



Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments

Volume No.:48

**Subpart TT—Industrial Waste
Landfills**

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Subpart TT—Industrial Waste Landfills

**U. S. Environmental Protection Agency
Office of Atmospheric Programs
Climate Change Division
Washington, D.C.**

FOREWORD

This document provides EPA's responses to public comments on EPA's Proposed Mandatory Greenhouse Gas Reporting Rule. EPA published a Notice of Proposed Rulemaking in the Federal Register on April 10, 2009 (74 FR 16448). EPA received comments on this proposed rule via mail, e-mail, facsimile, and at two public hearings held in Washington, DC and Sacramento, California in April 2009. Copies of all comments submitted are available at the EPA Docket Center Public Reading Room. Comments letters and transcripts of the public hearings are also available electronically through <http://www.regulations.gov> by searching Docket ID *EPA-HQ-OAR-2008-0508*.

Due to the size and scope of this rulemaking, EPA prepared this document in multiple volumes, with each volume focusing on a different broad subject area of the rule. This volume of the document provides EPA's responses to that portion of the public comments received relating to the industrial waste landfills which were removed from the applicability provisions of 40 CFR Part 98, Subpart HH—Landfills. Those comments are now being addressed in the context of 40 CFR part 98, Subpart TT—Industrial Waste Landfills.

Each volume provides the verbatim text of comments extracted from the original letter or public hearing transcript. For each comment, the name and affiliation of the commenter, the document control number (DCN) assigned to the comment letter, and the number of the comment excerpt is provided. In some cases the same comment excerpt was submitted by two or more commenters either by submittal of a form letter prepared by an organization or by the commenter incorporating by reference the comments in another comment letter. Rather than repeat these comment excerpts for each commenter, EPA has listed the comment excerpt only once and provided a list of all the commenters who submitted the same form letter or otherwise incorporated the comments by reference in table(s) at the end of each volume (as appropriate).

EPA's responses to comments are generally provided immediately following each comment excerpt. However, in instances where several commenters raised similar or related issues, EPA has grouped these comments together and provided a single response after the first comment excerpt in the group and referenced this response in the other comment excerpts. In some cases, EPA provided responses to specific comments or groups of similar comments in the preamble to the final rulemaking. Rather than repeating those responses in this document, EPA has referenced the preamble.

While every effort was made to include all significant comments related to 40 CFR Part 98, Subpart TT—Industrial Waste Landfills in this volume, some comments inevitably overlap multiple subject areas. For comments that overlapped two or more subject areas, EPA assigned the comment to a single subject category based on an assessment of the principle subject of the comment. For this reason, EPA encourages the public to read the other volumes of this document with subject areas that may be relevant to 40 CFR Part 98, Subpart TT—Industrial Waste Landfills.

At proposal, both municipal solid waste (MSW) landfills and industrial waste landfills were addressed in subpart HH. For the final rule, landfills have been separated into two subparts: HH for MSW Landfills and TT for Industrial Waste Landfills.

We received many comments generally on landfills. These comments were responded to earlier and apply equally here for subpart TT. We also received a petition for reconsideration on the October 2009 Final Rule which we have denied. A copy of the response denying this petition is provided in the docket.

The primary contacts regarding questions or comments on this document are:

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SUBPART TT—INDUSTRIAL WASTE LANDFILLS

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Timothy O'Connor

Commenter Affiliation: Environmental Defense Fund

Document Control Number: EPA-HQ-OAR-2008-0508-0228h

Comment Excerpt Number: 1

Comment: I'm heartened to see that U.S. EPA has gone a little further in tackling some of the issues that WCI has sort of left on the table, and particularly those issue related to wastewater, municipal and industrial landfills and livestock operations.

Response: EPA thanks the commenter for their input.

Commenter Name: P. Hill

Commenter Affiliation: Drexel University

Document Control Number: EPA-HQ-OAR-2008-0508-0232.1

Comment Excerpt Number: 2

Comment: Inclusion of emissions by farms and landfills will complete the picture to include all major production sources of GHGs. Providing for uniformity in data collection is a necessary first step to using this information in all stages of policy development, from identifying the problem and proposed solutions, to selection and implementation, to evaluation of existing policies and appropriate revision.

Response: EPA thanks the commenter for their input.

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 34

Comment: There is no definition of industrial landfill. However, Subpart HH identifies industrial landfills as sources to be included in the inventory. EPA should add a definition of 'industrial landfill' to §98.6.

Response: In the final rule, we have included a definition of "industrial waste landfill." "Industrial waste landfill" means any landfill other than a municipal solid waste landfill, a RCRA Subtitle C hazardous waste landfill, or a TSCA hazardous waste landfill in which industrial solid waste, such as RCRA Subtitle D wastes (non-hazardous industrial solid waste defined in 40 CFR 257.2), commercial solid wastes, or conditionally exempt small quantity generator wastes, is placed. An industrial waste landfill includes all disposal areas in a facility.

