

**New Mexico Greenhouse Gas Mandatory Emissions
Reporting
Emissions Quantification Procedures
For 20.2.73 NMAC and 20.2.87 NMAC**

Emissions year: 2011

Part 1: General Reporting Instructions:

These procedures specify or reference acceptable Greenhouse Gas (“GHG”) emission calculation methods and emission factors that operators must use when preparing GHG emissions data reports for submission to the New Mexico Environment Department (NMED), as specified in 20.2.73 NMAC and 20.2.87 NMAC. These procedures will be modified to avoid double reporting if the New Mexico Environmental Improvement Board adopts 20.2.300 NMAC – Reporting of Greenhouse Gas Emissions and/or repeals 20.2.87 NMAC – Greenhouse Gas Emissions Reporting prior to January 1st, 2011. Emissions reports are required from the following sources and pollutants as outlined by Table 1.1:

Table 1.1: NMED GHG Reporting Options By Source Type

Source Type	Pollutants	Reporting Options
Title V Oil and Gas	CO ₂ & CH ₄	<ul style="list-style-type: none"> • EPA GHG reports or methods, or NMED 2011 procedures for combustion sources; and, • NMED 2011 procedures for non-combustion sources, if 40 CFR Part 98 Subpart W is not finalized by EPA prior to January 1, 2011.
Title V non-oil and gas (Excluding sources subject to 20.2.87 NMAC)	CO ₂ & CH ₄	<ul style="list-style-type: none"> • EPA GHG reports; • EPA methods applied to facilities not subject to EPA reporting; • NMED 2011 procedures; or, • Best Available Data <u>only</u> for sources lacking quantification methods under EPA methods or NMED procedures
Power plants, refineries and cement manufacturing (subject to 20.2.87 NMAC)	All GHGs (as defined in 20.2.2.7.M NMAC)	<ul style="list-style-type: none"> • EPA reports; or, • EPA methods applied to facilities not subject to EPA reporting rule; <u>and</u>, • NMED’s procedures for indirect emissions (i.e., purchased electricity, steam and heat)

Any source may comply with New Mexico emissions year 2011 GHG reporting requirements by voluntarily reporting GHG emissions to The Climate Registry (“TCR”). Reports submitted to TCR must use TCR’s emissions and verification protocols and include the emissions that are required under the state program. If you intend to report emissions to TCR, please notify us by December 1, 2011.

NMED will accept GHG emission reports submitted to EPA pursuant to 40 CFR Part 98 as a method of complying with New Mexico's GHG reporting rule, for those emissions sources covered by the EPA rule. Use the following link for additional information regarding EPA Reporting rule:

<http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>

In an effort to harmonize with EPA reporting requirements, we have eliminated or modified the 2009 procedures, or reference EPA reporting requirements and methods for the following source categories:

- 95110 – Cement Plants.
- 95111 – Electricity Generating Facilities.
- 95112 – Cogeneration Facility
- 95113 – Petroleum Refineries
- 95114 – Hydrogen Plant
- 95115 – Stationary Combustion
- 95116 – Oil and Gas
- 95117 – Miscellaneous Sources
- 95125 – Indirect Emission Calculation Methods

NMED has developed a web based Air Emissions Inventory Reporting (AEIR) tool to facilitate the reporting of greenhouse gas emissions, as well as criteria and hazardous air pollutants. Here is a link to the AEIR tool:

<https://eidea.nmenv.state.nm.us/sep/>

Title V non-oil and gas facilities not subject to EPA GHG reporting and for which there are not EPA source specific emissions quantification methods may use industry specific methods (i.e., Best Available Data) to calculate process vented and non routine emissions, including vented and fugitive CO₂ and methane emissions. Landfill owners and operators subject to GHG reporting are encouraged to report emissions using one or more of the following methods: Current MSW Industry Position and State of the Practice on LFG Destruction Efficiency in Flares, Turbines, and Engines Presented to: Solid Waste Industry for Climate Solutions (SWICS), by SCS Engineers, July 2007, EPA's LandGEM Emissions Model and/or California's Climate Action Registry (CCAR) Local Government Protocol that includes methane fugitive emission calculation methods.

Sources reporting under 20.2.87 NMAC must include indirect emissions. Indirect emissions include purchased electricity, heat or steam that is used as part of the operation. The emissions quantification procedure for indirect emissions is found in 95125 – Indirect Emission Calculation Methods. When conducting an emissions inventory of your facility please include equipment that emits GHG that is not specifically spelled out in your permit. For example, GHG emissions from pneumatic devices at Title V oil and gas facilities must be reported to NMED.

Our reporting rule also provides “for simplified and limited documentation of emissions that collectively account for five percent or less of total facility emissions, expressed as carbon dioxide.” We will accept alternative methods not contained herein for such sources. Please be sure to include supporting documentation to support your emission calculations. We anticipate getting familiar with such sources as we progress through the annual reporting cycles.

