

# U.S. Environmental Protection Agency

## Information Collection Request

**Title:** Greenhouse Gas Reporting Rule: Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems; Final Rule

**OMB Control Number:** 2060-0751

**EPA ICR Number:** 2774.02

**Abstract:** In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161) and under authority of the Clean Air Act (CAA), the EPA finalized a greenhouse gas reporting rule in October of 2009 (henceforth referred to as the Greenhouse Gas Reporting Program or GHGRP) (74 FR 56260; October 30, 2009). The rule, which became effective on December 29, 2009, requires reporting of greenhouse gases (GHGs) from certain large facilities and suppliers.

The GHGRP requires that sources emitting GHGs, supplying certain products that contain GHGs, or injecting carbon dioxide (CO<sub>2</sub>) underground in quantities above certain threshold levels of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) monitor and report GHG data and other relevant information. Subsequent rules have promulgated requirements for additional facilities, and suppliers; provided clarification and corrections to existing requirements; and finalized confidential business information (CBI) determinations, amended recordkeeping requirements, and implemented an alternative verification approach.

This supporting statement addresses information collection activities that will be imposed by the “Greenhouse Gas Reporting Rule: Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems; Final Rule” (hereafter referred to as the “final revisions”).

The final revisions will amend the petroleum and natural gas systems source category of the Greenhouse Gas Reporting Rule to ensure that reporting is based on empirical data and accurately reflects total methane emissions and waste emissions from applicable facilities and allows owners and operators of applicable facilities to submit empirical emissions data to demonstrate the extent to which a charge is owed. These final revisions include improving the existing calculation, recordkeeping, and reporting requirements. These final revisions also establish and amend confidentiality determinations for the reporting of certain data elements to be added or substantially revised in these final revisions.

Compared with the estimated respondent burden identified in the information collection for the GHGRP currently approved by Office of Management and Budget (OMB), this final information collection will result in an average annual incremental burden of 1,902,792 hours and \$183,550,674 over the three years covered by this information collection, which includes an annual average of \$169,446,958 in labor costs, \$14,103,716 in operation and maintenance costs, and \$0 in capital costs. The annual average incremental burden to the EPA for this period is anticipated at 2,080 hours and \$126,730 (\$2021) over the three years covered by this information collection.

### **Supporting Statement A**

## **1. NEED AND AUTHORITY FOR THE COLLECTION**

*Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.*

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The EPA is finalizing this information collection under its existing Clean Air Act (CAA) authority provided in CAA section 114. As stated in the October 30, 2009 preamble to part 98 (74 FR 56260), CAA section 114(a)(1) provides the EPA broad authority to require the information to be gathered by part 98 because such data will inform and are relevant to the EPA's carrying out a wide variety of CAA provisions. Additionally, the FY2008 Consolidated Appropriations Act directed the EPA to "develop and publish a draft rule not later than 9 months after the date of enactment of this Act, and a final rule not later than 18 months after the date of enactment of this Act, to require mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy of the United States."

The accompanying explanatory statement further directed the EPA to "use its existing authority under the Clean Air Act" to develop a GHG reporting rule. "The Agency is further directed to include in its rule reporting of emissions resulting from upstream production and downstream sources, to the extent that the Administrator deems it appropriate. The Administrator shall determine appropriate thresholds of emissions above which reporting is required, and how frequently reports shall be submitted to EPA."

Section 114 of the CAA provides the EPA authority to require the information mandated by the GHGRP because such data will inform and are relevant to future policy decisions. CAA section 114(a)(1) authorizes the Administrator to require emissions sources, persons subject to the CAA, or persons whom the Administrator believes may have necessary information to monitor and report emissions and provide such other information the Administrator requests for the purposes of carrying out any provision of the CAA. For these reasons, the Administrator may request that a person, on a one-time, periodic, or continuous basis establish and maintain records, make reports, install and operate monitoring equipment and, among other things, provide such information the Administrator may reasonably require.

These final revisions include improvements to existing calculation, recordkeeping, and reporting requirements. These final revisions also establish and amend confidentiality determinations for the reporting of certain data elements to be added or substantially revised in these final revisions. The final revisions will maintain the quality of the data collected under part 98 where continued collection of information assists in evaluation and support of EPA programs and policies. In some cases, the final revisions will improve the EPA's ability to assess compliance (by revising or adding recordkeeping or reporting elements that allow the EPA to more thoroughly verify GHG data and understand trends in emissions) and advance the ability of the GHGRP to provide access to quality data on GHG emissions (by adding new source categories to address potential gaps in reporting of emissions data for specific sectors, adding or revising calculation methodologies to reflect an improved understanding of emissions sources and end uses, or adding key data elements to improve the usefulness of the data). In conjunction with this action, the EPA is finalizing confidentiality determinations for the new and substantially revised data elements contained in these final revisions.

## **2. PRACTICAL UTILITY/USERS OF THE DATA**

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*Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.*

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The GHGRP collects information from facilities that directly emit GHGs or inject CO<sub>2</sub> underground and from suppliers of certain products that contain GHGs. Reporting entities use uniform methods for calculating emissions, which enables data to be compared and analyzed. The comprehensive GHG data reported directly from large facilities and suppliers across the country are easily accessible to the public via the EPA's online data publication tool, also known as FLIGHT (Facility Level Information on Greenhouse gases Tool) at: <https://ghgdata.epa.gov/ghgp/main.do>. FLIGHT is designed for the general public and allows users to view and sort GHG data for every reporting year starting with 2010 from over 8,000 entities in a variety of ways including by location, industrial sector, and type of GHG emitted. To support the needs of data users, all non-confidential data collected through the GHGRP are made available for download through Envirofacts (<https://www.epa.gov/enviro/>), a cross-EPA data publication website.

Data collected through the GHGRP complement the Inventory of U.S. Greenhouse Gas Emissions and Sinks (Inventory) and are used to significantly improve our understanding of key emissions sources by allowing the EPA to better reflect changing technologies and emissions from a wide range of industrial facilities.

The GHGRP data have also been used to support CAA policy in numerous ways. For example, GHGRP data on Petroleum and Natural Gas Systems (subpart W) were analyzed to inform targeted improvements to the 2016 New Source Performance Standards (NSPS) for the oil and gas industry and to update emission factor and activity data used for that proposal and the 2016 NSPS, as updated in the US GHG Inventory (83 FR 52056; October 15, 2018).

In addition, GHGRP data have been used to support voluntary programs. For example, GHGRP data are used by the Landfill Methane Outreach Program (LMOP) to supplement the LMOP Landfill and Landfill Gas Energy Project Database which includes data collected from LMOP Partners about landfill gas energy projects or potential for project development.

Several states also use GHGRP data to inform their own policymaking. For example, the state of Hawaii is using GHGRP data to establish an emissions baseline for each facility subject to their GHG Reduction Plan and to assess whether facilities meet their targets in future years. GHGRP data are also being used to improve estimates of GHG emissions internationally. Specifically, GHGRP data have been used to inform several of the updates to emission estimation methods included in the 2019 Refinement of the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories (the Refinement).

Lastly, the standardization of GHG data provides businesses with the necessary information to benchmark themselves against similar facilities, better understand their relative standing within their industry, and achieve and disseminate their environmental achievements. Businesses and other innovators can use the data to determine and track their GHG footprints, find cost- and fuel-saving efficiencies that reduce GHG emissions (e.g., through energy audits or other forms of assistance), and foster technologies to protect public health and the environment. In addition, transparent, public data on emissions allow for accountability of polluters to the public who bear the cost of the pollution. This powerful data resource provides a critical tool for communities to identify nearby sources of GHGs and provide information to state and local governments.

The final revisions to part 98 include requirements for reporting of GHG data from additional emission sources/events (e.g., nitrogen removal units, produced water tanks, crankcase venting, other large release events, thief hatches on atmospheric storage tanks, and mud degassing), improvements to emissions estimation methodologies, revisions to existing methodologies (e.g., combustion slip, and malfunctioning dump valves on atmospheric storage tanks), and collection of data to support verification of GHG emissions and supply. Improvements to emissions estimation methodologies will improve the quality of the data collected under the program.

