", then the remaining fields in worksheet 1.18 of the AEIR Form do not need to be completed. This field must not be left as "<Choose One>".

Issue / Incident Temporal Information

Reference # (if applicable)

123456789

This field requires entering the Energy & Environmental Response Centre reference number of the operational or release issue/incident, if applicable.

Start Date

February 1, 2022

This field requires entering the start date of the operational or release issue/incident. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). If reporting operational or release issues/incident information, this field must not be left blank.

Start Time

9:00 AM

This field requires entering the start time of the operational or release issue/incident. This is a time field with specific formatting restrictions (##:##, 24-hour clock). If reporting operational or release issues/incident information, this field must not be left blank.

End Date

February 1, 2022

This field requires entering the end date of the operational or release issue/incident. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). If reporting operational or release issues/incident information, this field must not be left blank.

End Time
10:00 AM

This field requires entering the end time of the operational or release issue/incident. This is a time field with specific formatting restrictions (##:##, 24-hour clock). If reporting operational or release issues/incident information, this field must not be left blank.

Duration (Hours)
1

This field requires entering the duration (number of hours) of the operational or release issue/incident. If reporting operational or release issues/incident information, this field must not be left blank.

Duration (Days)
1

This field requires entering the duration (number of days) of the operational or release issue/incident. If reporting operational or release issues/incident information, this field must not be left blank.

Issue / Incident Description

Brief Description of Event
Exceedance of NO _x emission limit for one hour due to issues with pollution control equipment

This field requires entering a brief description of the operational or release issue/incident. If reporting operational or release issues/incident information, this field must not be left blank.

Brief Description of Impact on Air Emissions
NO _x emissions were higher than normal for one hour and exceeded the limit set out in the approval.

This field requires entering a brief description of the impact of the operational or release issue/incident on the air emissions. For example, the incident may have resulted in higher than normal emissions of a substance(s) or lower than normal emissions (due to operational issues). If reporting operational or release issues/incident information, this field must not be left blank.

List of Associated Release Point Descriptive Name(s) (if applicable)
Combined Boiler Control Stack

This field requires entering the descriptive name(s) of any release point(s) associated with the operational or release issue/incident, if applicable.

Note: The “Associated Release Point Descriptive Name” must be called the same as what was entered in worksheet 2.0 of the AEIR Form. For example, boiler stack 1 in worksheet 2.0 would be listed as boiler stack 1 in this field.

List of Associated Non-Point Source Descriptive Name(s) (if applicable)
n/a

This field requires entering the descriptive name(s) of any non-point source(s) associated with the operational or release issue/incident, if applicable.

Note: The “Associated Non-Point Source Descriptive Name” must be called the same as what was entered in worksheet 3.0 of the AEIR Form. For example, storage tank 12 in worksheet 3.0 would be listed as storage tank 12 in this field.

List of any Emergency Release Points Operating Because of the Event (if applicable)
n/a

This field requires identifying any emergency release point(s) that were operated as a result of the operational or release issue/incident, if applicable. For example, an emergency flare had to be used to deal with an operational problem.

Substance 1

Name of Substance 1 Released (if applicable)
Nitrogen Oxides (expressed as NO ₂)

This field requires entering the name of the substance released as a result of the operational or release issue/incident, if applicable. The operational or release issue/incident may not have resulted in the release of a substance.

Limit of Substance 1 (if applicable)
58.00

This field requires entering the emission limit (for the release point or non-point source) of the substance released as a result of the operational or release issue/incident, if applicable.

Limit Units (if applicable, e.g., kg/hour, kg/MWh, tonnes/day, etc.)
kg/hour

This field requires entering the units of the limit, if applicable.

Estimated Emissions of Substance 1 from Event (if applicable)
78.30

This field requires entering the amount of the substance released as a result of the operational or release issue/incident, if applicable. The operational or release issue/incident may not have resulted in the release of a substance. The operational or release issue/incident may even have resulted in lower amounts of a substance being released, in which case this emissions field is not required.

Release Units (if applicable, e.g., kg/hour, kg/MWh, tonnes/day, etc.)
kg/hour

This field requires entering the units of the estimated emissions from the release or operational event being reported, if applicable.

Note: The same name of substance, limits, estimated emissions and unit fields described above are required for any additional substances released (substances 2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

5.7 Gather and Enter Info on Major Source and Plant Shutdowns (Step 5g)

Clauses RC 7-K, RC 7-L and RC 7-N set out the general types of major source and plant shutdown information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional shutdown information fields that need to be completed. This includes the following information: Energy & Environmental Response Centre reference #s (if applicable), dates and times of shutdowns, durations of the shutdowns, brief descriptions of the shutdowns, brief descriptions of the shutdown's impact on air emissions and identification of any release points/non-point sources/equipment that were affected by major shutdowns. The next step in preparing the AEIR therefore involves gathering the required shutdown information and entering it into the AEIR Form.

Not all shutdowns at the industrial operation need to be entered into the AEIR Form. The shutdown information reported in the AEIR Form should be limited to only major shutdown information, either a shutdown of the entire plant or one or more of the major sources at the industrial operation. The duration of the shutdown also needs to be considered, and should be limited to shutdowns longer than several days and having a large impact on air emissions or production at the industrial operation. For example, a shutdown of several weeks affecting the air emissions or impacting production for one or more months at the industrial operation. This worksheet provides the opportunity to identify and provide context on major shutdowns that impacted the overall air emissions at the industrial operation.

The following describes the fields that are required in worksheet 1.19 of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheet 1.19: Major Source or Plant Shutdowns

Note: Table 31 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.19: Major Source or Plant Shutdowns, including data types and conditions.

Did any major source or plant shutdowns occur during the inventory year? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether there were any major source or plant shutdowns that occurred during the inventory year. If "No", then the remaining fields in worksheet 1.19 of the AEIR Form do not need to be completed. This field must not be left as "<Choose One>".

Shutdown Temporal Information

Reference # (if applicable)
n/a

This field requires entering the Energy & Environmental Response Centre reference number of the major source or plant shutdown event, if applicable.

Start Date
December 20, 2022

This field requires entering the start date of the major source or plant shutdown event. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). If reporting major source or plant shutdown information, this field must not be left blank.

Start Time
1:00 AM

This field requires entering the start time of the major source or plant shutdown event. This is a time field with specific formatting restrictions (##:##, 24-hour clock). If reporting major source or plant shutdown information, this field must not be left blank.

End Date
December 31, 2022

This field requires entering the end date of the major source or plant shutdown event. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). If reporting major source or plant shutdown information, this field must not be left blank.

End Time
11:00 PM

This field requires entering the end time of the major source or plant shutdown event. This is a time field with specific formatting restrictions (##:##, 24-hour clock). If reporting major source or plant shutdown information, this field must not be left blank.

Duration (Days)
12

This field requires entering the duration (number of days) of the major source or plant shutdown event. If reporting major source or plant shutdown information, this field must not be left blank.

Shutdown Description

Brief Description of Event
Facility was temporarily shut-down for maintenance for several days at the end of 2022.

This field requires entering a brief description of the major source or plant shutdown event. If reporting major source or plant shutdown information, this field must not be left blank.

Associated Release Point Descriptive Name(s) (if applicable)
All

This field requires identifying any release points affected by the source or plant shutdown event. Typically, this would be one or two major sources or the entire industrial operation (all/most release points).

Note: The "Associated Release Point Descriptive Name" must be called the same as what was entered in worksheet 2.0 of the AEIR Form. For example, boiler stack 1 in worksheet 2.0 would be listed as boiler stack 1 in this field.

Associated Release Point Unit, Process or Equipment Name(s)
All

This field requires identifying any units/processes/equipment associated with release points that were affected by the source or plant shutdown event. Typically this would be one or two major units/processes/equipment or the entire industrial operation (all/most units/processes/equipment).

Note: The "Associated Release Point Unit, Process or Equipment Name" must be called the same as what was entered in worksheet 2.1 of the AEIR Form. For example, boiler 1 in worksheet 2.1 would be listed as boiler 1 in this field.

Associated Non-Point Source Descriptive Name(s) (if applicable)
All

This field requires identifying any non-point sources affected by the source or plant shutdown event. Typically, this would be one or two major sources or the entire industrial operation (all/most non-point sources).

Note: The “Associated Non-Point Source Descriptive Name” must be called the same as what was entered in worksheet 3.0 of the AEIR Form. For example, storage tank 12 in worksheet 3.0 would be listed as storage tank 12 in this field.

Associated NPS "Combined Large Point Sources" Unit, Process or Equipment Name(s)
All

This field requires identifying any units/processes/equipment associated with a "Combined Large Point Sources", being reported as a non-point source, that were affected by the source or plant shutdown event. Typically this would be one or two major units/processes/equipment or the entire industrial operation (all/most units/processes/equipment).

Note: The “Associated NPS "Combined Large Point Sources" Unit, Process or Equipment Name” must be called the same as what was entered in worksheet 3.2 of the AEIR Form.

5.8 Gather and Enter Plant and Combined Source Limits and Performance Targets (Step 5h)

Clause RC 7-L sets out the general types of limit and performance target information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional plant/combined source fields that need to be completed. This includes information on plant and combined source limits and performance targets. The next step in preparing the AEIR therefore involves gathering the required limit and performance target information and entering it into the AEIR Form. The following describes the limit and performance target information required in worksheet 1.20 - 1.21 of the AEIR Form.

Worksheet 1.20-1.21: Plant or Combined Source Limits and Performance Targets

1.20 Plant or Combined Source Limits

This section of the AEIR Form requires reporting of information on plant and combined source limits, including: whether it is a plant or combined source limit, a list of the applicable release points or non-point sources (for combined source limits only), the specific plant or combined source limit – substance/parameter, quantity, units and associated conditions.

Note: Limit information is only required for air-related limits.

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 32 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.20: Plant or Combined Source Limits, including data types and conditions.

Any plant or combined source limits applicable for the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the industrial operation has any plant or combined source limits. This field must not be left as “<Choose One>”. If the industrial operation has no plant or combined source limits, then the remaining fields in worksheet 1.20 of the AEIR Form do not need to be completed.

Plant or Combined Source Limit (select)
Combined Source

This field is a dropdown menu for indicating whether information is being provided for a plant limit or a combined source limit. If reporting plant or combined source limit information, this field must not be left as “<Choose One>”.

Note: It is not necessary to report limits that only apply to individual release points in worksheet 1.20-1.21. Worksheet 1.20-1.21 is only for reporting plant total limits (e.g., total SO₂ emissions from the facility must be < 2 tonnes/day) and combined source limits (e.g. combined NO_x emissions from Engines A, B, C, D, E, F and G are not to exceed 1 tonne/day). Individual release point limits (e.g., NO_x emissions from Boiler Stack A must be < 45 kg/hour) are to be reported in worksheet 2.3.1.

List Applicable Release Point or Non-Point Source Description Names (for Combined Source Limit only)
Combined Boiler Control Stack, Main Processing Stack

This field requires listing any release points or non-point sources that are covered by the combined source limit. This field is only required for combined source limits.

Note: The “Applicable Release Points or Non-Point Sources” must be called the same as what was entered in worksheet 2.0 and/or 3.0 of the AEIR Form.

Plant or Combined Source Approval Limit - Substance or Parameter
Nitrogen Oxides (expressed as NO ₂)

This field requires identifying the substance or parameter of the plant or combined source limit. If reporting plant or combined source limit information, this field must not be left blank.

Plant or Combined Source Approval Limit - Quantity
400.0

This field requires entering the quantity of the plant or combined source limit. If reporting plant or combined source limit information, this field must not be left blank.

Plant or Combined Source Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)
kilograms/hour

This field requires entering the units of the plant or combined source limit. If reporting plant or combined source limit information, this field must not be left blank.

Associated Plant Limit -Conditions (if applicable)
Normal operating conditions

This field requires entering any specific conditions for the plant or combined source limit, if applicable.

1.21 Plant or Combined Source Performance Targets

This section of the AEIR Form requires reporting of information on plant and combined source performance targets, including: whether it is a plant or combined source performance target, a list of the applicable release points or non-point sources (for combined source performance targets only), the specific plant or combined source performance target – substance/parameter, quantity, units and associated conditions.

Note: Performance target information is only required for air-related EPEA approval performance targets.

The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Table 33 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.21: Plant or Combined Source Targets, including data types and conditions.

Any plant or combined source performance targets applicable for the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the industrial operation has any plant or combined performance targets. This field must not be left as "<Choose One>". If the industrial operation has no plant or combined performance targets, then the remaining fields in worksheet 1.21 of the AEIR Form do not need to be completed.

Plant or Combined Source Performance Target (select)
Plant

This field is a dropdown menu for indicating whether information is being provided for a plant or a combined source performance target. If reporting plant or combined source performance target information, this field must not be left blank.

List Applicable Release Point or Non-Point Source Descriptive Names (for Combined Source Performance Target only)
All

This field requires listing any release points or non-point sources that are covered by the combined source performance target. This field is only required for combined source performance targets.

Note: The “Applicable Release Points or Non-Point Sources” must be called the same as what was entered in worksheet 2.0 and/or 3.0 of the AEIR Form.

Plant or Combined Source Performance Target Substance or Parameter
PM2.5 emissions from the entire facility do not exceed 1,000 tonnes per year.

This field requires identifying the substance or parameter of the plant or combined source performance target. If reporting plant or combined source performance target information, this field must not be left blank.

Plant or Combined Source Performance Target - Quantity
1,000.00

This field requires entering the quantity of the plant or combined source performance target. If reporting plant or combined source performance target information, this field must not be left blank.

Plant or Combined Source Performance Target - Units
tonnes/year

This field requires entering the units of the plant or combined source performance target. If reporting plant or combined source performance target information, this field must not be left blank.

Plant or Combined Source Performance Conditions (if applicable)
yearly total

This field requires entering any specific conditions for the plant or combined source performance target, if applicable.

5.9 Identification and Reporting of Negligible Sources (Step 5)

Clause RC 7-P sets out the general types of information on negligible sources required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional fields for negligible sources that need to be completed. The next step in preparing the AEIR therefore requires listing all sources that were determined to be negligible, and providing a brief explanation of the basis for the determination. Any supporting information on the determination should be included in the Quantification Methodology Document. See Section 3.12 of the AEIR Standard for more information on negligible sources.

The following describes the information on negligible sources required in worksheet 1.22 of the AEIR Form.

Worksheet 1.22: Identification and Description of Negligible Sources Excluded from Reporting

Note: Table 34 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.22: Negligible Sources Excluded from Reporting, including data types and conditions.

Were there any sources deemed negligible and excluded from emissions reporting for the inventory year? (Y/N)

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any sources deemed negligible and excluded from emissions reporting for the inventory year. If sources were deemed negligible, then “Yes” would be selected and the required descriptive information would be reported. If no sources were deemed negligible, then “No” would be selected and the remaining fields in worksheet 1.22 of the AEIR Form do not need to be completed. This field must not be left as “<Choose One>”.

Note: Negligible source values only apply for annual actual emission rates, not for normal or maximum emission rates. A source that is deemed negligible for a specific inventory year may still have normal and maximum rates, as these represent emission rates for normal operations of the source (when operating) and maximum potentials for the source (when operating). These rates may be available from the EPEA approval/renewal application, regulatory dispersion modelling or the negligibility assessment.

Note: Approved future sources do not need to be declared negligible, as they are not operating and therefore simply do not have any annual actual emission rates for the inventory year. Approved future sources may still have normal and maximum rates, as these represent emission rates for normal operations of the source (when operating) and maximum potentials for the source (when operating). These rates may be available from the EPEA approval/renewal application, regulatory dispersion modelling or the negligibility assessment.

List all sources (release points and non-point sources) that were determined to be negligible for the industrial operation and have been excluded from the emissions quantities reported in this Annual Emissions Inventory Report. Include a brief explanation on the basis for determining the source(s) as negligible.

Building space heaters have been deemed to be a negligible non-point source. These heaters mainly emit NOx and CO and only in very small amounts, based on rough estimates using EPA emission factors and fuel use numbers. Together these ten space heaters account for <1% of the facility's NOx and CO and less than 0.1 tonnes/year of NOx and CO.

This field requires listing all sources (release points and non-point sources) that were deemed negligible for the industrial operation and excluded from annual actual emissions quantification and reporting. A brief explanation on the basis for determining the sources as negligible is also required in this field. If reporting negligible source information, this field must not be left blank.

5.10 Identification and Reporting of Negligible Substances (Step 5j)

Clause RC 7-P sets out the general types of information on negligible substances required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional fields on negligible substances that need to be completed. The next step in preparing the AEIR therefore requires listing all Schedule 1 substances that were determined to be negligible and excluded, and providing a brief explanation of the basis for the determination. Any supporting information on the determination should be included in the Quantification Methodology Document. See Section 3.13 of the AEIR Standard for more information on negligible substances.

The following describes the information on negligible substances required in worksheet 1.23 of the AEIR Form.

Worksheet 1.23: Identification and Description of Negligible Substances Excluded from Reporting

Note: Table 35 in Appendix C of the AEIR Standard also shows the data fields for worksheet 1.23: Schedule 1 Substances Deemed Negligible, including data types and conditions.

Were there any Schedule 1 substances deemed negligible and excluded from emissions reporting for the inventory year? (Y/N)

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any Schedule 1 substances deemed negligible and excluded from emissions reporting for the inventory year. If Schedule 1 substances were deemed negligible, then “Yes” would be selected and required descriptive information would be reported. If no Schedule 1 substances were deemed negligible, then “No” would be selected and the remaining fields in worksheet 1.23 of the AEIR Form do not need to be completed. This field must not be left as “<Choose One>”.

List and provide a brief explanation of any Schedule 1 substances that were determined to be negligible for the industrial operation and have been excluded from reporting in this year's Annual Emissions Inventory Report. Include a brief explanation on the basis for determining the Schedule 1 substance(s) as negligible.

SO₂ has been deemed to be a negligible Schedule 1 substance for the facility. The facility lacks any major SO₂ sources and only emits a small amount of SO₂ from several small combustion sources. Total annual SO₂ emissions for the entire facility have been previously quantified as roughly 3.4 tonnes per year. This is significantly smaller than both the 20 tonne per year reporting threshold and the 10 tonne per year negligible assessment value for SO₂ set out in section 3.13 of the guidance document.

This field requires listing all Schedule 1 substances that were deemed negligible for the industrial operation and excluded from emissions quantification and reporting. A brief explanation on the basis for determining the substances as negligible is also required in this field. If reporting negligible Schedule 1 substance information, this field must not be left blank.

6.0 Release Point Information (Steps 6a – b)

6.1 Identify Release Points and Substances Being Emitted (Step 6a)

The next step in preparing the AEIR requires identification of the various point sources emitting to the atmosphere at the industrial operation, and what substances they are emitting. All sources are required to be classified as either an “air emission release point” or an “air emission non-point source”. Release points are discussed in this section of the AEIR Standard, while non-point sources are covered in Section 7.

Chapter 1 of the Air Monitoring Directive defines an “air emission release point” as “a stationary source responsible for the release of a substance to the atmosphere that can be practically traced back to a single identifiable source, such as, but not limited to, a smokestack.” Release points are therefore any stack, vent or other individual point of release to the atmosphere at the industrial operation. In addition to information on release points, the AEIR Form also requires reporting of the units, processes, equipment and pollution controls associated with the release points. Specific reporting requirements for units, processes and equipment are described in Section 9 of the AEIR Standard. Specific reporting requirements for pollution controls are described in Section 10 of the AEIR Standard.

The industrial operation’s EPEA approval will specify (either directly or via reference to the industrial operation’s EPEA approval/renewal application) the list of sources at the industrial operation that have been authorized to release effluent streams to the atmosphere. Note that the industrial operation’s EPEA approval may list some release points grouped together (e.g., 500 kW reciprocating engines A through E), but these are required to be separated into individual release points for reporting under the AEIR Program. Also, additional release points may have been authorized in writing by the Director or through subsequent EPEA approval amendments. The regulatory dispersion modelling information for the approval/renewal application of the industrial operation should also help with the identification of the release points for the industrial operation. **All release points at the industrial operation are required to be identified and included in the AEIR.** See Section 3.2 of the AEIR Standard for more information on release points to include in the AEIR.

Note: All authorized release points listed in the industrial operation's EPEA approval (except those that were decommissioned prior to 2018) must be identified and described in the AEIR Form. While some release points are specifically listed as individual authorized sources in the EPEA approval, others may be listed together with other sources, and there may also be additional release points just referenced as specified in the EPEA approval/renewal application. All release points must be identified and described in the AEIR Form (reported as either release points or non-point sources).

Note: Release points included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a release point has been permanently decommissioned, then the release point should be left in the AEIR Form. The operating status for the release point should be set to decommissioned, the annual hours of operation should be set to zero and the emission rates cleared for the release point. Release points should not disappear from the submitted AEIR Forms.

The expected substances emitted by the release points may be identified in the EPEA approval, the EPEA approval/renewal application for the industrial operation and in the associated regulatory dispersion modelling information. Environmental monitoring and reporting carried out by the industrial operation (such as CEMS, stack sampling, annual EPEA approvals reporting, reporting to the National Pollutant Release Inventory, etc.) may also provide insight into the substances being emitted by the release points. Information from the industrial operation’s industrial equipment manufacturers and suppliers of fuels/input materials may also provide insight into the substances being emitted. The list of identified substances being emitted by the release points will be necessary for quantifying air emissions in Step 16.

If not the first year of reporting under the AEIR Program for your industrial operation, previous years AEIRs and associated documents will help identify the substances being emitted by the individual release points. However, changes to the industrial operation and potentially incomplete/incorrect past environmental reporting do need to be considered when using prior years information to identify the substances being emitted by the release points.

Note: Emergency and intermittent/standby equipment and their release points are required to be included in the AEIR. However, the annual actual air emissions from these sources may potentially be negligible for the inventory year (see Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources). The de minimis and negligible sources rules only apply for annual actual emission rates, not for normal or maximum emission rates.

Note: Future planned release points at the industrial operation are required to be identified and included in the AEIR if they have been authorized in the EPEA approval. The available emission rates for these sources (e.g., maximum and/or normal emission rates as per EPEA approval/renewal application and associated modelling) are to be reported in the AEIR Form. Future planned release points not yet authorized in the approval do not need to be included in the AEIR.

6.2 Gather and Enter Information on Release Points (Step 6b)

Clause RC 7-L set out the general types of release point information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional release point fields that need to be completed. Once all the release points at the industrial operation have been identified, the required information on each release point can be gathered and entered into the AEIR Form. The AEIR Form requires classification, operation, installation, decommission, location, stack parameter and other related information on each release point at the industrial operation.

Note: For EPEA approved future release points, the available information should be used to fill in the required fields in worksheet 2.0. As the release point will not yet be installed or operating, not all fields will be applicable. Information that should be available for the approved future sources includes: release point locations, source parameter information (as per EPEA approval/renewal application and associated modelling), associated equipment and pollution controls, established emission/operating limits, expected operating periods, maximum and/or normal emission rates (as per EPEA approval/renewal application and associated modelling), etc.

The following describes the release point information required in worksheet 2.0 of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheet 2.0: Release Point – Identification and Description

Note: Table 36 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.0: Release Point - Identification and Description, including data types and conditions.

Any operating or approved future release points at the industrial operation? (Y/N)

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any operating or approved future release points at the industrial operation. “Yes” will be the selection for nearly all industrial operations, as nearly all industrial operations reporting under the AEIR Program will have release points. In cases where an industrial operation only has non-point sources, “No” would be selected in this field and no further

information is required in worksheets 2.0 to 2.6.6 of the AEIR Form (would proceed to worksheet 3.0 for reporting non-point sources). This field must not be left as "<Choose One>".

Release Point Identification and Classification Information

Release Point Descriptive Name
Combined Boiler Control Stack

This field requires entering a simple descriptive name for the release point, to communicate what the release point is, and typically where the effluent stream last came from (e.g., boiler 1 stack, baghouse stack, flare stack, etc.). If reporting release point information, this field must not be left blank.

Note: The release point descriptive name should include "stack" or "vent", as the stack/vent is the release point.

Release Point Unique Designation
H-5503A/B

This field requires entering the formal designation of the point of release, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the release point, then the identification number used by the industrial operation for the release point should be used. If there is no identification number used by the industrial operation for the release point, then the release point descriptive name can be entered. The unique designations must be unique and may not be duplicated for another source at the industrial operation. If reporting release point information, this field must not be left blank.

Release Point Additional Description (if applicable)
This is the combined stack connected to boiler A, boiler B and the SCR unit.

This field allows for an optional additional description of the release point to be provided in the AEIR Form.

Source Classification Code
10200602

This field requires identification of the most applicable Source Classification Code for the release point. If reporting release point information, this field must not be left blank.

Source Classification Codes (SCCs) are a standardization classification system for emission sources developed by the U.S. Environmental Protection Agency (EPA). These codes are used in jurisdictions across North America. SCCs are needed to classify and group similar sources and are critical for emissions processing required for photochemical modelling. SCCs can be used to assign default temporal and speciation profiles, as well as fill in for missing stack parameters using default values for the type of source. They can also be used to help identify applicable emission factors, as the US EPA's WebFIRE database uses SCCs to link emission factors to specific emission processes.

SCCs are made up of four levels:

ABCCDD => A is Level I, BB is Level II, CCC is Level III and DD is Level IV.

- Level I identifies the category of the process with a one digit number;
- Level II is a 2-digit code that signifies the major industry group. For example, Industrial Processes (Level I, Code 3) are subdivided into electric utility (3-01), food/agricultural (3-02), primary metals (3-03), etc.;

- Level III is a 3-digit code that indicates the major product, raw material, fuel, or piece of equipment; and
- Level IV is a 2-digit code that identifies different operations at the point source.

Example:

10100201 => 1 is Level I, 01 is Level II, 002 is Level III and 01 is Level IV.

- Level I is external combustion boilers;
- Level II is electric generation;
- Level III is bituminous coal, pulverized; and
- Level IV is boiler, wet bottom.

This full SCC means: “External Combustion Boilers – Electric Generation – Bituminous Coal, Pulverized – Boiler, Wet Bottom”.

Selecting an SCC

Industrial operations are required to select an appropriate SCC for each release point at the industrial operation. Industrial operations are also required to select an appropriate SCC for each unit/process/equipment that uses the release point or non-point source to emit to the atmosphere and for the associated control technology or equipment.

Unlike most other standardized codes and categories, a dropdown menu is not provided in the AEIR Form for SCCs, simply due to the large number of available codes (over 10,000 active codes). A supporting document on AEIR Form codes, including available SCCs, is provided on the AMD Resources website (see: AMD AEIR Codes Table.xlsx). This Excel file lists the codes and includes fields on release category, sector and descriptions of the four coding levels. Excel filtering, searches and lookups can be used to help identify the most appropriate SCC.

Note: The standard set of SCCs may not always cover all sources operating in Alberta. There are general non-specific categories ("other" categories) within the third or fourth levels of the SCCs available. If necessary, these other categories could be used for sources that simply do not fit beyond the first few SCC levels.

Note: SCCs not included in the AMD AEIR Codes Table can be selected and entered in the AEIR Form, provided they are from a published source and the associated speciation information is publicly available for the Regulator to use. For example, some additional SCCs have been developed for select oil sands sources and these may be more representative than general EPA SCCs. Any additional SCCs used need to be identified and described in the Quantification Methodology Document.

When selecting an SCC, it is recommended that the most applicable release category (point, non-point, on-road, non-road or event) be selected first. The most applicable activity/process should then be selected (e.g., fuel combustion, industrial processes, mobile, solvents, waste, etc.), narrowing down by related industrial sector or equipment (e.g., electric generation, industrial boilers, cement, chemicals, etc.). Filters are provided in the AMD AEIR Codes Table to help with the selection. The most applicable level 1, 2, 3 and 4 codes (for specific process, industry group, product/fuel/equipment and operational components) should then be identified, leading to the most applicable or appropriate SCC. This code should then be copied and pasted (paste special -> paste value) into the AEIR Form.

Note: When the release point is dealing with effluent streams coming directly from more than one piece of equipment, the most applicable SCC for the largest emitting piece of equipment should be selected.

Note: When the release point is dealing with effluent streams that have gone through several pieces of equipment, industrial processes or pollution controls, the most applicable SCC for the final unit/process/equipment or control should be selected.

Note: The US EPA provides an online search tool for selecting SCCs. This tool, available at: <https://sor-scc-api.epa.gov/sccwebservices/sccsearch/>, may be helpful in selecting the most appropriate codes.

Note: The acronym “NEC” used in the SCC descriptions stands for “not elsewhere classified” and often indicates a more general or cross-sector code.

Note: Some SCCs are specific to an individual sector, while other SCCs may apply to several different industrial sectors based on their use of similar equipment, fuels or on-site activities.

Note: In some cases the most applicable SCC for a specific type of source/unit/process/equipment/control may be listed for a different sector. In such cases, it is acceptable to still select this SCC, even if it is specified for the different sector. The most applicable or appropriate SCC is to be selected.

Release Point Deemed Negligible for the Inventory Year? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the specific release point has been deemed negligible for the inventory year. If reporting release point information, this field must not be left as “<Choose One>”.

If the release point has been deemed negligible, it must still be identified as a source in the AEIR form. Any associated units, processes or equipment that emit using the release point must also still be identified in the AEIR Form, and the required identification and description information for the source must still be entered in worksheets 2.0, 2.1, etc. Annual actual emissions reporting for the negligible release point is **not** required for the specific inventory year, however, the negligible release point may still have normal and maximum rates.

Release Point Operational, Installation and Decommission Information

Release Point Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the release point for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”. If reporting release point information, this field must not be left as “<Choose One>”.

“Operating” should be selected if the release point was operating/emitting for all or part of the inventory year. This would be the selection that applies to most release points at an industrial operation.

“Temporarily shut-down” means the release point was operating in past years, but was temporarily shut-down or not operating/emitting for all (or nearly all) of the inventory year. This option should be selected for release points that were temporarily shut-down but are expected to begin operating/emitting again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that release points that were shut-down for only part of the year should be classified as “operating”, as the release point was still operating/emitting during the inventory year.

“Decommissioned” should be selected for those release points that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such release points should be changed to “Decommissioned”, as the release point will no longer have emissions to report. The other reported information (except emission rates) for a decommissioned release point should be left static in the AEIR Form, as reported in the last operating year. It is **not** necessary to report any previously approved release points that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for those release points that are approved but have not yet been built or are not yet operating. Such release points could be part of approved future phases of the industrial operation. It is **not** necessary to report planned release points that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Release Point Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the release point for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most release points and simply means that the release point operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in production or emissions, but the specific inventory year was fairly representative of how the release point normally operates.

“Start-up” would be selected when the release point (or its major units or processes) was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the release point.

“Turnaround” would be selected when the release point (or its major units or processes) was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the release point.

“Upset” would be selected when the release point (or its major units or processes) experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the release point.

“Low Annual Output” would be selected when the release point operated below normal levels, overall having a lower than normal annual output and this had a significant impact (higher or lower) on the annual emissions of the release point. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a release point has high variation in operation/production/emissions nearly every year and thus while the release point is operating, there is simply no normal operating condition for the release point.

Note: “Significant impact (higher or lower)” on air emissions would be a large enough impact that the operating condition of the release point would not be considered normal/average/typical for the inventory year.

Project Phase the Release Point is Part Of
Phase 1

Some industrial operations have several phases of development/operation. This field requires specifying the phase for the specific release point. This field should also be used to identify if the release point is part of a

discrete plant site at the industrial operation (e.g., in-situ oil sands facilities with several distinct and distant plant sites). If the industrial operation only has a single phase, then Phase 1 should be entered in this field. If reporting release point information, this field must not be left blank.

Release Point Year of Installation
1998

This field requires entering the year the stack/vent was installed. This will typically be close (within a year or two) to the year the industrial operation commenced operations or the year the associated phase of the operation began operating. If the release point was part of a modification/expansion to the industrial operation, this year may be further out from the industrial operation's commencing year. If the release point is an approved future source, then field can be left blank.

Note: If the exact year of installation is not available for older release points, it is acceptable to provide a reasonable estimate for the installation year (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Release Point Start-up Year
1999

This field requires entering the year the release point (stack or vent) started operating/emitting. This will typically be close (within a year or two) to the year the industrial operation commenced operations or the year the associated phase of the operation began operating. If the release point was part of a modification/expansion to the industrial operation, this year may be further out from the industrial operation's commencing year. If the release point is an approved future source, then field can be left blank.

Note: If the exact year of start-up is not available for older release points, it is acceptable to provide a reasonable estimate for the start-up year (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Approximate Hours of Annual Operation
1,900

This field requires entering the approximate number of hours of operation for the release point for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the release point is an approved future source, then "0" should be entered in this field. If reporting release point information, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the release point is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Release Point Decommission Date (if applicable)
January 5, 2022

This field requires entering the date when the release point was permanently shut-down or decommissioned (if applicable). Release points that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any

previously approved release points that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Release Point Expected Shutdown Year
2035

This field requires entering the year when the release point is expected to be permanently shut-down or decommissioned. This does not need to be a definite date or totally accurate, just an estimate of when the release point is expected to permanently cease operating. If reporting release point information, this field must not be left blank.

If unknown for the individual release point, the expected shutdown year of the industrial operation can be entered. For example, this expected shutdown/decommission year could be based on: a specifically planned closing date, the expected lifespan of the plant, the typical lifespan of the type of industrial operation, etc. In terms of the provincial inventory, this shutdown/decommission year will be used as the future date when the release point is turned off (no longer emitting), in particular for use in provincial emission forecasts and projections. As projections and forecasts typically do not go beyond 50 years, 50 years plus the current year can be used as a maximum value (if appropriate). For example 2072 could be used as a default value for the 2022 inventory year, provided the release point is expected to continue to operate for several more decades and a more representative shutdown year is not available.

Approved Future Source (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to identify if the release point has not yet been built or has not yet commenced operation. All release points that are operating/emitting should have "No" selected and only the future not-yet operating/emitting release points should have "Yes" selected. If reporting release point information, this field must not be left as "<Choose One>".

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future release point is expected to begin operating/emitting. This field is only applicable to future release points that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Release Point Location Information

Release Point Base Elevation (m ASL)
671.0

This field requires entering the base elevation of the release point in metres above sea level. If reporting release point information, this field must not be left blank.

Release Point Latitude (Decimal, NAD 83)
53.53600

This field requires entering the latitude coordinate for the release point in geographic decimal NAD 83 format, to a minimum precision of five decimal places. If reporting release point information, this field must not be left blank.

Release Point Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the longitude coordinate for the release point in geographic decimal NAD 83 format, to a minimum precision of five decimal places. If reporting release point information, this field must not be left blank.

Release Point Source Parameter Information

Note: The release point source parameter information should be available for nearly all the authorized release points at the industrial operation. In rare cases where one or more source parameters are missing and direct examination of the source is required, only a reasonable level of effort is required to obtain the information. You are **not** expected to shutdown the stack or related units/processes/equipment in order to be able to obtain the missing stack parameter information. Default stack parameter information for common sources and equipment is available from the US EPA and could potentially be used to temporarily fill this gap (if there are no other sources of information and if using default values is appropriate). Some defaults are available from AEPA. Using default stack parameters would need to be noted in the AEIR Form and Quantification Methodology Document. If you cannot reasonably obtain any applicable stack parameter information for a release point, it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. However, this would be a very rare situation. Any gaps in required stack parameter information (either filled with default values or completely missing) would need to be addressed at the next reasonable opportunity (such as the next time the source is undergoing scheduled maintenance). Once obtained, the required stack parameter information would be provided in the next Annual Emissions Inventory Report.

Note: For release points undergoing source monitoring (CEMS, stack sampling, etc.), the stack parameters in worksheet 2.0 should be updated based on the available (and typically most recent) source monitoring results. The updated stack parameters based on source monitoring data should be more accurate and representative than just using what was used for the modelling in the EPEA approval/renewal application. For example, if a release point has been monitored via CEMS or stack sampling, the exit velocity and temperature parameters being reported in worksheet 2.0 of the AEIR Form should be updated based on the source monitoring data.

Required Minimum Height Above Grade (m) (if applicable)
50.00

This field requires entering the minimum height above grade of the stack, as specified in the EPEA approval. The height value is to be reported in metres. If no minimum height has been specified for the release point, then this field would not be applicable and can be left blank.

Actual Release Point Height (m)
51.00

This field requires entering the actual height of the stack or vent. The height is measured from ground level and is to be reported in metres. For future sources, the proposed/modelled release point height can be used for the “actual” release point height. If reporting release point information, this field must not be left blank.

Release Point Diameter (m)
2.40

This field requires entering the diameter of the stack or vent. The diameter value is to be reported in metres. If reporting release point information, this field must not be left blank.

Note: “Release Point Diameter” means the inner physical diameter of the stack/vent in metres. This should be measured at the exit release point of the stack/vent, where the emissions are occurring.

Release Point Average Exit Velocity (m/s)
23.00

This field requires entering the average exit velocity of the effluent stream from the stack or vent. The average exit velocity value is to be reported in metres per second. If reporting release point information, this field must not be left blank.

Release Point Maximum Exit Velocity (m/s) (if applicable)
26.00

This field requires entering the maximum exit velocity of the effluent stream from the stack or vent. This maximum value only needs to be entered if it is known and different than the average (for variable parameters). The maximum exit velocity value is to be reported in metres per second.

Release Point Minimum Exit Velocity (m/s) (if applicable)
10.00

This field requires entering the minimum exit velocity of the effluent stream from the stack or vent. This minimum value only needs to be entered if it is known and different than the average (for variable parameters). The minimum exit velocity value is to be reported in metres per second.

Release Point Average Exit Temperature (K)
515.40

This field requires entering the average exit temperature of the effluent stream from the stack or vent. The average exit temperature value is to be reported in Kelvin. If reporting release point information, this field must not be left blank.

Release Point Maximum Exit Temperature (K) (if applicable)
550.00

This field requires entering the maximum exit temperature of the effluent stream from the stack or vent. This maximum value only needs to be entered if it is known and different than the average (for variable parameters). The maximum exit temperature value is to be reported in Kelvin.

Release Point Minimum Exit Temperature (K) (if applicable or specified in approval)
500.00

This field requires entering the minimum exit temperature of the effluent stream from the stack or vent, as specified in the EPEA approval or if otherwise known. The minimum exit temperature value is to be reported in Kelvin.

Release Point Other Stack Information

Is the release point a bypass stack? (Y/N)
No

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the specific release point is a bypass stack for another release point. If reporting release point information, this field must not be left as "<Choose One>".

If it is a bypass stack, which release point is it a bypass for? (enter descriptive name of the release point)
n/a

If the release point is a bypass stack for another release point, this field requires entering the descriptive name of the release point being bypassed.

Note: The descriptive name must be called the same as what was entered as the "Release Point Descriptive Name" in worksheet 2.0 of the AEIR Form.

Is the release point located on a rooftop? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the release point is located on the rooftop of a building. If reporting release point information, this field must not be left as "<Choose One>".

Is the release point potentially affected by building downwash? (if known from previous studies)
No

This field is a dropdown menu for selecting "Yes", "No" or "Unknown" to indicate if the release point is potentially affected by building downwash, if known from previous building (downwash) assessments. This field is related to the information reported in worksheet 1.11: Industrial Operation Building Dimensions of the AEIR Form. If reporting release point information, this field must not be left as "<Choose One>".

Does the release point have a rain cap? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the release point has a rain cap. If reporting release point information, this field must not be left as "<Choose One>".

Is release point a non-vertical release? (Y/N)
No

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the release point is a non-vertical release. For example, a horizontal release point would be considered a non-vertical release. If reporting release point information, this field must not be left as "<Choose One>".

7.0 Non-Point Source Information (Steps 7a – c)

7.1 Identify Non-Point Sources and Substances Being Emitted (Step 7a)

The next step in preparing the AEIR requires identification of the various non-point sources emitting to the atmosphere at the industrial operation, and what substances they are emitting. All sources are required to be classified as either an “air emission non-point source” or an “air emission release point”. Non-point sources are discussed in this section of the AEIR Standard, while release points are covered in Section 6.

Chapter 1 of the Air Monitoring Directive defines an “air emission non-point source” as “an area, on-road mobile, non-road mobile, volume, line or group of point sources responsible for the release of a substance to the atmosphere, which cannot be practically inventoried as separate individual sources or release points because they are too small, too large, too numerous, too geographically dispersed, or because they are non-stationary.”

Non-point sources include various area, line, volume and mobile sources, as well as groups of release points that emit to the atmosphere. Examples of non-point sources include: materials handling, mine face, mine fleet, solid mine tailings, non-stationary equipment, fugitive leaks, road dust, space heating, storage tanks and liquid tailings ponds.

The industrial operation’s EPEA approval will specify (either directly or via reference to the industrial operation’s EPEA approval/renewal application) the list of sources authorized to release effluent streams to the atmosphere for the industrial operation. The list specified in the EPEA approval may include some non-point sources, but may not specifically cover all non-point sources at the industrial operation. Some of the other non-point sources may be covered under fugitive monitoring requirements, listed as groups of small equipment or may not be specifically mentioned at all (e.g., road dust, loading/unloading, materials handling, solvent use, spills and accidents, etc.).

Additional non-point sources may have also been authorized in writing by the Director or through subsequent EPEA approval amendments. The regulatory dispersion modelling information for the approval/renewal application of the industrial operation should also help with the identification of the non-point sources. **All non-point sources at the industrial operation are required to be identified and included in the AEIR.** See Section 3.2 of the AEIR Standard for more information on non-point sources to include in the AEIR.

Note: All authorized non-point sources listed in the industrial operation’s EPEA approval (except those that were decommissioned prior to 2018) must be identified and described in the AEIR Form. While some non-point sources are specifically listed as individual authorized sources in the EPEA approval, others may be listed together with other sources, and there may also be additional non-point sources just referenced in the EPEA approval/renewal application. All non-point sources must be identified and described in the AEIR Form.

Note: Non-point sources included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a non-point source has been permanently decommissioned, then the non-point source should be left in the AEIR Form. The operating status for the non-point source should be set to decommissioned, the annual hours of operation should be set to zero and the emission rates cleared for the non-point source. Non-point sources should not disappear from the submitted AEIR Forms.

The expected substances emitted by the non-point sources may be identified in the EPEA approval, the EPEA approval/renewal application for the industrial operation and in the associated regulatory dispersion modelling information. Environmental monitoring and reporting carried out by the industrial operation (such as fugitive monitoring, annual EPEA approvals reporting, reporting to the National Pollutant Release Inventory, etc.) may also provide insight into the substances being emitting by non-point sources. Information from the industrial operation’s industrial equipment manufacturers and suppliers of fuels/input materials may also provide insight into the substances being emitted. The list of substances being emitted by the non-point sources will be necessary for quantifying the air emissions in Step 16.

If not the first year of reporting under the AEIR Program for your industrial operation, previous years AEIRs and associated documents will help identify the substances being emitted by the individual non-point sources. However, changes to the industrial operation and potentially incomplete/incorrect past environmental reporting do need to be considered when using prior years information to identify the substances being emitted by the non-point sources.

Note: The tables in Appendix D have lists of common non-point sources reported by industrial operations in each of the major sectors. These lists may help to identify non-point sources for an industrial operation. However, not all industrial operations in a sector will necessarily have the same non-point sources. Individual industrial operations may also have additional non-point sources that are not included in the tables in Appendix D.

Note: Individual small release points can be grouped together for emission estimation and reporting purposes. This can be done when these release points cannot be practically inventoried as separate individual release points because they are too small, too numerous or too geographically dispersed. For example, several space heaters at an industrial operation might be inventoried and reported together as a single non-point source due to these space heaters being individually small emitters and too numerous to inventory and report separately.

Note: Emergency and intermittent/standby non-point sources are required to be included in the AEIR. However, the annual actual air emissions from these sources may potentially be negligible for the inventory year (see Section 3.12 of the AEIR Standard for information on the de minimis and negligible sources).

Note: Future planned non-point sources at the industrial operation are required to be identified and included in the AEIR if they have already been authorized in the EPEA approval. Future planned non-point sources not yet authorized in the approval do not need to be included in the AEIR.

Note: In some rare instances, it may be necessary to report two large point sources together as a single non-point source. This would be done only when it is not possible to estimate the emissions from each large individual source. In most cases, the air emissions from individual point sources that share fuel, receive effluent from the same unit/process/equipment or operate in an integrated fashion (but have no individual information available) can still be estimated. For example, the individual release point air emissions could potentially be estimated using differences in equipment size or operating conditions, differences in typical operating loads, differences in annual operating time, information from the manufacturer, previous estimations, etc. Such information could be used to break down the combined emissions to each individual point source for the purposes of reporting under the AEIR Program. In cases where such individual source emission breakdowns are simply not possible, the two large point sources would be reported together as a single non-point source. The same identification, unit/process/equipment, pollution control, etc. information would still be reported for each individual large point source, but this would be done using the provided non-point source worksheets rather than the release point worksheets. Only the emissions information would be reported together for the combined large point source being reported as a non-point source.

7.2 Gather and Enter Information on Non-Point Sources (Step 7b)

Clause RC 7-N sets out the general types of non-point source information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional non-point source fields that need to be completed. Once all the non-point sources at the industrial operation have been identified, the required information on each non-point source can be gathered and entered into the AEIR Form. The AEIR Form requires information on classification, operation, installation, decommission and other related information on each non-point source at the industrial operation.

Note: For EPEA approved future non-point sources, the available information should be used to fill in the required fields in worksheet 3.0. As the non-point source will not yet be installed or operating, not all fields will be applicable. Information that should be available for the future sources includes: source locations, source parameter information (as per EPEA approval/renewal application and associated modelling), associated equipment and pollution controls,

established emission/operating limits, expected operating periods, maximum and/or normal emission rates (as per EPEA approval/renewal application and associated modelling), etc.

The following describes the non-point source information required in worksheet 3.0 of the AEIR Form, with examples of the expected information.

Worksheet 3.0: Non-Point Source – Identification and Description

Note: Table 45 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.0: Non-Point Source – Identification & Description, including data types and conditions.

Any operating or approved future non-point sources at the industrial operation? (Y/N)
--

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any operating or approved future non-point sources at the industrial operation. “Yes” will be the selection for most industrial operations, as most industrial operations reporting under the AEIR Program will have one or more non-point sources. In cases where an industrial operation only has release points (no non-point sources), “No” would be selected in this field and no further information is required in worksheets 3.0 to 3.8.6 of the AEIR Form (would proceed to worksheet 4.0 of the AEIR Form, if worksheets 2.0 to 2.6.6 have already been completed). This field must not be left as “<Choose One>”.

Non-Point Source Identification and Classification

Non-Point Source Descriptive Name
--

Ammonia Storage Tank Vents

This field requires entering a simple descriptive name for the non-point source, to communicate what the non-point source is. If reporting non-point source information, this field must not be left blank.

Non-Point Source Unique Designation
--

ST-AAA

This field requires entering the formal designation of the non-point source, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the non-point source, then the identification number used by the industrial operation for the non-point source should be used. If there is no identification number used by the industrial operation for the non-point source, then the non-point source descriptive name can be entered. The unique designations must be unique and may not be duplicated for another source at the industrial operation. If reporting non-point source information, this field must not be left blank.

Non-Point Source Additional Description (if applicable)
--

This is a series of small separate space heaters located across several buildings at the plant site, being reported as a single area non-point source.
--

This field allows for an optional additional description of the non-point source to be provided in the AEIR Form.

Non-Point Source Type
Tank (individual)

This field provides a dropdown list of non-point source types to select from. These were developed based on a review of EPEA approved sources and should fit most, but not necessarily all, non-point sources at Alberta industrial operations. Where a specific non-point source does not fit within any of the provided types, "Other Non-Point Source" should be selected. If reporting non-point source information, this field must not be left as "<Choose One>".

The following are definitions of the provided non-point source types:

Cooling Tower (multiple) – emissions from a grouping of cooling towers. These are being reported together due to their numbers and individually small emissions.

Combined Large Point Sources – emissions resulting from a combination of two or more large emitting point sources whose emissions cannot be quantified separately. This non-point source category is an exception and will only rarely be used. It will only apply to combined major sources at the industrial operation, those that each have a large contribution to the industrial operation's total emissions of one or more substances. This category would not apply to groups of numerous minor sources. If used, information on identification, units/processes/equipment and pollution controls related to the individual large point sources must be reported in the non-point source worksheets of the AEIR Form.

Fugitive Dust - fugitive particulate emissions, not covered by the other non-point source categories, primarily resulting from physical disturbance and wind blowing of onsite land or materials.

Loading/Unloading – emissions resulting from the loading and/or unloading of vehicles or containers at the industrial operation.

Materials Handling – emissions resulting from the movement and handling of materials, goods and products used or generated onsite.

Mine Face – particulate and/or gaseous emissions occurring as a result of mining work at the mining surface, where the mining work is occurring or advancing. It may also be known as the pit face.

Mine Fleet Vehicles – emissions from the exhaust of the fleet of vehicles operating onsite that are directly involved, or that support, the industrial activity. Note that road dust is a separate category with a separate definition.

Note: Mine Fleet Vehicles would primarily be oil sands heavy haulers, but would also include any other vehicles operating onsite that are directly involved, or that support, the industrial activity. For example: excavators, dozers, graders, etc. Note that there is a separate category for non-stationary equipment. The main difference between vehicles and non-stationary equipment is whether or not the vehicle/equipment can move on its own and can operate while moving.

Mine Tailings (Solid) – emissions from the solid remnants remaining after mineral extraction has been performed.

Miscellaneous Fuel or Waste Use – emissions arising from the onsite combustion of one or more fuels or waste products in small amounts, not for the primary activities of the industrial operation, that cannot be practically identified down to individual equipment or processes. For example: miscellaneous diesel or biomass combustion at the industrial operation.

Non-Stationary Equipment – emissions resulting from equipment, excluding mine fleet vehicles, which is not fixed or adhered to the surface where it is located. This is equipment that is typically moved around at the industrial operation.

Other Non-Point Source – emissions occurring from any other area, line, volume or mobile source that does not fall under the other provided non-point source categories.

Plant Fugitive Leaks – emissions due to leaks and various other unintended or irregular releases of gases from equipment connections, joints or interfaces. Examples include, but are not limited to: leaks from valves, pump seals, flanges, compressors, sampling connections or open-ended lines. Note that spills and accidental releases have a separate category and definition.

Road Dust – particulate emitted to the atmosphere as a result of vehicular traffic on unpaved roads within an industrial operation's geographic boundaries, when travel on these roads is $\geq 10,000$ vehicle kilometres travelled per year.

Note: Particulate from unpaved roads that have less than 10,000 vehicle kilometres travelled per year are not required to be quantified or reported in the AEIR. Particulate from paved roads are also not required to be quantified or reported in the AEIR.

Silo or Bin Storage (multiple) – emissions from a series of storage containers for materials awaiting use or transportation. These are being reported together as a non-point source due to their numbers and individually small emissions. Note that storage tank(s) have separate categories and definitions.

Solvent Use, Storage or Evaporation – emissions resulting from the industrial operation's use, storage or evaporation of solvents, including: solvent degreasing, waste solvent reclamation, solvent product formulation or other onsite commercial solvent use.

Space Heaters (multiple) – emissions from a grouping of space heaters designed for the heating of an enclosed space, typically buildings or onsite work areas. These are being reported together as a non-point source due to their numbers and individually small emissions.

Space Vents (multiple) – emissions from a grouping of space ventilation points used for the intentional introduction of outside air into a space, typically a building, to control indoor air quality by diluting and displacing indoor pollutants or to affect temperature or humidity. These are being reported together as a non-point source due to their numbers and individually small emissions.

Spills and Accidental Releases – emissions from spills or accidental releases at the industrial operation, excluding spills or accidental releases occurring from equipment connections, joints or interfaces. Note that plant fugitive leaks are a separate category with a separate definition.

Storage Pile – piles of onsite materials at the industrial operation that emit particulate matter from physical and wind disturbances. Also may emit gaseous emissions from off-gassing of the materials being stored.

Tailings Pond (liquid) – emissions from liquid areas of mine tailings used to store the waste produced by the mining operation.

Tank (individual) – fugitive emissions from a storage tank used to contain a liquid or compressed gas.

Tanks (multiple) – fugitive emissions from a grouping of storage tanks used to contain liquids or compressed gases. These are being reported together due to their numbers and individually small emissions.

Note: Large storage tanks are to be inventoried and reported as separate non-point sources in the AEIR Form, using the "Tank (individual)" non-point source type. The "Tanks (multiple)" non-point source type is only intended for grouping of smaller storage tanks.

Note: Nearly all EPEA approved industrial operations will have storage tanks located on their plant sites.

Note: A list of the storage tanks at an industrial operation is typically included in a table in the EPEA approval/renewal application for the industrial operation. This list of storage tanks should therefore be reviewed prior to completing worksheets 3.0 and 3.7.1 of the AEIR Form.

Valve (multiple) – emissions from a grouping of devices that regulate, direct or control the flow of a fluid by opening, closing, or partially obstructing various passageways. These are being reported together as a non-point source due to their numbers and individually small emissions.

Venting – General (combined) – emissions from a grouping of ducts, pipes, or chimneys used for conveying a gas stream to the atmosphere, excluding ducts, pipes or chimneys associated with the provided unit, process or equipment categories (for release points). For example, a series of steam vents from an industrial process would be reported under this category. These are being reported together as a non-point source due to their numbers and individually small emissions.

Wastewater Treatment (multiple) – emissions from a grouping of devices that convert wastewater into an effluent that can be either reused or returned to the water cycle with minimal environmental impact. These are being reported as a non-point source due to their numbers and individually small emissions.

Non-Point Source Type - Description of "Other" (if applicable)
Two large emitting solid waste thermal destroyer units

When "Other Non-Point Source" is selected as the Non-Point Source Type in the previous field, this field requires entering a description of the other type. This should simply explain what the non-point source is and why it did not fit within the standard types provided.

Non-Point Category
Volume

This field is a dropdown menu that provides selections for identifying what category of non-point source is being reported. The options provided are: area, line, volume and mobile. If reporting non-point source information, this field must not be left as "<Choose One>".

Definitions for these non-point categories are as follows:

Area source - spatially diffuse and/or numerous sources of air emissions that can only be measured or estimated using the accumulation of numerous point sources or as estimations of an entire area. A tailings pond at an oil sands mining operation would be an example of an area source.

Line source – sources of air emissions that emanate from a linear (one-dimensional) geometric shape, usually a line (has length). There can be several different segments in a line source. The most common example of a line source is dust coming from a paved or unpaved road.

Volume source - a three-dimensional source of air emissions, essentially an area source with a third dimension (has height). Examples include: dust from the wind erosion of uncovered piles of materials, storage tanks, etc.

Mobile source - broad area sources that are the accumulation of non-stationary operations, including vehicle transportation and non-stationary equipment. Mobile sources may occur on-road (from on-road vehicles) or off-road (non-road engines and non-road vehicles). These sources typically move around within a specified on-site area.

The following table provides typical categorization for the non-point source types. These may not fit all instances of the non-point sources being reported and only represent typical categorizations.

Table 6: Typical Non-Point Source Type Categorizations.

Non-Point Source Type	Typical Non-Point Category
Cooling Tower (multiple)	Volume
Combined Large Point Sources	Area or Volume
Loading/Unloading	Area or Volume
Materials Handling	Area or Volume
Mine Face	Volume
Mine Fleet Vehicles	Mobile or Volume
Mine Tailings (Solid)	Volume
Miscellaneous Fuel or Waste Use	Area or Volume
Non-Stationary Equipment	Mobile
Other Non-Point Source	Area or Volume
Plant Fugitive Leaks	Volume or Area
Road Dust	Line
Silo or Bin Storage (multiple)	Volume
Solvent Use, Storage or Evaporation	Area or Volume
Space Heaters (multiple)	Area or Volume
Space Vents (multiple)	Area or Volume
Spills and Accidental Releases	Area or Volume
Storage Pile	Volume
Tailings Pond (liquid)	Area
Tank (individual)	Volume
Tanks (multiple)	Volume
Valve (multiple)	Area or Volume
Venting – General (combined)	Area or Volume
Water Treatment (multiple)	Area or Volume

Non-Point Source AMS/SCC
2301000000

This field requires identification of the most applicable Area and Mobile Source (AMS) code or Source Classification Code (SCC) for the non-point source. If reporting non-point source information, this field must not be left blank.

AMS codes are similar to SCCs, but are used to classify area and mobile sources rather than point source/release point equipment. While SCCs have 8 digits for point sources, AMS codes have 10 digits. Note that some AMS codes may also have a leading alpha character (such as “A”). These leading alpha characters should be left out when entering the AMS code in the AEIR Form, as the AMS/SCC code fields are restricted to a maximum of 10 characters.

The code structure for the 10-digit AMS code is:

AABBCCDD => AA is Level I, BB is Level II, CC is Level III and DD is Level IV.

Example:

2270002000 => 22 is Level I, 70 is Level II, 002 is Level III and 000 is Level IV.

- Level I is mobile sources;
- Level II is off-highway vehicle diesel;
- Level III is construction and mining equipment; and
- Level IV is total.

This full AMS code means: “Mobile Sources – Off-highway Vehicle Diesel – Construction and Mining Equipment – Total”.

Selecting an AMS/SCC

Industrial operations are required to select an appropriate AMS code for each non-point source at the industrial operation or an SCC code for grouped point sources being reported as a non-point source. Unlike

most other standardized codes and categories, a dropdown menu is not provided in the AEIR Form for AMS or SCC codes, simply due to the large number of available codes (over 10,000 active codes). A supporting document on AEIR Form codes, including available AMS and SCC codes, is provided on the AMD Resources website (see: AMD AEIR Codes Table.xlsx). This Excel file lists the codes and includes fields on release category, sector and descriptions of the four coding levels. Excel filtering, searches and lookups can be used to help identify the most appropriate AMS or SCC code.

Note: The standard set of SCC/AMS codes may not always cover all sources operating in Alberta. There are general non-specific categories ("other" categories) within the third or fourth levels of the SCC/AMS codes available. If necessary, these other categories could be used for sources that simply do not fit beyond the first few SCC levels.

Note: AMS/SCCs not included in the AMD AEIR Codes Table can be selected and entered in the AEIR Form, provided they are from a published source and the associated speciation information is publicly available for the Regulator to use. For example, some additional SCCs have been developed for select oil sands sources and these may be more representative than general EPA SCCs. Any additional SCCs used need to be identified and described in the Quantification Methodology Document.

When selecting an AMS/SCC, it is recommended that the most applicable release category (point, non-point, on-road, non-road or event) be selected first. The most appropriate activity/process should then be selected (e.g., fuel combustion, industrial processes, mobile, solvents, waste, etc.), narrowing down by related industrial sector or equipment (e.g., electric generation, industrial boilers, cement, chemicals, etc.). Filters are provided in the AMD AEIR Codes Table to help with the selection. The most appropriate level 1, 2, 3 and 4 codes (for specific process, industry group, product/fuel/equipment and operational components) should then be identified, leading to the most applicable or appropriate AMS or SCC code. This code should then be copied and pasted (paste special -> paste value) into the AEIR Form.

Note: The US EPA provides an online search tool for selected AMS and SCCs. This tool, available at: <https://sor-scc-api.epa.gov/sccwebservices/sccsearch/>, may be helpful in selecting the most appropriate codes.

Note: The acronym "NEC" used in the AMS and SCC descriptions stands for "not elsewhere classified" and often indicates a more general or cross-sector code.

Note: Some AMS and SCC codes are specific to an individual sector, while others may apply to several different industrial or non-industrial sectors based on their use of similar equipment, fuels or on-site activities.

Note: In some cases the most applicable AMS/SCC for a specific type of source/unit/process/equipment/control may be listed for a different sector. In such cases, it is acceptable to still select this AMS/SCC, even if it is specified for the different sector. The most applicable or appropriate AMS/SCC is to be selected.

Non-Point Source Deemed Negligible for the Inventory Year? (Y/N)

No

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the specific non-point source has been deemed negligible for the inventory year. If reporting non-point source information, this field must not be left as "<Choose One>". If the non-point source has been deemed negligible, it must still be identified as a source in the AEIR form and the required identification and description information for the source must be entered in worksheets 3.0, 3.1, etc. Annual actual emissions reporting for the negligible non-point source is **not** required.

Non-Point Source Operational, Installation and Decommission Information

Non-Point Source Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the non-point source for the inventory year. The provided options include: "Operating", "Temporarily shut-down", "Decommissioned" and "Not yet constructed/operating". If reporting non-point source information, this field must not be left as "<Choose One>".

"Operating" should be selected if the non-point source was operating/emitting for all or part of the inventory year. This would be the selection that applies to most non-point sources at an industrial operation.

"Temporarily shut-down" means the non-point source was operating in past years, but was temporarily shut-down or not operating/emitting for all (or nearly all) of the inventory year. This option should be selected for non-point sources that were temporarily shut-down but are expected to begin operating/emitting again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that non-point sources that were shut-down for only part of the year should be classified as "operating", as the non-point source was still operating/emitting during the inventory year.

"Decommissioned" should be selected for those non-point sources that were operating and reported in past years' AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such non-point sources should be changed to "Decommissioned", as the non-point source will no longer have emissions to report. The other reported information (except emission rates) for a decommissioned non-point source should be left static in the AEIR Form, as reported in the last operating year. It is **not** necessary to report any previously approved non-point sources that were permanently shut-down or decommissioned prior to 2018.

"Not yet constructed/operating" should be used for those non-point sources that are approved but have not yet been built or are not yet operating. Such non-point sources could be part of approved future phases of the industrial operation. It is **not** necessary to report planned non-point sources that have not yet been approved (authorized as part of the industrial operation's EPEA approval).

Note: If any of the sources included in the non-point source were operating for the inventory year, then "operating" would be selected as the operating status for the non-point source.

Non-Point Source Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the non-point source for the inventory year (if operating). The provided options include: "Normal", "Start-up", "Turnaround", "Upset", "Low Annual Output" and "High Annual Variability".

"Normal" would be the selection for most non-point sources and simply means that the non-point source operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in production or emissions, but the specific inventory year was fairly representative of how the non-point source normally operates.

"Start-up" would be selected when the non-point source (or its major units or processes) was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the non-point source.

“Turnaround” would be selected when the non-point source (or its major units or processes) was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the non-point source.

“Upset” would be selected when the non-point source (or its major units or processes) experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on the annual emissions of the non-point source.

“Low Annual Output” would be selected when the non-point source operated below normal levels, overall having a lower than normal annual output and this had a significant impact (higher or lower) on the annual emissions of the non-point source. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a non-point source has high variation in operation/production/emissions nearly every year and thus while the non-point source is operating, there is simply no normal operating condition for the non-point source.

Note: “Significant impact (higher or lower)” on air emissions would be a large enough impact that the operating condition of the non-point source would not be considered normal/average/typical for the inventory year.

Project Phase the Non-Point Source is Part Of

Phase 1

Some industrial operations have several phases of development/operation. This field requires specifying the phase for the specific non-point source. This field should also be used to identify if the non-point source is part of a discrete plant site at the industrial operation (e.g., in-situ oil sands facilities with several distinct and distant plant sites). If the industrial operation only has a single phase, then Phase 1 should be entered in this field. If reporting non-point source information, this field must not be left blank.

Non-Point Source Year of Manufacture (if applicable)
--

1998

This field requires entering the year of manufacture of the non-point source, if applicable. Not all types of non-point sources will have been manufactured, and thus not all non-point sources will have a year of manufacture to report. The year of manufacture is the year the non-point source was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the non-point source.

Note: If the exact year of manufacture is not available for older non-point sources, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Note: If any of the individual sources included in the collective non-point source were manufactured during different years, then the earliest manufacture year would be selected as the year of manufacture for the non-point source.

Non-Point Source Year of Installation

1999

This field requires entering the year the non-point source was installed. This will typically be close (within a year or two) to the year the industrial operation commenced operations or the year the associated phase of the operation began operating. If the non-point source was part of a modification/expansion to the industrial

operation, this year may be further out from the industrial operation's commencing year. If the non-point source is an approved future source, then field can be left blank.

Note: If the exact year of installation is not available for older non-point sources, it is acceptable to provide a reasonable estimate for the installation year (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Note: If any of the individual sources included in the collective non-point source were installed during different years, then the earliest installation year would be selected as the installation year for the non-point source.

Non-Point Source Start-up Year
2001

This field requires entering the year of start-up of the non-point source at the industrial operation. This will typically be close (within a year or two) to the year the industrial operation commenced operations or the year the associated phase of the operation began operating. If the non-point source was part of a modification/expansion to the industrial operation, this year may be further out from the industrial operation's commencing year. If the non-point source is an approved future source, then field can be left blank.

Note: If the exact year of start-up is not available for older non-point sources, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Note: If any of the individual sources included in the collective non-point source began operating during different years, then the earliest start-up year would be selected as the start-up year for the non-point source.

Approximate Hours of Annual Operation
1,900

This field requires entering the approximate number of hours of operation for the non-point source for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the non-point source is an approved future source, then "0" should be entered in this field. If reporting non-point source information, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the non-point source is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Non-Point Source Decommission Date (if applicable)
January 5, 2022

This field requires entering the date when the non-point source was permanently shut-down or decommissioned (if applicable). Non-point sources that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved non-point sources that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Note: Decommission date applies to the entire non-point source. It would only be entered if the non-point source was previously operating and emitting (as of 2018) but has since been permanently shut-down or decommissioned. If part of the non-point source is still operating and emitting, then a decommission date would not be entered in this field.

Non-Point Source Expected Shutdown Year
2035

This field requires entering the year when the non-point source is expected to be permanently shut-down or decommissioned. This does not need to be a definite date or totally accurate, just an estimate of when the non-point source is expected to permanently cease operating. If reporting non-point source information, this field must not be left blank.

If unknown for the individual non-point source, the expected shutdown year of the industrial operation can be entered. For example, this expected shutdown/decommission year could be based on: a specifically planned closing date, the expected lifespan of the plant, the typical lifespan of the type of industrial operation, etc. In terms of the provincial inventory, this shutdown/decommission year will be used as the future date when the non-point source is turned off (no longer emitting), in particular for use in provincial emission forecasts and projections. As projections and forecasts typically do not go beyond 50 years, 50 years plus the current year can be used as a maximum value (if appropriate). For example 2072 could be used as a default value for the 2022 inventory year, provided the non-point source is expected to continue to operate for several more decades and a more representative shutdown year is not available.

Approved Future Source (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to identify if the non-point source has not yet been built or has not yet commenced operation. All non-point sources that are operating/emitting should have "No" selected and only the future not-yet operating/emitting non-point sources should have "Yes" selected. If reporting non-point source information, this field must not be left as "<Choose One>".

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future non-point source is expected to begin operating/emitting. This field is only applicable to future non-point sources that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Non-Point Source Other Information

Note: The non-point source make, model #, material/fuel-type, capacities, power ratings, horse power and load rating information fields in the AEIR Form are "if applicable" and will not apply to all types of non-point sources.

Note: If there are a few small sources being reported together as a single non-point source, then the applicable information for the other information fields can be listed together. If there are more than a few small sources being reported together as a single non-point source (e.g., dozens of different space heaters), the term "various" can be entered instead of individually listing the applicable non-point source other information.

Description of any point sources being included in the non-point source (if applicable)
This non-point source includes two large point source thermal solid waste destroying units, whose inputs are not adequately measured and the amounts received are not standard across the two units.

This field requires entering a description of any point sources being included in the non-point source. This field is only required when reporting a combination of point sources as a non-point source.

Non-Point Source Make (if applicable)
Kennedy

This field requires entering the make (manufacturer) of the non-point source, if applicable. If not documented elsewhere at the industrial operation, the make information should be identified on the non-point source. If the non-point source is custom built, "Custom" can be entered as the make. Not all non-point sources will have a make.

Non-Point Source Model # (if applicable)
TC303

This field requires entering the model number of the non-point source, if applicable. If not documented elsewhere at the industrial operation, the model number should be identified on the non-point source. If the non-point source is custom built, "Custom" can be entered as the model #. Not all non-point sources will have a model #.

Non-Point Source Material(s) or Fuel Type(s) (if applicable)
Ammonia

This field requires identifying the type of material or materials stored/used/produced by the non-point source or the fuel or fuels (e.g., natural gas, diesel, wood waste, etc.) used by the non-point source. Not all non-point sources will have a material or fuel.

Non-Point Source Maximum Design or Rated Capacity or Throughput (if applicable)
250

This field requires entering the maximum or rated design capacity or throughput of the non-point source, if applicable. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. Not all non-point sources will have a capacity or throughput.

Non-Point Source Average or Normal Capacity or Throughput (if applicable)
225

This field requires entering the average or normal capacity or throughput of the non-point source, if applicable. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. Not all non-point sources will have a capacity or throughput.

Non-Point Source Capacity or Throughput Units (if applicable)
m ³

This field requires entering the units of the capacity or throughput values being reported, if applicable.

Power Rating of Non-Point Source (kW) (if applicable)
10,000

This field requires entering the power rating (in kilowatts) of the non-point source, if applicable. Not all non-point sources will have a power rating.

Rated Horse Power of Non-Point Source (if applicable)
10,000

This field requires entering the rated horsepower of the non-point source, if applicable. Not all non-point sources will have a rated horsepower.

Load Rating (%) of Non-Point Source (if applicable)
75

This field requires entering the load rating (in percent) of the non-point source, if applicable. Not all non-point sources will have a load rating.

7.3 Gather and Enter Parameter and Spatial Information for Non-Point Sources (Step 7c)

The AEIR Form requires parameter information on each non-point source being reported, as well as spatial information to represent the non-point source. The following describes the non-point source information required in worksheet 3.1 of the AEIR Form, with examples of the expected information.

Worksheet 3.1: Non-Point Source – Source Parameter and Spatial Location Information

Note: Table 46 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.1: Non-Point Source - Parameters and Locations, including data types and conditions.

Non-Point Source Descriptive Name
Ammonia Storage Tank Vents

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Non-Point Source Parameter Information

The parameter fields for the non-point sources include: release height, length, width, area, release temperature, initial sigma-Y and initial sigma-Z. Most non-point sources would typically have base elevation, release height, length, width, area and release temperature. Line sources, would not have width or area. Initial sigma-y and sigma-z would be mainly for volume sources, but can also be applicable to some area sources.

Non-Point Source Release Height (m)
8

This field requires entering the release height of the non-point source. The height is measured from ground level and is to be reported in metres. Some non-point sources (e.g., road dust) are at ground level and would therefore have a release height of “0” metres. If reporting non-point source information, this field must not be left blank.

Note: The release height for groups of small non-point sources occurring over large areas would typically be only a few metres off the ground. Although height may vary somewhat for grouped small non-point sources, a single

representative height for the non-point source is to be reported. This is to be based on the professional judgement of the person responsible.

Non-Point Source Length (m)
15

This field requires entering the length of the non-point source. The length value is to be reported in metres. All non-point sources should have length (e.g., one side of the spatial location of the area representing the non-point source). If reporting non-point source information, this field must not be left blank.

Note: The length of groups of small non-point sources occurring over large areas would typically be one of the dimensions of the general area source being reported. The length of a line sources would typically just be the length of the road (or road segment).

Non-Point Source Width (m)
15

This field requires entering the width of the non-point source. The width value is to be reported in metres. All non-point sources, except for line sources, should have width (e.g., one side of the spatial location of the area representing the non-point source).

Note: The width of groups of small non-point sources occurring over large areas would typically just be one dimension of the general area source being reported.

Non-Point Source Area (m ²) (if applicable)
225

This field requires entering the area of the non-point source, if applicable. The area value is to be reported in metres squared. All non-point sources, except for line sources, should have area (e.g., the area of the spatial location representing the non-point source).

Note: The area of groups of small non-point sources occurring over large areas would typically just be the general area (m²) of the shape representing where the group of small non-point sources are operating/emitting. Area is not required for line sources.

Non-Point Source Release Temperature (K)
290.0

This field requires entering the approximate average temperature of the release from the non-point source. The average release temperature value is to be reported in Kelvin. All non-point sources should have a release temperature. If reporting non-point source information, this field must not be left blank.

Note: The temperature of the release from the non-point source will just be an average value and will depend on the type of non-point source (e.g., release temperature could be at ambient temperature for a road dust source, release temperature could be warmer than ambient temperature for a group of small combustion sources, etc.).

Initial Sigma-Y (m) (if available)
10

This field requires entering the initial lateral dimension of the non-point source, if available. This information is used for air quality modelling. This should be reported in metres.

Initial Sigma-Z (m) (if available)
10

This field requires entering the initial vertical dimension of the non-point source, if available. This information is used for air quality modelling. This should be reported in metres.

Non-Point Source Spatial Location Information

Unlike release points, which are represented by a single set of geographic coordinates, non-point sources are represented by a simple shape requiring more than one set of geographic coordinates. For the non-point source spatial location information fields in the AEIR Form, the base elevation, number of vertices and the vertex latitude and longitude coordinates are required.

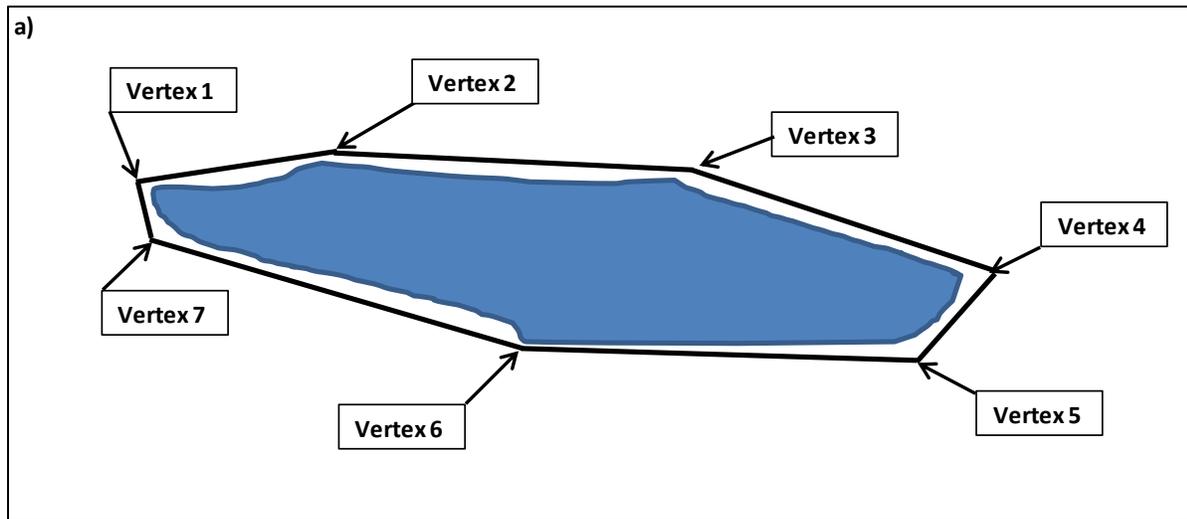
Note: If the non-point source is only a single point, then it would typically be reported as a release point and would be instead included in worksheets 2.0, 2.1, etc. of the AEIR Form. Non-point sources are defined as: “an area, on-road mobile, non-road mobile, volume, line or group of point sources responsible for the release of a substance to the atmosphere, which cannot be practically inventoried as separate individual sources or release points because they are too small, too large, too numerous, too geographically dispersed, or because they are non-stationary.” Release points are defined as: “a stationary source responsible for the release of a substance to the atmosphere that can be practically traced back to a single identifiable source, such as, but not limited to, a smokestack.”

For the purposes of the AEIR Program, either a line or simple polygon is to be used to represent the spatial footprint of each non-point source. It is not necessary to precisely capture the exact boundary of the non-point source, as these can be fairly complex shapes. Only a simplified spatial representation that encompasses the non-point source is required.

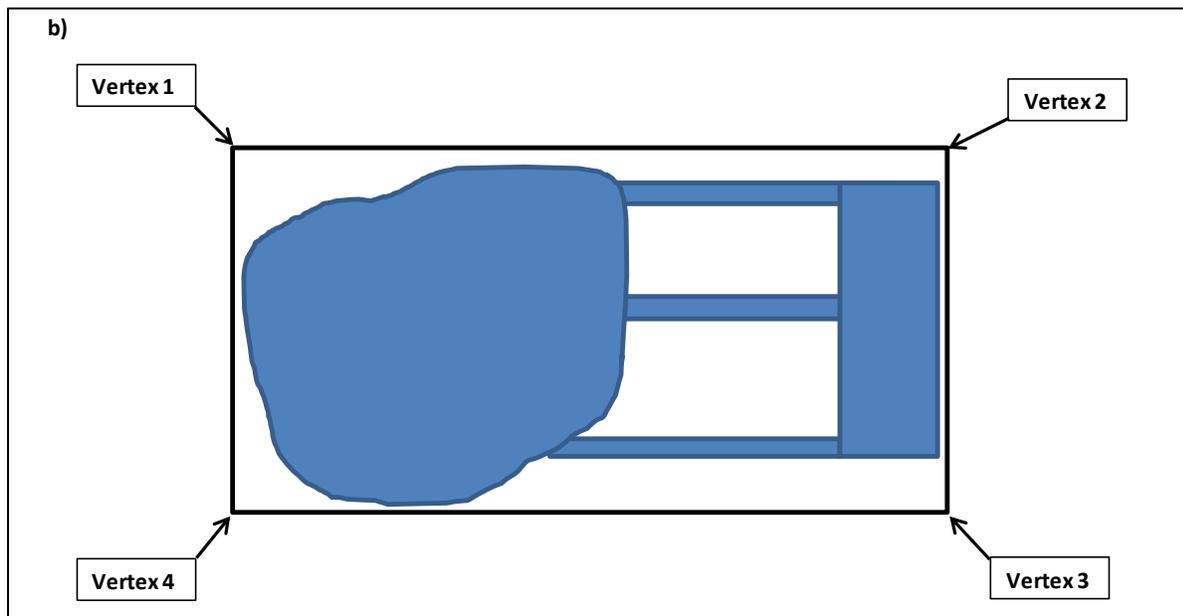
Note: The term “spatial footprint” refers to the areal coverage of the non-point source. Information on the other spatial parameters of the non-point source (height, length, width, area, initial sigma-Y and initial sigma-Z) is also required in worksheet 3.1 of the AEIR Form.

Line sources should have a minimum of two pairs of vertex coordinates reported. For area, mobile and volume sources, a minimum of four and a maximum of ten vertex coordinate sets can be reported. These should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner). Figure 5 shows several examples of simplified spatial representations for several non-point source categories.

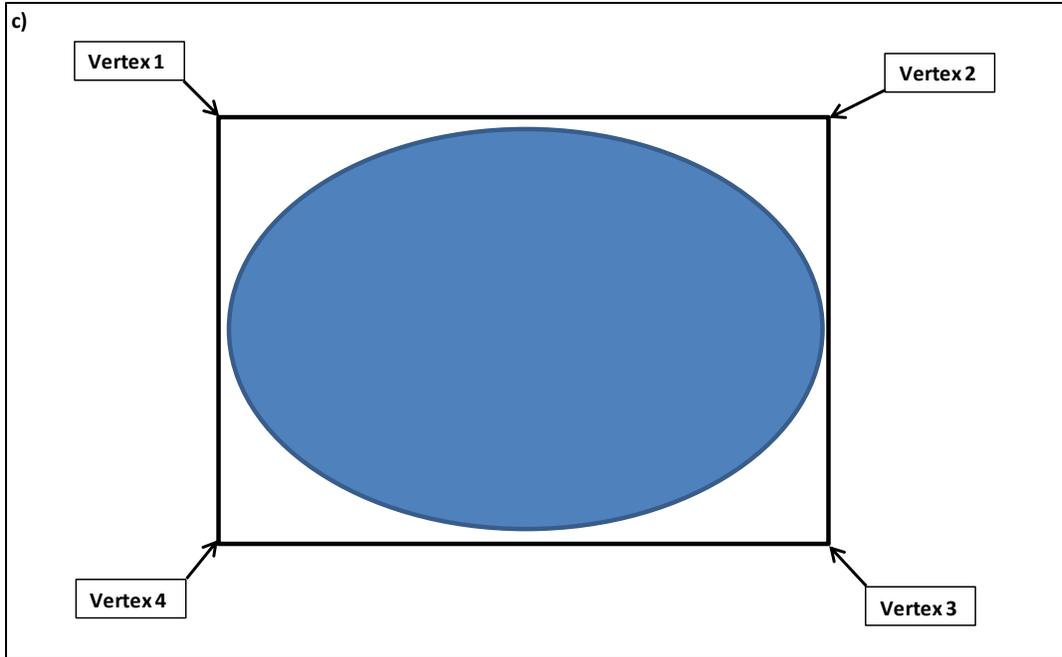
Figure 5: Examples of Simplified Spatial Representations of Non-Point Sources.



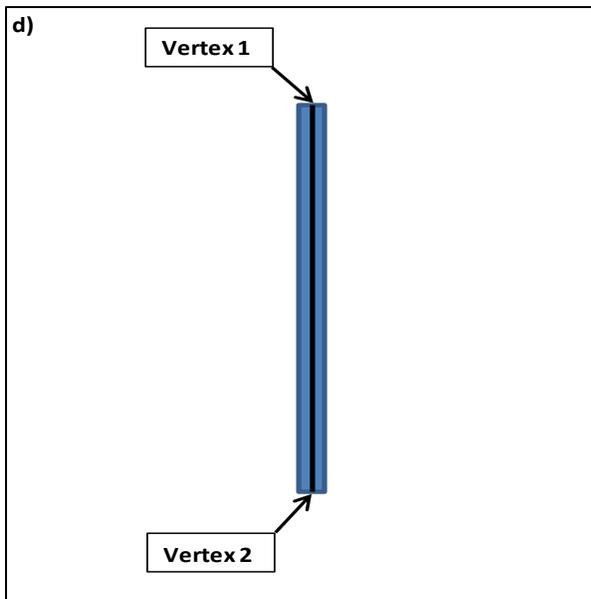
a) Area Source: Non-point sources covering large spatial areas can be represented using a simple polygon covering the approximate spatial extent of the source. Example a) shows the spatial representation of a large tailings pond. The lat/long coordinates of each vertex would be reported in the AEIR Form.



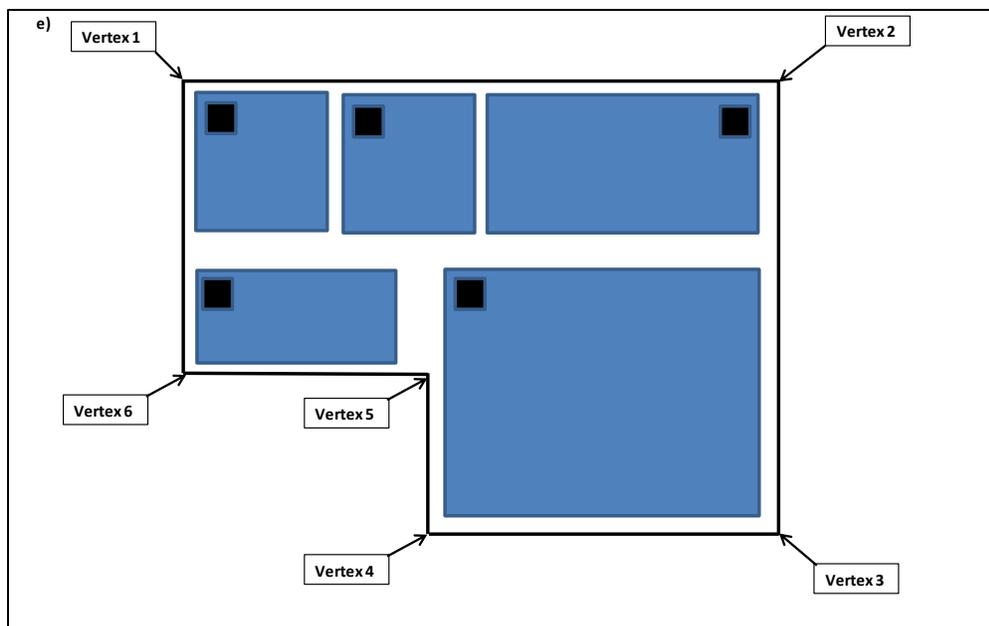
b) Mobile Source: Mobile sources can be represented using a simple polygon covering the approximate area where the mobile sources are operating/emitting. Example b) shows the spatial representation of mine fleet vehicles operating at a large excavated mining area, picking up extracted materials from the mining area, transporting them to a processing area and then returning to the mining area. The activity covers a large area and multiple roads are used, but a simple polygon can be used to represent the overall area where the mine fleet vehicles are operating. The lat/long coordinates of each vertex would be reported in the AEIR Form.



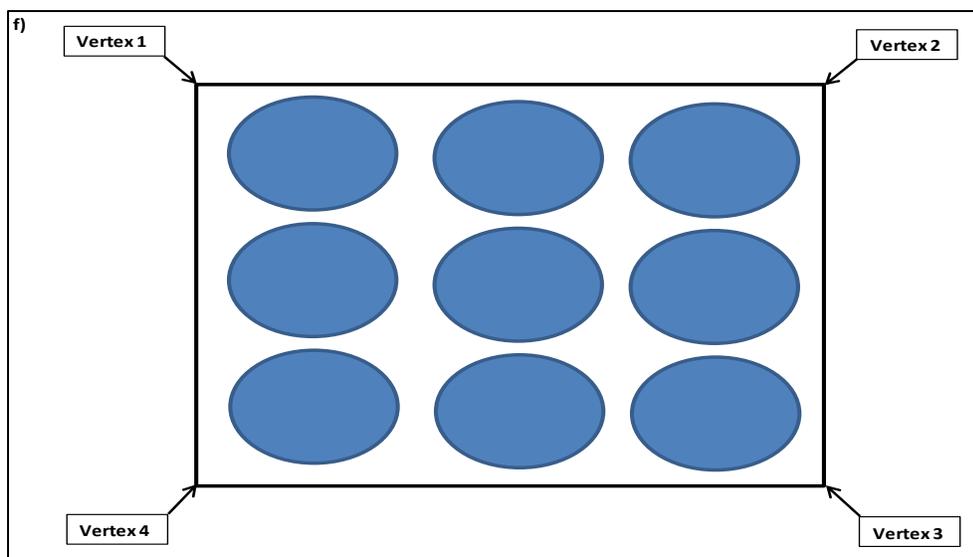
c) Volume Source: 3-dimensional volume sources can be represented using a simple polygon covering the approximate spatial extent of the base of the source. Example c) shows the spatial representation of a large above-ground storage tank. The lat/long coordinates of each vertex would be reported in the AEIR Form.



