



**Karin Ritter**  
Manager

Regulatory and Scientific Affairs  
1220 L Street, NW  
Washington, DC 20005-4070 USA  
Telephone: 202-682-8472  
Fax: 202-682-8031  
Email: [ritterk@api.org](mailto:ritterk@api.org)  
[www.api.org](http://www.api.org)

August 09, 2017

Climate Change Division  
Office of Atmospheric Programs (MC-6202A)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Ave NW  
Washington, DC 20460  
[GHGInventory@epa.gov](mailto:GHGInventory@epa.gov)

**Re: API Comments on Updates under Consideration for Natural Gas and Petroleum Systems in the 1990-2016 GHG Inventory**

Dear EPA,

The American Petroleum Institute (API) appreciates the opportunity to have participated and provide preliminary comments during the June 22<sup>nd</sup> Stakeholders Workshop on Natural Gas and Petroleum Systems in the 1990-2016 GHG Inventory.

API represents more than 500 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports 9.2 million U.S. jobs and 7.7 percent of the U.S. economy, and delivers more than \$86 million a day in revenue to our government. Most of our members conduct oil and gas development and production operations and, thus, will be directly impacted by the way emissions from their operations are publicly depicted.

API continues to compile and analyze greenhouse gas (GHG) emissions data for natural gas and petroleum operations and is committed to working with EPA in the future on advancing the utilization of data provided through EPA's mandatory GHG reporting program (GHGRP) to inform the development of an updated methodology for the national GHG Inventory (GHGI).

This letter provides API's comments on the three methodology memos posted by EPA and discussed during the June 22<sup>nd</sup> stakeholders' workshop:

1. Updates for emissions estimates for CO<sub>2</sub> from Natural Gas and Petroleum Systems,
2. Updates for Natural Gas and Petroleum Systems uncertainty estimates, and

3. Updates for abandoned wells in Natural Gas and Petroleum Systems.

The sections below provide overarching comments on each of the three memos listed above. API will continue to analyze available data for the proposed updates and will follow-up with comments and technical memos as applicable.

*1. Updates under consideration for revision of CO<sub>2</sub> emission estimates for Natural Gas and Petroleum Systems<sup>1</sup>*

- The impact of the new methodology on the estimated emissions is especially pronounced for Petroleum Systems. It reflects (i) a reclassification of emissions previously reported under Natural Gas Systems into Petroleum Systems, and (ii) the inclusion of additional Petroleum System emissions. The latter is due to EPA's attempt to address data gaps that have been noted to exist between the data presented in the GHGI vs. the data reported in the GHGRP. API is requesting further clarifications from EPA to better understand the process and methodology EPA used to derive the proposed 2018 GHGI emission estimates for Associated Gas; Tanks; and Miscellaneous Flaring for the Petroleum Systems segment.
- Some of the CO<sub>2</sub> emissions estimates proposed by EPA are based on applying a new methodology to recently revised CH<sub>4</sub> emission estimation methods for several sources, including tanks. API is still reviewing EPA's proposed methodology update for CH<sub>4</sub> emissions from tanks. Consequently, API is not yet able to provide feedback on the applicability of this methodology for estimating CO<sub>2</sub> emissions from the same sources.
- The EPA is considering the use of subpart W RY 2015 miscellaneous production flaring (reported under "flare stacks") emissions data to revise the GHGI and account for flare emissions in the production segment. Subpart W data for this source were not previously considered. API requests that EPA provide additional clarifications about the use of this proposed methodology, as outlined in the referenced memo. The additional transparency will help API review the results, primarily to check that it is free of double counting and that it properly accounts for flaring practices in different basins across the U.S.

---

<sup>1</sup> [https://www.epa.gov/sites/production/files/2017-06/documents/updates\\_under\\_consideration\\_for\\_2018\\_ghgi\\_emissions\\_for\\_co2\\_from\\_natural\\_gas\\_and\\_petroleum\\_systems.pdf](https://www.epa.gov/sites/production/files/2017-06/documents/updates_under_consideration_for_2018_ghgi_emissions_for_co2_from_natural_gas_and_petroleum_systems.pdf)

## *2. Issues to consider for updating the uncertainty estimates for Natural Gas and Petroleum systems<sup>2</sup>*

- API agrees that using the top contributing sources (sources that make up 75-80% of emissions) to estimate the uncertainty intervals for GHG emissions from the entire segment is an efficient way of performing such an assessment.
- API believes that it is important to heed the statistician's recommendations about handling data that are characterized by 'heavy tails,' and to not assume that data from different measurement studies – or other sources – can be aggregated without first confirming through statistical testing that they belong to the same population. We agree with comments made during the June 22<sup>nd</sup> Stakeholders Workshop that the Central Limit Theorem may not apply universally. API strongly supports the idea of testing whether all data are derived from similar populations, especially when relying on sample data that are partially based on direct source-specific measurements and partially based on site-wide reverse flux modeling. This is of particular concern when trying to aggregate results from site-specific field study measurements and remote ground-based or airborne platform measurements.
- API recommends focusing on sources that are large emitters, but that prior to proceeding with any analysis, caution must be exercised when data come from various sources. Also, any methodology would benefit from expert knowledge that can be used to screen data to assess critical differences (or shortcomings) and to facilitate the derivation of valid emission factors (EFs).
- As previously discussed with EPA, API strongly supports a requirement that measured or reported data must be screened for outliers that may arise either due to erroneous reporting or from measurement bias. It is imperative to have a robust data set prior to estimating emissions and the uncertainty ranges associated with such estimates.
- API agrees that efforts to improve methodologies should be focused on emission sources for which the estimated emissions and the associated uncertainty bounds are the largest. There are diminishing returns when attempting to lower the uncertainty for data sets whose contribution to the overall GHG emissions is exceedingly small.