### **3. USE OF TECHNOLOGY**

*Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.*

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The EPA has established a central repository of data for all respondents, the web-based Electronic Greenhouse Gas Reporting Tool (e-GGRT). Respondents report data electronically, and the EPA stores the data in the database. Facilities and suppliers subject to the GHGRP register online through the e-GGRT system. The e-GGRT system has an XML reporting schema that allows facilities to upload GHG data directly in lieu of using the guided web forms provided through e-GGRT. The XML reporting schema contains all data elements needed to comply with the GHGRP. The electronic reports submitted under the GHGRP are subject to the provisions of 40 CFR Part 3, specifying EPA systems to which electronic submissions must be made and the requirements for valid electronic signatures. Additionally, e-GGRT is designed to collect and store CBI.

The system follows Agency standards for design, security, data element and reporting format conformance, and accessibility. The EPA designed the database to minimize respondents' burden by integrating with existing data collection and data management systems, when feasible.

The EPA ensures data quality by conducting robust verification checks using both electronic software and manual review. The EPA contacts facilities when annual reports contain potential errors, and the statute requires that the facilities either resolve the error or explain that it is not an error in a timely manner. The EPA makes all data accessible to the public on a web-based, user-friendly publication tool called FLIGHT, as detailed in Section 2 of this document.

Under the final revisions, facilities will report all new data elements via e-GGRT.

### **4. EFFORTS TO IDENTIFY DUPLICATION**

*Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.*

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To determine whether this request duplicates other information collections, the EPA evaluated existing GHG programs and the GHG data currently available including: Federal programs within the United States, such as the Inventory; State and regional GHG reporting programs, Reporting protocols developed by nongovernmental organizations; and Programs from industrial trade organizations.

Documentation of the EPA's review of GHG monitoring protocols used by federal and state voluntary and mandatory GHG programs as well as GHG reporting rules can be found in the docket at

EPA-HQ-OAR-2008-0508-0056. For further discussion on the relationship of the GHGRP to other programs, please refer to the preambles of each of the GHGRP rulemakings, the June 6, 2008 memorandum entitled “Review of Existing Programs” (which can be found in the docket at EPA-HQ-OAR-2008-0508-0052), and the January 27, 2009 memorandum entitled “Review of Existing State Greenhouse Gas Reporting Rules” (which can be found in the docket at EPA-HQ-OAR-2008-0508-0054).

The final revisions include improvements to the calculation, monitoring, and reporting requirements that will incorporate new data or updated scientific knowledge; reflect new emissions sources for which data has not previously been collected; improve analysis and verification of collected data; and provide additional data to complement or inform other EPA programs. Based on this evaluation, this information collection request does not duplicate other information collections.

## **5. MINIMIZING BURDEN ON SMALL BUSINESSES AND SMALL ENTITIES**

*If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.*

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This information collection will not have a significant economic impact on a substantial number of small entities. The small entities subject to the requirements of this action are small businesses in the petroleum and natural gas industry. Small entities include small businesses, small organizations, and small governmental jurisdictions. The EPA has determined that some small entities are affected because their production processes emit GHGs that must be reported.

In the implementation of the GHGRP, the EPA previously determined thresholds that reduced the number of small businesses reporting. The final revisions will not revise the threshold for existing subpart W reporters; therefore, we do not expect a significant number of small entities will be newly impacted under the final rule revisions.

The rule amendments predominantly apply to existing reporters and are amendments that will expand reporting to include new emission sources/events; add, remove, or refine emissions estimation methodologies to improve the accuracy of reported emission data; for the Onshore Petroleum and Natural Gas Production and Onshore Petroleum and Natural Gas Gathering and Boosting segments, revise reporting of emissions from a basin level to a site level; implement requirements to collect new or revised data; clarify or update provisions; or streamline or simplify requirements, for example, by increasing flexibility for reporters or removing redundant requirements.

## **6. CONSEQUENCES OF LESS FREQUENT COLLECTION**

*Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.*

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Annual reporting of the data is necessary to ensure that the Agency’s objectives for the GHGRP are met. Annual reporting is critical for assessing year-to-year variations in emissions both at the facility and sector level. With less frequent reporting, the EPA will be unable to discern multi-year trends. As the Agency evaluates potential GHG emission reduction opportunities, it is critical to be able to analyze up-to-date, multi-year data for all sectors covered by the program. For example, the GHGRP collects critical information necessary to evaluate potential GHG reduction approaches, such as number of facilities in a sector, production or capacity of each facility, abatement technologies used across a sector, number of facilities using continuous emission monitoring systems, and chemical-specific GHG emission information. These data are essential for understanding the sources that will be impacted by potential

regulations, emissions monitoring approaches and abatement technologies currently employed within a sector, and the general emissions profile of the industry.

With annual data, stakeholders can monitor changes in facility emissions over time with respect to comparable facilities in the industry. Annual reporting also lines up with the reporting frequency of all existing State GHG reporting programs as well as other Agency and State programs that require reporting of environmental data. This reporting frequency remains the same in these final revisions to part 98.

The frequency with which facilities and suppliers subject to the GHGRP monitor, sample, or measure data varies from weekly to annually. We have maintained collection frequencies that are necessary to ensure adequate data quality and are designed to match the variability of activities conducted by the source category.

## **7. GENERAL GUIDELINES**

*Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.*

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This collection of information is consistent with all other OMB guidelines under 5 CFR 1320.5.

## **8. PUBLIC COMMENT AND CONSULTATIONS**

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### **8a. Public Comment**

*If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the Agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the Agency in response to these comments. Specifically address comments received on cost and hour burden.*

A public notice of this collection is provided in the Federal Register notice of "Greenhouse Gas Reporting Rule: Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems; Final Rule".

### **8b. Consultations**

*Describe efforts to consult with persons outside the Agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported. Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3 years - even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.*

The EPA engages in consultations with reporters on a regular basis. Since the GHGRP's inception, the EPA has conducted over 140 training webinars reaching over 17,000 people and has responded to approximately 40,000 questions received by our help desk. The EPA also communicates with GHGRP reporters directly after every data submission deadline during our annual verification period. The program maintains an open-door policy and has consulted on numerous occasions with trade associations as well as individual companies with issues or concerns. As a result of these consultations,

the EPA has identified specific sections of the rule language that could be clarified or did not have the intended effect.

The EPA has previously promulgated amendments to the rule to resolve these issues and to correct technical and editorial errors that have been identified. Some of these amendments affected burden, but most amendments reduced burden or did not affect it. In addition to correcting and clarifying existing requirements, the EPA has amended the GHGRP in other ways based on public comments and stakeholder feedback, (e.g., promulgated rulemakings that re-propose certain subparts, added requirements for new facilities and suppliers, and added reporting requirements that provide information about parent companies).

To monitor the usefulness of this data collection, the GHGRP staff are in regular communication with other EPA programs that use the data, such as voluntary and mandatory GHG reduction programs within the Office of Air and Radiation. The EPA also consults regularly with state, local, and tribal environmental control agencies, environmental groups, research entities, and other nongovernmental organizations.

In the current action, the EPA is primarily finalizing amendments that will improve the quality of data collected through the GHGRP.

## **9. PAYMENTS OR GIFTS TO RESPONDENTS**

*Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.*

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No payments or gifts have been provided to respondents.

## **10. ASSURANCE OF CONFIDENTIALITY**

*Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or Agency policy. If the collection requires a systems of records notice (SORN) or privacy impact assessment (PIA), those should be cited and described here.*

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Data collected under the GHGRP must be made available to the public unless the data qualify for CBI treatment under the CAA and EPA regulations. The EPA typically makes confidentiality determinations under the CAA on a case-by-case basis under 40 CFR 2.301. Due to the large numbers of entities reporting under the GHGRP and the large number of data reporting elements, the EPA concluded that case-by-case determinations will not result in a timely release of emissions data and other non-CBI data (75 FR 39094; July 7, 2010). Therefore, the EPA has published confidentiality determinations for most information reported under the GHGRP (76 FR 30782; May 26, 2011, 77 FR 48072; August 13, 2012, 77 FR 51477; August 24, 2012, 78 FR 68162; November 13, 2013, 78 FR 71904; November 29, 2013, 79 FR 3507; January 22, 2014, 79 FR 63750; October 24, 2014, 79 FR 70352; November 25, 2014, 79 FR 73750; December 11, 2014, 80 FR 64262; October 22, 2015, 81 FR 86490; November 30, 2016, and 81 FR 89188; December 9, 2016). These confidentiality determinations specify which data reporting elements in part 98: (1) are CBI, (2) are non-CBI, and (3) are emissions data (i.e., ineligible for CBI protection). All data determined by the EPA to be CBI are safeguarded in accordance with regulations in 40 CFR Chapter 1, Part 2, Subpart B.