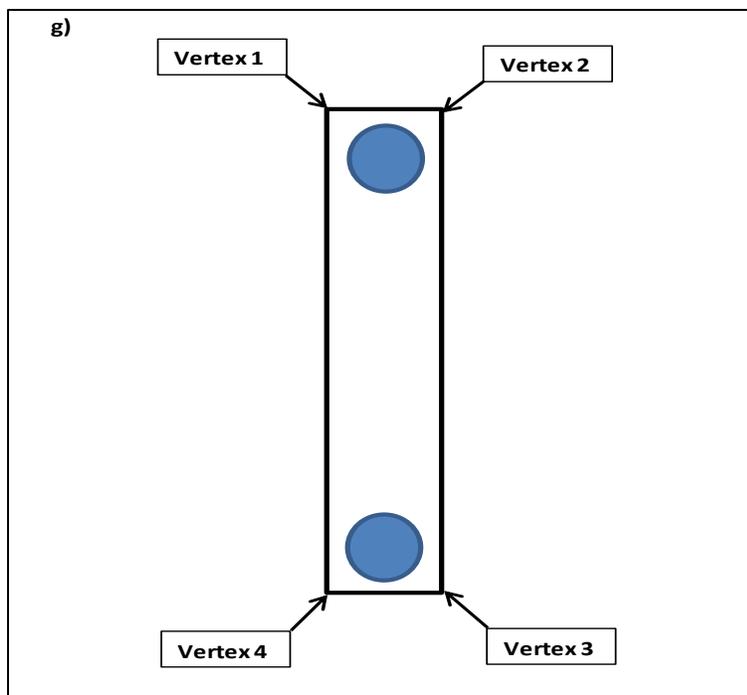
d) Line Source: A line source can be represented using two coordinate sets for the start and end of the line. Note that more than one line segment may be used to cover the source. Example d) shows the spatial representation of a single road dust source. The lat/long coordinates of each vertex would be reported in the AEIR Form.



e) Grouped Small Sources: A group of many small point sources being reported as a non-point source can be represented using a simple polygon covering where the numerous small sources are located and operating/emitting (e.g., grouping of sources, grouping of buildings, etc.). Example e) shows the spatial representation of several small building space heaters being reported as a single non-point source. The lat/long coordinates of each vertex would be reported in the AEIR Form.



f) Combined Non-Point Sources: A group of several small non-point sources being reported together as a single non-point source can be represented using a simple polygon covering where the small non-point sources are located and operating/emitting. Example f) shows the spatial representation of multiple small storage tanks being reported as a single non-point source. The lat/long coordinates of each vertex would be reported in the AEIR Form.



g) Combined Large Point Sources: In some rare instances, it may be necessary to report two large point sources together as a single non-point source. Combined large point sources that are aggregated and reported as a non-point source can be represented using a simple polygon covering where the sources are located and operating/emitting. Example g) shows the spatial representation of two large point sources reported as a single non-point source. The lat/long coordinates of each vertex would be reported in the AEIR Form.

Note: In some rare instances, it may be necessary to report two large point sources together as a single non-point source. This would be done only when it is not possible to estimate the emissions from each large individual source. In most cases, the air emissions from individual point sources that share fuel, receive effluent from the same unit/process/equipment or operate in an integrated fashion (but have no individual information available) can still be estimated. For example, the individual release point air emissions could potentially be estimated using differences in equipment size or operating conditions, differences in typical operating loads, differences in annual operating time, information from the manufacturer, previous estimations, etc. Such information could be used to break down the combined emissions to each individual point source for the purposes of reporting under the AEIR Program. In cases where such individual source emission breakdowns are simply not possible, the two large point sources would be reported together as a single non-point source. The same identification, unit/process/equipment, pollution control, etc. information would still be reported for each individual large point source, but this would be done using the provided non-point source worksheets rather than the release point worksheets. Only the emissions information would be reported together for the combined large point source being reported as a non-point source.

Non-Point Source Base Elevation (m ASL)
671

This field requires entering the base elevation of the non-point source in metres above sea level. If reporting non-point source information, this field must not be left blank.

Note: Although there may be some variation in the elevation of non-point sources covering large areas, a single representative elevation for the non-point source is to be reported. This is to be based on the professional judgement of the person responsible.

Number of Vertices
4

This field requires entering the number of vertices for the non-point source. This is how many vertices will be reported in the subsequent columns in worksheet 3.1. If reporting non-point source information, this field must not be left blank.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Non-Point Source Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the first vertex of the non-point source being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places. If reporting non-point source information, this field must not be left blank.

Non-Point Source Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the first vertex of the non-point source being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places. If reporting non-point source information, this field must not be left blank.

Note: The same latitude and longitude fields described above are required for reporting the non-point source's other vertex locations (up to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

8.0 Non-Point Source Additional Information (Steps 8a – e)

Clause RC 7-N sets out the general types of additional non-point source information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional additional fields for several specific non-point source types. The next step in preparing the AEIR requires identifying, gathering and reporting specific additional information on select types of non-point sources. The information that will be required to be reported will depend on which types of non-point sources are present at the industrial operation. The types of non-point sources that require additional information to be reported include: storage tanks, exposed storage piles, mine fleets, mine faces and tailings ponds. Whether the industrial operation has any of these types of non-point sources should have been identified in Step 7 (see Section 7 of the AEIR Standard). The following subsections (8.1–8.5) outline what additional information is required for these types of non-point sources.

8.1 Gather and Enter Information on Storage Tanks (Step 8a)

Storage tanks are used to contain liquids or compressed gases at an industrial operation. These tanks are potential sources of air emissions, in particular from fugitive leaks and other unintended releases. The AEIR Form requires information on the classification, operation, installation, decommission, parameters, location and pollution controls for each storage tank at the industrial operation. The following describes the storage tank information required in worksheet 3.7.1 of the AEIR Form, with examples of the expected information.

Note: Nearly all EPEA approved industrial operations will have storage tanks located on their plant sites.

Note: A list of the storage tanks at an industrial operation is typically included in a table in the EPEA approval/renewal application for the industrial operation. This list of storage tanks should therefore be reviewed prior to completing worksheets 3.0 and 3.7.1 of the AEIR Form.

Note: Only storage tanks emitting (or potentially emitting) Schedule 1 or Schedule 2 substances to the atmosphere need to be included in worksheet 3.7.1. Storage tanks with less than 2,500 litre capacity can also be excluded from worksheet 3.7.1, unless the storage tank is specifically identified as an EPEA approval authorized emission source for the industrial operation.

Note: For EPEA approved future storage tanks, the available information is to be used to fill in the required fields in worksheet 3.7.1.

Note: Any storage tanks being excluded from worksheet 3.7.1 are to be identified in the QMD.

The following steps should be used to determine which storage tanks are to be reported in worksheet 3.7.1:

Step T1 : List all storage tanks at the industrial operation.

Step T2: Review the industrial operation's EPEA approval/renewal applications to identify any additional storage tanks at the industrial operation and add them to the list of storage tanks. All existing, operating and approved future storage tanks are also to be included in the list.

Step T3: Remove from the list any storage tanks at the industrial operation that were permanently decommissioned prior to 2018.

Step T4: Using the compiled list of storage tanks at the industrial operation, identify any storage tanks with a capacity of 2,500 L or more at the industrial operation.

Step T5: Using the list of storage tanks with a capacity of 2,500 L or more, identify the storage tanks that emit or could potentially emit a Schedule 1 or Schedule 2 substance.

Step T6: Report in worksheet 3.7.1 of the AEIR Form all of the identified storage tanks at the industrial operation with a capacity of 2,500 L or more that emit or could potentially emit a Schedule 1 or 2 substance.

Step T7: If reporting any storage tanks in worksheet 3.7.1, then one or more storage tank non-point sources will also need to be reported in worksheets 3.0, 3.1, etc.

Step T8: Report in worksheets 3.8.1-3.8.6 any Schedule 1 or 2 substance emissions from the storage tanks (as being emitted from the appropriate storage tank non-point source reported in worksheet 3.0).

Note: Storage tanks included in worksheet 3.7.1 of the AEIR Form for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a storage tank has been permanently decommissioned, then the storage tank should be left in the AEIR Form. The operating status for the storage tank in worksheet 3.7.1 should be set to decommissioned. Storage tanks should not disappear from the submitted AEIR Forms.

Worksheet 3.7.1: Storage Tank Information

Note: Table 53 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.7.1: Storage Tank Information, including data types and conditions.

Any operating or approved future storage tanks at the industrial operation? (Y/N)
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Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether there are any operating or approved future storage tanks (greater than 2,500 litre capacity) at the industrial operation. If reporting non-point source information, this field must not be left as "<Choose One>". If there are no storage tanks at the industrial operation, then no additional information is required to be reported in worksheet 3.7.1 of the AEIR Form.

Tank Description

Storage Tank Descriptive Name

Ammonia Storage Tank

This field requires entering a simple descriptive name for the storage tank. If reporting storage tank information, this field must not be left blank.

Storage Tank Unique Designation
--

ST-AAA

This field requires entering the formal designation of the storage tank, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the storage tank, then the identification number used by the industrial operation for the storage tank should be used. If there is no identification number used by the industrial operation for the storage tank, then the storage tank descriptive name can be entered. If reporting storage tank information, this field must not be left blank.

Storage Tank Description

Holding storage tank for ammonia to be used in the Selective Catalytic Reduction Unit

This field requires entering a brief description of the storage tank, to communicate what the storage tank is used for. If reporting storage tank information, this field must not be left blank.

Associated Non-Point Source Descriptive Name
Ammonia Storage Tank

This field requires identifying the non-point source reported in worksheet 3.0 that is associated with the storage tank (where the emissions are being reported). If reporting storage tank information, this field must not be left blank.

Note: The “Associated Non-Point Source” must be called the same as what was entered in worksheet 3.0 of the AEIR Form.

Associated Non-Point Source Unique Designation
ST-AAA

This field requires identifying the unique designation of the non-point source reported in worksheet 3.0 that is associated with the storage tank. If reporting storage tank information, this field must not be left blank.

Type of Tank
Horizontal Tank

This field provides a dropdown list of storage tank types to be used to specify the type of tank. These were developed based on a review of EPEA approved sources and should fit most, but not necessarily all, storage tanks at Alberta industrial operations. Where a specific storage tank does not fit within any of the provided types, “Other Storage Tank” should be selected. If reporting storage tank information, this field must not be left as “<Choose One>”.

The following are the definitions of the provided storage tank types:

Domed External Floating Roof Tank - a storage tank that has both the heavier type of deck used in external floating roof tanks as well as a fixed roof at the top of the shell like an internal floating roof tank. Domed external floating roof tanks usually result from retrofitting an external floating roof tank with a fixed roof.

External Floating Roof Tank - a storage tank with an open-topped cylindrical steel shell equipped with a roof that floats on the surface of the stored liquid, rising and falling with the liquid level. There is typically no vapour space in the floating roof tank, which generally eliminates breathing losses and greatly reduces the evaporative loss of the stored liquid.

Fixed Roof Tank - a type of storage tank for liquids consisting of a cone- or dome-shaped roof that is permanently affixed to a cylindrical shell. These tanks are typically not vapour tight and may operate with or without a breather valve.

Horizontal Tank - a type of smaller storage tank that sits horizontally and is usually cylindrical in shape.

Internal Floating Roof Tank - a storage tank that has both a permanent fixed roof and a floating roof inside. The internal floating roof rises and falls with the liquid level. There is a tank vapour space located above the floating roof and below the fixed-roof with circulation vents to allow natural ventilation. The fixed roof is not necessarily free of openings but does span the entire open plan area of the vessel.

LNG Storage Tank - a specialized type of storage tank used for the storage of Liquefied Natural Gas (LNG). LNG storage tanks can be found in-ground or above ground and have the specific ability to store LNG at the very low temperatures.

Other Storage Tank - a storage tank that does not fall under any of the provided storage tank categories.

Pressure Tank - a storage tank designed for containment of volatiles at high pressures. The pressure may be obtained from an external source or by the application of heat from a direct or indirect source as a result of a process.

Underground Storage Tank - a type of storage tank that contains petroleum products or other regulated hazardous substances whose volume is 10% or more beneath the surface of the ground.

Variable Vapour Space Tank - a storage tank equipped with expandable vapour reservoirs to accommodate vapour volume fluctuations arising due to temperature and atmospheric pressure changes. These storage tanks can be used independently or via connection to the vapour spaces of one or more internal floating roof tanks.

Description of "Other Storage Tank" (if applicable)
n/a

When "Other Storage Tank" is selected as the type of tank in the previous field, this field requires entering a description of the other type. This description should simply explain what the storage tank is and why it did not fit within the standard types provided.

Material(s) Stored
ammonia

This field requires identifying the material or materials stored in the storage tank. If reporting storage tank information, this field must not be left blank.

Make of Tank
Kennedy

This field requires entering the make (manufacturer) of the storage tank. If not documented elsewhere at the industrial operation, the make information should be identified on the storage tank. If the tank is custom built, "Custom" can be entered as the make. If reporting storage tank information, this field must not be left blank.

Model # of Tank
TC303

This field requires entering the model number of the storage tank. If not documented elsewhere at the industrial operation, the model number should be identified on the storage tank. If the tank is custom built, "Custom" can be entered as the model #. If reporting storage tank information, this field must not be left blank.

Tank Parameter Information

Tank Height (m)
8.00

This field requires entering the height of the storage tank. The height is measured from ground level and is to be reported in metres. If reporting storage tank information, this field must not be left blank.

Tank Diameter (m)
3.00

This field requires entering the diameter of the storage tank. The diameter value is to be reported in metres. If reporting storage tank information, this field must not be left blank.

Tank Volume (m³)
250.00

This field requires entering the volume of the storage tank. The volume value is to be reported in metres cubed. If reporting storage tank information, this field must not be left blank.

Note: Tank volume is the approximate space taken up by the tank itself, while capacity refers to the amount of liquid or gas that the tank can hold.

Maximum or Rated Design Capacity of Tank
250.00

This field requires entering the maximum or rated design capacity of the storage tank. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. If reporting storage tank information, this field must not be left blank.

Average or Normal Capacity of Tank
225.00

This field requires entering the average or normal capacity of the storage tank. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. If reporting storage tank information, this field must not be left blank.

Capacity Units
m ³

This field requires entering the units of the capacity values being reported for the storage tank. If reporting storage tank information, this field must not be left blank.

Maximum Annual Tank Throughput
250,000.00

This field requires entering the maximum throughput of the storage tank. If reporting storage tank information, this field must not be left blank.

Note: The maximum throughput would be the maximum throughput based on the storage tank design or the historical maximum, whichever the person responsible deems more representative.

Average Annual Tank Throughput
150,000.00

This field requires entering the average annual throughput of the storage tank. If reporting storage tank information, this field must not be left blank.

Note: The average annual throughput would be the average/typical/normal throughput not necessarily specific to any one particular year. This would be whatever the person responsible deems representative for the average annual throughput.

Throughput Units
litres

This field requires entering the units of the throughput values being reported for the storage tank. If reporting storage tank information, this field must not be left blank.

Tank Operational Information

Note: Tank operational information is only required in worksheet 3.7.1 if individual storage tank operational information was not already reported in worksheet 3.0 of the AEIR Form.

Year of Manufacture of Tank
1997

This field requires entering the year of manufacture of the storage tank. This is the year the storage tank was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the storage tank.

Note: If the exact year of manufacture is not available for older tanks, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Installation of Tank
1998

This field requires entering the year of installation of the storage tank at the industrial operation.

Note: If the exact year of installation is not available for older tanks, it is acceptable to provide a reasonable estimate for the year of installation (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Tank Start-up Year
1999

This field requires entering the year of start-up of the storage tank at the industrial operation. This is typically close to or within a year or two of the installation year.

Note: If the exact year of start-up is not available for older tanks, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Tank Operating Status
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the storage tank for the inventory year. The provided options include: "Operating", "Temporarily shut-down", "Decommissioned" and "Not yet constructed/operating".

"Operating" should be selected if the storage tank was operating for all or part of the inventory year. This would be the selection that applies to most storage tanks at an industrial operation.

“Temporarily shut-down” means the storage tank was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for storage tanks that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that storage tanks that were shut-down for only part of the year should be classified as “operating”, as the storage tank was still operating during the inventory year.

“Decommissioned” should be selected for those storage tanks that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such storage tanks should be changed to “Decommissioned”. The other reported information for the decommissioned storage tank should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved storage tanks that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for storage tanks that are approved but have not yet been built or are not yet operating. Such storage tanks could be part of approved future phases of the industrial operation. It is not necessary to report planned storage tanks that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Tank Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the storage tank for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most storage tanks and simply means that the storage tank operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the storage tank normally operates.

“Start-up” would be selected when the storage tank was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the storage tank was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the storage tank experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the storage tank operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a storage tank has high variation in operation nearly every year and thus while the storage tank is operating, there is simply no normal operating condition for the storage tank.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the storage tank would not be considered normal/average/typical for the inventory year.

Tank Decommission Date (if applicable)
January 5, 2022

This field requires identifying the date when the storage tank was permanently shut-down or decommissioned. Storage tanks that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved storage tanks that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Tank? (Y/N)
No

This field is a dropdown menu for selecting "Yes" or "No" to identify if the storage tank has not yet been built or has not yet commenced operation. All storage tanks that are operating/emitting should have "No" selected and only the future not-yet operating/emitting storage tanks should have "Yes" selected.

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future storage tank is expected to begin operating/emitting. This field is only applicable to any future storage tanks that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Tank Other Information

Type(s) of Vents Present
Pressure

This field requires entering the types of vents present on the storage tank. If reporting storage tank information, this field must not be left blank.

Method(s) of Corrosion Control
corrosion-resistant materials, re-application of protective coating

This field requires identifying the methods of corrosion control used for the storage tank. If reporting storage tank information, this field must not be left blank.

Method(s) of Leak Detection
precision leak detection testing

This field requires identifying the method or methods of leak detection used for the storage tank. If reporting storage tank information, this field must not be left blank.

Tank Location Information

Note: Storage tank location information is only required in worksheet 3.7.1 if the individual storage tank location information was not already reported in worksheet 3.1 of the AEIR Form.

Note: Locations for individual storage tanks can be reported as simple four corner polygons.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Tank Base Elevation (m ASL)
671

This field requires entering the base elevation of the storage tank in metres above sea level.

Number of Vertices
4

This field requires entering the number of vertices being reported to represent the location and shape of the storage tank.

Tank Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the location of the storage tank being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Tank Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the location of the storage tank being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Note: The same latitude and longitude fields described above are required for reporting the storage tank's other vertex locations (2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

Tank Pollution Controls

Note: Storage tank pollution control/emission recovery information is only required in worksheet 3.7.1 if the storage tank control information was not already reported in worksheet 3.3 of the AEIR Form.

The same pollution control information is required for storage tanks as is required for other non-point sources. The pollution control technology and equipment fields required for non-point sources are described in Section 10.3 of the AEIR Standard.

8.2 Gather and Enter Information on Exposed Storage Piles (Step 8b)

An exposed storage pile is a pile of onsite materials at an industrial operation. These piles are potential sources of particulate matter from physical and wind disturbances, and also may emit gaseous emissions from off-gassing of the materials being stored. The AEIR Form requires information on the classification, operation, installation, decommission, parameters, location and pollution controls of each exposed storage pile at the industrial operation. The following describes the exposed storage pile information required in worksheet 3.7.2 of the AEIR Form, with examples of the expected information.

Note: Facilities in the Biofuels, Cement, Chemicals, Coal Mining, Electric Power, Food and Beverage, Metal Manufacturing, Oil Sands Mining, Pulp and Paper, Waste Management and Wood Products sectors typically have storage piles that are to be reported in the AEIR Form.

Note: Only storage piles that are exposed to the atmosphere (not fully enclosed) need to be reported in worksheet 3.7.2 of the AEIR Form. However, air emissions from enclosed storage piles would still be reported elsewhere in the AEIR Form (for the opening or vent to the atmosphere).

Note: For EPEA approved future exposed storage piles, the available information is to be used to fill in the required fields in worksheet 3.7.2.

Worksheet 3.7.2: Exposed Storage Pile Information

Note: Table 54 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.7.2: Exposed Storage Pile Information, including data types and conditions.

Any operating or approved future exposed storage piles at the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there are any operating or approved future exposed storage piles at the industrial operation. If reporting non-point source information, this field must not be left as “<Choose One>”. If there are no exposed storage piles at the industrial operation, then no additional information is required to be reported in worksheet 3.7.2 of the AEIR Form.

Exposed Storage Pile Description

Exposed Storage Pile Descriptive Name
Pile 1

This field requires entering a simple descriptive name for the storage pile, to communicate what the storage pile is. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Unique Designation
PJ01

This field requires entering the formal designation of the storage pile, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the storage pile, then the identification number used by the industrial operation for the storage pile should be used. If there is no identification number used by the industrial operation for the storage pile, then the storage pile descriptive name can be entered. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Description
Storage pile of waste materials for transport and disposal

This field requires entering a brief description of the storage pile to communicate what the storage pile is used for. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Material(s) Stored
wood waste

This field requires identifying the material or materials stored in the storage pile. If reporting storage pile information, this field must not be left blank.

Associated Non-Point Source Descriptive Name
Pile 1

This field requires identifying the non-point source reported in worksheet 3.0 that is associated with the storage pile (where the emissions are being reported). If reporting storage pile information, this field must not be left blank.

Note: The "Associated Non-Point Source" must be called the same as what was entered in worksheet 3.0 of the AEIR Form.

Associated Non-Point Source Unique Designation
PJ01

This field requires identifying the unique designation of the non-point source reported in worksheet 3.0 that is associated with the storage pile. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Parameter Information

Note: The "Exposed Storage Pile Parameter Information" fields required are to describe the typical dimensions of the individual storage piles (how tall, the length and width of the base, area of the base, volume of the pile).

Exposed Storage Pile Height (m)
8.00

This field requires entering the approximate height of the storage pile. The height is measured from ground level and is to be reported in metres. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Length (m)
3.00

This field requires entering the approximate length of the base of the storage pile. The length value is to be reported in metres. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Width (m)
3.00

This field requires entering the approximate width of the base of the storage pile. The width value is to be reported in metres. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Area (m ²)
9.00

This field requires entering the approximate area of the base of the storage pile. The area value is to be reported in metres squared. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Volume (m³)
72.00

This field requires entering the approximate volume of the storage pile. The volume value is to be reported in metres cubed. If reporting storage pile information, this field must not be left blank.

Exposed Storage Pile Operational Information

Note: Storage pile operational information is only required in worksheet 3.7.2 if individual storage pile operational information was not already reported in worksheet 3.0 of the AEIR Form.

Exposed Storage Pile Start-up Year
1999

This field requires entering the year of start-up of the storage pile.

Note: If the exact year of start-up is not available for older storage piles, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Exposed Storage Pile Operating Status
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the storage pile for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”.

“Operating” should be selected if the storage pile was operating for all or part of the inventory year. This would be the selection that applies to most storage piles at an industrial operation.

“Temporarily shut-down” means the storage pile was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for storage piles that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that storage piles that were shut-down for only part of the year should be classified as “operating”, as the storage pile was still operating during the inventory year.

“Decommissioned” should be selected for those storage piles that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such storage piles should be changed to “Decommissioned”. The other reported information for the decommissioned storage pile should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved storage piles that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for storage piles that are approved but have not yet been built or are not yet operating. Such storage piles could be part of approved future phases of the industrial operation. It is not necessary to report planned storage piles that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Exposed Storage Pile Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the storage pile for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most storage piles and simply means that the storage pile operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the storage pile normally operates.

“Start-up” would be selected when the storage pile was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the storage pile was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the storage pile experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the storage pile operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a storage pile has high variation in operation nearly every year and thus while the storage pile is operating, there is simply no normal operating condition for the storage pile.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the storage pile would not be considered normal/average/typical for the inventory year.

Exposed Storage Pile Decommission Date (if applicable)
January 5, 2022

This field requires entering the date when the storage pile was permanently shut-down or decommissioned (if applicable). Storage piles that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved storage piles that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Storage Pile? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to identify if the storage pile has not yet been built or has not yet commenced operation. All storage piles that are operating/emitting should have “No” selected and only the future not-yet operating/emitting storage piles should have “Yes” selected.

First Year of Expected Operation (if applicable)
2030

This field requires identifying the first year the approved future storage pile is expected to begin operating/emitting. This field is only applicable to any future storage piles that are not-yet operating/emitting. This information will be used for the province’s future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Exposed Storage Pile Location Information

Note: Storage pile location information is only required in worksheet 3.7.2 if the individual storage pile location information was not already reported in worksheet 3.1 of the AEIR Form.

Note: Locations for exposed storage piles can be reported as simple four corner polygons.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Storage Pile Base Elevation (m ASL)
671

This field requires entering the base elevation of the storage pile in metres above sea level.

Number of Vertices
4

This field requires entering the number of vertices being reported to represent the location and shape of the storage pile.

Storage Pile Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the location of the storage pile being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Storage Pile Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the location of the storage pile being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Note: The same latitude and longitude fields described above are required for reporting the storage pile's other vertex locations (2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

Exposed Storage Pile Pollution Controls

Note: Storage pile pollution control information is only required in worksheet 3.7.2 if the storage pile control information was not already reported in worksheet 3.3 of the AEIR Form.

The same pollution control information is required for storage piles as is required for other non-point sources. The pollution control technology and equipment fields required for non-point sources are described in Section 10.3 of the AEIR Standard.

8.3 Gather and Enter Information on Mine Fleets (Step 8c)

Mine fleets are the fleets of vehicles operating onsite at an industrial operation that are directly involved, or that support, the industrial activity (e.g., mining). This would include vehicles operating onsite (within the boundaries of the industrial operation) that are critical to industrial activity (e.g., mining vehicles and transport trucks). This would not include vehicles primarily travelling offsite to deliver materials or workers to or from the industrial operation. Mine fleets are potential sources of air emissions from vehicle exhaust. Road dust from on-site vehicle activities, materials handling related to the vehicles and loading/unloading of the vehicles are separate non-point source categories for the AEIR Program. The AEIR Form requires information describing the makeup of each mine fleet at the industrial operation. The following describes the mine fleet information required in worksheet 3.7.3 of the AEIR Form, with examples of the expected information.

Note: Facilities in the Coal Mining and Oil Sands Mining sectors typically have mine fleets that are to be reported in the AEIR Form.

Note: Mine Fleet Vehicles would primarily be oil sands heavy haulers, but would also include any other vehicles operating onsite that are directly involved, or that support, the industrial activity (e.g., mining). For example: excavators, dozers, graders, etc. Note that there is a separate category for non-stationary equipment. The main difference between vehicles and non-stationary equipment is whether or not the vehicle/equipment can move on its own and can operate while moving.

Note: For EPEA approved future mine fleets, the available information is to be used to fill in the required fields in worksheet 3.7.3.

Note: It is recommended that mining operations estimate SO₂ emissions using site-specific sulphur content values (if available) rather than assuming a sulphur content value of 15 ppm. While the regulatory limit for sulphur in diesel for on-road/off-road vehicles is 15 ppm, the actual sulphur content will typically be lower than 15 ppm.

Note: It is recommended that mining operations use the Environment and Climate Change Canada methodology for estimating particulate matter from off-road diesel vehicles and equipment, which assumes that the amount of TPM equals PM₁₀ and that PM_{2.5} = 0.97 x TPM.

Worksheet 3.7.3: Mine Fleet Information

Note: Each make and model of vehicle within each mine fleet should be listed in individual rows in worksheet 3.7.3.

Note: Table 55 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.7.3: Mine Fleet Information, including data types and conditions.

Any operating or approved future mine fleet vehicles at the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there are any operating or approved future mine fleet vehicles at the industrial operation. If reporting non-point source information, this field must not be left as “<Choose One>”. If there are no mine fleet vehicles at the industrial operation, no additional information is required to be reported in worksheet 3.7.3 of the AEIR Form.

Mine Fleet Description

Mine Fleet Descriptive Name
North Mine Fleet

This field requires entering a simple descriptive name for the specific mine fleet. If reporting mine fleet information, this field must not be left blank.

Mine Fleet Unique Designation
MF001

This field requires entering the formal designation of the mine fleet, as specified in the EPEA approval or associated approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the mine fleet, then the identification number used by the industrial operation for the mine fleet should be entered. If there is no identification number used by the industrial operation for the mine fleet, then the mine fleet descriptive name can be entered. If reporting mine fleet information, this field must not be left blank.

Mine Fleet Description
The Caterpillar 797B trucks operating at the northern mining location.

This field requires entering a brief description of the mine fleet, to communicate what vehicles are included in the row (grouping by make and model of vehicle within each mine fleet). If reporting mine fleet information, this field must not be left blank.

Associated Non-Point Source Descriptive Name
North Mine Fleet

This field requires identifying the non-point sources reported in worksheet 3.0 that is associated with the mine fleet (where the emissions are being reported). If reporting mine fleet information, this field must not be left blank.

Note: The “Associated Non-Point Source” must be called the same as what was entered in worksheet 3.0 of the AEIR Form.

Associated Non-Point Source Unique Designation
MF001

This field requires identifying the unique designation of the non-point source reported in worksheet 3.0 that is associated with the mine fleet. If reporting mine fleet information, this field must not be left blank.

Vehicle Make (group same make/models together for same mine fleet)
Caterpillar

This field requires entering the make (manufacturer) of the mine fleet vehicles. Each make and model of vehicle within each mine fleet should be listed in individual rows in worksheet 3.7.3. If reporting mine fleet information, this field must not be left blank.

Vehicle Model (group same make/models together for same mine fleet)
797B

This field requires entering the model number of the mine fleet vehicles. Each make and model of vehicle within each mine fleet should be listed in individual rows in worksheet 3.7.3. If reporting mine fleet information, this field must not be left blank.

Engine Make
Cummins

This field requires entering the make (manufacturer) of the engine for the mine fleet vehicles. If reporting mine fleet information, this field must not be left blank.

Engine Model
C302A

This field requires entering the model number of the engine for the mine fleet vehicles. If reporting mine fleet information, this field must not be left blank.

Engine Size
4000 hp

This field requires entering the size of the engine for the mine fleet vehicles. If reporting mine fleet information, this field must not be left blank.

Engine Tier
Tier 3

This field requires selecting the engine tier from the provided dropdown list for the engine for the mine fleet vehicles. If reporting mine fleet information, this field must not be left as "<Choose One>".

Approximate Number of Vehicles Operating During the Year
10

This field requires entering the approximate number of vehicles operating during the year for the mine fleet (for the specific make and model of vehicle). If reporting mine fleet information, this field must not be left blank.

Type of Fuel Used
Diesel

This field requires entering the type of fuel used by the mine fleet vehicles (for the specific make and model of vehicle). If reporting mine fleet information, this field must not be left blank.

Total Fuel Consumption
10,000

This field requires entering the total amount of fuel used by the mine fleet vehicles (for the specific make and model of vehicle) during the inventory year. If reporting mine fleet information, this field must not be left blank.

Units of Fuel Consumption (e.g. litres, kilolitres)
kilolitres

This field requires entering the units for the amount of fuel used. If reporting mine fleet information, this field must not be left blank.

Mine Fleet Operational Information

Note: Mine fleet operational information is only required in worksheet 3.7.3 if individual mine fleet operational information was not already reported in worksheet 3.0 of the AEIR Form.

Mine Fleet Start-up Year
1999

This field requires entering the year of start-up of the mine fleet.

Note: If the exact year of start-up is not available for older mine fleets, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Note: The earliest (first) start-up year for the make/model used in the mine fleet should be selected as the start-up year for the entire make/model grouping of the mine fleet.

Mine Fleet Operating Status
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the mine fleet for the inventory year. The provided options include: "Operating", "Temporarily shut-down", "Decommissioned" and "Not yet constructed/operating".

"Operating" should be selected if the mine fleet was operating for all or part of the inventory year. This would be the selection that applies to most mine fleets at an industrial operation.

"Temporarily shut-down" means the mine fleet was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for mine fleets that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that mine fleets that were shut-down for only part of the year should be classified as "operating", as the mine fleet was still operating during the inventory year.

"Decommissioned" should be selected for those mine fleets that were operating and reported in past years' AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such mine fleets should be changed to "Decommissioned". The other reported information for the decommissioned mine fleet should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved mine fleets that were permanently shut-down or decommissioned prior to 2018.

"Not yet constructed/operating" should be used for mine fleets that are approved but have not yet been built or are not yet operating. Such mine fleets could be part of approved future phases of the industrial operation. It is not necessary to report planned mine fleets that have not yet been approved (authorized as part of the industrial operation's EPEA approval).

Mine Fleet Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the mine fleet for the inventory year (if operating). The provided options include: "Normal", "Start-up", "Turnaround", "Upset", "Low Annual Output" and "High Annual Variability".

“Normal” would be the selection for most mine fleets and simply means that the mine fleet operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the mine fleet normally operates.

“Start-up” would be selected when the mine fleet was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the mine fleet was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the mine fleet experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the mine fleet operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a mine fleet has high variation in operation nearly every year and thus while the mine fleet is operating, there is simply no normal operating condition for the mine fleet.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the mine fleet would not be considered normal/average/typical for the inventory year.

Mine Fleet Decommission Date (if applicable)
--

January 5, 2022

This field requires entering the date when the mine fleet was permanently shut-down or decommissioned. Mine fleets that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved mine fleets that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Mine Fleet? (Y/N)

No

This field is a dropdown menu for selecting “Yes” or “No” to identify if the mine fleet has not yet been built or has not yet commenced operation. All mine fleets that are operating/emitting should have “No” selected and only the future not-yet operating/emitting mine fleets should have “Yes” selected.

First Year of Expected Operation (if applicable)
--

2025

This field requires identifying the first year the approved future mine fleet is expected to begin operating/emitting. This field is only applicable to any mine fleets that are not-yet operating/emitting. This information will be used for the province’s future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Mine Fleet Location Information

Note: Mine fleet location information is only required in worksheet 3.7.3 if the individual mine fleet location information was not already reported in worksheet 3.1 of the AEIR Form.

Note: Mine fleet locations should cover the main area where the on-site mining vehicles and heavy equipment are operating.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Mine Fleet Base Elevation (m ASL)
671

This field requires entering the base elevation of the mine fleet in metres above sea level.

Note: Although there may be some variation in the elevation of non-point sources covering large areas, a single representative elevation for the non-point source is to be reported. This is to be based on the professional judgement of the person responsible.

Number of Vertices
4

This field requires entering the number of vertices being reported to represent the location and shape of the mine fleet area.

Mine Fleet Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the location of the mine fleet being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Mine Fleet Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the location of the mine fleet being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Note: The same latitude and longitude fields described above are required for reporting the mine fleet's other vertex locations (2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

Mine Fleet Pollution Controls

Note: Mine fleet pollution control information is only required in worksheet 3.7.3 if the mine fleet control information was not already reported in worksheet 3.3 of the AEIR Form.

The same pollution control information is required for mine fleets as is required for other non-point sources. The pollution control technology and equipment fields required for non-point sources are described in Section 10.3 of the AEIR Standard.

8.4 Gather and Enter Information on Mine Faces (Step 8d)

Mine faces are at the mining surface, where the mining work is occurring or advancing. It may also be known as the pit face. Mine faces are potential sources of air emissions from surface disturbances and off-gassing. The AEIR Form requires information describing each mine face at the industrial operation. The following describes the mine face information required in worksheet 3.7.4 of the AEIR Form, with examples of the expected information.

Note: Facilities in the Coal Mining and Oil Sands Mining sectors typically have mine faces that are to be reported in the AEIR Form.

Note: For EPEA approved future mine faces, the available information is to be used to fill in the required fields in worksheet 3.7.4.

Worksheet 3.7.4: Mine Face Information

Note: Some mine face non-point sources will have more than one operating mine face segment. Each segment of each mine face non-point source should be listed in individual rows in worksheet 3.7.4. If a mine face has only one segment, a single row can be used to enter the required information.

Note: Table 56 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.7.4: Mine Face Information, including data types and conditions.

Any operating or approved future mine faces at the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there are any operating or approved future mine faces at the industrial operation. If reporting non-point source information, this field must not be left as “<Choose One>”. If there are no mine faces at the industrial operation, no additional information is required to be reported in worksheet 3.7.4 of the AEIR Form.

Mine Face Description

Mine Face Descriptive Name
North Mine Face

This field requires entering a simple descriptive name for the mine face. If reporting mine face information, this field must not be left blank.

Mine Face Unique Designation
NMF100

This field requires entering the formal designation of the mine face, as specified in the EPEA approval or associated approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the mine face, then the identification number used by the industrial operation for the mine face should be entered. If there is no identification number used by the industrial operation for the mine face, then the mine face descriptive name can be entered. If reporting mine face information, this field must not be left blank.

Associated Non-Point Source Descriptive Name
North Mine Face

This field requires identifying the non-point source reported in worksheet 3.0 that is associated with the mine face (where the emissions are being reported). If reporting mine face information, this field must not be left blank.

Note: The "Associated Non-Point Source" must be called the same as what was entered in worksheet 3.0 of the AEIR Form.

Associated Non-Point Source Unique Designation
NMF-1

This field requires identifying the unique designation of the non-point source reported in worksheet 3.0 that is associated with the mine face. If reporting mine face information, this field must not be left blank.

Mine Face Segment Name
Segment North A

This field requires entering the name of the segment of the mine face. If reporting mine face information, this field must not be left blank.

Mine Face Segment Description
Mine face segment A of the north mine face

This field requires entering a brief description of the segment of the mine face. If reporting mine face information, this field must not be left blank.

Mine Face Segment Parameter Information

Note: The "Mine Face Segment Parameter Information" fields required are to describe the typical dimensions of the mine segment of the mine face (how tall, the length and width, and area).

Mine Face Segment Height (m)
6.00

This field requires entering the approximate height of the segment of the mine face. The height is measured from ground level and is to be reported in metres. If reporting mine face information, this field must not be left blank.

Mine Face Segment Length (m)
220.00

This field requires entering the approximate length of the segment of the mine face. The length value is to be reported in metres. If reporting mine face information, this field must not be left blank.

Mine Face Segment Width (m)
6.00

This field requires entering the approximate width of the segment of the mine face. The width value is to be reported in metres. If reporting mine face information, this field must not be left blank.

Mine Face Segment Area (m2)
1320.00

This field requires entering the approximate area of the segment of the mine face. The area value is to be reported in metres squared. If reporting mine face information, this field must not be left blank.

Mine Face Segment Operational Information

Note: Mine face operational information is only required if individual mine face segment operational information was not already reported in worksheet 3.0.

Mine Face Segment Start-up Year
1999

This field requires entering the year of start-up of the mine face segment.

Note: If the exact year of start-up is not available for older mine faces, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Mine Face Segment Operating Status
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the mine face segment for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”.

“Operating” should be selected if the mine face segment was operating for all or part of the inventory year. This would be the selection that applies to most mine face segments at an industrial operation.

“Temporarily shut-down” means the mine face segment was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for mine face segments that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that mine face segments that were shut-down for only part of the year should be classified as “operating”, as the mine face segments was still operating during the inventory year.

“Decommissioned” should be selected for those mine face segments that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such mine face segments should be changed to “Decommissioned”. The other reported information for the decommissioned mine face segment should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved mine face segments that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for mine face segments that are approved but have not yet been built or are not yet operating. Such mine face segments could be part of approved future phases of the industrial operation. It is not necessary to report planned mine face segments that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Mine Face Segment Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the mine face segment for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most mine face segments and simply means that the mine face segment operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the mine face segment normally operates.

“Start-up” would be selected when the mine face segment was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the mine face segment was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the mine face segment experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the mine face segment operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a mine face segment has high variation in operation nearly every year and thus while the mine face is operating, there is simply no normal operating condition for the mine face segment.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the mine face segment would not be considered normal/average/typical for the inventory year.

Mine Face Segment Decommission Date (if applicable)
January 5, 2022

This field requires entering the date when the mine face segment was permanently shut-down or decommissioned. Mine faces that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved mine faces that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Mine Face? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to identify if the mine face segment has not yet been built or has not yet commenced operation. All mine face segments that are operating/emitting should have “No” selected and only the future not-yet operating/emitting mine face segments should have “Yes” selected.

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future mine face segment is expected to begin operating/emitting. This field is only applicable to any mine face segments that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Mine Face Segment Location Information

Note: Mine face segment location information is only required if individual mine face segment location information is available (and different from the location information reported in worksheet 3.1).

Note: Locations for mine face segments can be reported as simple four corner polygons.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Mine Face Segment Base Elevation (m ASL)
671

This field requires entering the base elevation of the mine face segment in metres above sea level.

Note: Although there may be some variation in the elevation of non-point sources covering large areas, a single representative elevation for the non-point source is to be reported. This is to be based on the professional judgement of the person responsible.

Number of Vertices
4

This field requires entering the number of vertices being reported to represent the location and shape of the mine face segment.

Mine Face Segment Vertex 1 Latitude (Decimal, NAD 83)
53.53600

This field requires entering the first geographic latitude vertex value for the location of the mine face segment being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Mine Face Segment Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the location of the mine face segment being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Note: The same latitude and longitude fields described above are required for reporting the mine face segment's other vertex locations (2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

Mine Face Segment Pollution Controls

Note: Mine face segment pollution control information only required if there are mine face segment specific pollution controls and if different from the control information reported in worksheet 3.3.

The same pollution control information is required for mine faces segment as is required for other non-point sources. The pollution control technology and equipment fields required for non-point sources are described in Section 10.3 of the AEIR Standard.

8.5 Gather and Enter Information on Tailings Ponds (Step 8e)

Tailings ponds are liquid areas at a mine used to store the waste produced by the mining operation. Tailings ponds are potential sources of fugitive air emissions. The AEIR Form requires information describing each tailings pond at the industrial operation. The following describes the tailings pond information required in worksheet 3.7.5 of the AEIR Form, with examples of the expected information.

Note: Facilities in the Oil Sands Mining and Coal Mining sector typically have tailings ponds that are to be reported in the AEIR Form.

Note: For EPEA approved future tailings ponds, the available information is to be used to fill in the required fields in worksheet 3.7.5.

Worksheet 3.7.5: Tailings Pond Information

Note: Table 57 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.7.5: Tailings Pond Information, including data types and conditions.

Any operating or approved future tailings ponds at the industrial operation? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether there are any operating or approved future tailings ponds at the industrial operation. If reporting non-point source information, this field must not be left as "<Choose One>". If there are no tailings ponds at the industrial operation, no additional information is required to be reported in worksheet 3.7.5 of the AEIR Form.

Tailings Pond Description

Tailings Pond Descriptive Name
North Tailings Pond

This field requires entering a simple descriptive name for the tailings pond. If reporting tailing pond information, this field must not be left blank.

Tailings Pond Unique Designation
PND210

This field requires entering the formal designation of the tailings pond, as specified in the EPEA approval or associated approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the tailings pond, then the identification number used by the industrial operation for the tailings pond should be entered. If there is no identification number used by the industrial operation for the tailing pond, then the tailings pond descriptive name can be entered. If reporting tailing pond information, this field must not be left blank.

Tailings Pond Description
This pond receives oil sands tailings from the northern mining location and waste products from the main processing unit.

This field requires entering a brief description of the tailings pond, to communicate what is being received from which parts of the mining operation. If reporting tailing pond information, this field must not be left blank.

Associated Non-Point Source Descriptive Name
North Tailings Pond

This field requires identifying the non-point source reported in worksheet 3.0 that is associated with the tailings pond (where the emissions are being reported). If reporting tailing pond information, this field must not be left blank.

Note: The “Associated Non-Point Source” must be called the same as what was entered in worksheet 3.0 of the AEIR Form.

Associated Non-Point Source Unique Designation
TP-101

This field requires identifying the unique designation of the non-point source reported in worksheet 3.0 that is associated with the tailings pond. If reporting tailing pond information, this field must not be left blank.

Total Area of Tailing Pond (km²)
4.00

This field requires entering the total area of the tailings pond in kilometres squared. If reporting tailing pond information, this field must not be left blank.

Note: Tailings pond areas (total area, water and dry pond) should be calculated and reported for the timeframe when the monitoring occurred, as the area of the tailings pond can vary month to month and by season. For multiple periods of monitoring, the maximum determined areas during the monitoring should be reported.

Size of Water Area (km²)
3.00

This field requires entering the size of the water area of the tailings pond in kilometres squared. If reporting tailing pond information, this field must not be left blank.

Size of Dry Pond (beach) (km²)
1.00

This field requires entering the size of the dry pond or beach area of the tailings pond in kilometres squared. If reporting tailing pond information, this field must not be left blank.

Total Discharge Volume to the Pond for the Year (m³)
25,555.00

This field requires entering the total discharge volume to the pond for the inventory year in cubic metres. If reporting tailing pond information, this field must not be left blank.

% of Total Discharge Volume that is Diluent (for oil sands mining operations)
1

This field requires entering the percent of total discharge volume that is diluent. This field only applies for oil sands mining operation tailings ponds. If reporting tailing pond information, this field must not be left blank.

Diluent Type
naphtha

This field requires entering the type of diluent. This field only applies for oil sands mining operation tailings ponds. If reporting tailing pond information, this field must not be left blank.

Typical Tailing Content
sand, silt, clay and water

This field requires identifying the typical tailing content. If reporting tailing pond information, this field must not be left blank.

Tailings Pond Operational Information

Note: Tailings pond operational information is only required if individual tailings pond operational information was not already reported in worksheet 3.0 of the AEIR Form.

Tailings Pond Start-up Year
1999

This field requires entering the year of start-up of the tailings pond.

Note: If the exact year of start-up is not available for older tailings ponds, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Tailings Pond Operating Status
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the tailings pond for the inventory year. The provided options include: "Operating", "Temporarily shut-down", "Decommissioned" and "Not yet constructed/operating".

"Operating" should be selected if the tailings pond was operating for all or part of the inventory year. This would be the selection that applies to most tailings ponds at an industrial operation.

“Temporarily shut-down” means the tailings pond was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for tailings ponds that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that tailings ponds that were shut-down for only part of the year should be classified as “operating”, as the tailings pond was still operating during the inventory year.

“Decommissioned” should be selected for those tailings ponds that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such tailings ponds should be changed to “Decommissioned”. The other reported information for the decommissioned tailings pond should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved tailings ponds that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for tailings ponds that are approved but have not yet been built or are not yet operating. Such tailings ponds could be part of approved future phases of the industrial operation. It is not necessary to report planned tailings ponds that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Tailings Pond Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the tailings pond for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most tailings ponds and simply means that the tailings pond operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the tailings pond normally operates.

“Start-up” would be selected when the tailings pond was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the tailings pond was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the tailings pond experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the tailings pond operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a tailings pond has high variation in operation nearly every year and thus while the tailings pond is operating, there is simply no normal operating condition for the tailings pond.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the tailings pond would not be considered normal/average/typical for the inventory year.

Tailings Pond Decommission Date (if applicable)
January 5, 2022

This field requires entering the date when the tailings pond was permanently shut-down or decommissioned. Tailings ponds that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved tailings ponds that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Tailings Pond? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to identify if the tailings ponds has not yet been built or has not yet commenced operation. All tailings ponds that are operating/emitting should have “No” selected and only the future not-yet operating/emitting tailings ponds should have “Yes” selected.

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future tailings pond is expected to begin operating/emitting. This field is only applicable to any tailings ponds that are not-yet operating/emitting. This information will be used for the province’s future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Tailings Pond Location Information

Note: Tailings pond location information is only required in worksheet 3.7.5 if individual tailings pond location information was not already reported in worksheet 3.1 of the AEIR Form.

Note: The vertices should be listed in the drawing order of the polygon (left to right and clockwise). If only reporting a simple four corner rectangle, use the first four sets of vertex coordinate pairs to report in this order (vertex 1 = northwest corner, vertex 2 = northeast corner, vertex 3 = southeast corner, vertex 4 = southwest corner).

Tailings Pond Base Elevation (m ASL)
671

This field requires entering the base elevation of the tailings pond in metres above sea level.

Note: Although there may be some variation in the elevation of non-point sources covering large areas, a single representative elevation for the non-point source is to be reported. This is to be based on the professional judgement of the person responsible.

Number of Vertices
4

This field requires entering the number of vertices being reported to represent the location and shape of the tailings pond.

Tailings Pond Vertex 1 Latitude (Decimal, NAD 83)
53.53610

This field requires entering the first geographic latitude vertex value for the location of the tailings pond being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Tailings Pond Vertex 1 Longitude (Decimal, NAD 83)
-113.50330

This field requires entering the first geographic longitude vertex value for the location of the tailings pond being reported. This is to be reported in geographic decimal NAD 83, to a minimum precision of five decimal places.

Note: The same latitude and longitude fields described above are required for reporting the tailings pond's other vertex locations (2 to 10). These fields are not repeated here to limit repetition in the AEIR Standard.

Tailings Pond Pollution Controls

Note: Tailings pond pollution control information is only required in worksheet 3.7.5 if the tailings pond control information was not already reported in worksheet 3.3 of the AEIR Form.

The same pollution control information is required for tailings ponds as is required for other non-point sources. The pollution control technology and equipment fields required for non-point sources are described in Section 10.3 of the AEIR Standard.

9.0 Unit, Process and Equipment Information (Steps 9a - c)

9.1 Identify Units, Processes and Equipment (Step 9a)

The next step in preparing the AEIR requires identification of the units, processes and equipment that are associated with, and emit to the atmosphere via, the release points and any combined large point sources being aggregated and reported as non-point sources. “Units”, “processes” and “equipment” are not defined in AMD Chapter 1. The standard dictionary definitions for these terms would therefore apply. The specific units, processes and equipment at an industrial operation are typically set out in the EPEA approval/renewal application for the industrial operation, some of which (occurring at release points) may be specifically identified in the EPEA approval. Some of the units, processes and equipment may also represent the release point to the atmosphere already identified in Step 6 and worksheet 2.0 of the AEIR Form (e.g., boiler stack is the release point -> boiler is the equipment, engine stack is the release point -> engine is the equipment, etc.).

A release point is just a stack or a vent. All release points must therefore have at least one associated unit, process or piece of equipment, as something must be generating the effluent that is being emitting via the release point. There may be several pieces of equipment (or units or processes) associated with a single release point or combined large point source non-point source. The AEIR Program requires the identification of all the units, processes and equipment associated with each release point (or associated with combined large point source being reported as a non-point source), not just the unit/process/equipment where the release to the atmosphere is occurring. This includes all units, processes and equipment that generate effluent that is directly or indirectly emitted to the atmosphere using the release points or combined large point sources being reported as a non-point source. Information on the sources and equipment that should be included is covered in Section 3.2 of the AEIR Standard.

The required fields on the units, processes and equipment at the industrial operation are specified in worksheet 2.1 (for release points) and worksheet 3.2 (for combined large point sources being reported as non-point sources) of the AEIR Form. Reporting of units, processes and equipment associated with release points is covered in Section 9.2 of the AEIR Standard. Reporting of units, processes and equipment associated with combined large point sources being reported as a non-point source is covered in Section 9.3 of the AEIR Standard.

Note: Units, processes and equipment included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a unit, process or equipment has been permanently decommissioned, then the unit, process or equipment should be left in the AEIR Form. The operating status for the unit, process or equipment should be set to decommissioned and the annual hours of operation should be set to zero. Units, processes and equipment should not disappear from the submitted AEIR Forms.

Note: The tables in Appendix D have lists of common units, processes and equipment reported by industrial operations in each of the major sectors. These lists may help to identify the units, processes and equipment for an industrial operation. However, not all industrial operations in a sector will necessarily have the same units, processes and equipment. Individual industrial operations may also have additional units, processes and equipment that are not included in the tables in Appendix D.

Note: A piece of equipment could also potentially emit to more than one release point (either normally or under certain operating conditions). In this case, the unit/process/equipment descriptive information would be entered for each release point the equipment emits using (copy and paste the information for each of the applicable release points).

Note: Certain equipment and processes are defined as pollution controls under the AEIR Program (e.g., flares, incinerators, thermal oxidizers, baghouses, scrubbers, etc.). These pollution controls would be reported in worksheet 2.2 instead of worksheet 2.1. Worksheet 2.2 has some additional fields that are specific to pollution controls. Pollution control technologies and equipment are covered in Section 10 of the AEIR Standard.

9.2 Gather and Enter Information on Units, Processes and Equipment – Release Points (Step 9b)

Clause RC 7-L sets out the general types of information on units, processes and equipment that are required to be reported for release points via the AEIR. The AEIR Form itself specifies the individual mandatory and optional unit, process and equipment fields that need to be completed. Once the units, processes and equipment that are associated with each release point have been identified, the required information on each can be gathered and entered into the AEIR Form. The AEIR Form requires information on the classification, operation, installation, decommission and operational parameters of the units, processes and equipment at the industrial operation that are associated with the release points. The following describes the unit, process and equipment information required in worksheet 2.1 of the AEIR Form, with examples of the expected information.

Note: In some rare instances, certain required identification information (but excluding quantities of air emissions) may only be available via direct examination of operating equipment or the equipment's identification plate. If direct examination is required, only a reasonable level of effort is required to obtain the identification information. The industrial operation is **not** expected to shutdown the equipment or related processes in order to be able to obtain identification information on operating equipment. If the industrial operation cannot reasonably obtain this identification information, it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. The industrial operation does **not** need to request an exception if equipment identification information cannot be reasonably obtained. Once such information gaps have been identified for the industrial operation, they should be addressed during the next reasonable opportunity (such as during a future scheduled shutdown). Once obtained, the missing information would be provided in the next AEIR.

Note: For EPEA approved future units, processes and equipment, the available information is to be used to fill in the required fields in worksheet 2.1.

Worksheet 2.1: Release Point - Unit, Process and Equipment Identification and Description

Note: Table 37 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.1: Release Point - Unit, Process and Equipment, including data types and conditions.

Any operating or approved future units, processes or equipment that emit via release points? (Y/N)

Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if there are any operating or approved future units, processes or equipment at the industrial operation that emit to the atmosphere via release points. If there are no units, processes or equipment that emit via release points, then "No" is selected in this field and no further information is required to be entered in worksheet 2.1 of the AEIR Form. If reporting release point information, this field must not be left as "<Choose One>".

Release Point Descriptive Name

Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Number of Units, Processes or Equipment Associated with the Release Point
2

This field requires entering the number of units, processes or equipment associated with the release point. This is how many units, processes or equipment will be reported in the subsequent columns in worksheet 2.1. If reporting release point information, this field must not be left blank.

Note: If there are hundreds of inputs potentially going to a release point (e.g., a flare stack), it is not necessary to identify all of these as units/processes/equipment for such a release point. In cases where there are too many associated inputs going to the flare to practically report them, only the primary (typically the largest) units/processes/equipment need to be identified in the AEIR Form, as well as any other equipment that actually had flaring incidents for the specific inventory year.

Unit, Process or Equipment 1

Unit, Process or Equipment Name
Boiler A

This field requires entering a simple descriptive name for the unit, process or equipment, to communicate what the unit/process/equipment is. If reporting unit/process/equipment information, this field must not be left blank.

Unit, Process or Equipment Unique Designation
B-550A

This field requires entering the formal designation of the unit/process/equipment, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the unit/process/equipment, then the identification number used by the industrial operation for the unit/process/equipment should be entered. If there is no identification number used by the industrial operation for the unit/process/equipment, then the unit/process/equipment descriptive name can be entered. If reporting unit/process/equipment information, this field must not be left blank.

Unit, Process or Equipment Type
Boiler

This field provides a dropdown list of unit, process and equipment types to select from. These were developed based on a review of EPEA approved sources and should fit most, but not necessarily all, units, processes and equipment at Alberta industrial operations. Where a specific unit, process or equipment does not fit within any of the provided types, "Other Unit, Process or Equipment" should be selected. If reporting unit/process/equipment information, this field must not be left as "<Choose One>".

Note: Certain equipment and processes are defined as pollution controls under the AEIR Program. These pollution controls would be reported in worksheet 2.2 instead of worksheet 2.1. Worksheet 2.2 has some additional fields that are specific to pollution controls. Pollution control technologies and equipment are covered in Section 10 of the AEIR Standard.

The following are definitions of the provided unit, process and equipment types:

Boiler – a piece of equipment consisting of a vessel or tank where hot water or steam is produced by the combustion of a fuel. Note that reboilers, cogeneration units and evaporators have separate categories and definitions.

Burner – a device used to generate a flame using a fuel, such as natural gas, diesel, oil or propane.

Chemical Synthesis – an industrial process using physical manipulations or chemical reactions to change the composition of a chemical to create an intermediate or end product.

Clinker Cooler – a device for cooling high-temperature cement that has been supplied directly from a kiln. Hot cement clinker is cooled by air, blown from a fan, through air holes located in grates that are in direct contact with the cement.

Coal Mill – a device where raw coal is fed through an inlet into a pulverizer where it is ground into finer particles and other substances are removed. Fine particles travel to the burners, but the larger, heavier particles are returned to the grinder for further pulverization.

Cogeneration Unit – a device which simultaneously generates electricity and useful heat that is used for domestic or industrial purposes.

Coker – a processing unit that converts residual oil, from a distillation column, into gases, oils and coke.

Compressor – a device which maintains or increases the pressure of a gas by decreasing its volume.

Cooling Tower (individual) – a device where waste heat is ejected to the atmosphere through the cooling of a liquid stream to a lower temperature, using evaporation or the cooler ambient air. Note that there is also a Cooling Tower (multiple) non-point source category.

Cutting/Sawing – an industrial process using mechanized tools to cut through and resize or reshape materials.

Deaerator – a device used for the removal of oxygen and other dissolved gases from the feedwater to steam-generating boilers. Note that degasifiers have a separate category and definition.

Degasifier or Decarbonator – a device used for the removal of dissolved gases from liquids. Note that deaerators have a separate category and definition.

Dehydrator – a device that uses a desiccant or heat for the removal of water from a process or production stream.

Disinfector – a device used to destroy microorganisms present on materials.

Distillation – an industrial process used for separating substances or components from a liquid stream by selective evaporation and condensation.

Dryer – a device used to reduce moisture levels in raw or processed materials.

Electrolysis – an industrial process using electrical current to produce a chemical or physical reaction.

Engine – a device which uses the energy produced from the combustion of a fuel, including but not limited to natural gas or diesel, to produce mechanical power.

Evaporator – a device used to turn liquid material into its gaseous form through the absorption of heat, often to remove water from the material.

Fan – an industrial device used to circulate air.

Frothing Treatment – an industrial process by which water and fine solids are removed from bitumen froth using hydrocarbon-based gravity separation.

Fuel Filter – a filter in a fuel line used to screen out dirt, rust and other particles of impurity from the fuel in order to prevent wearing out and improve performance.

Fume Hood – a device for ventilation that is designed to limit indoor exposure to hazardous fumes, vapours or dusts by drawing in air and either venting it outside or filtering it prior to recirculation.

Furnace – an industrial heating device in which heat is created by fuel combustion, electricity or induction for the purposes of industrial processes or inducing a chemical reaction. Note that cracking furnaces, heaters and boilers have separate categories and definitions.

Furnace – Cracking – a heating device in which gaseous and liquid hydrocarbons are heated without the presence of oxygen so that the hydrocarbon chains undergo cracking. This category includes fluid catalytic cracking and ethylene cracking furnaces. Note that non-cracking furnaces, heaters and boilers have separate categories and definitions.

Gas Turbine – a combustion turbine which extracts energy from the flow of a combustion gas and converts it into useful work. It has an upstream compressor and a downstream turbine with a combustion chamber in between.

Generator (Electric Power) – a device which combines an engine with an electrical generator, or alternator, so that electricity can be produced. A diesel generator would be an example. Note that steam generators and cogeneration units have separate categories and definitions.

Granulator – a device that forms specific size granules of a material, such as fertilizer or sulphur, using a rotary drum or pelletizing disc, followed by a drying, screening, and recycling circuit.

Heater – a device which itself emits heat or causes another object to increase in temperature. Note that boilers, reboilers, furnaces and cogeneration units have separate categories and definitions.

Kiln – a thermally insulated chamber which offers controlled temperatures. Can be used for drying, burning, hardening, heating, annealing, fusing, deforming, smelting, or cremating.

Liquefaction – an industrial process used to generate a liquid from a solid or gaseous substance.

Mixer – an industrial device used to mix or blend one or more materials.

Moulding – an industrial process that shapes liquid or pliable materials using a mould.

Other Unit, Process or Equipment – any other unit, process or equipment that does not fall under the provided unit, process or equipment categories.

Oven – an industrial heating chamber used to establish specific temperatures necessary for specific chemical processing or other manufacturing.

Pit – an open space in the ground created for the extraction or storage of materials.

Prilling Tower – a tower used to solidify droplets of molten material falling against an upward stream of air.

Pump – an industrial device used for the movement of a fluid by means of pumping of the fluid.

Reactor – an industrial vessel designed to contain and facilitate chemical reactions.

Reboiler – a heat exchanger used to provide heat to the bottom of distillation columns. They drive the distillation separation process by boiling the liquid at the bottom of the distillation column to generate

vapours. Their types include, but are not limited to, kettle, thermosyphon, fired, and forced circulation. Note that boilers, furnaces and cogeneration units have separate categories and definitions.

Refining – an industrial process for the purification and/or separation of a material into a more usable or desirable form or makeup.

Reformer – a device which uses an external source of hot gas to heat tubes in which a catalytic reaction takes place at a high temperature and pressure that converts steam, methane or refinery feedstock into synthesis gas. This category includes steam methane reforming.

Regenerator – an industrial device designed to store and restore heat or a material, such as a catalyst, using chemical or physical changes.

Separator – an industrial device involving a vessel, or series of vessels, used for separating fluids into gaseous and liquid constituent components.

Silo or Bin Storage (individual) – a storage container for a material awaiting use or transportation. Note that storage tank(s) have separate non-point source categories and definitions. Note that there is also a Silo or Bin Storage (multiple) non-point source category.

Smelting – an industrial process that uses chemical reactions and physical changes to separate out purified metals.

Space Heater (individual) – a device designed for the heating of an enclosed space, typically buildings or onsite work areas. Note that boilers, heaters, furnaces and cogeneration units have separate categories and definitions. Note that there is also a Space Heaters (multiple) non-point source category.

Space Vent (individual) – the intentional introduction of outside air into a space, typically a building, to control indoor air quality by diluting and displacing indoor pollutants or to affect temperature or humidity. Note that there is also a Space Vents (multiple) non-point source category.

Steam Generator – a device used in thermal recovery applications that forces the circulation of a single pass of water through the generator coil with no separating drum.

Stripper – an industrial device that uses the introduction of blown air to remove a substance from a liquid stream. An example would be a carbon dioxide stripper.

Treater – a vessel used to treat oil-water emulsions so that the oil can be accepted for pipeline or other transport.

Vacuum – an industrial device used to create suction for a chemical or mechanical process.

Valve (individual) – a device that regulates, directs or controls the flow of a fluid by opening, closing, or partially obstructing various passageways. Note that there is also a Valve (multiple) non-point source category.

Vaporizer – an industrial device tasked with the physical transformation of a liquid to a gaseous state.

Vent – General – a duct, pipe, or chimney for conveying a gas stream to the atmosphere, excluding ducts, pipes or chimneys associated with the other unit, process or equipment categories. For example, a simple pure steam vent would be reported under this category. Note that there is also a Venting - General (combined) non-point source category.

Wastewater Treatment (individual) – a device that converts wastewater into an effluent that can be either reused or returned to the water cycle with minimal environmental impact. Note that there is also a Wastewater Treatment (multiple) non-point source category.

Description of "Other Type" (if applicable)
n/a

When "Other Unit, Process or Equipment" is selected as the Unit, Process or Equipment Type in the previous field, this field requires entering a description of the other type. This should simply explain what the unit, process or equipment is and why it did not fit within the standard types provided.

Unit, Process or Equipment SCC
10200601

This field requires identification of the most applicable Source Classification Code for the unit, process or equipment. Information on selecting an SCC is provided in Section 6.2 of the AEIR Standard. If reporting unit/process/equipment information, this field must not be left blank.

Make of Unit, Process or Equipment (if applicable)
General Electric

This field requires entering the make (manufacturer) of the unit, process or equipment (if applicable). If not documented elsewhere at the industrial operation, the make information should be identified on the unit, process or equipment. If the equipment is custom built, "Custom" can be entered as the make.

Model # of Unit, Process or Equipment (if applicable)
LM6000

This field requires entering the model number of the unit, process or equipment (if applicable). If not documented elsewhere at the industrial operation, the model number should be identified on the unit, process or equipment. If the equipment is custom built, "Custom" can be entered as the model #.

Year of Manufacture of Unit, Process or Equipment (if applicable)
1997

This field requires entering the year of manufacture of the unit, process or equipment (if applicable). This is the year the unit, process or equipment was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the unit, process or equipment.

Note: If the exact year of manufacture is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Installation of Unit, Process or Equipment
1998

This field requires entering the year of installation of the unit, process or equipment at the industrial operation. If the unit/process/equipment has not yet been installed, then this field can be left blank.

Note: If the exact year of installation is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of installation (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Start-up of Unit, Process or Equipment
1999

This field requires entering the year of start-up of the unit, process or equipment at the industrial operation. This is typically close to or within a year or two of the installation year. If the unit/process/equipment has not yet started operating, then this field can be left blank.

Note: If the exact year of start-up is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Unit, Process or Equipment Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the unit/process/equipment for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”. If reporting unit/process/equipment information, this field must not be left blank.

“Operating” should be selected if the unit/process/equipment was operating for all or part of the inventory year. This would be the selection that applies to most units/processes/equipment at an industrial operation.

“Temporarily shut-down” means the unit/process/equipment was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for units/processes/equipment that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that units/processes/equipment that were shut-down for only part of the year should be classified as “operating”, as the unit/process/equipment was still operating/emitting during the inventory year.

“Decommissioned” should be selected for those units/processes/equipment that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such units/processes/equipment should be changed to “Decommissioned”. The other reported information for the decommissioned unit/process/equipment should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved units/processes/equipment that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for units/processes/equipment that are approved but have not yet been built or are not yet operating. Such units/processes/equipment could be part of approved future phases of the industrial operation. It is not necessary to report planned units/processes/equipment that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Unit, Process or Equipment Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the unit/process/equipment for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most units/processes/equipment and simply means that the unit/process/equipment operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in production or emissions, but the specific inventory year was fairly representative of how the unit/process/equipment normally operates.

“Start-up” would be selected when the unit/process/equipment was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the unit/process/equipment was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the unit/process/equipment experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the unit/process/equipment operated below normal levels, overall having a lower than normal annual output and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a unit/process/equipment has high variation in operation/production/emissions nearly every year and thus while the unit/process/equipment is operating, there is simply no normal operating condition for the unit/process/equipment.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the unit, process or equipment would not be considered normal/average/typical for the inventory year.

When does the unit, process or equipment emit via the release point?

Always (normal operations)

This field requires selecting from a dropdown to indicate when the unit/process/equipment emits (or will emit) via the release point. If reporting unit/process/equipment information, this field must not be left as “<Choose One>”.

The following are definitions of the provided options:

“Always (normal operations)” would be selected in most cases, as it means the specific unit/process/equipment is always emitting via the release point under normal operating conditions.

“Only during upset/emergency conditions” would be selected when the specific unit/process/equipment only emits via the release point under upset or emergency conditions (otherwise emits via a different release point or not at all).

“Only during other operating conditions” would be selected to indicate that the specific unit/process/equipment only emits via the release point under some other (non-normal, non-upset, non-emergency) operating conditions (e.g., only when a certain fuel is used, only when producing a specific product, etc.).

Approximate Hours of Annual Operation
--

1,900

This field requires entering the approximate number of hours of operation for the unit, process or equipment for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the unit/process/equipment is an approved future source, then “0” should be entered in this field. If reporting unit/process/equipment information, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the unit/process/equipment is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Decommission Date of Unit, Process or Equipment (if applicable)
January 5, 2022

This field requires entering the date when the unit, process or equipment was permanently shut-down or decommissioned. Units/processes/equipment that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved units/processes/equipment that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Unit, Process or Equipment? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to identify if the unit/process/equipment has not yet been built or has not yet commenced operation. All units/processes/equipment that are operating should have "No" selected and only the future not-yet operating units/processes/equipment should have "Yes" selected. If reporting unit/process/equipment information, this field must not be left as "<Choose One>".

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future unit/process/equipment is expected to begin operating/emitting. This field is only applicable to any future units/processes/equipment that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Fuel Type of Unit, Process or Equipment (if applicable)
Natural Gas

This field requires identifying the type of fuel (e.g., natural gas, diesel, wood waste, etc.) used by the unit, process or equipment. Not all units, processes or equipment will have a fuel (e.g., could be electrically powered, etc.).

Maximum or Rated Design Capacity or Throughput of Unit, Process or Equipment (if applicable)
800,000.00

This field requires entering the maximum or rated design capacity or throughput of the unit, process or equipment, if applicable. Capacity information should have been reported in the industrial operation's EPEA

approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation.

Average or Normal Capacity or Throughput of Unit, Process or Equipment (if applicable)
640,000.00

This field requires entering the average or normal capacity or throughput of the unit, process or equipment, if applicable. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation.

Capacity or Throughput Units (if applicable)
MWh

This field requires entering the units of the capacity or throughput values being reported, if applicable.

Power Rating of Unit, Process or Equipment (kW) (if applicable)
4,000

This field requires entering the power rating (in kilowatts) of the unit, process or equipment, if applicable.

Rated Horse Power of Unit, Process or Equipment (if applicable)
4,500

This field requires entering the rated horsepower of the unit, process or equipment, if applicable.

Load Rating (%) of Unit, Process or Equipment (if applicable)
80

This field requires entering the load rating (in percent) of the unit, process or equipment, if applicable.

Note: The same fields described above are required for reporting of other units, processes or equipment associated with each release point (Unit, Process or Equipment 2 up to Unit, Process or Equipment 20). These fields are not repeated here to limit repetition in the AEIR Standard.

9.3 Gather and Enter Information on Units, Processes and Equipment – Non-Point Sources (Step 9c)

Clause RC 7-N set out the general types of information on units, processes and equipment that are required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional unit, process and equipment fields that need to be completed. For non-point sources, information on units, processes and equipment is only required for non-point sources that are "Combined Large Point Sources". If no non-point sources were categorized as "Combined Large Point Sources", then only the first Yes/No field of worksheet 3.2 needs to be completed. The following describes the unit, process and equipment information required in worksheet 3.2 of the AEIR Form.

Note: In some rare instances, it may be necessary to report two large point sources together as a single non-point source. This would be done only when it is not possible to estimate the emissions from each large individual source. In most cases, the air emissions from individual point sources that share fuel, receive effluent from the same unit/process/equipment or operate in an integrated fashion (but have no individual information available) can still be

estimated. For example, the individual release point air emissions could potentially be estimated using differences in equipment size or operating conditions, differences in typical operating loads, differences in annual operating time, information from the manufacturer, previous estimations, etc. Such information could be used to break down the combined emissions to each individual point source for the purposes of reporting under the AEIR Program. In cases where such individual source emission breakdowns are simply not possible, the two large point sources would be reported together as a single non-point source. The same identification, unit/process/equipment, pollution control, etc. information would still be reported for each individual large point source, but this would be done using the provided non-point source worksheets rather than the release point worksheets. Only the emissions information would be reported together for the combined large point source being reported as a non-point source.

Note: In some rare instances, certain required identification information (but excluding quantities of air emissions) may only be available via direct examination of operating equipment or the equipment's identification plate. If direct examination is required, only a reasonable level of effort is required to obtain the identification information. The industrial operation is **not** expected to shutdown the equipment or related processes in order to be able to obtain identification information on operating equipment. If the industrial operation cannot reasonably obtain this identification information, it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. The industrial operation does **not** need to request an exception if equipment identification information cannot be reasonably obtained. Once such information gaps have been identified for the industrial operation, they should be addressed during the next reasonable opportunity (such as during a future scheduled shutdown). Once obtained, the missing information would be provided in the next AEIR.

Note: For EPEA approved future units, processes and equipment that emit using "Combined Large Point Sources" reported as non-point sources, the available information is to be used to fill in the required fields in worksheet 3.2.

Worksheet 3.2 Non-Point Source - Unit, Process and Equipment Identification and Description

Note: Table 47 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.2: Non-Point Source - Unit, Process and Equipment, including data types and conditions.

Any operating or approved future units, processes or equipment that emit via combined large point source non-point sources? (Y/N)
Yes

This field requires selecting "Yes" or "No" to indicate if there are any operating or approved future units, processes or equipment at the industrial operation that emit to the atmosphere via a "combined large point source" type of non-point source. If there are no units, processes or equipment that emit via combined large point non-point sources, then "No" is selected in this field and no further information is required to be entered in worksheet 3.2 of the AEIR Form. If reporting non-point source information, this field must not be left as "<Choose One>".

Non-Point Source Descriptive Name
Combined Waste Processor

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Number of Units, Processes or Equipment Associated with the Non-Point Source
2

This field requires entering the number of units, processes or equipment associated with each combined large point source being reported as a non-point source. This is how many units, processes or equipment will be reported in the subsequent columns in worksheet 3.2. If reporting combined large point non-point source unit/process/equipment information, this field must not be left blank.

Note: If there are hundreds of inputs potentially going to a combined large point source being reported as a non-point source, it is not necessary to identify all of these as units/processes/ equipment. In cases where there are too many associated inputs going to a combined large point source being reported as a non-point source to practically report each of them, only the primary (typically the largest) units/processes/equipment need to be identified in the AEIR Form.

Unit, Process or Equipment 1

Unit, Process or Equipment Name
Waste Processor 1

This field requires entering a simple descriptive name for the unit, process or equipment, to communicate what the unit/process/equipment is. If reporting combined large point non-point source unit/process/equipment information, this field must not be left blank.

Unit, Process or Equipment Unique Designation
WSTY-1

This field requires entering the formal designation of the unit/process/equipment, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the unit/process/equipment, then the identification number used by the industrial operation for the unit/process/equipment should be entered. If there is no identification number used by the industrial operation for the unit/process/equipment, then the unit/process/equipment descriptive name can be entered. If reporting combined large point non-point source unit/process/equipment information, this field must not be left blank.

Unit, Process or Equipment Type
Other Unit, Process or Equipment

This field provides a dropdown list of unit, process and equipment types to select from. These were developed based on a review of EPEA approved sources and should fit most, but not necessarily all, units, processes and equipment at Alberta industrial operations. Where a specific unit, process or equipment does not fit within any of the provided types, "Other Unit, Process or Equipment" should be selected. If reporting combined large point non-point source unit/process/equipment information, this field must not be left as "<Choose One>".

Note: Certain equipment and processes are defined as pollution controls under the AEIR Program. These pollution controls would be reported in worksheet 3.3 instead of worksheet 3.2. Worksheet 3.3 has some additional fields that are specific to pollution controls. Pollution control technologies and equipment are covered in Section 10 of the AEIR Standard.

The following are definitions of the provided unit, process and equipment types:

Boiler – a piece of equipment consisting of a vessel or tank where hot water or steam is produced by the combustion of a fuel. Note that reboilers, cogeneration units and evaporators have separate categories and definitions.

Burner – a device used to generate a flame using a fuel, such as natural gas, diesel, oil or propane.

Chemical Synthesis – an industrial process using physical manipulations or chemical reactions to change the composition of a chemical to create an intermediate or end product.

Clinker Cooler – a device for cooling high-temperature cement that has been supplied directly from a kiln. Hot cement clinker is cooled by air, blown from a fan, through air holes located in grates that are in direct contact with the cement.

Coal Mill – a device where raw coal is fed through an inlet into a pulverizer where it is ground into finer particles and other substances are removed. Fine particles travel to the burners, but the larger, heavier particles are returned to the grinder for further pulverization.

Cogeneration Unit – a device which simultaneously generates electricity and useful heat that is used for domestic or industrial purposes.

Coker – a processing unit that converts residual oil, from a distillation column, into gases, oils and coke.

Compressor – a device which maintains or increases the pressure of a gas by decreasing its volume.

Cooling Tower (individual) – a device where waste heat is ejected to the atmosphere through the cooling of a liquid stream to a lower temperature, using evaporation or the cooler ambient air.

Cutting/Sawing – an industrial process using mechanized tools to cut through and resize or reshape materials.

Deaerator – a device used for the removal of oxygen and other dissolved gases from the feedwater to steam-generating boilers. Note that degasifiers have a separate category and definition.

Degasifier or Decarbonator – a device used for the removal of dissolved gases from liquids. Note that deaerators have a separate category and definition.

Dehydrator – a device that uses a desiccant or heat for the removal of water from a process or production stream.

Disinfector – a device used to destroy microorganisms present on materials.

Distillation – an industrial process used for separating substances or components from a liquid stream by selective evaporation and condensation.

Dryer – a device used to reduce moisture levels in raw or processed materials.

Electrolysis – an industrial process using electrical current to produce a chemical or physical reaction.

Engine – a device which uses the energy produced from the combustion of a fuel, including but not limited to natural gas or diesel, to produce mechanical power.

Evaporator – a device used to turn liquid material into its gaseous form through the absorption of heat, often to remove water from the material.

Fan – an industrial device used to circulate air.

Frothing Treatment – an industrial process by which water and fine solids are removed from bitumen froth using hydrocarbon-based gravity separation.

Fuel Filter – a filter in a fuel line used to screen out dirt, rust and other particles of impurity from the fuel in order to prevent wearing out and improve performance.

Fume Hood – a device for ventilation that is designed to limit indoor exposure to hazardous fumes, vapours or dusts by drawing in air and either venting it outside or filtering it prior to recirculation.

Furnace – an industrial heating device in which heat is created by fuel combustion, electricity or induction for the purposes of industrial processes or inducing a chemical reaction. Note that cracking furnaces, heaters and boilers have separate categories and definitions.

Furnace – Cracking – a heating device in which gaseous and liquid hydrocarbons are heated without the presence of oxygen so that the hydrocarbon chains undergo cracking. This category includes fluid catalytic cracking and ethylene cracking furnaces. Note that non-cracking furnaces, heaters and boilers have separate categories and definitions.

Gas Turbine – a combustion turbine which extracts energy from the flow of a combustion gas and converts it into useful work. It has an upstream compressor and a downstream turbine with a combustion chamber in between.

Generator (Electric Power) – a device which combines an engine with an electrical generator, or alternator, so that electricity can be produced. A diesel generator would be an example. Note that steam generators and cogeneration units have separate categories and definitions.

Granulator – a device that forms specific size granules of a material, such as fertilizer or sulphur, using a rotary drum or pelletizing disc, followed by a drying, screening, and recycling circuit.

Heater – a device which itself emits heat or causes another object to increase in temperature. Note that boilers, reboilers, furnaces and cogeneration units have separate categories and definitions.

Kiln – a thermally insulated chamber which offers controlled temperatures. Can be used for drying, burning, hardening, heating, annealing, fusing, deforming, smelting, or cremating.

Liquefaction – an industrial process used to generate a liquid from a solid or gaseous substance.

Mixer – an industrial device used to mix or blend one or more materials.

Moulding – an industrial process that shapes liquid or pliable materials using a mould.

Other Unit, Process or Equipment – any other unit, process or equipment that does not fall under the provided unit, process or equipment categories.

Oven – an industrial heating chamber used to establish specific temperatures necessary for specific chemical processing or other manufacturing.

Pit – an open space in the ground created for the extraction or storage of materials.

Prilling Tower – a tower used to solidify droplets of molten material falling against an upward stream of air.

Pump – an industrial device used for the movement of a fluid by means of pumping of the fluid.

Reactor – an industrial vessel designed to contain and facilitate chemical reactions.

Reboiler – a heat exchanger used to provide heat to the bottom of distillation columns. They drive the distillation separation process by boiling the liquid at the bottom of the distillation column to generate

vapours. Their types include, but are not limited to, kettle, thermosyphon, fired, and forced circulation. Note that boilers, furnaces and cogeneration units have separate categories and definitions.

Refining – an industrial process for the purification and/or separation of a material into a more usable or desirable form or makeup.

Reformer – a device which uses an external source of hot gas to heat tubes in which a catalytic reaction takes place at a high temperature and pressure that converts steam, methane or refinery feedstock into synthesis gas. This category includes steam methane reforming.

Regenerator – an industrial device designed to store and restore heat or a material, such as a catalyst, using chemical or physical changes.

Separator – an industrial device involving a vessel, or series of vessels, used for separating fluids into gaseous and liquid constituent components.

Silo or Bin Storage (individual) – a storage container for a material awaiting use or transportation. Note that storage tank(s) have separate non-point source categories and definitions.

Smelting – an industrial process that uses chemical reactions and physical changes to separate out purified metals.

Space Heater (individual) – a device designed for the heating of an enclosed space, typically buildings or onsite work areas. Note that boilers, heaters, furnaces and cogeneration units have separate categories and definitions.

Space Vent (individual) – the intentional introduction of outside air into a space, typically a building, to control indoor air quality by diluting and displacing indoor pollutants or to affect temperature or humidity.

Steam Generator – a device used in thermal recovery applications that forces the circulation of a single pass of water through the generator coil with no separating drum.

Stripper – an industrial device that uses the introduction of blown air to remove a substance from a liquid stream. An example would be a carbon dioxide stripper.

Treater – a vessel used to treat oil-water emulsions so that the oil can be accepted for pipeline or other transport.

Vacuum – an industrial device used to create suction for a chemical or mechanical process.

Valve (individual) – a device that regulates, directs or controls the flow of a fluid by opening, closing, or partially obstructing various passageways.

Vaporizer – an industrial device tasked with the physical transformation of a liquid to a gaseous state.

Vent – General – a duct, pipe, or chimney for conveying a gas stream to the atmosphere, excluding ducts, pipes or chimneys associated with the other unit, process or equipment categories. For example, a simple pure steam vent would be reported under this category.

Wastewater Treatment (individual) – a device that converts wastewater into an effluent that can be either reused or returned to the water cycle with minimal environmental impact.

Description of "Other Type" (if applicable)
Waste Disposal Thermal Destroyer

When "Other Unit, Process or Equipment" is selected as the Unit, Process or Equipment Type in the previous field, this field requires entering a description of the other type. This should simply explain what the unit, process or equipment is and why it did not fit within the standard types provided.

Unit, Process or Equipment AMS/SCC
50410560

This field requires identification of the most applicable Area and Mobile Source Code or Source Classification Code for the unit, process or equipment. Information on selecting an AMS/SCC is provided in Sections 6.2 and 7.2 of the AEIR Standard. If reporting combined large point non-point source unit/process/equipment information, this field must not be left blank.

Make of Unit, Process or Equipment (if applicable)
Bossit

This field requires entering the make (manufacturer) of the unit, process or equipment (if applicable). If not documented elsewhere at the industrial operation, the make information should be identified on the unit, process or equipment. If the equipment is custom built, "Custom" can be entered as the make.

Model # of Unit, Process or Equipment (if applicable)
BX303-M

This field requires entering the model number of the unit, process or equipment (if applicable). If not documented elsewhere at the industrial operation, the model number should be identified on the unit, process or equipment. If the equipment is custom built, "Custom" can be entered as the model #.

Year of Manufacture of Unit, Process or Equipment (if applicable)
2017

This field requires entering the year of manufacture of the unit, process or equipment (if applicable). This is the year the unit, process or equipment was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the unit, process or equipment.

Note: If the exact year of manufacture is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Installation of Unit, Process or Equipment
2017

This field requires entering the year of installation of the unit, process or equipment at the industrial operation. If the unit/process/equipment has not yet been installed, then this field can be left blank.

Note: If the exact year of installation is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of installation (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Start-up of Unit, Process or Equipment
2017

This field requires entering the year of start-up of the unit, process or equipment at the industrial operation. This is typically close to or within a year or two of the installation year. If the unit/process/equipment has not yet started operating, then this field can be left blank.

Note: If the exact year of start-up is not available for older equipment, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Unit, Process or Equipment Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the unit/process/equipment for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”. If reporting combined large point non-point source unit/process/equipment information, this field must not be left as “<Choose One>”.

“Operating” should be selected if the unit/process/equipment was operating for all or part of the inventory year. This would be the selection that applies to most units/processes/equipment at an industrial operation.

“Temporarily shut-down” means the unit/process/equipment was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for units/processes/equipment that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that units/processes/equipment that were shut-down for only part of the year should be classified as “operating”, as the unit/process/equipment was still operating/emitting during the inventory year.

“Decommissioned” should be selected for those units/processes/equipment that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such units/processes/equipment should be changed to “Decommissioned”. The other reported information for the decommissioned unit/process/equipment should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved units/processes/equipment that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for units/processes/equipment that are approved but have not yet been built or are not yet operating. Such units/processes/equipment could be part of approved future phases of the industrial operation. It is not necessary to report planned units/processes/equipment that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Unit, Process or Equipment Operating Condition for the Inventory Year (if operating)
High Annual Variability

This field is a dropdown menu that provides selections for specifying the general operating condition of the unit/process/equipment for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most units/processes/equipment and simply means that the unit/process/equipment operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in production or emissions, but the specific inventory year was fairly representative of how the unit/process/equipment normally operates.

“Start-up” would be selected when the unit/process/equipment was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the unit/process/equipment was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the unit/process/equipment experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the unit/process/equipment operated below normal levels, overall having a lower than normal annual output and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a unit/process/equipment has high variation in operation/production/emissions nearly every year and thus while the unit/process/equipment is operating, there is simply no normal operating condition for the unit/process/equipment.

Note: “Significant impact (higher or lower)” on annual emissions would be a large enough impact that the operating condition of the unit, process or equipment would not be considered normal/average/typical for the inventory year.

When does the unit, process or equipment emit via the non-point source?
--

Always (normal operations)

This field requires selecting from a dropdown to indicate when the unit/process/equipment emits (or will emit) via the combined last point sources being reported as a non-point source. If reporting combined large point non-point source unit/process/equipment information, this field must not be left as "<Choose One>".

The following are definitions of the provided options:

“Always (normal operations)” would be selected in most cases, as it means the specific unit/process/equipment is always emitting via the non-point source under normal operating conditions.

“Only during upset/emergency conditions” would be selected when the specific unit/process/equipment only emits via the non-point source under upset or emergency conditions (otherwise emits via a different non-point source or not at all).

“Only during other operating conditions” would be selected to indicate that the specific unit/process/equipment only emits via the non-point source under some other (non-normal, non-upset, non-emergency) operating conditions (e.g., only when a certain fuel is used, only when producing a specific product, etc.).

