



January 2021
RG-360/20

2020 Emissions Inventory Guidelines

Air Quality Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

2020 Emissions Inventory Guidelines

Prepared by
Air Quality Division

RG-360/20
January 2021

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY · PO BOX 13087 · AUSTIN, TX
78711-3087

TCEQ is an equal opportunity employer. The agency does not allow discrimination on the basis of race, color, religion, national origin, sex, disability, age, sexual orientation, or veteran status. In compliance with the Americans with Disabilities Act, this document may be requested in alternate formats by contacting TCEQ at 512-239-0010, or 800-RELAY-TX (TDD), or by writing PO Box 13087, Austin TX 78711-3087. We authorize you to use or reproduce any original material contained in this publication—that is, any material we did not obtain from other sources. Please acknowledge TCEQ as your source.

For more information on TCEQ publications, visit our website at:
tceq.texas.gov/publications.

How is our customer service? tceq.texas.gov/customersurvey

Contents

Chapter 1. General Information	1
Introduction	1
What This Publication Contains	1
About 30 TAC Section 101.10.....	2
A Self-Reporting Process.....	2
Nonattainment Designations	3
Special Inventory Request	3
Emissions Inventory Reporting Requirements Map	4
Due Date	4
What Constitutes a Complete Submission?.....	5
Requirements for a New Emissions Inventory or Updating an EI	6
Special Requirements for a Site that Experienced Insignificant Changes in Emissions.....	6
If a Site Does Not Meet the Requirements of 30 TAC Section 101.10 for the Current Emissions Inventory Year	8
If a Site Does Not Expect to Meet the Applicability Requirements of 30 TAC Section 101.10 in Future Years	8
Hard Copy Signature Requirements.....	9
If a Site Is Permitted but Not Built.....	9
Sample Calculations.....	10
Confidential Data and Other Information	10
Web Reporting.....	11
Reporting an IEI or Submitting an AEIU through Interactive Web Entry	11
Reporting an IEI or Submitting a Text File of the AEIU Online through STEERS	12
Chapter 2. Creating an Initial Emissions Inventory	14
The Emissions Inventory Process	14
Requirements for Submitting an Emissions Inventory	14
Understanding Emissions Inventory Structure.....	15
Facilities and Emission Points	15
Paths	16
Chapter 3. Emissions Inventory Structure	17
Identifying Emission Sources.....	17
Guidelines for Including Sources in Emissions Inventory Structure	17
Sources that Must Be Added to the EI and that May Be Grouped as Collective Sources	17
Representing the Structure of a Regulated Entity in the Emissions Inventory	18
Facilities and Facility Identification Numbers	19
Emission Points and Emission Point Numbers	19
Abatement Devices and Control Identification Numbers	20
Emission Paths	20
Collective Sources (Collective Facilities).....	20
Representing Combustive Abatement Devices	22
Appropriate Structural Representation of Common Industrial Processes	22
Cooling Towers	23
Glycol Units and Amine Units.....	23
Sulfur Recovery Units	25
Loading Operations.....	27

Blowdown Operations.....	28
Surface Coating Operations	31
Aggregate Operations.....	32
Marine Operations	34
Wastewater Collection and Treatment	37
Chemical Production.....	37
Modifying Existing Emissions Inventory Structure.....	38
Removing Structure.....	38
Changing Facility, Emission-Point, or Abatement-Device Nomenclature	38
Chapter 4. Determining and Reporting Emissions.....	40
Required Emissions Data	40
Acceptable Determination Methodologies.....	40
Source-Specific Determination Methodologies	41
Choosing a Determination Methodology when More than One Is Used for a Contaminant	47
General Order of Preference	49
Using Factors from a Permit	49
Speciating Emissions	49
Speciating Volatile Organic Compounds.....	49
Speciating Hazardous Air Pollutants and Other Compounds of Interest	51
Speciating Particulate Matter	52
Speciation Criteria Summary	54
Reporting Emissions	56
Annual Emissions	56
Ozone Season Emissions.....	56
Ozone Season Daily Rates Are Required from Sites in These Counties	57
Emissions Events	58
Scheduled Maintenance, Startup, and Shutdown.....	59
Chapter 5. Example Initial Emissions Inventory.....	60
Identifying Emission Sources.....	60
Representing Emission Sources in the Emissions Inventory	62
Chapter 6. Updating an Emissions Inventory.....	70
Updating EI Data.....	70
Special Notes.....	70
Account Information	71
Contact Information	71
Criteria Emissions Totals	71
Site Quantifiable Event Totals	71
Emissions Events Certifying Signature	72
Signature of Legally Responsible Party	72
Facility Information.....	73
Control Device Information	78
Emission Point Information	78
Total Aggregate Annual Heat Input	79
Emissions Factors	80
Updating Reported Emissions	81
Chapter 7. EI Revisions, EI Data, Site Coordinate Data.....	83
Revising an EI	83
Current and Previous Reporting Year.....	83
Other Reporting Years	84