Each GHG report shall also include GHG emissions occurring during regular operation, maintenance, start-ups, shutdowns, upsets and malfunctions. GHG emissions data from combustion, vented and fugitive units can be aggregated at the facility level. For example, all combustion sources can be reported in aggregate at the facility level. Vented or fugitive GHG emission sources may also be aggregated by category type at the facility level. If unit level data are required by the reporting mechanism (e.g., current spreadsheets or new database), reporters are encouraged to attribute aggregate facility totals by emission type (e.g., combustion) to individual units using best available methods.

Please include the following data as an electronic attachment with your emissions inventory submittal:

- Facility GHG emissions total(s) as follows:
 1. GHG emissions in carbon dioxide equivalent (CO₂e);
 2. CO₂e for combustion sources;
 3. CO₂ vented emissions (i.e., process and fugitive emissions); and,
 4. Methane vented emissions (i.e., process and fugitive emissions);
- Detailed GHG emission calculations and calculation methodology) used for each subject item type (e.g., combustion, vented and fugitive);
- Vented and fugitive methane and CO₂ emissions by equipment type; and
- Indirect emissions and all GHG emissions stated in 20.2.2.7.M NMAC for sources reporting pursuant to 20.2.87 NMAC.

Important Note: EPA’s stationary combustion source applicability tool may be used to facilitate calculating emissions. The tool is available at the following link:

<http://www.epa.gov/climatechange/emissions/GHG-calculator/index.html>

Part 2: Requirements for the Mandatory Reporting of Greenhouse Gas Emissions from Specific Types of Facilities

95110. Data Requirements and Calculation Methods for Cement Plants.

- (1) 40 CFR Part 98 Subpart H – Cement Production
- (2) Indirect Energy Usage: Operators of general stationary combustion facilities reporting in accordance with 20.2.87 NMAC shall calculate indirect electricity and thermal energy purchased or acquired and consumed as specified in 95125 (a) & (b).

95111. Data Requirements and Calculation Methods for Electricity Generating Facilities.

- (1) 40 CFR Part 98 Subpart D - Electricity Generation
- (2) Indirect Energy Usage: Operators of general stationary combustion facilities reporting in accordance with 20.2.87 NMAC shall calculate indirect electricity and thermal energy purchased or acquired and consumed as specified in sections 95125 (a) & (b).

95112. Data Requirements and Calculation Methods for Cogeneration Facilities.

- (1) See Section 95111.

95113. Data Requirements and Calculation Methods for Petroleum Refineries.

- (1) 40 CFR Part 98 Subpart Y – Petroleum Refineries
- (2) Indirect Energy Usage: Operators of general stationary combustion facilities reporting in accordance with 20.2.87 NMAC shall calculate indirect electricity and thermal energy purchased or acquired and consumed as specified in sections 95125 (a) & (b).

95114. Data Requirements and Calculation Methods for Hydrogen Plants.

- (1) 40 CFR Part 98 Subpart P - Hydrogen Production

95115. Data Requirements and Calculation Methods for General Stationary Combustion Facilities

- (1) 40 CFR Part 98 Subpart C – General Stationary Fuel Combustion Sources

95116. Data Requirements and Calculation Methods for Title V Oil and Gas Sources Not Subject to 40 CFR Part 98 Subpart W¹

(a) Greenhouse Gas Emissions Data Report. An operator in the North American Industrial Classification Sector(s) (NAICS) listed in the table below shall include the following information in the greenhouse gas emissions data report for each report year from facility sources either subject to TV permitting requirements as specified:

NAICS	Descriptor	Source Type Examples
211111	Exploration, Development and Petroleum or Gas Production	RICE, dehydrators & fugitives
211112	Natural Gas Liquid Extraction	Gas Plant
213111	Drilling Oil and Gas Wells	Vented or Flared
213112	Oil and Gas Support Activities	Miscellaneous equipment
221210	Natural Gas Distribution	RICE, dehydrators & fugitives
486210	Pipeline Transportation of Natural Gas	RICE, dehydrators & fugitives
486110	Pipeline transportation of crude oil	RICE, dehydrators & fugitives
486910	Pipeline transportation of refined petroleum products	RICE, dehydrators & fugitives

- (1) *Stationary combustion emissions including portable sources:*
 - (A) 40 CFR Part 98 Subpart C – General Stationary Fuel Combustion Sources for equipment at a facility combusting pipeline quality natural gas as required by NMED permit for that facility. (Note: Please disregard EPA’s exclusion of emissions from portable sources when using EPA’s applicability tool (see 95116 (b)) for calculating emissions from permitted portable oil and gas equipment subject to NMED GHG reporting.)
 - (B) API compendium for reporters combusting non-pipeline quality gas or desiring to use site specific fuel heat and carbon content and fuel consumption data.
 - (C) Flares: 40 CFR 98.253 (Note: The exclusion for flaring events less than 500,000 scf referenced in EPA reporting rule does not apply to oil and gas flaring) for the purpose of calculating GHG emissions pursuant to these procedures. Alternatively, reporters may use API section 4.6 Flare Emissions.
- (2) *Process and vented emissions including fugitives:*
 - (A) Total CO₂ emissions (metric tons), and Total Methane emissions (metric tons) using 40 CFR Part 98 Subpart W. (¹Note: At the time of this publication EPA had not finalized Subpart W but is expected to do so prior to January 1, 2011.)