Approximate Hours of Annual Operation
--

1,900

This field requires entering the approximate number of hours of operation for the unit, process or equipment for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the unit/process/equipment is an approved future source, then “0” should be entered in this field. If reporting unit/process/equipment information, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the unit/process/equipment is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Decommission Date of Unit, Process or Equipment (if applicable)
January 5, 2022

This field requires entering the date when the unit, process or equipment was permanently shut-down or decommissioned. Units/processes/equipment that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved units/processes/equipment that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Unit, Process or Equipment? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to identify if the unit/process/equipment has not yet been built or has not yet commenced operation. All units/processes/equipment that are operating should have "No" selected and only the future not-yet operating units/processes/equipment should have "Yes" selected. If reporting combined large point non-point source unit/process/equipment information, this field must not be left as "<Choose One>".

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future unit/process/equipment is expected to begin operating/emitting. This field is only applicable to any future units/processes/equipment that are not-yet operating/emitting. This information will be used for the province's future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Fuel Type of Unit, Process or Equipment (if applicable)
Waste from main processing stack

This field requires identifying the type of fuel (e.g., natural gas, diesel, wood waste, etc.) used by the unit, process or equipment. Not all units, processes or equipment will have a fuel (e.g., could be electrically powered, etc.).

Maximum or Rated Design Capacity or Throughput of Unit, Process or Equipment (if applicable)
50,000.00

This field requires entering the maximum or rated design capacity or throughput of the unit, process or equipment, if applicable. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation.

Average or Normal Capacity or Throughput of Unit, Process or Equipment (if applicable)
40,000.00

This field requires entering the average or normal capacity or throughput of the unit, process or equipment, if applicable. Capacity information should have been reported in the industrial operation's EPEA

approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation.

Capacity or Throughput Units (if applicable)
tonnes

This field requires entering the units of the capacity or throughput values being reported, if applicable.

Power Rating of Unit, Process or Equipment (kW) (if applicable)
10,000

This field requires entering the power rating (in kilowatts) of the unit, process or equipment, if applicable.

Rated Horse Power of Unit, Process or Equipment (if applicable)
10,000

This field requires entering the rated horsepower of the unit, process or equipment, if applicable.

Load Rating (%) of Unit, Process or Equipment (if applicable)
75

This field requires entering the load rating (in percent) of the unit, process or equipment, if applicable.

Note: The same fields described above are required for reporting of other units, processes or equipment associated with each combined large point source being reported as a non-point source (Unit, Process or Equipment 2 up to Unit, Process or Equipment 20). These fields are not repeated here to limit repetition in the AEIR Standard.

10.0 Pollution Control Technology and Equipment Information (Steps 10a – c)

10.1 Identify Pollution Control Technologies and Equipment (Step 10a)

The next step in preparing the AEIR requires identification of the pollution control technologies and equipment in place at the industrial operation. Pollution control technologies and equipment are defined in AMD Chapter 1 as “any technology, process or piece of equipment which captures, reduces, limits or destroys air pollutants from an exhaust stream or other source before it is emitted into the atmosphere”. The pollution controls are typically set out in the EPEA approval or by reference to the pollution control equipment set out in the EPEA approval/renewal application for the industrial operation. Note that the pollution controls may represent the release point to the atmosphere (e.g., baghouse exhaust stack, incinerator stack, etc.) and may have already been identified in worksheet 2.0 of the AEIR Form or as the non-point source as identified in worksheet 3.0.

The AEIR Program also requires the identification of the pollution controls occurring before the release to the atmosphere, not just the controls where the release to the atmosphere is occurring. An effluent stream may be run through several pollution controls before reaching the release point/non-point source and being emitted to the atmosphere. This includes identifying both modifications to the combustion/process creating the effluent stream and identifying the add-on pollution controls put in place. In addition to main pollution controls, the AEIR Program also requires identification of backup/alternative pollution controls that operate only when other pollution controls are not operating. Information on the sources, equipment and pollution controls that should be included in the AEIR is covered in Section 3.2 of the AEIR Standard.

The required fields on the pollution control technologies and equipment are included in worksheet 2.2 (for release points) and worksheet 3.3 (for non-point sources) of the AEIR Form. Reporting of pollution control technologies and equipment associated with release points is covered in Section 10.2 of the AEIR Standard. Reporting of pollution control technologies and equipment associated with non-point sources is covered in Section 10.3 of the AEIR Standard.

Note: Pollution controls included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a pollution control has been permanently decommissioned, then the pollution control should be left in the AEIR Form. The operating status for the pollution control should be set to decommissioned and the annual hours of operation should be set to zero. Pollution controls should not disappear from the submitted AEIR Forms.

Note: The tables in Appendix D have lists of common pollution control technologies and equipment reported by industrial operations in each of the major sectors. These lists may help to identify the pollution control technologies and equipment for an industrial operation. However, not all industrial operations in a sector will necessarily have the same pollution controls. Individual industrial operations may also have additional pollution controls that are not included in the tables in Appendix D.

Note: For the AEIR Program, pollution controls would include the various equipment, technologies and other efforts taken by the industrial operation to prevent, limit or reduce the amount of Schedule 1 or Schedule 2 substances being released into the atmosphere.

Note: Non-pollution control units, processes and equipment are covered in Section 9 of the AEIR Standard.

Note: Certain equipment and processes are defined as pollution controls under the AEIR Program (e.g., flares, incinerators, thermal oxidizers, baghouses, scrubbers, etc.). These pollution controls would be reported in worksheet 2.2 instead of worksheet 2.1. Worksheet 2.2 has some additional fields that are specific to pollution controls. Non-pollution control technologies and equipment are covered in Section 9 of the AEIR Standard.

10.2 Gather and Enter Information on Release Point Pollution Control Technologies and Equipment (Step 10b)

Clause RC 7-L sets out the general types of information on release point pollution controls that are required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional pollution control fields that need to be completed. Once the pollution control technologies and equipment have been identified, the required specific information can be gathered and entered into the AEIR Form. The AEIR Form requires information on the classification, operation, installation, decommission and operational parameters of the pollution controls. The following describes the pollution control technology and equipment information required in worksheet 2.2 of the AEIR Form, with examples of the expected information.

Note: In some rare instances, certain required identification information (but excluding quantities of air emissions) may only be available via direct examination of operating equipment or the equipment's identification plate. If direct examination is required, only a reasonable level of effort is required to obtain the identification information. The industrial operation is **not** expected to shutdown the equipment or related processes in order to be able to obtain identification information on operating equipment. If the industrial operation cannot reasonably obtain this identification information, it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. The industrial operation does **not** need to request an exception if equipment identification information cannot be reasonably obtained. Once such information gaps have been identified for the industrial operation, they should be addressed during the next reasonable opportunity (such as during a future scheduled shutdown). Once obtained, the missing information would be provided in the next AEIR.

Note: For EPEA approved future pollution controls, the available information is to be used to fill in the required fields in worksheet 2.2.

Worksheet 2.2: Release Point - Pollution Control Technology and Equipment Information

Note: Table 38 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.2: Release Point - Pollution Control Equipment, including data types and conditions.

Any release points, units, processes or equipment controlled by an operating or approved future pollution control technology or equipment? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if there are any release points, units, processes or equipment at the industrial operation that are controlled by an operating or approved future pollution control technology or equipment. If there are no release points, units, processes or equipment with pollution controls, then "No" is selected in this field and no further information is required to be entered in worksheet 2.2 of the AEIR Form. If reporting release point information, this field must not be left as "<Choose One>".

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Is the release point (or unit, process or equipment) controlled by a pollution control?
Controlled

This field is a dropdown menu to indicate if the specific release point is controlled (has associated pollution control technologies or equipment) or uncontrolled (has no associated pollution control technologies or equipment). If reporting pollution control information, this field must not be left as "<Choose One>". If the release point is uncontrolled, then no additional fields in worksheet 2.2 are required to be filled in for the specific release point.

Number of Applicable Control Technologies or Equipment (if controlled)
1

This field requires entering the number of applicable pollution control technologies or equipment associated with the release point (or units, processes or equipment). This is how many pollution controls for the specific release point will be reported in the subsequent columns in worksheet 2.2. If controlled, this field must not be left blank.

Pollution Control Technology or Equipment 1

Control Technology or Equipment Name
Selective Catalytic Reduction Unit

This field requires entering a simple descriptive name for the control technology or equipment, to communicate what the control technology/equipment is. If controlled, this field must not be left blank.

Control Technology or Equipment Unique Designation
SCR-101

This field requires entering the formal designation of the control technology or equipment, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the specific control technology or equipment, then the identification number used by the industrial operation for the control technology or equipment should be entered. If there is no identification number used by the industrial operation for the pollution control, then the pollution control descriptive name can be entered. If controlled, this field must not be left blank.

Control Technology or Equipment Type
Selective Catalytic Reduction (SCR)

This field provides a dropdown list of control technology and equipment types to select from. These were developed based on commonly available pollution controls and a review of pollution controls used at EPEA approved industrial operations. These categories should fit most, but not necessarily all, control technologies or equipment at Alberta industrial operations. Where a specific control technology or equipment does not fit within any of the provided types, "Other Control Technology or Equipment" should be selected. If controlled, this field must not be left as "<Choose One>".

Note: Non-pollution control units, processes and equipment are covered in Section 9 of the AEIR Standard.

The following are definitions of the provided control technology and equipment types:

Absorption or Adsorption – absorption is a control process in which a gaseous pollutant is removed from flue gas by being dissolved in a liquid (usually water), while adsorption is a control process where a gaseous

pollutant is removed from flue gas by the binding forces of the molecules on a solid surface to which the gas comes in contact. This category includes carbon filtration and adsorption, but does not include solvent recovery.

Baffle or Settling Chamber – an air pollution control device that slows an effluent stream causing heavier particles to settle out from the stream by gravity, may include baffle plates to slow and change direction of the effluent stream. A hopper is typically used to collect the particles.

Baghouse – a piece of air pollution control equipment that uses fabric filter tubes, fibrous packings, mats, envelopes or cartridges to assist in the dust capturing, separation or filtering process.

Biofiltration – an air pollution control device using large tanks filled with a porous medium, such as soil or compost, containing microorganisms that act as filter medium for biodegradation, producing energy and metabolic by-products.

Condenser - Contact or Surface – an air pollution control device which condenses a fluid from the gaseous state to a liquid state by removing heat energy through cooling. In surface condensers the pollutant gas does not come into contact with the coolant, while in contact condensers the coolant and polluted gas are mixed.

Cyclone or Centrifugal Dust Collector – an air pollution control device using centrifugal force to separate particulate out of the effluent stream, with the separated particulate typically collected in a hopper.

Electrified Filter Bed – an air pollution control device that uses electrostatic forces to attract particles from a flue gas stream to an electrically charged gravel bed.

Electrostatic Precipitator (ESP) – an air pollution control device that uses electrostatic forces to separate dust particles from exhaust gases. There are two main types of electrostatic precipitators, plate precipitators, where the dust collects on the sides of the plate, and tubular precipitators, where the dust is collected at the bottom of the cylinder. This category includes both wet and dry ESPs, but excludes electrified filter beds.

External Combustion Modification - a variety of methods and technologies that are designed to reduce air emissions (typically NO_x) from external combustion sources using principles such as: reducing peak temperature, reducing residence time at peak temperature, chemical reduction of the substance, oxidation of the substance and removal of the substance from combustion. This pollution control type includes: less excess air (LEA), burners out of service (BOOS), overfire air (OFA), low NO_x burners (LNB), ultra-low NO_x burners, flue gas recirculation (FGR), water or steam injection, reduced air preheat, fuel reburning, combustion optimization, catalytic combustion, non-thermal plasma reactor, injection of oxidant, oxygen instead of air for combustion, ultra-low NO_x fuels, air staging, fuel staging, etc. Note that Selective or Non-Selective Catalytic Reduction and Absorption or Adsorption have separate pollution control type categories.

Fixed or Floating Roof – a fixed or floating roof that covers a storage tank container housing liquids or compressed gases.

Flare – an elevated vertical stack used for burning off unwanted gas or flammable gas and liquids. Typically used during over-pressuring of plant equipment or other process emergency situations. Flares may also be used continuously as part of some specific operations and processes.

Fly Ash Removal System – a control system for removing fly ash from a flue gas stream.

Flue-Gas Desulphurization (FGD) – a device which removes sulphur dioxide from exhaust flue gases before release to the air, may be done using several different control methods or combinations of methods.

Fugitive Dust Suppression – the application of physical barriers or coverings, sprayed liquids or chemical suppressants to control fugitive dust.

Incinerator – a waste treatment technology that involves the combustion of organic materials or other substances. This category includes, but is not limited to: sulphur recovery unit incinerators, tail gas incinerators and wood waste incinerators, but excludes thermal oxidizers.

Internal Combustion Modification – a variety of methods and technologies that are designed to reduce air emissions (typically NO_x) from internal combustion sources using principles such as: reducing peak temperature, reducing residence time at peak temperature, chemical reduction of the substance, oxidation of the substance and removal of the substance from combustion. This pollution control type includes: low NO_x burners (LNB), ultra-low NO_x burners, steam/water injection, catalytic combustion, air-fuel ratio and ignition, pre-stratified charge (PSC), lean burn, etc. Note that Selective or Non-Selective Catalytic Reduction has a separate pollution control type category.

Mist Eliminator / Demister – a control device often fitted to vapour-liquid separator vessels to enhance the removal of liquid droplets entrained in a vapour stream.

Naphtha Recovery Unit (NRU) – a multi-step unit used to strip-off and recycle residual naphtha or diluent from a tailings stream, prior to disposal in a tailings pond.

Nitrogen Blanket System – a blanket of nitrogen gas used in storage tanks to prevent fires, explosion, or degradation of products.

Odour Control System – an air pollution control device utilizing one or more controls designed to reduce or remove odorous substances from an effluent stream.

Other Control Technology or Equipment – any other pollution control technology or equipment that does not fall under the provided pollution control technology or equipment categories.

Scrubber - Wet or Dry – an air pollution control device which removes unwanted particulates from exhaust gas streams by using either a liquid to wash out the particles from the stream or a dry reagent.

Selective or Non-Selective Catalytic Reduction (SCR or NSCR) – a control technology that injects a liquid-reductant agent through a special catalyst into the exhaust stream to convert nitrogen oxides into nitrogen and water.

Solvent Recovery System – a control system designed to recover solvents, utilizing one or more of the following processes: selective adsorption, stripping, distillation, drying and separation.

Sulphur Recovery Unit (SRU) – a unit tasked with the reduction of sulphur dioxide emissions through the conversion of hydrogen sulfide to elemental sulfur, typically done at oil refineries, natural gas processing plants, and oil sands processing facilities.

Thermal or Catalytic Oxidizer – an air pollution control device which heats the gas stream to high temperatures to oxidize organic contaminants before releasing them into the atmosphere, excluding incinerators. This category includes catalytic oxidizers, which heat the contaminant stream before passing it through a catalyst material, thereby allowing the oxidation reaction to occur at much lower temperatures than would be required without the catalyst.

Vapour Recovery Unit – an air pollution control device tasked with removal, treatment or recovery of vapours from storage tanks or industrial processes.

Waste Heat Recovery Unit – an air pollution control device that recovers heat from hot flue streams, thereby reducing air emissions due to the lower flue gas amounts being emitted and because less fuel is burned due the reuse of heat energy.

Description of "Other Type" (if applicable)
n/a

When "Other Control Technology or Equipment" is selected as the Control Technology or Equipment Type in the previous field, this field requires entering a description of the other type. This should simply explain what the control technology or equipment is and why it did not fit within the standard types provided.

Associated Unit, Process or Equipment Being Controlled (if applicable)
Boiler A and Boiler B

This field requires identification of the unit, process or equipment being controlled (if applicable).

Note: The "Associated Unit, Process or Equipment" must be called the same as what was entered in worksheet 2.1 of the AEIR Form.

Control Technology or Equipment SCC
10200602

This field requires identification of the most applicable Source Classification Code for the control technology or equipment. Information on selecting an SCC is provided in Section 6.2 of the AEIR Standard. If controlled, this field must not be left blank.

Make of Pollution Control Technology or Equipment (if applicable)
Cummins

This field requires entering the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control). If not documented elsewhere at the industrial operation, the make information should be identified on the control technology or equipment. If the pollution control is custom built, "Custom" can be entered as the make.

Model # of Pollution Control Technology or Equipment (if applicable)
332C

This field requires entering the model number of the control technology or equipment (if applicable for the specific pollution control). If not documented elsewhere at the industrial operation, the model number should be identified on the control technology or equipment. If the pollution control is custom built, "Custom" can be entered as the model #.

Year of Manufacture of Pollution Control Technology or Equipment (if applicable)
1997

This field requires entering the year of manufacture of the control technology or equipment (if applicable for the specific pollution control). This is the year the control technology or equipment was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the control technology or equipment.

Note: If the exact year of manufacture is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Installation of Pollution Control Technology or Equipment
1998

This field requires entering the year of installation of the control technology or equipment at the industrial operation. If the pollution control has not yet been installed, then this field can be left blank.

Note: If the exact year of installation is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of installation (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Pollution Control Technology or Equipment Start-up
1999

This field requires entering the year of start-up of the control technology or equipment at the industrial operation. This is typically close to or within a year or two of the installation year. If the pollution control has not yet started operating, then this field can be left blank.

Note: If the exact year of start-up is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Pollution Control Technology or Equipment Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the control technology or equipment for the inventory year. The provided options include: "Operating", "Temporarily shut-down", "Decommissioned" and "Not yet constructed/operating". If controlled, this field must not be left as "<Choose One>".

"Operating" should be selected if control technology or equipment was operating for all or part of the inventory year. This would be the selection that applies to most control technologies or equipment at an industrial operation.

"Temporarily shut-down" means the control technology or equipment was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for control technologies or equipment that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that control technologies or equipment that were shut-down for only part of the year should be classified as "operating", as the control technology or equipment was still operating during the inventory year.

"Decommissioned" should be selected for those control technologies or equipment that were operating and reported in past years' AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such control technologies or equipment should be changed to "Decommissioned". The other reported information for the decommissioned control technology or equipment should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved control technologies or equipment that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for control technologies or equipment that are approved but have not yet been built or are not yet operating. Such control technologies or equipment could be part of approved future phases of the industrial operation. It is not necessary to report planned control technologies or equipment that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Pollution Control Technology or Equipment Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the control technology or equipment for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most control technologies or equipment and simply means that the control technology or equipment operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the control technology or equipment normally operates.

“Start-up” would be selected when the control technology or equipment was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the control technology or equipment was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the control technology or equipment experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the control technology or equipment operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a control technology or equipment has high variation in operation nearly every year and thus while the control technology or equipment is operating, there is simply no normal operating condition for the control technology or equipment.

Note: “Significant impact (higher or lower)” on air emissions would be a large enough impact that the operating condition of the pollution control technology or equipment would not be considered normal/average/typical for the inventory year.

Approximate Hours of Annual Operation
1,898

This field requires entering the approximate number of hours of operation for the control technology or equipment for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the pollution control is an approved future source, then “0” should be entered in this field. If controlled, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the control technology or equipment is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Decommission Date of Pollution Control Technology (if applicable)
January 5, 2022

This field requires entering the date when the control technology or equipment was permanently shut-down or decommissioned (if applicable). Control technologies or equipment that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved control technologies or equipment that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Control? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to identify if the control technologies or equipment has not yet been built or has not yet commenced operation. All control technologies or equipment that are operating should have “No” selected and only the future not-yet operating control technologies or equipment should have “Yes” selected. If controlled, this field must not be left blank.

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future control technology or equipment is expected to begin operating/emitting. This field is only applicable to any future control technologies or equipment that are not-yet operating/emitting. This information will be used for the province’s future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Substances Affected (list all)
NO _x

This field requires listing all substances that are being controlled by the specific control technology or equipment for the release point. If controlled, this field must not be left blank.

Note: When there are more than a few substances being controlled/captured, it is acceptable to group related pollutants being controlled together (e.g., VOCs) rather than listing the dozens of individual species. However, any substances specifically required to be controlled/captured by the control technology/equipment according to the industrial operation’s EPEA approval should be individually listed (e.g., benzene, etc.).

Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)
80% for NO _x

This field requires entering the estimated overall control or capture effectiveness/efficiency value for each substance being controlled. The effectiveness/efficiency value is the amount the specific control reduces

the emissions for the particular substance. These values would typically be reported in percent for each individual substance. The source of the effectiveness/efficiency values could be from testing at the industrial operation (pre and post control), the manufacturer's specs, other engineering measurements/estimations, etc. If controlled, this field must not be left blank.

Basis for Estimated Overall Control or Capture Effectiveness/Efficiency
Manufacturer's specs for NO _x

This field requires identifying the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled. If controlled, this field must not be left blank.

Is this the primary, secondary, tertiary, backup/alternative or other control device?
Primary Control

This field provides a dropdown menu for selecting whether the pollution control technology or equipment for the release point is the primary, secondary, tertiary, backup/alternative or other control device. Primary, secondary, tertiary controls refer to the order the effluent stream enters the pollution control (first, second, third) not whether a piece of control equipment is the main method of control or a less significant method of control. Backup/alternative is for pollution controls that operate only when there is an issue with one of the other controls (as a backup or an alternate). Other control device is a catchall for any control technology or equipment that does not fall within the other provided categories. If controlled, this field must not be left as "<Choose One>".

If this is a backup/alternative control device, which control device is it a backup/alternative for? (Control Technology or Equipment Name) (if applicable)
Wet Scrubber 1

For backup/alternative controls, this field requires identifying the control technology or equipment (specify the Control Technology or Equipment Name) that the backup/alternative is for.

Note: The same fields described above are required for reporting other control technologies and equipment associated with each release point (Pollution Control Technology or Equipment 2 - Pollution Control Technology or Equipment 15). These fields are not repeated here to limit repetition in the AEIR Standard.

10.3 Gather and Enter Information on Non-Point Source Pollution Control Technologies and Equipment (Step 10c)

Clause RC 7-N set out the general types of information on pollution controls for non-point sources that are required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional pollution control fields that need to be completed. Once the pollution controls have been identified, the required specific information can be gathered and entered into the AEIR Form. The AEIR Form requires information on the classification, operation, installation, decommission and operational parameters of the pollution controls. The following describes the pollution control technology and equipment information required in worksheet 3.3 of the AEIR Form, with examples of the expected information.

Note: In some rare instances, certain required identification information (but excluding quantities of air emissions) may only be available via direct examination of operating equipment or the equipment's identification plate. If direct examination is required, only a reasonable level of effort is required to obtain the identification information. The industrial operation is **not** expected to shutdown the equipment or related processes in order to be able to obtain identification information on operating equipment. If the industrial operation cannot reasonably obtain this identification information, it is acceptable to note this in the Missing Required Information section of the Quantification Methodology Document. The industrial operation does **not** need to request an exception if equipment identification information cannot be reasonably obtained. Once such information gaps have been identified for the industrial operation, they should be addressed during the next reasonable opportunity (such as during a future scheduled shutdown). Once obtained, the missing information would be provided in the next AEIR.

Note: For EPEA approved future pollution controls, the available information is to be used to fill in the required fields in worksheet 3.3.

Worksheet 3.3 Non-Point Source – Pollution Control Information

Note: Table 48 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.3: Non-Point Source - Pollution Controls, including data types and conditions.

Any non-point sources controlled by operating or approved future pollution controls? (Y/N)

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any non-point sources at the industrial operation that are controlled by operating or approved future pollution controls. If there are no non-point sources with pollution controls, then “No” is selected in this field and no further information is required to be entered in worksheet 3.3 of the AEIR Form. If reporting non-point source information, this field must not be left as “<Choose One>”.

Non-Point Source Descriptive Name
--

Ammonia Storage Tank Vents

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Is the non-point source controlled or uncontrolled?
--

Controlled

This field is a dropdown menu to indicate if the specific non-point source is controlled (has associated pollution controls) or uncontrolled (has no associated pollution controls). If reporting pollution control information, this field must not be left as “<Choose One>”. If the non-point source is uncontrolled, no additional fields in worksheet 3.3 are required to be filled in for the specific non-point source.

Number of Applicable Pollution Controls on the Non-Point Source (if controlled)
--

1

This field requires entering the number of applicable pollution controls associated with the non-point source. This is how many pollution controls for the specific non-point source will be reported in the subsequent columns in worksheet 3.3. If controlled, this field must not be left blank.

Pollution Control 1

Name of Pollution Control
Tank Vapour Recovery

This field requires entering a simple descriptive name for the control associated with the non-point source, to communicate what the control is. If controlled, this field must not be left blank.

Pollution Control Unique Designation
SCR-101

This field requires entering the formal designation of the pollution control, as specified in the EPEA approval or associated EPEA approval/renewal application. These designations typically have a letter or letters designating a type of equipment/process followed by a numeric identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the specific pollution control, then the identification number used by the industrial operation for the pollution control should be entered. If there is no identification number used by the industrial operation for the pollution control, then the pollution control descriptive name can be entered. If controlled, this field must not be left blank.

Pollution Control Type
Vapour Recovery Unit

This field provides a dropdown list of pollution control types to select from. These were developed based on commonly available pollution controls and a review of pollution controls used at EPEA approved industrial operations. These categories should fit most, but not necessarily all, pollution controls at Alberta industrial operations. Where a specific pollution control does not fit within any of the provided types, "Other Control Technology or Equipment" should be selected. If controlled, this field must not be left as "<Choose One>".

Note: Non-pollution control units, processes and equipment are covered in Section 9 of the AEIR Standard.

The following are definitions of the provided pollution control types:

Absorption or Adsorption – absorption is a control process in which a gaseous pollutant is removed from flue gas by being dissolved in a liquid (usually water), while adsorption is a control process where a gaseous pollutant is removed from flue gas by the binding forces of the molecules on a solid surface to which the gas comes in contact. This category includes carbon filtration and adsorption, but does not include solvent recovery.

Baffle or Settling Chamber – an air pollution control device that slows an effluent stream causing heavier particles to settle out from the stream by gravity, may include baffle plates to slow and change direction of the effluent stream. A hopper is typically used to collect the particles.

Baghouse – a piece of air pollution control equipment that uses fabric filter tubes, fibrous packings, mats, envelopes or cartridges to assist in the dust capturing, separation or filtering process.

Biofiltration – an air pollution control device using large tanks filled with a porous medium, such as soil or compost, containing microorganisms that act as filter medium for biodegradation, producing energy and metabolic by-products.

Condenser - Contact or Surface – an air pollution control device which condenses a fluid from the gaseous state to a liquid state by removing heat energy through cooling. In surface condensers the pollutant gas does not come into contact with the coolant, while in contact condensers the coolant and polluted gas are mixed.

Cyclone or Centrifugal Dust Collector – an air pollution control device using centrifugal force to separate particulate out of the effluent stream, with the separated particulate typically collected in a hopper.

Electrified Filter Bed – an air pollution control device that uses electrostatic forces to attract particles from a flue gas stream to an electrically charged gravel bed.

Electrostatic Precipitator (ESP) – an air pollution control device that uses electrostatic forces to separate dust particles from exhaust gases. There are two main types of electrostatic precipitators, plate precipitators, where the dust collects on the sides of the plate, and tubular precipitators, where the dust is collected at the bottom of the cylinder. This category includes both wet and dry ESPs, but excludes electrified filter beds.

External Combustion Modification - a variety of methods and technologies that are designed to reduce air emissions (typically NO_x) from external combustion sources using principles such as: reducing peak temperature, reducing residence time at peak temperature, chemical reduction of the substance, oxidation of the substance and removal of the substance from combustion. This pollution control type includes: less excess air (LEA), burners out of service (BOOS), overfire air (OFA), low NO_x burners (LNB), ultra-low NO_x burners, flue gas recirculation (FGR), water or steam injection, reduced air preheat, fuel reburning, combustion optimization, catalytic combustion, non-thermal plasma reactor, injection of oxidant, oxygen instead of air for combustion, ultra-low NO_x fuels, air staging, fuel staging, etc. Note that Selective or Non-Selective Catalytic Reduction and Absorption or Adsorption have separate pollution control type categories.

Fixed or Floating Roof – a fixed or floating roof that covers a storage tank container housing liquids or compressed gases.

Flare – an elevated vertical stack used for burning off unwanted gas or flammable gas and liquids. Typically used during over-pressuring of plant equipment or other process emergency situations. Flares may also be used continuously as part of some specific operations and processes.

Fly Ash Removal System – a control system for removing fly ash from a flue gas stream.

Flue-Gas Desulphurization (FGD) – a device which removes sulphur dioxide from exhaust flue gases before release to the air, may be done using several different control methods or combinations of methods.

Fugitive Dust Suppression – the application of physical barriers or coverings, sprayed liquids or chemical suppressants to control fugitive dust.

Incinerator – a waste treatment technology that involves the combustion of organic materials or other substances. This category includes, but is not limited to: sulphur recovery unit incinerators, tail gas incinerators and wood waste incinerators, but excludes thermal oxidizers.

Internal Combustion Modification – a variety of methods and technologies that are designed to reduce air emissions (typically NO_x) from internal combustion sources using principles such as: reducing peak temperature, reducing residence time at peak temperature, chemical reduction of the substance, oxidation of the substance and removal of the substance from combustion. This pollution control type includes: low NO_x burners (LNB), ultra-low NO_x burners, steam/water injection, catalytic combustion, air-fuel ratio and ignition, pre-stratified charge (PSC), lean burn, etc. Note that Selective or Non-Selective Catalytic Reduction has a separate pollution control type category.

Mist Eliminator / Demister – a control device often fitted to vapour-liquid separator vessels to enhance the removal of liquid droplets entrained in a vapour stream.

Naphtha Recovery Unit (NRU) – a multi-step unit used to strip-off and recycle residual naphtha or diluent from a tailings stream, prior to disposal in a tailings pond.

Nitrogen Blanket System – a blanket of nitrogen gas used in storage tanks to prevent fires, explosion, or degradation of products.

Odour Control System – an air pollution control device utilizing one or more controls designed to reduce or remove odorous substances from an effluent stream.

Other Control Technology or Equipment – any other pollution control technology or equipment that does not fall under the provided pollution control technology or equipment categories.

Scrubber - Wet or Dry – an air pollution control device which removes unwanted particulates from exhaust gas streams by using either a liquid to wash out the particles from the stream or a dry reagent.

Selective or Non-Selective Catalytic Reduction (SCR or NSCR) – a control technology that injects a liquid-reductant agent through a special catalyst into the exhaust stream to convert nitrogen oxides into nitrogen and water.

Solvent Recovery System – a control system designed to recover solvents, utilizing one or more of the following processes: selective adsorption, stripping, distillation, drying and separation.

Sulphur Recovery Unit (SRU) – a unit tasked with the reduction of sulphur dioxide emissions through the conversion of hydrogen sulfide to elemental sulfur, typically done at oil refineries, natural gas processing plants, and oil sands processing facilities.

Thermal or Catalytic Oxidizer – an air pollution control device which heats the gas stream to high temperatures to oxidize organic contaminants before releasing them into the atmosphere, excluding incinerators. This category includes catalytic oxidizers, which heat the contaminant stream before passing it through a catalyst material, thereby allowing the oxidation reaction to occur at much lower temperatures than would be required without the catalyst.

Vapour Recovery Unit – an air pollution control device tasked with removal, treatment or recovery of vapours from storage tanks or industrial processes.

Waste Heat Recovery Unit – an air pollution control device that recovers heat from hot flue streams, thereby reducing air emissions due to the lower flue gas amounts being emitted and because less fuel is burned due the reuse of heat energy.

Description of "Other Type" (if applicable)
n/a

When "Other Control Technology or Equipment" is selected as the Pollution Control Type in the previous field, this field requires entering a description of the other type. This should simply explain what the control technology or equipment is and why it did not fit within the standard types provided.

Associated Unit, Process or Equipment Being Controlled (if applicable)
Waste Processor 1 and Waste Processor 2

This field requires identification of the unit, process or equipment being controlled (if applicable).

Note: The "Associated Unit, Process or Equipment" must be called the same as what was entered in worksheet 3.2 of the AEIR Form.

Pollution Control AMS/SCC
2301000000

This field requires identification of the most applicable Area and Mobile Source Code or Source Classification Code for the pollution control. Information on selecting an AMS/SCC is provided in Sections 6.2 and 7.2 of the AEIR Standard. If controlled, this field must not be left blank.

Make of Pollution Control (if applicable)
AEREON

This field requires entering the make (manufacturer) of the pollution control (if applicable for the specific pollution control). If not documented elsewhere at the industrial operation, the make information should be identified on the pollution control. If the pollution control is custom built, "Custom" can be entered as the make.

Model # of Pollution Control (if applicable)
J3XT

This field requires entering the model number of the pollution control (if applicable for the specific pollution control). If not documented elsewhere at the industrial operation, the model number should be identified on the pollution control. If the pollution control is custom built, "Custom" can be entered as the model #.

Year of Manufacture of Pollution Control (if applicable)
1997

This field requires entering the year of manufacture of the pollution control (if applicable for the specific pollution control). This is the year the pollution control was actually made, not when it was installed at the industrial operation. If not documented elsewhere at the industrial operation, the year of manufacture should be identified on the pollution control.

Note: If the exact year of manufacture is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of manufacture (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Installation of Pollution Control
1998

This field requires entering the year of installation of the pollution control. If the pollution control has not yet been installed, then this field can be left blank.

Note: If the exact year of installation is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of installation (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Year of Pollution Control Start-up
1999

This field requires entering the year of start-up of the pollution control. This is typically close to or within a year or two of the installation year. If the pollution control has not yet started operating, then this field can be left blank.

Note: If the exact year of start-up is not available for older pollution controls, it is acceptable to provide a reasonable estimate for the year of start-up (e.g., can estimate if it is 20, 25, 30, etc. years old and then convert that to an approximate year). A reasonable effort must be made and the best available information is to be provided.

Pollution Control Operating Status for the Inventory Year
Operating

This field is a dropdown menu that provides selections for specifying the general operating status of the pollution control for the inventory year. The provided options include: “Operating”, “Temporarily shut-down”, “Decommissioned” and “Not yet constructed/operating”. If controlled, this field must not be left as “<Choose One>”.

“Operating” should be selected if the pollution control was operating for all or part of the inventory year. This would be the selection that applies to most pollution controls at an industrial operation.

“Temporarily shut-down” means the pollution control was operating in past years, but was temporarily shut-down or not operating for all (or nearly all) of the inventory year. This option should be selected for pollution controls that were temporarily shut-down but are expected to begin operating again in the next year or two (as opposed to being permanently shutdown or decommissioned). Note that pollution controls that were shut-down for only part of the year should be classified as “operating”, as the pollution control was still operating during the inventory year.

“Decommissioned” should be selected for those pollution controls that were operating and reported in past years’ AEIR inventories (beginning with 2018), but have since been permanently shut-down or decommissioned. After the final year of reporting the operating status of such pollution controls should be changed to “Decommissioned”. The other reported information for the decommissioned pollution control should be left static in the AEIR Form, as reported in the last operating year. It is not necessary to report any previously approved pollution controls that were permanently shut-down or decommissioned prior to 2018.

“Not yet constructed/operating” should be used for pollution controls that are approved but have not yet been built or are not yet operating. Such pollution controls could be part of approved future phases of the industrial operation. It is not necessary to report planned pollution controls that have not yet been approved (authorized as part of the industrial operation’s EPEA approval).

Pollution Control Operating Condition for the Inventory Year (if operating)
Normal

This field is a dropdown menu that provides selections for specifying the general operating condition of the pollution control for the inventory year (if operating). The provided options include: “Normal”, “Start-up”, “Turnaround”, “Upset”, “Low Annual Output” and “High Annual Variability”.

“Normal” would be the selection for most pollution controls and simply means that the pollution control operated normally (average or typical) for the inventory year. There could have been a few occasional bumps in operation, but the specific inventory year was fairly representative of how the pollution control normally operates.

“Start-up” would be selected when the pollution control was undergoing start-up during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Turnaround” would be selected when the pollution control was undergoing turnaround during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Upset” would be selected when the pollution control experienced one or more large upsets during the inventory year and this had a significant impact (higher or lower) on annual emissions.

“Low Annual Output” would be selected when the pollution control operated below normal levels, overall having a lower than normal level of operation and this had a significant impact (higher or lower) on annual

emissions. This lower operating level could have been the result of many things, for example: administrative issues, depressed commodity prices, a non-typical phase of operation, etc.

“High Annual Variability” would be for rare instances where a pollution control has high variation in operation nearly every year and thus while the pollution control is operating, there is simply no normal operating condition for the pollution control.

Note: “Significant impact (higher or lower)” on air emissions would be a large enough impact that the operating condition of the pollution control would not be considered normal/average/typical for the inventory year.

Approximate Hours of Annual Operation for Pollution Control
1,950

This field requires entering the approximate number of hours of operation for the pollution control for the inventory year (between 0 and 8,760 hours, or between 0 and 8,784 hours for a leap year). If the pollution control is an approved future source, then “0” should be entered in this field. If controlled, this field must not be left blank.

Note: The hours of annual operation field is specific to the inventory year and must be updated annually for the specific inventory year.

Note: The hours of annual operation of the pollution control is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Decommission Date of Pollution Control (if applicable)
January 5, 2022

This field requires entering the date when the pollution control was permanently shut-down or decommissioned. Pollution controls that were temporarily shut-down for only part of the year will not need a decommission date, unless they have been permanently shut-down. It is not necessary to report any previously approved pollution controls that were permanently shut-down or decommissioned prior to 2018. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD).

Approved Future Control? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to identify if the pollution control has not yet been built or has not yet commenced operation. All pollution controls that are operating should have “No” selected and only the future not-yet operating pollution controls should have “Yes” selected. If controlled, this field must not be left as “<Choose One>”.

First Year of Expected Operation (if applicable)
2025

This field requires identifying the first year the approved future pollution control is expected to begin operating/emitting. This field is only applicable to any pollution controls that are not-yet operating/emitting. This information will be used for the province’s future scenarios and emissions projections.

Note: The first year of expected operation is only an approximation and does not need to be a completely accurate estimate. A reasonable effort must be made and the best available information is to be provided.

Substances Affected (list all)
Ammonia

This field requires listing all substances that are being controlled by the specific pollution control for the non-point source. If controlled, this field must not be left blank.

Note: When there are more than a few substances being controlled/captured, it is acceptable to group related pollutants being controlled together (e.g., VOCs) rather than listing the dozens of individual species. However, any substances specifically required to be controlled/captured by the pollution control according to the industrial operation's EPEA approval should be individually listed (e.g., benzene, etc.).

Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)
95% for ammonia

This field requires entering the estimated overall control or capture effectiveness/efficiency value for each substance being controlled. The effectiveness/efficiency value is the amount the specific control reduces the emissions for the particular substance. These values would typically be reported in percent for each individual substance. The source of the effectiveness/efficiency values could be from testing at the industrial operation (pre and post control), the manufacturer's specs, other engineering measurements/estimations, etc. If controlled, this field must not be left blank.

Basis for Estimated Overall Control or Capture Effectiveness/Efficiency
Manufacturer's specs for ammonia

This field requires identifying the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled. If controlled, this field must not be left blank.

Is this the primary, secondary, tertiary, backup/alternative or other control device?
Primary Control

This field provides a dropdown menu for selecting whether the pollution control is the primary, secondary, tertiary, backup/alternative or other control device. Primary, secondary, tertiary controls refer to the order the pollution control is applied (first, second, third) not whether a specific control is the main method of control or a less significant method of control. Backup/alternative is for pollution controls that operate only when there is an issue with one of the other controls (as a backup or an alternate). Other control device is a catchall for any pollution controls that do not fall within the other provided categories. If controlled, this field must not be left as "<Choose One>".

If this is a backup/alternative control device, which control device is it a backup/alternative for? (Pollution Control Name) (if applicable)
Wet Scrubber 1

For backup/alternative controls, this field requires identifying the pollution control (specify the Name of Pollution Control) that the backup/alternative is for.

Note: The same fields described above are required for reporting other control technologies and equipment associated with each non-point source (Pollution Control 2 - Pollution Control 15). These fields are not repeated here to limit repetition in the AEIR Standard.

11.0 Emission Limit Information (Steps 11a - c)

11.1 Identify Emission Limits (Step 11a)

The next step in preparing the AEIR requires identification of the relevant emission limits for the release points and non-point sources at the industrial operation. Emission limits are set out in the industrial operation's EPEA approval, either directly or via reference to specific Alberta or Canadian emission standards. Emission limits may be for individual sources or equipment, a combination of sources, or plant limits for the entire industrial operation. These limits may have several criteria, including temporal and conditional factors that help determine the exact limits for a given period of time. Where emission limits apply, they are to be used to determine the maximum emission rates (see Section 15.5 for information on quantifying maximum emission rates).

Under normal operations, emission limits should not be exceeded. Any exceedances of limits should be accounted for in the quantification of annual air emissions and identified in worksheet 1.18 (Operational and Release Issues and Incidents at the Industrial Operation) of the AEIR Form. Plant performance targets and emergency/upset limits are also to be reported in the AEIR Form. The following subsections (11.2-11.3) describe the normal and emergency/upset limit information required in the AEIR Form.

Note: Reporting of plant and combined source limits and performance targets is to be done in worksheet 1.20 - 1.21 of the AEIR Form, rather than in worksheets 2.3.1, 2.3.2, 3.4.1 or 3.4.2. Plant and combined source limits and performance targets are covered in Section 5.8 of the AEIR Standard.

11.2 Gather and Enter Information on Normal Emission Limits (Step 11b)

Clauses RC 7-L and RC 7-N set out the general types of information on emission limits that are required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional emission limit fields that need to be completed. Once the emission limit information for the release points and non-point sources have been identified, specific information on the normal limits can then be gathered and entered into the AEIR Form. The AEIR Form requires information on the normal limit substance/parameters, quantities, units, conditions and performance targets. The following describes the emission limit information required in worksheet 2.3.1 of the AEIR Form, with examples of the expected information. The same fields are also required in worksheet 3.4.1 for normal limits applicable to non-point sources.

Worksheet 2.3.1: Release Point – Normal Emission Limits (also for Worksheet 3.4.1 Non-Point Source – Normal Emission Limits)

Note: Table 39 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.3.1: Release Point - Normal Emission Limits, including data types and conditions.

Note: Table 49 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.4.1: Non-Point Source – Normal Emission Limits, including data types and conditions.

Any release points, units, processes or equipment at the industrial operation subject to a normal emission limit? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if any release points (or associated units, processes or equipment) at the industrial operation are subject to any normal emission limits. If there are no release points, units, processes or equipment subject to normal emission limits, then "No" is selected

in this field and no further information is required to be entered in worksheet 2.3.1 of the AEIR Form. If reporting release point information, this field must not be left as "<Choose One>".

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Release point subject to a normal limit? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the specific release point has a normal emission limit. If reporting normal limit information, this field must not be left as "<Choose One>". If the release point has no normal emission limit, then the remaining fields in worksheet 2.3.1 for the specific release point do not need to be completed.

Number of Normal Limits
1

This field requires entering the number of normal limits associated with the release point, units, processes or equipment. This is how many normal limits for the specific release point will be reported in the subsequent columns in worksheet 2.3.1. If subject to a normal limit, this field must not be left blank.

Associated Units, Processes or Equipment Covered by Limit (list all that apply)
Boiler A (B-550A), Boiler B (B-550B) and Selective Catalytic Reduction Unit (SCR-101)

This field requires listing any units, processes and equipment that are covered by the emission limit.

Note: The "Associated Units, Processes or Equipment" must be called the same as what was entered in worksheet 2.1 of the AEIR Form.

Normal Limit 1

Approval Limit - Substance or Parameter
Nitrogen Oxides (expressed as NO ₂)

This field requires identifying the substance or parameter of the emission limit. If subject to a normal limit, this field must not be left blank.

Approval Limit - Quantity
58.0

This field requires entering the quantity of the emission limit. If subject to a normal limit, this field must not be left blank.

Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)
kilograms/hour

This field requires entering the units of the emission limit. If subject to a normal limit, this field must not be left blank.

Approval Limit - Conditions (if applicable)
Normal operating conditions

This field requires entering any specific conditions for the emission limit, if applicable.

Performance Target - Quantity (if applicable, for the same substance or parameter)
40.00

This field requires entering the quantity of the performance target for the substance or parameter (same substance or parameter as the limit), if applicable.

Performance Target - Units (if applicable, for the same substance or parameter)
kilograms/hour

This field requires entering the units (e.g., kg/hour, kg/MWh, tonnes/day, etc.) of the performance target for the substance or parameter (same substance or parameter as the limit), if applicable.

Note: Performance target information is only required for air-related EPEA approval performance targets.

Note: The same fields described above are required for reporting of other normal emission limits associated with each release point (Normal Limit 2 – Normal Limit 25). These fields are not repeated here to limit repetition in the AEIR Standard.

Note: The same fields described above are required for worksheet 3.4.1: Non-Point Source - Normal Limits, which is for reporting the normal emission limits associated with non-point sources (Normal Limit 1 – Normal Limit 25). These fields are not repeated here to limit repetition in the AEIR Standard.

11.3 Gather and Enter Info on Emergency or Upset Emission Limits (Step 11c)

The AEIR Form also requires information on any emergency or upset limits for the release points and non-point sources. Clauses RC 7-L and RC 7-N set out the general types of information on emission limits that are required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional emission limit fields that need to be completed. The AEIR Form requires information on the emergency and upset limit substances/parameters, quantities, units and conditions. The following describes the emergency and upset emission limit information required in worksheet 2.3.2 of the AEIR Form, with examples of the expected information. The same fields are also required in worksheet 3.4.2 for emergency/upset limits applicable to non-point sources.

Worksheet 2.3.2: Release Point – Emergency or Upset Emission Limits (also for Worksheet 3.4.2 Non-Point Source – Emergency or Upset Emission Limits)

Note: Table 40 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.3.2: Release Point - Emergency or Upset Limits, including data types and conditions.

Note: Table 50 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.4.2: Non-Point Source - Emergency & Upset Limits, including data types and conditions.

Any release points, units, processes or equipment at the industrial operation subject to an emergency or upset emission limit? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if any release points (or associated units, processes or equipment) at the industrial operation are subject to any emergency or upset emission limits. If there are no release points, units, processes or equipment subject to emergency or upset emission limits, then “No” is selected in this field and no further information is required to be entered in worksheet 2.3.2 of the AEIR Form. If reporting release point information, this field must not be left blank.

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Release point subject to an emergency or upset limit? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the specific release point has an emergency or upset emission limit. If reporting emergency/upset limit information, this field must not be left as “<Choose One>”. If the release point has no emergency or upset emission limit, then the remaining fields in worksheet 2.32 for the specific release point do not need to be completed.

Number of Emergency or Upset Limits
1

This field requires entering the number of emergency or upset limits associated with the release point (or units, processes or equipment). This is how many emergency or upset limits for the specific release point will be reported in the subsequent columns in worksheet 2.3.2. If subject to an emergency/upset limit, this field must not be left blank.

Associated Units, Processes or Equipment Covered by Limit (list all that apply)
Processing Furnace (F-101)

This field requires listing any units, processes and equipment that are covered by the emergency or upset emission limit.

Note: The “Associated Units, Processes or Equipment” must be called the same as what was entered in worksheet 2.1 of the AEIR Form.

Emergency or Upset Limit 1

Approval Limit - Substance or Parameter
PM _{2.5}

This field requires identifying the substance or parameter of the emergency or upset emission limit. If subject to an emergency/upset limit, this field must not be left blank.

Approval Limit - Quantity
1.5

This field requires entering the quantity of the emergency or upset emission limit. If subject to an emergency/upset limit, this field must not be left blank.

Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)
tonnes/hour

This field requires entering the units of the emergency or upset emission limit. If subject to an emergency/upset limit, this field must not be left blank.

Approval Limit - Conditions (if applicable)
n/a

This field requires entering any specific conditions for the emergency or upset emission limit, if applicable.

Note: The same fields described above are required for reporting of other emergency or upset emission limits associated with each release point (Emergency or Upset Limit 2 – Emergency or Upset Limit 25). These fields are not repeated here to limit repetition in the AEIR Standard.

Note: The same fields described above are required for worksheet 3.4.2: Non-Point Source - Emergency or Upset Emission Limits, which is for reporting the emergency or upset emission limits associated with non-point sources (Emergency or Upset Limit 1 – Emergency or Upset Limit 25). These fields are not repeated here to limit repetition in the AEIR Standard.

12.0 Temporal Operating and Emitting Information (Steps 12a - c)

12.1 Identify Temporal Operating and Emitting Information (Step 12a)

The next step in preparing the AEIR requires the identification of the temporal operating and emitting information for the industrial operation. This includes identification of when the release points and non-point sources are operating and (if known) when they are emitting to the atmosphere. This is critical information to use (in combination with other information) to determine the air emissions from each release point and non-point source.

The required fields on temporal operating and emitting information are included in worksheets 2.4 (Release Point - Temporal Information) and 3.5 (Non-Point Source - Temporal Information) of the AEIR Form. Reporting of temporal operating and emitting information for release points is covered in Section 12.2 of the AEIR Standard. Reporting of temporal operating and emitting information for non-point sources is covered in Section 12.3 of the AEIR Standard.

Note: Temporal operating/emitting information for the overall industrial operation is required in worksheet 1.4 of the AEIR Standard. Reporting of temporal operating/emitting information for the overall industrial operation is covered in Section 5.1 of the AEIR Standard.

12.2 Gather and Enter Temporal Operating and Emitting Information – Release Points (Step 12b)

Clause RC 7-L sets out the general types of temporal operating and emitting information that are required to be reported for release points via the AEIR. The AEIR Form itself specifies the individual mandatory and optional temporal fields that need to be completed. Once the relevant temporal operating and emitting information has been identified, the temporal information on the release points needs to be gathered and entered into the AEIR Form.

Sources can be continuously operating/emitting (operating/emitting whenever the industrial operation is operating), operating intermittently (some but not all of the time), only operating/emitting during emergency or upset situations, or may only operate on a semi-annual basis (not every year). The amount of time and specific schedule a release point operates/emits will impact the quantities of substances released to the atmosphere for the inventory year. Emission sources can have seasonal variation, as well as variation on a daily, weekly and monthly basis.

The AEIR Form requires information on when each source operates/emits. Daily and monthly operational information may also be required to be reported. For continuous sources, temporal operation/emitting information for the entire industrial operation (as reported in worksheet 1.4) can be used (if appropriate) to representative how the source is operating/emitting. If it is not appropriate or applicable to use the temporal operation/emitting information for the entire industrial operation for a specific release point, then the temporal information for the specific release point is required to be entered into the AEIR Form. The following are the fields that are required to be completed in worksheet 2.4 of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheet 2.4: Release Point – Temporal Operation Information

Note: Table 41 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.4: Release Point - Temporal Operation Information, including data types and conditions.

Release Point Descriptive Name

Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

General Temporal Information

Source Operating or Emitting Time Period
Continuous

This field provides a dropdown menu for selecting whether the release point operates/emits continuously, intermittently, only in emergency or upset conditions, or semi-annually. If reporting release point information, this field must not be left as "<Choose One>".

The four types of source operating/emitting time periods are defined as follows:

Continuous – should be selected for those sources that operate/emit all (or nearly all) the time when the industrial operation is operating. Continuous sources see little to no daily, weekly, monthly or seasonal variation in operation. If the industrial operation operates 24/7, a continuous source would also operate/emit 24/7. If the industrial operation operates roughly 365 days a year (except for occasional shut-downs), a continuous source would also operate/emit roughly 365 days a year. Essentially a continuous source operates/emits whenever the industrial operation is operational, and will typically use the same operational/emitting temporal profile as the entire industrial operation.

Note: Continuously monitored sources (e.g., a CEMS monitored stack) may operate nearly all the time but have different operating/emitting information available compared to the temporal information available for the overall industrial operation. In this case, the available CEMS data would be used to develop daily and monthly temporal information for the continuously monitored source. Identification of which release points are continuously monitored is done in worksheet 2.5 of the AEIR Standard.

Continuous Example:

Boiler Stack A operated continually (24/7) throughout the inventory year, for the 362 days the industrial operation was in operation during the year. The reported temporal information for the industrial operation can therefore be used to represent how Boiler Stack A operated during the inventory year.

Intermittent – should be selected for those sources that operate/emit often during a year and under normal operating conditions, but do not operate/emit all (or nearly all the time) when the industrial operation is operating. Intermittent sources do not include emergency/upset sources, which only operate/emit during emergency or upset conditions. Intermittent sources would include those sources that operate only during specific phases of normal operation, or only during select normal industrial processes or alternating with other sources (as part of normal operations).

Intermittent Example 1:

An intermittent source may only operate in the mornings to prepare a material that is processed later in the day and then the intermittent source operates again the next morning. This source may operate every day, but is operating on a different operating/emitting schedule from the operating schedule of the industrial operation.

Intermittent Example 2:

An intermittent source may only operate during select months of the year, as an industrial operation may focus on product 1 in the spring and summer, but focuses on a different product during the fall and winter. This source is therefore subject to a seasonal operating schedule that is different from the operating schedule of the industrial operation.

Emergency/Upset – should be selected for those sources that typically operate/emit every year, but only during emergency or upset conditions. Emergency/upset sources would include those sources that operate/emit only outside of normal operation.

Emergency/Upset Example:

An emergency/upset source could be an emergency flare that only operates/emits a few hours a year when there is an equipment failure that results in an excess of process gas/materials that needs to be safely burned off.

Semi-Annual – should be selected for those sources that only operate/emit a couple times a year and only every few years.

Semi-Annual Example:

A semi-annual source could be an alternate boiler that only operates every few years in place of other specific boilers that are shutdown for extended maintenance.

Note: A routine flare would be classified as a "continuous" source if it operates nearly all the time. A routine flare would be classified as an "intermittent" source if the individual routine flaring events occurred mainly on a semi-continuous basis throughout the year. A non-routine flare (both planned and unplanned flaring having a cumulative flaring duration of less than 720 hours in a year) would be classified as an "emergency/upset" source, as the flaring would be infrequent and is the result of operating outside of normal (typical) operations.

Note: The specific dates and time periods when emergency/upset sources operated needs to be captured and mentioned in the events described in worksheet 1.18: Operational and Release Issues and Incidents at the Industrial Operation.

Should the "Industrial Operation Temporal Information" reported in Worksheet 1.4 be used for the source? (if no, then report the source specific daily and monthly temporal info in the subsequent columns)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether the temporal information for the entire industrial operation that was reported in worksheet 1.4 should be used for the source. If "Yes", then no daily or monthly temporal information is required for the source. If "No", then source specific daily and monthly temporal information is to be reported in the subsequent fields. If reporting release point information, this field must not be left as "<Choose One>".

Daily Temporal Information

Daily temporal operation information is required for non-emergency sources (continuous, intermittent and semi-annual), when the industrial operation's temporal information is not being used. The daily temporal information can be based on typical operating or emitting schedules (which may or may not differ) and will need to provide information on whether the source operates or emits during holidays, weekends and the source's typical daily hours.

Operating Schedule (# of days per week)
7

This field requires entering a numeric value for the number of days per week the release point typically operates.

Operates During Holidays? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the release point typically operates or emits during statutory holidays.

Operates 24-hours a Day? (Y/N)
No

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the release point typically operates or emits 24-hours a day.

Weekday Start Time
8:00

This field requires entering the typical weekday start time for the release point. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the release point does not operate 24-hours a day.

Weekday End Time
16:30

This field requires entering the typical weekday end time (closing for the day time) for the release point. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the release point does not operate 24-hours a day.

Operates on Weekends? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the release point typically operates or emits on weekends.

Weekend Start Time
8:00

This field requires entering the typical weekend start time for the release point. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the release point operates on weekends and does not operate 24-hours a day.

Weekend End Time
16:30

This field requires entering the typical weekend end time (closing for the day time) for the release point. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the release point operates on weekends and does not operate 24-hours a day.

Monthly Temporal Information

Monthly temporal operation information is required when the industrial operation’s temporal information is not being used. The monthly temporal schedule can be based on when the source operates (monthly total hours of operation or percentage of annual operation occurring in the month), or can be based on the amounts emitted during each month (e.g., monthly percentages that represent emitting more or less in some months or seasons than others).

Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?
Percentage

This field is a dropdown menu for selecting whether the monthly operating information (in the subsequent fields) is being reported in “Hours” or “Percentage”. For “Hours”, this will be the approximate total number of hours of operation for the release point for the individual month. The monthly hours should add up to the total “Approximate Hours of Operation for the Year”. For “Percentage”, this will be the percent of total annual hours of operation or percent of annual emissions for the release point that occurred during the individual month.

For example, 10% of the operating time/emissions for the release point occurred during January, 5% during February, 9% during March, 3% during April, etc. The monthly operating/emitting percentages should add up to 100%. The operational/emitting hours/percentages for the release point will be used for temporal profiles when utilizing the reported annual actual emission rates at timescales smaller than the entire year.

January Hours of Operation or Operating/Emitting Percentage
20.0

This field requires entering the approximate number of hours of operation for the release point occurring during January of the inventory year, or entering the approximate percent of annual hours or total annual emissions that occurred during January.

Note: The same fields as for “January” described above are required for reporting the approximate number of hours of operation, or approximate percent operating hours/total annual emissions, for the release point occurring during the other months (February – December) of the inventory year. These fields are not repeated here to limit repetition in the AEIR Standard.

Note: As some major sources or plant units may undergo extended shutdowns during a calendar year, worksheet 1.19 (Major Source or Plant Shutdowns) of the AEIR Form requires reporting of such shutdowns and may be used to adjust the temporal profile for the release points.

Sum of Monthly (autosum, no input required)
100.0

This field automatically sums the twelve monthly hours of operation or operating/emitting percentages. This field shows the annual total hours of operation for the source (would be 8,760 hours or less, except for a leap year) or percent of annual total operation/emission (100%). No input is required for this field, but the result should be checked for reasonableness for any source where monthly temporal information is being reported in the AEIR Form.

Approximate Hours of Annual Operation From Worksheet 2.0 (no input required)
1,900

This field carries forward the approximate hours of annual operation for the release point that was entered in worksheet 2.0 of the AEIR Form. If the individual monthly hours of operation were entered for the release point, this field should show the same value as the “Sum of Monthly” field.

12.3 Gather and Enter Temporal Operating and Emitting Information – Non-Point Sources (Step 12c)

Clause RC 7-N sets out the general types of temporal operating and emitting information that are required to be reported for non-point sources via the AEIR. The AEIR Form itself specifies the individual mandatory and optional temporal fields that need to be completed. Once the relevant temporal operating and emitting information has been identified, the temporal information on the non-point sources needs to be gathered and entered into the AEIR Form.

Sources can be continuously operating/emitting (operating/emitting whenever the industrial operation is operating), operating intermittently (some but not all of the time), only operating/emitting during emergency or upset situations, or may only operate on a semi-annual basis (not every year). The amount of time and specific schedule a non-point source operates/emits will impact the quantities of substances released to the atmosphere for the inventory year. Emission sources can have seasonal variation, as well as variation on a daily, weekly and monthly basis.

The AEIR Form requires information on when each source operates/emits. Daily and monthly operational information may also be required to be reported. For continuous sources, temporal operation/emitting information for the entire industrial operation (as reported in worksheet 1.4) can be used (if appropriate) to representative how the source is operating/emitting. If it is not appropriate or applicable to use the temporal operation/emitting information for the entire industrial operation for a specific non-point source, then the temporal information for the specific non-point source is required to be entered into the AEIR Form. The following are the fields that are required to be completed in worksheet 3.5 of the AEIR Form, with examples of the types of information that are expected in each field.

Note: If any of the sources included in a non-point source were operating/emitting during a specific period of time, then the non-point source would be considered operating/emitting (even if not all the included sources were operating or emitting). If none of the sources included in the non-point source were operating/emitting during a specific period of time, then the non-point source would not be considered operating/emitting at that time. Only general temporal information is required, and many non-point sources will be operating whenever the industrial operation is operating (can be considered continuously operating).

Worksheet 3.5 Non-Point Source – Temporal Operation Information

Note: Table 51 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.5: Non-Point Source - Temporal Information, including data types and conditions.

Non-Point Source Descriptive Name
Ammonia Storage Tank Vents

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

General Temporal Information

Source Operating or Emitting Time Period
Continuous

This field provides a dropdown menu for selecting whether the non-point source operates/emits continuously, intermittently, only in emergency or upset conditions, or semi-annually. If reporting non-point source information, this field must not be left as "<Choose One>".

The four types of source operating/emitting time periods are defined as follows:

Continuous – should be selected for those sources that operate/emit all (or nearly all) the time when the industrial operation is operating. Continuous sources see little to no daily, weekly, monthly or seasonal variation in operation. If the industrial operation operates 24/7, a continuous source would also operate/emit 24/7. If the industrial operation operates roughly 365 days a year (except for occasional shut-downs), a continuous source would also operate/emit roughly 365 days a year. Essentially a continuous source operates/emits whenever the industrial operation is operational, and will typically use the same operational/emitting temporal profile as the entire industrial operation.

Note: Continuously monitored sources may operate nearly all the time but have different operating/emitting information available compared to the temporal information available for the overall industrial operation. In this case, the available monitoring data would be used to develop daily and monthly temporal information for the source. Identification of which non-point sources underwent source monitoring is done in worksheet 3.6 of the AEIR Standard.

Continuous Example:

Loading/unloading at the mine occurred continually (24/7) throughout the inventory year, for the 300 days the industrial operation was in operation during the year. The reported temporal information for the industrial operation can therefore be used to represent how the loading/unloading non-point source operated during the inventory year.

Intermittent – should be selected for those sources that operate/emit often during a year and under normal operating conditions, but do not operate/emit all (or nearly all the time) when the industrial operation is operating. Intermittent sources do not include emergency/upset sources, which only operate/emit during emergency or upset conditions. Intermittent sources would include those sources that operate only during specific phases of normal operation, or only during select normal industrial processes or alternating with other sources (as part of normal operations).

Intermittent Example 1:

An intermittent source may only operate in the mornings to prepare a material that is processed later in the day and then the intermittent source operates again the next morning. This source may operate every day, but is operating on a different operating/emitting schedule from the operating schedule of the industrial operation.

Intermittent Example 2:

An intermittent source may only operate during select months of the year, as an industrial operation may focus on product 1 in the spring and summer, but focuses on a different product during the fall and winter. This source is therefore subject to a seasonal operating schedule that is different from the operating schedule of the industrial operation.

Emergency/Upset – should be selected for those sources that typically operate/emit every year, but only during emergency or upset conditions. Emergency/upset sources would include those sources that operate/emit only outside of normal operation.

Emergency/Upset Example:

An emergency/upset source only operates/emits a few hours a year when there is an equipment failure that results in an excess of process gas/materials that needs to be safely burned off.

Semi-Annual – should be selected for those sources that only operate/emit a couple times a year and only every few years.

Semi-Annual Example:

A semi-annual source could be an alternate source that only operates every few years in place of another specific source that is shutdown for extended maintenance.

Note: The specific dates and time periods when emergency/upset sources operated needs to be captured and mentioned in the events described in worksheet 1.18: Operational and Release Issues and Incidents at the Industrial Operation.

Should the "Industrial Operation Temporal Information" reported in Worksheet 1.4 be used for the source? (if no, then report the source specific daily and monthly temporal info in the subsequent columns)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether the temporal information for the entire industrial operation that was reported in worksheet 1.4 should be used for the source. If "Yes", then no daily or monthly temporal information is required for the source. If "No", then source specific daily and monthly temporal information is to be reported in the subsequent fields. If reporting non-point source information, this field must not be left as "<Choose One>".

Daily Temporal Information

Daily temporal operation information is required for non-emergency sources (continuous, intermittent and semi-annual), when the industrial operation's temporal information is not being used. The daily temporal information can be based on typical operating or emitting schedules (which may or may not differ) and will need to provide information on whether the source operates or emits during holidays, weekends and the source's typical daily hours.

Operating Schedule (# of days per week)
7

This field requires entering a numeric value for the number of days per week the non-point source typically operates.

Operates During Holidays? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the non-point source typically operates or emits during statutory holidays.

Operates 24-hours a Day? (Y/N)
No

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the non-point source typically operates or emits 24-hours a day.

Weekday Start Time
8:00

This field requires entering the typical weekday start time for the non-point source. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the non-point source does not operate 24-hours a day.

Weekday End Time
16:30

This field requires entering the typical weekday end time (closing for the day time) for the non-point source. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the non-point source does not operate 24-hours a day.

Operates on Weekends? (Y/N)
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate if the non-point source typically operates or emits on weekends.

Weekend Start Time
8:00

This field requires entering the typical weekend start time for the non-point source. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the non-point source operates on weekends and does not operate 24-hours a day.

Weekend End Time
16:30

This field requires entering the typical weekend end time (closing for the day time) for the non-point source. This is a time field with specific formatting restrictions (##:##, 24-hour clock). This field is only required when the non-point source operates on weekends and does not operate 24-hours a day.

Monthly Temporal Information

Monthly temporal operation information is required when the industrial operation's temporal information is not being used. The monthly temporal schedule can be based on when the source operates (monthly total hours of operation or percentage of annual operation occurring in the month), or can be based on the amounts emitted during each month (e.g., monthly percentages that represent emitting more or less in some months or seasons than others).

Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?
Percentage

This field is a dropdown menu for selecting whether the monthly operating information (in the subsequent fields) is being reported in "Hours" or "Percentage". For "Hours", this will be the approximate total number of hours of operation for the non-point source for the individual month. The monthly hours should add up to the total "Approximate Hours of Operation for the Year". For "Percentage", this will be the percent of total annual hours of operation or percent of annual emissions for the non-point source that occurred during the individual month.

For example, 10% of the operating time/emissions for the non-point source occurred during January, 5% during February, 9% during March, 3% during April, etc. The monthly operating/emitting percentages should add up to 100%. The operational/emitting hours/percentages for the non-point source will be used for temporal profiles when utilizing the reported annual actual emission rates at timescales smaller than the entire year.

January Hours of Operation or Operating/Emitting Percentage
5.0

This field requires entering the approximate number of hours of operation for the non-point source occurring during January of the inventory year, or entering the approximate percent of annual hours or total annual emissions that occurred during January.

Note: The same fields as for "January" described above are required for reporting the approximate number of hours of operation, or approximate percent operating hours/total annual emissions, for the non-point source occurring during the other months (February – December) of the inventory year. These fields are not repeated here to limit repetition in the AEIR Standard.

Note: As some major sources or plant units may undergo extended shutdowns during a calendar year, worksheet 1.19 (Major Source or Plant Shutdowns) of the AEIR Form requires reporting of such shutdowns and may be used to adjust the temporal profile for the non-point sources.

Sum of Monthly (autosum, no input required)
100.0

This field automatically sums the twelve monthly hours of operation or operating/emitting percentages. This field shows the annual total hours of operation for the source (which would be 8,760 hours or less, except for a leap year) or percent of annual total operation/emission (100%). No input is required for this field, but the result should be checked for reasonableness for any source where monthly temporal information is being reported in the AEIR Form.

Approximate Hours of Annual Operation From Worksheet 3.0 (no input required)
1,900

This field carries forward the approximate hours of annual operation for the non-point source that was entered in worksheet 3.0 of the AEIR Form. If the individual monthly hours of operation were entered for the non-point source, this field should show the same value as the "Sum of Monthly" field.

13.0 Source Monitoring Information (Steps 13a - c)

13.1 Identify Source Monitoring Information (Step 13a)

The next step in preparing the AEIR requires identification of any applicable source monitoring information for the industrial operation. This can include, but may not be limited to, Continuous Emission Monitoring System (CEMS) data, stack sampling that has taken place during the year, results of leak detection and repairs, and other types of fugitive monitoring. Source monitoring data can provide extremely valuable information for use in the quantification of air emissions for some of the largest release points and non-point sources at an industrial operation. When available, source monitoring data would typically be used for quantifying annual actual and normal emission rates for the monitored sources and substances.

Note: If estimates (e.g., emission factors, etc.) are used to determine the emission rates in place of available monitoring/measurement data, then identification and justification for this must be included in the Quantification Methodology Document. Clause EIS 19-B requires that the QMD include: identification of any instances when estimation methods were used in place of available monitoring or measurement data and supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

The required fields on source monitoring are included in worksheets 2.5 (for release points) and 3.6 (for non-point sources) of the AEIR Form. Reporting of source monitoring information for release points is covered in Section 13.2 of the AEIR Standard. Reporting of source monitoring information for non-point sources is covered in Section 13.3 of the AEIR Standard.

13.2 Gather and Enter Release Point Source Monitoring Information (Step 13b)

Clause RC 7-L sets out the general types of source monitoring information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional source monitoring fields that need to be completed. Once the source monitoring information for the industrial operation has been identified, the required specific information can then be gathered and entered into the AEIR Form. The AEIR Form requires information on any CEMS and stack sampling carried out on release points during the year. This is just identification and description information in order to provide the ability to cross-reference with the monitoring information and summaries already provided to the Regulator. Industrial operations are simply required to identify if source monitoring occurred, the relevant identification numbers, which substances/parameters were monitored and the testing date(s). The following describes the source monitoring information required in worksheet 2.5 of the AEIR Form, including examples of the expected information.

Note: For release points undergoing source monitoring (CEMS, stack sampling, etc.), the stack parameters in worksheet 2.0 should be updated based on the available (and typically most recent) source monitoring results. The updated stack parameters based on source monitoring data should be more accurate and representative than just using what was used for the modelling in the EPEA approval/renewal application. For example, if a release point has been monitored via CEMS or stack sampling, the exit velocity and temperature parameters being reported in worksheet 2.0 of the AEIR Form should be updated based on the source monitoring data.

Note: No individual source monitoring results or summaries of the monitoring information are required to be included in worksheet 2.5 of the AEIR Form. CEMS data should have already been submitted electronically in accordance with Section 3.2.1 (Submission of CEMS Data) of the AMD Reporting Chapter. Summaries of CEMS data should have already been submitted as part of monthly/annual reports in accordance with Sections 5.4.2 and 6.4.2 (Continuous Emission Monitoring Results) of the AMD Reporting Chapter. Stack testing summaries should have already been submitted as part of monthly/annual reports, as per Sections 5.4.3 and 6.4.3 (Source Testing Results) of the of the AMD Reporting Chapter. Stack testing reports should have been submitted under Section 9.1 (Manual Stack Survey Reports) of the AMD Reporting Chapter.

Note: Neither RATA or CGA results need to be identified in worksheet 2.5, only CEMS and manual stack sampling at the industrial operation are to be identified in the AEIR Form.

Worksheet 2.5: Release Point – Source Sampling and Continuous Emission Monitoring System Information

Note: Table 42 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.5: Release Point - Source Sampling and CEMS, including data types and conditions.

Were any release points at the industrial operation monitored with CEMS or stack sampling? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if any release points at the industrial operation were monitored with CEMS or stack sampling during the inventory year. If there were no release points monitored with CEMS or stack sampling, then “No” is selected in this field and no further information is required to be entered in worksheet 2.5 of the AEIR Form. If reporting release point information, this field must not be left as “<Choose One>”.

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

CEMS Information

Was the release point monitored using a Continuous Emission Monitoring System (CEMS)? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the specific release point was monitored using a Continuous Emission Monitoring System during the inventory year. If the release point was not monitored using a CEMS, then the remaining CEMS information fields in this worksheet for the specific release point do not need to be completed. If reporting release point monitoring information, this field must not be left as “<Choose One>”.

CEMS Station ID (if applicable)
13302

This field requires entering the CEMS Station ID, as specified in the Codes for Electronic Reporting for the industrial operation. A release point will typically only have one CEMS Station ID, but could have several different monitors/sensors at the single CEMS location for measuring various substances and parameters for the release point. It is not necessary to enter individual sensor ID numbers in the AEIR Form, just the CEMS Station ID (if applicable). If CEMS data is being electronically submitted to the Regulator, then the CEMS Station ID must be reported.

Which substances/parameters were monitored using the CEMS? (list all)
Nitrogen oxides (expressed as NO ₂), temperature, flow rate

This field requires listing all the substances/parameters for the release point that were monitored using the CEMS. If reporting CEMS information, this field must not be left blank.

Stack Sampling Information

Was stack sampling carried out on the release point? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if any stack sampling was carried out on the specific release point during the inventory year. If the release point did not undergo stack testing during the inventory year, then the remaining stack sampling information fields in this worksheet for the specific release point do not need to be completed. If reporting release point monitoring information, this field must not be left as “<Choose One>”.

Date of Stack Sample 1 (if applicable)
May 22, 2022

This field requires entering the date of the first stack sample on the release point for the inventory year. This is a date field with specific formatting restrictions (Month DD, YYYY or YYYY-MM-DD). If reporting stack sampling information, this field must not be left blank.

Which substances/parameters were monitored during Stack Sample 1? (list all)
Nitrogen oxides (expressed as NO ₂)

This field requires listing all the substances/parameters for the release point that were monitored during Stack Sample 1. If reporting stack sampling information, this field must not be left blank.

Note: Additional stack sample date and monitored substance/parameter fields for the release point (Stack Sample 2 –Sample 12) can be entered into the worksheet. These fields are not repeated here to limit repetition in the AEIR Standard.

Listing of any Additional Stack Sampling Dates (if applicable)
May 14, 2022 and September 22, 2022

This field provides space (if needed) for listing any additional stack sampling dates (if greater than 12) carried out on the release point for the inventory year.

Which substances/parameters were monitored during the additional sampling? (list all)
Nitrogen oxides (expressed as NO ₂) for the May 14 and Sept 22 tests.

This field requires listing the substances/parameters for the release point that were monitored during the additional sampling.

13.3 Gather and Enter Non-Point Source Monitoring Information (Step 13c)

Clause RC 7-N sets out the general types of source monitoring information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional source monitoring fields that need to be completed. The AEIR Form requires information on any source monitoring of non-point sources carried out during the year. This is just identification and description information in order to provide the ability to cross-reference with the monitoring information and summaries already provided to the Regulator. Industrial operations are simply required to identify if source monitoring on any non-point sources occurred, the monitored parameters, monitoring frequency and duration and the testing date(s). The following describes the source monitoring information required in worksheet 3.6 of the AEIR Form, including examples of the types of expected information.

Note: No individual source monitoring results or summaries of the monitoring information are required to be included in this worksheet, as the monitoring results should have already been submitted as per the requirements of the AMD Reporting Chapter or EPEA approval conditions (if applicable).

Worksheet 3.6: Non-Point Source – Source Monitoring Information

Note: Table 52 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.6: Non-Point Source - Source Monitoring, including data types and conditions.

Were any non-point sources at the industrial operation monitored using fugitive monitoring or other non-point source monitoring? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if any non-point sources at the industrial operation were monitored using fugitive monitoring or other non-point source monitoring during the inventory year. If there were no fugitive or other source monitored non-point sources, then “No” is selected in this field and no further information is required to be entered in worksheet 3.6 of the AEIR Form. If reporting non-point source information, this field must not be left as “<Choose One>”.

Non-Point Source Descriptive Name
Ammonia Storage Tank Vents

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Was the non-point source monitored using fugitive monitoring or other non-point source monitoring? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if the specific non-point source was monitored using fugitive monitoring or other non-point source monitoring during the inventory year. If the non-point source was not fugitive or otherwise monitored during the inventory year, then the remaining monitoring information fields in this worksheet for the specific non-point source do not need to be completed. If reporting non-point source monitoring information, this field must not be left as “<Choose One>”.

of Sampling Methods
1

This field requires entering the number of sampling methods that were carried out on the non-point source. This will indicate the number of sampling methods being reporting in the subsequent fields (Non-Point

Source Monitoring Descriptions 1-15) in worksheet 3.6 of the AEIR Form. If reporting non-point source monitoring information, this field must not be left blank.

Non-Point Source Monitoring Description 1

Description of Monitoring 1 Carried Out
Fugitive leak detection

This field requires entering a brief description of the monitoring that was carried out on the non-point source. If reporting non-point source monitoring information, this field must not be left blank.

Which substances/parameters were monitored? (list all)
Ammonia

This field requires listing all the substances/parameters for the non-point source that were monitored. If reporting non-point source monitoring information, this field must not be left blank.

Note: If there are more substances/parameters than can be individually entered, it is acceptable to group some together (VOC species, PAHs, etc.). Emissions of substances monitored going beyond the Schedule 1 and Schedule 2 substances are not required to be reported via the AEIR Form.

Were emissions measured or assigned based off of a library?
Measured

This field requires identifying whether the emissions were actually measured or were assigned based off a library. If reporting non-point source monitoring information, this field must not be left blank.

Monitoring Frequency
quarterly

This field requires identifying the monitoring frequency for the non-point source. If reporting non-point source monitoring information, this field must not be left blank.

Monitoring Duration
3-hour intervals

This field requires identifying the typical monitoring duration for each sampling period for the non-point source. If reporting non-point source monitoring information, this field must not be left blank.

Sampling Period(s)
March, June, September, December

This field requires listing all the sampling periods for the non-point source for the inventory year. If reporting non-point source monitoring information, this field must not be left blank.

List of Sampling Dates for the Inventory Year (if applicable)
3/10/2022, 6/30/2022, 9/30/2022, 12/29/2022

This field requires listing the dates of the sampling for the non-point source during the inventory year.

Number of Emission Zones for the Inventory Year (if applicable)
6

This field requires entering the number of emission zones for the sampling carried out on the non-point source (if applicable).

List the Typical Number of Samples Taken Per Emission Zone (if applicable)
3 per zone

This field requires listing the typical number of samples taken per emission zone, if applicable. If a different number of samples were taken for each zone, this should be identified (e.g., 3 for zone A, 5 for zone B, etc.).

Note: Additional source monitoring information fields (for up to fifteen different types of non-point source monitoring methods) are included in worksheet 3.6 of the AEIR Form. These fields are not repeated here to limit repetition in the AEIR Standard.

14.0 Identify Applicable Schedule 2 Substances (Step 14)

14.1 Determine Applicability of Schedule 2 Substances

The next step in preparing the AEIR requires identifying the applicable Schedule 2 substances being emitted at the industrial operation. The overall substances being emitting by each individual release point and non-point source should have been identified in Steps 6 and 7. However, not all substances being emitting by the industrial operation may fall within the Schedule 1 or Schedule 2 lists, and not all emitted substances may be relevant for emissions reporting under the AEIR Program. Only air emissions of the Schedule 1 substances and applicable Schedule 2 substances are required to be reported in the AEIR. This section of the AEIR Standard describes how to determine whether a Schedule 2 substance is applicable to the industrial operation.

Note: The tables in Appendix D have lists of Schedule 2 substances reported by industrial operations in each of the major sectors that may help to identify the Schedule 2 substances potentially applicable for an industrial operation. However, not all industrial operations in a sector will necessarily have the same Schedule 2 substances. Individual industrial operations may also have additional Schedule 2 substances not included in the tables in Appendix D.

Note: If not the first year of reporting under the AEIR Program for your industrial operation, past years' AEIRs and associated documents will likely help to identify the applicable Schedule 2 substances. However, changes to the industrial operation and potentially incomplete/incorrect past environmental reporting do need to be considered when identifying applicable Schedule 2 substances for reporting under the AEIR Program.

Note: Although reporting of Schedule 2 substances is based on applicability, reporting of Schedule 1 substances is based on whether any of the reporting thresholds have been met. If any of the Schedule 1 reporting thresholds have been met, then air emissions of all eight Schedule 1 substances are required to be reported for the industrial operation regardless of whether the reporting threshold for each individual Schedule 1 substance has been met. While emissions reporting is required for each Schedule 1 substance, not all industrial operations will have quantifiable amounts of emissions of all eight of these substances. In such cases, there is the option to declare a Schedule 1 substance as negligible and exclude it from emissions quantification and emissions reporting. See Section 3.13 of the AEIR Standard for more information on negligible Schedule 1 substances.

As stated in the AMD Reporting Chapter, applicable Schedule 2 substances in clauses RC 7-D (b) and (c) and RC 7-E (b) and (c) are those substances which the industrial operation emits to the atmosphere in amounts that can be quantified with reasonable effort, and would include, at a minimum, the:

- substances that are part of the industrial operation's current approval emission limits, monitoring, or reporting requirements;
- substances whose air emissions were reported by the industrial operation to another regulatory or non-regulatory reporting program, such as the National Pollutant Release Inventory, for the same calendar year; and
- substances whose air emissions have otherwise been quantified by the industrial operation for the same calendar year.

Note: "Substances whose air emissions have otherwise been quantified by the industrial operation for the same calendar year" would include results from monitoring, additional estimations, special studies, etc. carried out by/for the industrial operation that identified the industrial operation is emitting a Schedule 2 substance. The Schedule 2 substance would be applicable if it is found to be being emitted in non-negligible amounts.

Note: Assessing the negligibility of a Schedule 2 substance that has been otherwise quantified by/for the industrial operation should be done in a manner similar to the negligibility assessments used for the Schedule 1 substances. For example, if a Schedule 2 substance is being emitted at, or greater than, half the available reporting threshold for the substance for programs such as the National Pollutant Release Inventory, the substance would be applicable. If

a Schedule 2 substance is found to be applicable for the industrial operation, the air emissions are to be reported via the AEIR Form.

Note: The applicability assessment is for the industrial operation. Just because a Schedule 2 substance is determined to be applicable for the industrial operation does not mean it is applicable to or emitted by all release points and non-point sources at the industrial operation. Only the sources emitting the Schedule 2 substance would have emissions of the Schedule 2 substance to report. The de minimis for the Schedule 2 substances may also factor into determining which sources will have air emissions of a specific substance to report via the AEIR Form.

Note: Reported values of zero to the National Pollutant Release Inventory would not make the substance applicable to the industrial operation, as zero emissions for the entire industrial operation (for the inventory year) would be a negligible amount. Reporting small (but non-zero) values would potentially meet the criteria for “substances whose air emissions were reported by the industrial operation to another regulatory or non-regulatory reporting program”. The Schedule 2 substance would be applicable if it is found to be being emitted in non-negligible amounts.

The above bulleted criteria should be used to identify which Schedule 2 substances are applicable to the industrial operation. For each Schedule 2 substance identified as being emitted by the release points and/or non-point sources at the industrial operation (steps 6 and 7), the following questions should be asked to help determine their applicability to the industrial operation for the inventory year:

- Was the Schedule 2 substance part of the industrial operation's current approval emission limits?
- Was the Schedule 2 substance part of the industrial operation's current approval monitoring requirements?
- Was the Schedule 2 substance part of the industrial operation's current approval reporting requirements?
- Were the air emissions of the Schedule 2 substance reported by the industrial operation to the National Pollutant Release Inventory for the same inventory year?
- Were the air emissions of the Schedule 2 substance reported by the industrial operation to any other regulatory or non-regulatory reporting program for the same inventory year?
- Were the air emissions of the Schedule 2 substance otherwise quantified by the industrial operation for the same inventory year?

If the answer to any of the above questions was “yes” for a Schedule 2 substance being emitted by the industrial operation, then the Schedule 2 substance is likely applicable to the industrial operation and its emissions would typically be reported in the AEIR Form.

Note: Information on the basis for the Schedule 2 substances identified as applicable to the industrial operation is to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard).

The following are examples of determining whether or not a Schedule 2 substance is applicable for an industrial operation.

Applicability Example 1 a) and b) - Schedule 2 Substance Emission Limit:

- a) An industrial operation has an emission limit for a Schedule 2 substance. The Schedule 2 substance is being emitted by the industrial operation in non-negligible amounts. This Schedule 2 substance would therefore be applicable to the industrial operation and its emissions would be reported in the AEIR Form.
- b) An industrial operation has an emission limit for a Schedule 2 substance, but the Schedule 2 substance is only being emitted by the industrial operation in very small amounts. The total amount of the Schedule 2 substance for the industrial operation was found to be less than half the NPRI reporting threshold. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.

Note: In nearly all cases, a Schedule 2 substance would be applicable if the industrial operation's EPEA approval has an emission limit for it. Example 1 b) would only really apply if an industrial operation has a historically carried-over emission limit for a substance that is no longer really being emitted or only being emitted in very small quantities.

Applicability Example 2 a) and b) - Schedule 2 Substance Approval Monitoring Requirement:

- a) An industrial operation is required by its EPEA approval to monitor the emissions of a Schedule 2 substance. This monitoring identified that the Schedule 2 substance is emitted by the industrial operation in non-negligible amounts. This Schedule 2 substance would therefore be applicable to the industrial operation and its emissions would be reported in the AEIR Form.
- b) An industrial operation is required by its EPEA approval to monitor the emissions of a Schedule 2 substance. This monitoring identified that the Schedule 2 substance is only emitted by the industrial operation in very small amounts. The total amount of the Schedule 2 substance for the industrial operation was found to be less than half the NPRI reporting threshold. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.

Note: In nearly all cases, a Schedule 2 substance would be applicable if the industrial operation's EPEA approval requires monitoring of its emissions. Example 2 b) would only really apply if an industrial operation has a historically carried-over monitoring requirement for a substance that is no longer really being emitted or only being emitted in very small quantities.

Applicability Example 3 a) and b) - Schedule 2 Substance Approval Reporting Requirement:

- a) An industrial operation is required by its EPEA approval to annually report the emissions of a Schedule 2 substance. The approval-required monitoring and reporting identified that the Schedule 2 substance is emitted by the industrial operation in non-negligible amounts. This Schedule 2 substance would therefore be applicable to the industrial operation and its emissions would be reported in the AEIR Form.
- b) An industrial operation is required by its EPEA approval to annually report the emissions of a Schedule 2 substance. The approval-required monitoring and reporting identified that the Schedule 2 substance is only emitted by the industrial operation in very small amounts. The total amount of the Schedule 2 substance for the industrial operation was found to be less than half the NPRI reporting threshold. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.

Note: In nearly all cases, a Schedule 2 substance would be applicable if the industrial operation's EPEA approval requires reporting of its emissions. Example 2 b) would only really apply if an industrial operation has a historically carried-over reporting requirement for a substance that is no longer really being emitted or only being emitted in very small quantities.

Applicability Example 4 a) to d) - Schedule 2 Substance Reported to the NPRI:

- a) An industrial operation met the NPRI reporting thresholds for a Schedule 2 substance (based on amount released to the air) and reported the required air release information to the NPRI. This Schedule 2 substance would therefore be applicable to the industrial operation (for the same inventory year) and its emissions would be reported in the AEIR Form.