In this action, the EPA is finalizing confidentiality determinations for the new and substantially revised data elements contained in the amendments; the EPA is also finalizing confidentiality

determinations for certain existing data elements for which a confidentiality determination has not previously been proposed or finalized. By proposing confidentiality determinations prior to data reporting, the EPA provided potential reporters an opportunity to submit comments, particularly comments identifying data they consider sensitive and their rationales and supporting documentation. This opportunity to submit comments is the same opportunity that is afforded to submitters of information in case-by-case confidentiality determinations and provided an opportunity to rebut the agency's proposed determinations prior to finalization. The EPA evaluated all comments received on the proposed rulemaking, but no comments were received, including claims of confidentiality and information substantiating such claims. Therefore, these confidentiality determinations are being finalized.

**11. JUSTIFICATION FOR SENSITIVE QUESTIONS**

*Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the Agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.*

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The revisions to calculation, monitoring, reporting and recordkeeping requirements in these final revisions to part 98 do not include sensitive questions.

**12. RESPONDENT BURDEN HOURS & LABOR COSTS**

*Provide estimates of the hour burden of the collection of information. The statement should:*

- *Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Generally, estimates should not include burden hours for customary and usual business practices.*
  - *If this request for approval covers more than one form, provide separate hour burden estimates for each form and the aggregate the hour burdens.*
  - *Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included as O&M costs under non-labor costs covered under question 13.*
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The respondents in this information collection include owners and operators of facilities that must report their GHG emissions to the EPA to comply with the GHGRP requirements for petroleum and natural gas systems.

**12a. Respondents/NAICS Codes**

The petroleum and natural gas sector is listed below by the corresponding subpart of the rule and their NAICS codes for reference. The NAICS codes are not exhaustive, but rather provide a list of facilities likely to be affected by the final revisions and confidentiality determinations.

**Exhibit 12.1. Examples of Affected Entities by Category**

Subpart	NAICS Codes	
W. Petroleum and Natural Gas Systems	486210	Pipeline transportation of natural gas.



Subpart	NAICS Codes	
	221210	Natural gas distribution facilities.
	211120	Crude petroleum extraction.
	211130	Natural gas extraction.

## 12b. Information Requested

### Data Items

This section characterizes the information being collected under the final rule, as well as the activities associated with developing, submitting, or filing that information.

The new information to be collected under the final revisions include new data elements from new emissions sources and from the expansion of the number of industry segments reporting existing emissions sources.

### Reporting and Recordkeeping Requirements

Respondents must report the data items specified according to the requirements of 40 CFR 98.236 and the recordkeeping requirements of 40 CFR 98.237, as provided in the currently approved ICR for the GHGRP (EPA ICR No. 2300.18). In this rulemaking, the EPA is including additional emission sources/events (e.g., nitrogen removal units, produced water tanks, other large release events, thief hatches on atmospheric tanks, crankcase venting, and mud degassing), improvements to emissions estimation methodologies (e.g., dump valves on atmospheric tanks and combustion slip), and collection of data to support verification of GHG emissions. The final revisions will include improvements to emissions estimation methodologies, which will improve the quality of the data collected under the program.

Respondents must maintain records associated with the data items specified according to the requirements of 40 CFR 98.3 and the sector-specific recordkeeping requirements of each subpart. These records are discussed in the ICR Renewal for the Greenhouse Gas Reporting Program (EPA ICR No. 2300.18). In this rule, the EPA is not finalizing additional records.

## 12c. Respondent Activities

The final revisions will require gathering of new information, calculating new emissions, conducting monitoring of emission sources/events, and reporting new data elements associated with the required activities being finalized. All activities with associated costs are shown in Appendix A. For each related data element required in the final revisions to 40 CFR 98.236, all respondents will:

1. Submit the value via the web-based Electronic Greenhouse Gas Reporting Tool (e-GGRT) as part of the annual report currently required under part 98.
2. Maintain records of reported data for a minimum of three years.

All respondents will be required to calculate the new data elements using empirical data detailed in the final revisions to 40 CFR 98.233.

### **Collection Schedule**

For each reporting year, facilities collect data and calculate emissions at varying frequencies, as described in the GHGRP, and summarized in OMB Control No. 2060-0629, ICR No. 2300.18. All data elements under this information collection will be submitted no more frequently than an annual basis as part of the respondent's annual report required under part 98.

### **12d. Respondent Burden Hours and Labor Costs**

This section presents the EPA's estimates of the burden and costs to respondents associated with the activities described in section 12.b as well as the federal burden hours and costs associated with the activities described in section 14.a. The EPA estimates that, over the three years covered by this request, the average total respondent burden associated with this reporting will be 1,902,792 hours per year and the cost of all respondents of the information collection will increase an average of \$183,550,674 per year, which includes \$14,103,717 in non-labor costs per year.

Final revisions include the following:

- Expanding reporting to include new emission sources/events, to accurately reflect total methane in emission reports reported to the GHGRP.
- Adding emissions calculation methodologies to incorporate additional empirical data and improve the accuracy of reported emission data.
- Refining existing emissions calculation methodologies to reflect an improved understanding of emissions or to incorporate more recent research on GHG emissions to improve the accuracy of reported emission data.
- Removing calculation methodologies in cases where it was determined that more accurate calculation methodologies were available.
- Changing the basis for reporting emissions from the Onshore Petroleum and Natural Gas Production industry segment to the well-pad instead of the facility level.
- Changing the basis for reporting emissions from the Onshore Petroleum and Natural Gas Gathering and Boosting industry segment to the site instead of the basin level, sub-basin level, or county level.
- Adding data elements related to emissions from plugged wells.
- Adding or clarifying throughput related data elements for subpart W industry segments.
- Revising data elements or recordkeeping where the current requirements are redundant or alternative data will be more appropriate for verification of emission data.
- Clarifying requirements that reporters have previously found vague to ensure that accurate data are being collected, and editorial corrections or harmonizing changes that will improve the public's understanding of the rule.

Appendix A details by emission source/event and industry segment, the respondent activities required by the revised provisions and how much each activity is expected to cost, by labor, O&M, and capital.

Labor costs are tabulated for respondents to gather data, conduct sampling, conduct measurements, conduct monitoring, run simulation software, count equipment, conduct inspections, and calculate emissions.

Operation and maintenance costs are tabulated for respondents to hire contractors to conduct measurements on a regular basis, such as annual compressor measurements and periodic flow measurements costs. These costs also include the costs for costs for labs to analyze quarterly samples for dehydrators, acid gas removal units, and nitrogen removal units.

No new capital costs were tabulated for respondents related to the final revisions.

Finally, as a result of these final revisions, 93 new sources in three industry segments (3 in Onshore Natural Gas Transmission Compression, 47 in Onshore Petroleum and Natural Gas Production, and 43 in Onshore Natural Gas Processing) are expected to become subject to subpart W of part 98. Labor and O&M costs are included to comply with the reporting and recordkeeping costs detailed in EPA ICR No. 2300.18.

This section of this ICR provides estimates of burden (hours) and costs for respondents.

### **Estimating Respondent Burden**

The aggregate and average annual respondent burden estimates are presented in Exhibit 12.2. The EPA estimates that the total annual burden to all affected entities will increase by 1,902,792 hours per year, on average, over the three years covered by this information collection. For more details, see Appendix A.

### **Exhibit 12.2. Summary of Annual Respondent Burden and Cost of Final Revisions for the Greenhouse Gas Reporting Rule, Years 1-3**

<b>Number of Respondents</b>	<b>Total Labor Hours</b>	<b>Labor Costs</b>	<b>Non-Labor Costs (Annualized Capital/ Startup and O&amp;M)</b>	<b>Total Costs</b>
3,077	1,902,792	\$169,446,958	\$14,103,716	\$183,550,674

### **Estimating Respondent Costs**

Costs to respondents associated with this information collection include labor costs (i.e., the cost of labor by facility staff to meet the rule's information collection requirements) and non-labor costs (e.g., the cost of purchasing and installing monitoring equipment or contractor costs associated with providing the required information).

