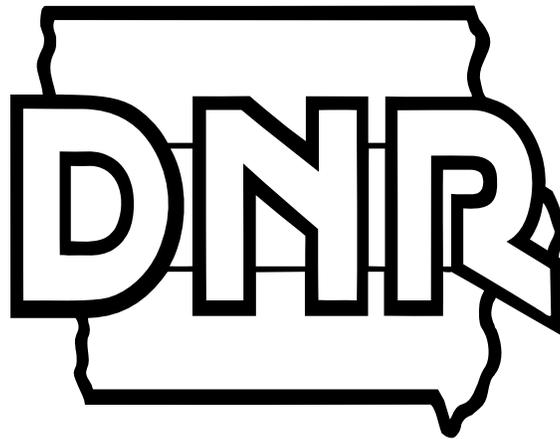


Minor Source Emission Inventory (MSEI) Instructions *(Revised January 2017)*



Iowa DNR - Air Quality Bureau
<http://www.iowacleanair.gov>

Return the MSEI with relevant Safety Data Sheets and supporting documentation by May 15 to:

Emissions Inventory
Air Quality Bureau, DNR
7900 Hickman Rd., Suite 1
Windsor Heights, IA 50324

Table of Contents

| | |
|---|-----------|
| DNR Air Quality Contacts | 3 |
| General Instructions/Purpose | 5 |
| Introduction | |
| Getting Help Completing Your Inventory | |
| Emissions Reporting | |
| Emissions Estimation Methodology | |
| Submitting the Minor Source Emission Inventory | |
| Minor Source Emission Inventory Form Instructions | 13 |
| Form INV-1 Facility Identification | |
| Form INV-2 Release Point Description | |
| Form INV-4 Emission Unit Description – Actual Emissions | |
| Form INV-5 Calculations | |
| Form INV-6 Facility-Wide Actual Emissions | |
| Example Calculations & Forms | 22 |
| Introduction | |
| Actual Emissions | |
| Example MSEI | |
| Appendices | 53 |
| Appendix A Air Quality Glossary | |
| Appendix B Criteria & Hazardous Air Pollutants | |
| Appendix C Control Efficiency Guidance | |
| Appendix D Abbreviations, Conversion Factors, & Transfer Efficiencies | |
| Appendix E Minor Source Emissions Inventory Completeness Checklist | |

DNR Air Quality Contacts

Emission Inventory Questions

Nick Page 515-725-9544

nick.page@dnr.iowa.gov

Krysti Mostert 515-725-9567

krysti.mostert@dnr.iowa.gov

Seth Anderson 515-725-9559

seth.anderson@dnr.iowa.gov

Greenhouse Gas Questions

Marnie Stein 515-725-9555

marnie.stein@dnr.iowa.gov

Iowa Waste Reduction Center

Iowa Air Emissions Assistance Program
(IAEAP)

University of Northern Iowa

1-800-422-3109 or

319-273-8905, Fax: 319-273-6582

<http://iwrc.uni.edu/iaeap>

Air Bureau Records Center

515-725-9553

Air Bureau Numbers

515-725-9500 (phone)

515-725-9501 (fax)

Asbestos Program

Tom Wuehr 515-725-9576

tom.wuehr@dnr.iowa.gov

Polk County Air Quality

515-286-3705 (phone)

<http://www.polkcountyiowa.gov/airquality/>

515-286-3437 (fax)

Construction Permit Section

1-877-AIR-IOWA (1-877-247-4692)

<http://www.iowadnr.gov/InsideDNR/Regulatory>

[Air/ConstructionPermits.aspx](http://www.iowadnr.gov/InsideDNR/Regulatory/Air/ConstructionPermits.aspx)

Compliance Section

Dennis Thielen 515-725-9545

dennis.thielen@dnr.iowa.gov

Hazardous Air Pollutants, MACTs

Casey Laskowski 515-725-9514

casey.laskowski@dnr.iowa.gov

SLEIS Helpdesk

sleis@dnr.iowa.gov

<http://www.iowadnr.gov/eAirServices>

Stack Test Information

Dennis Thielen 515-725-9545

dennis.thielen@dnr.iowa.gov

Title V Operating Permits

Chris Kjellmark 515-725-9537

chris.kjellmark@dnr.iowa.gov

Weston Li 515-725-9580

weston.li@dnr.iowa.gov

Linn County Air Quality

319-892-6000 (phone)

319-892-6099 (fax)

<http://www.linncleanair.org/>

Online Resources

DNR Air Quality Bureau

<http://www.iowacleanair.gov>

DNR MSEI Forms

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/EmissionsInventory/MinorSourceForms.aspx>

eAirServices

<http://www.iowadnr.gov/eAirServices>

A secure portal for online business services. It is the entry point for the regulated community and consultants to electronically complete and file air emissions inventories and permit applications.