While the definition of “industrial waste landfill” is broad, the final rule excludes a variety of industrial waste landfills that have little to no potential for methane emissions.

Commenter Name: Dean C. DeLorey

Commenter Affiliation: Beet Sugar Development Foundation (BSDF) Environmental Committee

Document Control Number: EPA-HQ-OAR-2008-0508-0559.1

Comment Excerpt Number: 10

Comment: Food processing sector reporters are referred to stationary fuel combustion, wastewater treatment and landfill sections that may apply to food processing operations. It is unclear what kinds of landfills and waste water treatment facilities may be subject to these sections.

Response: For general facility applicability of the GHG mandatory reporting requirements, see §98.2. For specific information on the applicability of the reporting requirements for industrial waste landfills, please see Section II.F of the preamble and §98.460 in subpart TT of the final rule. For specific information on the applicability of the reporting requirements for industrial wastewater treatment facilities, please see Section II.E of the preamble and §98.350 in subpart II of the final rule. For specific information on the applicability of the reporting requirements for stationary combustion sources, please see §98.30 in subpart C.

Commenter Name: Andrew C. Lawrence

Commenter Affiliation: Department of Energy (DOE)

Document Control Number: EPA-HQ-OAR-2008-0508-0612.1

Comment Excerpt Number: 9

Comment: The proposed rule language provides no definition for "Industrial Landfill" though the term is used at 98.2(a)(2)(xv). To determine potential applicability of the reporting rule to a source, each source category must be clearly defined. At 98.2(a)(2)(xv), Industrial Landfills are listed as a source category and yet no definition for this type of source is provided in 98.6 or in the Subpart HH. At 98.340, definition of the source category, EPA states, "(a) This source category consists of the following sources at municipal solid waste (MSW) landfill facilities: landfills, landfill gas collection systems, and landfill gas combustion systems (including flares). This source category also includes industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities)." However, no complete definition of this subset of landfills is provided. DOE recommends that EPA specifically define, within this rule, the term "Industrial Landfill" in a manner consistent with EPA's intent to capture a significant fraction of the emissions produced by sources in this (sub-) category without imposing an undue reporting burden on small sources.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34.

Commenter Name: William Paraskevas
Commenter Affiliation: Andrews Engineering
Document Control Number: EPA-HQ-OAR-2008-0508-0342
Comment Excerpt Number: 1

Comment: The proposed greenhouse gas (GHG) reporting rules for landfills under Subpart HH are designed primarily for municipal solid waste landfills. Industrial landfills are also included in the reporting requirements. However, the rules address in detail only those industrial landfills associated with the food processing, pulp and paper, and ethanol production facilities. The proposed rules are otherwise silent with regard to reporting requirements for industrial landfills that are not associated with food processing, pulp and paper or ethanol production facilities. For example, captive landfills that accept only wastes such as foundry sand or slag from industrial facilities. This creates some uncertainty as to whether these facilities are required to submit any reports or documentation about the emission potential of greenhouse gases and, if so, how this information should be documented. The proposed rules contain no default values for degradable organic carbon (DOC) or methane generation parameters for these landfills. 40 CFR 98.2(a) states that a GHG emission report must be provided for any facility for which calculation methodologies are provided. Does the absence of default values in the rules mean that a calculation methodology is not provided? If not, how would these landfills demonstrate that their emissions are less than 25,000 metric tons CO₂e? We recommend one of two approaches to clarify the reporting rules for industrial landfills which accept only non-degradable industrial wastes, such as foundry sand. The first approach is that the rules explicitly exempt such landfills from the reporting rules. The second is that, if the Agency does want these landfills to report their emissions, then default values for DOC and methane generation parameters be provided for these landfills in the rules.

Response: For information on industrial waste landfills covered by subpart TT of the final rule and the values for DOC that should be used in the calculations, please see Section II.F of the preamble.

Commenter Name: Sarah B. King
Commenter Affiliation: DuPont Company
Document Control Number: EPA-HQ-OAR-2008-0508-0604.1
Comment Excerpt Number: 32

Comment: EPA states in the preamble in Section V.HH.1 (page 16557) that the majority of methane emissions from onsite industrial landfills occur at pulp and paper facilities and food processing facilities and provides data on the emissions from these sources. EPA does not provide emissions data for other industry sectors' onsite landfills, such as those from ethanol production, to demonstrate the emissions are significant to warrant reporting. Moreover, Table HH-1 in §98.340 only provides default values that can be used for calculating landfill emissions for food processing facilities and pulp and paper facilities. This further confirms that for industrial sources only emissions from landfills receiving pulp and paper facilities wastes and food processing wastes are significant enough to warrant reporting. Therefore, the Ethanol

Production source category should not be required to report emissions from on-site landfills, and reference to ethanol production facilities should be deleted from the parenthetical phrase at the end of §98.340(a).