- b) An industrial operation met the NPRI reporting rules for a Schedule 2 substance (otherwise used the substance, but did not emit it to the atmosphere) and reported the required information to the NPRI. The industrial operation reported a release of zero tonnes of air emissions of the substance to the NPRI. Zero air emissions for the industrial operation would be considered a negligible amount of a Schedule 2 substance under the AEIR Program. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.
- c) An industrial operation voluntarily reported air emissions of a Schedule 2 substance to the NPRI. The amount of emissions of the Schedule 2 substance was non-negligible, as it was more than half the applicable NPRI reporting threshold. This Schedule 2 substance would therefore be applicable to the industrial operation (for the same inventory year) and its emissions would be reported in the AEIR Form.
- d) An industrial operation voluntarily reported air emissions of a Schedule 2 substance to the NPRI. The total amount of emissions of the Schedule 2 substance for the industrial operation was found to be less than half the NPRI reporting threshold. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.

Applicability Example 5 a) and b) - Schedule 2 Substance Otherwise Quantified by the Industrial Operation:

- a) An industrial operation carried out non-approval-required source monitoring on the emissions of a Schedule 2 substance. This monitoring identified that the Schedule 2 substance is emitted by the industrial operation in non-negligible amounts. This Schedule 2 substance would therefore be applicable to the industrial operation and its emissions would be reported in the AEIR Form.
- b) An industrial operation carried out non-approval-required source monitoring on the emissions of a Schedule 2 substance. This monitoring identified that the Schedule 2 substance is only emitted by the industrial operation in very small amounts. The total amount of the Schedule 2 substance for the industrial operation was found to be less than half the NPRI reporting threshold. As the amount of the Schedule 2 substance was negligible, this Schedule 2 substance would therefore **not be applicable** to the industrial operation and its emissions would **not need to be reported** in the AEIR Form.

14.2 Schedule 2 Substance List

The Schedule 2 substances are specified in the AMD Reporting Chapter, but are repeated in Table 7 below for informational purposes. The AMD Reporting Chapter should always be consulted to verify the current list of Schedule 2 substances for the AEIR Program.

Table 7: Schedule 2 Substance List.

Name	CAS or NPRI Substance Number
1,1,2-Trichloroethane	79-00-5
1,1,2,2 Tetrachloroethane	79-34-5
Acetaldehyde	75-07-0
Acetone	67-64-1
Acrolein	107-02-8
Acrylic acid (and its salts)	79-10-7
Acrylonitrile	107-13-1
Antimony (and its compounds)	NA - 01
Arsenic (and its compounds)	NA - 02
Benzene	71-43-2
Benzo(a)pyrene	50-32-8
1,3-Butadiene	106-99-0
Butane (all isomers)	NA - 24
Cadmium (and its compounds)	NA - 03
Carbon disulphide	75-15-0
Carbon Tetrachloride	56-23-5
Chlorine	7782-50-5
Chlorine dioxide	10049-04-4

Name	CAS or NPRI Substance Number
Chlorobenzene	108-90-7
Chloroform	67-66-3
Chloromethane	74-87-3
Chromium (and its compounds)	NA - 04
Cobalt (and its compounds)	NA - 05
Copper (and its compounds)	NA - 06
Cumene	98-82-8
1,2-Dichloroethane	107-06-2
Dichloromethane	75-09-2
Dioxins and furans - total	NA - D/F
Ethyl chloroformate	541-41-3
Ethylbenzene	100-41-4
Ethylene	74-85-1
Ethylene oxide	75-21-8
Formaldehyde	50-00-0
Hydrogen fluoride	7664-39-3
Hydrogen sulphide	7783-06-4
Isopropyl alcohol	67-63-0
Lead (and its compounds)	NA - 08
Manganese (and its compounds)	NA - 09
Mercury (and its compounds)	NA - 10
Methanol	67-56-1
Methyl tert-butyl ether	1634-04-4
3-Methylcholanthrene	56-49-5
Methylene bisphenyl diisocyanate	101-68-8
Naphthalene	91-20-3
n-Hexane	110-54-3
Nickel (and its compounds)	NA - 11
o-dichlorobenzene	95-50-1
PAHs, total unspciated	NA - P/H
p-dichlorobenzene	106-46-7
Phenol (and its salts)	108-95-2
Phosgene	75-44-5
Propylene oxide	75-56-9
Selenium (and its compounds)	NA - 12
Styrene	100-42-5
Sulphuric acid	7664-93-9
Tetrachloroethylene	127-18-4
Toluene	108-88-3
Total reduced sulphur (expressed as hydrogen sulphide)	NA - M14
Trichloroethylene	79-01-6
1,2,4-Trimethylbenzene	95-63-6
Vanadium (and its compounds)	7440-62-2
Vinyl Chloride	75-01-4
Xylene (all isomers)	1330-20-7
Zinc (and its compounds)	NA - 14

15.0 Identify Applicable Quantification Methods (Step 15)

The next step in preparing the AEIR requires identification of the applicable quantification methods for each release point / non-point source substance combination (individual Schedule 1 and relevant Schedule 2 substances being emitted by each source). There are three types of emission rates (annual actual, normal and maximum) that may need to be quantified, each of which will typically have a different quantification method.

Mandatory quantification methods are specified in Section 15.1 of the AEIR Standard. Overall quantification methods and considerations are specified in Section 15.2 of the AEIR Standard. If no mandatory quantification method is specified for the specific source and substance, then the person responsible can select the most applicable/appropriate method from the provided lists of acceptable quantification methods. The acceptable annual actual emission rate, normal emission rate and maximum emission rate quantification methods are listed and described in Sections 15.3, 15.4 and 15.5 of the AEIR Standard.

The same quantification methods are required to be used year-to-year for determining annual actual emission rates, unless given authorization to change quantification methods. Section 15.6 of the AEIR Standard provides the criteria and process for obtaining approval for changes in quantification methodologies. Section 15.7 of the AEIR Standard outlines the process for obtaining approval to use a non-standard quantification method (a method not covered by the methods specified in the AMD Reporting Chapter or the AEIR Standard). Once the applicable quantification methods for each release point / non-point source substance combination have been selected, the required emission rates can be determined (covered in Section 16 of the AEIR Standard).

15.1 Director Specified Methods in the Annual Emissions Inventory Report Standard and Guidance Document

As per clause RC 7-Q in the AMD Reporting Chapter, the Annual Emissions Inventory and AEIR require determining the (a) annual actual air emissions, (b) normal air emissions, and (c) maximum air emissions using the measurement equipment, estimation methodologies, emission factors, equations and calculations that are specified in the AEIR Standard.

For the 2022, 2023 and 2024 inventory years, one mandatory quantification method is being specified in the AEIR Standard. This method applies to industrial operations required by their EPEA approval to use a CEMS monitored source to calculate the air emissions for an identical source (done as a surrogate for having a CEMS on each identical source). This method is described in clause EIS 15-A below. The Director may prescribe additional specified emission quantification methods for use in future Annual Emissions Inventories and AEIRs.

EIS 15-A For the Annual Emissions Inventory in RC 7-A and Annual Emissions Inventory Report in RC 7-C, where an industrial operation's EPEA approval requires the use of CEMS monitoring of a piece of equipment to calculate the air emissions for identical piece(s) of equipment, the person responsible must determine the annual actual air emissions for the non-CEMS monitored equipment based on (a) the substance emission rate determined by the CEMS, (b) the difference in load between the CEMS monitored equipment and identical non-CEMS monitored equipment, and (c) the operating hours of the identical non-CEMS monitored equipment.

Note: Clause EIS 15-A only applies to substances measured by the CEMS.

Note: "identical piece(s) of equipment" in clause EIS 15-A means that the equipment would have the same make, model #, vintage, installed capacity and fuel type as the CEMS monitored equipment.

Note: When reporting the quantification method in the AEIR Form for the method specified in clause EIS 15-A, "AEIR Standard Annual Method" is to be selected (see Section 15.3.11 of the AEIR Standard).

Note: The method described in clause EIS 15-A could potentially also be applied for determining the normal air emission rate (for identical piece(s) of equipment and if appropriate). See Section 15.4.7 of the AEIR Standard.

Note: Although only one quantification method is being prescribed in the AEIR Standard (for one specific situation), clause RC 7-C requires that air emissions from all air emission release points and air emission non-point sources at the industrial operation be reported in the AEIR Form (except for negligible sources). If no mandatory quantification method is specified for the specific source and substance, then the person responsible can select the most applicable/appropriate method from the lists of acceptable quantification methods.

An example of where CEMS monitoring is used to calculate the air emissions for an identical piece of equipment would be a Steam Assisted Gravity Drainage (SAGD) oil sands industrial operation that has multiple, identical, steam generators with only one having a CEMS. Such in situ oil sands industrial operations are often only required to install a CEMS on just one or two of the numerous large steam generators present at their site. This is done as a cost savings to industry, as these sources are typically large enough that they would normally each be required to have a CEMS to monitor air emissions. The CEMS emissions data from the monitored steam generator can be used, along with the load and specific operating hours of the non-CEMS monitored individual identical steam generators, to calculate the total annual actual emissions for each of the identical non-CEMS monitored steam generators.

Note: If you are unclear if your industrial operation is required to use the mandatory method specified in EIS 15-A, please contact emissions.inventory@gov.ab.ca for clarification.

The basic equation used in a CEMS Monitored and Identical Equipment emissions calculation is:

$$TAE_x = (E_{x \text{ hour } 1} * (1 - L_{\text{hour}1})) + (E_{x \text{ hour } 2} * (1 - L_{\text{hour}2})) + \dots + (E_{x \text{ hour } n} * (1 - L_{\text{hour } n}))$$

Where:

TAE_x = total annual actual emissions of substance x, tonnes/year

E_x = emission rate of substance x for the CEMS monitored equipment, tonnes/hour

$L_{\text{hour}x}$ = is the difference in hourly load of the CEMS monitored equipment and the hourly load of the identical equipment for the specific hour, decimal percent

hour_n = the number of operating hours of the identical non-CEMS monitored equipment

Note: When the identical non-CEMS monitored equipment was operating, but the CEMS monitored equipment and CEMS were not operating for the hour, a different CEMS monitored hour (when the CEMS monitored equipment and CEMS were both operating) should be used for the calculation (while still factoring in differences in load between the CEMS monitored and identical non-CEMS monitored equipment). The hour selected should be representative of normal operating conditions for the corresponding time period gap being filled in.

AEIR Standard Annual Method - CEMS Monitored and Identical Equipment Example:

Calculate annual NO_x Emissions from an identical boiler, given:

- The CEMS monitored boiler and identical boiler are listed as identical in the authorized source list in the EPEA approval. These boilers have the same make, model #, vintage, installed capacity and both use pipeline quality natural gas as fuel.
- The CEMS monitored boiler and its CEMS both operated the same 8,000 hours (of the total 8,760 hours) during the year;
- Hourly NO_x emissions from the CEMS monitored boiler were determined to be = 0.15 tonnes for hour 1, 0.17 tonnes for hour 2, 0.13 tonnes for hour 3, ... , 0.16 tonnes for hour 8,760;

- The CEMS monitored boiler load = 75% for hour 1, 80% for hour 2, 70% for hour 3, ... , 75% for hour 8,760;
- The identical boiler operated 7,500 hours (of the total 8,760 hours) during the year;
- The identical boiler load = 70% for hour 1, 60% for hour 2, 80% for hour 3, ... , 70% for hour 8,760; and
- Hour 1, hour 2, etc. refer to the same hour during the year (e.g., 12:00 AM January 1st, 01:00 AM January 1st, etc.) for both the CEMS monitored boiler and the identical boiler.

- 1) Calculate the hourly NO_x emissions for the identical boiler for hour 1 of the year.

$$\text{Hour 1 NO}_x \text{ emissions from identical boiler} = (E_{x \text{ hour } 1} * (1 - L_{\text{hour}1}))$$

$$\text{Hour 1 NO}_x \text{ emissions from identical boiler} = (0.15 \text{ tonnes} * (1 - (0.75-0.70)))$$

$$\text{Hour 1 NO}_x \text{ emissions from identical boiler} = 0.1425 \text{ tonnes}$$

- 2) Repeat for all other hours of the year that the identical boiler was in operation:

$$\text{Hour 2 NO}_x \text{ emissions from identical boiler} = (0.17 \text{ tonnes} * (1 - (0.80-0.60)))$$

$$\text{Hour 2 NO}_x \text{ emissions from identical boiler} = 0.1360 \text{ tonnes}$$

$$\text{Hour 3 NO}_x \text{ emissions from identical boiler} = (0.13 \text{ tonnes} * (1 - (0.70-0.80)))$$

$$\text{Hour 3 NO}_x \text{ emissions from identical boiler} = 0.1430 \text{ tonnes}$$

...

$$\text{Hour 8,760 NO}_x \text{ emissions from identical boiler} = (0.16 \text{ tonnes} * (1 - (0.75-0.70)))$$

$$\text{Hour 8,760 NO}_x \text{ emissions from identical boiler} = 0.1520 \text{ tonnes}$$

- 3) Calculate the total annual NO_x emissions from the identical boiler by summing together all the hourly NO_x emission values calculated for the identical boiler:

$$\text{Annual NO}_x \text{ emissions from identical boiler} = \text{Hour 1 NO}_x \text{ emissions from identical boiler} + \text{Hour 2 NO}_x \text{ emissions from identical boiler} + \text{Hour 3 NO}_x \text{ emissions from identical boiler} + \dots + \text{Hour 8,760 NO}_x \text{ emissions from identical boiler}$$

$$\text{Annual NO}_x \text{ emissions from identical boiler} = 0.1425 \text{ tonnes} + 0.1360 \text{ tonnes} + 0.1430 \text{ tonnes} + \dots + 0.1520 \text{ tonnes}$$

$$\text{Annual NO}_x \text{ emissions from identical boiler} = 915.2533 \text{ tonnes}$$

- 4) Report the total annual NO_x emissions for the identical boiler:

$$\text{Annual NO}_x \text{ emissions from identical boiler} = \boxed{915.25 \text{ tonnes/year}}$$

15.2 Overall Methods

As per clause RC 7-R, the person responsible is required to determine the (a) annual actual air emission, (b) normal air emission, and (c) maximum air emission rates using measurements, methodologies, emission factors, equations and calculations that are:

- (i) based on the best information available;
- (ii) applicable to the particular industrial operation and its operating conditions; and
- (iii) if appropriate, widely used and accepted by the industrial sector to which the industrial operation belongs.

As per clause RC 7-T, the person responsible is required to determine all air emission release point annual actual air emissions using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used in the previous inventory year, unless:

- (a) it is the first AEIR being submitted for the industrial operation;
- (b) the reporting thresholds were not met for the previous calendar year and no AEIR for the industrial operation was submitted for the previous calendar year; or
- (c) the person responsible has received written authorization from the Director to use a different measurement, estimation methodology, emission factor, equation or calculation.

As per clause RC 7-U, the person responsible is required to determine all non-point source annual actual air emissions using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used in the previous inventory year, unless:

- (a) it is the first AEIR being submitted for the industrial operation;
- (b) the reporting thresholds were not met for the previous calendar year and no AEIR for the industrial operation was submitted for the previous calendar year; or
- (c) the person responsible has received written authorization from the Director to use a different measurement, estimation methodology, emission factor, equation or calculation.

Note: Clauses RC 7-R, RC 7-T and RC 7-U do not apply when measurement equipment, estimation methodologies, emission factors, equations or calculations for the specific source and substance have been specified in the AEIR Standard (see Section 15.1).

Note: Clauses RC 7-T (b) and RC 7-U (b) will typically only apply to a few smaller EPEA approved industrial operations that emit at or near reporting threshold levels.

Note: If an industrial operation fell below the reporting thresholds for a year or two (as per clauses RC 7-T (b) and RC 7-U (b)), consistent quantification methodologies as previous AEIR reporting would typically still be used, as long as the previous methods are still appropriate for the industrial operation and its sources.

15.3 Annual Actual Emission Rate Methods

As defined in AMD Chapter 1: “annual actual air emissions” means the actual, measured or estimated quantity of a substance being emitted to the atmosphere from a source during a specific calendar year. The terminology of “annual actual” does not necessarily mean that the value has been measured. An estimated value can be, and is often, used to determine the annual actual air emissions. Annual actual air emissions are simply meant to capture a representative emission rate for the specific inventory year for the industrial operation (for the specific source and substance). Annual actual air emissions are required for both release points and non-point sources and are to be reported in the AEIR Form in tonnes/year.

The following is an example of the annual actual emission rate for a source and substance:

Example:

“58.54 tonnes of NO_x were emitted from Stack A in 2022. This amount was determined using an AP-42 emission factor and the total fuel used by the piece of equipment emitting via Stack A.”

Note: As approved future sources are not operating/emitting, they will not have annual actual emission rates for the inventory year. Approved future sources may have maximum and normal emission rates to report in the AEIR Form.

The general types of acceptable quantification methods for annual actual air emissions are specified in clause RC 7-S (a) and (b). For release points, these include:

- (i) continuous emission monitoring;
- (ii) predictive emission monitoring;
- (iii) source testing;
- (iv) materials balance;
- (v) site-specific emission factors;
- (vi) published or general emission factors;
- (vii) emission estimation models;
- (viii) engineering estimates;
- (ix) speciation profiles;
- (x) an optional method for release point annual actual air emissions specified in the AEIR Standard; or
- (xi) a method authorized in writing by the Director.

For non-point sources, these include:

- (i) continuous emission monitoring;
- (ii) predictive emission monitoring;
- (iii) source testing;
- (iv) materials balance;
- (v) site-specific emission factors;
- (vi) published or general emission factors;
- (vii) emission estimation models;
- (viii) engineering estimates;
- (ix) speciation profiles;
- (x) fugitive monitoring;
- (xi) an optional method for non-point source annual actual air emissions specified in the AEIR Standard; or
- (xii) a method authorized in writing by the Director.

Generally speaking, monitoring/measurements will provide more representative and accurate emission values. As such, **monitoring/measurement methods would typically be selected over estimation methods.** However, monitoring/measurements may not be more representative and accurate in all cases. **If estimates are used in place of available monitoring/measurement data, justification for this must be included in the Quantification**

Methodology Document (see clause EIS 19-B). While monitoring/measurements might not be available for all sources at an industrial operation, estimation methods can be used to provide reasonably representative emission rates for non-monitored/non-measured sources for the specific inventory year.

If an applicable mandatory method is not specified in Section 15.1 of the AEIR Standard, then the person responsible is to select the most applicable/appropriate annual actual quantification method listed above for the specific source and substance. This determination is to be based on the professional judgement of the person responsible. Information on the quantification methods selected for the sources and substances is to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard). The following subsections (15.3.1-15.3.12) provide descriptions and examples of the acceptable methods for quantifying annual actual air emission rates.

15.3.1 CEMS Annual Method

The “CEMS Annual Method” means the use of CEMS equipment and output data to determine the annual actual emission rate. CEMS analyze, measure, and provide on a continuous basis a permanent record of emission and other parameters as established by the Alberta CEMS Code. A CEMS typically provides concentration values of specific contaminants in the gas stream. Once the contaminant concentration and the volumetric stack gas flow rate are determined, the associated emission rate can be calculated.

The basic equation used in a CEMS emissions calculation is:

$$E_x = (C_x * MW_x * Q * 60) / (V * 10^6)$$

Where:

E_x = Emissions of substance x, kilograms/hour

C_x = Concentration of substance x, ppmvd

MW_x = Molecular weight of the substance x, g/mol

Q = Dry stack gas volumetric flow rate at reference conditions, dRm³/min

(reference conditions: 101.325 kPa and 25°C)

60 = 60 min per hour

V = Volume occupied by 1 mole of ideal gas at reference conditions, litres/g-mole

Note: It may be necessary to fill in any missing CEMS hours (when the source was operating/emitting but the CEMS was not operating) using the methods for filling in missing values set out in the Alberta CEMS Code and the Electronic Reporting of Continuous Emission Monitoring (CEMS) Information User Manual.

Note: Once all the hourly rates are determined, the annual actual emission rate is determined by summing together all the hourly rates (and if necessary converting to tonnes).

CEMS Example:

Calculate annual SO₂ Emissions from Source Y, given:

- Measured concentration of SO₂ (C_{SO_2}) = 1,004 ppmvd;
- Molecular weight of SO₂ (MW_{SO_2}) = 64.066 g/mol;
- Measured stack gas flow rate (Q) = 4,467 (dRm³/min);
- Volume occupied by 1 mole of ideal gas at reference conditions (V) = 24.45 litres/g-mole;
- The measured SO₂ concentrations and gas flow rates are available for the rest of the year; and

- There were no hours when Source Y was emitting that the CEMS was not operating (no missing CEMS hours).

1) Determine the emission value for hour 1:

$$\text{Hour 1 SO}_2 \text{ emissions from Source Y} = (C * MW * Q * 60) / (V * 10^6)$$

$$\text{Hour 1 SO}_2 \text{ emissions from Source Y} = (1,004 \text{ ppmvd} * 64.066 \text{ g/mol} * 4,467 \text{ dRm}^3/\text{min} * 60) / (24.45 \text{ litres/g-mole} * 10^6)$$

$$\text{Hour 1 SO}_2 \text{ emissions from Source Y} = 704 \text{ kg/hour}$$

2) Repeat to determine each hourly emission value.

$$\text{Hour 2 SO}_2 \text{ emissions from Source Y} = 705 \text{ kg/hour}$$

$$\text{Hour 3 SO}_2 \text{ emissions from Source Y} = 700 \text{ kg/hour}$$

...

$$\text{Hour X SO}_2 \text{ emissions from Source Y} = 680 \text{ kg/hour}$$

3) Determine and report the annual actual emission rate for Source Y:

$$\text{Annual SO}_2 \text{ emissions from Source Y} = E_{\text{hour1}} + E_{\text{hour2}} + E_{\text{hour3}} + \dots + E_{\text{hourX}}$$

$$\text{Annual SO}_2 \text{ emissions from Source Y} = 704 \text{ kg/hour} + 705 \text{ kg/hour} + 700 \text{ kg/hour} + \dots + 680 \text{ kg/hour}$$

$$\text{Annual SO}_2 \text{ emissions from Source Y} = 5,984,000 \text{ kg/year}$$

$$\text{Annual SO}_2 \text{ emissions from Source Y} = \boxed{5,984 \text{ tonnes/year}}$$

15.3.2 PEMS Annual Method

The “Predictive Emission Monitoring Annual Method” means the use of developed correlations between substance emission rates and specific continually monitored process parameters (e.g., fuel usage, steam production, furnace/process temperature, etc.) at an industrial operation to determine the annual actual emission rate. One or more correlation tests are first performed to identify and establish the relationship between the substance emission rates and the continually monitored process parameters. Air emissions of the substance can then be predicted using the monitoring information for the process parameters and the results of the correlation test. For example, emissions of a substance from a specific source could potentially be predicted based on the continually monitored fuel flow rate to the source and the established correlation of the emissions of the substance to the fuel flow rate. PEMS are sometimes used in place of a CEMS, when it is more practical to continually measure an input/output of a process rather than directly continually measuring the concentration and flow rate of the substance being emitted.

The basic equation used in a PEMS emissions calculation is:

$$E_x = D * E_{rx}$$

Where:

E_x = Emissions of substance x, various units

D = Continually monitored process parameter(s), various units

E_{rx} = Average emission rate(s) of substance x based on the correlation test(s), various units

PEMS Example:

Calculate annual PM_{2.5} emissions from Source Y, given:

- The hourly fuel input rate for Source Y is continuously measured and available for the entire year;
- A correlation test for Source Y established that on average 14.55 kg of PM_{2.5} is emitted for every tonne of fuel input into Source Y; and
- 2.20 tonnes of fuel was used in hour 1, 2.12 tonnes of fuel was used in hour 2, etc.

1) Determine the hour 1 emission value:

$$\text{Hour 1 PM}_{2.5} \text{ emission from Source Y} = D * E_{rx}$$

$$\text{Hour 1 PM}_{2.5} \text{ emission from Source Y} = \text{fuel input for hour 1} * \text{correlation test value}$$

$$\text{Hour 1 PM}_{2.5} \text{ emission from Source Y} = (2.20 \text{ tonnes/hour}) * (14.55 \text{ kg PM}_{2.5} / \text{tonne of fuel input})$$

$$\text{Hour 1 PM}_{2.5} \text{ emission from Source Y} = 32.01 \text{ kg/hour}$$

2) Repeat for each hourly value.

$$\text{Hour 2 PM}_{2.5} \text{ emission for Source Y} = 30.85 \text{ kg/hour}$$

$$\text{Hour 3 PM}_{2.5} \text{ emission for Source Y} = 29.15 \text{ kg/hour}$$

...

$$\text{Hour X PM}_{2.5} \text{ emission for Source Y} = 33.65 \text{ kg/hour}$$

3) Determine and report the annual actual emission rate for Source Y:

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = E_{\text{hour1}} + E_{\text{hour2}} + E_{\text{hour3}} + \dots + E_{\text{hourX}}$$

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = 32.01 \text{ kg/hour} + 30.85 \text{ kg/hour} + 29.15 \text{ kg/hour} + \dots + 33.65 \text{ kg/hour}$$

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = 160,050.00 \text{ kg/year}$$

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = \boxed{160.05 \text{ tonnes/year}}$$

15.3.3 Source Testing Annual Method

The “Source Testing Annual Method” means the use of short-term stack sampling or testing methods, **carried out under normal operating conditions for the source**, to determine the annual actual emission rate. This is done using the specific measured characteristics of the gas streams or particulate coming from a release point or a non-point source. Samples are typically collected using probes inserted into the exhaust stack to measure the required characteristics. The measured data are then used to estimate an emission rate of a substance for the sampling period.

As source tests (stack samples) are supposed to be carried out under normal operating conditions, the determined emission rate can be used to estimate emissions for longer time periods (e.g., daily, monthly, annual). This is done by using the measured normal emission rate along with the operating time and conditions of the source for the longer time period. Disruptions in operations, and periods of operating outside of normal conditions, will need to be factored into the calculation for the longer time periods.

Note: If using the Source Testing Annual Method, the source testing dates used in determining the annual actual emission rates are to be identified in the Quantification Methodology Document.

The basic equation used in a source testing emissions calculation is:

$$E_x = E_{rx} * T$$

Where:

E_x = Emissions of substance x, kg/year

E_{rx} = Average emission rate of substance x as determined via the source test(s), kilograms/hour

T = Total operating time of the source, hours

Note: This formula assumes that all operating hours for the source were under normal operating conditions. If there are known instances of abnormally high or low operation/emissions for the source during the inventory year, such instances should be accounted for in the calculation of the annual actual emission rate.

Source Testing Example 1:

Calculate annual PM_{2.5} emissions from Source Y, given:

- Measured Flow rate (Q) from the test = 283.29 m³/min;
- PM_{2.5} collected on testing filter (FC) = 0.0096 grams;
- Volume of gas sampled (V_m) = 0.57 m³ at standard temperature and pressure (STP);
- Source Y operated normally throughout the year; and
- Source Y operated 16 hours/day for 312 days for the year.

1) Determine the PM_{2.5} concentration (C) from Source Y:

$$\text{PM}_{2.5} \text{ concentration from Source Y} = \text{PM}_{2.5} \text{ collected (FC)} / \text{Volume of the gas sampled (V}_m)$$

$$\text{PM}_{2.5} \text{ concentration from Source Y} = (0.0096 \text{ g} / 0.57 \text{ m}^3)$$

$$\text{PM}_{2.5} \text{ concentration from Source Y} = 0.017 \text{ g/m}^3$$

2) Determine hourly PM_{2.5} emission rate from Source Y:

$$\text{Hourly PM}_{2.5} \text{ emission from Source Y} = C * Q * 60 \text{ min/hour}$$

$$\text{Hourly PM}_{2.5} \text{ emission from Source Y} = (0.017 \text{ g/m}^3) * (283.29 \text{ m}^3/\text{min}) * (60 \text{ min/hour})$$

$$\text{Hourly PM}_{2.5} \text{ emission from Source Y} = 288.9558 \text{ g} * (1 \text{ kg} / 1000 \text{ g})$$

$$\text{Hourly PM}_{2.5} \text{ emission from Source Y} = 0.2889558 \text{ kg/hour}$$

3) Determine and report the annual actual emission rate for Source Y:

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = (0.2889558 \text{ kg/hour}) * (16 \text{ hours/day}) * (312 \text{ days/year})$$

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = 1,442.467354 \text{ kg/year}$$

$$\text{Annual PM}_{2.5} \text{ emission from Source Y} = \boxed{1.44 \text{ tonnes/year}}$$

Source Testing Example 2:

Calculate annual NO_x emissions from Source A, given:

- The three hourly NO_x stack testing results for Source A were: 4.5 kg/hr, 5.2 kg/hr and 4.9 kg/hr;
- Source A operated normally throughout the year; and

- Source A operated 24 hours/day for 364 days for the inventory year (8,736 hours total).

1) Determine the average hourly NO_x emission rate for Source A:

Average Hourly NO_x emission rate for Source A = (Hour 1 + Hour 2 + Hour 3) / # of Hourly Results

Average Hourly NO_x emission rate for Source A = (4.5 kg/hr + 5.2 kg/hr + 4.9 kg/hr) / 3 hr

Average Hourly NO_x emission rate for Source A = 4.866666667 kg/hr

2) Apply to the hourly rate to the total number of operating hours for Source A for the inventory year:

Total Hourly NO_x emission rate for Source A = Average Hourly Rate * Total # of Operating Hours

Total Hourly NO_x emission rate for Source A = 4.866666667 kg/hr * 8,736 hrs

Total Hourly NO_x emission rate for Source A = 42,515.2 kg

3) Convert to the required units and report the annual actual NO_x emission rate for Source A:

Annual NO_x emission from Source A = Total Hourly NO_x emission rate for Source A in kg / (1000 kg / 1 tonne)

Annual NO_x emission from Source A = 42.5152 tonnes

Annual NO_x emission from Source A = **42.5 tonnes/year**

15.3.4 Materials Balance Annual Method

The “Materials Balance Annual Method” means determining the annual actual emission rate using the difference between the input and output of an operational unit or process. Materials balance uses the application of conservation laws to determine emissions based on the amount of material that enters a process and the amount that leaves the process. Fuel analysis is an example of a material balance. The presence of certain elements (e.g., sulphur) in fuels may be used to predict their presence in emission streams.

The basic equation used in a materials balance emissions calculation is:

$$E_x = (M_{in} - M_{out})$$

Where:

E_x = Emissions of substance x, various units

M_{in} = Quantity of substance entering the process, various units

M_{out} = Quantity of substance leaving the process as waste, recovered, or in product, various units

Note: If not already being determined for the industrial operation, it may be necessary to first determine the amounts of the substance present in the initial input, intermediate steps and final materials. This would typically be based on the concentration of the substance in the input/output material (e.g., % sulphur content in fuel, etc.).

M_{out} could involve several different fates for an individual substance. This could include the amount in the finished product, the amount that accumulates in the system or process, the amount captured for recovery or disposal, or the amount leaving the process in non-air waste streams. A more complete equation used in a materials balance emissions calculation is therefore:

$$E_x = (M_{in} - M_p - M_a - M_c - M_w)$$

Where:

E_x = Emissions of substance x, various units

M_{in} = Quantity of substance x in the input raw material feed, various units

M_p = Quantity of substance x in the finished product, various units

M_a = Quantity of substance x accumulated in the system, various units

M_c = Quantity of substance x captured for recovery or disposal, various units

M_w = Quantity of substance x in non-air waste streams, various units

Materials Balance Example:

Calculate annual total VOC emissions from Source Y, given:

- 11.1 tonnes of solvent were used by Source Y during the year;
- 2.2 tonnes of solvent was recovered and recycled during the year;
- All solvent components are VOCs; and
- No solvent is contained in the finished product, accumulates in the system or is in any non-air waste stream.

1) Determine and report the annual actual emission rate for Source Y:

VOC emissions from Source Y = $M_{in} - M_{out}$

VOC emissions from Source Y = solvent used - solvent recovered

VOC emissions from Source Y = 11.1 tonnes/year – 2.2 tonnes/year

VOC emissions from Source Y = **8.9 tonnes/year**

15.3.5 Site-Specific EF Annual Method

An emission factor is a representative value relating the emissions of a substance to an activity level at an industrial operation that can be easily measured, such as the amount of material processed or an amount of fuel used. The “Site-Specific Emission Factor Annual Method” means determining the annual actual emission rate using an emission factor that has been developed based on detailed knowledge of the specific industrial operation and its technologies, equipment and processes. Site-specific emission factors are typically developed based on direct monitoring, short-term measurements (e.g., source testing) or specific studies of the source(s) at the industrial operation.

Site-specific emission factors may be applicable to other industrial operations when the source/equipment/process at the other operation is the same and the operating conditions are comparable. Site-specific emission factors would typically be more accurate and representative than published or general emission factors (covered in Section 15.3.6 of the AEIR Standard), as they have been developed for the specific industrial operation.

The basic equation used in a site-specific emission factor calculation is:

$$E_x = A * EF_x$$

Where:

E_x = Emissions of substance x, various units

A = Activity rate, various units

EF_x = Emission factor for substance x, various units

Some sources and emission factors will require accounting for pollution controls in the calculation. The basic equation to be used is:

$$E_x = A * UEF_x * (1 - CE_x)$$

Where:

E_x = Emissions of substance x, various units

A = Activity rate, various units

UEF = Uncontrolled emission factor for substance x, various units

CE_x = Overall emission control efficiency for substance x, in decimal %

Site-Specific Emission Factor Example

Calculate annual NO_x emissions from Source Y given:

- 168,000.00 tonnes fuel burned for Source Y for the year;
- Site-specific emission factor for Source Y = 10.85 kg of NO_x per tonne of fuel burned; and
- The site-specific emission factor for Source Y accounts for the pollution control.

1) Determine and report the annual actual emission rate for Source Y:

$$\text{NO}_x \text{ emissions from Source Y} = A * EF$$

$$\text{NO}_x \text{ emissions from Source Y} = (168,000.00 \text{ tonnes fuel burned/year}) * (10.85 \text{ kg NO}_x / \text{tonne fuel burned})$$

$$\text{NO}_x \text{ emissions from Source Y} = 1,822,800.00 \text{ kg/year}$$

$$\text{NO}_x \text{ emissions from Source Y} = \boxed{1,822.80 \text{ tonnes/year}}$$

15.3.6 Published or General EF Annual Method

An emission factor is a representative value relating the emissions of a substance to an activity level at an industrial operation that can be easily measured, such as the amount of material processed or an amount of fuel used. The “Published or General EF Annual Method” means determining the annual actual emission rate using a non-site-specific emission factor that has been developed by an organization or agency (e.g., government agency, international organization, industrial association, company or other concerned groups) for a general type of industrial operation or source/equipment/process. Published or general emission factors would typically be less accurate and representative than site-specific emission factors (covered in Section 15.3.5 of the AEIR Standard), as they have not been developed for the specific industrial operation.

Environment and Climate Change Canada, as well as various industrial associations, provide guidance documents for estimating emissions for various types of environmental reporting in Canada. Some of these guidance documents include emission calculation tools and emission factors that may be applicable to some sources in Alberta. These calculation tools and emission factors can potentially be used for reporting under the AEIR Program, but may not always be applicable (or the most applicable) for some sources in Alberta.

The U.S EPA's AP-42 website (see: <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors>) provides the largest compilation of emission factors in North America. AP-42 also provides ratings of emission factors, including: excellent (A rating), above average (B rating), average (C rating), below average (D rating) or poor (E rating). These ratings are based on several factors, including: the amount of tests used to develop the emission factor, the sample size and randomness of facilities and sources tested, and the variability in testing data. AP-42 emission factors can potentially be used for reporting under the AEIR Program, but may not always be applicable (or the most applicable) for some sources in Alberta.

There can sometimes be several published or general emission factors available for determining the emissions of a substance from a specific type of source. **When using published or general emission factors, the person responsible is required to use the most applicable/appropriate and representative emission factor for the specific source and substance at the industrial operation.** This determination is to be based on the professional judgement of the person responsible.

The basic equation used in an emission factor calculation is:

$$E_x = A * EF_x$$

Where:

E_x = Emissions of substance x, various units

A = Activity rate, various units

EF_x = Emission factor of substance x, various units

Some sources and emission factors will require accounting for pollution controls in the calculation. The basic equation to be used is:

$$E_x = A * UEF_x * (1 - CE_x)$$

Where:

E_x = Emissions of substance x, various units

A = Activity rate, various units

UEF_x = Uncontrolled emission factor of substance x, various units

CE_x = Overall emission control efficiency of substance x, in decimal %

Published or General Emission Factor Example

Calculate annual CO emissions from Source Y given:

- 338,000.00 tonnes of fuel were used during the year;
- AP-42 uncontrolled emission factor = 15.25 kg CO per tonnes of fuel used; and
- The pollution control for Source Y has an 80% control efficiency for CO.

1) Determine and report the annual actual emission rate for Source Y:

$$\text{CO emissions from Source Y} = A * UEF_x * (1 - CE_x)$$

$$\text{CO emissions from Source Y} = (338,000.00 \text{ tonnes of fuel/year}) * (15.25 \text{ kg CO / tonnes of fuel used}) * (1 - 0.80)$$

$$\text{CO emissions from Source Y} = 1,030,900.00 \text{ kg/year}$$

$$\text{CO emissions from Source Y} = \boxed{1,030.90 \text{ tonnes/year}}$$

15.3.7 Emission Estimation Model Annual Method

The “Emission Estimation Model Annual Method” means determining the annual actual emission rate using a computer model or series of complex algorithms to carry out various empirically developed processes. For example, the U.S. EPA’s TANKS software can be used to estimate VOC emissions from fixed- and floating-roof storage tanks. Various other emission estimation models are available and may be applicable to use for the AEIR Program. These

various emission models are not specifically covered in the AEIR Standard. Information on many emission models can typically be found online.

15.3.8 Engineering Estimate Annual Method

The “Engineering Estimate Annual Method” means using engineering principles and judgement to determine the annual actual emission rate. This includes the use of knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved. **An engineering estimate is to be made mainly as a last resort, and should not be used when more specific emission estimation techniques (such as stack testing, materials balance, emission factors, etc.) are available.** Engineering estimates should be made by a professional engineer familiar with the industrial operation and its specific processes. Engineering estimates can be made by someone who is not a professional engineer, provided they have sufficient experience and knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved.

The engineering estimate should involve:

- a) Reviewing all available data on the source at the industrial operation;
- b) Reviewing available information from similar sources at other industrial operations;
- c) Reviewing the applicable engineering principles for the processes involved;
- d) Developing approximations using the available information and applicable engineering methods and principles;
- e) Carrying out cross-checks of the approximations to other available related information;
- f) Assessing how reasonable the approximations appear to be; and
- g) Revising and improving the engineering estimate method and approximations when more current or accurate information becomes available.

15.3.9 Speciation Profile Annual Method

The “Speciation Profile Annual Method” means determining the annual actual emission rate using established chemical mass makeup profiles for particulates or gases. This can allow for estimating quantities of one or more specific non-measured species within the particulate or gas measurement. For example, the quantified mass of total VOCs from a specific source and an applicable chemical speciation profile for a similar source (typically based on an SCC) could potentially be used to calculate the amount of a specific VOC species contained within the amount of total VOCs. Speciation profiles are typically developed by government agencies, such as the U.S. EPA (e.g., the SPECIATE database), through sector specific research or by site-specific source assessments and studies (e.g., speciation profiles for sources unique to the oil sands).

The basic equation used in a speciation profile emissions calculation is:

$$E_x = UE * SP_x$$

Where:

E_x = Emissions of substance x, various units

UE = Unspeciated total emissions (VOCs or PM), various units

SP_x = Speciation profile for substance x, % of mass or volume in decimal percent

Speciation profile example:

Calculate annual benzene emissions from Source Y, given:

- Total VOC emissions for 2022 = 100.00 tonnes; and
- Speciation profile for benzene for the same source type as Source Y = 3.3199% of Total VOCs.

1) Determine and report the annual actual emission rate for Source Y:

$$\text{Benzene emissions from Source Y} = \text{UE} * \text{SP}$$

$$\text{Benzene emissions from Source Y} = (\text{total VOC value}) * (\% \text{ of Total VOC})$$

$$\text{Benzene emissions from Source Y} = 100.00 \text{ tonnes/year} * 0.033199$$

$$\text{Benzene emissions from Source Y} = \boxed{3.32 \text{ tonnes/year}}$$

15.3.10 Fugitive Monitoring Annual Method

The “Fugitive Monitoring Annual Method” means determining the annual actual emission rate using monitoring equipment to measure and quantify air emissions coming from fugitive and other non-point sources. Potential sources where fugitive monitoring may be used include: leaks from pressured equipment, off-gassing of liquid or solid materials, evaporation of liquid materials, spills and accidental releases, etc. Examples of fugitive monitoring include: gas detectors/analyzers used for LDAR, flux chambers, etc. The various types of fugitive monitoring are not specifically covered in the AEIR Standard. General information on various types of fugitive monitoring can typically be found online. Information on the specific fugitive monitoring being carried at an industrial operation should be available from the contractors carrying out the monitoring.

15.3.11 AEIR Standard Annual Method

One annual actual method is being prescribed by the Director in the AEIR Standard (see clause EIS 15-A). As the use of CEMS monitored data for an identical source does not fully fall under the CEMS Annual Method, the reported quantification method to be selected in the AEIR Form is “AEIR Standard Annual Method”.

The Director may also provide additional optional quantification methods in the AEIR Standard. One additional optional annual actual method is being specified in the AEIR Standard for the 2022, 2023 and 2024 inventory years. See Appendix A: Optional Methodology - PM Size Distributions for a description of this method.

15.3.12 Annual Method Authorized in Writing by the Director

An individual industrial operation may have received written authorization from the Director to use a method different from those specified above for reporting under the AEIR Program. If such authorization has been given, the authorized method should be used for the applicable source and substance. Additional authorized methods are not covered by the AEIR Standard. The process for obtaining approval to use a non-standard quantification method (a method not covered by methods specified in the AMD Reporting Chapter or the AEIR Standard) is outlined in Section 15.7 of the AEIR Standard. If using a method authorized by the Director, the “Method Authorized in Writing by the Director” is the quantification method that is to be selected in the AEIR Form for the specific source and substance.

15.4 Normal Emission Rate Methods

As defined in AMD Chapter 1: “normal air emissions” means the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions. Normal air emissions are intended to capture the usual, average or typical air emission rate for the specific source and substance, as determined during normal (usual, average or typical) operating conditions (for the source). Normal emission rates are not necessarily specific to any one time period during the inventory year, but are supposed to represent the rate at which a substance is emitted to the atmosphere from the source under normal operating conditions (for the source). Normal air emissions are only required for release points and are to be reported in the AEIR Form in tonnes/day.

The following is an example of the normal emission rate for a source and substance:

Example:

“Stack A typically operates 24-hours a day. The normal PM_{2.5} emission rate for Stack A is 1.8536 tonnes/day. This was determined using an average of the hourly emission rates from the three most recent stack tests carried out on Stack A and converting from kg/hour to tonnes/day.”

Note: Normal rates do not necessarily represent the actual amount released for a specific 24-hour period. These are typically calculated as an hourly rate based on normal operations/emissions for the source and then the hourly rate is assumed to be constant for the full 24-hour period.

Note: Normal emission rates are the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions for the source. The normal emission rate for an emergency/upset source would therefore be the average/typical rate when the emergency/upset source is operating (turned on and emitting) for a one-hour period. For reporting the normal rate in tonnes/day, the one-hour rate should be assumed to be constant for a full 24-hour period (even if the emergency/upset source would not typically operate for a full 24 hour period).

Note: If available (from the EPEA approval/renewal application or modelling), approved future (not yet constructed or operating) release point normal (typical, expected) emission rates are to be reported via the AEIR Form.

Note: Temporarily shutdown sources will still have normal rates, as normal rates just represent the emission rates at normal operations for the source (when operating).

The general types of acceptable quantification methods for normal air emissions are specified in clause RC 7-S (c). For release points, these include:

- (i) continuous emission monitoring data, collected during normal operating conditions;
- (ii) an average of several recent source sample results, conducted during normal operating conditions;
- (iii) a recent representative source sample result, conducted during normal operating conditions;
- (iv) an average of multiple recent annual emission estimates converted to a normal air emission rate;
- (v) a recent representative actual annual emission estimate converted to a normal air emission rate;
- (vi) an engineering estimate;
- (vii) an optional method for release point normal air emissions specified in the AEIR Standard; or
- (viii) a method authorized in writing by the Director;

Generally speaking, measurements will provide more representative and accurate emission values. As such, **measurement methods would typically be selected over estimation methods.** However, measurements may not be more representative and accurate in all cases. While measurements might not be available for many sources at an industrial operation, estimation methods can be used to provide reasonably representative emission rates.

If an applicable mandatory method is not specified in Section 15.1 of the AEIR Standard, then the person responsible is to select the most applicable/appropriate normal quantification method listed above for the specific source and substance. This determination is to be based on the professional judgement of the person responsible. Information on the quantification methods selected for the sources and substances is to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard). The following subsections (15.4.1-15.4.8) provide descriptions and examples of the acceptable methods for quantifying normal air emission rates.

Note: Normal emission rates typically will not change every year. However, these rates will need to be updated if there are changes to what would be the representative normal or average emission rate for the specific source and substance. The representative normal emission rate is up to the person responsible. The normal emission rate should be updated if the normal emission rate has increased or decreased more than 15% from the previous year's reported normal emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less than 15%.

Note: Normal emission rates are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). When converted to the same units and timescale, the normal rate for a source and substance would typically be similar to the annual actual rate and less than the maximum rate. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the normal rate could potentially be equal to the maximum rate, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the normal rate should not be more than the maximum rate (this would not fit the emission rate type definitions).

Note: If using regulatory dispersion modelling information to determine the normal emission rate for approved, but not yet operating sources, the "Single Annual Actual Normal Method" would typically be selected as the normal quantification method in the AEIR Form. This would be because the information for the regulatory dispersion modelling represents a type of emissions inventory. If the modelling values are based on a method that falls under one of the other normal quantification method categories (source testing, engineering judgement, etc.), then the corresponding quantification method category would instead be selected in the AEIR Form.

15.4.1 CEMS Normal Method

The "CEMS Normal Method" means the use of CEMS results for a monitored source to determine a representative normal emission rate for the monitored substance. CEMS are used to analyze, measure, and provide, on a continuous basis, a permanent record of emission and other parameters as established by the Alberta CEMS Code. As CEMS operate typically whenever a source is emitting, they may capture measured values that are much higher or much lower than are typical (or normal) for a specific source and substance being emitted. In order to establish a representative normal emission rate, it may be necessary to either include or exclude atypical CEMS readings, depending on the amount of fluctuation typically seen in the emission rate for the source.

The basic equation used in a CEMS normal method emissions calculation is:

$$E_x = ((E_{\text{value}1} + E_{\text{value}2} + E_{\text{value}3} + \dots + E_{\text{value}x}) / (NV)) * O$$

Where:

E_x = Emissions of substance x, various units

E_{value} = Individual emission rate value determined from the CEMS data, various units

NV = Number of CEMS values being used, no units

O = Operational time/condition unit conversion (if required)

Note: The number of CEMS values being used is up to the person responsible. However, a minimum of several months of CEMS data and a maximum of one year of CEMS data would typically be used. There may be instances where large periods of CEMS data may be excluded from the calculation, due to ongoing extended periods of atypical

operating conditions. The impact of the extended atypical operating conditions will be reflected in the annual actual emission rate for the inventory year, but likely should not be factored into the normal emission rate. Short-term upsets or atypical operating conditions can be included in the calculation, if it makes sense to do so. Overall, the number of CEMS values used should be sufficiently large to establish a representative normal emission rate for the source and substance being emitted. This determination is to be based on the professional judgement of the person responsible.

Note: Zero values from when the CEMS monitored source was not operating should not be included when calculating the normal rate based on the CEMS data. Non-monitored hours (when the source was still operating) are to be filled in as per the methods specified in the Alberta CEMS Code and the Electronic Reporting of Continuous Emission Monitoring (CEMS) Information User Manual.

CEMS Normal Example:

Calculate the normal SO₂ emission rate for Source Y, given:

- Hourly SO₂ emission rates for Source Y were determined using CEMS to be = 811.3177 kg/hour, 799.2245 kg/hour, 803.2882 kg/hour, ..., 805.3915 kg/hour;
- # of operational and hourly SO₂ CEMS values = 8,500; and
- Source Y did not experience any extended atypical operating conditions during the monitoring period.

1) Determine and report the normal emission rate for Source Y:

$$\text{Normal SO}_2 \text{ emissions from Source Y} = ((E_{\text{value1}} + E_{\text{value2}} + E_{\text{value3}} + \dots + E_{\text{valueX}}) / (NV)) * O$$

$$\text{Normal SO}_2 \text{ emissions from Source Y} = ((811.3177 \text{ kg/hour} + 799.2245 \text{ kg/hour} + 803.2882 \text{ kg/hour} + \dots + 805.3915 \text{ kg/hour}) / (8,500 \text{ hours}) * O$$

$$\text{Normal SO}_2 \text{ emissions from Source Y} = (805.7366 \text{ kg/hour}) * (1 \text{ tonne} / 1000 \text{ kg}) * O$$

$$\text{Normal SO}_2 \text{ emissions from Source Y} = (0.8057366 \text{ tonnes/hour}) * (24 \text{ hours/day})$$

$$\text{Normal SO}_2 \text{ emissions from Source Y} = \boxed{19.3377 \text{ tonnes/day}}$$

15.4.2 Average of Several Source Samples Normal Method

The “Average of Several Source Samples Normal Method” means the use of several source sampling results to determine a representative normal emission rate from the source for the sampled substance. Source testing involves using short-term stack sampling or testing methods, **carried out under normal operating conditions for the source**, to determine specific characteristics of gas streams or particulate coming from a release point. As source tests are carried out during normal operating conditions, they typically provide fairly representative normal emission rates. The use of results from more than one recent source test will typically increase the representativeness of the determined normal emission rate. The use of a single source test to establish the normal emission rate is described in the next method (Single Source Sample Normal Method) in Section 15.4.3 of the AEIR Standard.

Note: If using the Average of Several Source Samples Normal Method, the source testing dates used in determining the normal emission rates are to be identified in the QMD.

The basic equation used in an average of several source samples normal method emissions calculation is:

$$E_X = ((E_{\text{value1}} + E_{\text{value2}} + E_{\text{value3}} + \dots + E_{\text{valueX}}) / (NV)) * O$$

Where:

E_x = Emissions of substance x, various units

E_{value} = Individual emission rate value determined from each source test, various units

NV = Number of source test values being used, no units

O = Operational time/condition unit conversion (if required)

Average Source Testing Example:

Calculate the normal PM_{2.5} emission rate for Source Y, given:

- Hourly PM_{2.5} emission rates for Source Y were determined by three recent stack tests (each of which were based on an average of three one-hour samples) to be = 0.0796 kg/hour, 0.0833kg/hour, 0.0884 kg/hour;
- # of hourly PM_{2.5} stack test values = 3; and
- All three stack test were carried out during normal operating conditions.

1) Determine and report the normal emission rate for Source Y:

Normal PM_{2.5} emissions from Source Y = $((E_{value1} + E_{value2} + E_{value3} + \dots + E_{valuex}) / (NV)) * O$

Normal PM_{2.5} emissions from Source Y = $(0.0796 \text{ kg/hour} + 0.0833\text{kg/hour} + 0.0884 \text{ kg/hour}) / 3 * O$

Normal PM_{2.5} emissions from Source Y = $(0.0838 \text{ kg/hour}) * (1 \text{ tonne}/1000 \text{ kg}) * O$

Normal PM_{2.5} emissions from Source Y = $(0.0000838 \text{ tonnes/hour}) * (24 \text{ hours/day})$

Normal PM_{2.5} emissions from Source Y = **0.00201 tonnes/day**

15.4.3 Single Source Sample Normal Method

The “Single Source Sample Normal Method” means the use of a single recent source sampling result to determine a representative normal emission rate from the source for the sampled substance. Source testing involves using short-term stack sampling or testing methods, **carried out under normal operating conditions for the source**, to determine specific characteristics of gas streams or particulate coming from a release point. As source tests are carried out during normal operating conditions, they typically provide fairly representative normal emission rates. The use of more than one source test to establish the normal emission rate is described in the previous method (Average of Several Source Samples Normal Method) in Section 15.4.2 of the AEIR Standard.

Note: If using the Single Source Sample Normal Method, the source testing dates used in determining the normal emission rates are to be identified in the QMD.

The basic equation used in a single source sample normal method emissions calculation is:

$$E_x = E_{rx} * O$$

Where:

E_x = Emissions of substance x, various units

E_{rx} = Average emission rate of substance x as determined via the source test, various units

O = Operational time/condition unit conversion (if required)

Single Source Testing Example:

Calculate the normal NO₂ emissions from Source Y, given:

- Measured NO₂ emissions from the stack test (based on the average of three one-hour samples) = 405.3581 kg/hour; and
- The stack test was carried out during normal operating conditions.

1) Determine and report the normal emission rate for Source Y:

$$\text{Normal NO}_2 \text{ emissions from Source Y} = E_{rx} * O$$

$$\text{Normal NO}_2 \text{ emissions from Source Y} = 405.3581 \text{ kg/hour} * O$$

$$\text{Normal NO}_2 \text{ emissions from Source Y} = (405.3581 \text{ kg/hour}) * (1 \text{ tonne}/1000 \text{ kg}) * O$$

$$\text{Normal NO}_2 \text{ emissions from Source Y} = (0.4053581 \text{ tonnes/hour}) * (24 \text{ hours/day})$$

$$\text{Normal NO}_2 \text{ emissions from Source Y} = \boxed{9.7286 \text{ tonnes/day}}$$

15.4.4 Average of Several Annual Actuals Normal Method

The “Average of Several Annual Actuals Normal Method” means the use of several annual actual emission values to determine a representative normal emission rate from the source for the substance. The annual actual emission rates would typically be from previous AEIRs or other emissions inventories, and should have been determined using acceptable annual actual methods described in Section 15.3 of the AEIR Standard. The use of annual actual emission rates from more than one recent year may increase the representativeness of the determined normal emission rate, as it will average out differences in operating conditions experienced during individual years. The use of a single annual actual emission rate to establish the normal emission rate is described in the next method (Single Annual Actual Normal Method) in Section 15.4.5 of the AEIR Standard.

Note: Using the Average of Several Annual Actual Normal Method may require accounting for the number of hours the source operated during each year. Unless the source operating/emitted 8,760 hours during each year (or 8,784 hours for a leap year), it is not acceptable to just divide each annual rate by 365. Otherwise, the calculation will result in normal emission rates that are likely not very representative. Normal emission rates are not necessarily specific to a specific time period in an inventory year, but are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). The calculation must not include hours of non-operation. If a source did not operate for the entire year (8,760 hours or 8,784 hours for a leap year), then you must account for the number of hours the source operated during each year in your calculation. This will involve factoring in the actual hours of operation for the source for each inventory year.

Note: Zero values from when the source was not operating should not be included when calculating the normal rate based on the annual actual rates. The number of operating hours for each inventory year (for the annual actual rates) is to be used when using the annual actual rates to calculate the normal rate.

The basic equation used in an average of several annual actuals normal method emissions calculation is:

$$E_x = ((E_{\text{value}1} + E_{\text{value}2} + E_{\text{value}3} + \dots + E_{\text{value}x}) / (NV)) * O$$

Where:

E_x = Emissions of substance x, various units

E_{value} = Individual annual actual emission value, typically converted to an average hourly rate

NV = Number of annual actual emission values being used, no units

O = Operational time/condition unit conversion (if required)

Note: The number of annual actual emission rate values being used is up to the person responsible. The number of annual actual emission rates used should be based on what would establish a representative normal emission rate for the source and the substance being emitted. This determination is to be based on the professional judgement of the person responsible.

Note: The most recent annual actual emission rate does not necessarily have to be included in the average. For example, if the most recent annual actual emission rate is not representative of how the source normally operates (e.g. there were extended periods of atypical operating conditions during the most recent year), then one or more recent alternate (more representative) annual actual emission rates could be used instead. This determination is to be based on the professional judgement of the person responsible.

Note: If using the Average of Several Annual Actual Normal Rate Method, the time period used in determining the normal rate (e.g., 2019-2022, etc.) must be identified in the Quantification of Normal Emission Rates section of the Quantification Methodology Document.

Average Annual Actual Normal Example:

Calculate the normal CO emission rate for Source Y, given:

- The four most recent annual actual CO emission rates for Source Y = 320.89 tonnes/year, 310.44 tonnes/year, 335.56 tonnes/year and 327.29 tonnes/year;
- The operating hours for Source Y in these years were 8,756 hours, 8,500 hours, 8,760 hours and 8,483 hours;
- # of annual actual emission rates = 4;
- Source Y operated fairly continuously and did not experience any extended atypical operating conditions during any of the 4 years.

1) Determine the Year 1 average hourly rate for Source Y:

$$\text{Year 1 hourly CO emissions for Source Y} = E_{\text{value1}} / T$$

$$\text{Year 1 hourly CO emissions for Source Y} = 320.89 \text{ tonnes} / 8,756 \text{ hours}$$

$$\text{Year 1 hourly CO emissions for Source Y} = 0.036648 \text{ tonnes/hour}$$

2) Repeat the calculation for the other three years:

...

$$\text{Year 2 hourly CO emissions for Source Y} = 0.0365223 \text{ tonnes/hour}$$

$$\text{Year 3 hourly CO emissions for Source Y} = 0.0383059 \text{ tonnes/hour}$$

$$\text{Year 4 hourly CO emissions for Source Y} = 0.0385818 \text{ tonnes/hour}$$

3) Determine and report the normal emission rate for Source Y:

$$\text{Normal CO emissions from Source Y} = ((E_{\text{value1}} + E_{\text{value2}} + E_{\text{value3}} + \dots + E_{\text{valueX}}) / (NV)) * O$$

$$\text{Normal CO emissions from Source Y} = ((0.036648 \text{ tonnes/hour} + 0.0365223 \text{ tonnes/hour} + 0.0383059 \text{ tonnes/hour} + 0.0385818 \text{ tonnes/hour}) / 4) * O$$

$$\text{Normal CO emissions from Source Y} = (0.0375145 \text{ tonnes/hour}) * (24 \text{ hours/day})$$

Normal CO emissions from Source Y = **0.90 tonnes/day**

15.4.5 Single Annual Actual Normal Method

The “Single Annual Actual Normal Method” means the use of a single recent annual actual emission value to determine a representative normal emission rate from the source for the substance. The annual actual emission rate would typically be from previous AEIRs or other emissions inventories, and should have been determined using acceptable annual actual methods described in Section 15.3 of the AEIR Standard. The use of a recent single year annual actual emission rate can provide a good representation of the normal emission rate, if the single year adequately accounts for how the source typically operates and how it will likely operate going forward. The use of more than one annual actual emission rate to establish the normal emission rate is described in the previous method (Average of Several Annual Actuals Normal Method) in Section 15.4.4 of the AEIR Standard.

Note: Using the Single Annual Actual Normal Method may require accounting for the number of hours the source operated during the year. Unless the source operating/emitted 8,760 hours during the year (or 8,784 hours for a leap year), it is not acceptable to just divide the annual rate by 365. Otherwise, the calculation will result in normal emission rates that are likely not very representative. Normal emission rates are not necessarily specific to a specific time period in the inventory year, but are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). The calculation must not include hours of non-operation. If a source did not operate for the entire year (8,760 hours or 8,784 hours for a leap year), then you must account for the number of hours the source operated during the year in your calculation. This will involve factoring in the actual hours of operation for the source for the inventory year.

Note: Zero values from when the source was not operating should not be included when calculating the normal rate based on the annual actual rate. The number of operating hours for the inventory year (for the annual actual rate) is to be used when using the annual actual rate to calculate the normal rate.

The basic equation used in a single annual actual normal method emissions calculation is:

$$E_x = E_{rx} * O$$

Where:

E_x = Emissions of substance x, various units

E_{rx} = Single emission rate of substance x for the year, typically converted to an average hourly rate

O = Operational time/condition unit conversion (if required)

Note: The most recent annual actual emission rate does not necessarily have to be used. For example, if the most recent annual actual emission rate is not representative of how the source normally operates (e.g., there were extended periods of atypical operating conditions during the most recent year), a recent alternate (more representative) annual actual emission rate could be used instead. This determination is to be based on the professional judgement of the person responsible.

Note: If using the Single Annual Actual Normal Method, the time period used in determining the normal rate (e.g., 2022, etc.) must be identified in the Quantification of Normal Emission Rates section of the Quantification Methodology Document.

Note: If using regulatory dispersion modelling information to determine the normal emission rate for approved, but not yet operating sources, the “Single Annual Actual Normal Method” would typically be selected as the normal quantification method in the AEIR Form. This would be because the information for the regulatory dispersion modelling represents a type of emissions inventory. If the modelling values are based on a method that falls under

one of the other normal quantification method categories (source testing, engineering judgement, etc.), then the corresponding quantification method category would instead be selected in the AEIR Form.

Single Annual Actual Normal Example:

Calculate the normal NO_x emission rate for Source Y, given:

- The most recent annual actual NO_x emission rate for Source Y was 523.32 tonnes/year;
- The most recent year was representative of how the source normally operates, with no extended periods of abnormal operation;
- Source Y operates 18 hours a day; and
- Source Y operated 350 days in the year.

1) Determine the average annual hourly rate for Source Y:

$$\text{Hourly NO}_x \text{ emissions for Source Y} = E_{\text{value1}} / T$$

$$\text{Hourly NO}_x \text{ emissions for Source Y} = (523.32 \text{ tonnes/year}) / ((18 \text{ hours} / 1 \text{ day}) * (350 \text{ days} / 1 \text{ year}))$$

$$\text{Hourly NO}_x \text{ emissions for Source Y} = (523.32 \text{ tonnes/year}) / (6,300 \text{ hours/year})$$

$$\text{Hourly NO}_x \text{ emissions for Source Y} = 0.083066667 \text{ tonnes/hour}$$

2) Determine and report the normal emission rate for Source Y:

$$\text{Normal NO}_x \text{ emissions from Source Y} = E_{rx} * O$$

$$\text{Normal NO}_x \text{ emissions from Source Y} = (0.083066667 \text{ tonnes/hour}) * (18 \text{ hr/day})$$

$$\text{Normal NO}_x \text{ emissions from Source Y} = 1.495200006 \text{ tonnes/day}$$

$$\text{Normal NO}_x \text{ emissions from Source Y} = \boxed{1.50 \text{ tonnes/day}}$$

15.4.6 Engineering Estimate Normal Method

The “Engineering Estimate Normal Method” means using engineering principles and judgement to determine the normal emission rate. This includes the use of knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved. **An engineering estimate is to be made mainly as a last resort, and should not be used when more specific emission estimation techniques (such as CEMS, source testing, annual actual, etc.) are available.** Engineering estimates should be made by a professional engineer familiar with the industrial operation and its specific processes. Engineering estimates can be made by someone who is not a professional engineer, provided they have sufficient experience and knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved.

The engineering estimate should involve:

- a) Reviewing all available data on the source at the industrial operation;
- b) Reviewing available information from similar sources at other industrial operations;
- c) Reviewing the applicable engineering principles for the processes involved;
- d) Developing approximations using the available information and applicable engineering methods and principles;
- e) Carrying out cross-checks of the approximations to other available related information;
- f) Assessing how reasonable the approximations appear to be; and
- g) Revising and improving the engineering estimate method and approximations when more current or accurate information becomes available.

Note: If using a maximum rate to estimate a normal rate, then you must not just convert the units and timescale, but also account for the difference in definitions of the types of emission rates. Maximum rates represent maximum potential emissions, while normal rates represent normal operating conditions (for the source). When converted to the same units and timescale (e.g., both in tonnes/day), normal rates should almost always be lower than the normal rates (unless the individual source basically only functions as either on or off, with no variation in operating level when running).

15.4.7 AEIR Standard Normal Method

No normal methods are being prescribed by the Director in the AEIR Standard for the 2022, 2023 and 2024 inventory years. However, the method described in clause EIS 15-A could potentially also be applied for determining the normal air emission rate for identical piece(s) of equipment (if appropriate).

Note: When using the method described in clause EIS 15-A to determine the normal emission rate for identical piece(s) of equipment (if appropriate), the “AEIR Standard Normal Method” is to be selected as the normal quantification method in the AEIR Form.

The Director may also provide additional optional quantification methods in the AEIR Standard. Two additional optional normal methods are being provided in the AEIR Standard. The first is the “Manufacturer or Design Normal Method” described below. The second is described in Appendix A: Optional Methodology - PM Size Distributions. If using one of these optional normal methods, “AEIR Standard Normal Method” should be selected as the quantification method in the AEIR Form.

The “Manufacturer or Design Normal Method” means the use of information from the equipment manufacturer or based on the design of the equipment to determine the normal emission rate of a source. This could be a specified normal/average/typical emission rate or factor for the source provided by the equipment manufacturer. This could also be based on the designed normal input, throughput, output, etc. of the source/equipment. This method may require accounting for any modifications or unique operating conditions that differ from the standards intended by the manufacturer.

AEIR Standard Normal Method - Manufacturer or Design Normal Example:

Calculate the normal NO_x emission rate for Source Y, given:

- Source Y is approved and being installed, but is not yet operating and thus no actual emissions data are yet available for the source;
- The manufacturer’s normal emission rate for Source Y = 44.0 kg/hour when operating at normal conditions with a typical load of 80%;
- Once installed, source Y will typically be operated at 80% load and as per the manufacturer’s specifications; and
- Source Y will typically operate 24 hours a day.

1) Convert to tonnes:

$$44.0 \text{ kg/hour} * (1 \text{ tonne}/1,000 \text{ kg}) = 0.044 \text{ tonnes/hour}$$

2) Convert to days:

$$0.044 \text{ tonnes/hour} * (24 \text{ hours} / 1 \text{ day}) = 1.056 \text{ tonnes/day}$$

3) Report the normal emission rate for Source Y:

$$\text{Normal NO}_x \text{ emission rate for Source Y} = \boxed{1.1 \text{ tonnes/day}}$$

Note: The “Manufacturer or Design Normal Method” would typically be used only when no site specific normal emissions information is available (e.g., when there is no CEMS, stack samples, annual actual emissions, previous inventories, etc.).

Note: When using the “Manufacturer or Design Normal Method” the “AEIR Standard Normal Method” is to be selected as the normal quantification method in the AEIR Form.

15.4.8 Normal Method Authorized in Writing by the Director

An individual industrial operation may have received written authorization from the Director to use a method different from those specified above for determining the normal emission rate. If such authorization has been given, the authorized method should be used for the applicable source and substance. Additional authorized methods are not covered by the AEIR Standard. The process for obtaining approval to use a non-standard quantification method (a method not covered by methods specified in the AMD Reporting Chapter or the AEIR Standard) is outlined in Section 15.7 of the AEIR Standard. If using a method authorized by the Director, the “Method Authorized in Writing by the Director” is the quantification method that is to be selected in the AEIR Form for the specific source and substance.

15.5 Maximum Emission Rate Methods

As defined in AMD Chapter 1: “maximum air emissions” means the maximum rate at which a substance is emitted to the atmosphere from a source, factoring in emission limits, equipment specifications, or other relevant information.

Where limits apply, the maximum emission rate is to be determined using the applicable emission and operating limits set out in the industrial operation’s EPEA approval terms and conditions. Maximum air emissions are intended to capture the maximum air emission rate allowed or (when no limit is specified) the maximum emission rate at which the source could potentially emit. Maximum emission rates are not necessarily specific to any one time period during the inventory year, but are supposed to represent the maximum potential rate at which a substance is emitted to the atmosphere from the source under maximum operating conditions (for the source). Maximum air emissions are only required for release points and are to be reported in the AEIR Form in kilograms/hour.

The following are examples of the maximum emission rates some sources and substances:

Example:

“The maximum SO₂ emission rate for Stack A is 250 kg/hour, as the industrial operation’s hourly SO₂ emission limit for Stack A is 250 kg/hour.”

Example:

“The maximum NO_x emission rate for Stack B is 85 kg/hour. This was determined using specification information from the equipment manufacture that sets out that the source emitting using Stack B will emit 80 kg/hour of NO_x at maximum operating conditions.”

Note: Maximum rates do not necessary represent the actual amount of a substance released for a specific one hour period during the inventory year, these are theoretical rates (except when based on measured maximum rates). Maximum rates are typically calculated as an hourly rate based on maximum operations/emissions (or the approval limit) for the source.

Note: If available (from the EPEA approval/renewal application, modelling or approval), approved future (not yet constructed or operating) release point maximum emission rates are to be reported via the AEIR Form.

Note: Temporarily shutdown sources will still have maximum rates, as maximum rates just represent maximum potential rates for the source (when operating).

The general types of acceptable quantification methods for maximum air emissions are specified in clause RC 7-S (d). For release points, these include:

(i) the industrial operation's approval emission limit for the applicable substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter for which an approval emission limit exists;

or

(ii) for the substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter with no applicable approval emission limit for the industrial operation, any of the following:

- (1) the design maximum air emission rate of the specific equipment or release point;
- (2) applicable information from the equipment manufacturer;
- (3) a historical maximum air emission rate based on the highest previously determined emission rate over the last several years;
- (4) an engineering estimate;
- (5) an optional method for release point maximum air emissions specified in the AEIR Standard; or
- (6) a method authorized in writing by the Director.

When there is an applicable approval limit for a source and substance, the approval limit method is required to be used to determine the maximum air emission rate. If no limit is specified, and if there is not an applicable mandatory method specified in Section 15.1 of the AEIR Standard, then the person responsible is to select the most applicable/appropriate maximum quantification method listed above for the specific source and substance. This determination is to be based on the professional judgement of the person responsible. Information on the quantification methods selected for the sources and substances is to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard).

The individual limits specified in the approval may be in different units (e.g., grams, tonnes, etc.) and/or different timescales (e.g., day, month, 90-day rolling average, etc.) from what is to be calculated and reported as the maximum emission rate (kg/hour) in the AEIR Form. As such, the emission limit will typically need to be converted in order to determine the maximum emission rate.

It is important to note that the calculated maximum emission rates **do not represent new or otherwise applicable limits for the industrial operation**. The calculated maximum emission rates are for reporting under the AEIR Program. For example, using a daily emission limit (e.g., tonnes/day) to determine the maximum hourly emission rate (kg/hour) does not mean the industrial operation will now also have an hourly emission limit. The calculated maximum emission rates are determined simply for inventory reporting purposes, to represent a common-unit and common-timescale maximum emission rate for each release point substance combination at the industrial operation.

Excluding cases where the approval limit is in the same units and timescale as are required for reporting the maximum emission rate (kg/hour), and where there are no other operational limit conditions that need to be factored in, the approval limit and calculated maximum emission rate do not need to be identical (e.g., may have different values, units and timescales). Differences between the calculated maximum emission rate and the approval limit can be expected, for reasons such as: unit differences/conversions, different timescales being used, the factoring in or exclusion of operational conditions, making assumptions of how sources operate, the breaking down of combined source limits, etc. The following subsections (15.5.1-15.5.7) provide descriptions and examples of the acceptable methods for quantifying maximum air emission rates.

Note: If a source has both a normal operation emission limit and an upset/emergency operation emission limit, then the normal operation emission limit is to be used. In cases where a source is only ever operating under upset/emergency conditions, there would only be one type of limit and that is what would be used for the AEIR.

When no emission limit applies, a representative maximum emission rate is to be determined based on equipment design or capability, a historical maximum or other appropriate maximum value.

Note: The individual and combined EPEA approval limits, with their specified time periods and conditions, are to be reported as specified in the EPEA approval (without conversions or other changes) in worksheets 1.20, 1.21, 2.3.1, 2.3.2, 3.4.1 and 3.4.2 of the AEIR Form (as applicable).

Note: Maximum emission rates typically will not change every year. However, these rates will need to be updated if there are changes to the approval limit or to what would be the representative maximum emission rate for the specific source and substance. If there is no applicable approval limit, the representative maximum emission rate is up to the person responsible. The non-approval-limit maximum emission rate should be updated if the maximum emission rate has increased or decreased more than 15% from the previous year's reported maximum emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less 15%.

Note: Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source. When converted to the same units and timescale, the maximum rate for a source and substance should be higher than the normal and actual rates. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rates, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should not be less than the normal or annual actual rate.

Note: If using regulatory dispersion modelling information to determine the maximum emission rate for approved, but not yet operating sources, the "Historical Maximum Method" would typically be selected as the maximum quantification method in the AEIR Form. This would be because the information for the regulatory dispersion modelling represents a type of emissions inventory. If the modelling values are based on a method that falls under one of the other maximum quantification method categories (approval limit, design maximum, manufacturer information, etc.), then the corresponding quantification method category would instead be selected in the AEIR Form.

15.5.1 Approval Limit Maximum Method

The "Approval Limit Maximum Method" means the use of one or more limits (or mandatory emission standards) specified in the industrial operation's EPEA approval to determine the maximum allowable air emission rate for a source and substance. The approval limit may be a specific limit on the maximum allowed rate of emissions of the substance, and/or could include operational limits or conditions and other criteria that also set the maximum allowable rate of emissions over a specific operating period.

Examples of some of the types of limits specified in approvals:

Hourly and Daily Limits: 34 kilograms/hour; 0.056 tonnes/day; etc.

Average Limits: 1.8 tonnes per day average for the quarter; 25.0 kilograms per hour on a 720 hour rolling average; etc.

Concentration Limits: 300 parts per million by volume for the one-hour averaging period; 0.20 grams per kilogram of effluent from the stack; 1 hour average of 0.15 grams per dry standard cubic metre (corrected to 7% oxygen); 0.09 grams/kilogram as averaged over three one-hour periods; etc.

Intensity Limits: 0.40 kilograms/MWh output; 0.60 kilograms/MWh output; etc.

Combined Source Limits: Total emissions of the two stacks are not to exceed 2.40 kilograms per hour; plant total maximum of 10 tonnes of SO₂ per day; etc.

Conditional Limits: Effective when inlet sulphur is between 10 and 13 tonnes/day: 1.2 tonnes of SO₂ per day; one-hour average of 9,000 ppm by volume during time periods when tail gas treatment unit A is in operation; 2.42 tonnes/hour when the sulphur recovery unit is in operation; between 6.5 tonnes/hour and 9.3 tonnes/hour for no more than 10% of the total operational time of the plant based on a calendar year; etc.

Control Limits: The sulphur dioxide recovery unit is required to have a sulphur dioxide removal efficiency of not less than 97%; the tank vapour recovery unit is required to recover not less than 95% of the benzene in the storage tank vent gas stream; etc.

Amount of Substance/Amount of Effluent Limits: Limit of 0.2 grams of TPM per 1 kilogram of stack effluent.

Note: If there are two (or more) applicable limits, the hourly limit should be used to determine the maximum emission rate. If there are two (or more) applicable limits and no hourly limit (e.g., only daily limit and 90-day rolling average), the highest (non-emergency / non-upset) of the two limits converted to kilograms/hour should be used in determining the maximum emission rate.

Note: Some limits may also include operational conditions, such as when a specific piece of control equipment is or is not operating, or when a specific fuel is being used. These conditions may need to be factored in when determining the maximum emission rate.

Approval Daily Limit Example:

Calculate the maximum SO₂ emission rate for Source Y, given:

- Approval limit for Source Y is 0.056 tonnes/day of SO₂; and
- Source Y typically operates 24 hours a day.

1) Convert to kilograms:

$$(0.056 \text{ tonnes/day}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 56.00 \text{ kg/day}$$

2) Convert to hours:

$$(56.0 \text{ kg/day}) / (24 \text{ hours} / 1 \text{ day}) = 2.333333333 \text{ kg/hour}$$

3) Report the maximum emission rate for Source Y:

$$\text{Maximum SO}_2 \text{ emissions from Source Y} = \boxed{2.33 \text{ kg/hour}}$$

Approval Average Limit Example:

Calculate the maximum NO_x emission rate for Source Y, given:

- Approval limit for Source Y is 1.8 tonnes per day of NO_x, averaged for the quarter;
- Source Y does not typically see high variation in operations; and
- Source Y typically operates 24 hours a day.

1) Convert to kilograms:

$$(1.8 \text{ tonnes/day}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 1,800.0 \text{ kg/day}$$

2) Convert to hours:

$$(1,800.0 \text{ kg/day}) / (24 \text{ hours} / 1 \text{ day}) = 75.0 \text{ kg/hour}$$

3) Report the maximum emission rate for Source Y:

$$\text{Maximum NO}_x \text{ emissions from Source Y} = \boxed{75.0 \text{ kg/hour}}$$

Approval Concentration Limit Example:

Calculate the maximum SO₂ emission rate for Source Y, given:

- Approval limit for SO₂ from Source Y is 300 parts per million by volume for the one-hour averaging period;
- Maximum flow rate for Source Y = 2,283.29 m³/min;
- Molecular weight of SO₂ (MW_{SO2}) = 64.066 g/mol; and
- Volume occupied by 1 mole of ideal gas at reference conditions (V) = 24.45 litres/g-mole.

1) Determine the hourly maximum emission value:

$$\text{Hourly Maximum SO}_2 \text{ Emissions} = (C * MW * Q * 60) / (V * 10^6)$$

$$\text{Hourly Maximum SO}_2 \text{ Emissions} = (300 \text{ ppmvd} * 64.066 \text{ g/mol} * 2,283.29 \text{ m}^3/\text{min} * 60) / (24.45 \text{ litres/g-mole} * 10^6)$$

$$\text{Hourly Maximum Emissions} = 107.69 \text{ kg/hour}$$

2) Report the maximum emission rate for Source Y:

$$\text{Maximum SO}_2 \text{ emissions from Source Y} = \boxed{108 \text{ kg/hour}}$$

Note: For concentration limits, the maximum flow rate should be used when determining the maximum emission rate. If the maximum flow rate cannot be determined, the typical flow rate for the type of source can be used.

Approval Intensity Limit Example:

Calculate the maximum NO_x emission rate for Source Y, given:

- Approval limit for Source Y is 0.40 kilograms of NO_x / MWh output;
- Maximum annual net generation from Source Y is 2,000,000 MWh; and
- Maximum annual operating hours = 8,400 hours.

1) Determine the maximum annual NO_x emissions:

$$\text{Maximum Annual NO}_x \text{ Emissions} = \text{Limit} * \text{Annual Generation}$$

$$\text{Maximum Annual NO}_x \text{ Emissions} = (0.40 \text{ kg/MWh}) * (2,000,000 \text{ MWh/year})$$

$$\text{Maximum Annual NO}_x \text{ Emissions} = 800,000.00 \text{ kg/year}$$

2) Determine and report the maximum emission rate for Source Y:

$$\text{Maximum NO}_x \text{ emissions from Source Y} = (800,000 \text{ kg/year}) / (8,400 \text{ hours/year})$$

$$\text{Maximum NO}_x \text{ emissions from Source Y} = 95.23809524 \text{ kg/hour}$$

$$\text{Maximum NO}_x \text{ emissions from Source Y} = \boxed{95.24 \text{ kg/hour}}$$

Approval Combined Limit Example 1:

Calculate the maximum NO_x emission rate for Sources A and B, given:

- The approval limit sets out that total combined emissions from Source A and Source B are not to exceed 2.40 kilograms of NO_x per hour; and
- Source A and Source B are the same make, model #, age and typically operate roughly the same amount during the year.

1) Determine the approximate individual source limits:

Source A NO_x Limit = (Combined Source Limit) * (Weighting Factor)

Source A NO_x Limit = (2.40 kg/hour) * (0.50)

Source A NO_x Limit = 1.20 kg/hour

Source B NO_x Limit = (Combined Source Limit) * (Weighting Factor)

Source B NO_x Limit = (2.40 kg/hour) * (0.50)

Source B NO_x Limit = 1.20 kg/hour

2) Report the maximum emission rates for Sources A and B:

Maximum NO_x emission rate for Source A = **1.20 kg/hour**

Maximum NO_x emission rate for Source B = **1.20 kg/hour**

Approval Combined Limit Example 2:

Calculate the maximum NO_x emission rate for Sources C and D, given:

- Approval limit = total combined emissions from Source C and Source D are not to exceed 3.20 kilograms of NO_x per hour;
- Source C and Source D are not the same make, model #, or age; and
- Source C typically accounts for roughly 75% of the total NO_x emitted between the two sources.

1) Determine the approximate individual source limits:

Source C NO_x Limit = (Combined Source Limit) * (Weighting Factor)

Source C NO_x Limit = (3.20 kg/hour) * (0.75)

Source C NO_x Limit = 2.40 kg/hour

Source D NO_x Limit = (Combined Source Limit) * (Weighting Factor)

Source D NO_x Limit = (3.20 kg/hour) * (0.25)

Source D NO_x Limit = 0.80 kg/hour

2) Report the maximum emission rates for Sources C and D:

Maximum NO_x emission rate for Source C = **2.40 kg/hour**

Maximum NO_x emission rate for Source D = **0.80 kg/hour**

Approval Conditional Limit Example 1:

Calculate the maximum SO₂ emission rate for Source Y, given:

- SO₂ approval limit for Source Y = 3.6 tonnes per day, when inlet sulphur <=5 tonnes/day;
- SO₂ approval limit for Source Y = 2.4 tonnes per day, when inlet sulphur > 5 tonnes/day and <=10 tonnes/day;
- SO₂ approval limit for Source Y = 1.2 tonnes per day, when inlet sulphur > 10 tonnes/day and <=13 tonnes/day; and
- Source Y typically operates 24 hours a day.

1) Assume the highest of the three limits:

SO₂ approval limit for Source Y = 3.6 tonnes per day

2) Convert to kilograms:

$(3.6 \text{ tonnes per day}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 3,600.0 \text{ kg/day}$

3) Convert to hours:

$(3,600.0 \text{ kg/day}) / (24 \text{ hours} / 1 \text{ day}) = 150.0 \text{ kg/hour}$

4) Report the maximum emission rate for Source Y:

Maximum SO₂ emission rate for Source Y = **150 kg/hour**

Approval Conditional Limit Example 2:

Calculate the maximum SO₂ emission rate for Source Y, given:

- SO₂ limit for Source Y = between 9.0 and 10.0 tonnes/hour during process upsets, for a maximum of ten hours per year;
- SO₂ limit for Source Y = between 6.0 tonnes/hour and 9.0 tonnes/hour for no more than 10% of the total operational time of the plant during the calendar year;
- Maximum plant operational time = 8,760 hours; and
- SO₂ limit for Source Y = 6.0 tonnes/hour.

1) The limit of 9.0-10.0 tonnes/hour is not used for determining the maximum emission rate, as it is not the normal limit (only for process upsets) and is only allowed for a maximum of 10 hours per year.

2) Assume the highest rate allowed for 10% of the year:

SO₂ approval limit for Source Y for 10% of the year = 9.0 tonnes/hour

3) Account for the maximum number of hours allowed at that rate:

Max Hours = 8,760 hours * 0.10

Max Hours = 876 hours

Max Part Year Emissions = 9.0 tonnes/hour * 876 hours

Max Part Year Emissions = 7,884.0 tonnes

4) Determine the maximum emissions for the rest of the year:

Max Hours = 8,760 hours * 0.90

Max Hours = 7,884 hours

Max Rest of Year Emissions = 6.0 tonnes/hour * 7,884 hours

Max Rest of Year Emissions = 47,304.0 tonnes

- 5) Determine the maximum annual emissions:

Max Annual Emissions = Max Part Year Emissions + Max Rest of Year Emissions

Max Annual Emissions = 7,884.0 tonnes + 47,304.0 tonnes

Max Annual Emissions = 55,188.0 tonnes/year

- 6) Determine the maximum emission rate for Source Y:

Max Rate = Annual Emissions / Operational Time

Max Rate = (55,188 tonnes/year) / (8,760 hours/year)

Max Rate = 6.3 tonnes/hour

- 7) Convert to kilograms:

(6.3 tonnes/hour) * (1,000 kg / 1 tonne) = 6,300.0 kg/hour

- 8) Report the maximum emission rate for Source Y:

Maximum SO₂ emission rate for Source Y = **6,300.0 kg/hour**

Approval Control Limit Example:

Calculate the maximum Benzene emission rate for Source Y, given:

- Tank vapour recovery unit limit = unit is required to recover not less than 95% of the benzene in the storage tank vent gas stream;
- The highest annual volume vented over the last several years was 23,000.00 m³;
- Conversion value of the gas stream = 1.455 kg / 1 m³; and
- VOC speciation profile for benzene in the gas stream = 0.06940.

- 1) Convert to mass units:

(23,000.00 m³/year) * (1.455 kg / m³) = 33,465.00 kg/year vented

- 2) Determine the potential amount of benzene (no recovery):

Potential Benzene = Amount Vented * Speciation Profile

Potential Benzene = (33,465.00 kg/year) * (0.06940)

Potential Benzene = 2,322.471 kg/year benzene

- 3) Determine the maximum amount of benzene per year (with required recovery):

Max Benzene = Potential Benzene * Recovery Rate

Max Benzene = (2,322.471 kg) * (1 – 0.95)

Max Benzene = 116.124 kg/year

- 4) Convert to maximum hourly rate:

$$(116.124 \text{ kg/year}) / (8,760 \text{ hours} / 1 \text{ year}) = 0.013 \text{ kg/hour}$$

- 5) Report the maximum emission rate for Source Y:

$$\text{Maximum Benzene emission rate for Source Y} = \boxed{0.013 \text{ kg/hour}}$$

Amount of Substance/Amount of Effluent Limit Example:

Note: Industrial operations subject to amount of substance/amount of effluent limits should already be familiar with converting their limits to equivalent mass emission rates. These conversions are typically done in stack sampling reports, which include comparisons against the g/kg limits and kg/hour mass emission rates). It is recommended that similar conversions be used when determining maximum emission rates for reporting under the AEIR Program.

An amount of substance per amount of effluent limit (e.g., 0.2 grams of TPM per 1 kilogram of stack effluent) can typically be converted to a kg/hour maximum potential emission rate using information from the source design and available stack sampling. The design information for the source should provide the maximum effluent flow rate. If the design information is not available, then the normal effluent flow rates from a recent stack test can be scaled up to a likely maximum effluent flow rate (e.g., scaling from 90% to 100% operation). The stack sampling report should identify what the normal operating level was during the testing, which should help with determining the scaling factor for the maximum effluent flow rate.