EPA Emission Factors

To access AP-42 and WebFIRE emission factors go to:

<https://www.epa.gov/chief>

Latitude and Longitude

<http://maps.google.com>

<http://itouchmap.com/latlong.html>

<http://earth.google.com/>

<http://www.gpsvisualizer.com/geocode>

SIC Codes

www.osha.gov/pls/imis/sicsearch.html

NAICS Codes

<http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012>

<http://www.naics.com/search/>

SCC Codes

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/EmissionsInventory/EmissionsEstimateTools.aspx>

Scroll down to “Classification Lists and Conversions.” Click on “Updated Source Classification Codes 11/21/16.” Ethanol and Biodiesel plants should click on “Ethanol and Biodiesel Source Classification Code (SCC) List.”

Calculation Spreadsheet and Tools

To access calculation spreadsheets for painting operations, haul roads, and asphalt, concrete and limestone processes go to:

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/EmissionsInventory/EmissionsEstimateTools.aspx>

Scroll down to “Emissions Inventory Worksheets” then click on the spreadsheet of interest.

Iowa Air Emissions Assistance Program (IAEAP)

<http://iwrc.uni.edu/iaeap>

Iowa Administrative Code (IAC)

<https://www.legis.iowa.gov/law/administrativeRules/agencies> See section 567, Chapters 20-32

General Instructions/Purpose

Introduction

This packet contains forms, instructions, and information needed to complete a *minor source emissions inventory*. Submitting a complete inventory is required by 21.1(3) of the Iowa Administrative Code. Some companies may be unfamiliar with air quality terms, therefore a glossary is included in Appendix A. Terms included in the glossary are bolded and italicized. In addition, general air program definitions are found in 567 Iowa Administrative Code (IAC) 20.2. The IAC is available on the internet at <https://www.legis.iowa.gov/law/administrativeRules/agencies>.

The deadline for submitting a completed Minor Source Emissions Inventory is May 15. If you need assistance completing the inventory please contact the DNR or visit <http://iwrc.uni.edu/iaeap>

Getting Help Completing Your Inventory

The DNR assists small businesses by funding the Iowa Air Emissions Assistance Program (IAEAP) at the University of Northern Iowa. The IAEAP has developed a support webpage that contains emissions calculators, on-line tutorials, helpful links, answers to frequently asked questions and contact information. If you would like to utilize this free assistance, please contact IAEAP staff by calling 1-800-422-3109 or visiting <http://iwrc.uni.edu/iaeap>.

The DNR will provide assistance to facilities upon request or as time permits. If your facility would like assistance, please contact one of the emission inventory staff on the air quality contacts list on page 3 of this booklet or visit <http://www.iowadnr.gov/InsideDNR/RegulatoryAir/EmissionsInventory/MinorSources.aspx> for helpful tools, links, resources, and answers to frequently asked questions.

Please contact the DNR or IAEAP with any questions before submitting the MSEI. If the MSEI is incomplete or incorrect calculations were used, the DNR will require additional submittals until the MSEI is complete and correct.

Emissions Reporting

All regulated air pollutants including the seven *Criteria Pollutants* (including *PM2.5*), 187 *Hazardous Air Pollutants* (HAPs), and *Ammonia* are required to be reported in the MSEI. The definition of volatile organic compounds (VOC) can be found in Appendix A and a listing of all HAPs can be found in Appendix B. Please consult this list if you are unsure if a pollutant needs to be reported.

Emission estimates should be evaluated for all emission sources at your facility including *fugitive emissions*. However, it may not be necessary to report all of the sources or pollutants in the MSEI. Please refer to page 7 for a list of sources which are considered exempt from the minor source emissions inventory.