To calculate labor costs, the EPA used an approach consistent with the ICR associated with the GHGRP currently approved by OMB, updated to incorporate 2021 BLS labor rates. Sector-specific labor rates are used for the oil and gas industry (subpart W): \$132.31 for senior managers, \$123.46 for middle managers, \$110.10 for engineers, and \$77.99 for technicians. These labor rates were applied to the total

burden estimates for each labor category to obtain the total costs for each subpart. Labor and non-labor costs (capital and O&M) are summarized in Exhibit 12.2. More details are in Appendix A.

The EPA estimates that the total annual labor costs to all affected non-federal entities will average \$169.4 million over the three years covered by this information collection. Exhibit 12.2 presents the aggregate burden by year for all subpart W industry segments.

Exhibit 12.3 presents the annual average burden and cost for each industry segment over the three years of the information collection. For a more detailed summary of the annual costs by industry segment, see Appendix A.

### Exhibit 12.3. Annual Average Burden Over the Three Years of the Information Collection, by Industry Segment

Industry Segment	Annual Number of Respondents	Total Hours	Annual Average Burden Per Respondent	Labor Costs	O&M and Capital Costs	Total Costs
Onshore Petroleum and Natural Gas Production	777	1,618,079	2,082	\$142,067,785	\$3,693,563	\$145,761,348
Offshore Petroleum and Natural Gas Production	141	34	0	\$3,922	\$0	\$3,922
Onshore Petroleum and Natural Gas Gathering and Boosting	361	117,979	327	\$10,767,359	\$1,319,919	\$12,087,278
Onshore Natural Gas Processing	515	121,589	236	\$11,873,365	\$2,776,745	\$14,650,110
Onshore Natural Gas Transmission Compression	1,008	38,716	38	\$4,064,345	\$5,891,787	\$9,956,131
Natural Gas Transmission Pipeline	53	881	17	\$89,867	\$187	\$90,054
Underground Natural Gas Storage	68	3,144	46	\$319,173	\$370,275	\$689,448
LNG Import and Export Equipment	11	563	51	\$51,729	\$26,350	\$78,079
LNG Storage	7	262	37	\$29,922	\$24,890	\$54,812
Natural Gas Distribution	164	1,547	9	\$179,491	\$0	\$179,491
<b>TOTAL</b>	<b>3,077</b>	<b>1,902,792</b>	<b>618</b>	<b>\$169,446,958</b>	<b>\$14,103,716</b>	<b>\$183,550,674</b>

### Estimating the Respondent Universe and Total Burden and Costs

The estimated number of respondents that will perform each of the required activities under this information collection is presented in Appendix A. The number of respondents is not expected to vary in each year.

### Bottom Line Burden Hours and Costs

The bottom-line burden hours and costs are shown in Exhibit 12.4.

## Exhibit 12.4 Annual Average Total Burden and Costs

Respondent Costs	
Number of Respondents	3,077
Total Respondent Labor Hours	1,902,792
Total Respondent Labor Costs	\$169,446,958
Non-labor (Capital and O&M) Costs	\$14,103,716
Total Respondent Costs	\$183,550,674
Agency Costs	
Total Agency Burden Hours	2,080
Total Agency Labor Costs	\$126,730
Total Burden Hours (Respondents + Agency)	1,904,872
Bottom Line Costs (Respondents + Agency)	\$183,677,404

### 13. RESPONDENT CAPITAL AND O&M COSTS

Provide an estimate for the total annual cost burden to respondents or record keepers resulting from the collection of information. (Do not include the cost of any hour burden already reflected on the burden worksheet).

The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should consider costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling, and testing equipment; and record storage facilities. If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collections services should be a part of this cost burden estimate.

Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

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The total costs include \$0 in annual capital costs and \$14,103,716 in annual operation and maintenance and purchase of services costs. For specific details, see Appendix A.

### 14. AGENCY COSTS

Provide estimates of annualized costs to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information.

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#### 14a. Agency Activities

EPA activities include the monitoring and verification of emission reports, database and software maintenance, communication and outreach, and program evaluation. This ICR reflects an incremental agency burden for program operation activities, which include monitoring and verification of emission reports. Specifically, the additional burden for the review of new data elements reported was estimated.

#### 14b. Agency Labor Cost

This section describes the burden and cost to the federal government associated with this information collection, and the details are provided in Appendix A. Federal activities under this information collection include EPA oversight of the reporting program and required reporting by federally owned GHG generating facilities.

EPA activities associated with the GHGRP include oversight and implementation of the reporting program, e.g., monitoring and verification of emission reports, database and software maintenance, communication and outreach, and program evaluation. For the rule, the incremental burden to the EPA is associated with the additional time to review the new and substantially revised data elements that will be reported (see section 12.b).

To develop EPA labor costs, the EPA estimated the average hourly labor rate for salary and overhead and benefits for Agency staff to be \$60.93. To derive this figure, the EPA multiplied the hourly compensation at GS-13, Step 1 on the 2021 GS pay scale (\$38.08) by the standard government benefits multiplication factor of 1.6 to account for overhead and benefits.<sup>1</sup>

The total burden and costs to the federal government from the new and substantially revised data elements are anticipated to average 2,080 hours and \$126,730 (\$2021) per year over the three years covered by this information collection, which represents one additional full-time employee. Exhibit 14.1 presents the annual Agency burden and cost.

#### Exhibit 14.1 Annual Agency Burden and Cost Per Year

Total Annual Burden Hours	Labor Costs (\$2021)
2,080	\$126,730

#### 14c. Agency Non-Labor Costs

There are no non-labor costs associated with the changes.

### 15) REASONS FOR CHANGE IN BURDEN

<sup>1</sup> [https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/salary-tables/pdf/2021/GS\\_h.pdf](https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/salary-tables/pdf/2021/GS_h.pdf)

*Explain the reasons for any program changes or adjustments reported in the burden or capital/O&M cost estimates.*

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This section presents the change in burden based on the final revisions and explains the reasons for the change in burden.

The reasons for the change in burden are mainly due to the addition of new emissions sources, new reporting elements, and new calculation methodologies. The EPA's final revisions to Part 98 result in an increase in costs.

This rule will result in an overall average annual incremental burden of 1,902,792 hours and \$183,550,674 over the three years covered by this information collection.

#### **16) PUBLICATION OF DATA**

*For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.*

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The comprehensive GHG data reported directly from large facilities and suppliers across the country are easily accessible to the public via the EPA's online data publication tool, also known as FLIGHT (Facility Level Information on Greenhouse gases Tool) at: <https://ghgdata.epa.gov/ghgp/main.do>. FLIGHT is designed for the general public and allows users to view and sort GHG data for every reporting year starting with 2010 from over 8,000 entities in a variety of ways including by location, industrial sector, and type of GHG emitted.

To support the needs of data users, all non-confidential data collected through the GHGRP are made available for download through Envirofacts (<https://www.epa.gov/enviro/>), a cross-EPA data publication website.

#### **17) DISPLAY OF EXPIRATION DATE**

*If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.*

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EPA will display the expiration date for OMB approval of this information collection.

#### **18) CERTIFICATION STATEMENT**

*Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions."*

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This information collection complies with all provisions of the Certification for Paperwork Reduction Act Submissions.