Response: For information on industrial waste landfills covered by subpart TT of the final rule and the values for DOC that should be used in the calculations, please see Section II.F of the preamble. Please note that EPA has made the final decision to not include Ethanol Production as a distinct subpart in the Mandatory Greenhouse Gas Reporting Rule. For further explanation and implications for ethanol production facilities, please see Section III.B of the preamble.

Commenter Name: Robbie LaBorde
Commenter Affiliation: CLECO Corporation (CLECO)
Document Control Number: EPA-HQ-OAR-2008-0508-1566
Comment Excerpt Number: 9

Comment: Cleco believes that for those landfills that do not contain the materials listed in Table HH-1, a statement should be made in the Subpart that those type landfills are not considered to be sources that fall under the requirements of the Subpart.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble and §98.460.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 24

Comment: Subpart HH proposes GHG reporting requirements for landfills. Although the requirement appears to be directed toward municipal landfills and other organic waste landfills that generate methane, § 98.340 states that the source category includes “industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities).” Emphasis added. In addition, § 98.341 states that reporting is required for facilities listed in §§ 98.2(a) (1) and (2), the latter which includes the iron and steel source category. We interpret this cross-reference to relate only to the threshold reporting value for the listed source categories and not to imply that GHG reporting is required for landfills at iron and steel facilities, which typically contain only inorganic materials. However, the use of the phrases “industrial landfills” and “not limited to” in § 98.340 may be misleading and subject to misinterpretation. We therefore respectfully request clarification and confirmation of our understanding that landfill reporting is only required for facilities where methane gas emissions are prevalent.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble and §98.460.

Commenter Name: Donald R. Schregardus

Commenter Affiliation: Department of the Navy, Department of Defense (DoD)

Document Control Number: EPA-HQ-OAR-2008-0508-0381.1

Comment Excerpt Number: 13

Comment: The rule language provides no definition for “Industrial Landfill” though the term is used at 98.2(a)(2)(xv). To determine potential applicability of the reporting rule to a source, each source category must be clearly defined. At § 98.2(a)(2)(xv), Industrial Landfills are listed as a source category and yet no definition for this type of source is provided in § 98.6 or in the Landfill Subpart HH. At § 98.340, Definition of the source category, EPA states, “(a) This source category consists of the following sources at municipal solid waste (MSW) landfill facilities: landfills, landfill gas collection systems, and landfill gas combustion systems (including flares). This source category also includes industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities).” However, no complete definition of this subset of landfills is provided. We recommend that EPA specifically define, within this rule, the term “Industrial Landfill.” in a manner consistent with EPA’s intent to capture a significant fraction of the emissions produced by sources in this (sub-) category without imposing an undue reporting burden on small sources.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34.

Commenter Name: Kyle Pitsor

Commenter Affiliation: National Electrical Manufacturers Association (NEMA)

Document Control Number: EPA-HQ-OAR-2008-0508-0621.1

Comment Excerpt Number: 26

Comment: The NEMA Carbon/Manufactured Graphite EHS Committee agrees with EPA that MSW landfills and industrial landfills at food processing, pulp and paper and ethanol production facilities have wastes characterized by methane generation and will likely exceed the 25,000 metric tons CO₂e/year reporting threshold. The NEMA Carbon/Manufactured Graphite EHS Committee also agrees with EPA that both hazardous waste landfills and construction and demolition landfills should not be included in the landfills source category. However, NEMA Carbon/Manufactured Graphite EHS Committee also believes that EPA should do further research to provide some additional criteria to better define industrial landfills by source categories that generate significant quantities of GHGs, for the purpose of reducing the burden on the regulated community.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble and §98.460.

Commenter Name: Gary Moore
Commenter Affiliation: Pensacola Plant of Ascend Performance Materials LLC
Document Control Number: EPA-HQ-OAR-2008-0508-0366.1
Comment Excerpt Number: 17

Comment: Do Solid Waste Management Units (SWMUs) that have been closed under a RCRA Post Closure Care of Hazardous Waste Surface Impoundments permit meet the hazardous waste landfill exemption? These SWMUs predate both RCRA and HSWA and do not emit any odors common to landfill gas. Does a closed TSCA landfill containing PCB wastes meet the hazardous waste landfill exemption?

Response: RCRA Title C or TSCA hazardous waste landfills are not subject to this rule.

Commenter Name: Karin Ritter
Commenter Affiliation: American Petroleum Institute (API)
Document Control Number: EPA-HQ-OAR-2008-0508-0679.1
Comment Excerpt Number: 212

Comment: §98.340(a). Onsite industrial landfills that have been closed under the Resource Conservation and Recovery Act (RCRA) should be excluded from the source category. Landfills closed under RCRA have little to no potential for air emissions.