EI Data	85
View and Download Data from the EAS Webpage	85
Run TCEQ Central Registry Integrated Web Reports	85
Request Detailed Emissions Data from the EAS.....	85
File a TCEQ Open Records Request.....	86
View Paper EI Data	86
Coordinate Data	86
Spatial Queries and Mapping Application Viewer.....	86
Appendix A. Technical Supplements	88
Miscellaneous VOC Sources	88
Casing Head Gas Releases	88
Coking Units	88
Confined Entry Ventilation.....	89
Merox Units.....	89
Glycol Dehydration Operations.....	89
Amine Units in Carbon Dioxide Service	90
Limitations of AMINECalc.....	90
Pigging Units.....	90
Technical Supplements	91
Technical Supplement 1: Selected Combustion Sources.....	92
Introduction.....	92
Internal Combustion Engines	92
External Combustion Sources Burning Gaseous Fuel	99
Combined-Cycle Turbines with Heat Recovery Steam Generators.....	103
Portable Engines.....	105
Coal-Fired Boilers.....	105
Technical Supplement 2: Cooling Towers.....	110
Introduction.....	110
Cooling Tower Structure.....	110
Cooling Tower Source Classification Codes.....	111
Expected Emissions.....	111
Emissions Determination.....	111
Annual and Ozone Season Rates	115
Speciation	115
Supporting Documentation.....	115
Issues of Special Concern	116
References	117
Technical Supplement 3: Fugitive Emissions from Piping Components	118
Introduction.....	118
Fugitive Component Structure	118
Expected Emissions.....	119
Quantifying Fugitive Emissions from Piping Components	119
Determining Emissions from Monitored Components	120
Determining Emissions from Unmonitored Components.....	123
Speciation	128
Supporting Documentation.....	128
Issues of Special Concern	129
References	132
Technical Supplement 4: Flares.....	134
Introduction.....	134

TCEQ 2010 Flare Study.....	135
Expected Emissions.....	135
Emissions Determination.....	135
Annual and Ozone Season Rates	139
Speciation of Uncombusted Flared Gas Compounds	139
Supporting Documentation.....	140
Reporting Emissions from a Shared Flare.....	140
References	141
Technical Supplement 5: Marine Facilities	142
Introduction.....	142
Expected Emissions.....	143
Determining Emissions	143
Annual and Ozone Season Emission Rates.....	145
VOC and Particulate Speciation.....	146
Supporting Documentation.....	146
Issues of Special Concern	147
Technical Supplement 6: Aboveground Liquid Storage Tanks	148
Introduction.....	148
Expected Emissions and Determination Methods.....	149
Quantifying Storage Tank Emissions	150
Speciation	165
Supporting Documentation.....	165
References	166
Appendix B. Sample Letters.....	167
Letters that May Be Submitted Instead of an EI	167
Printing and Updating EIQ Pages Required with These Letters	167
Inapplicability Notification.....	168
Insignificant Emissions Change Notification	170
Appendix C. EAS Contact Information and Other Resources.....	172
Contacting the EAS.....	172
Emissions Inventory Mailing Addresses.....	172
EAS Staff Mailing Addresses	172
EAS Assistance	172
EAS Webpage	173
Air Fees Webpage.....	173
EPA Resources	173
Air CHIEF	173
AP-42	173
WebFIRE	173
Green Book	173
Protocol for Equipment Leak Emission Estimates	174
TCEQ Resources	174
Tools for Completing the EI.....	174
Information about Online Reporting	174
Central Registry IWR.....	174
EI Account Mailing Status	174
Air Permits Guidance Documents.....	174
Small Business and Local Government Assistance Information.....	174
Public Education and Pollution Prevention.....	175
Abbreviations.....	176