**SUPPORTING STATEMENT:  
ENVIRONMENTAL PROTECTION AGENCY  
OMB control number 2060-NEW; ICR number 2774.02  
Appendix A**



**Table A-1. Subpart W Labor Costs by Emission Source/Event and Industry Segment**

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
<b>1. APPLICATIONS (Not Applicable)</b>									
<b>2. SURVEY AND STUDIES (Not Applicable)</b>									
<b>3. ACQUISITION, INSTALLATION, AND UTILIZATION OF TECHNOLOGY AND SYSTEMS</b>									
<b>4. REPORT REQUIREMENTS</b>									
<b>A1. Read Rule, Instructions, Guidance Documents for Subpart W</b>									
Incremental labor costs for new sources are at the end of this table.									
<b>A2. Read Rule, Instructions, Guidance Documents for Subpart A</b>									
Incremental labor costs for new sources are at the end of this table.									
<b>B. Required Activities</b>									
<i>Acid Gas Removal Units 1</i>									
Gather CEMS data for e-GGRT reporting (M1)									
LNG Storage reporters 4,5,6,7	1.00	2.0	2.00	1	2.0		0.2	0.1	\$267
LNG Import and Export Equipment reporters 4,5,6,7,8	1.00	2.0	2.00	1	2.0		0.2	0.1	\$267
Conduct quarterly gas sampling (M2)									
LNG Storage reporters 5,6,7,9	0.67	2.2	1.47	1	1.5		0.1	0.1	\$196
LNG Import and Export Equipment reporters 5,6,7,8,9	0.67	2.2	1.47	1	1.5		0.1	0.1	\$196

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Perform engineering calculation (M3)									
LNG Storage reporters 5,7,10,11	0.17	3.0	0.50	2	1.0		0.1	0.1	\$133
LNG Import and Export Equipment reporters 5,7,8,12	0.17	3.0	0.50	3	1.5		0.2	0.1	\$200
Perform simulation run using AspenTech HYSYS®, or API 4679 AMINECalc (M4)									
LNG Storage reporters 6,7,13	0.42	2.1	0.88	1	0.9		0.1	0.0	\$117
LNG Import and Export Equipment reporters 6,7,8,13	0.42	2.1	0.88	1	0.9		0.1	0.0	\$117
<i>Nitrogen Removal Units 1</i>									
Gather CEMS data for e-GGRT reporting (M1)									
Onshore Natural Gas Processing reporters 4,7,14,15	1.00	2.0	2.00	1	2.0		0.2	0.1	\$267
Onshore Petroleum and Natural Gas Production reporters 4,7,14,15	1.00	0.0	0.00	0	-		-	-	\$0
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 4,7,14,15	1.00	1.0	1.00	1	1.0		0.1	0.1	\$133
LNG Storage reporters 4,7,14,15	1.00	2.0	2.00	1	2.0		0.2	0.1	\$267
LNG Import and Export Equipment reporters 4,7,14,15	1.00	2.0	2.00	1	2.0		0.2	0.1	\$267
Conduct quarterly gas sampling (M2)									
Onshore Natural Gas Processing reporters 7,9,13,15	0.67	1.3	0.87	56	48.5		4.9	2.4	\$6,477

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Petroleum and Natural Gas Production reporters 7,9,13,15	0.67	1.0	0.67	1	0.7		0.1	0.0	\$89
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,9,13,15	0.67	2.2	1.47	10	14.7		1.5	0.7	\$1,957
LNG Storage reporters 7,9,13,15	0.67	2.2	1.47	1	1.5		0.1	0.1	\$196
LNG Import and Export Equipment reporters 7,9,13,15	0.67	2.2	1.47	1	1.5		0.1	0.1	\$196
Perform engineering calculation (M3)									
Onshore Natural Gas Processing reporters 7,10,14,15	0.17	1.5	0.25	125	31.3		3.1	1.6	\$4,170
Onshore Petroleum and Natural Gas Production reporters 7,10,14,15	0.17	1.8	0.30	6	1.8		0.2	0.1	\$240
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,10,14,15	0.17	3.0	0.50	27	13.5		1.4	0.7	\$1,802
LNG Storage reporters 7,10,14,15	0.17	3.0	0.50	2	1.0		0.1	0.1	\$133
LNG Import and Export Equipment reporters 7,10,14,15	0.17	3.0	0.50	3	1.5		0.2	0.1	\$200
Perform simulation run using AspenTech HYSYS®, or API 4679 AMINECalc (M4)									
Onshore Natural Gas Processing reporters 7,13,14,15	0.42	1.6	0.67	76	50.7		5.1	2.5	\$6,761
Onshore Petroleum and Natural Gas Production reporters 7,13,14,15	0.42	2.0	0.83	5	4.2		0.4	0.2	\$556

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,13,14,15	0.42	2.1	0.88	24	21.0		2.1	1.1	\$2,802
LNG Storage reporters 7,13,14,15	0.42	2.1	0.88	1.0	0.9		0.1	0.0	\$117
LNG Import and Export Equipment reporters 7,13,14,15	0.42	2.1	0.88	1	0.9		0.1	0.0	\$117
<i>Equipment Leaks 1</i>									
Conduct Leak Detection Surveys and Perform Emission Calculations									
Natural Gas Transmission Pipeline reporters 7,16,25	4.00	3.0	12.00	22	258.0		25.8	12.9	\$34,430
Determine emissions using population counts									
Natural Gas Transmission Pipeline reporters 17,18,25	4.50	3.0	13.50	22		290.3			\$23,406
<i>Blowdown Vent Stacks 1</i>									
Calculate emissions									
Onshore Natural Gas Processing reporters 7,19,20,22,23	1.00	4.0	4.00	337	1,346.4		134.6	67.3	\$179,678
Onshore Petroleum and Natural Gas Production reporters 7,19,21,22	1.00	6.0	6.00	478	2868		286.8	143.4	\$382,736
Underground Natural Gas Storage reporters 7,19,20,22	1.00	4.0	4.00	49	196		19.6	9.8	\$26,156
LNG Storage reporters 7,19,20,22	1.00	4.0	4.00	5	20.0		2	1	\$2,669
Natural Gas Distribution reporters 7,19,21,22,23	1.00	4.0	4.00	163	652.0		65.2	32.6	\$87,010

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,19,21,22	1.00	6.0	6.00	301	1,808.4		180.8	90.4	\$241,332
<i>Other large release events 1</i>									
Collect the necessary data and calculate emissions									
Onshore Natural Gas Processing reporters 7,24,26,28	20.00	1.0	20.00	4.5	90.0		9.0	4.5	\$12,011
Onshore Natural Gas Transmission Compression reporters 7,24,26,28	20.00	1.0	20.00	5.3	106.0		10.6	5.3	\$14,146
Underground Natural Gas Storage reporters 7,24,26,28	20.00	1.0	20.00	0.5	10.0		1.0	0.5	\$1,335
LNG Import and Export Equipment reporters 7,24,26,28	20.00	1.0	20.00	0.1	2.0		0.2	0.1	\$267
Onshore Petroleum and Natural Gas Production reporters 7,24,27,29	20.00	2.0	40.00	14.9	596.0		59.6	29.8	\$79,537
Natural Gas Distribution reporters 7,24,27,29	20.00	2.0	40.00	5.1	204.0		20.4	10.2	\$27,224
LNG Storage reporters 7,24,26,28	20.00	1.0	20.00	0.1	2.0		0.2	0.1	\$267
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,24,27,29	20.00	2.0	40.00	9.6	384.0		38.4	19.2	\$51,245
Natural Gas Transmission Pipeline reporters 7,24,27,29	20.00	2.0	40.00	1.0	40.0		4.0	2.0	\$5,338
Offshore Petroleum and Natural Gas Production reporters 7,24,26,28	20.00	1.0	20.00	1.4	28.0		2.8	1.4	\$3,737
<i>Combustion Emissions</i>									

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Determine fuel consumption through company records and calculate emissions (to incorporate combustion slip)									
Onshore Petroleum and Natural Gas Production reporters 1,7,19,31,45,60	1.00	3	3.44	15,296	52,618.2		5,261.8	2,630.9	\$7,021,936
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 1,7,19,31,47,60	1.00	1.0	1.00	15,930	15,930.0		1,593.0	796.5	\$2,125,868
Natural Gas Distribution reporters 1,7,19,31,60	1.00	1	1.00	163	163.0		16.3	8.2	\$21,752
Common pipe and Aggregated units being reported to subpart C									
Edits to 98.36(c)(1) and 98.26(c)(3)									
Onshore Natural Gas Processing reporters 7,69,70	10.00	1	13.00	454	5,902.0		590.2	295.1	\$787,626
Onshore Natural Gas Transmission Compression reporters 7,69,71	10.00	1	9.40	624	5,865.6		586.6	293.3	\$782,768
Underground Natural Gas Storage reporters 7,69,72	10.00	1	13.20	49	646.8		64.7	32.3	\$86,316
LNG Import and Export Equipment reporters 7,69,73	10.00	1	10.90	11	119.9		12.0	6.0	\$16,001
LNG Storage reporters 7,69,74	10.00	2	16.00	5	80.0		8.0	4.0	\$10,676
<i>Crankcase venting 1</i>									
Gather information and calculate emissions									
Onshore Petroleum and Natural Gas Production reporters 7,19,61	2.00	1	2.00	478	956.0		95.6	47.8	\$127,579
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 7,19,61	2.00	1	2.00	354	708.0		70.8	35.4	\$94,483
Natural Gas Distribution reporters 7,19,61	2.00	1	2.00	163	326.0		32.6	16.3	\$43,505