Response: With regard to coverage of industrial waste landfills that have been closed under RCRA, please see Section II.F of the preamble.

Commenter Name: Michael Garvin
Commenter Affiliation: Pharmaceutical Research and Manufacturers of America (PhRMA)
Document Control Number: EPA-HQ-OAR-2008-0508-0959.1
Comment Excerpt Number: 22

Comment: On-site industrial landfills that have been closed under RCRA should be excluded from the landfill source category. Landfills closed under RCRA have little or no potential for air emissions, and the burden associated with meeting the proposed requirements in the rule creates an unnecessary compliance burden.

Response: With regard to coverage of industrial waste landfills that have been closed under RCRA, please see Section II.F of the preamble.

Commenter Name: Rich Raiders
Commenter Affiliation: Arkema Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0511.1
Comment Excerpt Number: 61

Comment: EPA should clarify in proposed 40 CFR 98.340(a) of Subpart HH that industrial landfills under Resource Conservation and Recovery Act (“RCRA”) or Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) regulatory oversight that are not required to manage landfill gas do not need to report GHG emissions. RCRA and CERCLA program managers assess each industrial landfill subject to their jurisdiction and make risk assessment guided determinations concerning the appropriate management system for each industrial landfill. EPA also regulates landfills under the NSPS program at 40 CFR 60 Subparts Cc and WWW. EPA should clarify that any landfill complying with these NSPS standards and meeting Part 98 applicability criteria complies with Part 98. EPA should rely on these determinations as a screening method to identify those industrial landfills exhibiting significant landfill gas generating potential, and should target GHG reporting requirements to those landfills that emit GHGs. Many industrial landfills do not contain materials subject to bacterial degradation and significant landfill gas emissions. Owners of such landfill cells should not be burdened attempting to quantify insignificant quantities of landfill gases that are not emitted from landfill cells incapable of significantly contributing to GHG emissions.

Response: With regard to coverage of RCRA and CERCLA hazardous waste landfills under subpart TT of the final rule, please see Section II.F of the preamble. For information on the types of industrial waste landfills covered under subpart TT of the final rule based on methane emitting potential, please see Section II.F of the preamble.

Commenter Name: Juanita M. Bursley

Commenter Affiliation: GrafTech International Holdings Inc. Company (GrafTech)

Document Control Number: EPA-HQ-OAR-2008-0508-0686.1

Comment Excerpt Number: 31

Comment: To keep the requirements simple and not overly burdensome, GrafTech strongly recommends that facilities that are not required to install and operate any methane control facilities under state permitting programs for an on-site landfill, e.g. gas vents, collection well systems, and destruction and/or recovery systems, should be exempted from these GHG recordkeeping and reporting requirements, and specifically excluded from the landfill source definition along with hazardous waste landfills and construction and demolition landfills. Therefore, EPA should consider only including industrial landfills located at food processing, pulp and paper, and ethanol processing facilities, which are known for methane gas generation, under the provisions of Subpart HH, and either postpone the Final Rule until further information can be gathered or add additional industrial landfill source categories in future rule modifications as this information becomes available to EPA. GrafTech believes EPA has not sufficiently justified its decision to make all industrial landfills, regardless of typical byproduct waste characteristics, meet the proposed onerous provisions of Subpart HH.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble.

Commenter Name: Kyle Pitsor

Commenter Affiliation: National Electrical Manufacturers Association (NEMA)

Document Control Number: EPA-HQ-OAR-2008-0508-0621.1

Comment Excerpt Number: 29

Comment: To keep the requirements simple and not overly burdensome, the NEMA Carbon/Manufactured Graphite EHS Committee strongly recommends that facilities that are not required to install and operate any methane control facilities under state permitting programs for an on-site landfill, e.g. gas vents, collection well systems, and destruction and/or recovery systems, should be exempted from these GHG recordkeeping and reporting requirements, and specifically excluded from the landfill source definition along with hazardous waste landfills and construction and demolition landfills. Therefore, EPA should consider only including industrial landfills located at food processing, pulp and paper, and ethanol processing facilities, which are known for methane gas generation, under the provisions of Subpart HH, and either postpone the Final Rule until further information can be gathered or add additional industrial landfill source categories in future rule modifications as this information becomes available to EPA. The NEMA Carbon/Manufactured Graphite EHS Committee believes EPA has not sufficiently justified its decision to make all industrial landfills, regardless of typical byproduct waste characteristics, meet the proposed onerous provisions of Subpart HH.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble.