---

<sup>2</sup> [https://www.epa.gov/sites/production/files/2017-06/documents/updates\\_under\\_consideration\\_for\\_2018\\_ghgi\\_natural\\_gas\\_and\\_petroleum\\_systems\\_uncertainty\\_estimates\\_508.pdf](https://www.epa.gov/sites/production/files/2017-06/documents/updates_under_consideration_for_2018_ghgi_natural_gas_and_petroleum_systems_uncertainty_estimates_508.pdf)

### *3. Update under consideration for abandoned wells in Natural Gas and Petroleum Systems<sup>3</sup>*

- API agrees that there is a future need for consistency in the definitions to reconcile the wide variation among the definitions used by states to classify wells as “abandoned”, “inactive”, “orphaned”, “plugged” or “unplugged”.
- API would like to emphasize that plugging and abandonment regulations vary widely from state to state. In particular there are differences in the post closure monitoring and requirements for maintaining a vent for certain categories of wells.
- API notes that the studies conducted so far have limited geographical coverage, with the U. of Cincinnati study having the broadest coverage (138 abandoned wells in four basins, where a total of 9 wells have been identified as leaking CH<sub>4</sub>). To date no data are available from Texas or many other major producing areas. This makes it impossible to extrapolate the results of the current studies to a nationwide estimate of the contribution of CH<sub>4</sub> emissions from Abandoned Wells to the GHGI.
- API recognizes that many attributes can influence leakage from abandoned wells, including depth, plugging status, well type (oil or gas), geographic location, and abandonment method. The studies conducted to date have focused on very old wells and the data obtained may not be representative of abandoned wells nationwide. Notably, many states have active programs to address properly plugging abandoned and orphaned wells<sup>4</sup>.
- API welcomes the development of improved survey methods to augment state-based abandoned well inventories, such as those described in the NETL study (i.e., use of helicopters equipped with magnetometers to identify the metal casing of old wells that are not visibly marked on the surface). The move to develop a lighter instrumentation package that may be mounted on a drone would enable expanded surveys to locate abandoned or inactive well casings and improve the representativeness of the database.
- API believes the currently available data, which indicate emission rates from most abandoned wells are small.<sup>5</sup> We also note that the measured CH<sub>4</sub> emissions are reported to be almost indistinguishable from natural background. At the same time it is also not clear whether the observed CH<sub>4</sub> emissions emanate from an oil or gas resource or from biogenic

---

<sup>3</sup> [https://www.epa.gov/sites/production/files/2017-06/documents/updates\\_under\\_consideration\\_for\\_2018\\_ghgi\\_estimates\\_for\\_abandoned\\_wells\\_in\\_natural\\_gas\\_and\\_petroleum\\_systems\\_508.pdf](https://www.epa.gov/sites/production/files/2017-06/documents/updates_under_consideration_for_2018_ghgi_estimates_for_abandoned_wells_in_natural_gas_and_petroleum_systems_508.pdf)

<sup>4</sup> Examples of State Orphan Well Programs include: California Oil, Gas & Geothermal -- Idle and Orphan Well Program; Louisiana Oilfield Site Restoration; Michigan Orphan Well Program; Ohio Landowner's Guide to Orphan Well Plugging; Pennsylvania Orphan Oil and Gas Wells and the Orphan Well Plugging Fund; Texas Orphaned Well Reduction Program.

<sup>5</sup> EPA's preliminary estimates of CH<sub>4</sub> emissions (RY2015) from abandoned wells is 0.8 MMT CO<sub>2</sub>e for Natural Gas Systems (< 1% contribution), and 3.9 MMT CO<sub>2</sub>e for Petroleum Systems (10% contribution).

sources. Attribution of the source (biogenic, natural outcrops or oil & gas resource) of the CH<sub>4</sub> emissions is critical to assigning these emissions to abandoned wells. Therefore, it may be premature to add these Abandoned Well emissions to the GHGI prior to obtaining additional data.

- API notices that the major assumption for dealing with abandoned wells in the GHGI is the inclusion of 1.19 million wells to the DrillingInfo national well count time series to account for abandoned wells. API would like to discuss this assumption with the EPA to clarify the exact steps taken to derive the number of abandoned wells and their applicability for the entire time series.

API appreciates the opportunity to provide comments on the proposed methodology improvements for the forthcoming 2018 GHGI and welcomes EPA's willingness to work with industry to improve the data used for the national inventory. API encourages EPA to continue these collaborative discussions and is available to work with EPA to make best use of the information available under the GHGRP to improve the national emission inventory. We look forward to continuing our collaborative work in the GHGI development process.

Sincerely,

A handwritten signature in black ink, appearing to read 'Karin Ritter', with a long horizontal stroke extending to the right.

Karin Ritter

cc: Melissa Weitz, [weitz.melissa@epa.gov](mailto:weitz.melissa@epa.gov)  
Mark DeFigueiredo, [DeFigueiredo.Mark@epa.gov](mailto:DeFigueiredo.Mark@epa.gov)  
Adam Eisele, [Eisele.Adam@epa.gov](mailto:Eisele.Adam@epa.gov)  
Bill Irving, [Irving.bill@Epa.gov](mailto:Irving.bill@Epa.gov)