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Natural Gas Processing reporters 7,19,61	2.00	1	2.00	454	908.0		90.8	45.4	\$121,173
Onshore Natural Gas Transmission Compression reporters 7,19,61	2.00	1	2.00	624	1,248.0		124.8	62.4	\$166,546
Underground Natural Gas Storage reporters 7,19,61	2.00	1	2.00	49	98.0		9.8	4.9	\$13,078
LNG Import and Export Equipment reporters 7,19,61	2.00	1	2.00	11	22.0		2.2	1.1	\$2,936
LNG Storage reporters 7,19,61	2.00	1	2.00	5	10.0		1.0	0.5	\$1,335
<i>Dehydrators</i>									
Gather data for simulation run (large dehydrators) (M1) 62									
Onshore Natural Gas Processing reporters 17,30,31	1.00	1.8	1.80	262		471.6			\$38,030
Onshore Petroleum and Natural Gas Production reporters 17,30,31	1.00	19.8	19.80	42		2,811.6			\$226,730
Onshore Natural Gas Transmission Compression reporters 1,5,17,30	1.00	19.8	19.80	227		4,494.6			\$362,449
Underground Natural Gas Storage 1,5,17,30	1.00	19.8	19.80	25		485.1			\$39,119
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 1,5,17,30	1.00	11.8	11.76	287		3,375.0			\$272,163
Equipment counts and population emission factors (small dehydrators) (M2) 62									
Onshore Natural Gas Transmission Compression reporters 1,5,10,17,30	0.17	27.0	4.50	227		1,021.5			\$82,375
Underground Natural Gas Storage 1,5,10,17,30	0.17	27.0	4.50	25		110.3			\$8,891

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
<i>Condensate storage tanks (formerly transmission storage tanks) 1</i>									
Underground Storage									
Screen for leaks using optical gas imaging instrument 7,32,34,35,36	0.17	1.5	0.24	39	9.7		1.0	0.5	\$1,290
Screen for leaks using acoustic leak detection device 7,32,34,35,36	0.17	1.5	0.24	0	-		-	-	\$0
Screen and quantify leaks using calibrated bag 7,33,34,35,36	0.25	1.5	0.37	0	-		-	-	\$0
Screen and quantify leaks using flow meter 7,33,34,35,36	0.17	1.5	0.24	0	0.0		0.0	0.0	\$3
Screen and quantify leaks using high volume sampler 7,33,34,35,36	0.25	1.5	0.37	1	0.3		0.0	0.0	\$42
Quantify leaks using high volume sampler after screening with optical gas imaging instrument or flow meter 7,33,34,35,36	0.25	1.5	0.37	8	2.9		0.3	0.1	\$388
Quantify leaks using acoustic leak detection after screening with optical gas imaging instrument or flow meter 7,33,34,35,36	0.25	1.5	0.37	5	1.7		0.2	0.1	\$227
Quantify leaks using calibrated bags after screening with optical gas imaging instrument or flow meter 7,33,34,35,36	0.25	1.5	0.37	0	0.1		0.0	0.0	\$15
Quantify leaks using flowmeter after screening with optical gas imaging instrument or flow meter 7,33,34,35,36	0.25	1.5	0.37	3	1.0		0.1	0.0	\$131
Calculate emissions 7,33,34,35,36,37	0.17	1.5	0.24	11	2.8		0.3	0.1	\$374
<i>Hydrocarbon liquid Storage Tanks (formerly atmospheric storage tanks) 1</i>									



Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Determine emissions by calculating flashing emissions with software program, such as AspenTech HYSYS® or API 4697 E&P Tank (M1)									
Onshore Natural Gas Processing reporters 5,7,30	0.50	439.8	219.90	151	33,278.2		3,327.8	1,663.9	\$4,440,996
Determine emissions by sampling and analyzing separator oil composition (M2)									
Onshore Natural Gas Processing reporters 5,7,30	0.02	571.6	9.53	151	1,441.7		144.2	78.6	\$192,399
Determine emissions using equipment counts and population emission factors (M3)									
Onshore Natural Gas Processing reporters 5,7,30	0.01	430.7	3.59	151		543.2			\$43,801
<i>Dump valves 1</i>									
Yearly inspections of dump valves (per tank)									
Onshore Petroleum and Natural Gas Production reporters 5,17,38	0.17	427.0	71.17	738		52,519.8			\$4,235,249
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 5,17,38	0.17	114.8	19.14	421		8,057.0			\$649,724
Onshore Natural Gas Processing reporters 5,17,38	0.17	427.0	71.17	160		11,384.9			\$918,087
<i>Thief hatches 1</i>									
Yearly inspections of thief hatches (per tank)									
Onshore Petroleum and Natural Gas Production reporters 17,38,39	0.17	427.0	71.17	738		52,519.8			\$4,235,249
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 17,38,39	0.17	114.8	19.14	421		8,057.0			\$649,724

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Natural Gas Processing reporters 17,38,39	0.17	427.0	71.17	454		32,308.9			\$2,605,424
<i>Produced water tanks 1</i>									
Determine emissions using equipment counts and population emission factors (M3)									
Onshore Petroleum and Natural Gas Production reporters 17,30,31,40	0.01	430.7	3.59	367		1,317.2			\$106,222
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 17,30,31,40	0.01	45.3	0.38	214		80.8			\$6,517
Onshore Natural Gas Processing reporters 17,30,31,40	0.01	430.7	3.59	151		543.2			\$43,801
<i>Well Venting for Liquids Unloading 1</i>									
Measure flow rate (M1)									
Onshore Petroleum and Natural Gas Production reporters 7,30,31,41	0.08	536.0	44.67	159	7,116.9		711.7	355.8	\$949,753
Calculate emissions (M1)									
Onshore Petroleum and Natural Gas Production reporters 7,30,31,41	0.17	536.0	89.33	159	14,233.8		1,423.4	711.7	\$1,899,506
Determine well counts, number of events, well depth, calculate pressure, calculate flow (M2 and M3)									
Onshore Petroleum and Natural Gas Production reporters 7,30,31,42,43	0.17	168.9	28.15	319	8,970.5		897.0	448.5	\$1,197,114
<i>Mud degassing 1</i>									
Use mudlogging data to calculate emissions (M1)									

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Petroleum and Natural Gas Production reporters 7,31,56,57,58	1.0	65.6	65.6	170	11,119.2		1,111.9	556.0	\$1,483,864
Use emission factor to calculate emissions (M2)									
Onshore Petroleum and Natural Gas Production reporters 7,31,56,57,58	0.17	88.0	14.67	170	2,486.0		248.6	124.3	\$331,758
<i>Plugged wells 1</i>									
Gather quantities related to plugged wells (quantities of natural gas, crude oil, and condensate produced that is sent to sale)									
Onshore Petroleum and Natural Gas Production reporters 63,64	1.00	3.3	3.28	478	1,567.8		156.8	78.4	\$209,229
<i>Flare Stacks--determine feed gas composition annually</i>									
Onshore Petroleum and Natural Gas Production reporters 75,76,77	0.17	6.3	1.05	478	501.9		50.2	25.1	\$66,979
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 75,78	0.17	1.0	0.17	248	41.3		4.1	2.1	\$5,516
<i>Flare stacks - pilot monitoring 2</i>									
Onshore Natural Gas Processing reporters 31, 64, 65	12.00	2.3	28.09	384		10,788.0			\$869,955
Onshore Natural Gas Transmission Compression reporters 31,64, 65	12.00	1.3	15.16	19		288.0			\$23,225
Underground Natural Gas Storage reporters 31, 64, 65	12.00	2.9	34.67	9		312.0			\$25,160
LNG Import and Export Equipment reporters 31, 64, 65	12.00	3.6	42.67	9		384.0			\$30,966
Onshore Petroleum and Natural Gas Production reporters 31, 64, 65	12.00	146.2	1,754.16	378		663,072.0			\$53,470,757