The design/estimated maximum flow rate will then need to be related to an associated amount of the substance. Establishing this approximate relationship will vary depending on the specific source and what information is available. This may involve various standard conversions for different units, dry vs. wet and accounting for specified excess air / O₂ amounts. The approximate relationship would then be applied to the approval limit (e.g., 0.2 grams of TPM per 1 kilogram of stack effluent) to determine an equivalent kg/hour maximum emission rate.

Note: This is only establishing an approximate relationship, not a definitive relationship. Additional testing and statistical analysis may be required to go beyond an approximate relationship. For the purposes of using an amount of substance/amount of effluent limit to determine a reasonable kg/hour maximum emission rate, the approximate relationship should be adequate.

Note: The conversion of an amount of substance/amount of effluent limit to a maximum potential emission rate will likely give a high emission rate, but limits typically go above what a source normally emits.

Note: While the same amount of substance/amount of effluent limit can be prescribed for numerous sources (e.g., several different baghouses all have a limit of 0.2 grams of TPM per 1 kilogram of stack effluent), the conversion of the same numeric g/kg limit to a kg/hour maximum emission rate must be done for each individual source, as the conversion will involve information specific to each individual source (e.g., each different baghouse).

15.5.2 Design Maximum Method

The “Design Maximum Method” means the use of design maximum information to determine the maximum emission rate for a source. This could be based on the design maximum input, throughput, output, etc. of the equipment/source. The design maximum information is typically based on specifications from the manufacturer, but could also be based on internally developed design information. This method may require accounting for any modifications or unique operating conditions that differ from the original design standards for the equipment/source.

Design Maximum Example:

Calculate the maximum NO_x emission rate for Source Y, given:

- Manufacturer specified maximum output for Source Y = 1,000.0 m³/hour;
- AP-42 NO_x emission factor for Source Y = 3.3 kg NO_x per 100 m³ output;
- Source Y is operated within the manufacturer's maximum output specifications; and
- Source Y has no NO_x approval limits.

1) Convert to m³:

$$(3.3 \text{ kg NO}_x) / (100 \text{ m}^3) = 0.033 \text{ kg NO}_x / \text{m}^3 \text{ output}$$

2) Apply the available emission factor to the maximum hourly output rate:

$$(0.033 \text{ kg NO}_x / \text{m}^3 \text{ output}) * (1,000.0 \text{ m}^3/\text{hour}) = 33.0 \text{ kg/hour}$$

3) Report the maximum emission rate for Source Y:

$$\text{Maximum NO}_x \text{ emission rate for Source Y} = \boxed{33.0 \text{ kg/hour}}$$

15.5.3 Manufacturer Maximum Method

The "Manufacturer Maximum Method" means the use of other (non-design maximum) information from the equipment manufacturer to determine the maximum emission rate of a source. This could be a specified maximum emission rate (or range of emission rates) for the source provided by the equipment manufacturer, or other applicable information provided by the manufacturer that helps establish the maximum potential emission rate. This method may require accounting for any modifications or unique operating conditions that differ from the standards intended by the manufacturer.

Manufacturer Maximum Example:

Calculate the maximum SO₂ emission rate for Source Y, given:

- Maximum potential emission rate provided by the manufacturer for Source Y = 3.8 tonnes/hour;
- Source Y is operated as per the standards set by the manufacturer; and
- Source Y has no SO₂ approval limits.

1) Convert to kilograms:

$$(3.8 \text{ tonnes/hour}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 3,800.0 \text{ kg/hour}$$

2) Report the maximum emission rate for Source Y:

$$\text{Maximum SO}_2 \text{ emission rate for Source Y} = \boxed{3,800.0 \text{ kg/hour}}$$

15.5.4 Historical Maximum Method

The "Historical Maximum Method" means the use of the highest recent historical emission rate to determine the maximum emission rate for the source and substance. The historical maximum can be based on an annual actual emission value (converted to an hourly rate), the highest recorded (non-upset, non-emergency) CEMS value, the highest recorded stack sampling value, regulatory dispersion modelling inventory values, or the highest historical maximum emission rate otherwise determined. The "Historical Maximum Method" may not be the best choice for determining the maximum emission rate, as it may provide a rate closer to normal because of the use of year-specific actual release information. This method should be used when the previously listed maximum emission rate methods are not available or applicable.

The highest historical value from the last three to the last five years would typically be selected when using the Historical Maximum Method. Using the highest emission rate within only the last year could be acceptable, if the maximum emission rates beyond one year ago are no longer representative for the source and substance. Using the highest emission rate beyond five years ago could also be acceptable, if the maximum emission rate is still representative for the source and substance.

The specific historical value being used for the maximum emission rate is up to the person responsible. The most representative maximum emission rate value for the source and substance should be selected. This determination is to be based on the professional judgement of the person responsible. The person responsible for the industrial operation likely has the best idea of what the representative maximum emission rate (based on historical information) would be.

Note: Using the Historical Maximum Method may require accounting for the number of hours the source operated during each year. Unless the source operating/emitted 8,760 hours during each year (or 8,784 hours for a leap year), it is not acceptable to just divide each annual rate by 8,760 hours and convert to kg. Otherwise, the calculation will result in maximum emission rates that are likely not very representative. Maximum emission rates are not necessarily specific to a specific time period in an inventory year, but are supposed to be the maximum potential rate a substance is emitted to the atmosphere from a source under maximum operating conditions (for the source). The calculation must not include hours of non-operation. If a source did not operate for the entire year (8,760 hours or 8,784 hours for a leap year), then you must account for the number of hours the source operated during each year in your calculation. This will involve factoring in the actual hours of operation for each inventory year.

Note: If using the Historical Maximum Rate Method, the time period used in determining the historical maximum (e.g., 2018-2022, etc.) must be identified in the Quantification of Maximum Emission Rates section of the Quantification Methodology Document.

Note: If using regulatory dispersion modelling information to determine the maximum emission rate for approved, but not yet operating sources, the “Historical Maximum Method” would typically be selected as the maximum quantification method in the AEIR Form. This would be because the information for the regulatory dispersion modelling represents a type of emissions inventory. If the modelling values are based on a method that falls under one of the other maximum quantification method categories (approval limit, design maximum, manufacturer information, etc.), then the corresponding quantification method category would instead be selected in the AEIR Form.

Note: Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source. When converted to the same units and timescale, the maximum rate for a source and substance should be higher than the normal and actual rates. If using the Historical Maximum Rate Method to determine a maximum rate, this should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rates, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should not be less than the normal or annual actual rate.

Historical Maximum Example 1:

Calculate the maximum NO_x emission rate for Source Y, given:

- Annual actual NO_x emission values for Source Y over the last five years were: 57.3 tonnes, 58.8 tonnes, 49.3 tonnes, 55.2 tonnes and 53.6 tonnes;
- Source Y has operated roughly the same over the last five years;
- Source Y typically operates 24 hours a day, 365 days a year; and
- Source Y has no NO_x approval limits.

1) Determine the highest emission rate over the last five years:

Highest emission rate = 58.8 tonnes/year

- 2) Convert to kilograms:

$$(58.8 \text{ tonnes/year}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 58,800.0 \text{ kg/year}$$

- 3) Convert to hours:

$$(58,800.0 \text{ kg/year}) / (8,760 \text{ hours/year}) = 6.7123 \text{ kg/hour}$$

- 4) Report the maximum emission rate for Source Y:

$$\text{Maximum NO}_x \text{ emission rate for Source Y} = \boxed{6.7 \text{ kg/hour}}$$

Historical Maximum Example 2:

Calculate the maximum CO emission rate for Source A, given:

- Annual actual CO emission values for Source A over the last five years were: 250.8 tonnes, 157.5 tonnes, 248.2 tonnes, 360.3 tonnes and 126.6 tonnes;
- Annual operating hours for Source A over the last five years were: 7,430, 7,632, 7,322, 7,680 and 7,525 hours;
- Source Y typically operates 24 hours a day; and
- Source Y has no CO approval emission limit.

- 1) Calculate the hourly CO emission rate for each of the last five years:

Year 1 hourly CO emission rate for Source Y = annual CO emission rate / # of operating hours for Source Y

Year 1 hourly CO emission rate for Source Y = 250.8 tonnes/year / 7,430 hours

Year 1 hourly CO emission rate for Source Y = 0.033755047 tonnes/hour

...

Year 2 hourly CO emission rate for Source Y = 0.020636792 tonnes/hour

Year 3 hourly CO emission rate for Source Y = 0.033897842 tonnes/hour

Year 4 hourly CO emission rate for Source Y = 0.046914063 tonnes/hour

Year 5 hourly CO emission rate for Source Y = 0.01682392 tonnes/hour

- 2) Determine the highest CO emission rate over the last five years:

Highest CO emission rate = 0.046914063 tonnes/hr

- 3) Convert to kilograms:

$$(0.046914063 \text{ tonnes/hr}) * (1,000 \text{ kg} / 1 \text{ tonne}) = 46.91406 \text{ kg/hr}$$

- 4) Report the maximum CO emission rate for Source A:

$$\text{Maximum CO emission rate for Source Y} = \boxed{46.9 \text{ kg/hour}}$$

Historical Maximum Example 3:

Calculate the maximum SO₂ emission rate for Source Y, given:

- The highest hourly CEMS SO₂ emission values for Source Y over the last three years (excluding upset and emergency condition values) were: 1.8317 tonnes/hour, 1.9929 tonnes/hour and 1.9623 tonnes/hour;

- Source Y has operated roughly the same over the last three years; and
- Source Y has no SO₂ approval limits (CEMS is not approval-required).

1) Determine the highest hourly CEMS emission rate over the last three years:

Highest emission rate = 1.9929 tonnes/hour

2) Convert to kilograms:

(1.9929 tonnes/hour) * (1,000 kg / 1 tonne) = 1,992.9000 kg/hour

3) Report the maximum emission rate for Source Y:

Maximum SO₂ emission rate for Source Y = **1,992.9000 kg/hour**

Historical Maximum Example 4:

Calculate the maximum NO_x emission rate for Source Y, given:

- The last four stack sample NO_x emission results for Source Y were: 12.327 kg/hour, 12.569 kg/hour, 12.445 kg/hour and 11.962 kg/hour;
- All four stack samples were carried out under normal operating conditions;
- The four stack samples are still representative of how Source Y operates; and
- Source Y has no NO_x approval limits.

1) Determine the highest stack sample emission rate:

Highest emission rate = 12.569 kg/hour

2) Report the maximum emission rate for Source Y:

Maximum NO_x emission rate for Source Y = **12.569 kg/hour**

15.5.5 Engineering Estimate Maximum Method

The “Engineering Estimate Maximum Method” means using engineering principles and judgement to determine the maximum emission rate. This includes the use of knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved. **An engineering estimate is to be made mainly as a last resort, and should not be used when more specific emission estimation techniques (such as design maximum, manufacturer maximum, historical maximum, etc.) are available.** Engineering estimates should be made by a professional engineer familiar with the industrial operation and its specific processes. Engineering estimates can be made by someone who is not a professional engineer, provided they have sufficient experience and knowledge of the specific industrial processes and operating conditions, the design features of the source and a detailed understanding of the applicable physical and chemical laws involved.

The engineering estimate should involve:

- a) Reviewing all available data on the source at the industrial operation;
- b) Reviewing available information from similar sources at other industrial operations;
- c) Reviewing the applicable engineering principles for the processes involved;
- d) Developing approximations using the available information and applicable engineering methods and principles;
- e) Carrying out cross-checks of the approximations to other available related information;
- f) Assessing how reasonable the approximations appear to be; and
- g) Revising and improving the engineering estimate method and approximations when more current or accurate information becomes available.

Note: If using a normal rate to estimate a maximum rate, then you must not just convert the units and timescale, but also account for the difference in definitions of the types of emission rates. Normal rates represent normal operating conditions (for the source), while non-limit maximum rates represent maximum potential emissions. When converted to the same units and timescale (e.g., both in kg/hour), maximum rates should almost always be higher than the normal rates (unless the individual source basically only functions as either on or off, with no variation in operating level when running).

15.5.6 AEIR Standard Maximum Method

No maximum methods are being prescribed by the Director in the AEIR Standard for the 2022, 2023 and 2024 inventory years. The Director may also provide additional optional quantification methods in the AEIR Standard. One additional optional maximum method is being specified in the AEIR Standard for the 2022, 2023 and 2024 inventory years. See Appendix A: Optional Methodology - PM Size Distributions for a description of this method. If using this other maximum method, “AEIR Standard Maximum Method” should be selected as the quantification method in the AEIR Form.

15.5.7 Maximum Method Authorized in Writing by the Director

An individual industrial operation may have received written authorization from the Director to use a method different from those specified above for determining the maximum emission rate. If such authorization has been given, the authorized method should be used for the applicable source and substance. Additional authorized methods are not covered by the AEIR Standard. The process for obtaining approval to use a non-standard quantification method (a method not covered by methods specified in the AMD Reporting Chapter or the AEIR Standard) is outlined in Section 15.7 of the AEIR Standard. If using a method authorized by the Director, the “Method Authorized in Writing by the Director” is the method that is to be selected in the AEIR Form for the specific source and substance.

15.6 Process for Obtaining Authorization for Changes in the Quantification Methodologies

As per clauses RC 7-T and RC 7-U, the person responsible is required to determine all air emission release point and non-point source annual actual air emission rates using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used for the previous inventory year. This is not intended to prevent changes to quantification methods over time. It is simply to ensure: as much consistency as possible in reported emissions over time, that changes to quantification methods are only done when necessary and that changes to quantification methods actually provide improved emission values.

When changes to quantification methods need to be made, the person responsible is required to first get pre-authorization for the changes from the Director. This pre-authorization can be requested by submitting a written request to the Director via email to: emissions.inventory@gov.ab.ca. The request is required to include specific supporting information, which is prescribed by clause EIS 15-B.

Note: If pre-authorization for changes to quantification methods is not requested (and granted), then the facility is required to use the same quantification methods for the annual actual rates as were used for the previous inventory year. If the person responsible submits an AEIR with unauthorized changes in quantification methodologies, then the person responsible will be required to resubmit their AEIR using the same quantification methods for the annual actual rates as were used for the previous inventory year.

Note: Changes to quantification methods that require pre-authorization from the Director include going from using one emission factor to using another emission factor.

EIS 15-B When requesting written authorization from the Director to use a different measurement, estimation methodology, emission factor, equation or calculation as per RC 7-T (c) and RC 7-U (c), the person responsible must include, at a minimum, the following information:

- (a) a description of (i) the release point or non-point source, (ii) any associated units/processes/equipment, and (iii) the substance the change is for;*
- (b) a description of the current quantification method being used for the release point or non-point source and substance;*
- (c) a description of the proposed new quantification method for the release point or non-point source and substance;*
- (d) an estimate of the impact of the change on the substance emission rate for the release point or non-point source;*
- (e) an estimate of the impact of the change on the substance emission rate for the entire industrial operation;*
- (f) any applicable emission limits; and*
- (g) a brief explanation for why the quantification method needs to be changed.*

Note: If changing from one emission factor to another emission factor, the method change request is to include the previously used emission factor, the proposed new emission factor and the source of both emission factors.

Note: The estimate of the impact of the change on the relevant emission rates in clause EIS 15-B (d) and (e) would be, for example, “the change in quantification method for Stack A would result in a 150 tonne or 25% increase in annual actual NO_x emissions from Stack A, and an increase of 10% (150 tonne) to the industrial operation’s total annual actual NO_x emissions”.

The Director will use several criteria to assess the proposed changes in quantification methodologies. A request to change a quantification methodology that meets one or more of these criteria would typically be authorized. The assessment criteria include:

- (a) the previous quantification method is no longer acceptable to use because of process/equipment/fuel changes at the source or because of missing required data (e.g., activity, operational, monitoring, etc.);
- (b) source monitoring or measurement information (e.g., CEMS, stack sampling, metered fuel use, etc.) is now available in place of emissions that were previously being estimated;
- (c) there will be a material improvement in the emission value by using the new method; or
- (d) a method previously being used was done so in error.

The Director will review the request to change the quantification methodology and will make a decision within a reasonable amount of time. The industrial operation will then receive written notice of the decision (via email). The quantification method change request and authorization process is shown in Figure 6.

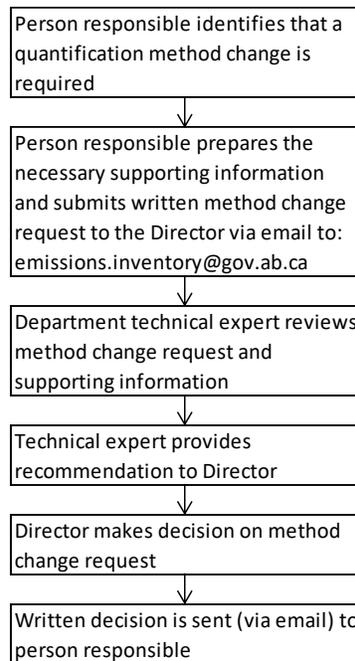


Figure 6: Quantification Method Change Request and Authorization Process.

Note: The review (and correspondence) regarding the assessment of a request to change a quantification method will typically be handled at the technical level by the Alberta Air Emissions Inventory Team.

Note: Changes to more than one quantification method can be submitted within the same request to the Director, as long as all the proposed changes include the required supporting information. For example, a request to change the emission factor used for determining NO_x emissions from Stack A and a request to change the emission factor used for determining SO₂ emissions from Stack B could be submitted in a single request to the Director.

Note: Changes to quantification methods do **not** need to be pre-authorized if it is the first year of reporting under the AEIR Program for the industrial operation, as there has not yet been any reporting by the industrial operation under the AEIR Program.

Note: Any Director specified methods in future AEIR Standards (as set out in Section 15.1 of the AEIR Standard) are required to be used by the industrial operation (when applicable). The change in the quantification method as the result of a new/revised Director specified method does **not** require pre-authorization from the Director. The change in method would still need to be documented in the Quantification Methodology Document and in the associated “Quantification Method” identifier fields in the AEIR Form.

Note: Changes to normal or maximum emission rates do **not** require pre-authorization from the Director. Normal and maximum emission rates are not necessarily specific for one individual calendar year. They are intended to capture the representative normal or maximum rates for a source and substance, rather than to track emissions over specific annual time periods. Also, normal and maximum emission rates will not typically need to be revised every year.

Note: Changes to maximum emission rate quantification methods resulting from changes in approval emission limits or resulting from the addition of an applicable emission limit do **not** require pre-authorization from the Director. The person responsible is required to use applicable emission limits for maximum emission rates when they are in place for the industrial operation. The change in the approval limit used for the maximum emission rate is required to be

documented in the Quantification Methodology Document and in the associated “Maximum Calculation Method” identifier fields in the AEIR Form.

15.7 Process for Obtaining Authorization to Use Non-Standard Quantification Methodologies

A broad range of quantification methodologies for determining the annual actual, normal and maximum emission rates are outlined in the AMD Reporting Chapter and in Sections 15.3, 15.4 and 15.5 of the AEIR Standard. The provided methods should cover nearly all applicable quantification methods that would potentially be used by large industrial operations in Alberta. In rare cases, the person responsible may need to use a quantification method not covered by the methods specified in the AMD Reporting Chapter or the AEIR Standard.

When use of non-standard quantification methodologies is required, the use of such methods must first be pre-authorization by the Director. In such instances, a written request to the Director is to be sent via email to: emissions.inventory@gov.ab.ca. The request is required to include specific supporting information, which is prescribed by clause EIS 15-C.

Note: If pre-authorization for the use of a non-standard quantification methodology is not requested (and granted), then the facility is to use the quantification methodologies specified in the AEIR Standard (including use of the same quantification methods for the annual actual rates as were used for the previous inventory year). If the person responsible submits an AEIR with unauthorized non-standard quantification methodologies, then the person responsible will be required to resubmit their AEIR using quantification methodologies specified in the AEIR Standard (including use of the same quantification methods for the annual actual rates as were used for the previous inventory year).

EIS 15-C	<p><i>When requesting written authorization from the Director to use a quantification method not covered by the quantification methods specified in the AMD Reporting Chapter or the AEIR Standard, the person responsible must include, at a minimum, the following information:</i></p> <ul style="list-style-type: none"><i>(a) a description of (i) the release point or non-point source, (ii) any associated units/processes/equipment, and (iii) the substance the requested method is for;</i><i>(b) a description of why the provided quantification methods are not applicable or appropriate to use for the specific release point or non-point source and substance;</i><i>(c) a description of the requested quantification method and how it is applicable for the specific release point or non-point source and substance;</i><i>(d) if available, an estimate of the impact of using the requested method on the substance emission rate for the release point or non-point source; and</i><i>(e) if available, an estimate of the impact on the emissions of the entire industrial operation if using the requested method for the specific release point or non-point source and substance.</i>
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The Director will review the request to use the non-standard quantification method and will make a decision within a reasonable amount of time. The industrial operation will then receive written notice of the decision (via email). The request and authorization process for using non-standard quantification methods is shown in Figure 7.

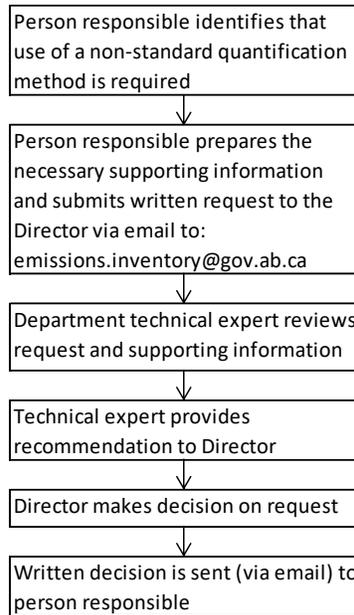


Figure 7: Request and Authorization Process for Using Non-standard Methods.

Note: The review (and correspondence) regarding the assessment of a request to use a non-standard quantification method will typically be handled at the technical level by the Alberta Air Emissions Inventory Team.

Note: Requests for an industrial operation to use more than one non-standard quantification method can be submitted within the same request to the Director, as long as each request includes the required supporting information. For example, a request to use a non-standard quantification method for determining NO_x emissions from Stack A and a request to use a non-standard quantification method for determining SO₂ emissions from Stack B could be submitted in a single request to the Director.

16.0 Emissions Quantification (Steps 16a - d)

16.1 Gather Supporting Information (Step 16a)

The next step in preparing the AEIR requires gathering together all the supporting information necessary to quantify the emissions. The previous steps should have resulted in the collection of much of the required information, including information on: release points, non-point sources, units/processes/equipment, pollution controls, available source monitoring information, temporal operational information, emission limits, applicable Schedule 2 substances, applicable quantification methods (including specific equations/formulas/models), etc.

Note: Prior to carrying out emissions quantification, it is advisable to review: Section 3.12 for information on the de minimis and negligible sources, Section 3.13 for information on negligible Schedule 1 substances and Section 14.0 for information on identifying applicable Schedule 2 substances.

The specific quantification methods specified/selected will typically require some kind of monitoring or activity data in order to determine the emission rate. The supporting data necessary for the quantification methods (e.g., monitoring data, fuel use data, input/throughput/output numbers, amounts of onsite solvent and chemical use, etc.) will also need to be gathered during this step.

In some cases required activity data may only be available for a combination of several pieces of equipment or several sources. In order to quantify emissions for the individual sources, this combined activity data (e.g., fuel-use, material input/output, etc.) will need to be allocated to the individual unit/process/equipment or release point. In these cases, the industrial operation is **not** required to add additional meters in order to obtain activity data for each individual unit/process/equipment or release point. Approximations can be used to allocate the activity data to each individual unit/process/equipment or release point. This is typically done based on estimates of how much each unit/process/equipment or release point would typically receive, produce, use, etc. Examples of these approximations are provided below.

Example 1:

Heaters 1 and 2 both receive natural gas from a single metered pipe and the total volume of natural gas that came through for the year is measured. The amount of gas used by each individual heater is not measured. Both heaters are the same make, model #, age and typically operate roughly the same number of hours during the year. The amount of natural gas in this case is simply divided by two, with half the total volume of natural gas assumed to be used by each individual heater. These volumes are then used to quantify the emissions from the individual heaters, using the methods selected for these sources in Step 15 (Section 15 of the AEIR Standard).

Example 2:

Compressor Engines A and B both receive natural gas from a single metered pipe and the total volume of natural gas that came through for the year is measured. The amount of gas used by each individual engine is not measured. The engines are not the same make, model or age. Both engines operated roughly the same number of hours during the year, but Compressor Engine A is much larger than Compressor Engine B. Based on the engine size, and available information from the engine manufacturer, it is estimated that Compressor Engine A uses about three times as much natural gas as Compressor Engine B. Compressor Engine A is therefore allocated 75% of the total natural gas volume and Compressor Engine B is allocated the remaining 25% of the natural gas volume. These volumes are then used to quantify the emissions from the individual engines, using the methods selected for these sources in Step 15 (Section 15 of the AEIR Standard).

16.2 Quantify and Report Annual Actual Emission Rates for Schedule 1 and Schedule 2 Substances (Step 16b)

Clauses RC 7-M and RC 7-O set out the general annual actual emission rate information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional annual actual emission rate fields that need to be completed. The next step in preparing the AEIR requires quantifying the annual actual emission rates for the Schedule 1 and applicable Schedule 2 substances for each release point and non-point source. This is done by applying the required supporting information to the selected quantification methods to calculate the emission rates. The Schedule 1 substances emitted by the individual release points and non-point sources should have been identified in Steps 6 and 7. The applicable Schedule 2 substances being emitted should have been identified in Steps 6, 7 and 14. Sample calculations for the various annual actual emission rate methods are provided in Section 15.3 of the AEIR Standard.

Once the annual actual emission rates have been quantified, both the annual actual emission rates and the quantification methodologies used are required to be entered into the fields in the AEIR Form. Information on the quantification methods used is also to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard).

Note: Annual actual air emissions are required for release points and non-point sources, and are to be reported in tonnes/year.

Note: As future EPEA approved sources are not operating/emitting, they will not have annual actual emission rates for the inventory year. Approved future sources may have maximum and normal emission rates to report in the AEIR Form.

Note: In the case where there is more than one quantification method used for a specific source and substance combination, the person responsible should identify (in the AEIR Form) the quantification method category that is most representative for how the emissions were quantified. This could be the quantification method category that was used for the majority of the year, or could be the method that accounted for the largest portion of the emissions, etc., whatever method category is most representative. This determination is to be based on the professional judgement of the person responsible.

Note: In the case where there is more than one quantification method used for a specific source and substance combination, the person responsible will describe in the Quantification Methodology Document all (one or more) quantification methods used for each source and substance combination. For example, the description when more than one method was used could be:

“the following method was used for the source for substance A under operating condition X ..., the following method was used for the source for substance A under operating condition Y ..., etc.”

Schedule 1 Emission Rates – Release Points

The following describes the annual actual emission rate information required in worksheet 2.6.1 of the AEIR Form, with examples of the expected information.

Worksheet 2.6.1: Release Point – Schedule 1 Emission Rates

Note: Table 43 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.1: Release Point - Schedule 1 Emission Rates, including data types and conditions.

Are any release point Schedule 1 substance emissions being reported? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any release point Schedule 1 substance emissions being reported for the inventory year. If there are no release point Schedule 1 substance emissions to report, then “No” is selected in this field and no further information is required to be entered in worksheet 2.6.1 of the AEIR Form. If reporting release point information, this field must not be left as “<Choose One>”.

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Annual Actual NO_x Emissions (tonnes/year)
412.6800

This field requires entering the quantified annual actual NO_x emission rate for the specific release point (for the inventory year). The annual actual emission rate is to be reported in tonnes/year. If reporting annual actual NO_x emissions from the specific release point, this field must not be left blank.

Annual Actual NO_x Quantification Method
CEMS Annual Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the annual actual NO_x emission rate for the release point (for the inventory year). Descriptions of the acceptable methods for quantifying annual actual air emission rates are provided in Section 15.3 of the AEIR Standard. If reporting annual actual NO_x emissions from the specific release point, this field must not be left as “<Choose One>”.

Note: The same fields described above are required for reporting the other Schedule 1 substance emission rates and quantification methods. These fields are not repeated here to limit repetition in the AEIR Standard.

Schedule 2 Emission Rates – Release Points

For Schedule 2 substances, the specific applicable substance is required to be selected in the AEIR Form prior to reporting the annual actual emission rate and quantification method. The following describes the annual actual emission rate information required in worksheets 2.6.2-2.6.6 of the AEIR Form, with examples of the expected information.

Worksheets 2.6.2-2.6.6: Release Point – Schedule 2 Emission Rates

Note: Table 44 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.2 - 2.6.6: Release Point - Schedule 2 Emissions, including data types and conditions.

Are any release point Schedule 2 substance emissions being reported? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any release point Schedule 2 substance emissions being reported for the inventory year. If there are no release point Schedule 2 substance emissions to report, then “No” is selected in this field and no further information is required to be entered in worksheets 2.6.2-2.6.6 of the AEIR Form. If reporting release point information, this field must not be left as “<Choose One>”.

Release Point Descriptive Name
Combined Boiler Control Stack

This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.

Annual Actual Emissions (tonnes/year)
Antimony (and its compounds)

This field requires selecting from a dropdown menu the applicable Schedule 2 substance being reported. If reporting annual actual emissions of a Schedule 2 substance from the specific release point, this field must not be left blank.

Annual Actual Emissions (tonnes/year)
0.0500

This field requires entering the quantified annual actual emission rate of the selected Schedule 2 substance for the release point (for the inventory year). The annual actual emission rate is to be reported in tonnes/year. If reporting annual actual emissions of the Schedule 2 substance from the specific release point, this field must not be left blank.

Annual Actual Quantification Method
Published or General EF Annual Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the annual actual emission rate of the selected Schedule 2 substance for the release point (for the inventory year). Descriptions of the acceptable methods for quantifying annual actual air emission rates are provided in Section 15.3 of the AEIR Standard. If reporting annual actual emissions of the Schedule 2 substance from the specific release point, this field must not be left as “<Choose One>”.

Note: The same fields described above are required for reporting the other applicable Schedule 2 substance emission rates and quantification methods (worksheets 2.6.2-2.6.6). These fields are not repeated here to limit repetition in the AEIR Standard.

Schedule 1 Emission Rates – Non-Point Sources

The following describes the annual actual emission rate information required in worksheet 3.8.1 of the AEIR Form, with examples of the expected information.

Worksheet 3.8.1: Non-Point Source – Schedule 1 Emission Rates

Note: Table 58 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.8.1: Non-Point Source - Schedule 1 Emission Rates, including data types and conditions.

Are any non-point source Schedule 1 substance emissions being reported? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any non-point source Schedule 1 substance emissions being reported for the inventory year. If there are no non-point source Schedule 1 substance emissions to report, then “No” is selected in this field and no further information is required to be entered in worksheet 3.8.1 of the AEIR Form. If reporting non-point source information, this field must not be left as “<Choose One>”.

Non-Point Source Descriptive Name
North Mine Fleet

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Annual Actual NO_x Emissions (tonnes/year)
8,665.0000

This field requires entering the quantified annual actual NO_x emission rate for the specific non-point source (for the inventory year). The annual actual emission rate is to be reported in tonnes/year. If reporting annual actual NO_x emissions from the specific non-point source, this field must not be left blank.

Annual Actual NO_x Quantification Method
Site-Specific EF Annual Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the annual actual NO_x emission rate for the non-point source (for the inventory year). Descriptions of the acceptable methods for quantifying annual actual air emission rates are provided in Section 15.3 of the AEIR Standard. If reporting annual actual NO_x emissions from the specific non-point source, this field must not be left as “<Choose One>”.

Note: The same fields described above are required for reporting the other Schedule 1 substance emission rates and quantification methods. These fields are not repeated here to limit repetition in the AEIR Standard.

Schedule 2 Emission Rates – Non-Point Sources

For Schedule 2 substances, the specific applicable substance is required to be selected in the AEIR Form prior to reporting the annual actual emission rate and quantification method. The following describes the annual actual emission rate information required in worksheets 3.8.2-3.8.6 of the AEIR Form, with examples of the expected information.

Worksheets 3.8.2-3.8.6: Non-Point Source - Schedule 2 Emission Rates

Note: Table 59 in Appendix C of the AEIR Standard also shows the data fields for worksheet 3.8.2 - 3.8.6: Non-Point Source - Schedule 2 Rates, including data types and conditions.

Are any non-point source Schedule 2 substance emissions being reported? (Y/N)
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate if there are any non-point source Schedule 2 substance emissions being reported for the inventory year. If there are no non-point source Schedule 2 substance emissions to report, then “No” is selected in this field and no further information is required to be entered in worksheets 3.8.2-3.8.6 of the AEIR Form. If reporting non-point source information, this field must not be left as “<Choose One>”.

Non-Point Source Descriptive Name
North Mine Fleet

This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.

Substance 1 (tonnes/year)
Benzene

This field requires selecting from a dropdown menu the applicable Schedule 2 substance being reported. If reporting annual actual emissions of a Schedule 2 substance from the specific non-point source, this field must not be left blank.

Substance 1 (tonnes/year)
4.2080

This field requires entering the quantified annual actual emission rate of the selected Schedule 2 substance for the non-point source (for the inventory year). The annual actual emission rate is to be reported in tonnes/year. If reporting annual actual emissions of the Schedule 2 substance from the specific non-point source, this field must not be left blank.

Annual Actual Quantification Method
Published or General EF Annual Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the annual actual emission rate of the selected Schedule 2 substance for the non-point source (for the inventory year). Descriptions of the acceptable methods for quantifying annual actual air emission rates are provided in Section 15.3 of the AEIR Standard. If reporting annual actual emissions of the Schedule 2 substance from the specific non-point source, this field must not be left as <Choose One>.

Note: The same fields described above are required for reporting the other applicable Schedule 2 substance emission rates and quantification methods (worksheets 3.8.2-3.8.6). These fields are not repeated here to limit repetition in the AEIR Standard.

16.3 Quantify and Report Normal Emission Rates for Schedule 1 and Schedule 2 Substances (Step 16c)

Clause RC 7-M sets out the general normal emission rate information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional normal emission rate fields that need to be completed. The next step in preparing the AEIR requires quantifying the normal emissions rates for the Schedule 1 and applicable Schedule 2 substances for each release point. This is done by applying the required supporting information to the selected quantification methods to calculate the emission rates. The Schedule 1 substances emitted by the individual release points should have been identified in Step 6. The applicable Schedule 2 substances

being emitted should have been identified in Steps 6 and 14. Sample calculations for the various normal emission rate methods are provided in Section 15.4.

Once the normal emission rates have been quantified, both the normal emission rates and the quantification methodologies used are required to be entered into the fields in the AEIR Form. Information on the quantification methods used is also to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard).

Note: Normal emission rates are not necessarily specific to any one time period during the inventory year, but are supposed to represent the rate at which a substance is emitted to the atmosphere from the source under normal operating conditions (for the source).

Note: Normal air emissions are only required for release points and are to be reported in tonnes/day.

Note: Normal rates do not necessarily represent the actual amount released for a specific 24-hour period. These are typically calculated as an hourly rate based on normal operations/emissions for the source and then the hourly rate is assumed to be constant for the full 24-hour period.

Note: For EPEA approved future sources, normal emission rates (as per EPEA approval/renewal application and associated modelling) would be reported (if applicable).

Note: Temporarily shutdown sources will still have normal rates, as normal rates just represent the emission rates at normal operations for the source (when operating).

Schedule 1 Emission Rates – Release Points

The following describes the normal emission rate information required in worksheet 2.6.1 of the AEIR Form, with examples of the expected information.

Worksheets 2.6.1: Release Point – Schedule 1 Emission Rates

Note: Table 43 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.1: Release Point - Schedule 1 Emission Rates, including data types and conditions.

Normal NO_x Emissions (tonnes/day)
1.2505

This field requires entering the quantified normal NO_x emission rate for the specific release point. The normal emission rate is to be reported in tonnes/day. If reporting normal NO_x emissions from the specific release point, this field must not be left blank.

Normal NO_x Quantification Method
Single Source Sample Normal Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the normal NO_x emission rate for the specific release point. Descriptions of the acceptable methods for quantifying normal air emission rates are provided in Section 15.4 of the AEIR Standard. If reporting normal NO_x emissions from the specific release point, this field must not be left as <Choose One>.

Note: The same fields described above are required for reporting the other Schedule 1 substance emission rates and quantification methods. These fields are not repeated here to limit repetition in the AEIR Standard.

Schedule 2 Emission Rates – Release Points

For Schedule 2 substances, the specific applicable substance is required to be selected in the AEIR Form prior to reporting the normal emission rate and quantification method. The following describes the normal emission rate information required in worksheets 2.6.2-2.6.6 of the AEIR Form, including examples of the expected information.

Worksheets 2.6.2-2.6.6: Release Point – Schedule 2 Emission Rates

Note: Table 44 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.2 - 2.6.6: Release Point - Schedule 2 Emissions, including data types and conditions.

Normal Emissions (tonnes/day)
Antimony (and its compounds)

This field requires selecting from a dropdown menu the applicable Schedule 2 substance being reported. If reporting normal emissions of a Schedule 2 substance from the specific release point, this field must not be left blank.

Normal Emissions (tonnes/day)
0.0002

This field requires entering the quantified normal emission rate of the selected Schedule 2 substance for the release point. The normal emission rate is to be reported in tonnes/day. If reporting normal emissions of the Schedule 2 substance from the specific release point, this field must not be left blank.

Normal Quantification Method
Single Annual Actual Normal Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the normal emission rate of the selected Schedule 2 substance for the release point. Descriptions of the acceptable methods for quantifying normal emission rates are provided in Section 15.4 of the AEIR Standard. If reporting normal emissions of the Schedule 2 substance from the specific release point, this field must not be left as <Choose One>.

Note: The same fields described above are required for reporting the other applicable Schedule 2 substance emission rates and quantification methods (worksheets 2.6.2-2.6.6). These fields are not repeated here to limit repetition in the AEIR Standard.

16.4 Quantify and Report Maximum Emission Rates for Schedule 1 and Schedule 2 Substances (Step 16d)

Clause RC 7-M sets out the general maximum emission rate information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional maximum emission rate fields that need to be completed. The next step in preparing the AEIR requires quantifying the maximum emissions rates for the Schedule 1 and applicable Schedule 2 substances for each release point. This is done by applying the required supporting information to the selected quantification methods to calculate the emission rates. The Schedule 1 substances emitted by the individual release points should have been identified in Step 6. The applicable Schedule 2 substances being emitted should have been identified in Steps 6 and 14. Sample calculations for the various maximum emission rate methods are provided in Section 15.5 of the AEIR Standard.

Once the maximum emission rates have been quantified, both the maximum emission rates and the quantification methodologies used are required to be entered into the fields in the AEIR Form. Information on the quantification methods used is also to be included in the Quantification Methodology Document (see Section 19 of the AEIR Standard).

Note: Maximum rates do not necessarily represent the actual amount of a substance released for a specific one hour period during the inventory year, these are theoretical rates (except when based on measured maximum rates). Maximum rates are typically calculated as an hourly rate based on maximum operations/emissions (or the approval limit) for the source.

Note: Maximum air emissions are only required for release points and are to be reported in kilograms/hour.

Note: For EPEA approved future sources, maximum emission rates (as per EPEA approval/renewal application and associated modelling or approval emission limit) would be reported (if applicable).

Note: Temporarily shutdown sources will still have maximum rates, as maximum rates just represent maximum potential rates for the source (when operating).

Schedule 1 Emission Rates – Release Points

The following describes the maximum emission rate information required in worksheets 2.6.1 of the AEIR Form, including examples of the expected information.

Worksheets 2.6.1: Release Point – Schedule 1 Emission Rates

Note: Table 43 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.1: Release Point - Schedule 1 Emission Rates, including data types and conditions.

Maximum NO_x Emissions (kg/hour)
58.0000

This field requires entering the quantified maximum NO_x emission rate for the specific release point. The maximum emission rate is to be reported in kilograms/hour. If reporting maximum NO_x emissions from the specific release point, this field must not be left blank.

Maximum NO_x Quantification Method
Approval Limit Maximum Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the maximum NO_x emission rate for the release point. Descriptions of the acceptable methods for quantifying maximum air emission rates are provided in Section 15.5 of the AEIR Standard. If reporting maximum NO_x emissions from the specific release point, this field must not be left as <Choose One>.

Note: The same fields described above are required for reporting the other Schedule 1 substance emission rates and quantification methods. These fields are not repeated here to limit repetition in the AEIR Standard.

Schedule 2 Emission Rates – Release Points

For Schedule 2 substances, the specific applicable substance is required to be selected in the AEIR Form prior to reporting the maximum emission rate and quantification method. The following describes the maximum emission rate information required in worksheets 2.6.2-2.6.6 of the AEIR Form, including examples of the expected information.

Worksheets 2.6.2-2.6.6: Release Point – Schedule 2 Emission Rates

Note: Table 44 in Appendix C of the AEIR Standard also shows the data fields for worksheet 2.6.2 - 2.6.6: Release Point - Schedule 2 Emissions, including data types and conditions.

Maximum Emissions (kg/hour)
Antimony (and its compounds)

This field requires selecting from a dropdown menu the applicable Schedule 2 substance being reported. If reporting maximum emissions of a Schedule 2 substance from the specific release point, this field must not be left blank.

Maximum Emissions (kg/hour)
0.0114

This field requires entering the quantified maximum emission rate of the selected Schedule 2 substance for the release point. The maximum emission rate is to be reported in kilograms/hour. If reporting maximum emissions of the Schedule 2 substance from the specific release point, this field must not be left blank.

Maximum Quantification Method
Historical Maximum Method

This field requires selecting (from a dropdown menu) the quantification method used to determine the maximum emission rate of the selected Schedule 2 substance for the inventory year for the release point. Descriptions of the acceptable methods for quantifying maximum emission rates are provided in Section 15.5 of the AEIR Standard. If reporting maximum emissions of the Schedule 2 substance from the specific release point, this field must not be left as <Choose One>.

Note: The same fields described above are required for reporting the other applicable Schedule 2 substance emission rates and quantification methods (worksheets 2.6.2-2.6.6). These fields are not repeated here to limit repetition in the AEIR Standard.

17.0 Other Information to be Reported (Steps 17a - i)

Clause RC 7-P sets out the general types of other information required to be reported via the AEIR. The AEIR Form itself specifies the individual mandatory and optional other fields that need to be completed. The next step in preparing the AEIR requires identifying and preparing this additional other information. This includes reporting information on: large emission changes, authorized changes in quantification methods, any significant modifications made to the industrial operation during the year, any emission reduction efforts that took place during the year and any relevant comments on the AEIR. There may also be other mandatory or voluntary information that needs to be reported. The following subsections (17.1-17.9) cover checking the reported Schedule 1 emission totals and reporting various other types of information.

17.1 Check Schedule 1 Totals (Step 17a)

AEIR Form worksheet 4.1-4.4 shows the release point, non-point source and industrial operation emission totals for the Schedule 1 substances. This worksheet is included for information purposes only and no additional information needs to be entered directly into this worksheet. This worksheet should be used by the person responsible to check the Schedule 1 totals being reported. This will help to identify if any of the reported Schedule 1 substance emission totals (annual actual, normal or maximum) look odd and require additional checking or review.

Worksheet 4.1 - 4.4: Industrial Operation - Schedule 1 Totals

4.1 Annual Actual Emissions (tonnes/year)

No input required for this worksheet, but the totals should be checked for reasonableness.

Note: Table 60 in Appendix C of the AEIR Standard shows the data fields for worksheet 4.1: Annual Actual Emissions (tonnes/year), including data types and conditions.

Suggested checks for the annual actual emission totals (tonnes/year):

- Do the auto-calculated release point annual actual emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated non-point source annual actual emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated industrial operation annual actual emission totals for the Schedule 1 substances seem reasonable?
- How do the annual actual emission totals for the industrial operation compare to the past AEIR submissions and other recent emissions inventories prepared for the industrial operation?
- How do the annual actual emission totals for the industrial operation compare to the annual totals reported to other programs (such as the National Pollutant Release Inventory submissions, Annual EPEA Approval Reports, etc.)? If there are large differences in the reported annual totals, are the reasons for these large differences known and understood? (e.g., due to differences in how the facility is defined, differences in which sources were included, differences in the quantification methods used to determine the emissions, etc.)
- How do the annual actual emission totals of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

4.2 Annual Actual Emissions (converted to tonnes/day)

No input required for this worksheet, but the totals should be checked for reasonableness.

Note: Table 61 in Appendix C of the AEIR Standard shows the data fields for worksheet 4.2: Annual Actual Emissions (tonnes/day), including data types and conditions.

Suggested checks for the annual actual emission totals (tonnes/day):

- Do the auto-calculated release point annual actual daily emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated non-point source annual actual daily emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated industrial operation annual actual daily emission totals for the Schedule 1 substances seem reasonable?

4.3 Normal Emissions (tonnes/day)

No input required for this worksheet, but the totals should be checked for reasonableness.

Note: Table 62 in Appendix C of the AEIR Standard shows the data fields for worksheet 4.3: Normal Emissions (tonnes/day), including data types and conditions.

Suggested checks for the normal emission totals (tonnes/day):

- Do the auto-calculated release point normal daily emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated industrial operation normal daily emission totals for the Schedule 1 substances seem reasonable?
- How do the normal emission totals compare to the annual actual and maximum emission totals? Normal emission rates are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). When converted to the same units and timescale, the normal rate would typically be similar to the annual actual rate and less than the maximum rate. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the normal rate could potentially be equal to the maximum rate. When converted to the same units and timescale, the normal rate should not be more than the maximum rate (this would not fit the emission rate type definitions).
- How do the normal emission totals of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

4.4 Maximum Emissions (converted to tonnes/day)

No input required for this worksheet, but the totals should be checked for reasonableness.

Note: Table 63 in Appendix C of the AEIR Standard shows the data fields for worksheet 4.4: Maximum Emissions (tonnes/day), including data types and conditions.

Suggested checks for the maximum emission totals (tonnes/day):

- Do the auto-calculated release point maximum daily emission totals for the Schedule 1 substances seem reasonable?
- Do the auto-calculated industrial operation maximum daily emission totals for the Schedule 1 substances seem reasonable?

- How do the maximum emission totals compare to the normal and annual actual emission totals? Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate should be higher than the normal and actual rates. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rate, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should not be less than the normal or annual actual rate.
- How do the emission rates of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

17.2 Provide Explanations for Changes in Emissions (Step 17b)

As per clause RC 7-P (a), the AEIR Form requires brief explanations for any instances where the total annual actual emissions of a Schedule 1 or Schedule 2 substance changed by more than 10% from the previous inventory year's reported total annual actual emissions. This is for the industrial operation totals, not for any individual release point or non-point source. This is only required for annual actual emissions (not normal or maximum emission rates). This information is to be reported in worksheet 4.5-4.6 of the AEIR Form. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: These explanations are for changes greater than 10% in total annual actual emissions for the industrial operation. This 10% change is different than the 15% change threshold used to determine if the normal or maximum emission rate for an individual release point or non-point source needs to be revised. See the notes in Sections 15.4 and 15.5 of the AEIR Standard for information on revising normal and maximum emission rates. Explanations for changes in normal or maximum emission rates are not required in worksheet 4.5-4.6.

Worksheets 4.5-4.6: Identification and Description of Industrial Operation Emission Changes Greater than 10%

4.5 Schedule 1 - Emission Changes Greater than 10%

Note: Table 64 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.5: Schedule 1 – 10% Emission Changes, including data types and conditions.

Were there any Schedule 1 emission changes greater than 10%?
Yes

This field is a dropdown menu for selecting "Yes" or "No" to indicate whether there were any Schedule 1 emission changes (for the industrial operation totals) greater than 10%, compared to the previous Annual Emissions Inventory Report values. If "No", then no additional information is required in the subsequent fields in worksheet 4.5. Unless it is the first year the industrial operation is reporting under the AEIR Program, this field must not be left as <choose one>.

Substance Name
Nitrogen oxides (expressed as nitrogen dioxide)

This field displays the Schedule 1 substance name. No input is required in this field.

Explanation for change greater than 10% in annual actual air emissions
Increased power generation output resulted in an increase in NO _x emissions.

This field requires entering a brief explanation for any changes greater than 10% in total annual actual air emissions of a Schedule 1 substance (e.g., NO_x) for the industrial operation. If reporting a change in emissions greater than 10% for the specific substance, this field must not be left blank. If there was not a change in emissions greater than 10% for the specific substance, then this field can be left blank.

Note: The same emission change fields described above are required for providing explanations of greater than 10% annual actual emission changes for the other Schedule 1 substances. These fields are not repeated here to limit repetition in the AEIR Standard.

4.6 Schedule 2 - Emission Changes Greater than 10%

Note: Table 65 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.6: Schedule 2 – 10% Emission Changes, including data types and conditions.

Were there any Schedule 2 emission changes greater than 10%?
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any Schedule 2 emission changes (for the industrial operation totals) greater than 10%, compared to the previous Annual Emissions Inventory Report values. If “No”, then no additional information is required in the subsequent fields in worksheet 4.6. Unless it is the first year the industrial operation is reporting under the AEIR Program, this field must not be left as <choose one>.

Substance Name
Selenium (and its compounds)

This field displays the Schedule 2 substance name. No input is required in this field.

Explanation for change greater than 10% in annual actual air emissions
Process changes resulted in a reduction in selenium present in the flue gas being emitted from the main stack

This field requires entering a brief explanation for any changes greater than 10% in total annual actual air emissions of an applicable Schedule 2 substance (e.g., Selenium) for the industrial operation. If reporting a change in emissions greater than 10% for the specific substance, this field must not be left blank. If there was not a change in emissions greater than 10% for the specific substance, then this field can be left blank.

Note: The same emission change fields described above are required for providing explanations of greater than 10% annual actual emission changes for the other applicable Schedule 2 substances. These fields are not repeated here to limit repetition in the AEIR Standard.

17.3 Provide Descriptions of Authorized Method Changes (Step 17c)

As per clauses RC 7-T and RC 7-U, the person responsible is required to determine all annual actual air emissions quantities (for both release points and non-point sources) using consistent measurements, estimation methodologies, emission factors, equations and calculations as were used for the previous inventory year. This is not intended to prevent changes to quantification methods over time. It is simply to ensure as much consistency as possible in reported emissions over time, that changes to quantification methods are only done when necessary and that

changes to quantification methods actually provide improved emission values. **When changes to quantification methods need to be made, they are required to first be pre-approved by the Director.** The process for obtaining authorization for changes in quantification methods is described in Section 15.6 of the AEIR Standard.

As per clause RC 7-P (d), the AEIR Form requires a brief description of any Director-authorized change or changes in the quantification methods that were used in the AEIR compared to the previous year. This information is to be reported in worksheet 4.7 of the AEIR Form. Additional details on authorized method changes are to be included in the Quantification Methodology Document for the industrial operation (see Section 19 of the AEIR Standard). The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Note: Changes to normal or maximum emission rates do **not** require pre-authorization from the Director. Normal and maximum emission rates are not necessarily specific for one individual calendar year. They are intended to capture the representative normal or maximum rates for a source and substance, rather than to track emissions over specific annual time periods. Also, normal and maximum emission rates will not typically need to be revised every year (unless there has been a greater than 15% change in the normal or maximum emission rate for an individual release point or non-point source).

Note: Changes to quantification methods that require pre-authorization from the Director include going from using one emission factor to using another emission factor.

Note: If pre-authorization for changes to quantification methods is not requested (and granted), then the facility is required to use the same quantification methods for the annual actual rates as were used for the previous inventory year. If the person responsible submits an AEIR with unauthorized changes in quantification methodologies, then the person responsible will be required to resubmit their AEIR using the same quantification methods for the annual actual rates as were used for the previous inventory year.

Worksheets 4.7: Description of Authorized Changes in Quantification Methods

Note: Table 66 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.7: Authorized Changes in Quantification Methods, including data types and conditions.

Were there any authorized changes in quantification methods?
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any authorized changes in quantification methods compared to the previous Annual Emissions Inventory Report methods. If “No”, then no additional information is required in the subsequent fields in worksheet 4.7. Unless it is the first year the industrial operation is reporting under the AEIR Program, this field must not be left as <choose one>.

Description of any authorized changes in quantification methods
Our facility requested and was granted authorization by the Director to change the NOx emission factor for our main processing stack from a general AP-42 factor to one developed specifically for our site. This change in quantification method resulted in a 150 tonne or 25% increase in annual actual NOx emissions from stack A, and an increase of 10% (150 tonne) to the industrial operation’s total annual actual NOx emissions.

This field requires entering a brief description of any Director-authorized change or changes in the quantification methods that were used in the AEIR compared to the previous year. If reporting an authorized change in quantification methods, this field must not be left blank.

17.4 Provide Descriptions of Significant Modifications (Step 17d)

As per clause RC 7-P (b), the AEIR Form requires brief descriptions of any significant plant changes or modifications made to the industrial operation that occurred during the inventory year, which had an impact on air emissions. The AEIR Form also requires indication if an approval amendment was required, and if so, identification of the approval amendment number. This information is to be reported in worksheet 4.8 of the AEIR Form. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheets 4.8: Identification and Description of Significant Plant Changes to the Industrial Operation Affecting Air Emissions

Note: Table 67 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.8: Significant Plant Changes, including data types and conditions.

Were there any significant plant changes affecting air emissions?

Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any significant plant changes made that affected air emissions compared to the previous Annual Emissions Inventory Reports. If “No”, then no additional information is required in the subsequent fields in worksheet 4.8. This field must not be left as <choose one>.

Description of any significant plant changes affecting air emissions
--

Our phase two sources came online during the inventory year, increasing the total production output for the facility and also increasing the associated combustion source emissions (mainly NO _x and CO).
--

This field requires entering a brief description of any significant plant changes made at the industrial operation during the inventory year. This worksheet provides the opportunity to identify and provide contextual information on any significant plant changes that affected air emissions at the industrial operation. If reporting significant plant changes, this field must not be left blank.

Note: Plant changes in clause RC 7-P (b) refers to modifications made to the equipment, processes or operations at an industrial operation that result in changes, either an increase or decrease, to the amount of substances released to the atmosphere by an industrial operation greater than 20% of a single applicable substance in Appendix B Schedule 1 of the Reporting Chapter or Appendix C Schedule 2 of the Reporting Chapter.

17.5 Provide Descriptions of Emission Reduction Efforts (Step 17e)

The AEIR Form allows for reporting of brief descriptions of any efforts taken during the inventory year to reduce air emissions from the industrial operation. This information is to be reported in worksheet 4.9 of the AEIR Form. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheets 4.9: Identification and Description of Actions Taken to Reduce Air Emissions from the Industrial Operation

Note: Table 68 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.9: Actions Taken to Reduce Air Emissions, including data types and conditions.

Were there any actions taken to reduce air emissions at the industrial operation?
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether there were any actions taken during the inventory year to reduce air emissions at the industrial operation. If “No”, then no additional information is required in the subsequent fields in worksheet 4.9. This field must not be left as <choose one>.

Description of any actions taken to reduce air emissions at the industrial operation
Process changes were made to increase removal of metals from our main process stream prior to being sent to the main stack. This resulted in a reduction in the amount of selenium being emitted from our facility.

This field provides space for entering a brief description of any actions taken during the inventory year to reduce air emissions from the industrial operation. This field provides the opportunity to identify and provide contextual information on the industrial operation’s air emission reduction efforts. If reporting emission reduction actions, this field must not be left blank.

17.6 Provide Comments and Additional Information (Step 17f)

The AEIR Form allows for reporting of comments and additional information on the AEIR submission. This information is to be reported in worksheet 4.10 of the AEIR Form. The following are the fields that are required to be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

Worksheets 4.10: Comments and Additional Information

Note: Table 69 in Appendix C of the AEIR Standard also shows the data fields for worksheet 4.10: Comments and Additional Information, including data types and conditions.

Are any comments or additional information being provided?
Yes

This field is a dropdown menu for selecting “Yes” or “No” to indicate whether any comments or additional information are being provided as part of the AEIR. If “No”, then no additional information is required in the subsequent fields in worksheet 4.10. This field must not be left as <choose one>.

Comments or additional information
Our Annual Emissions Inventory and AEIR Form were prepared by our environmental consultants: Happy Environmental Consulting Company and Coalition Consultants. The compiled information was reviewed and signed-off by our internal company staff prior to being submitted.

This field allows for entering comments and additional information on the AEIR submission. Additional comments and information can also be included in the Quantification Methodology Document. If reporting additional comments, this field must not be left blank.

17.7 Report Any Director Prescribed Additional Information (Step 17g)

Clause RC 7-P (f) permits the Director to specify in the AEIR Standard other additional information as mandatory for reporting under the AEIR Program. No mandatory additional information requirements are being prescribed for the 2022, 2023 and 2024 inventory years.

As set out in clauses EIS 17-A and EIS 17-B below, one **voluntary** additional information reporting element is being requested for the 2022, 2023 and 2024 inventory years. These clauses cover **voluntary** reporting of NO₂/NO_x in-stack ratios for release points emitting NO_x. Although this is only a voluntary requirement, representative NO₂/NO_x in-stack ratios are fundamental information for air quality modelling and should be based on the most accurate information available. The use of incorrect in-stack ratios in an air quality modelling assessment may lead to incorrect conclusions and unnecessary regulatory action. If NO₂/NO_x in-stack ratios are available, it is strongly recommended that they be included in the AEIR.

*EIS 17-A For the Annual Emissions Inventory Report in RC 7-C, on a **voluntary** basis for the 2022, 2023 and 2024 inventory years, the person responsible should utilize available information to report the following information:*

- (a) Identification of the NO₂/NO_x in-stack ratio for each NO_x emitting release point at the industrial operation;*
- (b) Identification of the source of the NO₂/NO_x in-stack ratio for each NO_x emitting release point at the industrial operation;*
- (c) If the NO₂/NO_x in-stack ratio is based on testing, identification of the testing method used for the NO_x emitting release point;*
- (d) If the NO₂/NO_x in-stack ratio is based on testing, identification of the load rating during testing;*
- (e) If the NO₂/NO_x in-stack ratio is based on testing, identification of the testing date;*
- (f) If the NO₂/NO_x in-stack ratio is based on testing, identification of the testing units;*
- (g) If the NO₂/NO_x in-stack ratio is based on testing, identification of the average NO₂ concentration;*
- (h) If the NO₂/NO_x in-stack ratio is based on testing, identification of the average NO concentration;*
and
- (i) If the NO₂/NO_x in-stack ratio is based on testing, identification of the average NO_x concentration.*

Note: Testing in clause EIS 17-A refers to testing done on the specific NO_x emitting release point at the industrial operation, not the testing done on similar sources included in the U.S. EPA's in-stack ratio database (or other similar database), nor the testing done to establish default published NO₂/NO_x in-stack ratio values.

Note: Testing in clause EIS 17-A would typically be done at normal operating conditions for the source (release point at the industrial operation).

Note: Other relevant information related to the source, equipment and controls (e.g., SCC, equipment type, fuel type, make and model #, year of manufacture, capacities, pollution controls, etc.) is already being reported in worksheets 2.0, 2.1 and 2.2 of the AEIR Form. It is therefore not necessary to repeat this information with the NO₂/NO_x in-stack ratio information being reported in worksheet "Blank1".

EIS 17-B For the voluntary information in EIS 17-A, the person responsible should report the requested NO₂/NO_x in-stack ratio information in worksheet "Blank1" of the AEIR Form for the industrial operation.

The following screenshots show how the voluntary information requested in clauses EIS 17-A and EIS 17-B should be reported in worksheet Blank1 of the AEIR Form. Screenshot 1 shows where the information should be reported in worksheet Blank1 (starting in row 5, columns A to L). Screenshots 2 and 3 show worksheet Blank 1 zoomed in to focus on the specific column headings and the provided examples of the information to enter in each column.

Screenshot 1:

Worksheet Blank 1: Reporting of Additional Information Using the AEIR Form											
Associated AEIR Standard Section(s): 17.7 and 17.9											
Release Point Information		In-Stack Ratio Information		Stack Testing Information							
RP#	Release Point Descriptive Name	NO2/NOX In-Stack Ratio	Source of the Ratio (e.g., stack test, EPA database for similar source, EPA default, etc.)	Testing Method (e.g., Methods 1 - 4, 7E, 19, 20, Other, etc.) (if applicable)	Description of Other Testing Method (if applicable)	Load During Testing (% of capacity) (if applicable)	Testing Date (if applicable)	Testing Units (e.g., PPM, PPMv, PPMVD) (if applicable)	Avg. NO2 (if applicable)	Avg. NO (if applicable)	Avg. NOX (if applicable)
1	Turbine 1 Stack	0.07	Stack Testing	Method 7E - NOx - Instrumental with NOx or NO System Calibration		100	7/26/2012	ppmv	0.70	9.30	10.00
2	Turbine 2 Stack	0.18	Stack Testing	Method 7E - NOx - Instrumental with NOx or NO System Calibration		100	7/12/2019	PPMdv	17.15	76.54	93.69
3	Reciprocating Engine A Stack	0.04	EPA database for similar source								
4	Reciprocating Engine B Stack	0.04	EPA database for similar source								

Screenshot 2:

RP#	Release Point Descriptive Name	NO2/NOX In-Stack Ratio	Source of the Ratio (e.g., stack test, EPA database for similar source, EPA default, etc.)
1	Turbine 1 Stack	0.07	Stack Testing
2	Turbine 2 Stack	0.18	Stack Testing
3	Reciprocating Engine A Stack	0.04	EPA database for similar source
4	Reciprocating Engine B Stack	0.04	EPA database for similar source

Screenshot 3:

Testing Method (e.g., Methods 1 - 4, 7E, 19, 20, Other, etc.) (if applicable)	Description of Other Testing Method (if applicable)	Load During Testing (% of capacity) (if applicable)	Testing Date (if applicable)	Testing Units (e.g., PPM, PPMv, PPMVD) (if applicable)	Avg. NO2 (if applicable)	Avg. NO (if applicable)	Avg. NOX (if applicable)
Method 7E - NOx - Instrumental with NOx or NO System Calibration		100	7/26/2012	ppmv	0.70	9.30	10.00
Method 7E - NOx - Instrumental with NOx or NO System Calibration		100	7/12/2019	PPMdv	17.15	76.54	93.69

Worksheet Blank 1: Reporting of Additional Information Using the AEIR Form

NO₂/NO_x In-stack Ratio Information

This section of the AEIR Form is for voluntary reporting of NO₂/NO_x in-stack ratio information. This includes identifying release points, the NO₂/NO_x in-stack ratio, the source of the ratio and (if applicable) information on the testing used to determine the ratio. The following are the fields that should be completed in this section of the AEIR Form, with examples of the types of information that are expected in each field.

RP#
1

This field is for identifying the release point number (should be copied from worksheet 2.0 of the AEIR Form and pasted into worksheet Blank 1).

Release Point Descriptive Name
Turbine 1 Stack

This field is for identifying the release point descriptive name (should be copied from worksheet 2.0 of the AEIR Form and pasted into worksheet Blank 1).

NO₂/NO_x In-Stack Ratio
0.07

This field is for reporting the NO₂/NO_x in-stack ratio. This should be reported as a decimal number.

Source of the Ratio (e.g., stack test, EPA database for similar source, EPA default, etc.)
Stack Testing

This field is for reporting the source of the NO₂/NO_x in-stack ratio. For example, the in-stack ratio could be based on a stack test carried out on the source, or based on information from the U.S. EPA's in-stack ratio database (or similar database) for a similar source, or based on a published default in-stack ratio value, etc.

Testing Method (e.g., Methods 1 - 4, 7E, 19, 20, Other, etc.) (if applicable)
Method 7E - NO _x - Instrumental with NO _x or NO System Calibration

This field is for reporting the testing method for the NO₂/NO_x in-stack ratio (if testing was carried out). For example, for example EPA Methods 1 - 4, 7E, 19, 20, Other, etc.

Description of Other Testing Method (if applicable)
n/a

This field is for reporting a description if "Other" was reported as the testing method for the NO₂/NO_x in-stack ratio in the previous field.

Load During Testing (% of capacity) (if applicable)
100

This field is for reporting the load during testing (if testing was carried out).

Testing Date (if applicable)
7/26/2012

This field is for reporting the testing date (if testing was carried out).

Testing Units (e.g., PPM, PPMv, PPMVD) (if applicable)
ppmv

This field is for reporting the testing units (if testing was carried out).

Avg. NO₂ (if applicable)
0.70

This field is for reporting the average NO₂ concentration (if testing was carried out).

Avg. NO (if applicable)
9.30

This field is for reporting the average NO concentration (if testing was carried out).

Avg NO_x (if applicable)
10.00

This field is for reporting the average NO_x concentration (if testing was carried out).

17.8 Report Any Additional Emission Rates (Step 17h)

Although the AEIR Form contains six additional worksheets for reporting additional emission rates (worksheets Extra 1 – Extra 6), no additional emission rates need to be reported via these extra worksheets for the 2022, 2023 or 2024 inventory years. These extra worksheets may need to be used for future inventory years, or could be required if the industrial operation is directed to report air emissions for additional substances (as part of the AEIR) via a written notice from the Director (as per clauses RC 7-D (d) and RC 7-E (d)).

Note: Tables 70 and 71 in Appendix C of the AEIR Standard show the data fields for worksheets Extra 1 – Extra 6, including data types and conditions.

17.9 Report Any Additional Information Using the AEIR Form (Step 17i)

The AEIR Form contains four additional blank worksheets for reporting additional information (worksheets Blank 1 – Blank 4). For the 2022, 2023 and 2024 inventory years, only voluntary reporting of NO₂/NO_x in-stack ratios should be reported in these worksheets (see Section 17.7 of the AEIR Standard). These blank worksheets should not otherwise be used, unless given direction to do so, as any additional information entered into them will not be automatically imported into the Regulator database. Additional information entered into these blank worksheets may be missed if the Regulator is not expecting information to be reported in them for the industrial operation.

18.0 Quality Assurance and Quality Control Activities (Steps 18a - d)

A critical step in preparing any emissions inventory is checking the inventory information for errors, omissions and inconsistencies. This should be done as the inventory is prepared and once all the information is compiled. The next step in preparing the AEIR requires identifying and then carrying out formal quality assurance and quality control (QA/QC) activities. These QA/QC activities should catch and help correct any errors with the information being reported, prior to it being submitted to the Regulator.

For the AEIR Program, QA/QC activities will involve:

- (a) Checking the quality of the information contained in the AEIR (whether is it accurate and representative for the industrial operation); and
- (b) Checking whether the information contained in the AEIR meets the requirements of the AMD Reporting Chapter (Section 7, clauses RC 7-A through RC 7-GG), this AEIR Standard, the AEIR Form and the Substance Release Regulation.

The QA/QC activities will need to include an organized and documented review of the information being reported via the AEIR. This review should be carried out by someone (one or more people) who: understands the emissions inventory and reporting requirements; is familiar with the industrial operation's sources and air emissions; and can identify when potential errors, omissions or inconsistencies are present.

Inventory cross-checks can be one important way of identifying major errors in the information being reported. These cross-checks would typically involve comparing the industrial operation's AEIR Form information to the information contained in past emissions inventories for the industrial operation. This can help to identify missing information and flag information that has changed a lot from the previous inventory. These cross-checks are only useful when a high-quality prior emissions inventory is already available, and when the information contained in the AEIR Form and in the prior inventory are comparable. The following subsections (18.1-18.4) cover identifying, carrying out and documenting the QA/QC procedures and results for the AEIR.

18.1 Identify and Select the QA/QC Procedures to be Used (Step 18a)

This step in preparing the AEIR involves identifying and selecting the specific checks and encompassing QA/QC procedures that will be used for the AEIR for the industrial operation. This section of the AEIR Standard provides suggested general checks to use during compilation of the emissions inventory, when completing the AEIR Form and when carrying out the QA/QC activities. This section also provides specific suggested minimum QA/QC checks for each individual AEIR Form worksheet. The exact checks and associated QA/QC procedures to be used are up to the person responsible for the industrial operation. This determination is to be based on the professional judgement of the person responsible. **Whatever QA/QC procedures are selected and used will need to be documented in the Quantification Methodology Document (see clause EIS 19-B).**

Suggested general checks:

- Compare the list of release points and non-point sources included in the AEIR Form against (at least) the list of authorized sources in the EPEA approval. All authorized sources listed in the industrial operation's EPEA approval (including operating sources, approved future sources, negligible sources, temporarily shutdown sources and approval referenced sources from the EPEA approval/renewal application), except those sources that were decommissioned prior to 2018, must be identified and described in the AEIR Form (reported as either release points or non-point sources).
- Check the list of release points and non-point sources included in the AEIR Form against the emitting sources identified in the industrial operation's EPEA approval/renewal application.
- Check the list of storage tanks included in the AEIR Form against the list of storage tanks in the industrial operation's EPEA approval/renewal application.
- Check the list of sources, equipment and controls against the tables in Appendix D that list common units, processes and equipment; pollution controls; and non-point sources by sector.
- Check that release points are being reported as release points and not as non-point sources (unless several release points are being reported together as an area source).

- Check that non-point sources are being reported as non-point sources and that they meet the definition of a non-point source.
- Check that each source is only reported once (not repeated within release points, not repeated within non-point sources and not reported as both a release point and a non-point source).
- Check that emissions of all Schedule 1 substances have been reported (except for Schedule 1 substances deemed negligible) for the release points and non-point sources that emit them.
- Check that the applicable Schedule 2 substances for the industrial operation have been reported for the release points and non-point sources that emit them (e.g., compare to substances covered in Approval, monthly/annual reports, NPRI reports, EPEA approval/renewal application regulatory dispersion modelling, EPA sector specific guidance, etc.).
- Check the list of applicable Schedule 2 substances for the industrial operation against the tables in Appendix D that list common Schedule 2 substances by sector.
- Check that all three types of emission rates (annual actual, normal and maximum) are being reported for the release points and that only annual actual emission rates are being reported for the non-point sources.
- Check that the emission numbers being reported are in the required units (tonnes/year for annual actual, tonnes/day for normal and kilograms/hour for maximum).
- Check that the emission numbers being reported have been rounded to the appropriate significant figures.
- Check that emission numbers being reported are not outside of reasonable ranges (e.g., emission rates not unreasonably large or small, etc.), except when expected to be very large or very small for the source, substance and industrial operation.
- Check that the reported parameters are within reasonable ranges (e.g., stacks not unreasonably tall or wide, exit velocities are not unreasonable, exit temperatures not too high or low, etc.).
- Check reported values (emission values, stack parameters, etc.) using sorting (e.g., largest to smallest) to help look for outliers (e.g., a source emission or parameter significantly larger or smaller than everything else being reported and was not expected to be significantly larger or smaller).
- Check that the emission limits reported are correct (e.g., compare to approval limits and emission standards, etc.).
- Check that reported locations are in the expected region (e.g., sources are located in the correct part of the province, sources fall within the boundary of the industrial operation, etc.). Various free GIS software and applications are available on the Internet. These software/applications can be used to check if the locations being reported appear to be reasonable. The accuracy of the various GIS software can vary, but should be sufficient to at least identify when coordinates are inverted, missing the negative on the longitude coordinate, are in the wrong part of the province or are in an impossible location (e.g., on top of a mountain, middle of a lake).
- Check that the data codes (e.g., SCC, NAICS, etc.) entered into the AEIR Form are valid (e.g., found in the provided code table “AMD AEIR Codes Table.xlsx” or are otherwise documented in the Quantification Methodology Document).
- Check that any non-standard “other” classification types (e.g., sectors, units, processes, equipment, pollution controls, non-point sources, storage tanks, etc.) used are valid and are documented in the Quantification Methodology Document.
- Check that reported information is the appropriate length (e.g., postal code has six characters, phone numbers include area codes, etc.).
- Check that data types for the reported information are of the correct type (e.g., text information is reported as text, numerical information is reported as a number).
- Check that the numbers entered into the AEIR Form are reported in the correct format (e.g., whole number, decimal, etc.).
- Check that information entered into the AEIR Form is not longer than the allowable length of the text string (e.g., some text will be truncated or an error will be generated if more text is entered than is allowed to be stored in a specific Excel cell).
- Check that all the required (mandatory) fields in the AEIR Form have been filled in and that all the Y/N fields (for indicating entire worksheets are applicable or not applicable) have been filled in.
- Check that all emission factors used in the determining the emissions rates have been included in the QMD.

Typical Ranges for Checks:

Reported AEIR data (including emergency sources) and available EPA datasets (not including emergency sources) can provide potential ranges of stack parameters to help check the reasonableness of reported stack parameters. Reported AEIR data also provides ranges of latitude and longitude values for industrial sources in Alberta. The following is a summary of the stack parameter and location ranges based on the AEIR and available EPA datasets.

Release Point Heights

- Based on the AEIR datasets, heights of release points can range from 0 to 183 metres.
- Based on available EPA datasets, heights of release points can range from 0 to 240 metres.

Release Point Diameters

- Based on the AEIR datasets, diameters of release points can range from 0.01 to 31 metres.
- Based on available EPA datasets, diameters of release points can range from 0 to 14.6 metres.

Release Point Exit Velocities

- Based on the AEIR datasets, exit velocities for release points can range from 0 to 818 metres/second.
- Based on available EPA datasets, exit velocities for release points can range from 0 to 377 metres/second.

Release Point Exit Temperatures

- Based on the AEIR datasets, exit temperatures for release points can range from 23 to 2,800 Kelvin.
- Based on available EPA datasets, exit temperatures for release points can range from 283 to 1,547 Kelvin.

Non-Point Source Heights

- Based on the AEIR datasets, heights of non-point sources can range from 0 to 125 metres.

Non-Point Source Lengths

- Based on the AEIR datasets, lengths of non-point sources can range from 0.15 to 49,100 metres.

Non-Point Source Widths

- Based on the AEIR datasets, widths of non-point sources can range from 0.15 to 20,400 metres.

Non-Point Source Areas

- Based on the AEIR datasets, areas of non-point sources can range from 0 to 645,000,000 m².

Non-Point Source Exit Temperatures

- Based on the AEIR datasets, exit temperatures for non-point sources can range from 273 to 1,490 Kelvin.

Latitude Range

- Based on the AEIR datasets, latitude values for release points and non-point sources can range from 49.030334 to 59.600052.

Longitude Range

- Based on the AEIR datasets, longitude values for release points and non-point sources can range from -110.010511 to -119.9500539.

Suggested Minimum Checks by AEIR Form Worksheet:

Administrative Worksheets (1.1-1.23, yellow coloured)

Checks for AEIR Form Worksheet 1.1: Annual Emissions Inventory Report Identification Information
Has the "Inventory Year" been updated to the current inventory year?
Has the "Date of Annual Emissions Inventory Report" been reported in the AEIR Form? Is it the correct date for the report?
Has Yes/No been specified for the "Is this an Annual Emissions Inventory Report resubmission?" field?

Checks for AEIR Form Worksheet 1.2: Company Information
Has the required information on the Reporting Company been reported in the AEIR Form? Is it correct?
If applicable, has the required information on the 2 nd Reporting Company been reported in the AEIR Form? Is it correct?

Checks for AEIR Form Worksheet 1.3: Industrial Operation Identification Information
Has the required information on the industrial operation been reported in the AEIR Form? Is it correct?
Have all the applicable IDs for the industrial operation (EPEA approval, NPRI, AER) been reported in the AEIR Form?
If applicable, have differences between the EPEA approved industrial operation and NPRI facility (ies) been described in the AEIR Form?

Checks for AEIR Form Worksheet 1.4: Industrial Operation Temporal Information
Have all the required industrial operation dates (first commercial operation, expected shutdown, etc.) been reported in the AEIR Form?
Have the operating status and condition been reported in the AEIR Form?
Have the start and end operational times been reported in the AEIR Form?
Have the typical hours of operation for the industrial operation been reported in the AEIR Form?
Have the monthly operational/emissions hours/percentages for the industrial operation been reported in the AEIR Form?

Checks for AEIR Form Worksheet 1.5: Industrial Operation Sector Information
Has the sector type been selected? Is the selected sector correct?
Have NAICS codes been reported in the AEIR Form? Are they correct?

Checks for AEIR Form Worksheet 1.6: Industrial Operation Activity Information
Have the primary and secondary activities of the industrial operation been reported in the AEIR Form? Are they correct?

Checks for AEIR Form Worksheet 1.7: Industrial Operation Product Capacity Information
Have the primary and secondary products and capacities been reported in the AEIR Form? Are they correct?

Checks for AEIR Form Worksheet 1.8 Industrial Operation Location Information
Has the base elevation for the industrial operation been reported in the AEIR Form? Has it been reported in metres above sea level?
Have the correct latitude and longitude locations for the industrial operation been reported in the AEIR Form?
Have the lat/long locations been reported in geographic decimal NAD 83?

Checks for AEIR Form Worksheet 1.9: Industrial Operation Legal Land Description
Has the legal land description for the industrial operation been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.10: Industrial Operation Boundary Information
Has the boundary information for the industrial operation been reported in the AEIR Form?
Do the boundary coordinates have at least four latitude and longitude vertices?
Does the reported boundary for the industrial operation encompass the release points and non-point sources?
Checks for AEIR Form Worksheet 1.11: Industrial Operation Building Dimensions
Has it been indicated whether or not a building effects (downwash) assessment has been carried out for the industrial operation?
Have all buildings that potentially cause building downwash been identified in the AEIR Form?
Have the associated release points, number of tiers and building elevation been reported in the AEIR Form?
Do all buildings have at least four and not more than 16 corners/vertices?
Do all the corners/vertices have a height?
Have the corners/vertices been reported in the correct drawing order?
Have the tier corners/vertices been reported in UTM coordinates?
Checks for AEIR Form Worksheet 1.12: Industrial Operation Mailing Address
Has the industrial operation mailing address been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.13: Industrial Operation Technical Contact for the AEIR
Has the Technical Contact been identified in the AEIR Form?
Has the required information for the Technical Contact been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.14: Industrial Operation Certifying Official for the AEIR
Has the Certifying Official been identified in the AEIR Form?
Has the required information for the Certifying Official been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.15: Industrial Operation Public Contact for the AEIR
Has the Public Contact been identified in the AEIR Form?
Has the required information for the Public Contact been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.16: Consultant Working on Preparing the AEIR
If applicable, has the consultant been identified in the AEIR Form?
If applicable, has the required information for the consultant been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.17: Other Consultant Working on Preparing the AEIR
If applicable, has the 2nd consultant been identified in the AEIR Form?
If applicable, has the required information for the 2nd consultant been reported in the AEIR Form? Is it correct?
Checks for AEIR Form Worksheet 1.18: Operational and Release Issues and Incidents at the Industrial Operation
Has it been indicated whether or not there were any operational or release issues/incidents during the inventory year?

Have the required operational and release issues and incidents at the industrial operation been identified in the AEIR Form?
Have the dates and times been reported in the AEIR Form?
Have the durations been reported in the AEIR Form?
Have brief descriptions of the events been reported in the AEIR Form?
If applicable, have the associated limits (for exceedances) been reported in the AEIR Form?
If applicable, have the substance release estimates been reported in the AEIR Form?

Checks for AEIR Form Worksheet 1.19: Major Source or Plant Shutdowns
Has it been indicated whether or not there were any major source or plant shutdowns during the inventory year?
Have the required major source or plant shutdowns been identified in the AEIR Form?
Have the dates and times been reported in the AEIR Form?
Have the durations been reported in the AEIR Form?
Have brief descriptions of the events been reported in the AEIR Form?

Checks for AEIR Form Worksheet 1.20: Plant or Combined Source Limits
Has it been indicated whether or not there were any plant or combined source limits for the industrial operation?
Have all plant and combined source limits been identified in the AEIR Form? Are the limits correct?

Checks for AEIR Form Worksheet 1.21: Plant or Combined Source Performance Targets
Has it been indicated whether or not there were any plant or combined source performance targets for the industrial operation?
Have all plant and combined source performance targets been identified in the AEIR Form? Are the performance targets correct?

Checks for AEIR Form Worksheet 1.22: Identification of Negligible Sources Excluded from Reporting
Has it been indicated whether or not there were any negligible sources excluded from reporting?
If applicable, have all sources deemed negligible been listed in the AEIR Form?
If applicable, have brief explanations on the basis for determining the source(s) as negligible been reported in the AEIR Form?

Checks for AEIR Form Worksheet 1.23: Identification of Schedule 1 Substances Deemed Negligible and Excluded from Reporting
Has it been indicated whether or not there were any Schedule 1 substances deemed negligible and excluded from reporting?
If applicable, have all Schedule 1 substances deemed negligible been listed in the AEIR Form?
If applicable, have brief explanations on the basis for determining the Schedule 1 substance(s) as negligible been reported in the AEIR Form?

Release Point Worksheets (2.0-2.6.6, light green coloured)

Checks for AEIR Form Worksheet 2.0: Release Point - Identification and Description
Has it been indicated whether or not there are any release points at the industrial operation?
Have all release points at the industrial operation (including operating sources, approved future sources, negligible sources, temporarily shutdown sources and approval referenced sources from the EPEA approval/renewal application) been reported in the AEIR Form?
Have any release points been repeated as duplicate release points or as non-point sources?

Have all release points been assigned source classification codes?
Have all negligible release points been identified in the AEIR Form?
Have the operating status and operating condition been reported for the release points?
Have the installation, start-up and expected shutdown dates been reported in the AEIR Form?
Have the base elevations for the release points been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations been reported for the release points? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?
Have the release point parameters (height, diameter, exit velocities, exit temperatures) been reported in the AEIR Form?
Are the reported release parameters reasonable (e.g., stack height less than 200 metres, stack diameter less than 10 metres, etc.)?
Has the other required stack information been reported in the AEIR Form?

Checks for AEIR Form Worksheet 2.1: Release Point - Unit, Process and Equipment Identification and Description
Has it been indicated whether or not there are any units, processes or equipment at the industrial operation that emit via the release points?
Have all units/processes/equipment associated with the release points been reported (including descriptive name and unique designation) in the AEIR Form?
Has a "Unit, Process or Equipment Type" been selected and reported for each unit/process/equipment?
Have all units/processes/equipment been assigned source classification codes?
Have the make and model numbers for the units/processes/equipment been reported in the AEIR Form?
Have the manufacture, installation and start-up dates for the units/processes/equipment been reported in the AEIR Form?
Have the operating status and operating condition for the units/processes/equipment been reported in the AEIR Form?
Have the approximate hours of annual operation for the units/processes/equipment been reported in the AEIR Form?
If applicable, have the fuel type, capacities, power ratings, rated horse power and load ratings for the units/processes/equipment been reported in the AEIR Form?

Checks for AEIR Form Worksheet 2.2: Release Point - Pollution Control Technology and Equipment Information
Has it been indicated whether or not there are any release points, units, processes or equipment at the industrial operation controlled by a pollution control technology or equipment?
Have all release points been identified as controlled or uncontrolled?
Have all pollution control technologies and equipment associated with the release points been reported (including descriptive name and unique designation) in the AEIR Form?
Has a "Control Technology or Equipment Type" been selected and reported for each pollution control technology and equipment?
Have all pollution control technologies and equipment been assigned source classification codes?
Have the make and model numbers for the pollution control technologies and equipment been reported in the AEIR Form?
Have the manufacture, installation and start-up dates for the pollution control technologies and equipment been reported in the AEIR Form?

Have the operating status and operating condition for the pollution control technologies and equipment been reported in the AEIR Form?
Have the approximate hours of annual operation for the pollution control technologies and equipment been reported in the AEIR Form?
Have the affected substances for the pollution control technologies and equipment been reported in the AEIR Form?
Have the estimated overall control or capture effectiveness/efficiencies been reported in the AEIR Form?
Are the reported control and capture effectiveness/efficiencies reasonable?
Has the basis for the estimated overall control or capture effectiveness/efficiency been reported in the AEIR Form?
Have the pollution control technologies and equipment been identified as primary, secondary, tertiary, backup or other?

Checks for AEIR Form Worksheet 2.3.1: Release Point - Normal Emission Limits
Has it been indicated whether or not there are any release points, units, processes or equipment at the industrial operation subject to a normal emission limit?
Have all normal limits for the release points been reported in the AEIR Form? Are the limits correct?

Checks for AEIR Form Worksheet 2.3.2: Release Point - Emergency or Upset Emission Limits
Has it been indicated whether or not there are any release points, units, processes or equipment at the industrial operation subject to an emergency or upset emission limit?
Have all emergency and upset limits for the release points been reported in the AEIR Form? Are the limits correct?

Checks for AEIR Form Worksheet 2.4: Release Point - Temporal Operation Information
Have all release points been identified as continuous, intermittent, emergency/upset or semi-annual?
Has it been indicated which sources should use the industrial operation's temporal information?
Has the daily temporal operational information been reported in the AEIR Form for the sources not using the industrial operation's temporal information?
Have the monthly operating hours/percentages been reported in the AEIR Form for the sources not using the industrial operation's temporal information?

Checks for AEIR Form Worksheet 2.5: Release Point - Source Sampling and Continuous Emission Monitoring Information
Has it been indicated whether or not there were any release points at the industrial operation monitored with CEMS or stack sampling?
Have all CEMS monitored release points been identified (including CEMS Station ID and the monitored substances/parameters) in the AEIR Form?
Have all stack sampled release points been identified (including monitored substances/parameters and stack sampling dates) in the AEIR Form?
Have the monitored substances/parameters and stack sampling dates been identified in the AEIR Form?

Checks for AEIR Form Worksheet 2.6.1: Release Point - Schedule 1 Emission Rates
Has it been indicated whether or not there are any release point Schedule 1 substance emissions being reported?
Have emissions of all Schedule 1 substances (except for Schedule 1 substances deemed negligible) for the applicable release points been reported in the AEIR Form?
Have all three types of emission rates (annual actual, normal and maximum) for the applicable operating release points been reported in the AEIR Form?
Have available normal and maximum rates been reported for approved future, temporarily shutdown and negligible release points?