Commenter Name: Debra J. Jezouit

Commenter Affiliation: Class of '85 Regulatory Response Group

Document Control Number: EPA-HQ-OAR-2008-0508-0455.1

Comment Excerpt Number: 2

Comment: Proposed § 98.340 would require reporting of GHG emissions from industrial landfills that meet or exceed the applicable thresholds in relevant subparts. The Proposal identifies food processing facilities, pulp and paper facilities, and ethanol production facilities as examples of the types of facilities that would have industrial landfills that might be subject to reporting requirements. The applicable subparts for these facilities (i.e., Subparts M, AA, J, respectively) identify onsite industrial landfills as being specific GHG sources at the facilities. The Class of '85 requests that the Agency clarify that GHG emissions from landfills located at other types of industrial facilities, whose respective subparts do not identify industrial landfills as a specific source of GHGs, do not need to be monitored and reported. The Group believes that other types of facilities should not be required to monitor and report GHG emissions from onsite landfills because, as explained by the Proposal, landfills at the identified facility types, such as pulp and paper and food processing facilities, are responsible for a majority of the CH₄ emissions from onsite industrial landfills. The significant burden associated with monitoring CH₄ emissions from lesser emitting landfills at other types of facilities, such as EGUs, is not justified by those landfills' limited CH₄ emissions. Similarly, proposed § 98.350 would require reporting of GHG emissions from onsite wastewater treatment systems at certain industrial facilities. Proposed § 98.350 appears to limit this requirement to the facility types identified in the section. The section

states that "this source category applies to onsite wastewater treatment systems at pulp and paper mills, food processing plants, ethanol production facilities, and petroleum refining facilities." However, the Preamble states that "the only wastewater treatment process emissions to be reported in this rule are those from onsite wastewater treatment located at industrial facilities, such as at pulp and paper, food processing, ethanol production, petrochemical, and petroleum refining facilities." 74 Fed. Reg. at 16560 (emphasis added). This language implies that the listed facilities are just examples of industrial facilities that may be required to report GHG emissions from onsite wastewater treatment systems. The Class of '85 requests that the Agency clarify that only the facility types listed in § 98.350 would be required to report GHG emissions from onsite wastewater treatment facilities.

Response: For information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble and §98.460. With regard to the facility types covered by subpart II of the final rule, please see Section II.E of the preamble.

In the case of both industrial waste landfills and industrial wastewater treatment, facilities are required to aggregate emissions from these and all other applicable sources to determine if the facility meets the 25,000 mtCO₂e threshold per §98.2 and is therefore required to report under this final rule.

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 142

Comment: As stated in §98.340(a), the source category consists of MSW landfills and industrial landfills including but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities. EPA states in the preamble in Section V.HH.1 (74 FR 16557) that the majority of methane emissions from onsite industrial landfills occur at pulp and paper facilities and food processing facilities and provides data on the emissions from these sources. EPA does not provide emissions data for other industry sectors' onsite landfills to demonstrate the emissions are significant enough to warrant reporting. Also, Table HH-1 on page 16703 only provides default values to be used for calculating landfill emissions for food processing facilities and pulp and paper facilities, confirming for industrial sources only emissions from pulp and paper facilities landfills and food processing facilities landfills are significant enough to warrant reporting. Therefore, the source category should be revised to include only MSW landfills and industrial landfills at pulp and paper facilities and food processing facilities and reference to ethanol production facilities should be deleted from the parenthetical phrase at the end of §98.340(a).

Response: EPA has revised the provisions for which landfills are covered by subpart TT. For more information, please see Section II.F of the preamble and §98.460.

Commenter Name: Linda Farrington
Commenter Affiliation: Eli Lilly and Company (Lilly)
Document Control Number: EPA-HQ-OAR-2008-0508-0680.1
Comment Excerpt Number: 32

Comment: Lilly recommends that the EPA limit the definition of this source category to MSW landfills and industrial landfills located at food processing, pulp and paper, and ethanol production facilities only. The EPA acknowledges that the majority of methane emissions from industrial landfills occur within these three industrial sectors, but did not provide data showing significant landfill emissions from other industries. Therefore, we urge the EPA to revise the definition of this source category accordingly.

Response: EPA has revised the provisions for which landfills are covered by subpart TT. For more information, please see Section II.F of the preamble and §98.460.

Commenter Name: Lisa D. Schmidt
Commenter Affiliation: Dow Corning Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0562
Comment Excerpt Number: 10