(b) Tools to calculate emissions.

- (1) EPA’s GHG stationary combustion tool. Reporters may use EPA’s reporting applicability tool to calculate GHG combustion emissions. The tool is available at the following link:

<http://www.epa.gov/climatechange/emissions/GHG-calculator/index.html>

- (2) If EPA fails to finalize 40 CFR Part 98 Subpart W prior to January 1, 2011, reporters may use *API Compendium (Process Vented including fugitives and non-routine CO₂ and Methane emissions)*. Reporters shall calculate emissions from each applicable facility source type using the American Petroleum Institute (“API”) Compendium of Greenhouse Gas Emissions Methodologies For The Oil and Gas Industry (Version August 2009) referenced by Table 1.1 or Table 1.2 (see page 7). Emissions from each source type can be aggregated (e.g., combine emissions from each dehydrator and list total for this equipment type).

API’s Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Natural Gas Industry.

<http://ghg.api.org/>

Table 1.1 Process Vented GHG Emissions

Source	Pollutant(s)	Method(s)
Glycol & (Dessicant) Dehydrator(s)	CO ₂ and Methane	5.1.1 & (5.1.3)
Glycol Pumps	Methane	5.1.2
Acid Gas Removal (Amine Unit)	Methane	5.1.5
Sour Gas Treatment (Venting)	CO ₂	5.1.5
Sour Gas Treatment (Incineration)	CO ₂	5.1.5
Storage Tank (Flashing)	Methane	5.4.1
Gas Driven pneumatic devices	CO ₂ and Methane	5.6.1
Gas Driven chemical injection pump	CO ₂ and Methane	Not Required
Storage Tank working/standing losses	CO ₂ and Methane	Not Required
Coal Seam Exploratory Drilling and Well Testing	CO ₂ and Methane	5.6.6

Table 1.2 Non Routine GHG Emissions

Source	Pollutant(s)	Method(s)
Emergency or Upset Event	CO ₂ and Methane	5.7.1
Scheduled or Planned Maintenance	CO ₂ and Methane	5.7.2
Gas Processing	CO ₂ and Methane	5.7.3
Transportation	CO ₂ and Methane	5.7.4
Distribution	CO ₂ and Methane	5.7.5
Equipment Leaks	CO ₂ and Methane	6.1.1, 6.1.2 & 6.1.3

95117. Data Requirements and Calculation Methods for Miscellaneous Sources:

(a) Greenhouse Gas Emissions Data Report. An operator subject to Greenhouse Gas Emissions reporting and not subject to the requirements specified by 95110-95116 shall include the following information in the greenhouse gas emissions data report for each report year from facility sources as specified:

- (1) **Stationary Combustion – CO₂ and Methane emissions by Fuel Type**
Combustion GHG emissions using the method stated in 95115 and the method for flares stated in 95116 (a)(1)(B).
- (2) **Process Vented and non-routine CO₂, and Methane emissions (>1 TPY) including fugitives.** The operator shall calculate emissions from each applicable facility source using an appropriate and relevant method for CO₂ and Methane.

95125. Indirect Emission Calculation Methods. Operators shall use one or more of the following methods to calculate emissions as required in sections 95110 through 95113.

(a) Method for Calculating Indirect Electricity Usage.

The operator of a facility that consumes electricity that is purchased or acquired from a retail provider or a facility they do not own or operate shall report electricity use and identify the provider(s) for all electricity consumed at the facility.

- (1) For each electricity provider, the operator shall sum electricity use (kWh) from billing records for the report year. If the records do not begin on January 1 and end on December 31 of the report year, but span two calendar years, the facility shall pro-rate its power usage according to the fraction of days billed for each month in each year using the equation shown.

Calculating electricity use for partial months:

$$\begin{aligned} \text{Partial Month Electricity use (kWh)} = & \\ & (\text{electricity use (kWh) in period billed} / \text{total number days in period billed}) \\ & * (\text{number of report year days in the period billed}). \end{aligned}$$

- (2) The operator shall report by electricity provider the electricity consumed at the facility in kilowatt-hours (kWh).

(b) Method for Calculating Indirect Thermal Energy Usage.

The operator a facility that consumes steam, heat, and/or cooling that is purchased or acquired from a facility that they do not own or operate shall report thermal energy use and identify the provider(s) for all thermal energy consumed at the facility.

- (1) For each thermal energy provider, the operator shall obtain data from the facility's thermal use records, and sum this usage for the report year. If the records do not begin on January 1 and end on December 31 of the report year, but span two calendar years, the facility shall pro-rate its indirect thermal energy usage according to the fraction of days billed for each month in each year using the equation shown.

Calculating thermal use for partial months:

$$\text{Partial Month Thermal use (Btu)} = \frac{\text{(thermal use (Btu) in period billed / total number days in period billed)} * \text{(number of report year days in the period billed)}}{1}$$

- (2) The operator shall report by thermal energy provider the thermal energy consumed at the facility in British thermal units (Btu).