Are the Schedule 1 emission numbers being reported in the correct required units (tonnes/year for annual actual, tonnes/day for normal and kilograms/hour for maximum)?
Are the reported Schedule 1 emission rates within expected ranges (not unreasonably large or small)?
Have quantification methods for each release point been reported for all three types of emission rates (annual actual, normal and maximum) for the Schedule 1 substances?
Clause RC 7-S (d) (i) of the AMD Reporting Chapter requires that the person responsible determine the maximum air emissions using the approval emission limit for the applicable sources and substances for which approval emission limits exist. Have the approval emission limits been used for determining the maximum emission rates for the sources and substances subject to limits?
How do the normal rates compare to the annual actual and maximum rates? Normal emission rates are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). When converted to the same units and timescale, the normal rate for a source and substance would typically be similar to the annual actual rate and less than the maximum rate. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the normal rate could potentially be equal to the maximum rate, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the normal rate should <u>not</u> be more than the maximum rate (this would not fit the emission rate type definitions).
How do the maximum rates compare to the normal and annual actual rates? Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source. When converted to the same units and timescale, the maximum rate for a source and substance should be higher than the normal and actual rates. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rates, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should <u>not</u> be less than the normal or annual actual rate.

Checks for AEIR Form Worksheets 2.6.2 - 2.6.6: Release Point - Schedule 2 Emission Rates
Has it been indicated whether or not there are any release point Schedule 2 substance emissions being reported?
Have the applicable Schedule 2 substances being reported been identified using the provided dropdowns in the AEIR Form?
Have emissions of all applicable Schedule 2 substances for the applicable release points been reported in the AEIR Form?
Have all three types of emission rates (annual actual, normal and maximum) for the applicable release points been reported in the AEIR Form?
Are the Schedule 2 emission numbers being reported in the correct required units (tonnes/year for annual actual, tonnes/day for normal and kilograms/hour for maximum)?
Are the reported Schedule 2 emission rates within expected ranges (not unreasonably large or small)?
Have quantification methods for each release point been reported for all three types of emission rates (annual actual, normal and maximum) for the Schedule 2 substances?
How do the normal rates compare to the annual actual and maximum rates? Normal emission rates are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). When converted to the same units and timescale, the normal rate for a source and substance would typically be similar to the annual actual rates and less than the maximum rate. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the normal rate could potentially be equal to the maximum rate, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the normal rate should <u>not</u> be more than the maximum rate (this would not fit the emission rate type definitions).
How do the maximum rates compare to the normal and annual actual rates? Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source. When converted to the same units and timescale, the maximum rate for a source and substance should be higher than the normal and

actual rates. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rates, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should not be less than the normal or annual actual rate.

Non-Point Source Worksheets (3.0-3.8.6, blue coloured)

Checks for AEIR Form Worksheet 3.0: Non-Point Source - Identification and Description
Has it been indicated whether or not there are any non-point sources at the industrial operation?
Have all non-point sources at the industrial operation (including operating sources, approved future sources, negligible sources, temporarily shutdown sources and approval referenced sources from the EPEA approval/renewal application) been reported in the AEIR Form?
Has a "Non-Point Source Type" been selected and reported for each non-point source?
Have all non-point sources been classified as either area, line, mobile or volume sources?
Have any non-point sources been repeated as duplicate non-point sources or as release points?
Have all non-point sources been assigned area and mobile source codes or source classification codes?
Have the operating status and operating condition for the non-point sources been reported in the AEIR Form?
Have the installation, start-up and expected shutdown dates been reported in the AEIR Form?
Have the approximate hours of annual operation for the non-point source been reported in the AEIR Form?
If applicable, have the make and model numbers for the non-point sources been reported in the AEIR Form?
If applicable, have the material/fuel type, capacities, power ratings, rated horse power and load ratings for the non-point sources been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.1: Non-Point Source - Source Parameter and Spatial Location Information
Have release heights for each non-point source been reported in the AEIR Form?
If applicable, have length, width and area for the non-point sources been reported in the AEIR Form?
Have release temperatures for each non-point source been reported in the AEIR Form?
If available, have initial sigma-y and initial sigma z for the non-point sources been reported in the AEIR Form?
Have base elevations for the non-point sources been reported in the AEIR Form? Have they been reported in metres above sea level?
Do all non-point sources have at least two and not more than ten vertices?
Have the vertices been reported in the correct drawing order?
Have the correct latitude and longitude locations for the non-point source vertices been reported in the AEIR Form? Are the reported locations within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?

Checks for AEIR Form Worksheet 3.2: Non-Point Source - Unit, Process and Equipment Identification and Description
Has it been indicated whether or not there are any units, processes or equipment at the industrial operation that emit via combined large point sources being reported as non-point sources?
Have all units, processes or equipment at the industrial operation that emit via combined large point sources (being reported as non-point sources) been reported (including descriptive name and unique designation) in the AEIR Form?
Has a "Unit, Process or Equipment Type" been selected and reported for each applicable unit/process/equipment?
Have all applicable units/processes/equipment been assigned an area and mobile source or source classification code?

Have the make and model numbers for the applicable units/processes/equipment been reported in the AEIR Form?
Have the manufacture, installation and start-up dates for the applicable units/processes/equipment been reported in the AEIR Form?
Have the operating status and operating condition for the applicable units/processes/equipment been reported in the AEIR Form?
Have the approximate hours of annual operation for the applicable units/processes/equipment been reported in the AEIR Form?
If applicable, have the fuel type, capacities, power ratings, rated horse power and load ratings for the applicable units/processes/equipment been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.3: Non-Point Source - Pollution Control Technology and Equipment Information
Has it been indicated whether or not there are any non-point sources at the industrial operation controlled by a pollution control(s)?
Have all non-point sources been identified as controlled or uncontrolled?
Have all pollution control technologies and equipment associated with the non-point sources been reported (including descriptive name and unique designation) in the AEIR Form?
Has a "Control Technology or Equipment Type" been selected and reported for each pollution control technology and equipment?
Have all pollution control technologies and equipment been assigned area and mobile source or source classification codes?
Have the make and model numbers for the pollution control technologies and equipment been reported in the AEIR Form?
Have the manufacture, installation and start-up dates for the pollution control technologies and equipment been reported in the AEIR Form?
Have the operating status and operating condition for the pollution control technologies and equipment been reported in the AEIR Form?
Have the approximate hours of annual operation for the pollution control technologies and equipment been reported in the AEIR Form?
Have the affected substances for the pollution control technologies and equipment been reported in the AEIR Form?
Have the estimated overall control or capture effectiveness/efficiencies been reported in the AEIR Form?
Are the reported control and capture effectiveness/efficiencies reasonable?
Has the basis for the estimated overall control or capture effectiveness/efficiency been reported in the AEIR Form?
Have the pollution control technologies and equipment been identified as primary, secondary, tertiary, backup or other?

Checks for AEIR Form Worksheet 3.4.1: Non-Point Source - Normal Emission Limits
Has it been indicated whether or not there are any non-point sources at the industrial operation subject to a normal emission limit?
Have all normal limits for the non-point sources been reported in the AEIR Form? Are the limits correct?

Checks for AEIR Form Worksheet 3.4.2: Non-Point Source - Emergency or Upset Emission Limits
Has it been indicated whether or not there are any non-point sources at the industrial operation subject to an emergency or upset emission limit?
Have all emergency and upset limits for the non-point sources been reported in the AEIR Form? Are the limits correct?

Checks for AEIR Form Worksheet 3.5: Non-Point Source - Temporal Operation Information
Have all non-point sources been identified as continuous, intermittent, emergency/upset or semi-annual?
Has it been indicated which sources should use the industrial operation's temporal information?
Has the daily temporal operational information been reported in the AEIR Form for the sources not using the industrial operation's temporal information?
Have the monthly operating hours/percentages been reported in the AEIR Form for the sources not using the industrial operation's temporal information?

Checks for AEIR Form Worksheet 3.6: Non-Point Source - Source Monitoring Information
Has it been indicated whether or not there were any non-point sources at the industrial operation monitored using fugitive monitoring or other non-point source monitoring?
Have all source monitored non-point sources been identified in the AEIR Form?
Has the number of sampling methods for each non-point source being monitored been identified in the AEIR Form?
Has each non-point source sampling method been described in the AEIR Form?
Have the monitored substances/parameters, monitoring frequencies, duration, sampling periods and sampling dates for each non-point source sampling method been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.7.1: Storage Tank Information
Has it been indicated whether or not there are any storage tanks at the industrial operation?
Have all storage tanks (larger than 2,500 litres) at the industrial operation been reported (including descriptive name and unique designation) in the AEIR Form?
Have the non-point sources (reported in worksheet 3.0) associated with each storage tank been reported in the AEIR Form?
Have descriptions of the storage tanks been reported in the AEIR Form?
Has a "Type of Tank" been selected and reported for each storage tank?
Have the material stored, make and model number for each storage tank been reported in the AEIR Form?
Have the manufacture, installation and start-up dates for the storage tanks been reported in the AEIR Form?
Have the operating status and operating condition for the storage tanks been reported in the AEIR Form?
Has the storage tank parameter information been reported (height, diameter, volume, capacities and throughputs) in the AEIR Form?
Has the "Tank Other Information" been reported in the AEIR Form?
Have the base elevations for the storage tanks been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations for the storage tanks been reported in the AEIR Form? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?
Has the pollution control information for each storage tank been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.7.2: Exposed Storage Pile Information
Has it been indicated whether or not there are any exposed storage piles at the industrial operation?
Have all exposed storage piles at the industrial operation been reported (including descriptive name and unique designation) in the AEIR Form?
Have the non-point sources (reported in worksheet 3.0) associated with each storage pile been reported in the AEIR Form?
Have descriptions of the storage piles been reported in the AEIR Form?
Has the material stored in each storage pile been reported in the AEIR Form?
Has the storage pile parameter information (height, diameter, area and volume) been reported in the AEIR Form?

Has the storage pile operational information been reported in the AEIR Form?
Have the base elevations for the storage piles been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations for the storage piles been reported in the AEIR Form? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?
Has the pollution control information for each storage pile been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.7.3: Mine Fleet Information
Has it been indicated whether or not there are any mine fleet vehicles at the industrial operation?
Have all mine fleets at the industrial operation been reported (including descriptive name) in the AEIR Form?
Have the non-point sources (reported in worksheet 3.0) associated with each mine fleet been identified in the AEIR Form?
Have the make and model numbers for the mine fleet vehicles been reported in the AEIR Form?
Have the make, model number, size and tier of engine for the mine fleet vehicles been reported in the AEIR Form?
Have the number of vehicles in each fleet been reported in the AEIR Form?
Have the fuel type and annual fuel consumption for the mine fleet vehicles been reported in the AEIR Form?
Has the mine fleet operational information been reported in the AEIR Form?
Has the operating status for the mine fleets been reported in the AEIR Form?
Have the base elevations for the mine fleets been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations been reported for the mine fleets? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?
Has the pollution control information for each mine fleet been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.7.4: Mine Face Information
Has it been indicated whether or not there are any mine faces at the industrial operation?
Have all mine faces at the industrial operation been reported in the AEIR Form?
Have the non-point sources (reported in worksheet 3.0) associated with each mine face been identified in the AEIR Form?
Has the mine face segment information (including descriptive name) been reported in the AEIR Form?
Has the mine face segment parameter information (height, length, width and area) been reported in the AEIR Form?
Has the mine face segment operational information been reported in the AEIR Form?
Have the base elevations for the mine face segments been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations for the mine face segments been reported in the AEIR Form? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been entered in geographic decimal NAD 83?
Has the pollution control information for each mine face segment been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.7.5: Tailings Pond Information
Has it been indicated whether or not there are any tailings ponds at the industrial operation?
Have all tailings ponds at the industrial operation been reported (including descriptive name) in the AEIR Form?
Have the non-point sources (reported in worksheet 3.0) associated with each tailings pond been identified in the AEIR Form?

Has the total pond area, size of water area and size of dry pond area been reported in the AEIR Form?
Has the total discharge volume, % diluent, diluent type and tailings content been reported in the AEIR Form?
Has the tailings pond operational information been reported in the AEIR Form?
Have the base elevations for the tailings ponds been reported in the AEIR Form? Have they been reported in metres above sea level?
Have the correct latitude and longitude locations been reported for the tailings ponds? Is the reported location within the boundaries of the industrial operation?
Have the lat/long locations been reported in geographic decimal NAD 83?
Has the pollution control information for each tailings pond been reported in the AEIR Form?

Checks for AEIR Form Worksheet 3.8.1: Non-Point Source - Schedule 1 Emission Rates
Has it been indicated whether or not there are any non-point source Schedule 1 substance emissions being reported?
Have emissions of all Schedule 1 substances (except for Schedule 1 substances deemed negligible) for the applicable non-point sources been reported in the AEIR Form?
Have all Schedule 1 emission numbers been reported as annual actual rates (tonnes/year), not daily normal or hourly maximum rates?
Are the reported Schedule 1 emission rates within expected ranges (not unreasonably large or small)?
Have quantification methods for each non-point source been reported for all the reported emission rates for the Schedule 1 substances?

Checks for AEIR Form Worksheets 3.8.2 - 3.8.6: Non-Point Source - Schedule 2 Emission Rates
Has it been indicated whether or not there are any non-point source Schedule 2 substance emission being reported?
Have the applicable Schedule 2 substances being reported been identified using the provided dropdowns in the AEIR Form?
Have emissions of all applicable Schedule 2 substances for the applicable non-point sources been reported in the AEIR Form?
Have all Schedule 2 emission numbers been reported as annual actual rates (tonnes/year), not daily normal or hourly maximum rates?
Are the reported Schedule 2 emission rates within expected ranges (not unreasonably large or small)?
Have quantification methods for each non-point source been reported for all the reported emission rates for the Schedule 2 substances?

Other Worksheets (4.0-4.6, pink coloured)

Checks for AEIR Form Worksheet 4.1: Annual Actual Emissions (tonnes/year)
Do the auto-calculated release point annual actual emission totals for the Schedule 1 substances seem reasonable?
Do the auto-calculated non-point source annual actual emission totals for the Schedule 1 substances seem reasonable?
Do the auto-calculated industrial operation annual actual emission totals for the Schedule 1 substances seem reasonable?
How do the industrial operation annual actual emission totals compare to the past AEIR submissions and other recent emissions inventories prepared for the industrial operation?
How do the industrial operation annual actual totals compare to the annual totals reported to other programs (such as the National Pollutant Release Inventory submissions, Annual EPEA Approval Reports, etc.)? If there are large differences in the reported annual totals, are the reasons for these large differences known and understood? (e.g., due to differences in how the facility is defined, differences in which sources were included, differences in the quantification methods used to determine the emissions, etc.)

How do the emission totals of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

Checks for AEIR Form Worksheet 4.2: Annual Actual Emissions (converted to tonnes/day)

Do the auto-calculated release point annual actual daily totals for the Schedule 1 substances seem reasonable?

Do the auto-calculated non-point source annual actual daily totals for the Schedule 1 substances seem reasonable?

Do the auto-calculated industrial operation annual actual daily totals for the Schedule 1 substances seem reasonable?

Checks for AEIR Form Worksheet 4.3: Normal Emissions (tonnes/day)

Do the auto-calculated release point normal daily totals for the Schedule 1 substances seem reasonable?

Do the auto-calculated industrial operation normal daily totals for the Schedule 1 substances seem reasonable?

How do the normal totals compare to the annual actual and maximum totals? Normal emission rates are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). When converted to the same units and timescale, the normal rate would typically be similar to the annual actual rate and less than the maximum rate. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the normal rate could potentially be equal to the maximum rate. When converted to the same units and timescale, the normal rate should not be more than the maximum rate (this would not fit the emission rate type definitions).

How do the emission totals of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

Checks for AEIR Form Worksheet 4.4: Maximum Emissions (converted to tonnes/day)

Do the auto-calculated release point maximum daily totals for the Schedule 1 substances seem reasonable?

Do the auto-calculated industrial operation maximum daily totals for the Schedule 1 substances seem reasonable?

How do the maximum totals compare to the normal and annual actual totals? Maximum emission rates are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere. This should be checked prior to submitting the AEIR Form to the Regulator. When converted to the same units and timescale, the maximum rate should be higher than the normal and actual rates. When converted to the same units and timescale, the maximum rate could potentially be equal to the normal and/or annual actual rate, if the source operates/emits as either on or off, with no potential variation in operating or emission rates. When converted to the same units and timescale, the maximum rate should not be less than the normal or annual actual rate.

How do the emission totals of the three sizes of particulate matter compare? As TPM includes the mass of PM₁₀ and PM_{2.5}, TPM emissions cannot be less than the PM₁₀ or PM_{2.5} emissions. TPM emissions must be equal to or greater than the PM₁₀ emissions. PM₁₀ emissions must be equal to or greater than the PM_{2.5} emissions.

Checks for AEIR Form Worksheet 4.5: Schedule 1 - Emission Changes Greater than 10%

Have all Schedule 1 substances seeing changes in total annual emissions of greater than 10% from the previous year's totals been identified in the AEIR Form? (Not required for the first year of reporting under the AEIR Program.)

Have explanations for the greater than 10% changes been provided in the AEIR Form?

Checks for AEIR Form Worksheet 4.6: Schedule 2 - Emission Changes Greater than 10%

Have all Schedule 2 substances seeing changes in total annual emissions of greater than 10% from the previous year's totals been identified in the AEIR Form? (Not required for the first year of reporting under the AEIR Program.)

Have explanations for the greater than 10% changes been provided in the AEIR Form?

Checks for AEIR Form Worksheet 4.7: Description of Authorized Changes in Quantification Methods
Has it been indicated whether or not there were any Director-authorized changes in quantification methods? (Not required for the first year of reporting under the AEIR Program.)
If applicable, have brief descriptions been reported in the AEIR Form for Director-authorized changes in quantification methods?

Checks for AEIR Form Worksheet 4.8: Identification and Description of Significant Plant Changes to the Industrial Operation Affecting Air Emissions
Has it been indicated whether or not there were any significant plant changes at the industrial operation?
If applicable, have descriptions of significant plant changes (affecting air emissions) been reported into the AEIR Form?

Checks for AEIR Form Worksheet 4.9: Identification and Description of Actions Taken to Reduce Air Emissions from the Industrial Operation
Has it been indicated whether or not there were any actions taken to reduce air emissions from the industrial operation?
If applicable, have efforts taken over the last year to reduce air emissions from the industrial operation been identified in the AEIR Form?

Checks for AEIR Form Worksheet 4.10: Comments and Additional Information
Has it been indicated whether or not any comments or additional information are being provided in the AEIR Form?
If applicable, have all relevant comments or additional information been included in the AEIR Form?

Final Completeness Checks

Have all required administrative fields in the AEIR Form been completed?
Have all required release point description fields in the AEIR Form been completed?
Have all required non-point source description fields in the AEIR Form been completed?
Have all required non-point source additional info fields in the AEIR Form been completed?
Have all required unit, process and equipment fields in the AEIR Form been completed?
Have all pollution control technology and equipment fields in the AEIR Form been completed?
Have all required limit fields in the AEIR Form been completed?
Have all required temporal operating and emitting fields in the AEIR Form been completed?
Have all required source monitoring fields in the AEIR Form been completed?
Have all release point Schedule 1 emission rate fields in the AEIR Form been completed?
Have all release point Schedule 2 emission rate fields in the AEIR Form been completed?
Have all non-point source Schedule 1 emission rate fields in the AEIR Form been completed?
Have all non-point source Schedule 2 emission rate fields in the AEIR Form been completed?
Has all the other information fields in the AEIR Form been completed?
Have all the required fields in the AEIR Form been completed?
Has the Quantification Methodology Document been completed?
Has the SOC been completed and signed by the Certifying Official? (See: AEIR Standard Section 20.3)
Have all the files (AEIR Form, QMD and Statement of Certification) been named as per the required naming convention? (see Section 21.2 of the AEIR Standard)
Do the files have the proper file extensions? (e.g., “.xlsx” for the AEIR Form, “.PDF” for the Quantification Methodology Document and “.PDF” for the Statement of Certification) (see Section 21.2 of the AEIR Standard)
Are all files ready for submission via email or on physical media via mail/courier?

18.2 Carry Out the Selected QA/QC Procedures (Step 18b)

Once the QA/QC procedures for checking the industrial operation's AEIR have been identified and selected, these procedures then need to be carried out. This step in preparing the AEIR therefore involves carrying out the QA/QC procedures selected for the AEIR for the industrial operation. Any issues or errors identified during the QA/QC activities are required to be corrected prior to submitting the AEIR Form, however, checking the information contained in the AEIR must not delay submitting the required AEIR documents to the Regulator. The reporting deadline for the AEIR submission (September 30th) must still be met.

18.3 Document the QA/QC Results (Step 18c)

The findings (identified issues/errors) of the QA/QC activities and the resulting corrections/changes made must be documented in a section on QA/QC in the Quantification Methodology Document, along with the QA/QC procedures that were used (see: clauses EIS 19-B and Section 19 of the AEIR Standard). This step in preparing the AEIR therefore involves documenting the procedures used and findings of the QA/QC activities. Identification of the issues/errors that were found is important for the Regulator to be able to highlight common issues, areas where additional guidance may be needed and to enhance the suggested QA/QC checks for the AEIR Program.

Note: The format for presenting the QA/QC information in the Quantification Methodology Document is not being prescribed and the exact format is up to the person responsible. One suggested way of presenting the QA/QC activities, findings and resulting changes in the Quantification Methodology Document is presenting it in a table, with individual columns for: "QA/QC Procedure", "Finding(s)" and "Resulting Correction/Change(s)".

Note: While the individual issues identified and resolved should be identified in the Quantification Methodology Document, it is acceptable to group several identical issues identified and resolved together. For example, rather than listing and describing three instances of decimal issues with stack diameters, these could just be identified as a single finding: "several instances of decimal issues with stack diameters identified" and single correction: "stack diameter decimal issues fixed".

18.4 Check for Common Issues with AEIR Submissions (Step 18d)

The next step in preparing the AEIR involves checking for common issues that have been found with AEIR submissions from the first few years of reporting under the AEIR Program. This section of the AEIR Standard provides examples of some of the common issues found with past AEIR submissions. These examples do not include all issues identified with past AEIR submissions, just the more common issues that should be looked out for.

Common Issues with the submitted AEIR Forms:

Worksheet 1.1-1.4

Issue: Missing Company Trade Name. The trade name is just the name under which the company operates or conducts business. The trade name may be the same as the legal name, or it may be different. As all companies will have a trade name which they operate or conduct business under, this field therefore must not be left blank.

Issue: Incorrect format for EPEA Approval #. Only the master EPEA approval number for the specific industrial operation is to be reported. This is to be reported as a whole number numeric value without any of the amendment/renewal numbers (which are typically indicated with a dash and number following the master approval number). This field must not be left blank. No spaces, dashes, etc. should be entered in this field. Approval numbers range from 1 to ~480000. The EPEA approval number is used to generate database keys for the AEIR submission. If incorrectly reported, this will cause issues when importing the submitted AEIR data into the Regulator database. The EPEA approval number for the industrial operation should be checked using the Alberta Authorization Viewer (<https://avw.alberta.ca/ApprovalViewer.aspx>) to ensure it is correct (and formatted correctly).

Issue: Missing or incorrect NPRI ID. This field requires entering the National Pollutant Release Inventory (NPRI) identification number, if applicable, for the specific industrial operation that the AEIR Form is being submitted for. The NPRI ID should be checked against the published NPRI data (<https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/tools-resources-data/exploredata.html>) to ensure the NPRI ID is correct for the specific industrial operation.

Issue: Missing or incorrect AER Facility ID. For oil & gas industrial operations, the Alberta Energy Regulator (AER) facility identification numbers are required to be reported. AER Facility IDs apply to the following types of facilities/equipment: batteries, compressor stations, custom treating facilities, sweet and sour gas processing plants, gas gathering systems, injection/disposal facilities, meter stations, oil sands processing plants, pipelines, refineries, tank terminals, waste plants, well sites and water sources. They are in the format of ABCS0000033, ABBT9982091, ABGP0001034, etc. The AER Facility ID(s) should be checked against AER Statistical Report ST102 (<https://www.aer.ca/providing-information/data-and-reports/statistical-reports/st102>) and/or Petrinex (<https://www.petrinex.ca/PD/Pages/APD.aspx>) to ensure the AER Facility ID(s) is correct for the specific industrial operation.

Issue: Missing Expected Shutdown Year. This does not need to be a definite date or completely accurate, just an estimate of when the industrial operation could be expected to close. For example, this shutdown/decommission year could be based on: a specifically planned closing date, the expected lifespan of the plant, the typical lifespan of the type of industrial operation, etc. This field must not be left blank. As projections and forecasts typically do not go beyond 50 years, if not otherwise known and if the industrial operation is expected to continue to operate for the next several decades, then 50 years plus the current year can be used as a default maximum value (if appropriate). For example, 2072 could be used as a default value for the 2022 inventory year, provided the industrial operation is expected to continue to operate for several more decades and a more representative shutdown year is not available.

Worksheet 1.5-1.7

Issue: Incorrect Sector classification. A dropdown is provided for selecting the most appropriate sector category for the industrial operation. Each sector category is specifically defined in Section 5.2 of the AEIR Standard. The most representative sector category is to be selected.

Issue: Missing Capacity Information. The AEIR Form requires reporting of general information on the primary and secondary products and capacities for the industrial operation. Capacity information should have been reported in the industrial operation's EPEA approval/renewal application, as specified in the Guide to Content for Industrial Approval Applications, and those capacities can be reported in the AEIR Form if they are still representative for the industrial operation. For industrial operations that do not produce or distribute a product (e.g., only receives and stores materials), the approximate annual amount the industrial operation receives is what should be reported (e.g., typically receives and stores 10,000 tonnes of solid waste per year, etc.).

Worksheet 1.8-1.10

Issue: Incorrect lat/long for the industrial operation. The location being reported for the industrial operation should be checked to make sure it is accurate and representative.

Issue: Degree (°) symbol included in lat/long coordinates. Latitude and longitude coordinate values are to be reported as decimal numbers not text strings. Degree symbols are not to be included in the latitude and longitude coordinate values being reported. Including degree symbols in the latitude and longitude field will result in reporting an incorrect data type that cannot be accepted by the Regulator database.

Issue: Incorrect simplified industrial operation boundary. A minimum of four and a maximum of twenty vertex pairs can be reported. These fields are capturing a simplified facility boundary, and therefore there should not be more than twenty vertex pairs reported. For industrial operations with more than one discrete plant site (e.g., in-situ oil sands facilities with several distinct and distant plant sites), it is recommended that the boundary coordinates for one plant site be entered in the fields in worksheet 1.8-1.10, and then the boundary coordinates for each of the other plant sites be entered in one of the "Blank" worksheets of the AEIR Form. This additional information must be noted in the AEIR submission to ensure it is manually added to the Regulator database.

Worksheet 1.11

Issue: Indicated building effects (downwash) assessment carried out, but no building information reported.

If a building downwash assessment was done, then the building information used in the assessment should be available and must be reported.

Issue: Inconsistency in identification of release points located on buildings between what is reported in worksheet 1.11 and worksheet 2.0. Stacks identified as being on buildings should be consistent between worksheet 1.11 and worksheet 2.0.

Issue: Missing tier corner/vertex heights. If a building downwash assessment was done, then the tier corner/vertex height values should be available and must be reported.

Issue: Missing tier corner/vertex UTM eastings and northings values. If a building downwash assessment was done, then the tier corner/vertex coordinate values should be available and must be reported.

Worksheet 1.12-1.17

Issue: Missing required public contact information. This is the individual designated by the person responsible to whom the Regulator should direct inquiries on the AEIR information received from the public. The public contact would typically be a public relations staff member for the company or could be the same as the technical contact for the AEIR. The public contact information is necessary in order to be able to properly direct inquiries on an industrial operation's AEIR, as well as for meeting Section 4 of the Disclosure of Information Regulation, whereby a person requesting information may be required to first contact and request the information directly from the industrial operation.

Issue: Have not selected Yes/No to indicate whether or not a consultant was used in preparing the AEIR. If a consultant was not used, then "No" should be selected. If a consultant was used, then "Yes" should be selected and the required descriptive information reported.

Worksheet 1.18

Issue: Have not selected Yes/No to indicate whether there were any operational or release issues during the inventory year. If there were no operational or release issues during the inventory year, then "No" should be selected. If there were operational or release issues that occurred during the inventory year, then "Yes" should be selected and the applicable descriptive information reported.

Issue: Missing information on operational or release issues/incidents. If there were operational or release issues that occurred during the inventory year, then the applicable fields must be completed.

Worksheet 1.19

Issue: Have not selected Yes/No to indicate whether or not there were any major source or plant shutdowns during the inventory year. If there were no major source or plant shutdowns during the inventory year, then "No" should be selected. If there were major source or plant shutdowns, then "Yes" should be selected and the applicable descriptive information reported.

Issue: Missing information on major source or plant shutdowns. If there were operational or release issues that occurred during the inventory year, then the applicable fields must be completed.

Worksheet 1.20-1.21

Issue: Have not selected Yes/No to indicate whether or not there are any plant or combined source limits. If there are no plant or combined source limits, then "No" should be selected. If there are plant or combined source limits, then "Yes" should be selected and the applicable descriptive information reported.

Issue: Individual source limits reported in worksheet 1.20-1.21. It is not necessary to report limits that only apply to individual release points in worksheet 1.20-1.21. Worksheet 1.20-1.21 is only for reporting plant total limits (e.g.,

total SO₂ emissions from the facility must be < 2 tonnes/day) and combined source limits (e.g. combined NO_x emissions from Engines A, B, C, D, E, F and G are not to exceed 1 tonne/day). Individual release point limits (e.g., NO_x emissions from Boiler Stack A must be < 45 kg/hour) are to be reported in worksheets 2.3.1 and 2.3.2.

Worksheet 1.22

Issue: Have not selected Yes/No to indicate whether or not any sources are being declared negligible. If there are no sources being declared negligible, then "No" should be selected. If there are sources being declared negligible, then "Yes" should be selected and the required descriptive information reported.

Issue: Sources declared negligible in worksheet 2.0 and/or 3.0 but not identified and described in worksheet 1.22. Worksheet 1.22 requires listing all sources that were determined to be negligible, and providing a brief explanation of the basis for the determination. Supporting information on the negligibility determination is required to be included in the Quantification Methodology Document.

Worksheet 1.23

Issue: Have not selected Yes/No to indicate whether or not any Schedule 1 substances have been deemed negligible. If there are no Schedule 1 substances being declared negligible, then "No" should be selected. If there are Schedule 1 substances being declared negligible, then "Yes" should be selected and the required descriptive information reported.

Issue: Negligible Schedule 1 substances not identified and described in worksheet 1.23. Worksheet 1.23 requires listing and providing a brief explanation of any Schedule 1 substances that were determined to be negligible for the industrial operation and were excluded from the AEIR. If an industrial operation is required to report under the AEIR Program, then reporting air emissions of all eight Schedule 1 substances is required regardless of whether the reporting threshold for each individual Schedule 1 substance has been exceeded (unless it is deemed negligible). If not reporting any emissions (from any source) of a Schedule 1 substance, then it must be declared negligible and the required information reported.

Worksheet 2.0

Issue: Have not selected Yes/No to indicate whether or not there are any release points at the industrial operation. If there are no release points at the industrial operation, then "No" should be selected. If there are release points at the industrial operation, then "Yes" should be selected and the required descriptive information reported.

Issue: Missing release points that are specifically listed in the EPEA approval for the industrial operation. All authorized release points (including approved future release points, negligible release points, temporarily shutdown release points and approval referenced release points from the EPEA approval/renewal application) must be identified and described in worksheet 2.0.

Issue: Missing unique designations for release points. The formal designation of the point of release, as specified in the EPEA approval or associated EPEA approval/renewal application, must be reported. These designations typically have a letter or letters designating a type of equipment/process followed by a numerical identifier. For example: H-2001, FS-596, B-905A, IN-498, T-5811A, C-702, SG-1320-B, etc. If no unique designation is specified for the release point, then the identification number used by the industrial operation for the release point should be used (must not leave blank).

Issue: Missing Source Classification Codes for release points. Industrial operations are required to select an appropriate SCC for each release point. See Section 6.2 of the AEIR Standard for information on selecting an appropriate SCC.

Issue: Incorrectly identified sources as negligible or non-negligible. If a release point is not being declared negligible, then "No" should be selected and the required annual actual emission rates and other information must be reported. If a release point is being declared negligible, then "Yes" should be selected.

Issue: Missing project phase for release points. Industrial operations are required to specify the phase for each release point. If an industrial operation only has a single phase, then Phase 1 should be entered.

Issue: Missing expected shutdown year for release points. This just requires entering the year when the release point is expected to be permanently shut-down or decommissioned. This does not need to be a definite date or totally accurate, just an estimate of when the release point is expected to permanently cease operating. If unknown for the individual release point, then the expected shutdown year of the industrial operation can be entered.

Issue: Missing release point location. All release points must have a lat/long location reported.

Issue: Incorrect release point location. The location of each release point should be checked to make sure it is reasonable and correct.

Issue: Missing stack parameters. All release points must have stack parameters reported.

Issue: Unreasonable stack parameters (too tall, too wide, too slow, too fast, too cold, too hot, etc.). The release point stack parameters must be checked for reasonableness and correctness. See Section 18.1 of the AEIR Standard for typical ranges of stack parameters.

Issue: Missing release point other stack information. Information on bypass stacks, rooftop locations, building downwash, rain caps and non-vertical releases must be reported.

Worksheet 2.1

Issue: Have not selected Yes/No to indicate whether or not any release point units, processes or equipment are being reported. If there are no release point units, processes or equipment being reported, then "No" should be selected. If there are release point units, processes or equipment being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Release points reported with no associated units, processes or equipment. Release points are just stacks/vents and therefore there must be some piece of equipment, industrial process or applicable unit that generates the effluent that is being emitting via the stack or vent. All release points must have at least one unit/process/equipment reported in worksheet 2.1.

Issue: Pollution controls mistakenly reported in worksheet 2.1. Pollution controls are to be reported in worksheet 2.2. Some processes and equipment are specifically defined as pollution controls under the AEIR Program. Any pollution controls reported in worksheet 2.1 must be moved to worksheet 2.2.

Issue: The provided Unit, Process and Equipment Types were not used. These types are defined in the AEIR Standard and must be used. If a specific unit/process/equipment does not fall within any of the provided types, then "Other Unit, Process or Equipment" can be selected and an additional description is then to be entered in the "Description of Other Type" field of worksheet 2.1. See the definitions in Section 9 of the AEIR Standard.

Issue: No make or model #s for units and equipment in worksheet 2.1. Make and model numbers are to be reported for units and equipment. If the specific unit or equipment is custom built, then the make and model # can be reported as "Custom". If unknown, these must be noted as data gaps in the Quantification Methodology Document.

Issue: Missing descriptive information on units/processes/equipment in worksheet 2.1. If reporting release point units/processes/equipment, then the required descriptive information must also be reported for the unit/process/equipment.

Worksheet 2.2

Issue: Have not selected Yes/No to indicate whether or not any release point pollution controls are being reported. If there are no release point pollution controls being reported, then "No" should be selected. If there are release point pollution controls being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not selected "controlled" or "uncontrolled". All release points must be identified as being either controlled or uncontrolled.

Issue: Selected "uncontrolled" for a release point but then reported a pollution control associated with the release point. All release points must be correctly identified as being controlled or uncontrolled.

Issue: The provided Control Technology or Equipment Types were not used. These types are defined in the AEIR Standard and must be used. If a specific pollution control does not fall within any of the provided types, then "Other Control Technology or Equipment" can be selected and an additional description is then to be entered in the "Description of Other Type" field of worksheet 2.2. See the definitions in Section 10 of the AEIR Standard.

Issue: No make or model #s for pollution controls in worksheet 2.2. Make and model numbers are to be reported for pollution controls (for pollution controls that have make and model #s). If a pollution control is custom built, then the make and model # can be reported as "Custom". If unknown, these must be noted as data gaps in the Quantification Methodology Document.

Issue: Missing descriptive information on pollution controls in worksheet 2.2. If reporting release point pollution controls, then the required descriptive information must also be reported for the release point pollution control.

Issue: Missing control effectiveness and basis for control effectiveness in worksheet 2.2. If reporting release point pollution controls, then the control effectiveness and basis for control effectiveness must also be reported for the release point pollution control. If unknown, these must be noted as data gaps in the Quantification Methodology Document.

Worksheet 2.3.1

Issue: Have not selected Yes/No to indicate whether or not any release point have normal emission limits. If there are no release point normal limits being reported, then "No" should be selected. If there are release point normal limits being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not reported some release point normal emission limits. All normal emission limits specified or referenced in the industrial operation's EPEA approval must be reported.

Worksheet 2.3.2

Issue: Have not selected Yes/No to indicate whether or not any release point have emergency/upset emission limits. If there are no release point emergency/upset limits being reported, then "No" should be selected. If there are release point emergency/upset limits being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not reported some release point emergency/upset emission limits. All emergency/upset emission limits specified or referenced in the industrial operation's EPEA approval must be reported.

Worksheet 2.4

Issue: Have not selected source operating or emitting time period for a release point. All release points being reported must have a source operating or emitting time period reported.

Issue: Have not indicated whether or not a release point is to use the industrial operation's temporal profile. All release points must have their own temporal information reported, or else it must be confirmed that the industrial operation's temporal information is to be used to represent how the release point operates/emits.

Issue: Reported not to use the industrial operation's temporal profile for sources, but missing required source specific daily and monthly temporal information. If not using the industrial operation's temporal information, then daily and monthly temporal information is required to be reported for the release point.

Worksheet 2.5

Issue: Have not selected Yes/No to indicate whether or not any release point were monitored using CEMS or stack sampling during the inventory year. If there were no release points monitored using CEMS or stack sampling, then "No" should be selected. If there were release points monitored using CEMS or stack sampling, then "Yes" should be selected and the required descriptive information reported.

Issue: Did not indicate whether or not some release points were monitoring using CEMS. If a release point was not monitored using CEMS during the inventory year, then the field should be set to "No".

Issue: Missing CEMS Station ID for a source that electronically reports CEMS data to the Regulator. If CEMS data is being electronically submitted to the Regulator, then the CEMS Station ID must be reported.

Issue: Did not identify the substances/parameters monitored via CEMS. The substances and parameters monitoring via CEMS must be identified.

Issue: Did not indicate whether or not some release points were monitored using stack sampling. If a release point did not undergo stack sampled during the inventory year, then the field should be set to "No".

Issue: Did not identify the substances/parameters monitored via stack sampling. The substances and parameters monitoring via stack sampling must be identified.

Worksheet 2.6.1

Issue: Have not selected Yes/No to indicate whether or not any release point Schedule 1 substance emissions are being reported. If there are no release point Schedule 1 emission rates being reported, then "No" should be selected. If there are release point Schedule 1 emission rates being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Missing maximum emission rates for some release points. Maximum emission rates are not specific to the inventory year, but are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source (based on design, maximum operations, etc.). If missing, then it is being reported that the source has a maximum potential of zero emissions. If operating at maximum for a one hour period, there would likely be some emissions from the source.

Issue: Missing normal emission rates for some release points. Normal emission rates are not specific to the inventory year, but are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). If operating normally for a 24-hour period, there would likely be some emissions from the source.

Issue: Normal rates have been determined by just dividing the annual rate by 365 and therefore do not properly account for sources operating significantly less than 8,760 hours in the inventory year. This results in normal emission rates that are likely not very representative. If a source did not operate for the entire year (or not fairly close to the full year), then the person responsible must account for the number of hours the source operated during the year in the calculation of the normal emission rate.

Issue: Multiple zero emission values reported with no associated quantification methods identified. It is unclear if these are calculated zero values being intentionally reported or unintentional values that should be deleted. It is not necessary to enter "0" as the emission rate for substances not emitted by a specific release point. If reporting a quantified zero value, then the quantification method used must also be specified.

Issue: Reported non-zero emission rates, but have not specified the associated quantification methods. If reporting emission rates, then the quantification method used must also be reported.

Issue: It appears the applicable emission limits have not been used to calculate the maximum emission rate values. Clause RC 7-S (d) (i) of the AMD Reporting Chapter requires that the person responsible determine the maximum air emissions for each release point using "the industrial operation's approval emission limit for the

applicable substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter for which an approval emission limit exists". See Section 15.5.1 of the AEIR Standard for information on, and examples of, using approval limits to calculate maximum emission rates.

Issue: It does not appear the available CEMS and stack sampling data has been used to determine the annual actual emission rates (for the monitored sources and substances). Industrial operations are required to use monitoring/measurement data over estimations (e.g., emission factors) when monitoring/measurement data is available. If estimates are used in place of available monitoring/measurement data, then identification and justification for this must be included in the Quantification Methodology Document. Clause EIS 19-B requires that the QMD include: identification of any instances when estimation methods were used in place of available monitoring or measurement data and supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

Issue: The mandatory Director specified quantification method in clause EIS 15-A applies for the industrial operation (e.g., in situ facility with identical steam generators), but has not been used to determine the annual actual emission rates (for the monitored substances). If the mandatory method applies to the industrial operation, then it must be used to quantify the annual emission rates for the specific sources and substances.

Issue: Missing maximum and normal emission rates for approved future sources. Although not yet operating, the available information for the approved future sources from the EPEA approval/renewal application inventory and modelling (and potentially other sources) is to be included in the AEIR Form.

Issue: Nearly all emission rates reported as being determined using engineering estimates. Engineering estimates are essentially just an educated guess, based on engineering principles, used only when there is a lack of other information available. These methods should not be used for more than a few minor sources, as they are intended to be used as a last resort. These methods should not be used when more specific emission estimation techniques (such as emission factors, etc.) are available. See Sections 15.3-15.5 of the AEIR Standard for information on acceptable quantification methods.

Issue: The reported TPM emissions for the release point are less than reported PM₁₀ and PM_{2.5} emissions. As TPM includes the mass of PM₁₀ and PM_{2.5}, this is not mathematically possible. TPM emissions must be equal to or greater than PM₁₀ emissions and PM₁₀ emissions must be greater than or equal to PM_{2.5} emissions.

Issue: Only reported NO_x and SO₂ emissions, but have additional Schedule 1 substances that are non-negligible. Emission rates for all eight Schedule 1 substances must be reported, unless the specific Schedule 1 substance has been declared negligible.

Issue: Only reported annual actual emission rates. For operating sources, all three types of emission rates (annual actual, normal and maximum) must be reported. For approved future sources, maximum and normal emission rates would be reported, based on available information from the EPEA approval/renewal application inventory and modelling (and potentially other sources). For temporarily shutdown sources, maximum and normal emission rates would be reported.

Worksheets 2.6.2-2.6.6

Issue: Have not selected Yes/No to indicate whether or not any release point Schedule 2 substance emissions are being reported. If there are no release point Schedule 2 emission rates being reported, then "No" should be selected. If there are release point Schedule 2 emission rates being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Reported emission rates, but have not identified the specific Schedule 2 substance being reported. The substance name must be identified when reporting Schedule 2 emission rates.

Issue: Missing maximum emission rates for some release points. Maximum emission rates are not specific to the inventory year, but are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source (based on design, maximum operations, etc.). If missing, then it is being reported that the

source has a maximum potential of zero emissions. If operating at maximum for a one hour period, there would likely be some emissions from the source.

Issue: Missing normal emission rates for some release points. Normal emission rates are not specific to the inventory year, but are supposed to be the rate at which a substance is emitted to the atmosphere from a source under normal operating conditions (for the source). If operating normally for a 24-hour period, there would likely be some emissions from the source.

Issue: Normal rates have been determined by just dividing the annual rate by 365 and therefore do not properly account for sources operating significantly less than 8,760 hours in the inventory year. This results in normal emission rates that are likely not very representative. If a source did not operate for the entire year (or not fairly close to the full year), then the person responsible must account for the number of hours the source operated during the year in the calculation of the normal emission rate.

Issue: Multiple zero emission values reported with no associated quantification methods identified. It is unclear if these are calculated zero values being intentionally reported or unintentional values that should be deleted. It is not necessary to enter "0" as the emission rate for substances not emitted by a specific release point. If reporting a quantified zero value, then the quantification method used must also be specified.

Issue: Reported non-zero emission rates, but have not specified the associated quantification methods. If reporting emission rates, then the quantification method used must also be reported.

Issue: It appears the applicable emission limits have not been used to calculate the maximum emission rate values. Clause RC 7-S (d) (i) of the AMD Reporting Chapter requires that the person responsible determine the maximum air emissions for each release point using "the industrial operation's approval emission limit for the applicable substances specified in Appendix B Schedule 1 or Appendix C Schedule 2 of the Reporting Chapter for which an approval emission limit exists". See Section 15.5.1 of the AEIR Standard for information on, and examples of, using approval limits to calculate maximum emission rates.

Issue: It does not appear the available CEMS and stack sampling data has been used to determine the annual actual emission rates (for the monitored sources and substances). Industrial operations are required to use monitoring/measurement data over estimations (e.g., emission factors) when monitoring/measurement data is available. If estimates are used in place of available monitoring/measurement data, then identification and justification for this must be included in the Quantification Methodology Document. Clause EIS 19-B requires that the QMD include: identification of any instances when estimation methods were used in place of available monitoring or measurement data and supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

Issue: The mandatory Director specified quantification method in clause EIS 15-A applies for the industrial operation (e.g., in situ facility with identical steam generators), but has not been used to determine the annual actual emission rates (for the monitored substances). If the mandatory method applies to the industrial operation, then it must be used to quantify the annual emission rates for the specific sources and substances.

Issue: Missing maximum and normal emission rates for approved future sources. Although not yet operating, the available information for the approved future sources from the EPEA approval/renewal application inventory and modelling (and potentially other sources) is to be included in the AEIR Form.

Issue: Nearly all emission rates reported as being determined using engineering estimates. Engineering estimates are essentially just an educated guess, based on engineering principles, used only when there is a lack of other information available. These methods should not be used for more than a few minor sources, as they are intended to be used as a last resort. These methods should not be used when more specific emission estimation techniques (such as emission factors, etc.) are available. See Sections 15.3-15.5 of the AEIR Standard for information on acceptable quantification methods.

Issue: Only reported annual actual emission rates. For operating sources, all three types of emission rates (annual actual, normal and maximum) must be reported. For approved future sources, maximum and normal

emission rates would be reported, based on available information from the EPEA approval/renewal application inventory and modelling (and potentially other sources). For temporarily shutdown sources, maximum and normal emission rates would be reported.

Worksheet 3.0

Issue: Have not selected Yes/No to indicate whether or not there are any non-point sources at the industrial operation. If there are no non-point sources at the industrial operation, then "No" should be selected. If there are non-point sources at the industrial operation, then "Yes" should be selected and the required descriptive information reported.

Issue: No non-point sources reported in worksheet 3.0. Most types of industrial operations required to report under the AEIR Program would have applicable non-point sources to report in worksheet 3.0 (e.g., fugitive leaks, storage tanks, space heaters, space vents, etc.). The industrial operation's EPEA approval and EPEA approval/renewal application may list some of the applicable non-point sources. Appendix D lists the reported common non-points sources by sector. The person responsible should confirm there are no non-point sources at the industrial operation.

Issue: Missing non-point sources that are specifically listed in the EPEA approval for the industrial operation. All authorized non-point sources (including approved future non-point sources, negligible non-point sources, temporarily shutdown non-point sources and approval referenced non-point sources from the EPEA approval/renewal application) must be identified and described in worksheet 3.0.

Issue: Missing unique designations for non-point sources in worksheet 3.0. If no unique designation is specified for the non-point source, then the identification number used by the industrial operation for the source should be used (must not leave blank).

Issue: The provided Non-Point Source Types were not used. These types are defined in the AEIR Standard and must be used. If a specific non-point source does not fall within any of the provided types, then "Other Non-Pont Source" can be selected and an additional description is then to be entered in the "Description of Other Type" field of worksheet 3.0. See the definitions in Section 7.2 of the AEIR Standard.

Issue: Missing SCCs for non-point sources. Industrial operations are required to select an appropriate SCC for each non-point source. See Section 7.2 of the AEIR Standard for information on selecting an appropriate SCC.

Issue: Incorrectly identified sources as negligible or non-negligible. If a non-point source is not being declared negligible, then "No" should be selected and the required annual actual emission rates and other information must be reported. If a non-point source is being declared negligible, then "Yes" should be selected.

Issue: Missing project phase for non-point sources. Industrial operations are required to specify the phase for each non-point source. If an industrial operation only has a single phase, then Phase 1 should be entered.

Issue: Missing expected shutdown year for non-point sources. This just requires entering the year when the non-point source is expected to be permanently shut-down or decommissioned. This does not need to be a definite date or totally accurate, just an estimate of when the non-point source is expected to permanently cease operating. If unknown for the individual non-point source, then the expected shutdown year of the industrial operation can be entered.

Issue: Missing other non-point source information. If applicable, the other information fields must be completed for the non-point sources.

Worksheet 3.1

Issue: Missing non-point source parameter information for some non-point sources. All non-point sources must have required parameters reported. See Section 7.3 of the AEIR Standard for information on characterizing non-point sources.

Issue: Unreasonable non-point source parameters. The non-point source parameters must be checked for reasonableness and correctness. See Section 7.3 of the AEIR Standard for information on characterizing non-point sources. See Section 18.1 of the AEIR Standard for typical ranges of non-point source parameters.

Issue: Missing spatial location information for non-point sources. A minimum of four coordinate pairs is required to describe where the non-point source emissions are occurring (except for line sources). See Section 7.3 of the AEIR Standard for information and examples of spatially representing non-point sources.

Issue: Incorrect non-point source location. The location of each non-point source should be checked to make sure it is reasonable and correct.

Worksheet 3.2

Issue: Have not selected Yes/No to indicate whether or not there are any units, processes or equipment that emit via combined large point source non-point sources. If there are no non-point source units, processes or equipment being reported, then "No" should be selected. If there are non-point source units, processes or equipment being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Pollution controls mistakenly reported in worksheet 3.2. Pollution controls are to be reported in worksheet 3.3. Some processes and equipment are specifically defined as pollution controls under the AEIR Program. Any pollution controls reported in worksheet 3.2 must be moved to worksheet 3.3.

Issue: The provided Unit, Process and Equipment Types were not used. These types are defined in the AEIR Standard and must be used. If a specific unit/process/equipment does not fall within any of the provided types, then "Other Unit, Process or Equipment" can be selected and an additional description is then to be entered in the "Description of Other Type" field of worksheet 3.2. See the definitions in Section 9 of the AEIR Standard.

Issue: Missing descriptive information on units/processes/equipment in worksheet 3.2. If reporting non-point source units/processes/equipment, then the required descriptive information must also be reported for the unit/process/equipment.

Worksheet 3.3

Issue: Have not selected Yes/No to indicate whether or not any non-point source pollution controls are being reported. If there are no non-point source pollution controls being reported, then "No" should be selected. If there are non-point source pollution controls being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not selected "controlled" or "uncontrolled". All non-point sources must be identified as being either controlled or uncontrolled.

Issue: Selected "uncontrolled" for a non-point source but then reported a pollution control associated with the non-point source. All non-point sources must be correctly identified as being controlled or uncontrolled.

Issue: The provided Control Technology or Equipment Types were not used. These types are defined in the AEIR Standard and must be used. If a specific control does not fall within any of the provided types, then "Other Control Technology or Equipment" can be selected and an additional description is then to be entered in the "Description of Other Type" field of worksheet 3.3. See the definitions in Section 10 of the AEIR Standard.

Issue: No make or model #s for pollution controls in worksheet 3.3. Make and model numbers are to be reported for pollution controls (for pollution controls that have make and model #s). If a pollution control is custom built, then the make and model # can be reported as "Custom". If unknown, these must be noted as data gaps in the Quantification Methodology Document.

Issue: Missing descriptive information on pollution controls in worksheet 3.3. If reporting non-point source pollution controls, then the required descriptive information must also be reported for the non-point source pollution control.

Issue: Missing control effectiveness and basis for control effectiveness in worksheet 3.3. If reporting non-point source pollution controls, then the control effectiveness and basis for control effectiveness must also be reported for the non-point source pollution control. If unknown, these must be noted as data gaps in the Quantification Methodology Document.

Worksheet 3.4.1

Issue: Have not selected Yes/No to indicate whether or not any non-point sources have normal emission limits. If there are no non-point source normal limits being reported, then "No" should be selected. If there are non-point source normal limits being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not reported some non-point source normal emission limits. All normal emission limits specified or referenced in the industrial operation's EPEA approval must be reported.

Worksheet 3.4.2

Issue: Have not selected Yes/No to indicate whether or not any non-point sources have emergency/upset emission limits. If there are no non-point source emergency/upset limits being reported, then "No" should be selected. If there are non-point source emergency/upset limits being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not reported some non-point source emergency/upset emission limits. All emergency/upset emission limits specified or referenced in the industrial operation's EPEA approval must be reported.

Worksheet 3.5

Issue: Have not selected source operating or emitting time period for a non-point source. All non-point sources being reported must have a source operating or emitting time period reported.

Issue: Have not indicated whether or not a non-point source is to use the industrial operation's temporal profile. All non-point sources must have their own temporal information reported, or else it must be confirmed that the industrial operation's temporal information is to be used to represent how the non-point source operates/emits.

Issue: Reported not to use the industrial operation's temporal profile for sources, but missing required source specific daily and monthly temporal information. If not using the industrial operation's temporal information, then daily and monthly temporal information is required to be reported for the non-point source.

Worksheet 3.6

Issue: Have not selected Yes/No to indicate whether or not any non-point sources were monitored using fugitive monitoring or other non-point source monitoring during the inventory year. If there were no non-point sources monitored, then "No" should be selected. If there were non-point sources monitored, then "Yes" should be selected and the required descriptive information reported.

Issue: Incorrect # of sampling methods reported in worksheet 3.6. The correct number of sampling methods must be reported.

Issue: Did not indicate whether or not a specific non-point source was monitored during the inventory year. Each non-point source must be identified as being monitored or not.

Issue: Did not list the substances/parameters monitored. The specific substances/parameters monitored must be identified.

Worksheet 3.7.1

Issue: Have not selected Yes/No to indicate whether or not any storage tanks are being reported. If there are no storage tanks being reported, then "No" should be selected. If there are storage tanks being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Storage tanks (larger than 2,500 litre capacity) missing from worksheet 3.7.1. The EPEA approval/renewal application for the industrial operation typically identifies storage tanks at the industrial operation. Most types of industrial operations will have storage tanks located onsite. Any storage tanks meeting the criteria for reporting must be included in worksheet 3.7.1.

Issue: Have not identified which non-point source(s) from worksheet 3.0 is associated with the storage tank. The non-point source(s) associated with the storage tank must be identified (e.g., the non-point source where the emissions are occurring).

Issue: Missing some required descriptive and parameter information on storage tanks in worksheet 3.7.1. The required descriptive and parameter information must be reported.

Worksheet 3.7.2

Issue: Have not selected Yes/No to indicate whether or not any storage piles are being reported. If there are no storage piles being reported, then "No" should be selected. If there are storage piles being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not identified which non-point source(s) from worksheet 3.0 is associated with the storage pile. The non-point source(s) associated with the storage pile must be identified (e.g., the non-point source where the emissions are occurring).

Issue: Missing storage piles in worksheet 3.7.2. Certain types of industrial activities would typically have storage piles located onsite. Appendix D lists the reported common non-points sources by sector.

Issue: Missing some required descriptive and parameter information on storage piles in worksheet 3.7.2. The required descriptive and parameter information must be reported.

Worksheet 3.7.3

Issue: Have not selected Yes/No to indicate whether or not any mine fleets are being reported. If there are no mine fleets being reported, then "No" should be selected. If there are mine fleets being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not identified which non-point source(s) from worksheet 3.0 is associated with the mine fleet. The non-point source(s) associated with the mine fleet must be identified (e.g., the non-point source where the emissions are occurring).

Issue: Missing information on mine fleet vehicle and engine breakdowns. Information on mine fleet vehicles must be reported.

Issue: Missing information on mine fleet fuel consumption. Information on mine fleet fuel consumption must be reported.

Issue: Missing some required descriptive and parameter information on mine fleets in worksheet 3.7.3. The required descriptive and parameter information must be reported.

Worksheet 3.7.4

Issue: Have not selected Yes/No to indicate whether or not any mine faces are being reported. If there are no mine faces being reported, then "No" should be selected. If there are mine faces being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not identified which non-point source(s) from worksheet 3.0 is associated with the mine face. The non-point source(s) associated with the mine face must be identified (e.g., the non-point source where the emissions are occurring).

Issue: Missing some required descriptive and parameter information on mine faces in worksheet 3.7.4. The required descriptive and parameter information must be reported.

Worksheet 3.7.5

Issue: Have not selected Yes/No to indicate whether or not any tailings ponds are being reported. If there are no tailings ponds being reported, then "No" should be selected. If there are tailings ponds being reported, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not identified which non-point source(s) from worksheet 3.0 is associated with the tailings pond. The non-point source(s) associated with the tailings pond must be identified (e.g., the non-point source where the emissions are occurring).

Issue: Missing some required descriptive and parameter information on tailing ponds in worksheet 3.7.5. The required descriptive and parameter information must be reported.

Worksheet 3.8.1

Issue: Have not selected Yes/No to indicate whether or not any non-point source Schedule 1 substance emissions are being reported. If there are no non-point source Schedule 1 emission rates being reported, then "No" should be selected. If there are non-point source Schedule 1 emission rates being reported, then "Yes" should be selected and the required information reported.

Issue: Multiple zero emission values reported with no associated quantification methods identified. It is unclear if these are calculated zero values being intentionally reported or unintentional values that should be deleted. It is not necessary to enter "0" as the emission rate for substances not emitted by a specific non-point source. If reporting a quantified zero value, then the quantification method used must also be reported.

Issue: Reported non-zero emission rates, but have not specified the associated quantification methods. If reporting emission rates, then the quantification method used must also be reported.

Issue: It does not appear the available non-point source monitoring data has been used to determine the annual actual emission rates (for the monitored sources and substances). Industrial operations are required to use monitoring/measurement data over estimations (e.g., emission factors) when monitoring/measurement data is available. If estimates are used in place of available monitoring/measurement data, then identification and justification for this must be included in the Quantification Methodology Document. Clause EIS 19-B requires that the QMD include: identification of any instances when estimation methods were used in place of available monitoring or measurement data and supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

Issue: The reported TPM emissions for the non-point source are less than reported PM₁₀ and PM_{2.5} emissions. As TPM includes the mass of PM₁₀ and PM_{2.5}, this is not mathematically possible. TPM emissions must be equal to or greater than PM₁₀ emissions and PM₁₀ emissions must be greater than or equal to PM_{2.5} emissions.

Worksheets 3.8.2-3.8.6

Issue: Have not selected Yes/No to indicate whether or not any non-point source Schedule 2 substance emissions are being reported. If there are no non-point source Schedule 2 emission rates being reported, then "No" should be selected. If there are non-point source Schedule 2 emission rates being reported, then "Yes" should be selected and the required information reported.

Issue: Reported emission rates, but have not identified the specific Schedule 2 substance being reported. The substance name must be identified when reporting Schedule 2 emission rates.

Issue: Multiple zero emission values reported with no associated quantification methods identified. It is unclear if these are calculated zero values being intentionally reported or unintentional values that should be deleted. It is not necessary to enter "0" as the emission rate for substances not emitted by a specific non-point source. If reporting a quantified zero value, then the quantification method used must also be reported.

Issue: Reported non-zero emission rates, but have not specified the associated quantification methods. If reporting emission rates, then the quantification method used must also be reported.

Issue: It does not appear the available non-point source monitoring data has been used to determine the annual actual emission rates (for the monitored sources and substances). Industrial operations are required to use monitoring/measurement data over estimations (e.g., emission factors) when monitoring/measurement data is available. If estimates are used in place of available monitoring/measurement data, then identification and justification for this must be included in the Quantification Methodology Document. Clause EIS 19-B requires that the QMD include: identification of any instances when estimation methods were used in place of available monitoring or measurement data and supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

Worksheet 4.1-4.4

Issue: Approval emission limits were not used to determine the maximum emission rates and the maximum emission rates for the industrial operation (auto-calculated in worksheet 4.1-4.4) are therefore much too low. Industrial operations are required to use their approval emission limits to determine the maximum emission rates for the limited source and substance.

Issue: The reported maximum emission rates for the industrial operation (auto-calculated in worksheet 4.1-4.4) are much lower than the normal and annual actuals (when all converted to tonnes/day). This does not fit the emission rate type definitions, as maximums are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source. The maximum rate should therefore always be higher than (or at least equal to) the normal rate.

Issue: The reported maximum emission rates for the industrial operation (auto-calculated in worksheet 4.1-4.4) are equal to the normal and annual actual emission rates (when all converted to tonnes/day). This is likely not very reasonable and does not account for any potential variation above the emission levels outside of the inventory year (where sources likely operating at normal most of the time). This also does not fit the emission rate type definitions, as maximums are supposed to be the maximum potential rate at which a substance is emitted to the atmosphere from a source (based on design, maximum operations, etc.). The maximum rates would typically be higher than the normal rates. Maximum rates could be equal to the normal and/or annual actual rates if the source only functions as either on or off, with no potential variation in operation/emissions. As totals for the industrial operation include all release points and non-point sources, it is unlikely that all the industrial operation's sources operate as either on or off, with no potential variation in operation or emissions.

Issue: The reported TPM emissions for the industrial operation (auto-calculated in worksheet 4.1-4.4) are less than reported PM₁₀ and PM_{2.5} emissions. As TPM includes the mass of PM₁₀ and PM_{2.5}, this is not mathematically possible. TPM emissions must be equal to or greater than PM₁₀ emissions and PM₁₀ emissions must be greater than or equal to PM_{2.5} emissions.

Issue: Only reported annual actual emission rates. For operating sources, all three types of emission rates (annual actual, normal and maximum) must be reported. For approved future sources, maximum and normal emission rates would be reported, based on available information from the EPEA approval/renewal application inventory and modelling (and potentially other sources) are to be included in the AEIR Form.

Worksheet 4.5-4.6

Issue: Have not identified whether or not there were any changes in annual actual emissions of greater than 10% from the previous inventory year. If there were no changes in total industrial operation emissions greater

than 10%, then "No" should be selected. If there were changes in total industrial operation emissions greater than 10%, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not provided explanations for substances seeing greater than 10% changes in annual actual emissions from the previous inventory year. All changes in total industrial operation emissions of greater than 10% must be explained.

Issue: Industrial operation had changes in emissions greater than 10%, but these have not been identified in worksheet 4.5-4.6. All changes in total industrial operation emissions of greater than 10% must be identified.

Worksheet 4.7

Issue: Have not identified whether or not there were any authorized changes in quantification methods. If there were no authorized changes in quantification methods, then "No" should be selected. If there were authorized changes in quantification methods, then "Yes" should be selected and the required descriptive information reported.

Issue: Have not provided descriptions of authorized changes in quantification methods. If there were authorized changes in quantification methods, then the required descriptive information must be reported.

Worksheets 4.8-4.10

Issue: Have not selected Yes/No in the dropdowns at the top of worksheets 4.8-4.10. If not reporting any additional information in these worksheets (e.g., no plant changes, no emission reduction actions and no additional comments), then "No" is to be selected in the provided dropdowns.

Other Issues:

Issue: Large amounts of missing required information in AEIR Form. The mandatory fields in the AEIR Form must be completed and the information required by the clauses in the AMD Reporting Chapter and AEIR Standard must be reported.

Issue: QMD and/or SOC not submitted or not updated for current inventory year. In order to be considered complete, an AEIR submission must include: a completed AEIR Form for the inventory year, a Quantification Methodology Document for the inventory year and a signed Statement of Certification for the inventory year. All three of these documents must be updated to cover and represent the specific inventory year the AEIR is being submitted for.

Issue: Required file naming structure not used. The specified file naming structure must be used for the completed AEIR Form, the Quantification Methodology Document and the signed Statement of Certification. See Section 21.2 of the AEIR Standard for information on the required file naming structure.

19.0 Prepare Quantification Methodology Document (Steps 19a - d)

Clause RC 7-V requires preparing and submitting a Quantification Methodology Document as part of the AEIR. The next step in preparing the AEIR therefore requires the preparation of this document. The Quantification Methodology Document essentially captures how the inventory was prepared, how the emissions were quantified and how the AEIR Form was completed. The main purpose of the Quantification Methodology Document is to ensure adequate organized documentation of the AEIR. The Quantification Methodology Document will cover the: sources and substances inventoried, activity data used, assumptions made, and quantification methodologies selected and used to determine the air emissions.

The Quantification Methodology Document will help ensure that a representative, complete and consistent emissions inventory is prepared and reported to the Regulator. The Quantification Methodology Document will allow the Regulator to understand how the air emissions from the industrial operation were quantified. The Quantification Methodology Document may also be reviewed during audits carried out by the Regulator (see Section 22.4 of the AEIR Standard). **The Quantification Methodology Document should be sufficiently detailed to allow the reported emission values to be reproduced, when combined with the specific monitoring and activity data that were used.**

The Quantification Methodology Document should be used by staff at the industrial operation (or their environmental consultants) for future reporting under the AEIR Program, to ensure that the same quantification methods are used for future inventory years. **Consistent quantification methodologies are required to be used year-to-year, except when given authorization by the Director to change quantification methods.**

It is recommended that the emissions inventory and emissions quantification work be documented as they are carried out, as this will make the Quantification Methodology Document much easier to prepare. If documentation is done along the way, the Quantification Methodology Document can simply be how the documentation is brought together into a single organized document. The following subsections (19.1-19.4) cover the required content, suggested format/content, and common issues and checks for preparing the Quantification Methodology Document.

19.1 Review Quantification Methodology Document Required Content (Step 19a)

The next step in preparing the AEIR requires reviewing the required minimum content for Quantification Methodology Documents. This section of the AEIR Standard describes the required content set out in the AMD Reporting Chapter and this AEIR Standard.

Clause RC 7-W specifies minimum required content for the Quantification Methodology Document. As per this clause, the Quantification Methodology Document needs to include:

- (a) a description of all air emission measurement and estimation methodologies that were used for determining the (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point for each of the substances included in the AEIR;
- (b) a description of all air emission measurement and estimation methodologies that were used for determining the annual actual air emissions from each air emission non-point source for each of the substances included in the AEIR;
- (c) a description of all data sources used in determining the (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;
- (d) a description of all data sources used in determining the annual actual air emissions from each air emission non-point source;
- (e) identification of all emission factors used in determining (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;
- (f) identification of all emission factors used in determining annual actual air emissions from each air emission non-point source;
- (g) identification of all equations and calculations used in determining (i) annual actual, (ii) normal and (iii) maximum air emissions from each air emission release point;

- (h) identification of all equations and calculations used in determining annual actual air emissions from each air emission non-point source;
- (i) citation of all reference materials used;
- (j) a list of the release points and non-point sources at the industrial operation;
- (k) a map or other visual representation showing the labelled release points and non-point sources at the industrial operation; and
- (l) a description of any changes to the measurement equipment, estimation methodologies, emission factors, equations or calculations that were used, compared to previous AEIRs.

Note: Clause RC 7-W (e) and (f) require that all emission factors used in determining the emission rates must be included in the QMD.

Note: For the equations and calculations in RC 7-W (g) and (h), a minimum of one sample calculation for each of the quantification methodologies used (e.g., Published or General EF Annual Method, Source Testing Annual Method, Average of Several Annual Actuals Normal Method, Historical Maximum Method and Approval Limit Maximum Method) is to be included in the QMD. These sample calculations are required in order to demonstrate that the quantification methodologies are being correctly applied by the person responsible.

Note: For the equations and calculations in RC 7-W (g) and (h), the sample calculations are not required to be updated every year, as they are just examples done once and only changed if the methods being applied have changed. The same sample calculations included in the industrial operation's previous Quantification Methodology Document can typically be used in the Quantification Methodology Document for the current inventory year.

For administrative purposes, the Quantification Methodology Document being submitted also needs to include standard identification information on the cover or title page. Clause EIS 19-A specifies the required identification information to include for the Quantification Methodology Document.

EIS 19-A For the Quantification Methodology Document in RC 7-V, the person responsible must include the following information:

- (a) identification of the inventory year of the Quantification Methodology Document;*
- (b) identification of the date of the Quantification Methodology Document;*
- (c) identification of the EPEA approval number(s) for the industrial operation;*
- (d) identification of the name of the EPEA approval holder;*
- (e) identification of the company name, if different from the EPEA approval holder;*
- (f) identification of the industrial operation name;*
- (g) identification of the industrial operation mailing address; and*
- (h) contact information for the individual who prepared the Quantification Methodology Document.*

As set out elsewhere in the AEIR Standard, the Quantification Methodology Document being submitted also needs to include identification and description of select other information. These requirements are summarized in clause EIS 19-B below. The required information includes information on: applicable and negligible sources and substances, non-standard classifications used, Director-authorized quantification method changes, QA/QC activities and findings, any missing required information, any "Combined Large Point Sources" being reported as non-point sources, any additional owning/operating companies, and any instances of using estimations in place of available monitoring or measurement data.

EIS 19-B For the Quantification Methodology Document in RC 7-V, the person responsible must include the following information:

- (a) identification of any sources deemed negligible;*
- (b) supporting information on the basis of determining a source as negligible;*
- (c) identification of any Schedule 1 substance deemed negligible;*
- (d) supporting information on the basis of determining a Schedule 1 substance as negligible;*

- (e) identification of the Schedule 2 substances applicable to the industrial operation;
- (f) supporting information on the basis for the Schedule 2 substances identified as applicable to the industrial operation;
- (g) identification of any (i) non-standard classifications and (ii) non-standard codes used in the Annual Emissions Inventory Report;
- (h) description of any (i) non-standard classifications and (ii) non-standard codes used in the Annual Emissions Inventory Report;
- (i) identification of any (i) Director-authorized changes in quantification methods and (ii) Director-authorized use of non-standard quantification methods;
- (j) supporting information for any (i) Director-authorized changes in quantification methods and (ii) Director-authorized use of non-standard quantification methods;
- (k) identification of the QA/QC procedures that were used;
- (l) the findings of the QA/QC activities;
- (m) identification of all (i) resulting corrections and (ii) resulting changes from the findings of the QA/QC activities;
- (n) identification of any missing required information for the Annual Emissions Inventory Report that could not be reasonably obtained;
- (o) a brief description of plans to address any missing required information in the industrial operation's future Annual Emissions Inventory Reports;
- (p) explanation for any large point sources that were aggregated and reported as non-point sources using the "Combined Large Point Sources" source category;
- (q) identification of any additional companies, not identified in the Annual Emissions Inventory Report Form, that own or operate the industrial operation;
- (r) identification of any instances when estimation methods were used in place of available monitoring or measurement data; and
- (s) supporting information justifying the use of estimation methods in place of available monitoring or measurement data.

Note: Supporting information for clause EIS 19-B (b) would include, for example, a description of the source and how it operated during the year, a rough estimate of the source's range of annual emissions and the basis for the estimated range of emissions.

Note: Supporting information for clause EIS 19-B (d) would include, for example, a description of the lack of any sources, fuels or materials related to the substance, a rough estimate of the range of the annual emissions of the substance (e.g., <1 tonne) and the basis for the estimated range of emissions.

Note: For clause EIS 19-B (e) and (f), see Section 14.1 of the AEIR Standard for information on determining the applicability of Schedule 2 substances. The format for presenting the identification and supporting information for the applicable Schedule 2 substances is not being prescribed and the exact format is up to the person responsible. One suggested way of presenting it is a table listing the applicable Schedule 2 substances in one column, a second column indicating (Y/N) that the substance is emitted in non-negligible amounts, and a third column identifying any key sources or groups of sources of the substance at the industrial operation (e.g., from combustion sources, from industrial process sources, from fugitives leaks, etc.).

Note: Non-standard classifications and codes in clause EIS 19-B (g) and (h) would be, for example, SCCs not included in the AMD AEIR Codes Table.xlsx; other sector, unit, process, equipment, pollution control, non-point source, storage tank categories/types; etc.

Note: Supporting information for clause EIS 19-B (j) would include, for example, a description of which release point, non-point source, unit/process/equipment and substance the change applies to; a description of the current/past quantification method and the revised quantification method; a rough estimate of the impact of the change on the

relevant emission rate for the affected source and the entire industrial operation; and a brief explanation for why the quantification method needed to be changed.

Note: For clause EIS 19-B (k), (l) and (m), the format for presenting the QA/QC information in the Quantification Methodology Document is not being prescribed and the exact format is up to the person responsible. One suggested way of presenting the QA/QC activities, findings and resulting changes in the Quantification Methodology Document is presenting it in a table, with individual columns for: "QA/QC Procedure", "Finding(s)" and "Resulting Correction/Change(s)".

19.2 Review Quantification Methodology Document Suggested Format and Content (Step 19b)

The next step in preparing the AEIR requires reviewing the suggested format and content for Quantification Methodology Documents. This section of the AEIR Standard provides suggested format and content to consider using/including when preparing Quantification Methodology Documents for reporting under the AEIR Program.

The exact format of the Quantification Methodology Document is not being prescribed by the Regulator. However, the Quantification Methodology Document should be organized in a logical manner and should provide adequate information documenting the emissions inventory and quantification of the emission rates. Provided the required minimum content is included in the Quantification Methodology Document, the format and structure is up to the person responsible for the industrial operation.

Note: If a required or suggested section of the QMD does not apply for your specific submission, then it is recommended that the section still be included in the QMD. Following the section heading, you can include text indicating it is not applicable for the inventory year. For example:

Section C: Negligible Sources and Substances

Section not applicable, as no sources or Schedule 1 substances are being declared negligible for the inventory year.

If not included in the QMD, and identified as being not applicable, it may not be clear to the Regulator if the section is not applicable or is just missing. This may then result in unnecessary follow up by the Regulator.

For guidance purposes, the following provides suggested structure, organization and content for the Quantification Methodology Document:

Cover/Title Page:

- Document title;
- Inventory year;
- Date of the Quantification Methodology Document;
- EPEA approval number(s) for the industrial operation;
- Name of the EPEA approval holder;
- Company name (if different from the EPEA approval holder);
- Industrial operation name;
- Industrial operation mailing address; and
- Contact information for the individual who prepared the Quantification Methodology Document.

Section A: Overview of the Industrial Operation:

- Brief description of the industrial operation; and
- An overview of the scope of the inventory, identifying anything specifically being included (e.g., includes all sources covered by EPEA approval ##) or excluded (e.g., excludes onsite sources that are instead being reported by separate industrial operation X, EPEA approval ##).

Section B: Sources at the Industrial Operation:

- A list of the release points at the industrial operation;
- A list of the non-point sources at the industrial operation;
- Identification of the relationships of the units/processes/equipment to the release points and non-point sources (being used for emission quantification);
- A map (or other visual representation) showing the labelled release points and non-point sources at the industrial operation; and
- An overview of available monitoring data being used in the inventory/quantifications.

Section C: Negligible Sources and Substances:

- Identification of any sources deemed negligible and excluded from reporting;
- Supporting information on the basis of determining a source as negligible;
- Identification of any Schedule 1 substance deemed negligible and excluded from reporting; and
- Supporting information on the basis of determining a Schedule 1 substance as negligible.
- Identification of any storage tanks being excluded from worksheet 3.7.1.

Section D: Applicable Schedule 2 Substances:

- Identification of the potentially applicable Schedule 2 substances for the industrial operation and any of these substances found not to be applicable (based on criteria set out in the AEIR Standard);
- Supporting information on the basis for the Schedule 2 substances identified as applicable to the industrial operation (why they are applicable); and
- Identification of the final list of applicable Schedule 2 substances being reported in the AEIR Form.

Section E: Quantification of Annual Actual Emission Rates for Release Points:

- A description of all measurement and estimation methodologies that were used for determining the annual actual emission rates for each release point and substance emitted;
- Identification of all emission factors used in determining the annual actual air emission rates for each release point and substance emitted;
- Identification of all equations and calculations used in determining the annual actual emission rates for each release point and substance emitted;
- Identification of the activity data used in the release point annual actual emission rate calculations;
- Sample calculations for the release point annual actual emission rate calculations;
- A description of all data sources used in determining the annual actual emission rates for the release points;
- Identification of any assumptions made while determining the annual actual emission rates for the release points (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.); and
- Identification of any known limitations of the release point annual actual emission rate calculations or results.

Note: Clause RC 7-W (e) require that all emission factors used in determining the release point emission rates must be included in the QMD.

Section F: Quantification of Annual Actual Emission Rates for Non-Point Sources:

- A description of all measurement and estimation methodologies that were used for determining the annual actual emission rates for each non-point source and substance emitted;
- Identification of all emission factors used in determining the annual actual emission rates for each non-point source and substance emitted;
- Identification of all equations and calculations used in determining the annual actual air emission rates for each non-point source and substance emitted;
- Identification of the activity data used in the non-point source annual actual emission rate calculations;
- Sample calculations for the non-point source annual actual emission rate calculations;

- A description of all data sources used in determining the annual actual emission rates for the non-point sources;
- Identification of any assumptions made while determining the annual actual emission rates for the non-point sources (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.); and
- Identification of any known limitations of the non-point source annual actual emission rate calculations or results.

Note: Clause RC 7-W (f) require that all emission factors used in determining the non-point source emission rates must be included in the QMD.

Section G: Quantification of Normal Emission Rates:

- A description of all measurement and estimation methodologies that were used for determining the normal emission rates for each release point and substance emitted;
- Identification of all emission factors used in determining the normal emission rates for each release point and substance emitted;
- Identification of all equations and calculations used in determining the normal emission rates for each release point and substance emitted;
- Identification of the activity data used in the release point normal emission rate calculations;
- Sample calculations for the release point normal emission rate calculations;
- A description of all data sources used in determining the normal emission rates for the release points;
- Identification of any assumptions made while determining the normal emission rates for the release points (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.); and
- Identification of any known limitations of the release point normal emission rate calculations or results.

Note: If using the Average of Several Annual Actual Normal Rate Method or Single Annual Actual Normal Method, the time period used in determining the normal rate (e.g., 2018-2022, etc.) must be identified in the Quantification of Normal Emission Rates section of the Quantification Methodology Document.

Section H: Quantification of Maximum Emission Rates:

- A description of all measurement and estimation methodologies that were used for determining the maximum emission rates for each release point and substance emitted;
- Identification of all emission factors used in determining the maximum emission rates for each release point and substance emitted;
- Identification of all equations and calculations used in determining the maximum emission rates for each release point and substance emitted;
- Identification of any emission rates used in the calculations;
- Identification of the activity data used in the release point maximum emission rate calculations;
- Sample calculations for the release point maximum emission rate calculations;
- A description of all data sources used in determining the maximum emission rates for the release points;
- Identification of any assumptions made while determining the maximum emission rates for the release points (e.g., combustion efficiency, control efficiency, thermal efficiency, etc.); and
- Identification of any known limitations of the release point maximum emission rate calculations or results.

Note: If using the Historical Maximum Rate Method, the time period used in determining the historical maximum (e.g., 2018-2022, etc.) must be identified in the Quantification of Maximum Emission Rates section of the Quantification Methodology Document.

Section I: Authorized Quantification Method Changes and Authorized Use of Non-Standard Quantification Methods:

- Identification of any Director-authorized changes in quantification methods and Director-authorized use of non-standard quantification methods;
- A description of any changes to the measurement equipment, estimation methodologies, emission factors, equations or calculations that were used, compared to previous AEIRs; and
- Supporting information for any Director-authorized changes in quantification methods and Director-authorized use of non-standard quantification methods.

Section J: QA/QC Activities and Results:

- Identification of the QA/QC procedures that were used;
- Identification of the findings of the QA/QC activities; and
- Identification of all resulting corrections and all resulting changes from the findings of the QA/QC activities.

Section K: Non-Standard Classifications and Codes:

- Identification of any non-standard classifications/codes used in the AEIR; and
- A description of any non-standard classifications/codes used in the AEIR.

Section L: Missing Required Information:

- Identification of any missing required information for the AEIR that could not be reasonably obtained; and
- A brief description of plans to address any missing required information in the industrial operation's future AEIRs.

Section M: Combined Large Point Sources Reported as Non-point Sources:

- Explanation for any large point sources that were aggregated and reported as non-point sources using the "Combined Large Point Sources" source category.

Section N: Additional Company Information:

- Identification and description of any additional companies, not identified in the AEIR Form, that own or operate the industrial operation.

Section O: Other Relevant Information:

- Identification of any instances when estimation methods were used in place of available monitoring or measurement data; and
- Supporting information justifying the use of estimation methods in place of available monitoring or measurement data.
- Identification of any authorized sources listed in the current EPEA approval that were permanently decommissioned prior to 2018 (excluded from the AEIR Form).

Section P: Other Relevant Information:

- Any additional relevant information necessary to document the inventory and quantification efforts.

Section Q: References and Citations:

- Citation of all reference materials used (e.g., EPEA approval, EPEA approval/renewal application, monthly/annual approvals reports, source monitoring information, NPRI submissions, AP-42, industrial sector guides, etc.).

19.3 Prepare the Quantification Methodology Document (Step 19c)

Once the required content and suggested format and content for the Quantification Methodology document have been reviewed, the next step involves preparing the Quantification Methodology for the AEIR for the industrial operation. At a minimum, the required content specified in the AMD Reporting Chapter and the AEIR Standard must be included in the Quantification Methodology Document. It is recommended that the suggested format for the Quantification Methodology be used and the suggested content also be included.

Note: QMDs should be for individual industrial operations, not multiple industrial operations belonging to the same company, as QMDs are required to include information: describing the specific industrial operation, outlining the specific inventory done for the industrial operation and documenting the emissions quantifications done for the sources at the specific industrial operation. Some general QMD content can potentially be copied and pasted into QMDs for very similar industrial operations, but the industrial operation specific information must be included in each industrial operation's QMD. Information for other industrial operations that is not relevant for the specific industrial operation (e.g., non-applicable sources, non-applicable substances, quantification methods not used, etc.) should not be included in the QMD.

19.4 Check for Common Issues and Carry Out QMD QA/QC Checks (Step 19d)

The next step in preparing the AEIR involves checking for common issues seen with previous Quantification Methodology Document and carrying out specific QA/QC checks on the Quantification Methodology Document for the industrial operation.

The following are some of the common issues identified with submitted Quantification Methodology Documents:

Issue: The QMD is missing some of the emission factors used to calculate the emission rates. Clause RC 7-W requires that all the emission factors used be identified in the QMD.

Issue: The QMD is not clear on how some emission rates were calculated. Clause RC 7-W requires specific information be included in the QMD on how the emission rates were calculated. Adequate descriptive information is therefore required in the QMD to document how the emission rates were determined. The QMD should be sufficiently detailed to allow the reported emission values to be reproduced, when combined with the specific monitoring and activity data that were used.

Issue: The QA/QC section of the QMD requires additional detail. As set out in clause EIS 19-B the QMD must include: identification of the QA/QC procedures that were used; the findings of the QA/QC activities; and identification of all (i) resulting corrections and (ii) resulting changes from the findings of the QA/QC activities. As noted in the AEIR Standard: "One suggested way of presenting the QA/QC activities, findings and resulting changes in the Quantification Methodology Document is presenting it in a table, with individual columns for: "QA/QC Procedure", "Finding(s)" and "Resulting Correction/Change(s)". Adequate detail on the QA/QC activities, findings and resulting changes must be included in the QMD.

Issue: No references included in the QMD. Clause RC 7-W requires citation of all reference materials used. The QMD must therefore include compiled references to the data sources and relevant documents used in preparing the inventory and QMD (e.g., EPEA approval/renewal application, EPEA approval, AP-42 Chapters ## and ##, monitoring studies and results, past annual approval reports, NPRI submission, etc.).

Issue: The QMD submitted is very general and covers more than one industrial operation. QMDs should be for individual industrial operations, not multiple industrial operations belonging to the same company, as QMDs are required to include information: describing the specific industrial operation, outlining the specific inventory done for the industrial operation and documenting the emissions quantifications done for the sources at the specific industrial operation. Some general QMD content can potentially be copied and pasted into QMDs for very similar industrial operations, but the industrial operation specific information must be included in each industrial operation's QMD.

Information for other industrial operations that is not relevant for the specific industrial operation (e.g., non-applicable sources, non-applicable substances, quantification methods not used, etc.) should not be included in the QMD.

Issue: The QMD is missing several required sections and does not meet the mandatory content requirements. The mandatory content requirements for the QMD are set out in clause RC 7-W of the AMD Reporting Chapter and clauses EIS 19-A and EIS 19-B of the AEIR Standard. It may be helpful to follow the suggested QMD Format and Content described in Section 19.2 of the AEIR Standard.

The following are some suggested QA/QC checks to help identify and address issues with Quantification Methodology Documents prior to submission to the Regulator:

- Check that the QMD contains all of the emission factors used to calculate the emission rates. Clause RC 7-W requires that all the emission factors used be identified in the QMD.
- Check that the QMD is clear on how the emission rates were calculated. Adequate descriptive information is required to document how the emission rates were determined.
- Check that the QA/QC section of the QMD contains adequate detail on the QA/QC activities and results. As set out in clause EIS 19-B the QMD must include: identification of the QA/QC procedures that were used; the findings of the QA/QC activities; and identification of all (i) resulting corrections and (ii) resulting changes from the findings of the QA/QC activities. As noted in the AEIR Standard: "One suggested way of presenting the QA/QC activities, findings and resulting changes in the Quantification Methodology Document is presenting it in a table, with individual columns for: "QA/QC Procedure", "Finding(s)" and "Resulting Correction/Change(s)"."
- Check that references have been included in the QMD. The QMD must include compiled references to the data sources and relevant documents used in preparing the inventory and QMD (e.g., approval/renewal application, EPEA approval, AP-42 Chapters ## and ##, monitoring studies and results, past annual approval reports, NPRI submission, etc.).
- Check that the QMD is specific to the industrial operation the AEIR is being submitted for. The QMD should not cover more than one industrial operation. The QMD is required to be specific to the industrial operation and must meet the mandatory content requirements set out in clause RC 7-W of the AMD Reporting Chapter and clauses EIS 19-A and EIS 19-B of the AEIR Standard.
- Check that the QMD contains all the required sections and meets the mandatory content requirements. The mandatory content requirements for the QMD are set out in clause RC 7-W of the AMD Reporting Chapter and clauses EIS 19-A and EIS 19-B of the AEIR Standard. It may be helpful to follow the suggested QMD format and content described in Section 19.2 of the AEIR Standard.

20.0 Complete AEIR Form, Final Review and Certification (Steps 20a – c)

20.1 Finish Entering All Data into the AEIR Form (Step 20a)

The next step in preparing the AEIR requires completing the AEIR Form by entering any remaining required information (if anything is still missing or incomplete). This would include any mandatory fields and any applicable optional fields that still need to be filled in. It is acceptable to leave certain cells blank if they are not applicable (e.g., it is not necessary to report zero emissions for each non-applicable Schedule 2 substance). For text fields it is also acceptable to enter "n/a" for not applicable cells. However, "n/a" should not be entered in a numeric field that is not applicable, as these fields require a numeric value. Numeric fields should be left blank if they are not applicable.