Comment: We have significant concerns over the treatment of industrial landfills in the proposed rule. As written, the reporting requirements will apply to all industrial landfills, even if they are significantly different from those associated with Ethanol Production, Food Processing, Petroleum Refineries, and Pulp and Paper Manufacturing sectors, which have been specifically highlighted for reporting. Dow Corning operates industrial landfills for the storage of process waste from its silicone manufacturing operations. Due to the composition and inorganic makeup of the majority of our process waste, emissions of CH₄ (and GHGs overall) are negligible. In fact, studies conducted on capped phases at these industrial landfills suggest there is no settling occurring and GHGs are not being emitted in measurable quantities. Consequently, although our landfills emit no greenhouse gases, the rule as written would require us to expend significant resources measuring, recording and calculating, probably in excess of those required for our primary GHG sources. We would suggest that the rules for industrial landfills are either made specific to Ethanol Production, Food Processing, Petroleum Refineries, and Pulp and Paper Manufacturing sectors, or that there is a de-minimis threshold set for emissions from industrial landfills across all sector to avoid reporting applicability for insignificant sources of GHG emissions.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Sarah B. King
Commenter Affiliation: DuPont Company
Document Control Number: EPA-HQ-OAR-2008-0508-0604.1
Comment Excerpt Number: 54

Comment: §98.340(a) – This source category consists of MSW landfills and industrial landfills including but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities. EPA states in the preamble in Section V.HH.1 (page 16557) that the majority of methane emissions from onsite industrial landfills occur at pulp and paper facilities and food processing facilities and provides data on the emissions from these sources. EPA does not provide emissions data for other industry sectors’ onsite landfills to demonstrate the emissions are significant to warrant reporting. Moreover, Table HH-1 only provides default values that can be used for calculating landfill emissions for food processing facilities and pulp and paper facilities. This further confirms that for industrial sources only emissions from landfills at pulp and paper facilities wastes and food processing wastes are significant enough to warrant reporting. [Footnote: The factors listed under the heading “Waste model – bulk waste option” are not sufficiently diverse to support the wide range of materials that have been placed into industrial landfills. For example, a landfill containing waste polymer plastic would not be represented by a DOC of 0.2028, since polymer plastic cannot be biologically degraded.] Therefore, the source category should be revised to include only MSW landfills and industrial landfills at pulp and paper facilities and food processing facilities and reference to ethanol production facilities should be deleted from the parenthetical phrase at the end of §98.340(a).

Response: EPA has revised the provisions for which landfills are covered by subpart TT. For more information, please see Section II.F of the preamble.

Commenter Name: Karin Ritter
Commenter Affiliation: American Petroleum Institute (API)
Document Control Number: EPA-HQ-OAR-2008-0508-0679.1
Comment Excerpt Number: 211

Comment: §98.340(a). As stated in §98.340(a), the source category consists of MSW landfills and industrial landfills including but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities. EPA states in the preamble in Section V.HH.1 (page 16557) that the majority of CH₄ emissions from onsite industrial landfills occur at pulp and paper facilities and food processing facilities and provides data on the emissions from these sources. EPA does not provide emissions data for other industry sectors’ onsite landfills to demonstrate the emissions are significant to warrant reporting. Also, Table HH-1 on page 16703 only provides default values to be used for calculating landfill emissions for food processing facilities and pulp and paper facilities confirming for industrial sources only emissions from pulp and paper facilities landfills and food processing facilities landfills are significant enough to warrant reporting. Therefore, the source category should be revised to include only MSW landfills and industrial landfills at pulp and paper facilities and food processing facilities.

Response: EPA has revised the provisions for which landfills are covered by subpart TT. For more information, please see Section II.F of the preamble.

Commenter Name: Michael W. Stroben

Commenter Affiliation: Duke Energy Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0407.1

Comment Excerpt Number: 20

Comment: Electric generating facilities, in particular coal-fired facilities, often include landfills used to store or dispose of inert material that do not produce CH₄, such as coal combustion byproducts or construction material. The Subpart HH source category includes “industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities).” Although the term, “industrial landfill,” is not defined in the GHG reporting rule, Subpart A defines “landfill” broadly. Under proposed § 98.341, a facility must report under Subpart HH if it “contains a landfill process” and meets the requirements of either § 98.2(a)(1) or (2).” Proposed § 98.2(a)(1) applies to “municipal landfills” that generate CH₄ in amounts equivalent to 25,000 metric tons of CO₂e per year. Proposed § 98.2(a)(2) applies to “any facility” that emits 25,000 metric tons of CO₂e per year in combined emissions from combustion and other sources. Subpart HH also contains methodologies for calculating CH₄ generation from various types of landfills, including “industrial landfills.” Proposed § 98.343(a). Duke Energy is concerned that these broad applicability provisions and the existence of broadly applicable methodologies could require electric generating facilities subject to Subpart D to (1) calculate annual modeled CH₄ to determine applicability of Subpart HH or (2) conduct annual modeling under the Subpart HH methodologies, even when no CH₄ is produced at the landfill. These requirements would be very burdensome and would serve no purpose for landfills that do not generate CH₄. To avoid these results, Duke Energy requests that EPA clarify the definitions of “landfill” and “landfill process” and provide an exemption from Subpart HH and the Subpart HH methodologies for those landfills at electric generating facilities that (1) only receive coal combustion byproducts or other inert waste streams, (2) have been exempted from an otherwise applicable CH₄ monitoring requirement in an existing permit based on a finding that no CH₄ is generated, or (3) are shown with testing not to generate CH₄, whether or not they are subject to a permit.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Chris Hobson

Commenter Affiliation: Southern Company

Document Control Number: EPA-HQ-OAR-2008-0508-1645.2

Comment Excerpt Number: 29

Comment: Subpart HH, §§ 98.340 thru 98.358, includes “industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities)”.