Actual emissions need to be reported for each emission unit. *Emissions units* may be grouped for reporting actual emissions *only* if the emission units and their processes are identical, have identical control equipment, and they exhaust to the same release point.

The DNR considers the following items exempt from MSEI reporting at this time:

- 1. Any pollutant with actual emissions of less than 0.005 tons per year. When reporting emissions, pollutants only need to be rounded to the nearest one hundredth of a ton;**
- 2. If all pollutants for an emission unit have actual emissions of less than 0.005 tons per year (rounded down to 0.00 tons), then the emission unit can be excluded from the inventory;**
- 3. Fuel-burning equipment for indirect heating and reheating furnaces with a capacity of less than 10 million BTU per hour input per combustion unit when burning natural gas or liquefied petroleum gas;**
- 4. Fuel-burning equipment for indirect heating with a capacity of less than 1 million BTU per hour input per combustion unit when burning untreated wood or fuel oil;**
- 5. Fuel-burning equipment for indirect heating constructed after 10/23/13 with a capacity of less than 265,600 Btu/hr when burning untreated wood, untreated seeds or pellets, or untreated vegetative materials or burning less than 378,000 pounds/yr of the same materials;**
- 6. Fuel-burning equipment for indirect heating constructed after 10/23/13 with a capacity of less than 50,000 Btu/hr when burning on-spec used oil or burning less than 3,600 gallons/yr of on-spec used oil;**
- 7. Direct-fired equipment burning natural gas, propane, or liquefied propane with a capacity of less than 10 million BTU per hour input, and direct-fired equipment burning fuel oil with a capacity of less than 1 million BTU per hour input, with emissions that are attributable only to the products of combustion;**
- 8. An internal combustion engine with a brake horsepower rating of less than 400;**
- 9. Any generator or engine that operated less than 100 hours during the emissions year;**
- 10. Storage tanks with a capacity of less than 19,812 gallons AND an annual throughput of less than 200,000 gallons;**
- 11. Any container, storage tank, or vessel that contains a fluid having a *maximum true vapor pressure* of less than 0.75 psia;**
- 12. Non-production maintenance activities, which may include brazing, soldering, or welding equipment, and surface coating operations using only hand-held aerosol spray cans;**
- 13. *Manually operated equipment* (see definition in Appendix A on page 55) used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, scarfing, surface grinding, or turning;**
- 14. Indoor-vented powder coating operations with filters or powder recovery systems;**
- 15. Parking lots and employee roads used to get to and from work. However, unpaved and paved roads used to haul material and/or product on a regular basis must be included.**

NOTE: Indoor-vented sources MUST be included in the inventory if they do not qualify for any other exemption.

Small Unit Exemptions:

Emission units that have a small unit exemption justification document required by 567 IAC 22.1(2)“w” *do not* have to be included in the minor source emissions inventory but the exemption justification document must be attached. Such exemption justification documents shall include the following:

- 1. A narrative description of how the emissions from the emission unit were determined and maintained at or below the annual small unit exemption levels.**
- 2. If applicable, a description of air pollution control equipment associated with the emission unit and a statement that the emission unit will not be operated without the control equipment operating.**
- 3. If control equipment is used, the applicant shall maintain a copy of any report of manufacturer’s testing results of any emissions test, if available. The Iowa DNR may require a test if it believes that a test is necessary for the exemption claim.**
- 4. A description of all production limits required for the emission unit to comply with the exemption levels.**
- 5. Detailed calculations of emissions reflecting the use of any air pollution control devices or production or throughput limitations, or both, for the applicable emission unit.**
- 6. Records of actual operation that demonstrate that the annual emissions from the emission unit were maintained below the exemption levels.**
- 7. Facilities designated as major sources with respect to rules 22.4(455B) and 22.101(455B), or subject to any applicable federal requirements, shall retain all records demonstrating compliance with the exemption justification document for five years. The record retention requirements supersede any retention conditions of an individual exemption.**
- 8. A certification from the responsible official that the emission unit has complied with the exemption levels specified in 22.1(2)“w”(1).**

Actual Emissions

Actual emissions are the actual rate of pollutant emissions from an emission unit calculated using the emission unit's actual operating hours, production rates, and quantities of materials processed, stored, or combusted for the calendar year.