Any relevant comments can be entered into the AEIR Form in the Comments and Additional Information fields in worksheet 4.10. Additional comments and information that cannot be entered into the AEIR Form can be included in the Quantification Methodology Document.

20.2 Conduct a Final Review of the Completed AEIR Form and Quantification Methodology Document (Step 20b)

After all the required information has been entered into the AEIR Form, the Quantification Methodology Document has been prepared and the QA/QC activities have been completed, the next step in preparing the AEIR is for the Certifying Official to carry out a final review of the documents and information being submitted. This final review is to help fulfil due diligence requirements to ensure that the information being submitted in the AEIR is true, complete and accurate for the industrial operation. The exact level of final review carried out by the Certifying Official is up to the person responsible. **Note that the information being reported is of a regulatory nature, the Certifying Official is signing off on it, and the person responsible is legally responsible for the contents of the AEIR.**

Note: In order to be considered complete, an AEIR submission must contain three documents: (a) a completed AEIR Form; (b) a signed Statement of Certification; and (c) a Quantification Methodology Document for the inventory year.

20.3 Complete and Sign the Statement of Certification (Step 20c)

Clause RC 7-X requires the person responsible to certify the information being submitted in the AEIR prior to submission. Following the final review of the AEIR, the final step prior to submission is certification (sign-off) by the person responsible. Certification needs to be done by a Certifying Official, which for the AEIR Program is defined as follows:

Certifying Official – an individual with the legal authority to bind the person responsible and sign-off on environmental reports for the industrial operation. This could be a staff member working at the industrial operation (e.g., an environmental engineer, plant manager, etc.), an external contractor working for the person responsible (e.g., environmental consultant who prepares environmental reports for the industrial operation), a senior manager at head office, etc.

Note: The specific individual who will be the Certifying Official for the industrial operation is not prescribed by the Regulator. It is up to the person responsible to determine who will be the Certifying Official for their AEIR. It simply needs to be someone with authority to sign-off on environmental reports and that can bind the person responsible. The Certifying Official for reporting under the AEIR Program could likely be the same individual who signs off on other environmental reports submitted under EPEA for the industrial operation.

As per clause RC 7-Y, the Certifying Official is required to certify (by signing-off on the Statement of Certification) that they have reviewed the AEIR being submitted and can confirm that:

- (i) the information being submitted is true and complete;
- (i) the values and information included are accurate, based on measurements or reasonable estimations using the best available data and information; and
- (iii) due diligence has been exercised in the preparation of the AEIR.

The Certifying Official is also required to acknowledge that they understand that any data submitted in the AEIR, excluding data deemed by the Director as confidential under section 35(4) of EPEA, could be published or could be accessed by the public via an information request.

The included Statement of Certification in the AEIR Form is to be physically signed, scanned and submitted electronically. Alternatively, a PDF version of the Statement of Certification is available and can be filled out, digitally signed and submitted electronically. The PDF version of the Statement of Certification is available for download on the AMD Resources Website:

<https://www.alberta.ca/amd-resources.aspx>

Note: The *Electronic Transactions Act* allows for the use of electronic signatures in place of written signatures. Electronic signatures need to be sufficient to identify the person signing and need to be consistent with the purpose of the document or record being signed. The Regulator will accept electronic signatures for AEIRs (using the provided PDF version of the Statement of Certification), but reserves the right to ask for signed originals where the electronic signature is ambiguous or cannot be verified.

Note: The AEIR Statement of Certification must be signed (either physically or digitally) and submitted as a separate PDF document and not just an image file included in the AEIR Form.

21.0 Submit the AEIR (Step 21)

Once all the other steps have been completed, the final step in preparing the AEIR is submitting the AEIR documents to the Regulator. This includes submitting the AEIR Form, Statement of Certification and Quantification Methodology Document via the prescribed submission process. The following subsections (21.1-21.4) cover the submission process, file naming, assessing completeness and tracking/confirming the AEIR.

21.1 Submission Process

As per clause RC 7-F of the AMD Reporting Chapter, the AEIR is required to be submitted by September 30 of the year following the year the AEIR covers. As per clause RC 7-I, the AEIR (including the AEIR Form, Statement of Certification and Quantification Methodology Document) is required to be submitted using the submission method specified in the AEIR Standard. Clause EIS 21-A describes this submission method that is to be used. Figure 2 (in Section 2.6 of the AEIR Standard) shows the general process for reporting under the AEIR Program. Figure 8 (in Section 21.4 of the AEIR Standard) shows the overall AEIR submission tracking process.

EIS 21-A For the Annual Emissions Inventory Report in RC 7-C, the person responsible must submit the completed Annual Emissions Inventory Report to the Director via email to emissions.inventory@gov.ab.ca.

Note: The subject line of the submission email should be “AEIR Submission - EPEA #####”. Where the “#” places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). For example, the submission email subject line should look like: “AEIR Submission – EPEA 1234”.

Note: Only one AEIR (including the AEIR Form, QMD and SOC) should be submitted in each email submission (for companies with multiple reporting industrial operations). For example, if a company is submitting AEIRs for two industrial operations, two submission emails would be sent to emissions.inventory@gov.ab.ca. One email submission would include the AEIR (including the AEIR Form, QMD and SOC) for the first industrial operation and the second email submission would include the AEIR (including the AEIR Form, QMD and SOC) for the second industrial operation. This is necessary to ensure email submissions are not rejected due to exceeding the attachment size limitations of our email system.

21.2 File Naming

Submitted AEIRs are required to be named in a specific format to ensure proper handling and tracking of the submitted files. The following is the file naming scheme that is required to be used for the three documents comprising the AEIR:

AEIR Form => “AEIRF##EPEA#####.xlsx”

The first two “#” places represent the year of the AEIR (e.g., 22 for the 2022 inventory, being submitting in 2023). The second set of “#” places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). The Annual Emissions Inventory Form needs to be submitted as a Microsoft Excel file (.xlsx).

Example:

The 2022 AEIR Form for industrial operation 1234 would be named (including the file extension): “AEIRF22EPEA1234.xlsx”.

Quantification Methodology Document => “AEIRQMD##EPEA#####.pdf”

The first two “#” places represent the year of the AEIR (e.g., 22 for the 2022 inventory year, being submitting in 2023). The second set of “#” places represent the EPEA approval number for the industrial operation

(excluding any amendment/renewal numbers). The Quantification Methodology Document is to be submitted as an Adobe PDF file (.pdf).

Example:

The 2022 Quantification Methodology Document for industrial operation 1234 would be named (including the file extension): "AEIRQMD22EPEA1234.pdf".

Signed Statement of Certification => "AEIRSOC##EPEA#####.pdf"

The first two "#" places represent the year of the AEIR (e.g., 22 for the 2022 inventory year, being submitting in 2023). The second set of "#" places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). The signed Statement of Certification is to be submitted as an Adobe PDF file (.pdf).

Example:

The 2022 AEIR signed Statement of Certification for industrial operation 1234 would be named (including the file extension): "AEIRSOC22EPEA1234.pdf".

Note: The Statement of Certification in the AEIR Form is to be physically signed, scanned and submitted electronically. Alternatively, a PDF version of the Statement of Certification is available and can be filled out, digitally signed and submitted electronically.

Note: The file naming convention for resubmitted AEIR documents is covered in Section 22.3.5 of the AEIR Standard.

21.3 What Constitutes a Complete and On-time Submission?

In order to be considered "complete" the AEIR submission needs to include the following three completed documents:

1. The AEIR Form (with the required fields filled in with appropriate information for the inventory year);
2. The Quantification Methodology Document (with the required information documenting the inventory compilation and emissions quantification for the inventory year); and
3. The signed and dated Statement of Certification (for the inventory year).

In order to be considered "on-time" the three documents listed above, which comprise the AEIR, are required to be submitted electronically to the specified email address (see: clause EIS 21-A) by 11:59 PM on September 30 of the reporting year (the year following the inventory year).

Note: The AEIR Statement of Certification must be signed (either physically or digitally) and submitted as a separate PDF document. Just adding a signature image into the "Certification" worksheet in the AEIR Form is not acceptable, as the Statement of Certification it is a separate record for the regulatory submission. The PDF Statement of Certification must also use the specified naming scheme "AEIRSOC##EPEA#####.pdf".

21.4 Submission Tracking

The AEIR Program is a regulatory reporting program and therefore involves formal tracking of each submission. The overall AEIR submission tracking process is shown in Figure 8.

Note: Individual AEIR submission confirmation emails are no longer being sent by Regulator staff. Instead, automatic reply emails will be sent when an email is received by the emissions.inventory@gov.ab.ca mailbox. This will confirm the Regulator has received the email (containing the AEIR submission, questions on the AEIR Program, etc.). If required documents are missing, or if deficiencies are found with the submission, follow up with the Technical Contact for the AEIR submission will be carried out by Regulator staff.

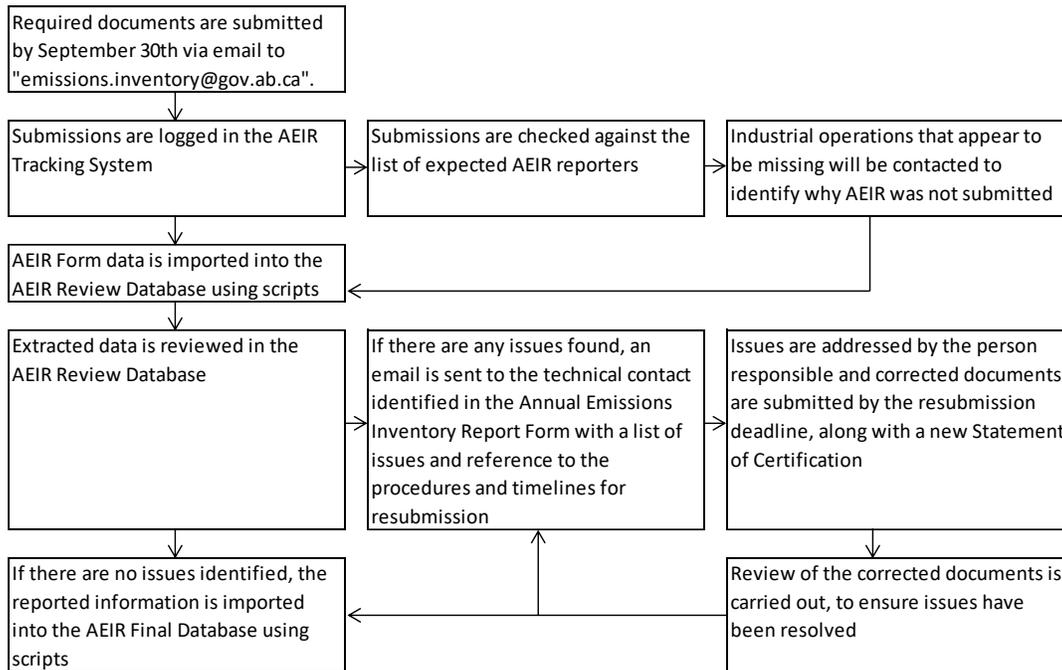


Figure 8: AEIR Submission Tracking and Review Process.

22.0 Department Review, Notifications, Resubmissions and Auditing

22.1 Department Review

The information contained in the AEIR Form and the Quantification Methodology Document may be reviewed by Department staff. Issues and questions with the submitted AEIR information could be identified. As per clause RC 7-CC, upon receiving formal notification from the Regulator of any errors, omissions or other issues with an AEIR, the person responsible is required to (a) prepare and (b) submit to the Director an amended AEIR addressing the errors, omissions or other issues that were identified by the Regulator.

If errors or deficiencies with the submitted information are identified by the Regulator, the technical contact for the industrial operation will be contacted. Efforts to address the identified errors or deficiencies are required to be made by the person responsible. Resubmission of corrected documents, including a new Statement of Certification, will potentially be required.

22.2 Notification of Identified Issues

As per clause RC 7-Z, upon discovery of errors, omissions or other issues with a submitted AEIR, the person responsible for the industrial operation is required to provide notification of the errors/omissions/other issues to the Director. This notification is required as soon as the errors, omissions or other issues are identified.

The notification of errors, omissions or other issues is to be sent via email to:

emissions.inventory@gov.ab.ca

As per clause RC 7-AA, the AEIR Standard specifies what information to include in the notification of identified issues with AEIRs. Clause EIS 22-A describes what information needs to be included in the notification.

<p><i>EIS 22-A For the Notification in RC 7-Z, the person responsible must include the following information:</i></p> <ul style="list-style-type: none"><i>(a) (i) identification and (ii) description of the errors, omissions or other issues identified;</i><i>(b) an explanation of the cause of the errors, omissions or other issues that were identified; and</i><i>(c) identification of all changes and corrections that are expected to be required in response to the errors, omissions or other issues that were identified.</i>
--

22.3 Revisions and Resubmission

22.3.1 Resubmission Materiality Threshold

As per clause RC 7-BB, upon discovery of errors, omissions or other issues with an AEIR, the person responsible for the industrial operation is required to (a) prepare and (b) submit an amended AEIR addressing the errors, omissions or other issues that were identified. While notification of any errors, omissions or other issues with a submitted AEIR is required, resubmission (submission of a corrected AEIR) may not be required in all instances.

A materiality threshold of 10% (per substance) is to be used when determining if resubmission of an AEIR is required. This means that resubmission (based on errors or omissions in emissions) are usually only required when an individual or cumulative series of errors, omissions or other issues have resulted in a difference of 10% to the industrial operation's total annual emissions of any Schedule 1 or applicable Schedule 2 substance.

Example:

A calculation error in NO_x emissions from stack A resulted in a correction of the reported NO_x emission value for stack A, changing the quantified value from 250 tonnes to 325 tonnes. The industrial operation's total annual NO_x emissions for the inventory year were 480 tonnes and using the corrected value would bring this to a total of 555 tonnes. The correction in NO_x emissions therefore resulted in a change in total annual NO_x emissions of 75 tonnes or 15.6% of the industrial operation's total annual NO_x emissions. As

this is larger than the 10% resubmission materiality threshold, resubmission of the AEIR with the corrected NO_x emissions would therefore be required.

Example:

A calculation error in CO emissions from stack B resulted in a correction of the reported CO emission value for stack B, changing the quantified value from 200 tonnes to 180 tonnes. The industrial operation's total annual CO emissions for the inventory year were 350 tonnes and using the corrected value would bring this down to a total of 330 tonnes. The correction in CO emissions therefore resulted in a change in total annual CO emissions of 20 tonnes or 6.7% of the industrial operation's total annual CO emissions. As this is smaller than the 10% resubmission materiality threshold, resubmission of the AEIR with the corrected CO emissions would therefore not be required. However, notification of the error is still required.

The same 10% materiality threshold is to be applied to errors and issues with the normal and maximum emission levels (totals for the entire industrial operation). Resubmission based on non-emission errors, omissions or other issues is required whenever identified. Any errors, omissions or other issues that fell below the 10% materiality threshold and did not require resubmission will still need to be addressed in future AEIRs (if applicable), to ensure the error is corrected and is not carried forward.

22.3.2 Timelines for Resubmission

As per clause RC 7-DD, the timelines for resubmitting an AEIR are specified in the AEIR Standard. Clause EIS 22-B sets out the timelines for resubmission.

<i>EIS 22-B Unless otherwise specified by the Director, submission of a corrected Annual Emissions Inventory Report to the Director, as covered by RC 7-BB and RC 7-CC, must be completed within 60 calendar days of the original issue identification.</i>

Note: Original issue identification is the date in which the person responsible became aware of an issue with the content of an AEIR. This could be from identification of the issue by internal staff or hired contractor, or could be from being informed of the issue by the Regulator.

Note: Correction of minor issues (such as correcting a decimal issue, filling in a missed field, etc.) should take less than 60 calendar days. The person responsible should strive to submit the amended AEIR with the correction of minor issues in less than 30 calendar days.

22.3.3 Certification of Resubmitted Documents

As per clause RC 7-GG, the person responsible needs to complete and submit a new Statement of Certification for an amended AEIR. A new Statement of Certification **is required** for all **non-minor** corrections/revisions. Non-minor corrections/revisions will typically be any corrections/revisions to information related to: the emission rates (greater than the 10% materiality threshold); sources (e.g., missing or incorrect release points and/or non-point sources); units/processes/equipment (e.g., missing or incorrect equipment); pollution controls (e.g., missing or incorrect controls); or emission limits (e.g., missing or incorrect limits) included in the AEIR. A new Statement of Certification will also typically be required if there are any corrections/revisions to the information contained on the originally submitted Statement of Certification (e.g., EPEA approval, inventory year, etc.).

A new Statement of Certification **is typically not required** when correcting **minor** errors, such as correcting missing administrative information (e.g., NPRI ID, mailing address, consultant phone number, etc.). Prior to resubmission, the person responsible should contact the Alberta Air Emissions Inventory Program to confirm whether a new Statement of Certification is required. Regardless of whether a new Statement of Certification is required, the person responsible should review any corrections/revisions being made (and any related changes that may have resulted) prior to submitting the revised AEIR documents to the Regulator.

22.3.4 Documents for Resubmission

As per clause RC 7-EE, the amended AEIR is required to be in the form of an amended or additional AEIR Form. This means that the AEIR Form must be updated and submitted, as opposed to sending revised information via an email or letter.

As per clause RC 7-FF, the person responsible also needs to include in the resubmission of an AEIR: (a) unique identification indicating it is an amended AEIR and (b) a reference to the original AEIR that it corrects. This information can be specified in the resubmission email.

When resubmission is required, the following documents are required to be provided:

- A cover letter describing the revisions being made, the reason for the revisions and reference to the notification of the issue that was provided by/to the Regulator;
- The revised AEIR Form;
- If there have been additions/revisions to the quantification methods used or calculations, an updated Quantification Methodology Document with the required additional/revised documentation; and
- A new signed Statement of Certification (for non-minor corrections/revisions).

22.3.5 Resubmission File Naming

Resubmitted AEIRs are required to be named in a specific format to ensure proper handling and tracking of the submitted files (and to avoid confusion with the previously submitted versions). The following is the file naming scheme that is required to be used for resubmitted AEIR documents:

AEIR Form => "AEIRF##EPEA#####R#.xlsx"

The first two “#” places represent the year of the AEIR (e.g., 22 for the 2022 inventory, being submitting in 2023). The second set of “#” places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). The third “#” place (following “R”) is to indicate the resubmitted version (1 for resubmission 1, 2 for resubmission 2, etc.) The Annual Emissions Inventory Form needs to be submitted as a Microsoft Excel file (.xlsx).

Example:

The first resubmitted 2022 AEIR Form for industrial operation 1234 would be named (including the file extension): "AEIRF22EPEA1234R1.xlsx".

Quantification Methodology Document => "AEIRQMD##EPEA#####R#.pdf"

The first two “#” places represent the year of the AEIR (e.g., 22 for the 2022 inventory year, being submitting in 2023). The second set of “#” places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). The third “#” place (following “R”) is to indicate the resubmitted version (1 for resubmission 1, 2 for resubmission 2, etc.) The Quantification Methodology Document is to be submitted as an Adobe PDF file (.pdf).

Example:

The first resubmitted 2022 Quantification Methodology Document for industrial operation 1234 would be named (including the file extension): "AEIRQMD22EPEA1234R1.pdf".

Signed Statement of Certification => "AEIRSOC##EPEA#####R#.pdf"

The first two “#” places represent the year of the AEIR (e.g., 22 for the 2022 inventory year, being submitting in 2023). The second set of “#” places represent the EPEA approval number for the industrial operation (excluding any amendment/renewal numbers). The third “#” place (following “R”) is to indicate the resubmitted version (1 for resubmission 1, 2 for resubmission 2, etc.) The signed Statement of Certification is to be submitted as an Adobe PDF file (.pdf).

Example:

The signed Statement of Certification for the first resubmitted 2022 AEIR for industrial operation 1234 would be named (including the file extension): "AEIRSOC22EPEA1234R1.pdf".

22.4 Auditing of AEIRs

In addition to the standard internal review of the submitted AEIR information, the Regulator may choose to conduct a more detailed review of the information submitted under the AEIR Program. There are two main types of audits that could be carried out, paper (desktop) and on-site. Paper (desktop) audits are carried out on the submitted documents and could involve requests for additional information from the industrial operation. On-site audits are carried out at the industrial operation to examine the plant, sources and information used to prepare the AEIR. If an audit is going to take place, the Regulator will be in contact with the technical contact for the industrial operation that was identified in the AEIR Form.

Note: Regulator staff and auditors acting on behalf of the Regulator are bound by the Government of Alberta confidentiality requirements, and are required to comply with all appropriate confidentiality regulations. Further, any contracted audits explicitly reference the confidentiality requirements under EPEA and FOIPPA, including how information submitted to the Government of Alberta is to be handled for confidentiality purposes.

23.0 Record Keeping and Confidentiality

23.1 Record Keeping

Unless otherwise authorized in writing by the Director, EPEA approved industrial operations are required to retain all data and information associated with environmental monitoring reports, including AEIRs, for a minimum of 10 years. These records need to be made available to the Regulator upon request. This includes, but is not necessarily limited to, copies of all reports, raw and validated data, formulas and calculations, charts and figures, and digitally recorded data.

23.2 Process for Requesting Confidentiality

Under Section 35 of EPEA, several types of environmental information are specified as information that is required to be disclosed to the public. This includes: information provided to the Regulator as part of an application under EPEA; the EPEA approval issued by the Regulator; and environmental and emissions monitoring data (including processing information needed to interpret the data) provided by an approval holder.

Most of the information being collected through the AEIR is either information specified or referenced by the EPEA approval, covered by the application, represents emissions monitoring (including estimation) data and/or the information necessary to interpret the emissions data. For example, the authorized release points and non-point sources; the associated units, processes, equipment and pollution controls; and potential and actual substances and emissions will typically have already been set out in the application/EIA and directly stated or referenced in the EPEA approval.

Information contained in the AEIR that typically would **not** be considered confidential includes:

- Administrative descriptive information on the industrial operation;
- Emission release points and non-point sources;
- Release parameters and geographic locations;
- Units, processes and equipment associated with the release points and non-point sources;
- Pollution control technologies and equipment;
- Limits;
- Source monitoring; and
- Emission rates.

The same confidentiality provisions apply to AEIRs as apply to all information collected under EPEA. EPEA approved industrial operations may therefore already be familiar with the confidentiality provisions and processes under EPEA. In accordance with the provisions in Section 35 of EPEA, the person responsible for the industrial operation may submit a written request for confidentiality for any information being submitted under EPEA that relates to a trade secret, process or technique that the person submitting the information keeps confidential.

The person responsible should carefully review Section 35 of EPEA and the *Alberta Freedom of Information and Protection of Privacy Act* to ensure they understand the confidentiality provisions that apply to data submitted under the AEIR Program. Any submitted confidentiality request should be accompanied with sufficient supporting information and justification for the Director to review and make at a decision on the request. Figure 9 shows the confidentiality process for the AEIR Program.

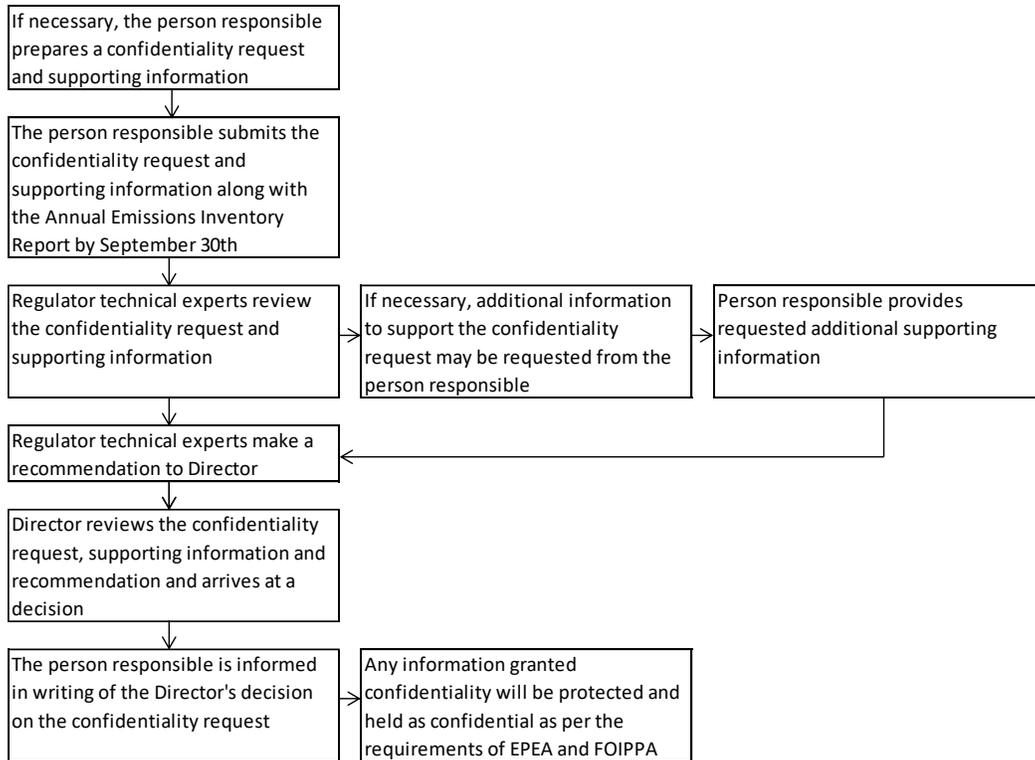


Figure 9: AEIR Confidentiality Process.

Note: Preparing a confidentiality request should not delay the submission of the AEIR and is not grounds for not meeting the reporting deadline (September 30th). Regulatory reporting obligations are still required to be met, regardless of whether confidentiality is being requested.

Note: Each AEIR submission is considered a separate report for a separate reporting period (e.g., the 2022 AEIR, the 2023 AEIR, etc.). If confidentiality is being requested for subsequent AEIRs, each year's submitted AEIR would require a separate submitted confidentiality request. The previously submitted supporting information could potentially be submitted again to justify the subsequent year's confidentiality requests (if applicable and appropriate).

24.0 Reporting for Subsequent Inventory Years

Some of the information being reported in the AEIR Form is specific to the individual inventory year and will need to be updated annually. However, much of the information in the AEIR Form will not change year-to-year, unless there has been a major change to the industrial operation and how it is operating/emitting. For reporting under the AEIR Program, it is intended that the completed AEIR Form for the industrial operation can be used for reporting for subsequent inventory years. Unless otherwise specified in Section 3.9 of the AEIR Standard, the same Microsoft Excel AEIR Form as the previous year can be used for the subsequent inventory year, provided the required updates to the reported information are made.

Although the previous year's AEIR Form can be used, the person responsible does need to review the previous year's information to identify:

- (a) any information that needs to be updated (e.g., contact information, changes in operational information, year specific release incidents, year specific source monitoring, year specific major source or plant shutdowns, etc.);
- (b) any information that needs to be added (e.g., new sources, equipment, substances being emitted, etc.);
- (c) any previously reported information that no longer applies (e.g., sources or equipment no longer operating, substances no longer being emitted, etc.); and
- (d) the annual actual emission rates that need to be updated to reflect the new inventory year's emissions.

The normal and maximum emission rates typically will not change every year, but could require updates if there have been changes at the industrial operation or its typical or maximum operating conditions. Any new, temporarily shut-down or decommissioned release points or non-point sources are required to be identified along with their revised emission rates. Any Director-authorized changes in quantification methodologies for the subsequent inventory year are also required to be reflected in the AEIR Form and in the Quantification Methodology Document.

Note: Release points, non-point sources, equipment and pollution controls that were included in the AEIR Forms for previous inventory years should not be removed in the AEIR Form for the current inventory year. If a release point, non-point source, equipment or pollution control has been permanently decommissioned, then it should be left in the AEIR Form. The operating status should be set to decommissioned, the annual hours of operation should be set to zero and any associated emission rates cleared from the AEIR Form. Release points, non-points sources, equipment and pollution controls should not disappear from the submitted AEIR Forms.

Note: If you are unsure whether or not information from the previous years AEIR Form can be deleted from the AEIR Form for the current inventory year, then please email emissions.inventory@gov.ab.ca for guidance (before removing the information).

The following questions and answers provide general guidance on what may need to be updated for subsequent inventory years when reporting under the AEIR Program. These are not meant to cover all the information and fields in the AEIR Form that may need to be updated or revised, but should give an idea of what types of information may have changed from the previous inventory year.

If the industrial operation's annual actual emissions have not changed very much from the previous year, will a revised AEIR still need to be submitted for the current inventory year?

Yes, the AEIR will still need to be revised and submitted. If the reporting thresholds for a subsequent inventory year have been met, then an AEIR (updated for the new inventory year) will need to be submitted by the reporting deadline. The criteria for whether or not an AEIR is required is not based on changes in emission levels. It is based on whether the industrial operation has an EPEA approval and whether or not it has exceeded the reporting thresholds for the specific inventory year.

Will administrative information in the AEIR Form typically need to be updated/revised annually?

Much of the administrative information (e.g., industrial operation identifications, ownership information, sector, activities, product capacities, geographic location, boundaries, building dimensions, mailing address, etc.) typically will not change much from one year to the next. However, some of the information could have changed, such as ownership information, operational or capacity information, etc. Any such changes will need to be reflected in the AEIR Form for the inventory year being reported.

Will contact information in the AEIR Form typically need to be updated/revised annually?

Contact information (for the technical contact, Certifying Official, public contact and consultants) could change year to year, depending on staff or contractor changes at the industrial operation. This information will need to be reviewed and updated each year (if the contacts have changed). If the industrial operation's technical contact for the AEIR changes prior to the next year's reporting, an email should be sent to emissions.inventory@gov.ab.ca to inform the Regulator of the new technical contact for the industrial operation's AEIR.

Will release point and non-point source information in the AEIR Form typically need to be updated/revised annually?

Release points and non-point sources typically will not change much year to year. New sources (release points or non-point sources) may be added over time and would typically need to be authorized as part of an approval amendment. Any such newly authorized sources would need to be added to the AEIR Form. Previously approved future sources, and temporarily shut-down sources, may have become operational in the new inventory year and may need to have additional/revised information reported in the AEIR Form. Sources may also be permanently shut-down or decommissioned over time and will therefore no longer be emitting (which would need to be reflected in the subsequent AEIR). Decommissioned sources should not be removed from the AEIR Form.

Will source spatial location information in the AEIR Form typically need to be updated/revised annually?

Source locations (lat/long coordinates) would typically not change year to year. The exceptions would be locations of mobile sources, and some types of area sources, if the size or area of operation of these sources change over time (e.g., locations of mine fleets and mobile equipment, size of ponds or storage piles, etc.).

Will source parameter information in the AEIR Form typically need to be updated/revised annually?

Source parameters (height, diameter, temperature, exit velocity) typically will not change year to year. However, operating changes could occur that may impact the stack temperature, exit velocity and other operating parameters. Such changes would need to be reflected in the AEIR Form for the new inventory year. For release points undergoing source monitoring (CEMS, stack sampling, etc.), the stack parameters in worksheet 2.0 should be updated based on the available (and typically most recent) source monitoring results.

Will temporal operating information in the AEIR Form typically need to be updated/revised annually?

Temporal operation information (typical operating schedule, approximate total hours of operation, monthly operating hours/percentage, etc.) for the industrial operation, release points, non-point sources and equipment could change some each inventory year. The typical operating schedules (operating days per week, start and end times, etc.) likely will not change, but the approximate total hours of operation and monthly operating hours/percentage will be specific to the inventory year and will need to be updated annually.

Will unit, process and equipment information in the AEIR Form typically need to be updated/revised annually?

Unit, process and equipment information typically will not change much year to year, however, some changes could occur that would need to be reflected in the AEIR Form. New units, processes and equipment could be added or could replace existing equipment over time. Previously approved future and temporarily shut-down units, processes and equipment may have become operational in the new inventory year. Units, processes and equipment may also

be permanently shut-down or decommissioned over time and will therefore no longer be operating. Decommissioned units/processes/equipment should not be removed from the AEIR Form.

Will pollution control technology and equipment information in the AEIR Form typically need to be updated/revised annually?

Pollution control technology and equipment information typically will not change much year to year. New pollution controls could be added or could replace existing controls. Such changes would need to be reflected in the AEIR Form. The operational conditions and capture effectiveness/efficiency of specific pollution controls could also change in some instances. Pollution controls may also be permanently shut-down or decommissioned over time and will therefore no longer be operating. Decommissioned pollution controls should not be removed from the AEIR Form.

Will limit information in the AEIR Form typically need to be updated/revised annually?

Limit information (plant, combined source, release point and non-point source) typically will not change year to year, but could change if the industrial operation's approval terms and conditions are changed (e.g., added or revised emission or operating limit as part of an approval amendment or renewal). Any such changes would need to be reflected in the AEIR Form and in the maximum emission rates that are based on limits.

Will source sampling and monitoring information in the AEIR Form typically need to be updated/revised annually?

Source sampling and monitoring information could change year to year. Specific sampling methods, testing dates and the monitored substances will be specific to the inventory year and will need to be updated. However, the specific monitoring data collected for the year is not reported in the AEIR Form.

Will non-point source additional information in the AEIR Form typically need to be updated/revised annually?

Non-point source additional information (for: storage tanks, storage piles, mine fleets, mine face and tailings ponds) may change some year to year. The lists of specific non-point sources at the industrial operation typically will not change much, but some of the source specific information may need to be updated (e.g., # of operating mine fleet vehicles, total fuel consumption, total discharge to tailings pond, etc.).

Will annual actual emission rates in the AEIR Form typically need to be updated/revised annually?

Yes, annual actual emission rates are required to be updated annually, provided the industrial operation has exceeded the reporting thresholds for the specific inventory year and is thus required to submit an AEIR.

Will normal emission rates in the AEIR Form typically need to be updated/revised annually?

Normal emission rates are intended to represent the normal or average emission rate for the specific source and substance. Normal emission rates typically will not change every year. However, these rates will need to be updated if there are changes to what would be the representative normal or average emission rate for the specific source and substance. The representative normal emission rate is up to the person responsible. The normal emission rate should be updated if the normal emission rate has increased or decreased more than 15% from the previous year's reported normal emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less 15%.

Will maximum emission rates in the AEIR Form typically need to be updated/revised annually?

Maximum emission rates represent the approval limit, design maximum or other maximum rate for the specific source and substance. Maximum emission rates typically will not change every year. However, these rates will need to be updated if there are changes to the approval limit or to what would be the representative maximum potential emission rate for the specific source and substance. If there is no applicable approval limit, then the representative maximum

emission rate is up to the person responsible. The non-approval-limit maximum emission rate should be updated if the maximum potential emission rate has increased or decreased more than 15% from the previous year's reported maximum potential emission rate for the specific source and substance. The exception would be if the annual or normal rates are larger than the maximum rates (when converted to the same units and timescale), as annual and normal rates cannot exceed maximum rates. If the annual or normal rates exceed the maximum rates (when converted to the same units and timescale), then the normal and/or maximum rates must be updated even if the change is less 15%.

Will explanations for >10% changes in annual actual emissions need to be updated/revised annually?

Yes, the explanations for emission changes greater than 10% from previous inventory years is required to be updated annually (when total annual actual emissions of a Schedule 1 or Schedule 2 substance changed by 10% or more).

Will the Quantification Methodology Document typically need to be updated/revised annually?

Yes, an updated Quantification Methodology Document is required to be submitted annually as it is part of the required AEIR. However, unless given authorization by the Director to change quantification methods, very little content in the Quantification Methodology Document will change from year to year. Some information contained in the Quantification Methodology Document may change year to year (e.g., year specific QA/QC findings, year specific activity information, list of operating release points and non-point sources, negligible source and substance information, etc.).

Will the Statement of Certification typically need to be updated/revised annually?

Yes, a new Statement of Certification is required to be completed and submitted annually with the AEIR. The Statement of Certification is specific to each year's AEIR and is part of the final review and certification process that is required under the AEIR Program.

Appendix A: Optional Methodology - PM Size Distributions

PM Size Distribution Method

An additional optional method for determining particulate matter emissions is described in this section of the AEIR Standard. If the emissions quantity of only one or two of the three sizes of particulate matter are known, but the other size or sizes are not known, then PM size distribution ratios can potentially be used to calculate the emissions quantity of the other PM size or sizes. Size distribution ratios have been developed by Environment and Climate Change Canada (ECCC) based on sector averages and other information sources. These ratios are typically used to fill in gaps in the National Air Pollutant Emissions Inventory. These ratios are published in the 1990-2016 Air Pollutant Emission Inventory Report (Environment and Climate Change Canada 2018) and have been adapted for use in the AEIR Program (see Tables 8 to 12 below).

This optional method should only be used in the absence of more specific information for the industrial operation or a more applicable quantification methodology (such as an emission factor or source measurement data). The following steps, formulas and tables outline the methodology for applying PM size distribution ratios in order to determine the missing emission quantities for the other sizes of PM. This method can potentially be applied for determining annual actual, normal and non-limit maximum emission rates for release points and non-point sources. Note that each of these emission rates will have different input and output timescales (tonnes/year, tonnes/day and kilograms/hour).

Step 1: Identify which size of PM is missing.

Step 2: Select the appropriate formula (from the three formulas below).

Step 3: If needed, rearrange the appropriate formula to be able to solve for the missing PM size emissions quantity.

Step 4: Identify the most appropriate sector category from Tables 8 to 12 below.

Step 5: Select the required PM ratio.

Step 6: Apply the PM ratio and the known PM emissions quantity to the selected formula and solve for the missing PM size emission value.

Step 7: Report the missing PM size emission value.

$$PM_{10} \text{ ratio} = \frac{PM_{10} \text{ emissions}}{TPM \text{ emissions}}$$

Where:		
PM ₁₀ ratio	=	Ratio of the sector's PM ₁₀ emissions to TPM emissions (developed by ECCC)
PM ₁₀ emissions	=	PM ₁₀ emissions (known or missing for the industrial operation)
TPM emissions	=	TPM emissions (known or missing for the industrial operation)

$$PM_{2.5}ratio = \frac{PM_{2.5}emissions}{TPM\ emissions}$$

Where:

PM _{2.5} ratio	=	Ratio of the sector's PM _{2.5} emissions to TPM emissions (developed by ECCC)
PM _{2.5} emissions	=	PM _{2.5} emissions (known or missing for the industrial operation)
TPM emissions	=	TPM emissions (known or missing for the industrial operation)

$$PM_{2.5}/PM_{10}\ ratio = \frac{PM_{2.5}emissions}{PM_{10}emissions}$$

Where:

PM _{2.5} /PM ₁₀ ratio	=	Ratio of the sector's PM _{2.5} emissions to the PM ₁₀ emissions (developed by ECCC)
PM _{2.5} emissions	=	PM _{2.5} emissions (known or missing for the industrial operation)
PM ₁₀ emissions	=	PM ₁₀ emissions (known or missing for the industrial operation)

PM Size Distribution Annual Method Example:

Estimate annual PM₁₀ emissions from Source Y, given:

- Annual actual PM_{2.5} emissions from Source Y were 10.52 tonnes;
- No other methods or data are available to determine PM₁₀ emissions from Source Y; and
- The industrial operation is a pulp mill.

Step 1: The PM₁₀ emissions are missing.

Step 2: The appropriate formula is:

$$PM_{2.5}/PM_{10}\ ratio = \frac{PM_{2.5}emissions}{PM_{10}emissions}$$

Step 3: The formula is rearranged to:

$$PM_{10}\ emissions = (PM_{2.5}\ emissions) / (PM_{2.5}/PM_{10}\ ratio)$$

Step 4: The most appropriate sector category is the Pulp and Paper Industry (in Table 10).

Step 5: The PM_{2.5}/PM₁₀ Ratio for the Pulp and Paper sector is: 0.757

Step 6:

$$PM_{10}\ emissions\ from\ Source\ Y = (PM_{2.5}\ emissions) / (PM_{2.5}/PM_{10}\ ratio)$$

$$PM_{10}\ emissions\ from\ Source\ Y = 10.52\ tonnes / 0.757$$

$$PM_{10}\ emissions\ from\ Source\ Y = 13.89696169\ tonnes$$

Step 7:

PM₁₀ emissions from Source Y = **13.90 tonnes/year**

Table 8: PM Size Distribution Ratios for Ore and Mineral Industries.

Ore and Mineral Industries	PM_{2.5} Ratio	PM₁₀ Ratio	PM_{2.5}/PM₁₀ Ratio
Aluminum Industry			
Primary Aluminum Smelting and Refining	0.559	0.686	0.798
Secondary Aluminum (Includes Recycling)	0.937	0.951	0.926
Asphalt Paving Industry	0.177	0.385	0.513
Cement and Concrete Industry			
Cement Manufacture	0.310	0.623	0.474
Concrete Batching and Products	0.230	0.497	0.465
Lime Manufacture	0.309	0.576	0.512
Foundries			
Die Casting	0.510	0.711	0.810
Ferrous Foundries	0.510	0.711	0.723
Non-ferrous Foundries	0.490	0.927	0.719
Iron and Steel Industries			
Primary (Blast Furnace and DRI)	0.403	0.598	0.650
Secondary (Electric Arc Furnaces)	0.474	0.616	0.802
Steel Recycling	0.510	0.711	0.287
Iron Ore Industry			
Iron Ore Mining	0.191	0.513	0.432
Pelletizing	0.212	0.480	0.410
Mineral Products Industry			
Clay Products	0.094	0.802	0.484
Other Mineral Products	0.545	0.762	0.665
Mining and Rock Quarrying			
Coal Mining Industry	0.064	0.368	0.147
Metal Mining	0.283	0.532	0.509
Rock, Sand and Gravel	0.165	0.460	0.397
Other Minerals	0.197	0.465	0.398
Non-Ferrous Mining and Smelting Industry			
Primary Ni, Cu, Zn, Pb	0.375	0.649	0.606
Secondary Pb, Cu	0.396	0.574	0.748
Other Metals	0.444	0.494	0.859

Table 9: PM Size Distribution Ratios for Oil and Gas Industries.

Oil and Gas Industries	PM_{2.5} Ratio	PM₁₀ Ratio	PM_{2.5}/PM₁₀ Ratio
Downstream Petroleum Industry			
Refined Petroleum Products Bulk Storage and Distribution	0.100	0.100	0.750
Other Downstream Petroleum Industry	0.641	0.743	0.628
Petroleum Product Transportation and Distribution			
Natural Gas Distribution	1.000	1.000	1.000
Natural Gas Transmission and Storage	1.000	1.000	1.000
Petroleum Product Pipelines	1.000	1.000	1.000
Upstream Petroleum Industry			
Bitumen and Heavy Oil Upgrading	0.428	0.677	0.631
Light Medium Crude Oil Production	1.000	1.000	1.000
Natural Gas Production and Processing	1.000	1.000	1.000
Oil Sands In-Situ Extraction and Processing	1.000	1.000	1.000
Oil Sands Mining Extraction and Processing	0.477	0.658	0.680
Petroleum Liquids Storage	0.831	1.000	0.831
Heavy Crude Oil Cold Production	1.000	1.000	1.000

Table 10: PM Size Distribution Ratios for Manufacturing Industries.

Manufacturing Industries	PM_{2.5} Ratio	PM₁₀ Ratio	PM_{2.5}/PM₁₀ Ratio
Abrasives Manufacture	0.773	0.842	0.371
Bakeries	0.931	0.947	0.857
Chemicals Industry			
Chemical Manufacture	0.595	0.737	0.754
Fertilizer Production	0.235	0.575	0.520
Paint and Varnish Manufacturing	0.564	0.919	0.701
Petrochemical Industry	0.424	0.894	0.587
Plastics and Synthetic Resins Fabrication	0.566	0.791	0.744
Electronics	0.833	0.958	0.834
Food Preparation	0.409	0.651	0.634
Glass Manufacture	0.755	0.836	0.919
Grain Industries	0.140	0.387	0.338
Metal Fabrication	0.590	0.747	0.771
Plastics Manufacture	0.474	0.731	0.817
Pulp and Paper Industry	0.560	0.737	0.757
Textiles	1.000	1.000	0.759
Vehicle Manufacture	0.427	0.694	0.748
Wood Products			
Panel Board Mills	0.361	0.596	0.589
Sawmills	0.197	0.423	0.451
Other Wood Products	0.549	0.688	0.732

Table 11: PM Size Distribution Ratios for Electric Power Generation.

Electric Power Generation	PM_{2.5} Ratio	PM₁₀ Ratio	PM_{2.5}/PM₁₀ Ratio
Coal	0.293	0.578	0.484
Diesel	0.962	0.967	0.943
Natural Gas	0.663	0.909	0.902
Waste Materials	0.540	0.734	0.760
Other Electric Power Generation	0.608	0.735	0.924

Table 12: PM Size Distribution Ratios for Other Industries.

Other Industries	PM_{2.5} Ratio	PM₁₀ Ratio	PM_{2.5}/PM₁₀ Ratio
Industrial and Commercial Incineration	0.359	0.718	0.479
Waste			
Landfills	0.603	0.778	0.743
Waste Treatment and Disposal	1.000	1.000	1.000
Water and Sewage Treatment	1.000	1.000	0.968
Remediation and Other Waste Management Services	0.603	0.778	0.743
Surface Coatings	0.786	0.942	0.792
Unpaved Roads	0.027	0.265	0.100
Coal Transportation	0.200	0.500	0.400

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Appendix C: AEIR Form Field Descriptions

Table 13: Data Fields for Worksheet 1.1: AEIR Identification Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Inventory Year	Whole Number	Greater than or equal to 2018.	The year of emissions the AEIR covers.	2022
B13	Date of the Annual Emissions Inventory Report	Date	Greater than 1/1/2019.	The date the AEIR was completed, sometime just before the AEIR Report is submitted.	September 30, 2022
B16	Is this an Annual Emissions Inventory Report resubmission? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the AEIR is a resubmission.	No

Table 14: Data Fields for Worksheet 1.2: Company Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B21	Company Legal Name	Text Length	0 to 255 characters	Enter the legal name of the company that owns or operates the industrial operation.	AEP Bitumen and Power
B24	Company Trade Name	Text Length	0 to 255 characters	Enter the trade name of the company that owns or operates the industrial operation.	AEP Bitumen and Power
B27	Company Mailing Address	Text Length	0 to 255 characters	Enter the mailing address of the company that owns or operates the industrial operation.	9820 – 106 Street
B30	Company City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the company that owns or operates the industrial operation.	Edmonton
B33	Company Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the company that owns or operates the industrial operation.	Alberta
B36	Company Country	Text Length	0 to 255 characters	Enter the country of the company that owns or operates the industrial operation.	Canada
B39	Company Postal Code	Text Length	0 to 255 characters	Enter the postal code of the company that owns or operates the industrial operation.	T5K 2J6
B42	Is there a second owner/operating company? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there is a second owner or operating company for the industrial operation.	No
B47	2nd Company Legal Name	Text Length	0 to 255 characters	Enter the legal name of the 2nd company that owns or operates the industrial operation.	AEP Bitumen and Power
B50	2nd Company Trade Name	Text Length	0 to 255 characters	Enter the trade name of the 2nd company that owns or operates the industrial operation.	AEP Bitumen and Power
B53	2nd Company Mailing Address	Text Length	0 to 255 characters	Enter the mailing address of the 2nd company that owns or operates the industrial operation.	9820 – 106 Street
B56	2nd Company City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the 2nd company that owns or operates the industrial operation.	Edmonton

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B59	2nd Company Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the 2nd company that owns or operates the industrial operation.	Alberta
B62	2nd Company Country	Text Length	0 to 255 characters	Enter the country of the 2nd company that owns or operates the industrial operation.	Canada
B65	2nd Company Postal Code	Text Length	0 to 255 characters	Enter the postal code of the 2nd company that owns or operates the industrial operation.	T5K 2J6

Table 15: Data Fields for Worksheet 1.3: Industrial Operation Identification Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B72	Industrial Operation Name	Text Length	0 to 255 characters	Enter the name of the specific industrial operation that the AEIR Form is being submitted for.	Oxbridge Facility
B75	EPEA Approval Holder(s)	Text Length	0 to 255 characters	Enter the name(s) of the company (ies) that holds the EPEA approval for the specific industrial operation.	AEP Bitumen and Power
B78	EPEA Approval #	Whole Number	Greater than or equal to 0	Enter the EPEA approval number for the specific industrial operation.	12345
B81	2nd EPEA Approval # (if applicable)	Whole Number	Greater than or equal to 0	Enter a second EPEA approval number, if applicable, for the specific industrial operation.	12345
B86	NPRI ID (if applicable)	Whole Number	Greater than or equal to 0	Enter the National Pollutant Release Inventory (NPRI) identification number, if applicable, for the specific industrial operation.	55555
B89	2nd NPRI ID (if applicable)	Whole Number	Greater than or equal to 0	Enter a second National Pollutant Release Inventory (NPRI) identification number, if applicable, for the specific industrial operation.	55558
B92	List any additional NPRI IDs applicable to the industrial operation (if more than two NPRI IDs apply)	Text Length	0 to 5000 characters	Enter any additional National Pollutant Release Inventory (NPRI) identification numbers.	n/a
B95	If applicable, provide a brief description of any differences between the EPEA approved industrial operation and the NPRI facility/facilities.	Text Length	0 to 5000 characters	Enter a brief description of any differences between the EPEA approved industrial operation and the NPRI facility or facilities that equate (partly or wholly) to the industrial operation.	The oil sands mining and cogeneration parts of the facility are separate NPRI facilities and thus each have a separate NPRI ID. The two NPRI facilities combined equate to the single EPEA approved industrial operation (covers the same sources).
B98	If applicable, list any AER Facility ID(s) for the industrial operation (list all that apply)	Text Length	0 to 5000 characters	List any Alberta Energy Regulator (AER) facility identification numbers, if	ABOS00555555

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				applicable, for the specific industrial operation.	
B101	AER Approval # (if applicable)	Text Length	0 to 255 characters	List any Alberta Energy Regulator (AER) Approval (Licence) numbers, if applicable, for the specific industrial operation that the AEIR Form.	n/a
B104	Is this industrial operation a formal member of an Alberta Airshed? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation is a formal and current member of an Alberta Airshed.	Yes
B107	If applicable, which Alberta Airshed?	List	Specified Selection	Select the specific Alberta Airshed that the industrial operation is a member of, if applicable.	Alberta Capital Airshed Alliance

Table 16: Data Fields for Worksheet 1.4: Industrial Operation Temporal Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B112	Date of First Commercial Operation	Date	Greater than 1/1/1900	Enter the date of first commercial operation for the industrial operation.	January 1, 1999
B115	Decommission Date (if applicable)	Date	Greater than 1/1/1900	Enter the decommission date for the industrial operation.	January 1, 2022
B118	Expected Shutdown or Decommission Year for the Industrial Operation	Whole Number	Greater than 2018	Enter the expected shutdown or decommission year for the industrial operation.	2035
B121	Operating Status (for the inventory year)	List	Specified Selection	Select the general operating status of the industrial operation for the inventory year.	Operating
B124	Operating Condition (for the inventory year)	List	Specified Selection	Select the general operating condition of the industrial operation for the inventory year.	Normal
B127	Operating Schedule (# of days per week)	Whole Number	Equal to or less than 7	Enter the number of days per week the industrial operation typically operates/emits.	7
B130	Operates During Holidays? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation typically operates/emits during statutory holidays.	No
B133	Does the industrial operation typically operate 24-hours a day? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation typically operates/emits 24-hours a day.	No
B136	Weekday Start Time (if not operating 24-hours day)	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday start time for the industrial operation.	8:00
B139	Weekday End Time (if not operating 24-hours day)	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday end time (closing for the day time) for the industrial operation.	16:30
B142	Operates on Weekends? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation typically operates/emits on weekends.	Yes

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B145	Weekend Start Time (if operates on weekends and not 24-hours day)	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend start time for the industrial operation.	8:00
B148	Weekend End Time (if operates on weekends and not 24-hours day)	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend end time (closing for the day time) for the industrial operation.	16:30
B151	Approximate Hours of Operation for the Year	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the industrial operation for the inventory year.	1,950
B154	Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?	List	Specified Selection	Select whether the monthly operating information is being reported in "Hours" or "Percentage".	Hours
B157	January Hours of Operation or Operating/Emitting Percentage	Decimal	Greater than or equal to 0	Enter the approximate number of hours of operation for the industrial operation occurring during January of the inventory year	168.0
B193	Sum of Monthly (autosum, no input required)	Decimal	Greater than or equal to 0	This field automatically sums the twelve monthly hours of operation or operating/emitting percentages. No input is required.	1,950.0

Note: The same fields as "January" described above are required for reporting the approximate number of hours of operation, or approximate percent of total annual operation/emissions, for the industrial operation occurring during the other months (February – December) of the inventory year.

Table 17: Data Fields for Worksheet 1.5: Industrial Operation Sector Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Sector (select the most appropriate sector category)	List	Specified Selection	Select the sector category for the industrial operation.	Oil Sands - Mining, Processing and Upgrading
B13	NAICS Code (six-digit)	Whole Number	Greater than or equal to 0	Enter the six-digit NAICS code for the industrial operation.	211114
B16	2nd NAICS Code (six-digit) (if applicable)	Whole Number	Greater than or equal to 0	Enter a second six-digit NAICS code for the industrial operation, in cases where a single NAICS code is not sufficient to represent the industrial activities occurring at an industrial operation.	221112

Table 18: Data Fields for Worksheet 1.6: Industrial Operation Activity Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B22	Primary Activities (individually list each one)	Text Length	0 to 255 characters	List the individual primary activities of the industrial operation.	Oil Sands Mining

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B35	Secondary Activities (if applicable, individually list each one)	Text Length	0 to 255 characters	List the individual secondary activities of the industrial operation.	Electric Power Generation

Note: The same fields described above are required for reporting primary activities 2 to 10 and secondary activities 2 to 10.

Table 19: Data Fields for Worksheet 1.7: Industrial Operation Product Capacity Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B52	Products of the Industrial Operation (individually list each primary and secondary product)	Text Length	0 to 255 characters	List the individual primary or secondary product of the industrial operation.	Oil equivalent
C52	Primary or Secondary (select)	List	Specified Selection	Select whether the product is a primary or secondary product of the industrial operation.	Primary
D52	Plant Design Maximum or Rated Capacity - Quantity (by product)	Decimal	Greater than or equal to 0	Enter the plant design maximum or rated capacity quantity for the individual primary or secondary product.	150,000.00
E52	Plant Average/Normal Capacity - Quantity (by product)	Decimal	Greater than or equal to 0	Enter the plant average or normal capacity quantify for the individual primary or secondary product.	125,000.00
F52	Capacity - Units	Text Length	0 to 255 characters	Enter the specific units for the reported maximum/rated or average/normal product capacity.	barrels
G52	Capacity - Timescale	Text Length	0 to 255 characters	Enter the specific timescale for the reported maximum/rated or average/normal product capacity.	per day

Note: The same fields described above are required for reporting primary and secondary products 2 to 20.

Table 20: Data Fields for Worksheet 1.8: Industrial Operation Location Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Industrial Operation Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter a base elevation value for the industrial operation.	671
B13	Industrial Operation Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter a geographic latitude value for the industrial operation.	53.53610
B16	Industrial Operation Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter a geographic longitude value for the industrial operation.	-113.50340

Table 21: Data Fields for Worksheet 1.9: Industrial Operation Legal Land Description.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B21	Legal Subdivision	List	Specified Selection	Enter the legal subdivision portion of the legal land description for the industrial operation.	10
B24	Quarter Section	List	Specified Selection	Enter the quarter section portion of the legal land description for the industrial operation.	SE
B27	Section	List	Specified Selection	Enter the section portion of the legal land description for the industrial operation.	32
B30	Township	List	Specified Selection	Enter the township portion of the legal land description for the industrial operation.	52
B33	Range	List	Specified Selection	Enter the range portion of the legal land description for the industrial operation.	24
B36	Meridian	List	Specified Selection	Enter the meridian portion of the legal land description for the industrial operation.	4

Table 22: Data Fields for Worksheet 1.10: Simplified Industrial Operation Boundary.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B47	Number of Industrial Operation Boundary Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices being reported for the industrial operation boundary.	4
B50	Industrial Operation Boundary Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude vertex value for the boundary of the industrial operation.	53.53600
B53	Industrial Operation Boundary Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude vertex value for the boundary of the industrial operation.	-113.50330

Note: The same latitude and longitude fields described above are required for reporting the industrial operation's other boundary vertex locations (vertices 2 to 4, and up to 20).

Table 23: Data Fields for Worksheet 1.11: Industrial Operation Building Dimensions.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B11	Has a building effects (downwash) assessment been carried out for the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether a building effects (downwash) assessment has been carried out for the industrial operation.	Yes
B15	Building Name	Text Length	0 to 255 characters	Enter the name of the building being reported.	Main Powerhouse Building
C15	Release Point Descriptive Names (if applicable, list all for any Release Point or Points located on the Building)	Text Length	0 to 5000 characters	List the descriptive names of the release point(s) that are located on the building.	Combined Boiler Control Stack

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
D15	Number of Tiers for the Building	Whole Number	Greater than or equal to 0	Enter the number of tiers for the building.	1
E15	Building Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter a base elevation value for the building being reported.	671.0
G15	Tier #	Whole Number	Greater than or equal to 0	Enter the tier being reported for the building, which the subsequent corner/vertex fields will be reported for.	1
H15	Number of Tier Corners/Vertices	Whole Number	Greater than or equal to 0	Enter the number of corners or vertices being reported for the tier of the building.	4
I15	UTM Zone	Whole Number	Greater than or equal to 0	Enter the UTM zone for the corner/vertex UTM coordinates.	12
J15	Tier Corner/Vertex 1 Height (m)	Decimal	Greater than or equal to 0	Enter the height of the corner/vertex in metres.	10.0
K15	Tier Corner/Vertex 1 UTM Easting (NAD 83, m)	Decimal	Greater than or equal to 0	Enter the UTM easting coordinate for the first tier corner/vertex of the building being reported.	344146.0
L15	Tier Corner/Vertex 1 UTM Northing (NAD 83, m)	Decimal	Greater than or equal to 0	Enter the UTM northing coordinate for the first tier corner/vertex of the building being reported.	5935866.0

Note: The same corner/vertex easting and northing fields described above are required for reporting the building's other corner/vertex locations (corners/vertices 2 to 4, and up to 16).

Table 24: Data Fields for Worksheet 1.12: Industrial Operation Mailing Address.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Industrial Operation Mailing Address	Text Length	0 to 255 characters	Enter the mailing address of the industrial operation.	9820 – 106 Street NW
B13	Industrial Operation City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the industrial operation's mailing address.	Edmonton
B16	Industrial Operation Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the industrial operation's mailing address.	Alberta
B19	Industrial Operation Country	Text Length	0 to 255 characters	Enter the country of the industrial operation's mailing address.	Canada
B22	Industrial Operation Postal Code	Text Length	0 to 255 characters	Enter the postal code of the industrial operation's mailing address.	T5K 2J6

Table 25: Data Fields for Worksheet 1.13: Industrial Operation Technical Contact.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B29	Technical Contact - First Name	Text Length	0 to 255 characters	Enter the first name of the technical contact.	John
B32	Technical Contact - Last Name	Text Length	0 to 255 characters	Enter the last name of the technical contact.	Doe
B35	Technical Contact - Professional Designation (if applicable)	Text Length	0 to 255 characters	Enter the professional designation of the technical contact, if applicable.	P.Eng.
B38	Technical Contact - Position/Title	Text Length	0 to 255 characters	Enter the position or title of the technical contact.	Environmental Coordinator

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B41	Technical Contact - Telephone Number	Text Length	0 to 255 characters	Enter the business telephone number of the technical contact.	555-555-5555
B44	Technical Contact - Telephone Ext. (if applicable)	Text Length	0 to 255 characters	Enter the business telephone number extension of the technical contact, if applicable.	123
B47	Technical Contact - Fax Number (if applicable)	Text Length	0 to 255 characters	Enter the business fax number of the technical contact, if applicable.	555-555-5555
B50	Technical Contact - Email Address	Text Length	0 to 255 characters	Enter the business email address of the technical contact.	john.doe@company.com
B53	Technical Contact - Mailing Address	Text Length	0 to 255 characters	Enter the business mailing address of the technical contact.	9820 – 106 Street NW
B56	Technical Contact - City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the technical contact's business mailing address.	Edmonton
B59	Technical Contact - Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the technical contact's business mailing address.	Alberta
B62	Technical Contact - Country	Text Length	0 to 255 characters	Enter the country of the technical contact's business mailing address.	Canada
B65	Technical Contact - Postal Code	Text Length	0 to 255 characters	Enter the postal code of the technical contact's business mailing address.	T5K 2J6

Table 26: Data Fields for Worksheet 1.14: Industrial Operation Certifying Official.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B72	Certifying Official - First Name	Text Length	0 to 255 characters	Enter the first name of the Certifying Official.	Jane
B75	Certifying Official - Last Name	Text Length	0 to 255 characters	Enter the last name of the Certifying Official.	Doe
B78	Certifying Official - Professional Designation (if applicable)	Text Length	0 to 255 characters	Enter the professional designation of the Certifying Official, if applicable.	P.Eng.
B81	Certifying Official - Position/Title	Text Length	0 to 255 characters	Enter the position or title of the Certifying Official.	Director of Operations
B84	Certifying Official - Telephone Number	Text Length	0 to 255 characters	Enter the business telephone number of the Certifying Official.	555-555-5555
B87	Certifying Official - Telephone Ext. (if applicable)	Text Length	0 to 255 characters	Enter the business telephone number extension of the Certifying Official, if applicable.	123
B90	Certifying Official - Fax Number (if applicable)	Text Length	0 to 255 characters	Enter the business fax number of the Certifying Official, if applicable.	555-555-5555
B93	Certifying Official - Email Address	Text Length	0 to 255 characters	Enter the business email address of the Certifying Official.	jane.doe@company.com
B96	Certifying Official - Mailing Address	Text Length	0 to 255 characters	Enter the business mailing address of the Certifying Official.	9820 – 106 Street NW
B99	Certifying Official - City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the Certifying Official's business mailing address.	Edmonton
B102	Certifying Official - Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the Certifying Official's business mailing address.	Alberta

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B105	Certifying Official - Country	Text Length	0 to 255 characters	Enter the country of the certifying official's business mailing address.	Canada
B108	Certifying Official - Postal Code	Text Length	0 to 255 characters	Enter the postal code of the Certifying Official's business mailing address.	T5K 2J6

Table 27: Data Fields for Worksheet 1.15: Industrial Operation Public Contact.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B117	Public Contact - First Name	Text Length	0 to 255 characters	Enter the first name of the public contact.	Bob
B120	Public Contact - Last Name	Text Length	0 to 255 characters	Enter the last name of the public contact.	Young
B123	Public Contact - Professional Designation (if applicable)	Text Length	0 to 255 characters	Enter the professional designation of the public contact, if applicable.	P.Eng.
B126	Public Contact - Position/Title	Text Length	0 to 255 characters	Enter the position or title of the public contact.	Public Relations Officer
B129	Public Contact - Telephone Number	Text Length	0 to 255 characters	Enter the business telephone number of the public contact.	555-555-5555
B132	Public Contact - Telephone Ext. (if applicable)	Text Length	0 to 255 characters	Enter the business telephone number extension of the public contact, if applicable.	123
B135	Public Contact - Fax Number (if applicable)	Text Length	0 to 255 characters	Enter the business fax number of the public contact, if applicable.	555-555-5555
B138	Public Contact - Email Address	Text Length	0 to 255 characters	Enter the business email address of the public contact.	bob.young@company.com
B141	Public Contact - Mailing Address	Text Length	0 to 255 characters	Enter the business mailing address of the public contact.	9820 – 106 Street NW
B144	Public Contact - City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the public contact's business mailing address.	Edmonton
B147	Public Contact - Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the public contact's business mailing address.	Alberta
B150	Public Contact - Country	Text Length	0 to 255 characters	Enter the country of the public contact's business mailing address.	Canada
B153	Public Contact - Postal Code	Text Length	0 to 255 characters	Enter the postal code of the public contact's business mailing address.	T5K 2J6

Table 28: Data Fields for Worksheet 1.16: Consultant Preparing the AEIR.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B160	Was a consultant used for the preparation of the Annual Emissions Inventory and/or the AEIR? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if a consultant was used in preparing the Annual Emissions Inventory and/or the AEIR.	Yes
B163	1st Consulting Company Name	Text Length	0 to 255 characters	Enter the name of the consulting company used (if one was used).	Happy Environmental Consulting Company

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B166	1st Consultant - First Name	Text Length	0 to 255 characters	Enter the first name of the consultant.	Steve
B169	1st Consultant - Last Name	Text Length	0 to 255 characters	Enter the last name of the consultant.	Smith
B172	1st Consultant - Professional Designation (if applicable)	Text Length	0 to 255 characters	Enter the professional designation of the consultant, if applicable.	P.Eng.
B175	1st Consultant - Position/Title	Text Length	0 to 255 characters	Enter the position or title of the consultant.	Environmental Engineer Consultant
B178	1st Consultant - Telephone Number	Text Length	0 to 255 characters	Enter the business telephone number of the consultant.	555-555-5555
B181	1st Consultant - Telephone Ext. (if applicable)	Text Length	0 to 255 characters	Enter the business telephone number extension of the consultant, if applicable.	123
B184	1st Consultant - Fax Number (if applicable)	Text Length	0 to 255 characters	Enter the business fax number of the consultant, if applicable.	555-555-5555
B187	1st Consultant - Email Address	Text Length	0 to 255 characters	Enter the business email address of the consultant.	steve.emith@happyenviro.ca
B190	1st Consultant - Mailing Address	Text Length	0 to 255 characters	Enter the business mailing address of the consultant.	10025 106 St NW
B193	1st Consultant - City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the consultant's business mailing address.	Edmonton
B196	1st Consultant - Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the consultant's business mailing address.	Alberta
B199	1st Consultant - Country	Text Length	0 to 255 characters	Enter the country of the consultant's business mailing address.	Canada
B202	1st Consultant - Postal Code	Text Length	0 to 255 characters	Enter the postal code of the consultant's business mailing address.	T5J 1G4

Table 29: Data Fields for Worksheet 1.17: Other Consultant Preparing the AEIR.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B209	Was a 2nd consultant used for the preparation of the Annual Emissions Inventory and/or the AEIR? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if a second consultant was used in preparing the Annual Emissions Inventory and/or the AEIR.	Yes
B212	2nd Consulting Company Name	Text Length	0 to 255 characters	Enter the name of the 2nd consulting company used (if one was used).	Happy Environmental Consulting Company
B215	2nd Consultant - First Name	Text Length	0 to 255 characters	Enter the first name of the 2nd consultant.	Steve
B218	2nd Consultant - Last Name	Text Length	0 to 255 characters	Enter the last name of the 2nd consultant.	Smith
B221	2nd Consultant - Professional Designation (if applicable)	Text Length	0 to 255 characters	Enter the professional designation of the 2nd consultant, if applicable.	P.Eng.
B224	2nd Consultant - Position/Title	Text Length	0 to 255 characters	Enter the position or title of the 2nd consultant.	Environmental Engineer Consultant
B227	2nd Consultant - Telephone Number	Text Length	0 to 255 characters	Enter the business telephone number of the 2nd consultant.	555-555-5555
B230	2nd Consultant - Telephone Ext. (if applicable)	Text Length	0 to 255 characters	Enter the business telephone number extension of the 2nd consultant, if applicable.	123

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B233	2nd Consultant - Fax Number (if applicable)	Text Length	0 to 255 characters	Enter the business fax number of the 2nd consultant, if applicable.	555-555-5555
B236	2nd Consultant - Email Address	Text Length	0 to 255 characters	Enter the business email address of the 2nd consultant.	steve.emith@happyenviro.ca
B239	2nd Consultant - Mailing Address	Text Length	0 to 255 characters	Enter the business mailing address of the 2nd consultant.	10025 106 St NW
B242	2nd Consultant - City/District/Municipality/County	Text Length	0 to 255 characters	Enter the city/district/municipality/county of the 2nd consultant's business mailing address.	Edmonton
B245	2nd Consultant - Province/Territory	Text Length	0 to 255 characters	Enter the province/territory of the 2nd consultant's business mailing address.	Alberta
B248	2nd Consultant - Country	Text Length	0 to 255 characters	Enter the country of the 2nd consultant's business mailing address.	Canada
B251	2nd Consultant - Postal Code	Text Length	0 to 255 characters	Enter the postal code of the 2nd consultant's business mailing address.	T5J 1G4

Table 30: Data Fields for Worksheet 1.18: Operational and Release Issues and Incidents.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B11	Did any operational or release issues/incidents occur during the inventory year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there were any operational or release issues or incidents that occurred during the inventory year.	Yes
B15	Reference # (if applicable)	Text Length	0 to 255 characters	Enter the Energy & Environmental Response reference number of the operational or release issue/incident, if applicable.	123456789
C15	Start Date	Date	Greater than 2017-12-31	Enter the start date of the operational or release issue/incident.	January 1, 2022
D15	Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the start time of the operational or release issue/incident.	1:00
E15	End Date	Date	Greater than 2017-12-31	Enter the end date of the operational or release issue/incident.	January 1, 2022
F15	End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the end time of the operational or release issue/incident.	5:00
G15	Duration (Hours)	Whole Number	Greater than or equal to 0	Enter the duration (number of hours) of the operational or release issue/incident.	1
H15	Duration (Days)	Whole Number	Greater than or equal to 0	Enter the duration (number of days) of the operational or release issue/incident.	1
J15	Brief Description of Event	Text Length	0 to 5000 characters	Enter a brief description of the operational or release issue/incident.	Exceedance of NOx emission limit for one hour due to issues with pollution control equipment

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
K15	Brief Description of Impact on Air Emissions	Text Length	0 to 5000 characters	Enter a brief description of the impact of the operational or release issue/incident on the air emissions.	NOx emissions were higher than normal for one hour and exceeded the limit set out in the approval.
L15	List of Associated Release Point Descriptive Name(s) (if applicable)	Text Length	0 to 255 characters	Enter the descriptive name(s) of any release point(s) associated with the operational or release issue/incident, if applicable.	Combined Boiler Control Stack
M15	List of Associated Non-Point Source Descriptive Name(s) (if applicable)	Text Length	0 to 255 characters	Enter the descriptive name(s) of any non-point source(s) associated with the operational or release issue/incident, if applicable.	n/a
N15	List of any Emergency Release Points Operating Because of the Event (if applicable)	Text Length	0 to 255 characters	Identify any emergency release point(s) that were operated as a result of the operational or release issue/incident, if applicable.	n/a
P15	Name of Substance 1 Released (if applicable)	Text Length	0 to 255 characters	Enter the name of the substance released as a result of the operational or release issue/incident, if applicable.	Nitrogen Oxides (expressed as NO2)
Q15	Limit of Substance 1 (if applicable)	Decimal	Greater than or equal to 0	Enter the emission limit of the substance released as a result of the operational or release issue/incident, if applicable.	58.00
R15	Limit Units (if applicable, e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the limit.	kg/hour
S15	Estimated Emissions of Substance 1 from Event (if applicable)	Decimal	Greater than or equal to 0	Enter the amount of the substance released as a result of the operational or release issue/incident, if applicable.	78.30
T15	Release Units (if applicable, e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the estimated emissions from the release or operational event being reported.	kg/hour

Note: The same operational and release issue and incident fields apply for events 2-200 (and for substances 2-10).

Table 31: Data Fields for Worksheet 1.19: Major Source or Plant Shutdowns.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Did any major source or plant shutdowns occur during the inventory year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there were any major source or plant shutdowns that occurred during the inventory year.	Yes
B14	Reference # (if applicable)	Text Length	0 to 255 characters	Enter the Energy & Environmental Response Centre reference number of the major source or plant shutdown event, if applicable.	n/a
C14	Start Date	Date	Greater than 2017-12-31	Enter the start date of the major source or plant shutdown event.	January 1, 2022
D14	Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the start time of the major source or plant shutdown event.	1:00

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
E14	End Date	Date	Greater than 2017-12-31	Enter the end date of the major source or plant shutdown event.	January 1, 2022
F14	End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the end time of the major source or plant shutdown event.	5:00
G14	Duration (Days)	Whole Number	Greater than or equal to 0	Enter the duration (number of days) of the major source or plant shutdown event.	12
I14	Brief Description of Event	Text Length	0 to 5000 characters	Enter a brief description of the major source or plant shutdown event.	Facility was temporarily shutdown for maintenance for several days at the end of 2022.
J14	Associated Release Point Descriptive Name(s) (if applicable)	Text Length	0 to 255 characters	Identify any release points affected by the source or plant shutdown event.	All
K14	Associated Release Point Unit, Process or Equipment Name(s)	Text Length	0 to 255 characters	Identify any units/processes/equipment associated with release point that were affected by the source or plant shutdown event.	All
L14	Associated Non-Point Source Descriptive Name(s) (if applicable)	Text Length	0 to 255 characters	Identify any non-point sources affected by the source or plant shutdown event.	All
M14	Associated NPS "Combined Large Point Sources" Unit, Process or Equipment Name(s)	Text Length	0 to 255 characters	Identify any units/processes/equipment associated with a "Combined Large Point Sources" being reported as a non-point source that was affected by the source or plant shutdown event.	All

Note: The same major source and shutdown fields apply for events 2-200.

Table 32: Data Fields for Worksheet 1.20: Plant or Combined Source Limits.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any plant or combined source limits applicable for the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation has any plant or combined source limits.	Yes
B13	Plant or Combined Source Limit (select)	List	Specified Selection	Indicate whether information is being provided for a plant limit or a combined source limit.	Combined Source
C13	List Applicable Release Point or Non-Point Source Descriptive Names (for Combined Source Limit only)	Text Length	0 to 255 characters	List any release points or non-point sources that are covered by the combined source limit.	Combined Boiler Control Stack, Main Processing Stack
D13	Plant or Combined Source Approval Limit - Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the plant or combined source limit.	Nitrogen Oxides (expressed as NO2)
E13	Plant or Combined Source Approval Limit - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the plant or combined source limit.	400.00
F13	Plant or Combined Sourced Approval Limit –	Text Length	0 to 255 characters	Enter the units of the plant or combined source limit.	kilograms/hour

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
	Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)				
G13	Associated Plant Limit - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the plant or combined source limit, if applicable.	Normal operating conditions

Note: The same plant or combined source limit fields apply for limits 2-100.

Table 33: Data Fields for Worksheet 1.21: Plant or Combined Source Targets.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
L10	Any plant or combined source performance targets applicable for the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the industrial operation has any plant or combined performance targets.	Yes
L13	Plant or Combined Source Performance Target (select)	List	Specified Selection	Indicate whether information is being provided for a plant or a combined source performance target.	Plant
M13	List Applicable Release Point or Non-Point Source Descriptive Names (for Combined Source Limit only)	Text Length	0 to 255 characters	List any release points or non-point sources that are covered by the combined source performance target.	All
N13	Plant or Combined Source Performance Target Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the plant or combined source performance target.	PM2.5 emissions from the entire facility do not exceed 1,000 tonnes per year.
O13	Plant or Combined Source Performance Target - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the plant or combined source performance target.	1,000.00
P13	Plant or Combined Source Performance Target - Units	Text Length	0 to 255 characters	Enter the units of the plant or combined source performance target.	tonnes/year
Q13	Plant or Combined Source Performance - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the plant or combined source performance target, if applicable.	Yearly total

Note: The same plant or combined source performance target fields apply for targets 2-100.

Table 34: Data Fields for Worksheet 1.22: Negligible Sources Excluded from Reporting.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Were there any sources deemed negligible and excluded from emissions reporting for the inventory year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there were any sources deemed negligible and excluded from emissions reporting for the inventory year.	Yes
B13	List and explain all sources (release points and non-point sources)	Text Length	0 to 5000 characters	List and explain sources deemed negligible for the industrial operation	Building space heaters have been deemed to be

	that were determined to be negligible for the industrial operation			and excluded from emissions quantification and reporting.	a negligible non-point source...
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Note: The same negligible source fields apply for boxes b) to g).

Table 35: Data Fields for Worksheet 1.23: Schedule 1 Substances Deemed Negligible.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Were there any Schedule 1 substances deemed negligible and excluded from emissions reporting for the inventory year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there were any Schedule 1 substances deemed negligible and excluded from emissions reporting for the inventory year.	Yes
B13	List and provide a brief explanation of any Schedule 1 substances that were determined to be negligible for the industrial operation	Text Length	0 to 5000 characters	List and describe all Schedule 1 substances that were deemed negligible for the industrial operation and excluded from emissions quantification and reporting.	SO2 has been deemed to be a negligible Schedule 1 substance for the facility. The facility lacks any major SO2 source...

Note: The same negligible Schedule 1 substance fields apply for boxes b) to g).

Table 36: Data Fields for Worksheet 2.0: Release Point - Identification and Description.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Any operating or approved future release points at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any release points at the industrial operation.	Yes
B12	Release Point Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the release point, to communicate what the release point is.	Combined Boiler Control Stack
C12	Release Point Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the point of release, as specified in the EPEA approval or associated application.	H-5503A/B
D12	Release Point Additional Description (if applicable)	Text Length	0 to 5000 characters	Allows for an optional additional description of the release point to be entered.	This is the combined stack connected to boiler A, boiler B and the SCR unit.
E12	Source Classification Code	Text Length	Less than or equal to 10 characters	Identify the most applicable Source Classification Code for the release point.	10200602
F12	Release Point Deemed Negligible for the Inventory Year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific release point has been deemed negligible for the inventory year.	No
H12	Release Point Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the release point for the inventory year.	Operating
I12	Release Point Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the release point for the inventory year (if operating).	Normal

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
J12	Project Phase the Release Point is Part Of	Text Length	0 to 255 characters	Specify the phase for the specific release point.	Phase 1
K12	Release Point Year of Installation	Whole Number	Greater than or equal to 1900	Enter the year the stack/vent was installed.	1998
L12	Release Point Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year the release point started operating/emitting.	1999
M12	Approximate Hours of Annual Operation	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the release point for the inventory year.	1,900
N12	Release Point Decommission Date (if applicable)	Date	Greater than 1/1/1900	Enter the date when the release point was permanently shut-down or decommissioned (if applicable).	January 5, 2022
O12	Release Point Expected Shutdown Year	Whole Number	Greater than or equal to 2018	Enter the year when the release point is expected to be permanently shut-down or decommissioned.	2035
P12	Approved Future Source (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the release point has not yet been built or has not yet commenced operation.	No
Q12	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 2018	Identify the first year the release point is expected to begin operating/emitting.	2025
S12	Release Point Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the release point in metres above sea level.	671.0
T12	Release Point Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the latitude coordinate for the release point in geographic decimal NAD 83 format.	53.53600
U12	Release Point Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the longitude coordinate for the release point in geographic decimal NAD 83 format.	-113.50330
W12	Required Minimum Height Above Grade (m) (if applicable)	Decimal	Greater than or equal to 0	Enter the minimum height above grade of the stack, as specified in the EPEA approval.	50.0
X12	Actual Release Point Height (m)	Decimal	Greater than or equal to 0	Enter the actual height of the stack or vent.	51.0
Y12	Release Point Diameter (m)	Decimal	Greater than or equal to 0	Enter the diameter of the stack or vent.	2.4
Z12	Release Point Average Exit Velocity (m/s)	Decimal	Greater than or equal to 0	Enter the average exit velocity of the effluent stream from the stack or vent.	23.0
AA12	Release Point Maximum Exit Velocity (m/s) (if applicable)	Decimal	Greater than or equal to 0	Enter the maximum exit velocity of the effluent stream from the stack or vent.	26.0
AB12	Release Point Minimum Exit Velocity (m/s) (if applicable)	Decimal	Greater than or equal to 0	Enter the minimum exit velocity of the effluent stream from the stack or vent.	10.0
AC12	Release Point Average Exit Temperature (K)	Decimal	Greater than or equal to 0	Enter the average exit temperature of the effluent stream from the stack or vent.	515.4
AD12	Release Point Maximum Exit Temperature (K) (if applicable)	Decimal	Greater than or equal to 0	Enter the maximum exit temperature of the effluent stream from the stack or vent.	550.0
AE12	Release Point Minimum Exit Temperature (K) (if applicable or specified by approval)	Decimal	Greater than or equal to 0	Enter the minimum exit temperature of the effluent stream from the stack or vent, as specified in the EPEA approval or if otherwise known.	500.0
AG12	Is the release point a bypass stack? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific release point is a bypass stack for another release point.	No

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
AH12	If it is a bypass stack, which release point is it a bypass for? (enter descriptive name of the release point)	Text Length	0 to 255 characters	Enter the descriptive name of the release point being bypassed.	n/a
AI12	Is the release point located on a rooftop? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point is located on the rooftop of a building.	Yes
AJ12	Is the release point potentially affected by building downwash? (if known from previous studies)	List	Specified Selection	Select "Yes", "No" or "Unknown" to indicate if the release point is potentially affected by building downwash, if known from previous building (downwash) assessments.	Yes
AK12	Does the release point have a rain cap? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point has a rain cap.	Yes
AL12	Is release point a non-vertical release? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point is a non-vertical release.	No

Note: The same release point fields apply for release points 2 to 200.

Table 37: Data Fields for Worksheet 2.1: Release Point - Unit, Process and Equipment.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any operating or approved future units, processes or equipment that emit via release points? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any units, processes or equipment at the industrial operation emitting to the atmosphere via release points.	Yes
B14	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
C14	Number of Units, Processes or Equipment Associated with the Release Point	Whole Number	Greater than or equal to 0	Enter the number of units, processes or equipment associated with the release point.	2
E14	Unit, Process or Equipment Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the unit, process or equipment, to communicate what the unit/process/equipment is.	Boiler A
F14	Unit, Process or Equipment Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the unit/process/equipment, as specified in the EPEA approval or associated application.	B-550A
G14	Unit, Process or Equipment Type	List	Specified Selection	Select the unit, process or equipment type.	Boiler
H14	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Unit, Process or Equipment" was selected.	n/a
I14	Unit, Process or Equipment SCC	Text Length	Less than or equal to 10	Identify the most applicable Source Classification Code for the unit, process or equipment.	10200601
J14	Make of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the unit, process or equipment (if applicable).	General Electric

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
K14	Model # of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the model number of the unit, process or equipment (if applicable).	LM6000
L14	Year of Manufacture of Unit, Process or Equipment (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the unit, process or equipment (if applicable).	1997
M14	Year of Installation of Unit, Process or Equipment	Whole Number	Greater than or equal to 1900	Enter the year of installation of the unit, process or equipment at the industrial operation.	1998
N14	Year of Start-up of Unit, Process or Equipment	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the unit, process or equipment at the industrial operation.	1999
O14	Unit, Process or Equipment Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the unit/process/equipment for the inventory year.	Operating
P14	Unit, Process or Equipment Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the unit/process/equipment for the inventory year (if operating).	Normal
Q14	When does the unit, process or equipment emit via the release point?	List	Specified Selection	Indicate when the unit/process/equipment emits via the release point.	Always (normal operations)
R14	Approximate Hours of Annual Operation	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the unit, process or equipment for the inventory year.	1,900
S14	Decommission Date of Unit, Process or Equipment (if applicable)	Date	Greater than 1/1/1900	Enter the date when the unit, process or equipment was permanently shut-down or decommissioned.	January 1, 2022
T14	Approved Future Unit, Process or Equipment? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the unit/process/equipment has not yet been built or has not yet commenced operation.	No
U14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future unit/process/equipment is expected to begin operating/emitting.	2025
V14	Fuel Type of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the type of fuel (e.g., natural gas, diesel, wood waste, etc.) used by the unit, process or equipment.	Natural Gas
W14	Maximum or Rated Design Capacity or Throughput of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the maximum or rated design capacity or throughput of the unit, process or equipment, if applicable.	800,000.00
X14	Average or Normal Capacity or Throughput of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the average or normal capacity or throughput of the unit, process or equipment, if applicable.	640,000.00
Y14	Capacity or Throughput Units (if applicable)	Text Length	0 to 255 characters	Enter the units of the capacity or throughput values being reported, if applicable.	MWh
Z14	Power Rating of Unit, Process or Equipment (kW) (if applicable)	Decimal	Greater than or equal to 0	Enter the power rating (in kilowatts) of the unit, process or equipment, if applicable.	4,000

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
AA14	Rated Horse Power of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the rated horsepower of the unit, process or equipment, if applicable.	4,500
AB14	Load Rating (%) of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the load rating (in percent) of the unit, process or equipment, if applicable.	80

Note: The same unit/process/equipment fields apply for release points 2 to 200 and units/processes/equipment 2 to 20.

Table 38: Data Fields for Worksheet 2.2: Release Point - Pollution Control Equipment.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Any release points, units, processes or equipment controlled by an operating or approved future pollution control technology or equipment? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any release points, units, processes or equipment at the industrial operation are controlled by a pollution control technology or equipment.	Yes
B12	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
C12	Is the release point (or unit, process or equipment) controlled by a pollution control?	List	Specified Selection	Indicate if the specific release point is controlled (has pollution control technologies or equipment) or uncontrolled (has no pollution control technologies or equipment).	Controlled
D12	Number of Applicable Control Technologies or Equipment (if controlled)	Whole Number	Greater than or equal to 0	Enter the number of applicable pollution control technologies or equipment associated with the release point (or units, processes or equipment).	1
F12	Control Technology or Equipment Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the control technology or equipment, to communicate what the control technology/equipment is.	Selective Catalytic Reduction Unit
G12	Control Technology or Equipment Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the control technology or equipment, as specified in the EPEA approval or associated application.	SCR-101
H12	Control Technology or Equipment Type	List	Specified Selection	Select the control technology or equipment type.	Selective Catalytic Reduction (SCR)
I12	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
J12	Associated Unit, Process or Equipment Being Controlled (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	Boiler A and Boiler B
K12	Control Technology or Equipment SCC	Text Length	Less than or equal to 10	Identify the most applicable Source Classification Code for the control technology or equipment.	10200602

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
L12	Make of Pollution Control Technology or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	Cummins
M12	Model # of Pollution Control Technology or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the model number of the control technology or equipment (if applicable for the specific pollution control).	332C
N12	Year of Manufacture of Pollution Control Technology or Equipment (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the control technology or equipment (if applicable for the specific pollution control).	1997
O12	Year of Installation of Pollution Control Technology or Equipment	Whole Number	Greater than or equal to 1900	Enter the year of installation of the control technology or equipment at the industrial operation.	1998
P12	Year of Pollution Control Technology or Equipment Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the control technology or equipment at the industrial operation.	1999
Q12	Pollution Control Technology or Equipment Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the control technology or equipment for the inventory year.	Operating
R12	Pollution Control Technology or Equipment Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the control technology or equipment for the inventory year (if operating).	Normal
S12	Approximate Hours of Annual Operation	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the control technology or equipment for the inventory year.	1,898
T12	Decommission Date of Pollution Control Technology (if applicable)	Date	Greater than 1/1/1900	Enter the date when the control technology or equipment was permanently shut-down or decommissioned (if applicable).	January 1, 2022
U12	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the control technology or equipment has not yet been built or has not yet commenced operation.	No
V12	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future control technology or equipment is expected to begin operating/emitting.	2025
W12	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific control technology or equipment for the release point.	NOx
X12	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	80% for NOx
Y12	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer's specs for NOx
Z12	Is this the primary, secondary, tertiary, backup/alternative or other control device?	List	Specified Selection	Select whether the pollution control technology or equipment for the release point is the primary, secondary, tertiary,	Primary Control

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				backup/alternative or other control device.	
AA12	If this is a backup/alternative control device, which control device is it a backup/alternative for? (Control Technology or Equipment Name) (if applicable)	Text Length	0 to 5000 characters	For backup/alternative controls, identify the control technology or equipment (specify the Control Technology or Equipment Name) that the backup/alternative is for.	Scrubber

Note: The same pollution control fields apply for release points 2 to 200 and pollution control technology or equipment 2 to 15.