Most of Southern Company's 77 power plants have, or have had, inorganic, construction and industrial landfills and disposal and holding areas. Some of the company's coal-fired plants have landfills which are classified as "industrial landfills" in their permits. Because the term "industrial landfill" is not defined in the GHG reporting rule, there does not appear to be any way to exempt these landfills from the reporting requirements under Subpart HH. However, previous testing at these landfills has shown that no methane is emitted and the state permit does not require that the landfills be monitored for CH₄, because these landfills do not contain organic wastes, such as food scraps and paper wastes. Thus, the reporting requirements, including calculations and recordkeeping, would be very burdensome for landfills that are known not to emit methane. Southern Company suggests that EPA clarify the definition of "industrial landfill" and add exemption from reporting requirements for those industrial landfills with inert waste streams, specifically, those that have state permits that do not require monitoring of CH₄.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34. In addition, EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Jeff A. Myrom
Commenter Affiliation: MidAmerican Energy Holdings Company
Document Control Number: EPA-HQ-OAR-2008-0508-0581.1
Comment Excerpt Number: 10

Comment: The methodology for subpart HH regarding landfills should clearly exempt coal combustion residue monofills and inorganic waste industrial landfills (e.g. geothermal filter cake waste landfills, waste rock landfills at coal mines), from reporting since the waste has zero or negligible CH₄ generation potential.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Pamela F. Faggert
Commenter Affiliation: Dominion
Document Control Number: EPA-HQ-OAR-2008-0508-1741
Comment Excerpt Number: 10

Comment: Once it has been determined that a facility triggers reporting requirements, there is a broad requirement for a facility to report emissions from all activities at the facility for which a reporting methodology has been proposed under this rulemaking even if emissions from such an activity are insignificant or if the proposed measurement and/or emission estimate methods are not readily applicable to a particular facility-related activity. For example, the requirement to monitor, measure and report methane emissions (using the methodology specified in Subpart

HH) from conventional large, municipal or commercial landfills triggers a similar requirement for coal-fired electric generating facilities to report methane emissions from onsite landfills. This requirement is not reasonable since coal ash and oil ash do not produce much methane and any GHG emissions from an onsite landfill will be a very small, insignificant contribution to the facility's overall GHG footprint. This would also apply to wastewater treatment typically found at electric generating power stations. For this reason, EPA should provide confirmation in the rule that ash landfills and wastewater treatment activities at power stations are not subject to reporting, or should provide exemptions based on size.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble. For more information in facility types covered by subpart II – Industrial Wastewater Treatment, please see Section II.E of the preamble.

Commenter Affiliation: Hunton & Williams LLP

Document Control Number: EPA-HQ-OAR-2008-0508-0493.1

Comment Excerpt Number: 23

Comment: A number of electric generating facilities, in particular coal-fired facilities, include landfills. The landfills often are used to store or dispose of inert material that do not produce CH₄, such as coal combustion byproducts or construction material. For this reason, in some cases, these landfills already have been exempted by state permit from CH₄ monitoring requirements. The Subpart HH source category includes “industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities).” Proposed § 98.340(a) (emphasis added). Although the term, “industrial landfill,” is not specifically defined in the proposed GHG reporting rule, Subpart A defines “landfill” broadly. Proposed § 98.6. Under proposed § 98.341, a facility must report under Subpart HH if it “contains a landfill process” and meets the requirements of either § 98.2(a)(1) or (2). Proposed § 98.2(a)(1) applies to “municipal landfills” that generate CH₄ in amounts equivalent to 25,000 metric tons of CO₂e per year. Proposed § 98.2(a)(2) applies to “any facility” that emits 25,000 metric tons of CO₂e per year in combined emissions from combustion and other sources. Subpart HH also contains methodologies for calculating CH₄ generation from various types of landfills, including “industrial landfills.” Proposed § 98.343(a). UARG is concerned that these broad applicability provisions and the existence of broadly applicable methodologies could require electric generating facilities with landfills to either (1) comply with Subpart HH or (2) conduct annual modeling of the landfill under the Subpart HH methodologies as a result of applicability of Subpart D, even when no CH₄ is produced at the landfill. These requirements would be very burdensome and would serve no purpose for landfills that do not generate CH₄. To avoid these results, UARG requests that EPA clarify the terms “industrial landfill,” “industrial waste landfill,” “municipal landfill,” and “landfill process,” and provide an exemption from Subpart HH and the Subpart HH methodologies for those landfills at electricity generating facilities that (1) only receive coal combustion byproducts or other inert waste streams, (2) have been exempted from an otherwise applicable CH₄ monitoring requirement in an a permit based on a

finding that no CH₄ is generated, or (3) are shown with testing not to generate CH₄, whether or not they are subject to a permit.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34. In addition, EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Paul R. Pike