Emissions Estimation Methods

Emissions must be based on the best possible method. Do not use a less preferable method if a more preferable one is available. Using a less preferable method or unacceptable methods could result in your inventory being returned for revisions.

Regardless of the method used to calculate emissions, supporting documentation must be included with the MSEI submittal. This documentation must be sufficient in order to allow DNR to evaluate the emissions calculations.

Methods of Calculating Emissions (*in order of preference*)

1. **Continuous emissions monitoring**
2. **Valid stack sampling which represents maximum operating conditions**
3. **Material balance**
4. **EPA-approved emission factors**
5. **Vendor supplied emission factors**
6. **Engineering estimates based on best available process operating data**

- **Continuous Emissions Monitoring** systems measure pollutant concentrations in the exhaust stack 24 hours per day. There is no better method for determining emissions, however, these systems are very expensive and most facilities do not use them.

- A **Stack Test** measures the concentration of pollutants in the exhaust stack during the test period. Test periods can vary from a couple of hours to an entire day. Stack test data that are representative of current conditions can provide an accurate emission rate for many different processes and pollutants.

- **Material Balance** can only be used on specific types of emission units. It is most commonly used for surface coating operations (paint booths, dip tanks, etc.). Information must first be gathered on process rates, materials used, and material properties (usually from **safety data sheets** (SDS)). By combining this information with the knowledge of the process, an estimation of actual emissions can be made.

- **EPA-Approved Emission Factors** are the basis for many calculations. These factors represent industry-wide averages and show the relationship between emissions and a measure of production. You will need to access EPA's emission factors. The DNR will not provide you with the entire volume of emission factors directly; however, if you encounter problems finding emission factors for a source you may contact DNR for assistance. When using EPA or other emission factors, you must use the most recently approved version. Sources of emission factors are listed on page 10.

- **Vendor Supplied Factors** may be used if a more preferred method is not available. Many manufacturers of industrial equipment provide emission information for their products. This data may be used to calculate emissions only if the manufacturer's data is based on approved stack testing and no significant changes have been made to the emission unit. Supporting documentation must be included in the submittal if vendor supplied factors are used to calculate emissions.

• **Engineering Estimation** is allowed if a more preferred method is not available. The DNR realizes some processes exist that have no published guidance regarding the estimation of emissions. In these cases, the estimation must be the best possible assessment given the amount of data available. Supporting documentation must be submitted to show how the estimation was made.

More details on these emission estimation methods may be found at <http://www.epa.gov/ttn/chief/ap42/c00s00.pdf>

Sources of Emission Factors

WebFIRE is the internet version of FIRE and it has replaced the software application, FIRE version 6.25, and the Microsoft Access version of the database. An internet version of FIRE allows more frequent updates and easier access. Log on to <http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main> to access WebFIRE.

AP-42 COMPILATION OF AIR POLLUTANT EMISSION FACTORS is the recommended source of air pollutant emission factors, with descriptions of activities emitting criteria and hazardous air pollutants. AP-42 can be accessed from the CHIEF Internet site <http://www.epa.gov/ttn/chief/ap42/>.

TANKS The Tanks 4.09D software estimates VOCs and hazardous air pollutants from vertical and horizontal fixed-roof tanks, internal and external floating-roof tanks, domed external floating roof tanks and underground storage tanks. It is based on the emissions estimation procedures presented in Section 7.1 of AP-42, 5th Edition. TANKS can be downloaded from the CHIEF web site <http://www.epa.gov/ttn/chief/software/tanks/>.