Table 39: Data Fields for Worksheet 2.3.1: Release Point - Normal Emission Limits.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any release points, units, processes or equipment at the industrial operation subject to a normal emission limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any release points (or associated units, processes or equipment) at the industrial operation are subject to any normal emission limits.	Yes
B14	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
C14	Release point subject to a normal limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific release point has a normal emission limit.	Yes
D14	Number of Normal Limits	Whole Number	Greater than or equal to 0	Enter the number of normal limits associated with the release point, units, processes or equipment.	1
E14	Associated Units, Processes or Equipment Covered by Limit (list all that apply)	Text Length	0 to 255 characters	List any units, processes or equipment that are covered by the emission limit.	Boiler A (B-550A), Boiler B (B-550B) and Selective Catalytic Reduction Unit (SCR-101)
G14	Approval Limit - Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the emission limit.	Nitrogen Oxides (expressed as NO2)
H14	Approval Limit - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the emission limit.	58.00
I14	Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the emission limit.	kilograms/hour
J14	Approval Limit - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the emission limit, if applicable.	n/a
K14	Performance Target - Quantity (if applicable, for the same substance or parameter)	Decimal	Greater than or equal to 0	Enter the quantity of the performance target.	40.00
L14	Performance Target - Units (if applicable, for the same substance or parameter)	Text Length	0 to 255 characters	Enter the units of the performance target.	kilograms/hour

Note: The same limit fields apply for release points 2 to 200 and release limits 2 to 25.

Table 40: Data Fields for Worksheet 2.3.2: Release Point - Emergency or Upset Limits.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any release points, units, processes or equipment at the industrial operation subject to an emergency or upset emission limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any release points (or associated units, processes or equipment) at the industrial operation are subject to any emergency or upset emission limits.	Yes
B14	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Main Processing Stack
C14	Release point subject to an emergency or upset limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point has an emergency or upset emission limit.	Yes
D14	Number of Emergency or Upset Limits	Whole Number	Greater than or equal to 0	Enter the number of emergency or upset limits associated with the release point (or units, processes or equipment).	1
E14	Associated Units, Processes or Equipment Covered by Limit (list all that apply)	Text Length	0 to 255 characters	List any units, processes or equipment that are covered by the emergency or upset emission limit.	Processing Furnace (F-101)
G14	Approval Limit - Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the emergency or upset emission limit.	PM2.5
H14	Approval Limit - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the emergency or upset emission limit.	1.50
I14	Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the emergency or upset emission limit.	tonnes/hour
J14	Approval Limit - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the emergency or upset emission limit, if applicable.	n/a

Note: The same limit fields apply for release points 2 to 200 and emergency and upset limits 2 to 25.

Table 41: Data Fields for Worksheet 2.4: Release Point - Temporal Operation Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B9	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
C9	Source Operating or Emitting Time Period	List	Specified Selection	Select whether the release point operates/emits continuously, intermittently, only in emergency or upset conditions, or semi-annually.	Continuous
D9	Should the "Industrial Operation Temporal Information" reported in Worksheet 1.4 be used for the source? (if no, then report the source specific daily and monthly temporal info in the subsequent columns)	List	Specified Selection	Select "Yes" or "No" to indicate whether the temporal information for the entire industrial operation that was reported in worksheet 1.4 should be used for the source.	Yes

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
F9	Operating Schedule (# of days per week)	Whole Number	Equal to or less than 7	Enter the number of days per week the release point typically operates/emits.	7
G9	Operates During Holidays? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point typically operates/emits during statutory holidays.	No
H9	Operates 24-hours a Day? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point typically operates/emits 24-hours a day.	No
I9	Weekday Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday start time for the release point.	8:00
J9	Weekday End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday end time (closing for the day time) for the release point.	16:30
K9	Operates on Weekends? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the release point typically operates/emits on weekends.	Yes
L9	Weekend Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend start time for the release point.	8:00
M9	Weekend End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend end time (closing for the day time) for the release point.	16:30
O9	Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?	List	Specified Selection	Select whether the monthly operating information is being reported in "Hours" or "Percentage".	Hours
P9	January Hours of Operation or Operating/Emitting Percentage	Decimal	Greater than or equal to 0	Enter the approximate number of hours of operation for the release point occurring during January of the inventory year	168.0
AB9	Sum of Monthly (autosum, no input required)	Decimal	Greater than or equal to 0	This field automatically sums the twelve monthly hours of operation or operating/emitting percentages. No input is required.	100.0
AC9	Approximate Hours of Annual Operation From Worksheet 2.0 (no input required)	Whole Number	Greater than or equal to 0	This field carries forward the Approximate Hours of Annual Operation from worksheet 2.0 (no input required).	1,900

Note: The same temporal fields apply for release points 2 to 200 and for the other months (February to December).

Table 42: Data Fields for Worksheet 2.5: Release Point - Source Sampling and CEMS.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Were any release points at the industrial operation monitored with CEMS or stack sampling? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any release points at the industrial operation were monitored with	Yes

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				CEMS or stack sampling during the inventory year.	
B12	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
C12	Was the release point monitored using a Continuous Emission Monitoring System (CEMS)? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific release point was monitored using a Continuous Emission Monitoring System during the inventory year.	Yes
D12	CEMS Station ID (if applicable)	Text Length	0 to 255 characters	Enter the CEMS Station ID, as specified in the Codes for Electronic Reporting for the industrial operation.	13302
E12	Which substances/parameters were monitored using the CEMS? (list all)	Text Length	0 to 5000 characters	List all the substances/parameters for the release point that were monitored using the CEMS.	Nitrogen oxides (expressed as NO ₂), temperature, flow rate
G12	Was stack sampling carried out on the release point? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any stack sampling was carried out on the specific release point during the inventory year.	Yes
H12	Date of Stack Sample 1 (if applicable)	Greater than 2017-12-31	Date	Enter the date of the first stack sample on the release point for the inventory year.	January 1, 2022
I12	Which substances/parameters were monitored during Stack Sample 1? (list all)	Text Length	0 to 5000 characters	List all the substances/parameters for the release point that were monitored during Stack Sample 1.	Nitrogen oxides (expressed as NO ₂)
AF12	Listing of any Additional Stack Sampling Dates (if applicable)	Text Length	0 to 5000 characters	List any additional stack sampling dates (if greater than 12) carried out on the release point for the inventory year.	May 14, 2022 and September 22, 2022
AG12	Which substances/parameters were monitored during the additional sampling? (list all)	Text Length	0 to 5000 characters	List the substances/parameters for the release point that were monitored during the additional sampling.	Nitrogen oxides (expressed as NO ₂) for the May 14 and Sept 22 tests.

Note: The same source sampling fields apply for release points 2 to 200 and for stack samples 2-12.

Table 43: Data Fields for Worksheet 2.6.1: Release Point - Schedule 1 Emission Rates.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B9	Are any release point Schedule 1 substance emissions being reported? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any release point Schedule 1 substance emissions being reported for the inventory year.	Yes
B13	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
D13	Annual Actual NO _x Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual NO _x emission rate for the specific	412.6800

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				release point (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	
E13	Annual Actual NOx Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual NOx emission rate for the release point (for the inventory year).	CEMS Annual Method
F13	Normal NOx Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Enter the quantified normal NOx emission rate for the specific release point. The normal emission rate is to be reported in tonnes/day.	1.2505
G13	Normal NOx Quantification Method	List	Specified Selection	Select the quantification method used to determine the normal NOx emission rate for the specific release point.	Single Source Sample Normal Method
H13	Maximum NOx Emissions (kg/hour)	Decimal	Greater than or equal to 0	Enter the quantified maximum NOx emission rate for the specific release point. The maximum emission rate is to be reported in kilograms/hour.	58.0000
I13	Maximum NOx Quantification Method	List	Specified Selection	Select the quantification method used to determine the maximum NOx emission rate for the release point.	Approval Limit Maximum Method

Note: The same Schedule 1 emission and quantification method fields apply for release points 2 to 200 and for the other Schedule 1 substances.

Table 44: Data Fields for Worksheets 2.6.2 - 2.6.6: Release Point - Schedule 2 Emissions.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Are any release point Schedule 2 substance emissions being reported? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any release point Schedule 2 substance emissions being reported for the inventory.	Yes
B13	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
D12	Substance 1	List	Specified Selection	Select the applicable Schedule 2 substance being reported.	Antimony (and its compounds)
D13	Annual Actual Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual emission rate of the selected Schedule 2 substance for the release point (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	0.0500
E13	Annual Actual Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual emission rate of the selected Schedule 2 substance for the release point (for the inventory year).	Published or General EF Annual Method
F13	Normal Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Enter the quantified normal emission rate of the selected Schedule 2 substance for the release point. The normal emission rate is to be reported in tonnes/day.	0.0002

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
G13	Normal Quantification Method	List	Specified Selection	Select the quantification method used to determine the normal emission rate of the selected Schedule 2 substance for the release point.	Single Annual Actual Normal Method
H13	Maximum Emissions (kg/hour)	Decimal	Greater than or equal to 0	Enter the quantified maximum emission rate of the selected Schedule 2 substance for the release point. The maximum emission rate is to be reported in kilograms/hour.	0.0114
I13	Maximum Quantification Method	List	Specified Selection	Select the quantification method used to determine the maximum emission rate of the selected Schedule 2 substance for the inventory year for the release point.	Historical Maximum Method

Note: The same Schedule 2 emission and quantification method fields apply for release points 2 to 200 and for the other Schedule 2 substances.

Table 45: Data Fields for Worksheet 3.0: Non-Point Source – Identification & Description.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Any operating or approved future non-point sources at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any non-point sources at the industrial operation.	Yes
B12	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the non-point source, to communicate what the non-point source is.	Ammonia Storage Tank Vents
C12	Non-Point Source Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the non-point source, as specified in the EPEA approval or associated application	ST-AAA
D12	Non-Point Source Additional Description (if applicable)	Text Length	0 to 5000 characters	Enter an optional additional description of the non-point source.	n/a
E12	Non-Point Source Type	List	Specified Selection	Select the non-point source type.	Tank (individual)
F12	Non-Point Source Type - Description of "Other" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Non-Point Source" type is selected.	n/a
G12	Non-Point Category	List	Specified Selection	Identify the category of non-point source being reported.	Volume
H12	Non-Point Source AMS/SCC	Text Length	Less than or equal to 10	Enter the most applicable Area and Mobile Source (AMS) code or Source Classification Code (SCC) for the non-point source.	2301000000
I12	Non-Point Source Deemed Negligible for the Inventory Year? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific non-point source has been deemed negligible for the inventory year.	No
K12	Non-Point Source Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the non-point source for the inventory year.	Operating

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
L12	Non-Point Source Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the non-point source for the inventory year (if operating).	Normal
M12	Project Phase the Non-Point Source is Part Of	Text Length	0 to 255 characters	Specify the phase for the specific non-point source.	Phase 1
N12	Non-Point Source Year of Manufacture (if applicable)	Whole	Greater than 1900	Enter the year of manufacture of the non-point source, if applicable.	1998
O12	Non-Point Source Year of Installation	Whole	Greater than 1900	Enter the year the non-point source was installed.	1999
P12	Non-Point Source Start-up Year	Whole	Greater than 1900	Enter the year of start-up of the non-point source at the industrial operation.	2001
Q12	Approximate Hours of Annual Operation	Whole	Greater than or equal to 0	Enter the approximate number of hours of operation for the non-point source for the inventory year.	1,900
R12	Non-Point Source Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the non-point source was permanently shut-down or decommissioned (if applicable).	January 1, 2022
S12	Non-Point Source Expected Shutdown Year	Whole	Greater than or equal to 2018	Enter the year when the non-point source is expected to be permanently shut-down or decommissioned.	2035
T12	Approved Future Source (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the non-point source has not yet been built or has not yet commenced operation.	No
U12	First Year of Expected Operation (if applicable)	Whole	Greater than or equal to 2018	Identify the first year the approved future non-point source is expected to begin operating/emitting.	2025
W12	Description of any point sources being included in the non-point source (if applicable)	Text Length	0 to 5000 characters	Enter a description of any point sources being included in the non-point source.	n/a
X12	Non-Point Source Make (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the non-point source, if applicable.	Kennedy
Y12	Non-Point Source Model # (if applicable)	Text Length	0 to 255 characters	Enter the model number of the non-point source, if applicable.	TC303
Z12	Non-Point Source Material(s) or Fuel Type(s) (if applicable)	Text Length	0 to 255 characters	Identify the type of material or materials stored/used/produced by the non-point source or the fuel or fuels (e.g., natural gas, diesel, wood waste, etc.) used by the non-point source.	Ammonia
AA12	Non-Point Source Maximum Design or Rated Capacity or Throughput (if applicable)	Decimal	Greater than or equal to 0	Enter the maximum or rated design capacity or throughput of the non-point source, if applicable.	250.00
AB12	Non-Point Source Average or Normal Capacity or Throughput (if applicable)	Decimal	Greater than or equal to 0	Enter the average or normal capacity or throughput of the non-point source, if applicable.	225.00
AC12	Non-Point Source Capacity or Throughput Units (if applicable)	Text Length	0 to 255 characters	Enter the units of the capacity or throughput values being reported, if applicable.	m3
AD12	Power Rating of Non-Point Source (kW) (if applicable)	Decimal	Greater than or equal to 0	Enter the power rating (in kilowatts) of the non-point source, if applicable.	10,000

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
AE12	Rated Horse Power of Non-Point Source (if applicable)	Decimal	Greater than or equal to 0	Enter the rated horsepower of the non-point source, if applicable.	10,000
AF12	Load Rating (%) of Non-Point Source (if applicable)	Decimal	Greater than or equal to 0	Enter the load rating (in percent) of the non-point source, if applicable.	75

Note: The same non-point source fields apply for non-point sources 2 to 200.

Table 46: Data Fields for Worksheet 3.1: Non-Point Source - Parameters and Locations.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B11	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	Ammonia Storage Tank Vents
D11	Non-Point Source Release Height (m)	Decimal	Greater than or equal to 0	Enter the release height of the non-point source. The height value is to be reported in metres.	8.0
E11	Non-Point Source Length (m) (if applicable)	Decimal	Greater than or equal to 0	Enter the length of the non-point source. The length value is to be reported in metres.	15.0
F11	Non-Point Source Width (m) (if applicable)	Decimal	Greater than or equal to 0	Enter the width of the non-point source. The width value is to be reported in metres.	15.0
G11	Non-Point Source Area (m2) (if applicable)	Decimal	Greater than or equal to 0	Enter the area of the non-point source, if applicable. The area value is to be reported in metres squared.	225.0
H11	Non-Point Source Release Temperature (K) (if applicable)	Decimal	Greater than or equal to 0	Enter the approximate average temperature of the release from the non-point source.	290.0
I11	Initial Sigma-Y (m) (if available)	Decimal	Greater than or equal to 0	Enter the initial lateral dimension of the non-point source, if available.	5.0
J11	Initial Sigma-Z (m) (if available)	Decimal	Greater than or equal to 0	Enter the initial vertical dimension of the non-point source, if available.	5.0
L11	Non-Point Source Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671
M11	Number of Vertices	Whole	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
N11	Non-Point Source Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
O11	Non-Point Source Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330

Note: The same non-point parameter and locations fields apply for non-point sources 2 to 200 and for vertex locations 2 to 10.

Table 47: Data Fields for Worksheet 3.2: Non-Point Source - Unit, Process and Equipment.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B12	Any operating or approved future units, processes or equipment that emit via combined large point source non-point sources? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any units, processes or equipment at the industrial operation emit to the atmosphere via a "combined large point source" type of non-point source.	Yes
B16	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	Combined Boiler Control Stack
C16	Number of Units, Processes or Equipment Associated with the Non-Point Source	Whole Number	Greater than or equal to 0	Enter the number of units, processes or equipment associated with each combined large point source being reported as a non-point source.	2
E16	Unit, Process or Equipment Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the unit, process or equipment, to communicate what the unit/process/equipment is.	Boiler A
F16	Unit, Process or Equipment Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the unit/process/equipment, as specified in the EPEA approval or associated application.	B-550A
G16	Unit, Process or Equipment Type	List	Specified Selection	Select the unit, process and equipment type.	Boiler
H16	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Unit, Process or Equipment" was selected.	n/a
I16	Unit, Process or Equipment AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the unit, process or equipment.	10200601
J16	Make of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the unit, process or equipment (if applicable).	General Electric
K16	Model # of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Enter the model number of the unit, process or equipment (if applicable).	LM6000
L16	Year of Manufacture of Unit, Process or Equipment (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the unit, process or equipment (if applicable).	1997
M16	Year of Installation of Unit, Process or Equipment	Whole Number	Greater than or equal to 1900	Enter the year of installation of the unit, process or equipment at the industrial operation.	1998
N16	Year of Start-up of Unit, Process or Equipment	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the unit, process or equipment at the industrial operation.	1999
O16	Unit, Process or Equipment Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the unit/process/equipment for the inventory year.	Operating
P16	Unit, Process or Equipment Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the unit/process/equipment for the inventory year (if operating).	Normal

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
Q16	When does the unit, process or equipment emit via the non-point source?	List	Specified Selection	Indicate when the unit/process/equipment emits via the non-point source.	Always (normal operations)
R16	Approximate Hours of Annual Operation	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the unit, process or equipment for the inventory year.	1,900
S16	Decommission Date of Unit, Process or Equipment (if applicable)	Date	Greater than 1/1/1900	Enter the date when the unit, process or equipment was permanently shut-down or decommissioned.	January 1, 2022
T16	Approved Future Unit, Process or Equipment? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the unit/process/equipment has not yet been built or has not yet commenced operation.	No
U16	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future unit/process/equipment is expected to begin operating/emitting.	2025
V16	Fuel Type of Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the type of fuel (e.g., natural gas, diesel, wood waste, etc.) used by the unit, process or equipment.	Natural Gas
W16	Maximum or Rated Design Capacity or Throughput of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the maximum or rated design capacity or throughput of the unit, process or equipment, if applicable.	800,000.00
X16	Average or Normal Capacity or Throughput of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the average or normal capacity or throughput of the unit, process or equipment, if applicable.	640,000.00
Y16	Capacity or Throughput Units (if applicable)	Text Length	0 to 255 characters	Enter the units of the capacity or throughput values being reported, if applicable.	MWh
Z16	Power Rating of Unit, Process or Equipment (kW) (if applicable)	Decimal	Greater than or equal to 0	Enter the power rating (in kilowatts) of the unit, process or equipment, if applicable.	4,000
AA16	Rated Horse Power of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the rated horsepower of the unit, process or equipment, if applicable.	4,500
AB16	Load Rating (%) of Unit, Process or Equipment (if applicable)	Decimal	Greater than or equal to 0	Enter the load rating (in percent) of the unit, process or equipment, if applicable.	80

Note: The same unit/process/equipment fields apply for non-point sources 2 to 200 and units/processes/equipment 2 to 20.

Table 48: Data Fields for Worksheet 3.3: Non-Point Source - Pollution Controls.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Any non-point sources controlled by operating or approved future pollution controls? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any non-point sources at the industrial operation are controlled by pollution controls.	Yes
B12	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name	Combined Boiler Control Stack

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				entered in worksheet 3.0. No input is required in this field.	
C12	Is the non-point source controlled or uncontrolled?	List	Specified Selection	Indicate if the specific non-point source is controlled (has pollution controls) or uncontrolled (has no pollution controls).	Controlled
D12	Number of Applicable Pollution Controls on the Non-Point Source (if controlled)	Whole Number	Greater than or equal to 0	Enter the number of applicable pollution controls associated with the non-point source.	1
F12	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Selective Catalytic Reduction Unit
G12	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	SCR-101
H12	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Selective Catalytic Reduction (SCR)
I12	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
J12	Associated Unit, Process or Equipment Being Controlled (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	Boiler A and Boiler B
K12	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	10200602
L12	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	Cummins
M12	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	332C
N12	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
O12	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
P12	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
Q12	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
R12	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
S12	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,898
T12	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1/1/1900	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
U12	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been	No

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				built or has not yet commenced operation.	
V12	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
W12	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	NOx
X12	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	80% for NOx
Y12	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer's specs for NOx
Z12	Is this the primary, secondary, tertiary, backup/alternative or other pollution control?	List	Specified Selection	Select whether the pollution control is the primary, secondary, tertiary, backup/alternative or other control device.	Primary Control
AA12	If this is a backup/alternative pollution control, which pollution control is it a backup/alternative for? (Pollution Control Name) (if applicable)	Text Length	0 to 5000 characters	For backup/alternative controls, identify the pollution control (specify the Pollution Control Name) that the backup/alternative is for.	Scrubber

Note: The same pollution control fields apply for non-point sources 2 to 200 and pollution controls 2 to 15.

Table 49: Data Fields for Worksheet 3.4.1: Non-Point Source - Normal Emission Limits.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any non-point sources at the industrial operation subject to any normal emission limits? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any non-point sources at the industrial operation are subject to any normal emission limits.	Yes
B14	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	Ammonia Storage Tank Vents
C14	Non-point source subject to a normal limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the specific non-point source has a normal emission limit.	Yes
D14	Number of Normal Limits	Whole Number	Greater than or equal to 0	Enter the number of normal limits associated with the non-point source, units, processes or equipment.	1
E14	Associated Units, Processes or Equipment Covered by Limit (list all that apply)	Text Length	0 to 255 characters	List any units, processes or equipment that are covered by the emission limit.	n/a
G14	Approval Limit - Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the emission limit.	ammonia
H14	Approval Limit - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the emission limit.	18.00

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
I14	Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the emission limit.	grams/hours
J14	Approval Limit - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the emission limit, if applicable.	n/a
K14	Performance Target - Quantity (if applicable, for the same substance or parameter)	Decimal	Greater than or equal to 0	Enter the quantity of the performance target.	12.50
L14	Performance Target - Units (if applicable, for the same substance or parameter)	Text Length	0 to 255 characters	Enter the units of the performance target.	grams/hours

Note: The same limit fields apply for non-point sources 2 to 200 and release limits 2 to 25.

Table 50: Data Fields for Worksheet 3.4.2: Non-Point Source - Emergency & Upset Limits.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any non-point sources at the industrial operation subject to any emergency or upset emission limits? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any non-point sources at the industrial operation are subject to any emergency or upset emission limits.	Yes
B14	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	Main Processing Stack
C14	Non-point source subject to an emergency or upset limit? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the non-point source has an emergency or upset emission limit.	Yes
D14	Number of Emergency or Upset Limits	Whole Number	Greater than or equal to 0	Enter the number of emergency or upset limits associated with the release point (or units, processes or equipment).	1
E14	Associated Units, Processes or Equipment Covered by Limit (list all that apply)	Text Length	0 to 255 characters	List any units, processes or equipment that are covered by the emergency or upset emission limit.	n/a
G14	Approval Limit - Substance or Parameter	Text Length	0 to 255 characters	Identify the substance or parameter of the emergency or upset emission limit.	ammonia
H14	Approval Limit - Quantity	Decimal	Greater than or equal to 0	Enter the quantity of the emergency or upset emission limit.	55.00
I14	Approval Limit – Units (e.g., kg/hour, kg/MWh, tonnes/day, etc.)	Text Length	0 to 255 characters	Enter the units of the emergency or upset emission limit.	grams/hours
J14	Approval Limit - Conditions (if applicable)	Text Length	0 to 255 characters	Enter any specific conditions for the emergency or upset emission limit, if applicable.	n/a

Note: The same limit fields apply for non-point sources 2 to 200 and emergency and upset limits 2 to 25.

Table 51: Data Fields for Worksheet 3.5: Non-Point Source - Temporal Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B9	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	Ammonia Storage Tank Vents
C9	Source Operating or Emitting Time Period	List	Specified Selection	Select whether the non-point source operates/emits continuously, intermittently, only in emergency or upset conditions, or semi-annually.	Continuous
D9	Should the "Industrial Operation Temporal Information" reported in Worksheet 1.4 be used for the source? (if no, then report the source specific daily and monthly temporal info in the subsequent columns)	List	Specified Selection	Select "Yes" or "No" to indicate whether the temporal information for the entire industrial operation that was reported in worksheet 1.4 should be used for the source.	Yes
F9	Operating Schedule (# of days per week)	Whole Number	Equal to or less than 7	Enter the number of days per week the non-point source typically operates/emits.	7
G9	Operates During Holidays? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the non-point source typically operates/emits during statutory holidays.	No
H9	Operates 24-hours a Day? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the non-point source typically operates/emits 24-hours a day.	No
I9	Weekday Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday start time for the non-point source.	8:00
J9	Weekday End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekday end time (closing for the day time) for the non-point source.	16:30
K9	Operates on Weekends? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the non-point source typically operates/emits on weekends.	Yes
L9	Weekend Start Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend start time for the non-point source.	8:00
M9	Weekend End Time	Time	Between 12:00:00 AM and 11:59:00 PM	Enter the typical weekend end time (closing for the day time) for the non-point source.	16:30
O9	Is the monthly schedule information being provided in operating hours or operating/emitting percentage amounts?	List	Specified Selection	Select whether the monthly operating information is being reported in "Hours" or "Percentage".	Hours
P9	January Hours of Operation or Operating/Emitting Percentage	Decimal	Greater than or equal to 0	Enter the approximate number of hours of operation for the non-point source occurring during January of the inventory year	168.0

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
AB9	Sum of Monthly (autosum, no input required)	Decimal	Greater than or equal to 0	This field automatically sums the twelve monthly hours of operation or operating/emitting percentages. No input is required.	100.0
AC9	Approximate Hours of Annual Operation From Worksheet 3.0 (no input required)	Whole Number	Greater than or equal to 0	This field carries forward the Approximate Hours of Annual Operation from worksheet 3.0 (no input required).	1,900

Note: The same temporal fields apply for non-point sources 2 to 200 and for the other months (February to December).

Table 52: Data Fields for Worksheet 3.6: Non-Point Source - Source Monitoring.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Were any non-point sources at the industrial operation monitored using fugitive monitoring or other non-point source monitoring? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if any non-point sources at the industrial operation were monitored using fugitive monitoring or other non-point source monitoring during the inventory year.	Yes
B12	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	North Mine Face
C12	Was the non-point source monitored using fugitive monitoring or other non-point source monitoring? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if the non-point source was monitored using fugitive monitoring or other non-point source monitoring during the inventory year.	Yes
D12	# of Sampling Methods	Whole Number	Greater than or equal to 0	Enter the number of sampling methods that were carried out on the non-point source.	2
F12	Description of Source Monitoring 1 Carried Out	Text Length	0 to 5000 characters	Enter a brief description of the monitoring that was carried out on the non-point source.	Flux Chamber
G12	Which substances/parameters were monitored? (list all)	Text Length	0 to 5000 characters	List all the substances/parameters for the non-point source that were monitored.	VOCs
H12	Were emissions measured or assigned based off of a library?	Text Length	0 to 255 characters	Identify whether the emissions were actually measured or were assigned based off a library.	Measured
I12	Monitoring Frequency	Text Length	0 to 5000 characters	Identify the monitoring frequency for the non-point source.	Two sampling periods during different seasons for flux chamber; Three times during the summer for dust sampling
J12	Monitoring Duration	Text Length	0 to 5000 characters	Identify the monitoring duration for each sampling period for the non-point source.	One week per sampling period for flux chamber
K12	Sampling Period(s)	Text Length	0 to 5000 characters	List all the sampling periods for the non-point source for the inventory year.	May 31-June 6, 2022 and September 15-21, 2022 for flux chamber
L12	List of Sampling Dates for the Inventory Year (if applicable)	Text Length	0 to 5000 characters	List the dates of the sampling for the non-point source during the inventory year.	May 31-June 6, 2022

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
M12	Number of Emission Zones for the Inventory Year (if applicable)	Whole Number	Greater than or equal to 0	Enter the number of emission zones for the sampling carried out on the non-point source (if applicable).	6
N12	List the Typical Number of Samples Taken Per Emission Zone (if applicable)	Text Length	0 to 5000 characters	List the typical number of samples taken per emission zone, if applicable.	1 per zone

Note: The same source monitoring fields apply for non-point sources 2 to 200 and for the other sampling methods (2 to 15).

Table 53: Data Fields for Worksheet 3.7.1: Storage Tank Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any operating or approved future storage tanks at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there are any storage tanks at the industrial operation.	Yes
B14	Storage Tank Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the storage tank.	Ammonia Storage Tank
C14	Storage Tank Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the storage tank, as specified in the EPEA approval or associated application.	ST-AAA
D14	Storage Tank Description	Text Length	0 to 5000 characters	Enter a brief description of the storage tank, to communicate what the storage tank is used for.	Holding storage tank for ammonia to be used in the Selective Catalytic Reduction Unit
E14	Associated Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Identify the non-point source associated with the storage tank (where the emissions are being reported).	Ammonia Storage Tank
F14	Associated Non-Point Source Unique Designation	Text Length	0 to 255 characters	Identify the unique designation of the non-point source associated with the storage tank.	ST-AAA
G14	Type of Tank	List	Specified Selection	Specify the type of tank.	Horizontal Tank
H14	Description of "Other Storage Tank" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Storage Tank" is selected as the type of tank.	n/a
I14	Material(s) Stored	Text Length	0 to 255 characters	Identify the material or materials stored in the storage tank.	ammonia
J14	Make of Tank	Text Length	0 to 255 characters	Enter the make (manufacturer) of the storage tank.	Kennedy
K14	Model # of Tank	Text Length	0 to 255 characters	Enter the model number of the storage tank.	TC303
M14	Tank Height (m)	Decimal	Greater than or equal to 0	Enter the height of the storage tank. The height value is to be reported in metres.	8.00
N14	Tank Diameter (m)	Decimal	Greater than or equal to 0	Enter the diameter of the storage tank. The diameter value is to be reported in metres.	3.00
O14	Tank Volume (m3)	Decimal	Greater than or equal to 0	Enter the volume of the storage tank. The volume value is to be reported in metres cubed.	250.00
P14	Maximum or Rated Design Capacity of Tank	Decimal	Greater than or equal to 0	Enter the maximum capacity of the storage tank.	250.00

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
Q14	Average or Normal Capacity of Tank	Decimal	Greater than or equal to 0	Enter the average or normal capacity of the storage tank.	225.00
R14	Capacity Units	Text Length	0 to 255 characters	Enter the units of the capacity values being reported for the storage tank.	m3
S14	Maximum Annual Tank Throughput	Decimal	Greater than or equal to 0	Enter the maximum throughput of the storage tank.	250,000.00
T14	Average Annual Tank Throughput	Decimal	Greater than or equal to 0	Enter the average annual throughput of the storage tank.	150,000.00
U14	Throughput Units	Text Length	0 to 255 characters	Enter the units of the throughput values being reported for the storage tank.	litres
W14	Year of Manufacture of Tank	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the storage tank.	1997
X14	Year of Installation of Tank	Whole Number	Greater than or equal to 1900	Enter the year of installation of the storage tank at the industrial operation.	1998
Y14	Tank Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the storage tank at the industrial operation.	1999
Z14	Tank Operating Status (if operating)	List	Specified Selection	Select the general operating status of the storage tank for the inventory year.	Operating
AA14	Tank Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the storage tank for the inventory year (if operating).	Normal
AB14	Tank Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the storage tank was permanently shut-down or decommissioned.	January 1, 2022
AC14	Approved Future Tank? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the storage tank has not yet been built or has not yet commenced operation.	No
AD14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future storage tank is expected to begin operating/emitting.	2025
AF14	Type(s) of Vents Present	Text Length	0 to 255 characters	Enter the types of vents present on the storage tank.	Pressure
AG14	Method(s) of Corrosion Control	Text Length	0 to 5000 characters	Identify the methods of corrosion control used for the storage tank.	corrosion-resistant materials, re-application of protective coating
AH14	Method(s) of Leak Detection	Text Length	0 to 5000 characters	Identify the method or methods of leak detection used for the storage tank.	precision leak detection testing
AJ14	Tank Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671
AK14	Number of Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
AL14	Tank Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
AM14	Tank Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330
BG14	Controlled or Uncontrolled?	List	Specified Selection	Indicate if the source is controlled (has pollution controls) or	Controlled

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				uncontrolled (has no pollution controls).	
BH14	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Tank Vapour Recovery
BI14	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	VRU-A
BJ14	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Vapour Recovery Unit
BK14	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
BL14	Associated Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	n/a
BM14	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	2301000000
BN14	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	AEREON
BO14	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	J3XT
BP14	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
BQ14	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
BR14	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
BS14	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
BT14	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
BU14	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,950
BV14	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1900-01-01	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
BW14	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been built or has not yet commenced operation.	No
BX14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
BY14	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	Ammonia

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
BZ14	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	95% for ammonia
CA14	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer Specs for ammonia

Note: The same storage tanks fields apply for storage tanks 2 to 200.

Table 54: Data Fields for Worksheet 3.7.2: Exposed Storage Pile Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any operating or approved future exposed storage piles at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there are any exposed storage piles at the industrial operation.	Yes
B14	Exposed Storage Pile Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the storage pile, to communicate what the storage pile is.	Pile 1
C14	Exposed Storage Pile Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the storage pile, as specified in the EPEA approval or associated application.	PJ01
D14	Exposed Storage Pile Description	Text Length	0 to 5000 characters	Enter a brief description of the storage pile to communicate what the storage pile is used for.	Storage pile of waste materials for transport and disposal
E14	Exposed Storage Pile Material(s) Stored	Text Length	0 to 255 characters	Identify the material or materials stored in the storage pile.	wood waste
F14	Associated Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Identify the non-point source associated with the storage pile (where the emissions are being reported).	Pile 1
G14	Associated Non-Point Source Unique Designation	Text Length	0 to 255 characters	Identify the unique designation of the non-point source associated with the storage pile.	PJ01
I14	Exposed Storage Pile Height (m)	Decimal	Less than or equal to 0	Enter the approximate height of the storage pile. The height value is to be reported in metres.	8.00
J14	Exposed Storage Pile Length (m)	Decimal	Less than or equal to 0	Enter the approximate length of the base of the storage pile. The length value is to be reported in metres.	3.00
K14	Exposed Storage Pile Width (m)	Decimal	Less than or equal to 0	Enter the approximate width of the base of the storage pile. The width value is to be reported in metres.	3.00
L14	Exposed Storage Pile Area (m ²)	Decimal	Less than or equal to 0	Enter the approximate area of the base of the storage pile. The area value is to be reported in metres squared.	9.00
M14	Exposed Storage Pile Volume (m ³)	Decimal	Less than or equal to 0	Enter the approximate volume of the storage pile. The volume value is to be reported in metres cubed.	72.00
O14	Exposed Storage Pile Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the storage pile.	1999

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
P14	Exposed Storage Pile Operating Status	List	Specified Selection	Select the general operating status of the storage pile for the inventory year.	Operating
Q14	Exposed Storage Pile Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the storage pile for the inventory year (if operating).	Normal
R14	Exposed Storage Pile Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the storage pile was permanently shut-down or decommissioned (if applicable).	January 1, 2022
S14	Approved Future Storage Pile? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the storage pile has not yet been built or has not yet commenced operation.	No
T14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future storage pile is expected to begin operating/emitting.	2025
V14	Storage Pile Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671
W14	Number of Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
X14	Storage Pile Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
Y14	Storage Pile Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330
AS14	Controlled or Uncontrolled?	List	Specified Selection	Indicate if the source is controlled (has pollution controls) or uncontrolled (has no pollution controls).	Controlled
AT14	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Tank Vapour Recovery
AU14	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	VRU-A
AV14	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Vapour Recovery Unit
AW14	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
AX14	Associated Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	n/a
AY14	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	2301000000
AZ14	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	AEREON

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
BA14	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	J3XT
BB14	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
BC14	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
BD14	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
BE14	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
BF14	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
BG14	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,950
BH14	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1900-01-01	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
BI14	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been built or has not yet commenced operation.	No
BJ14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
BK14	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	Ammonia
BL14	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	95% for ammonia
BM14	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer Specs for ammonia

Note: The same exposed storage pile fields apply for storage piles 2 to 100.

Table 55: Data Fields for Worksheet 3.7.3: Mine Fleet Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any operating or approved future mine fleet vehicles at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there are any mine fleet vehicles at the industrial operation.	Yes
B14	Mine Fleet Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the specific mine fleet.	North Mine Fleet
C14	Mine Fleet Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the mine fleet, as specified in the EPEA approval or associated application.	MF001

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
D14	Mine Fleet Description	Text Length	0 to 5000 characters	Enter a brief description of the mine fleet, to communicate what vehicles are included in the row.	The caterpillar 797B trucks operating at the northern mining location.
E14	Associated Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Identify the non-point source associated with the mine fleet (where the emissions are being reported).	North Mine Fleet
F14	Associated Non-Point Source Unique Designation	Text Length	0 to 255 characters	Identify the unique designation of the non-point source associated with the mine fleet.	MF001
G14	Vehicle Make (group same make/models together for same mine fleet)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the mine fleet vehicles.	Caterpillar
H14	Vehicle Model (group same make/models together for same mine fleet)	Text Length	0 to 255 characters	Enter the model number of the mine fleet vehicles.	797B
I14	Engine Make	Text Length	0 to 255 characters	Enter the make (manufacturer) of the engine for the mine fleet vehicles.	Cummins
J14	Engine Model	Text Length	0 to 255 characters	Enter the model number of the engine for the mine fleet vehicles.	C302A
K14	Engine Size	Text Length	0 to 255 characters	Enter the size of the engine for the mine fleet vehicles.	4000 hp
L14	Engine Tier	List	Specified Selection	Select the engine tier for the engine for the mine fleet vehicles.	Tier 3
M14	Approximate Number of Vehicles Operating During the Year	Whole Number	Greater than or equal to 0	Enter the approximate number of vehicles operating during the year for the mine fleet (for the specific make and model of vehicle).	10
N14	Type of Fuel Used	Text Length	0 to 255 characters	Enter the type of fuel used by the mine fleet vehicles (for the specific make and model of vehicle).	Diesel
O14	Total Fuel Consumption	Decimal	Greater than or equal to 0	Enter the total amount of fuel used by the mine fleet vehicles (for the specific make and model of vehicle) during the inventory year.	10,000
P14	Units of Fuel Consumption (e.g. litres, kilolitres)	Text Length	0 to 255 characters	Enter the units for the amount of fuel used.	kilolitres
R14	Mine Fleet Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the mine fleet.	1999
S14	Mine Fleet Operating Status	List	Specified Selection	Select the general operating status of the mine fleet for the inventory year.	Operating
T14	Mine Fleet Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the mine fleet for the inventory year (if operating).	Normal
U14	Mine Fleet Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the mine fleet was permanently shut-down or decommissioned (if applicable).	January 1, 2022
V14	Approved Future Mine Fleet? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the mine fleet has not yet been built or has not yet commenced operation.	No
W14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future mine fleet is expected to begin operating/emitting.	2025
Y14	Mine Fleet Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
Z14	Number of Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
AA14	Mine Fleet Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
AB14	Mine Fleet Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330
AV14	Controlled or Uncontrolled?	List	Specified Selection	Indicate if the source is controlled (has pollution controls) or uncontrolled (has no pollution controls).	Controlled
AW14	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Tank Vapour Recovery
AX14	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	VRU-A
AY14	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Vapour Recovery Unit
AZ14	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
BA14	Associated Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	n/a
BB14	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	2301000000
BC14	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	AEREON
BD14	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	J3XT
BE14	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
BF14	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
BG14	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
BH14	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
BI14	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
BJ14	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,950

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
BK14	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1900-01-01	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
BI14	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been built or has not yet commenced operation.	No
BM14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
BN14	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	Ammonia
BO14	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	95% for ammonia
BP14	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer Specs for ammonia

Note: The same mine fleet fields apply for mine fleet groups 2 to 100.

Table 56: Data Fields for Worksheet 3.7.4: Mine Face Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Any operating or approved future mine faces at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there are any mine faces at the industrial operation.	Yes
B14	Mine Face Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the mine face.	North Mine Face
C14	Mine Face Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the mine face, as specified in the EPEA approval or associated application.	NMF-1
D14	Associated Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Identify the non-point source associated with the mine face segment (where the emissions are being reported).	North Mine Face
E14	Associated Non-Point Source Unique Designation	Text Length	0 to 255 characters	Identify the unique designation of the non-point source associated with the mine face segment.	NMF-1
F14	Mine Face Segment Name	Text Length	0 to 255 characters	Enter the name of the mine face segment.	Segment North A
G14	Mine Face Segment Description	Text Length	0 to 5000 characters	Enter a brief description of the segment of the mine face.	Mine face segment A of the north mine face
I14	Mine Face Segment Height (m)	Decimal	Greater than or equal to 0	Enter the approximate height of the mine face segment. The height value is to be reported in metres.	6.00
J14	Mine Face Segment Length (m)	Decimal	Greater than or equal to 0	Enter the approximate length of the mine face segment. The length value is to be reported in metres.	220.00
K14	Mine Face Segment Width (m)	Decimal	Greater than or equal to 0	Enter the approximate width of the mine face segment. The width value is to be reported in metres.	6.00

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
L14	Mine Face Segment Area (m2)	Decimal	Greater than or equal to 0	Enter the approximate area of the mine face segment. The area value is to be reported in metres squared.	1,320.00
N14	Mine Face Segment Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the mine face segment.	1999
O14	Mine Face Segment Operating Status	List	Specified Selection	Select the general operating status of the mine face segment for the inventory year.	Operating
P14	Mine Face Segment Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the mine face segment for the inventory year (if operating).	Normal
Q14	Mine Face Segment Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the mine face segment was permanently shut-down or decommissioned (if applicable).	January 1, 2022
R14	Approved Future Mine Face? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the mine face segment has not yet been built or has not yet commenced operation.	No
S14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future mine face segment is expected to begin operating/emitting.	2025
U14	Mine Face Segment Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671
V14	Number of Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
W14	Mine Face Segment Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
X14	Mine Face Segment Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330
AR14	Controlled or Uncontrolled?	List	Specified Selection	Indicate if the source is controlled (has pollution controls) or uncontrolled (has no pollution controls).	Controlled
AS14	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Tank Vapour Recovery
AT14	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	VRU-A
AU14	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Vapour Recovery Unit
AV14	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
AW14	Associated Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	n/a
AX14	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	2301000000

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
AY14	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	AEREON
AZ14	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	J3XT
BA14	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
BB14	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
BC14	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
BD14	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
BE14	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
BF14	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,950
BG14	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1900-01-01	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
BH14	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been built or has not yet commenced operation.	No
BI14	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
BJ14	Substances Affected (list all)	Text Length	0 to 5000 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	Ammonia
BK14	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	95% for ammonia
BL14	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer Specs for ammonia

Note: The same mine face fields apply for mine face segments 2 to 100.

Table 57: Data Fields for Worksheet 3.7.5: Tailings Pond Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Any operating or approved future tailings ponds at the industrial operation? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate whether there are any tailings ponds at the industrial operation.	Yes

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B12	Tailings Pond Descriptive Name	Text Length	0 to 255 characters	Enter a simple descriptive name for the tailings pond.	North Tailings Pond
C12	Tailings Pond Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the tailings pond, as specified in the EPEA approval or associated application.	PND210
D12	Tailings Pond Description	Text Length	0 to 5000 characters	Enter a brief description of the tailings pond, to communicate what is being received from which parts of the mining operation.	This pond receives oil sands tailings from the northern mining location and waste products from the main processing unit.
E12	Associated Non-Point Source Descriptive Name	Text Length	0 to 255 characters	Identify the non-point source associated with the tailings pond (where the emissions are being reported).	North Tailings Pond
F12	Associated Non-Point Source Unique Designation	Text Length	0 to 255 characters	Identify the unique designation of the non-point source associated with the tailings pond.	TP-101
G12	Total Area of Tailing Pond (km2)	Decimal	Greater than or equal to 0	Enter the total area of the tailings pond in kilometres squared.	4.00
H12	Size of Water Area (km2)	Decimal	Greater than or equal to 0	Enter the size of the water area of the tailings pond in kilometres squared.	3.00
I12	Size of Dry Pond (beach) (km2)	Decimal	Greater than or equal to 0	Enter the size of the dry pond or beach area of the tailings pond in kilometres squared.	1.00
J12	Total Discharge Volume to the Pond for the Year (m3)	Decimal	Greater than or equal to 0	Enter the total discharge volume to the pond for the inventory year in cubic metres.	25,555.00
K12	% of Total Discharge Volume that is Diluent	Decimal	Greater than or equal to 0	Enter the percent of total discharge volume that is diluent. This field only applies for oil sands mining operation tailings ponds.	1
L12	Diluent Type	Text Length	0 to 255 characters	Enter the type of diluent. This field only applies for oil sands mining operation tailings ponds.	naphtha
M12	Typical Tailing Content	Text Length	0 to 255 characters	Identify the typical tailing content.	sand, silt, clay and water
O12	Tailings Pond Start-up Year	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the tailings pond.	1999
P12	Tailings Pond Operating Status	List	Specified Selection	Select the general operating status of the tailings pond for the inventory year.	Operating
Q12	Tailings Pond Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the tailings pond for the inventory year (if operating).	Normal
R12	Tailings Pond Decommission Date (if applicable)	Date	Greater than 1900-01-01	Enter the date when the tailings pond was permanently shut-down or decommissioned (if applicable).	January 1, 2022
S12	Approved Future Tailings Pond? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the tailings pond has not yet been built or has not yet commenced operation.	No
T12	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future tailings pond is expected to begin operating/emitting.	2025
V12	Tailings Pond Base Elevation (m ASL)	Decimal	Greater than or equal to 0	Enter the base elevation of the non-point source in metres above sea level.	671

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
W12	Number of Vertices	Whole Number	Greater than or equal to 0	Enter the number of vertices for the non-point source.	4
X12	Tailings Pond Vertex 1 Latitude (Decimal, NAD 83)	Decimal	Greater than or equal to 0	Enter the first geographic latitude corner/vertex value for the first vertex of the non-point source being reported.	53.53600
Y12	Tailings Pond Vertex 1 Longitude (Decimal, NAD 83)	Decimal	Less than or equal to 0	Enter the first geographic longitude corner/vertex value for the first vertex of the non-point source being reported.	-113.50330
AS12	Controlled or Uncontrolled?	List	Specified Selection	Indicate if the source is controlled (has pollution controls) or uncontrolled (has no pollution controls).	Controlled
AT12	Name of Pollution Control	Text Length	0 to 255 characters	Enter a simple descriptive name for the control associated with the non-point source, to communicate what the control is.	Tank Vapour Recovery
AU12	Pollution Control Unique Designation	Text Length	0 to 255 characters	Enter the formal designation of the pollution control, as specified in the EPEA approval or associated application.	VRU-A
AV12	Pollution Control Type	List	Specified Selection	Select the control technology or equipment type.	Vapour Recovery Unit
AW12	Description of "Other Type" (if applicable)	Text Length	0 to 255 characters	Enter a description of the other type, when "Other Control Technology or Equipment" was selected.	n/a
AX12	Associated Unit, Process or Equipment (if applicable)	Text Length	0 to 255 characters	Identify the unit, process or equipment being controlled (if applicable).	n/a
AY12	Pollution Control AMS/SCC	Text Length	Less than or equal to 10	Identify the most applicable Area and Mobile or Source Classification Code for the pollution control.	2301000000
AZ12	Make of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the make (manufacturer) of the control technology or equipment (if applicable for the specific pollution control).	AEREON
BA12	Model # of Pollution Control (if applicable)	Text Length	0 to 255 characters	Enter the model number of the pollution control (if applicable for the specific pollution control).	J3XT
BB12	Year of Manufacture of Pollution Control (if applicable)	Whole Number	Greater than or equal to 1900	Enter the year of manufacture of the pollution control (if applicable for the specific pollution control).	1997
BC12	Year of Installation of Pollution Control	Whole Number	Greater than or equal to 1900	Enter the year of installation of the pollution control.	1998
BD12	Year of Pollution Control Start-up	Whole Number	Greater than or equal to 1900	Enter the year of start-up of the pollution control.	1999
BE12	Pollution Control Operating Status for the Inventory Year	List	Specified Selection	Select the general operating status of the pollution control for the inventory year.	Operating
BF12	Pollution Control Operating Condition for the Inventory Year (if operating)	List	Specified Selection	Select the general operating condition of the pollution control technology for the inventory year (if operating).	Normal
BG12	Approximate Hours of Annual Operation for Pollution Control	Whole Number	Greater than or equal to 0	Enter the approximate number of hours of operation for the pollution control for the inventory year.	1,950

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
BH12	Decommission Date of Pollution Control (if applicable)	Date	Greater than 1900-01-01	Enter the date when the pollution control was permanently shut-down or decommissioned (if applicable).	January 1, 2022
BI12	Approved Future Control? (Y/N)	List	Specified Selection	Select "Yes" or "No" to identify if the pollution control has not yet been built or has not yet commenced operation.	No
BJ12	First Year of Expected Operation (if applicable)	Whole Number	Greater than or equal to 1900	Identify the first year the approved future pollution control is expected to begin operating/emitting.	2025
BK12	Substances Affected (list all)	Text Length	0 to 255 characters	List all substances that are being controlled by the specific pollution control for the non-point source.	Ammonia
BL12	Estimated Overall Control or Capture Effectiveness/Efficiency (list by applicable substance)	Text Length	0 to 5000 characters	Enter the estimated overall control or capture effectiveness/efficiency value for each substance being controlled.	95% for ammonia
BM12	Basis for Estimated Overall Control or Capture Effectiveness/Efficiency	Text Length	0 to 5000 characters	Identify the basis for the reported estimated control or capture effectiveness/efficiency value for each substance being controlled.	Manufacturer Specs

Note: The same tailings pond fields apply for tailings ponds 2 to 100.

Table 58: Data Fields for Worksheet 3.8.1: Non-Point Source - Schedule 1 Emission Rates.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Are any non-point source Schedule 1 substance emissions being reported? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any non-point source Schedule 1 substance emissions being reported for the inventory year.	Yes
B14	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Source Descriptive Name entered in worksheet 3.0. No input is required in this field.	North Mine Fleet
D14	Annual Actual NOx Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual NOx emission rate for the specific non-point source (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	8,665.0000
E14	Annual Actual NOx Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual NOx emission rate for the non-point source (for the inventory year).	Site-Specific EF Annual Method

Note: The same Schedule 1 emission and quantification method fields apply for non-point sources 2 to 200 and for the other Schedule 1 substances.

Table 59: Data Fields for Worksheets 3.8.2 - 3.8.6: Non-Point Source - Schedule 2 Rates.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Are any non-point source Schedule 2 substance emissions being reported? (Y/N)	List	Specified Selection	Select "Yes" or "No" to indicate if there are any non-point source Schedule 2 substance emissions being reported for the inventory.	Yes
B12	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Descriptive Name entered in worksheet 3.0. No input is required in this field.	North Mine Fleet
D11	Substance 1	List	Specified Selection	Select the applicable Schedule 2 substance being reported.	Benzene
D12	Annual Actual Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual emission rate of the selected Schedule 2 substance for the non-point source (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	4.2080
E12	Annual Actual Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual emission rate of the selected Schedule 2 substance for the non-point source (for the inventory year).	Published or General EF Annual Method

Note: The same Schedule 2 emission and quantification method fields apply for non-point sources 2 to 200 and for the other Schedule 2 substances.

Table 60: Data Fields for Worksheet 4.1: Annual Actual Emissions (tonnes/year).

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B9	RP - Annual Actual Nitrogen Oxides (NOx) Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	8,769.74
B10	NP - Annual Actual Nitrogen Oxides (NOx) Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	8,665.00
B11	Total - Annual Actual Nitrogen Oxides (NOx) Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	17,434.74

Note: The same Schedule 1 autocalculated emission fields apply for the other Schedule 1 substances.

Table 61: Data Fields for Worksheet 4.2: Annual Actual Emissions (tonnes/day).

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B16	RP - Annual Actual Daily Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	24.03
B17	NP - Annual Actual Daily Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	23.74
B18	Total - Annual Actual Daily Nitrogen Oxides	Decimal	Greater than or equal to 0	Autocalculated, no input required.	47.77

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
	(NOx) Emissions (tonnes/day)				

Note: The same Schedule 1 autocalculated emission fields apply for the other Schedule 1 substances.

Table 62: Data Fields for Worksheet 4.3: Normal Emissions (tonnes/day).

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B23	RP - Normal Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	30.88
B24	NP - Normal Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	23.74
B25	Total - Normal Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	54.62

Note: The same Schedule 1 autocalculated emission fields apply for the other Schedule 1 substances.

Table 63: Data Fields for Worksheet 4.4: Maximum Emissions (tonnes/day).

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B32	RP - Maximum Daily Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	129.55
B33	NP - Maximum Daily Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	23.74
B34	Total - Maximum Daily Nitrogen Oxides (NOx) Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Autocalculated, no input required.	153.29

Note: The same Schedule 1 autocalculated emission fields apply for the other Schedule 1 substances.

Table 64: Data Fields for Worksheet 4.5: Schedule 1 – 10% Emission Changes.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B12	Were there any Schedule 1 emission changes greater than 10%?	List	Specified Selection	Select “Yes” or “No” to indicate whether there were any Schedule 1 emission changes greater than 10% compared to the previous Annual Emissions Inventory Report values.	Yes
B15	Substance Name	Text Length	0 to 255 characters	This field displays the Schedule 1 substance. No input is required in this field.	Carbon monoxide
C15	Explanation for change greater than 10% in annual actual air emissions	Text Length	0 to 5000 characters	Enter a brief explanation for any changes greater than 10% in total annual actual air emissions of a Schedule 1 substance for the industrial operation.	Increased power generation output resulted in an increase in CO emissions.

Note: The same emission change explanation fields apply for the other Schedule 1 substances.

Table 65: Data Fields for Worksheet 4.6: Schedule 2 – 10% Emission Changes.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B27	Were there any Schedule 2 emission changes greater than 10%?	List	Specified Selection	Select “Yes” or “No” to indicate whether there were any Schedule 2 emission changes greater than 10% compared to the previous Annual Emissions Inventory Report values.	Yes
B30	Substance Name	Text Length	0 to 255 characters	This field displays the Schedule 2 substance. No input is required in this field.	Selenium (and its compounds)
C30	Explanation for change greater than 10% in annual actual air emissions	Text Length	0 to 5000 characters	Enter a brief explanation for any changes greater than 10% in total annual actual air emissions of an applicable Schedule 2 substance for the industrial operation.	Process changes resulted in a reduction in selenium present in the flue gas being emitted from the main stack

Note: The same emission change explanation fields apply for the other Schedule 2 substances.

Table 66: Data Fields for Worksheet 4.7: Authorized Changes in Quantification Methods.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Were there any authorized changes in quantification methods?	List	Specified Selection	Select “Yes” or “No” to indicate whether there were any authorized changes in quantification methods compared to the previous Annual Emissions Inventory Report methods.	No
B15	Description of any authorized changes in quantification methods	Text Length	0 to 5000 characters	Enter a brief description of any Director-authorized change or changes in the quantification methods that were used in the AEIR compared to the previous year.	No changes to quantifications were made from the previous inventory year.

Note: The same authorized change fields apply for boxes b) to g).

Table 67: Data Fields for Worksheet 4.8: Significant Plant Changes.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Were there any significant plant changes affecting air emissions?	List	Specified Selection	Select “Yes” or “No” to indicate whether there were any significant plant changes affecting air emissions compared to the previous Annual Emissions Inventory Reports.	No
B15	Description of any significant plant changes affecting air emissions	Text Length	0 to 5000 characters	Enter a brief description of any significant plant change affecting air emissions at the industrial operation during the inventory year.	No significant plant changes were made to the Industrial Operation during the inventory year.

Note: The same significant plant change fields apply for boxes b) to g).

Table 68: Data Fields for Worksheet 4.9: Actions Taken to Reduce Air Emissions.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Were there any actions taken to reduce air emissions at the industrial operation?	List	Specified Selection	Select "Yes" or "No" to indicate whether there were any actions taken during the inventory year to reduce air emissions at the industrial operation.	No
B15	Description of any actions taken to reduce air emissions at the industrial operation	Text Length	0 to 5000 characters	Enter a brief description of any actions taken during the inventory year to reduce air emissions from the industrial operation during the inventory year.	No additional actions were taken during the inventory to reduce air emissions.

Note: The same reduction action fields apply for boxes b) to g).

Table 69: Data Fields for Worksheet 4.10: Comments and Additional Information.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B10	Are any comments or additional information being provided?	List	Specified Selection	Select "Yes" or "No" to indicate whether any comments or additional information is being provided as part of the AEIR.	No
B15	Comments or additional information	Text Length	0 to 5000 characters	Enter comments and additional information on the AEIR submission.	No additional comments or information.

Note: The same comment fields apply for boxes b) to g).

Table 70: Data Fields for Worksheets Extra 1-3: Additional Release Point Emission Rates.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B8	Release Point Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Release Point Descriptive Name entered in worksheet 2.0. No input is required in this field.	Combined Boiler Control Stack
D7	Substance 1	Text Length	0 to 255 characters	Enter the substance being reported	Substance X
D8	Annual Actual Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual emission rate of the substance for the release point (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	0.0500
E8	Annual Actual Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual emission rate of the substance for the release point (for the inventory year).	Published or General EF Annual Method
F8	Normal Emissions (tonnes/day)	Decimal	Greater than or equal to 0	Enter the quantified normal emission rate of the substance for the release point. The normal emission rate is to be reported in tonnes/day.	0.0002
G8	Normal Quantification Method	List	Specified Selection	Select the quantification method used to determine the normal	Single Annual Actual Normal Method

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
				emission rate of the substance for the release point.	
H8	Maximum Emissions (kg/hour)	Decimal	Greater than or equal to 0	Enter the quantified maximum emission rate of the substance for the release point. The maximum emission rate is to be reported in kilograms/hour.	0.0114
I8	Maximum Quantification Method	List	Specified Selection	Select the quantification method used to determine the maximum emission rate of the substance for the inventory year for the release point.	Historical Maximum Method

Note: The same emission and quantification method fields apply for release points 2 to 200 and for the other substances.

Table 71: Data Fields for Worksheets Extra 4-6: Additional NPS Emission Rates.

Excel Cell Number	AEIR Form Field Name	Excel Data Type	Excel Condition	Description	Example
B7	Non-Point Source Descriptive Name	Text Length	0 to 255 characters	This field carries forward the Non-Point Descriptive Name entered in worksheet 3.0. No input is required in this field.	North Mine Fleet
D6	Substance 1	Text Length	0 to 255 characters	Enter the substance being reported	Substance X
D7	Annual Actual Emissions (tonnes/year)	Decimal	Greater than or equal to 0	Enter the quantified annual actual emission rate of the substance for the non-point source (for the inventory year). The annual actual emission rate is to be reported in tonnes/year.	4.208
E7	Annual Actual Quantification Method	List	Specified Selection	Select the quantification method used to determine the annual actual emission rate of the substance for the non-point source (for the inventory year).	Published or General EF Annual Method

Note: The same emission and quantification method fields apply for non-point sources 2 to 200 and for the other substances.

Appendix D: Reported Common Equipment, Controls, Non-Point Sources, and Schedule 2 Substances by Sector

This appendix of the AEIR Standard contains tables listing reported common units, processes and equipment; pollution controls; non-point sources; and Schedule 2 substances by sector. These lists were developed based on previous AEIR submissions. The information reported by other industrial operations in a sector may help to identify which units, processes and equipment; pollution controls; non-point sources; and Schedule 2 substances may be applicable to another industrial operation in the same sector. However, not all industrial operations in a sector will necessarily have the same units, processes and equipment; pollution controls; non-point sources; and/or Schedule 2 substances. Individual industrial operations may also have additional units, processes and equipment; pollution controls; non-point sources; and/or Schedule 2 substances that are not included in the tables in this appendix.

Table 72 a), b), c) and d): Biofuels Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Centrifuge
Cogeneration Unit
Compressor
Conveyor
Dryer
Flour Loading
Generator (Electric Power)
Grain Receiving
Heater
Milling
Other Unit, Process or Equipment
Silo or Bin Storage (individual)
Stripper
Vaporizer
Vent – General

b) Release Point Pollution Control Type
Absorption or Adsorption
Baghouse
Scrubber - Wet or Dry
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Cooling Tower (multiple)
Plant Fugitive Leaks
Silo or Bin Storage (multiple)
Space Heaters (multiple)
Space Vents (multiple)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Methanol

Table 73 a), b), c) and d): Cement and Concrete - Cement Manufacture Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Cement Mill
Clinker Cooler
Coal Mill
Crusher
Generator (Electric Power)
Kiln
Other Unit, Process or Equipment
Raw Mill

b) Release Point Pollution Control Type
Baghouse

c) Non-Point Source Type
Fugitive Dust
Materials Handling
Non-Stationary Equipment
Other Non-Point Source
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
3-Methylcholanthrene
Benzene
Cadmium (and its compounds)
Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Dioxins and furans - total
Ethylbenzene
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Naphthalene
n-Hexane
Nickel (and its compounds)
PAHs, total unspciated
Toluene
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 74 a), b), c) and d): Cement and Concrete - Lime Manufacture Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Crushing
Dryer
Furnace
Generator (Electric Power)
Heater
Kiln
Loading
Milling
Other Unit, Process or Equipment
Pulverizing
Screening
Separator
Silo or Bin Storage (individual)

b) Release Point Pollution Control Type
Baghouse
Cyclone or Centrifugal Dust Collector
Scrubber - Wet or Dry

c) Non-Point Source Type
Fugitive Dust
Materials Handling
Non-Stationary Equipment
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tanks (multiple)

d) Schedule 2 Substance
No schedule 2 substances reported

Table 75 a), b), c) and d): Chemicals - Fertilizer Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Chemical Synthesis
Compressor
Degasifier or Decarbonator
Dehydrator
Distillation
Dryer
Engine
Evaporator
Fan

Furnace
Gas Turbine
Generator (Electric Power)
Granulator
Heater
Other Unit, Process or Equipment
Prilling Tower
Reactor
Reformer
Separator
Silo or Bin Storage (individual)
Steam Generator
Stripper
Vent – General
Wastewater Treatment (individual)

b) Release Point Pollution Control Type
Absorption or Adsorption
Baghouse
Cyclone or Centrifugal Dust Collector
External Combustion Modification
Flare
Other Control Technology or Equipment
Scrubber - Wet or Dry
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)

c) Non-Point Source Type
Cooling Tower (multiple)
Loading/Unloading
Materials Handling
Mine Fleet Vehicles
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Space Heaters (multiple)
Spills and Accidental Releases
Tailings Pond (liquid)
Tank (individual)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Benzene
Butane (all isomers)
Cadmium (and its compounds)
Formaldehyde
Hydrogen fluoride

Methanol
n-Hexane
Sulphuric acid
Toluene

Table 76 a), b), c) and d): Chemicals - Petrochemicals and Other Chemical Manufacture Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Chemical Synthesis
Cogeneration Unit
Compressor
Cooling Tower (individual)
Deaerator
Decarbonator
Dehydrator
Distillation
Dryer
Electrolysis
Engine
Evaporator
Fan
Fume Hood
Furnace
Furnace – Cracking
Gas Turbine
Generator (Electric Power)
Heater
Hopper
Kiln
Mixer
Moulding
Other Unit, Process or Equipment
Oven
Pulverizer
Pump
Reactor
Reboiler
Reformer
Regenerator
Separator
Silo or Bin Storage (individual)
Stripper
Unloading
Vacuum
Vaporizer

Vent – General
Waste Handling
Wastewater Treatment (individual)

b) Release Point Pollution Control Type
Absorption or Adsorption
Baghouse
Condenser - Contact or Surface
Cyclone or Centrifugal Dust Collector
External Combustion Modification
Flare
Incinerator
Internal Combustion Modification
Mist Eliminator / Demister
Other Control Technology or Equipment
Scrubber - Wet or Dry
Thermal or Catalytic Oxidizer
Vapour Recovery Unit
Waste Heat Recovery Unit

c) Non-Point Source Type
Combined Large Point Sources
Cooling Tower (multiple)
Fugitive Dust
Loading/Unloading
Materials Handling
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Silo or Bin Storage (multiple)
Solvent Use, Storage or Evaporation
Space Heaters (multiple)
Space Vents (multiple)
Spills and Accidental Releases
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
1,3-Butadiene
Acetaldehyde
Acetone
Acrolein
Arsenic (and its compounds)

Benzene
Benzo(a)pyrene
Butane (all isomers)
Cadmium (and its compounds)
Carbon disulphide
Chlorine
Chloromethane
Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Cumene
Dichloromethane
Ethylbenzene
Ethylene
Ethylene oxide
Formaldehyde
Hydrogen sulphide
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Methanol
Naphthalene
n-Hexane
Nickel (and its compounds)
PAHs, total unspciated
Phenol (and its salts)
Selenium (and its compounds)
Styrene
Toluene
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 77 a), b), c) and d): Electric Power and Heating - Biomass and Biogas Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Cooling Tower (individual)
Engine
Furnace
Generator (Electric Power)
Other Unit, Process or Equipment
Pump
Silo or Bin Storage (individual)
Space Heater (individual)
Vent – General

b) Release Point Pollution Control Type
Baghouse
Cyclone or Centrifugal Dust Collector
Electrostatic Precipitator (ESP)
Flare
Other Control Technology or Equipment

c) Non-Point Source Type
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Venting – General (combined)

d) Schedule 2 Substance
Arsenic (and its compounds)
Benzene
Cadmium (and its compounds)
Lead (and its compounds)
Mercury (and its compounds)
Selenium (and its compounds)
Styrene
Toluene

Table 78 a), b), c) and d): Electric Power and Heating - Coal Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Coal Crusher
Coal Storage
Conveyor
Cooling Tower (individual)
Engine
Flyash Tower
Gas Turbine
Generator (Electric Power)
Other Unit, Process or Equipment
Pump
Sample House

b) Release Point Pollution Control Type
Absorption or Adsorption
Baghouse
Condenser - Contact or Surface
Electrostatic Precipitator (ESP)
External Combustion Modification
Flue-Gas Desulphurization (FGD)
Other Control Technology or Equipment
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)

c) Non-Point Source Type
Fugitive Dust
Loading/Unloading
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
1,2,4-Trimethylbenzene
Acetaldehyde
Arsenic (and its compounds)
Benzene
Butane (all isomers)
Cadmium (and its compounds)
Chlorine
Cobalt (and its compounds)
Dioxins and furans - total
Ethylene
Formaldehyde
Hydrogen fluoride
Lead (and its compounds)
Mercury (and its compounds)
n-Hexane
Selenium (and its compounds)
Sulphuric acid
Toluene

Table 79 a), b), c) and d): Electric Power and Heating - Diesel Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Generator (Electric Power)

b) Release Point Pollution Control Type
No pollution controls reported

c) Non-Point Source Type
Space Heaters (multiple)
Space Vents (multiple)

d) Schedule 2 Substance
No schedule 2 substances reported

Table 80 a), b), c) and d): Electric Power and Heating - Natural Gas Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Cogeneration Unit
Compressor
Cooling Tower (individual)
Engine
Gas Turbine
Generator (Electric Power)
Heater
Other Unit, Process or Equipment
Pump
Steam Generator

b) Release Point Pollution Control Type
External Combustion Modification
Flare
Internal Combustion Modification
Other Control Technology or Equipment
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)
Waste Heat Recovery Unit

c) Non-Point Source Type
Combined Large Point Sources
Cooling Tower (multiple)
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Tank (individual)
Tanks (multiple)
Valve (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Acetaldehyde
Arsenic (and its compounds)
Benzene
Benzo(a)pyrene
Butane (all isomers)
Cadmium (and its compounds)

Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Ethylbenzene
Ethylene
Formaldehyde
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Methanol
Naphthalene
n-Hexane
Nickel (and its compounds)
Selenium (and its compounds)
Toluene
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 81 a), b), c) and d): Food and Beverage Manufacture and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Conveyor
Cooling Tower (individual)
Disinfector
Distillation
Dryer
Engine
Fan
Gas Turbine
Generator (Electric Power)
Heater
Kiln
Loading/Unloading
Materials Handling
Other Unit, Process or Equipment
Pellet Cooler
Pump
Receiving
Screening
Separator
Silo or Bin Storage (individual)
Space Vent (individual)
Steam Generator
Storage Tanks
Valve (individual)

Vent – General
Wastewater Treatment (individual)

b) Release Point Pollution Control Type
Absorption or Adsorption
Baghouse
Cyclone or Centrifugal Dust Collector
Electrostatic Precipitator (ESP)
External Combustion Modification
Flare
Internal Combustion Modification
Other Control Technology or Equipment
Scrubber - Wet or Dry
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)
Solvent Recovery System
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Cooling Tower (multiple)
Fugitive Dust
Materials Handling
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Silo or Bin Storage (multiple)
Space Heaters (multiple)
Space Vents (multiple)
Spills and Accidental Releases
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
Butane (all isomers)
Hydrogen sulphide
Isopropyl alcohol
Methanol
n-Hexane
Toluene

Table 82 a), b), c) and d): Manufacturing - General Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler

Burner
Cooling Tower (individual)
Cutting/Sawing
Dryer
Fan
Furnace
Generator (Electric Power)
Heater
Kiln
Milling
Other Unit, Process or Equipment
Oven
Separator
Silo or Bin Storage (individual)
Stripper
Vent – General

b) Release Point Pollution Control Type
Baghouse
Cyclone or Centrifugal Dust Collector
Incinerator
Mist Eliminator / Demister
Other Control Technology or Equipment
Scrubber - Wet or Dry
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Cooling Tower (multiple)
Materials Handling
Non-Stationary Equipment
Silo or Bin Storage (multiple)
Solvent Use, Storage or Evaporation
Space Heaters (multiple)
Space Vents (multiple)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Benzene
Chromium (and its compounds)
Formaldehyde
Lead (and its compounds)
Manganese (and its compounds)
Selenium (and its compounds)
Sulphuric acid
Toluene
Zinc (and its compounds)

Table 83 a), b), c) and d): Metal Manufacture and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Compressor
Dryer
Furnace
Granulator
Mixer
Other Unit, Process or Equipment
Reactor
Separator
Vent – General

b) Release Point Pollution Control Type
Baffle or Settling Chamber
Baghouse
Condenser - Contact or Surface
Cyclone or Centrifugal Dust Collector
Flare
Internal Combustion Modification
Mist Eliminator / Demister
Other Control Technology or Equipment
Scrubber - Wet or Dry
Vapour Recovery Unit

c) Non-Point Source Type
Cooling Tower (multiple)
Materials Handling
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tank (individual)
Tanks (multiple)

d) Schedule 2 Substance
Antimony (and its compounds)
Arsenic (and its compounds)
Benzene
Butane (all isomers)
Cadmium (and its compounds)
Chlorobenzene
Chromium (and its compounds)

Cobalt (and its compounds)
Copper (and its compounds)
Dioxins and furans - total
Formaldehyde
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Naphthalene
Nickel (and its compounds)
Selenium (and its compounds)
Styrene
Sulphuric acid
Toluene
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 84 a), b), c) and d): Mining and Quarrying - Coal Mining and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Coal Mill
Dryer
Generator (Electric Power)
Other Unit, Process or Equipment
Silo or Bin Storage (individual)

b) Release Point Pollution Control Type
Baghouse
Incinerator
Scrubber - Wet or Dry

c) Non-Point Source Type
Fugitive Dust
Loading/Unloading
Materials Handling
Mine Face
Mine Fleet Vehicles
Mine Tailings (Solid)
Non-Stationary Equipment
Other Non-Point Source
Road Dust
Space Heaters (multiple)
Storage Pile
Tailings Pond (liquid)
Tanks (multiple)

d) Schedule 2 Substance
Benzene
Toluene

Table 85 a), b), c) and d): Mining and Quarrying - Mining and Quarrying - Other Mineral Mining, Quarrying and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Dryer
Other Unit, Process or Equipment
Silo or Bin Storage (individual)

b) Release Point Pollution Control Type
Baghouse
Scrubber - Wet or Dry

c) Non-Point Source Type
Loading/Unloading
Non-Stationary Equipment
Space Heaters (multiple)

d) Schedule 2 Substance
No Schedule 2 substances reported

Table 86 a), b), c) and d): Oil & Gas - Light or Medium Crude Oil Production and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Compressor
Heater
Other Unit, Process or Equipment
Pump
Reboiler
Treater

b) Release Point Pollution Control Type
Flare
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Plant Fugitive Leaks
Space Heaters (multiple)
Space Vents (multiple)
Tank (individual)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Benzene

Table 87 a), b), c) and d): Oil & Gas - Natural Gas Production and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Cogeneration Unit
Compressor
Cooling Tower (individual)
Dehydrator
Engine
Furnace
Gas Processing
Gas Turbine
Generator (Electric Power)
Granulator
Heater
Other Unit, Process or Equipment
Pit
Prilling Tower
Pump
Reboiler
Refining
Regenerator
Separator
Space Heater (individual)
Space Vent (individual)
Steam Generator
Storage Tanks
Stripper
Treater
Vaporizer
Vent – General

b) Release Point Pollution Control Type
External Combustion Modification
Flare
Incinerator
Internal Combustion Modification
Other Control Technology or Equipment
Scrubber - Wet or Dry
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)
Sulphur Recovery Unit (SRU)
Thermal or Catalytic Oxidizer
Vapour Recovery Unit
Waste Heat Recovery Unit

c) Non-Point Source Type
Cooling Tower (multiple)
Fugitive Dust
Loading/Unloading
Materials Handling
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Spills and Accidental Releases
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
1,2,4-Trimethylbenzene
1,2-Dichloroethane
1,3-Butadiene
Acetaldehyde
Acrolein
Benzene
Butane (all isomers)
Carbon disulphide
Ethylbenzene
Ethylene
Formaldehyde
Hydrogen sulphide
Methanol
n-Hexane
PAHs, total unspciated
Styrene
Toluene
Total reduced sulphur (expressed as hydrogen sulphide)
Xylene (all isomers)

Table 88 a), b), c) and d): Oil & Gas - Other Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Engine
Gas Turbine
Heater
Other Unit, Process or Equipment

b) Release Point Pollution Control Type
Flare

c) Non-Point Source Type
Plant Fugitive Leaks
Space Heaters (multiple)
Space Vents (multiple)
Tank (individual)
Tanks (multiple)
Valve (multiple)

d) Schedule 2 Substance
Butane (all isomers)

Table 89 a), b), c) and d): In-situ Extraction and Processing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Cogeneration Unit
Compressor
Dehydrator
Dryer
Evaporator
Furnace – Cracking
Gas Turbine
Generator (Electric Power)
Heater
Other Unit, Process or Equipment
Pump
Reboiler
Regenerator
Separator
Space Heater (individual)
Steam Generator
Treater
Valve (individual)
Vent – General
Wastewater Treatment (individual)

b) Release Point Pollution Control Type
External Combustion Modification
Flare
Incinerator
Internal Combustion Modification
Other Control Technology or Equipment
Sulphur Recovery Unit (SRU)
Thermal or Catalytic Oxidizer
Vapour Recovery Unit

c) Non-Point Source Type
Fugitive Dust
Loading/Unloading
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Spills and Accidental Releases
Tank (individual)
Tanks (multiple)
Valve (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
1,3-Butadiene
3-Methylcholanthrene
Acetaldehyde
Acrolein
Antimony (and its compounds)
Arsenic (and its compounds)
Benzene
Benzo(a)pyrene
Butane (all isomers)
Cadmium (and its compounds)
Chlorine
Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Ethylbenzene
Ethylene
Formaldehyde
Hydrogen sulphide
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Methanol
Naphthalene
n-Hexane
Nickel (and its compounds)
PAHs, total unspciated
Phenol (and its salts)
Propylene oxide
Selenium (and its compounds)

Styrene
Sulphuric acid
Toluene
Total reduced sulphur (expressed as hydrogen sulphide)
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 90 a), b), c) and d): Oil Sands - Mining, Processing and Upgrading Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Cogeneration Unit
Coker
Cooling Tower (individual)
Degasifier or Decarbonator
Distillation
Furnace
Gas Turbine
Generator (Electric Power)
Heater
Other Unit, Process or Equipment
Pump
Reactor
Reformer
Steam Generator
Stripper
Vent – General

b) Release Point Pollution Control Type
External Combustion Modification
Flare
Flue-Gas Desulphurization (FGD)
Incinerator
Internal Combustion Modification
Other Control Technology or Equipment
Scrubber - Wet or Dry
Sulphur Recovery Unit (SRU)
Thermal or Catalytic Oxidizer
Vapour Recovery Unit
Waste Heat Recovery Unit

c) Non-Point Source Type
Combined Large Point Sources
Cooling Tower (multiple)
Fugitive Dust
Loading/Unloading

Materials Handling
Mine Face
Mine Fleet Vehicles
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Spills and Accidental Releases
Storage Pile
Tailings Pond (liquid)
Tank (individual)
Tanks (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
1,1,1,2-Tetrachloroethane
1,1,1,2-Trichloroethane
1,2,4-Trimethylbenzene
1,2-Dichloroethane
1,3-Butadiene
3-Methylcholanthrene
Acetaldehyde
Acetone
Acrolein
Acrylic acid (and its salts)
Antimony (and its compounds)
Arsenic (and its compounds)
Benzene
Benzo(a)pyrene
Butane (all isomers)
Cadmium (and its compounds)
Carbon disulphide
Carbon Tetrachloride
Chlorine
Chlorobenzene
Chloroform
Chloromethane
Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Cumene
Dichloromethane
Ethylbenzene
Ethylene
Formaldehyde

Hydrogen sulphide
Isopropyl alcohol
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Methanol
Methyl tert-butyl ether
Naphthalene
n-Hexane
Nickel (and its compounds)
o-dichlorobenzene
PAHs, total unspciated
p-dichlorobenzene
Phenol (and its salts)
Propylene oxide
Selenium (and its compounds)
Styrene
Sulphuric acid
Tetrachloroethylene
Toluene
Total reduced sulphur (expressed as hydrogen sulphide)
Trichloroethylene
Vanadium (and its compounds)
Vinyl Chloride
Xylene (all isomers)
Zinc (and its compounds)

Table 91 a), b), c) and d): Petroleum Products - Bulk Storage Terminals Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Engine
Generator (Electric Power)
Heater
Other Unit, Process or Equipment
Pump
Vaporizer

b) Release Point Pollution Control Type
Flare
Incinerator
Scrubber - Wet or Dry
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Fugitive Dust
Loading/Unloading
Materials Handling

Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Spills and Accidental Releases
Tank (individual)
Tanks (multiple)

d) Schedule 2 Substance
1,2,4-Trimethylbenzene
Benzene
Butane (all isomers)
Ethylbenzene
Hydrogen sulphide
Isopropyl alcohol
n-Hexane
Toluene
Total reduced sulphur (expressed as hydrogen sulphide)
Xylene (all isomers)

Table 92 a), b), c) and d): Petroleum Products - Refining Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Chemical Synthesis
Cooling Tower (individual)
Distillation
Furnace
Furnace – Cracking
Gas Turbine
Generator (Electric Power)
Heater
Other Unit, Process or Equipment
Pump
Reactor
Reboiler
Refining
Reformer
Regenerator
Steam Generator
Stripper
Vent – General

b) Release Point Pollution Control Type
Cyclone or Centrifugal Dust Collector
External Combustion Modification

Flare
Incinerator
Internal Combustion Modification
Other Control Technology or Equipment
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)
Sulphur Recovery Unit (SRU)
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Cooling Tower (multiple)
Loading/Unloading
Materials Handling
Mine Fleet Vehicles
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Spills and Accidental Releases
Tank (individual)
Tanks (multiple)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
1,2,4-Trimethylbenzene
1,3-Butadiene
Acetaldehyde
Acetone
Acrolein
Antimony (and its compounds)
Arsenic (and its compounds)
Benzene
Benzo(a)pyrene
Butane (all isomers)
Cadmium (and its compounds)
Carbon disulphide
Chlorine
Chlorobenzene
Chromium (and its compounds)
Cobalt (and its compounds)
Copper (and its compounds)
Cumene
Ethylbenzene
Ethylene
Formaldehyde
Hydrogen sulphide
Isopropyl alcohol

Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Naphthalene
n-Hexane
Nickel (and its compounds)
PAHs, total unspciated
Phenol (and its salts)
Selenium (and its compounds)
Styrene
Sulphuric acid
Toluene
Total reduced sulphur (expressed as hydrogen sulphide)
Vanadium (and its compounds)
Xylene (all isomers)
Zinc (and its compounds)

Table 93 a), b), c) and d): Paper Manufacturing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Engine
Other Unit, Process or Equipment

b) Release Point Pollution Control Type
Scrubber - Wet or Dry
Selective or Non-Selective Catalytic Reduction (SCR or NSCR)

c) Non-Point Source Type
Cooling Tower (multiple)
Materials Handling
Mine Fleet Vehicles
Other Non-Point Source
Road Dust
Storage Pile
Tank (individual)
Venting – General (combined)

d) Schedule 2 Substance
Acetaldehyde
Acrolein
Butane (all isomers)
Formaldehyde

Table 94 a), b), c) and d): Pulp Manufacturing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler

Chemical Synthesis
Cooling Tower (individual)
Cutting/Sawing
Deaerator
Degasifier or Decarbonator
Dehydrator
Dryer
Engine
Evaporator
Fan
Fume Hood
Furnace
Gas Turbine
Generator (Electric Power)
Kiln
Liquefaction
Mixer
Other Unit, Process or Equipment
Pump
Reactor
Reboiler
Separator
Silo or Bin Storage (individual)
Smelting
Storage Tanks
Stripper
Treater
Vacuum
Valve (individual)
Vent – General
Wastewater Treatment (individual)

b) Release Point Pollution Control Type
Baghouse
Cyclone or Centrifugal Dust Collector
Electrostatic Precipitator (ESP)
Incinerator
Mist Eliminator / Demister
Other Control Technology or Equipment
Scrubber - Wet or Dry

c) Non-Point Source Type
Cooling Tower (multiple)
Miscellaneous Fuel or Waste Use
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust

Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)
Wastewater Treatment (multiple)

d) Schedule 2 Substance
Acetaldehyde
Arsenic (and its compounds)
Benzene
Benzo(a)pyrene
Cadmium (and its compounds)
Chlorine
Chlorine dioxide
Chloroform
Chromium (and its compounds)
Cobalt (and its compounds)
Dioxins and furans - total
Formaldehyde
Hydrogen sulphide
Isopropyl alcohol
Lead (and its compounds)
Manganese (and its compounds)
Mercury (and its compounds)
Methanol
PAHs, total unspciated
Phenol (and its salts)
Selenium (and its compounds)
Styrene
Sulphuric acid
Total reduced sulphur (expressed as hydrogen sulphide)
Zinc (and its compounds)

Table 95 a), b), c) and d): Railcar Servicing Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Other Unit, Process or Equipment
Oven
Vent – General

b) Release Point Pollution Control Type
Baghouse
Flare
Other Control Technology or Equipment
Scrubber - Wet or Dry

c) Non-Point Source Type
Miscellaneous Fuel or Waste Use
Plant Fugitive Leaks
Space Heaters (multiple)

d) Schedule 2 Substance
Xylene (all isomers)

Table 96 a), b), c) and d): Waste Management Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Compressor
Dryer
Engine
Evaporator
Fume Hood
Generator (Electric Power)
Other Unit, Process or Equipment
Reactor
Silo or Bin Storage (individual)
Treater
Vent – General

b) Release Point Pollution Control Type
Absorption or Adsorption
Baffle or Settling Chamber
Baghouse
Condenser - Contact or Surface
Flare
Incinerator
Scrubber - Wet or Dry
Thermal or Catalytic Oxidizer

c) Non-Point Source Type
Combined Large Point Sources
Materials Handling
Non-Stationary Equipment
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Cadmium (and its compounds)
Dioxins and furans - total

Lead (and its compounds)
Mercury (and its compounds)
Methanol
Xylene (all isomers)

Table 97 a), b), c) and d): Wood Products Units, Processes and Equipment; Non-Point Sources; Pollution Controls; and Schedule 2 Substances.

a) Release Point Equipment Type
Boiler
Burner
Chipper
Cutting/Sawing
Dryer
Fan
Furnace
Generator (Electric Power)
Heater
Kiln
Milling
Moulding
Other Unit, Process or Equipment
Press
Refining
Sanding
Vent – General

b) Release Point Pollution Control Type
Baghouse
Cyclone or Centrifugal Dust Collector
Electrified Filter Bed
Electrostatic Precipitator (ESP)
Scrubber - Wet or Dry

c) Non-Point Source Type
Combined Large Point Sources
Non-Stationary Equipment
Other Non-Point Source
Plant Fugitive Leaks
Road Dust
Space Heaters (multiple)
Space Vents (multiple)
Storage Pile
Tank (individual)
Tanks (multiple)
Venting – General (combined)

d) Schedule 2 Substance
Acetaldehyde

Acrolein
Arsenic (and its compounds)
Benzene
Cadmium (and its compounds)
Formaldehyde
Lead (and its compounds)
Manganese (and its compounds)
Methanol
Methylene bisphenyl diisocyanate
Phenol (and its salts)
Selenium (and its compounds)
Toluene
Xylene (all isomers)