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 31, 64, 65	12.00	20.6	247.40	248		61,356.0			\$4,947,806
<b>C. Create Information (Included in 4B)</b>									
<b>D. Gather Existing Information (Included in 4E)</b>									
<b>E. Write Report</b>									
<i>Changing to reporting at the well-pad level or site ID</i>									
Onshore Petroleum and Natural Gas Production reporters 44,45	75.00	1.0	75.00	478	35,850.0	3,585.0	3,585.0		\$4,828,062
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 46,47	36.00	1.0	36.00	354	12,744.0	1,274.4	1,274.4		\$1,716,285
<b>5. RECORDKEEPING REQUIREMENTS</b>									
<b>A. Read Instructions (Included in 4A)</b>									
<b>B. Plan Activities (Included in 4B)</b>									
<b>C. Implement Activities (Included in 4B)</b>									
<b>D. Recordkeeping</b>									
<b>E. Time to Transmit or Disclose Information (included in 4E)</b>									
<b>F. Time to Train Personnel (included in 4A)</b>									
<b>G. Time for Audits (Not Applicable)</b>									
<i>Incremental labor costs due to new sources 55</i>									

Year 1-3	(A) Hours per Occurrence	(B) Occurrences/ Respondent/ Year	(C) Hours/ Respondent/ Year (A x B)	(D) Respondents/ Year	Engineer Hours/ Year (C x D)	Tech Hours /Year	Middle Manager Hours/ Year	Senior Manager Hours/ Year	(H) Cost/Year (Using 2% consumption discount rate)
Onshore Natural Gas Processing reporters				53					\$1,602,708
Onshore Natural Gas Transmission Compression reporters				364					\$2,632,836
Underground Natural Gas Storage reporters				16					\$116,648
LNG Import and Export Equipment reporters				0					\$0
Onshore Petroleum and Natural Gas Production reporters				309					\$61,214,637
Natural Gas Distribution reporters				0					\$0
LNG Storage reporters				2					\$13,550
Onshore Petroleum and Natural Gas Gathering and Boosting reporters				0					\$0
Natural Gas Transmission Pipeline reporters				4					\$26,693
Offshore Petroleum and Natural Gas Production reporters				7					\$186
<b>TOTAL ANNUAL LABOR BURDEN AND COST</b>									\$169,446,957
								1,902,792.0	

**Table A-2. Subpart W Operation and Maintenance Costs and Capital Costs by Emission Source/Event and Industry Segment**

Year 1-3	Occurrences/ Respondent/Year	Respondents/ Year	Cost/ Year (Using 2% consumption discount rate)
<b>ANNUAL COSTS (O&amp;M)</b>			
<i>Acid gas removal units</i>			
Quarterly gas samples and analyses (M2)			
LNG Storage reporters 31,48	8.8	1	\$3,640
LNG Import and Export Equipment reporters 31,48	8.8	1	\$6,066
<i>Acid gas removal units</i>			
Flow rate measurement for simulation software (M4)			
Onshore Natural Gas Processing reporters 5,49,50	1.0	76.0	\$117,877
Onshore Petroleum and Natural Gas Production reporters 5,49,50	1.0	5.0	\$7,755
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 5,49,50	1.0	24.0	\$37,224
LNG Storage reporters 5,49,50	1.0	1.0	\$1,551
LNG Import and Export Equipment reporters 49,50	1.0	1.0	\$1,551
<i>Nitrogen removal units</i>			
Quarterly gas samples and analyses (M2)			
Onshore Natural Gas Processing reporters 14,48	5.2	56.0	\$120,442
Onshore Petroleum and Natural Gas Production reporters 14,48	4.0	1.0	\$1,654
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 14,48	8.8	10.0	\$36,397
LNG Storage reporters 14,48	8.8	1.0	\$3,640
LNG Import and Export Equipment reporters 14,48	8.8	1.0	\$6,066
<i>Nitrogen removal units</i>			
Flow rate measurement for simulation software (M4)			
Onshore Natural Gas Processing reporters 14,49,50	1.0	76.0	\$117,877
Onshore Petroleum and Natural Gas Production reporters 14,49,50	1.0	5.0	\$7,755
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 14,49,50	1.0	24.0	\$37,224
LNG Storage reporters 14,49,50	1.0	1.0	\$1,551
LNG Import and Export Equipment reporters 14,49,50	1.0	1.0	\$1,551
<i>Glycol dehydrators</i>			
Flow rate measurement for simulation software (M1)			
Onshore Natural Gas Processing reporters 14,49,50	1.0	262	\$406,366
Onshore Petroleum and Natural Gas Production reporters 14,49,50	1.0	142	\$220,244
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 14,49,50,74	1.0	227	\$352,080

<b>Year 1-3</b>	<b>Occurrences/ Respondent/Year</b>	<b>Respondents/ Year</b>	<b>Cost/ Year (Using 2% consumption discount rate)</b>
LNG Storage reporters 14,49,50,74	1.0	25	\$38,000
LNG Import and Export Equipment reporters 14,49,50	1.0	287.0	\$445,141
<i>Centrifugal and Reciprocating Compressors--contractor to perform compressor leak measurements 2</i>			
Onshore Natural Gas Processing reporters 68	2.0	345	\$426,090
Onshore Natural Gas Transmission Compression reporters 68	2.0	526	\$649,633
Underground Natural Gas Storage reporters 68	2.0	48	\$59,282
LNG Import and Export Equipment reporters 68	2.0	9	\$11,115
LNG Storage reporters 68	2.0	2	\$2,470
Onshore Petroleum and Natural Gas Production reporters 68	2.0	478	\$590,351
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 68	2.0	354	\$437,205
<i>Hydrocarbon liquid Storage Tanks</i>			
Simulation software yearly cost			
Onshore Natural Gas Processing reporters 49,51	1.0	165	\$31,296
<i>Pneumatic Pumps-measure volumetric flow rate regularly 2</i>			
Onshore Petroleum and Natural Gas Production reporters 31,52,53	134	478	\$396,992
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 31,53,54	41	354	\$224,153
<i>Flare stacks - annual feed gas sampling and analysis</i>			
Onshore Petroleum and Natural Gas Production reporters 31,52,53	6.3	478	\$984,957
Onshore Petroleum and Natural Gas Gathering and Boosting reporters 31,53,54	1	248	\$102,574
<i>Incremental recordkeeping and O&amp;M costs due to new sources 55</i>			
Onshore Natural Gas Processing reporters		53	\$1,556,798
Onshore Natural Gas Transmission Compression reporters		364	\$4,890,074
Underground Natural Gas Storage reporters		16	\$272,993
LNG Import and Export Equipment reporters		0	\$0
Onshore Petroleum and Natural Gas Production reporters		309	\$1,483,855
Natural Gas Distribution reporters		0	\$0
LNG Storage reporters		2	\$12,038
Onshore Petroleum and Natural Gas Gathering and Boosting reporters		0	\$0
Natural Gas Transmission Pipeline reporters		4	\$187
Offshore Petroleum and Natural Gas Production reporters		7	\$0

**Table A-3. Total Subpart W Burden Hours and Costs Per Year**

						<b>Total Hours</b>
Years 1 - 3						1,902,792.0
<b>TOTAL ANNUALIZED CAPITAL COST</b>						
						\$0
<b>TOTAL ANNUAL LABOR COST</b>						
						\$169,446,957
<b>TOTAL ANNUAL O&amp;M COSTS</b>						
						\$14,103,716
<b>TOTAL ANNUAL COSTS (Labor, O&amp;M, and annualized capital)</b>						
						\$183,550,673