Glossary.....	179
---------------	-----

Tables

4-1. Example of Speciated VOC Emissions.....	51
4-2. Example of Speciated Particulate Matter Emissions.....	54
4-3. Summary of Speciation Criteria	55
5-1. Identifying Emission for a Hypothetical Upstream Gas-Field Site	61
5-2. Assigning FINs to Emission Sources for a Hypothetical Upstream Gas-Field Site...	62
5-3. Identifying Emissions Points for FINs for a Hypothetical Upstream Gas-Field Site	64
5-4. Assigning EPNs to Emissions Points for a Hypothetical Upstream Gas-Field Site...	65
5-5. Assigning CINs to Paths for a Hypothetical Upstream Gas-Field Site	66
5-6. Selecting Group Types and Profiles for a Hypothetical Upstream Gas-Field Site...	68
6-1. STARS Facility Group Types, Profiles, and Attributes.....	75
A-1. Reporting Particulate Emissions	95
A-2. Reporting VOC Emissions from Internal Combustion— Includes Formaldehyde ..	97
A-3. Reporting VOC Emissions from Internal Combustion— Excludes Formaldehyde..	99
A-4. Reporting VOC Emissions from External Combustion.....	103
A-5. Determining Emissions Using Correlation Equations.....	122
A-6. Appropriate Substitute Factors for Nontraditional Components.....	126
A-7. Flare Emissions Factors	137
A-8. Maximum Destruction or Removal Efficiencies for EI Determinations	138
A-9. Inputs for Calculating Ozone Season Emissions Using E&P TANK.....	156

Figures

3-1. Glycol Unit: Separate Still and Heater Vents	24
3-2. Glycol Unit: Common Still and Vents.....	24
3-3. Glycol Unit: Flared Still Emissions	25
3-4. Glycol Unit: Still Emissions Routed through Heater	25
3-5. Sulfur Recovery Unit, Unabated	26
3-6. Sulfur Recovery Unit with Scrubber	26
3-7. Sulfur Recovery Unit with Incinerator	27
3-8. Sulfur Recovery Unit with Scrubber Prior to Incinerator.....	27
3-9. Loading Area, Unabated	28
3-10. Loading Area Controlled by a Flare.....	28
3-11. Blowdown: Separate Compressor Engine and Blowdown Vents.....	29
3-12. Blowdown: Common Compressor Engine and Blowdown Vent.....	29
3-13. Blowdown: Flared Blowdown Emissions	30
3-14. Blowdown Operations: Grouped Compressor Blowdowns	31
3-15. Paint Booth: Unabated	31
3-16. Paint Booth: Particulate Emissions Abated by a Filter	32
3-17. Spray Booth Controlled by an Incinerator	32
3-18. Fine and Coarse Piles: Emissions Controlled by Water Supply	33
3-19. Continuous and Batch Operations, Separated	33
3-20. Conveyor Transport: Interdependent Systems.....	34
3-21. Uncontrolled Bulk Liquid Material Emissions.....	34
3-22. Liquid Loading Controlled by a Vapor Recovery Unit and Incinerator	35

3-23. Uncontrolled Degassing and Cleaning Emissions	36
3-24. Pneumatic Transfer of Solids Controlled by a Baghouse	36
3-25. Uncontrolled Degassing and Cleaning Emissions	36
3-26. Degassing and Cleaning Emissions Routed to VRU and Incinerator	37