Tips to Avoid Common Mistakes when filling out your MSEI

1. Use the most current reporting forms and instructions.
2. Form INV-6 is intended for facilities to fill out their facility-wide actual emissions for each individual pollutant (remember to list each individual hazardous air pollutant [HAP] rather than grouping them as “Total HAPs). Please use the INV-4 Forms to sum up facility-wide emissions for each pollutant on Form INV-6. Only one Form INV-6 needs to be submitted with the MSEI. The Form INV-6 is only applicable for facilities who submit their MSEI on paper. If you’re reporting using the State and Local Emissions Inventory System (SLEIS), the sum of the pollutants will be totaled for you.
3. Many HAPs are also Volatile Organic Compounds (VOC’s). List such pollutants as both a HAP and a VOC on Forms INV-4, and INV-6.
4. Only one Form INV-1 is required for a facility’s MSEI submittal.
5. Remember to submit Forms INV-2 for all points, and submit Forms INV-4 for all processes.
6. Use DNR’s INV-5 form or other tools to show all your calculations. Please include all supporting documentation which was used to estimate emissions. Supporting documentation includes but is not limited to SDS, stack test summaries and reports, AP-42 tables and appendices, mass balance calculations, and any correspondence with DNR or other air pollution control agencies.
7. If higher control efficiencies are reported than what is given in the Control Efficiency Guidance Document (Appendix C), these control efficiencies must be verified by test data from an EPA-approved method. Please include supporting documentation of the test data which confirms the reported control efficiency.
8. Do not use outdated or old emission factors. The most up-to-date emission factors must be used for accurate emissions calculations. If you are referencing a previous inventory, double-check all emission factors as they may have changed since the last emissions inventory submittal.
9. Make sure PM_{2.5} and Ammonia emissions are included where applicable on each Form INV-4. If PM₁₀ emissions are being reported, remember to also include emissions estimates for PM_{2.5}.
10. Use correct units of measure for emission factors and design rates. Units of measure need to correspond between emission factors and the emission unit design rate.
11. Remember to fill out the operating schedule on Form INV-4.
12. Do not report total particulate matter (PM) also commonly referred to as total suspended particulate (TSP). Report only total PM₁₀ (particulate matter 10 microns or less in diameter) and total PM_{2.5} (particulate matter 2.5 microns or less in diameter). Total PM₁₀ and PM_{2.5} emissions are commonly referred to as primary PM₁₀ and PM_{2.5}.
13. Remember to include the small unit exemption justification document for all emission units which meet 567 IAC 22.1(2)“w.” An INV-2 and INV-4 form **does not** need to be filled out for emission units which meet small unit exemption status. Please see page 8 for a complete list of what needs to be included in a small unit exemption justification document.

Submitting the MSEI to the DNR

Submittal Deadline: May 15

A completed Minor Source Emission Inventory can be returned to the DNR as a paper copy or electronically by using the State and Local Emissions Inventory System (SLEIS).

Keep a Copy – Keep a complete copy of your completed MSEI. Upon review of the emissions inventory, DNR staff frequently have questions. A copy will also be useful to you when completing future MSEI's. Only mail one copy.

The emission inventory data must be submitted on forms provided by DNR. Forms can be completed using a paper copy or an electronic version.

Paper Copy

The forms can be obtained at

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/EmissionsInventory/MinorSourceForms.aspx>. If you do not have web access, you may contact the DNR to obtain paper forms. All information must be typed due to the volume of MSEI's the DNR receives. Other formats are not accepted.

SLEIS

The DNR is excited to offer a new online emissions inventory reporting tool called the State & Local Emissions Inventory System (SLEIS). The new web-based system has been pre-populated with four years of emissions data and facility equipment information which will allow for simpler and streamlined reporting. Also, SLEIS offers the option of importing emissions data via a spreadsheet template, significantly reducing data entry for facilities with a large number of emission processes. For more information about accessing your facility's data in SLEIS and e-reporting, please visit www.iowadnr.gov/eAirServices or contact us at sleis@dnr.iowa.gov.

SLEIS training sessions will be announced on the Air Quality Bureau's home page, at www.iowadnr.gov/eAirServices under the "What Kind of Training Is Available" heading, and through the DNR's Air Quality list serv. DNR's air quality technical list serv is targeted to the regulated public and consultants to deliver timely regulatory news, program updates, and technical guidance to your e-mail account. To subscribe, go to www.IowaCleanAir.gov and click on Sign up for Air Quality Technical Updates. For more information, please contact DNR's Wendy Walker at 515-725-9570 or wendy.walker@dnr.iowa.gov.

Confidentiality

The DNR recognizes the need to keep certain information about facility operation confidential. If you have any questions about keeping submitted information confidential, contact Kelli Book, DNR legal staff at 515-725-9572 or at kelli.book@dnr.iowa.gov.

SDS

If using mass balance to estimate emissions, then copies of all safety data sheets (SDS) for materials used at each emission unit during the previous calendar year must be included with the MSEI submittal. Also include the amount of each material used for each product. SDS are needed for a complete review of the submitted MSEI.