**Table A-4. Subpart W Assumptions Used in Table A-1 and Table A-2 of Appendix A**

1 New emission source for the listed industry segment(s).
2 New measurement requirements for the listed industry segment(s).
3 New equipment purchase requirements for the listed industry segment(s).
4 Assumed 1 hour per year to gather CEMS data.
5 Number of occurrences per respondent based on maximum average number reported by segment and by calculation method for RY2019 for other industry segments for this emission source.
6 Assumed 1 reporter would use this method.
7 For each hour of an Engineer's time, assumed 0.1 hours of a Middle Manager's time and 0.05 hours of a Senior Manager's time for oversight and review.
8 Only exporters use AGRU.
9 Assumed activity takes 10 minutes (based on similar activity in December 2010 EIA for GHGRP) and multiplied by 4 for quarterly activities.
10 Assumed activity takes 10 minutes (based on similar activity in December 2010 EIA for GHGRP).
11 Assumed 2 reporters would use this method.
12 Assumed 3 reporters would use this method.
13 Assumed same amount of time per AGRU as for dehydrators in December 2010 EIA for GHGRP [10 minutes to compile data + 15 minutes to run simulation, per AGRU].
14 Assumed same average number of NRUs per reporter as AGRUs in RY2019 for each calculation method.
15 Assumed same number of reporters have NRUs as AGRUs in RY2019 for each calculation method.
16 Assumed 4 hours per year per respondent to schedule contractor, review contractor results, etc.
17 Activity conducted by a technician.
18 Assumed 4.5 hours in first year. Assumed 10% of 4.5 hours in subsequent years. After the first year, the LOE will only involve accounting for changes from the previous year.
19 Assumed activity occurs once per year per reporter.
20 Assumed 4 hours per reporter per year to perform calculations for blowdown vent stacks.
21 Assumed 6 hours per reporter per year to perform calculations for blowdown vent stacks.
22 Assumed that each facility would calculate emissions using 98.233(u) and 98.233(v) and assign to the equipment type that represents the largest portion of the emissions by equipment or event type.
23 Assumed that 40% of reporters with desiccant dehydrators will be required to report blowdown vent stacks now that emissions from desiccant dehydrators are no longer being reported to subpart W and are no longer exempt from 98.233(i).
24 Assumed 20 hours to gather the necessary data to estimate emissions from other large release events and minimal time to calculate the emissions.
25 Assumed half of reporters would conduct leak surveys and half of reporters would use population leak factors.
26 Assumed one large release event per year.
27 Assumed two large release events per year.
28 Assumed 1% of reporters have a large release event to report each year.
29 Assumed 3% of reporters have large release events to report each year.
30 LOE from December 2010 EIA.
31 Number of occurrences per respondent based on average number reported by segment for RY2019.
32 Assumed 10 minutes per tank.
33 Assumed 15 minutes per tank.

34 Used average number of transmission tanks per reporter for underground storage segment (1.5 tanks per facility).
35 Based on RY2019 data from transmission compression facilities, 515 unique facilities tested for leaks from transmission tanks. Of those 515 facilities, 503 used optical gas imaging to screen for leaks, 1 used flow meters to screen for leaks, and 11 used high volume sampling for screening and quantifying leaks. No facilities used calibrated bags or acoustic leak detection to screen and quantify leaks.
36 Used same ratios from transmission tanks for underground storage condensate storage tanks.
37 This is the sum of reporters using high volume samplers to quantify leaks and reporters using flowmeters to quantify leaks.
38 Assumed inspections take 10 minutes per tank.
39 Number of occurrences based on total number of tanks reported in RY2019.
40 Assumed the same number of produced water tanks per reporter as hydrocarbon storage tanks reported in RY2019 by industry segment.
41 Assumed 1/3 of reporters would use M1.
42 Assumed 2/3 of reporters would use M2 or M3.
43 Assumed 10 minutes per well.
44 Assumed 15 hours per reporter per year to report by well-pad instead of by sub-basin (12 hours of an Engineer's time, 2 hours of a Middle Manager's time and 1 hour of a Technician's time).
45 Assumed an average of 3.44 wells per well-pad from NSPS OOOOb TSD and 32 well-pads per sub-basin and 9 sub-basins per facility from subpart W data.
46 Assumed 5 hours per reporter per year to report by G&B site instead of by county (3 hours of an Engineer's time, 1 hour of a Middle Manager's time and 1 hour of a Technician's time).
47 Assumed an average of 45 sites per Gathering and Boosting facility (15 centralized production, 15 compressor stations, and 15 other).
48 Assumed testing costs of \$400 per AGRU/NRU.
49 Assumed activity occurs once per year per reporter for simulation software.
50 Assumed one-time costs of Aspen HYSYS of \$2,000 or \$666.67 per year over the three years of the ICR.
51 Assumed one time license costs of E&P Tanks of \$600 over the three-year period or \$200 per year.
52 Based on average number of pneumatic pumps per facility, assumed would test 1/5 of pumps every year.
53 Based on OGI crew costs, it costs \$300 to show up (travel, + set up) + \$150/hr for measurements. Vent measurements are 5 minutes long, so max 12 device measurements/hour, and something like 50 total pumps could be measured in an 8 hour day and would cost about \$1,500. Second day costs would be similar, since multi-day monitoring would incur hotel and additional per diem costs. Based on 50 pumps at the site, an average cost of about \$30 per device for the vent measurements.
54 Based on average number of pneumatic pumps per facility, assumed would test 1/2 of pumps every year.
55 There are a total of 755 new sources expected to be required to comply with subpart W as a result of this rulemaking and the change in global warming potentials in the supplemental proposal.
56 Assumed 1 hour per well to gather mudlogging data and calculate emissions.
57 Assumed mudlogging is already being used so no costs for measurement equipment. If mudlogging is not already being used, would use method 2 instead of purchasing measurement equipment.
58 Assumed half of affected reporters would use Method 1 for mud degassing emissions and half would use Method 2.
59 Assumed 10 minutes per well to calculate emissions from mud degassing using the emission factor.
60 Assumed an additional 1.0 hours per year to incorporate combustion slip into existing calculations.
61 Assumed 2 hours per year to gather information (determine concentration of CH4 in gas stream entering the engine, determine total number of crank case vents on reciprocating internal combustion engines, and total operating hours per year for reciprocating internal combustion engines) and calculate emissions.
62 Assumed half of reporters would use simulation software for dehydrators and half would use population emission factors.
63 Assumed 1.0 hours per site to gather plugged well data annually.
64 Assumed an hour of a technician's time per flare to inspect the pilot light.
65 Assumed pilot light inspection occurs once per month.
66 Assumed 90 hours per reporter per year to report by well-pad instead of by sub-basin (75 hours of an Engineer's time, 7.5 hours of a Middle Manager's time and 7.5 hours of a Technician's

time).
67 Assumed 36 hours per reporter and twice per year to report by G&B site instead of by county (30 hours of an Engineer's time, 3 hours of a Middle Manager's time and 3 hours of a Senior Manager's time).
68 Assumed an average of 2 compressors per reporter would be in one of the new compressor source modes.
69 Assumed 2 hours per year per each aggregation of units/common pipe reported under Subpart C. Assumed 5 fuel units per aggregation of units/common pipe reported.
70 Based on 2019 data, 447 facilities in this industry segment reported 581 total CS, GP, and CP units to subpart C, resulting in an average of 1.3 aggregations of units/common pipe per facility reported under Subpart C.
71 Based on 2019 data, 612 facilities in this industry segment reported 576 total CS, GP, and CP units to subpart C, resulting in an average of 0.94 aggregations of units/common pipe per facility reported under Subpart C.
72 Based on 2019 data, 41 facilities in this industry segment reported 54 total CS, GP, and CP units to subpart C, resulting in an average of 1.32 aggregations of units/common pipe per facility reported under Subpart C.
73 Based on 2019 data, 11 facilities in this industry segment reported 12 total CS, GP, and CP units to subpart C, resulting in an average of 1.09 aggregations of units/common pipe per facility reported under Subpart C.
74 Based on 2019 data, 5 facilities in this industry segment reported 8 total CS, GP, and CP units to subpart C, resulting in an average of 1.6 aggregations of units/common pipe per facility reported under Subpart C.
75 Assumed sampling was equal to calculation (10 minutes per flare stack).
76 Assumed 30% of sub-basins are involved in a custody transfer where gas samples are taken monthly. Only 70% requires sampling.
77 Assumed 9 sub-basins per facility.
78 Assumed analysis is per facility instead of per flare.