Commenter Affiliation: Ameren Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0487.1

Comment Excerpt Number: 19

Comment: Ameren operates or is building a number of landfills that are used to store or dispose of inert material that do not produce CH₄, such as coal combustion byproducts or construction material. For this reason, in some cases, these landfills already have been exempted by state permit from CH₄ monitoring requirements. The Subpart HH source category includes "industrial landfills (including, but not limited to landfills located at food processing, pulp and paper, and ethanol production facilities)." Although the term, "industrial landfill," is not defined in the GHG reporting rule, Subpart A defines "landfill" broadly. Under proposed § 98.341, a facility must report under Subpart HH if it "contains a landfill process" and meets the requirements of either § 98.2(a)(1) or (2)." Proposed § 98.2(x)(1) applies to "municipal landfills" that generate CH₄ in amounts equivalent to 25,000 metric tons of CO₂e per year. Proposed § 98.2(a)(2) applies to "any facility" that emits 25,000 metric tons of CO₂e per year in combined emissions from combustion and other sources. Subpart HH also contains methodologies for calculating CH₄ generation from various types of landfills, including "industrial landfills." Proposed § 98.343(a). Ameren believes that these broad applicability provisions and the existence of broadly applicable methodologies could require our electric generating facilities subject to Subpart D to (1) calculate annual modeled CH₄ to determine applicability of Subpart HH or (2) conduct annual modeling under the Subpart HH methodologies, even when no CH₄ is produced at the landfill. These requirements would be very burdensome and would serve no purpose for landfills that do not generate CH₄. Ameren requests that EPA clarify the definitions of "landfill" and "landfill process" and provide an exemption from Subpart HI-I and the Subpart HH methodologies for those landfills at electric generating facilities that (1) only receive coal combustion byproducts or other inert waste streams, (2) have been exempted from an otherwise applicable CH₄ monitoring requirement in an existing permit based on a finding that no CH₄ is generated, or (3) are shown with testing not to generate CH₄, whether or not they are subject to a permit.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34. In addition, EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Robert Rouse
Commenter Affiliation: The Dow Chemical Company
Document Control Number: EPA-HQ-OAR-2008-0508-0533.1
Comment Excerpt Number: 38

Comment: In the preamble, EPA provides data on emissions from municipal solid waste (MSW) landfills and industrial landfills at pulp and paper facilities and food processing facilities. EPA estimates that emissions from MSW landfills are approximately 16 times that from industrial landfills at pulp and paper facilities and food processing facilities. Without any additional explanation, ethanol production facilities were later included (page 16558) in the grouping with pulp and paper facilities and food processing facilities. There is no discussion of potential emissions from other industrial landfills in the preamble. Section 98.340(a) provides a definition of this source category and indicates, “This source category includes industrial landfills (including, but not limited to landfills at food processing, pulp and paper and ethanol production facilities).” It seems that all industrial landfills have been included in this definition with out any justification given in the preamble. This could require that a facility producing plastics and disposing of only plastics in its landfill to meet all of the requirements listed in subpart HH. Since these plastics do not significantly degrade there would be little, if any emissions from the landfill. Although below the 25,000 MT CO₂e threshold for landfills, this facility would still have to comply with subpart HH if it had a process heater meeting the requirements of Subpart C. Table HH-1 also only provides industrial waste landfill factors for food processing and pulp and paper. Therefore, Dow recommends that 98.340(a) be revised to only include MSW landfills and industrial landfills associated with food processing and pulp and paper facilities. Suggested wording is below: 98.340(a) - ...This source category also includes industrial landfills (including, but not limited to landfills at food processing, pulp and paper and ethanol production facilities). Section 98.340(b) indicates hazardous waste landfills and construction and demolition landfills are not subject to this rule. Dow supports this decision by EPA as these types of landfills do not have appreciable GHG emissions. Dow suggests that EPA also include in this list landfills used for the disposal of soils. Some facilities dispose of on-site soils from construction and other site activities in an on-site non-hazardous landfill. There are little if any emissions from these units, and they should not be subject to GHG reporting.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Charles T. Drevna
Commenter Affiliation: National Petrochemical and Refiners Association (NPRA)
Document Control Number: EPA-HQ-OAR-2008-0508-0433.2
Comment Excerpt Number: 28

Comment: The source category definition does not clearly exclude solid waste management units (SWMUs) and non-hazardous landfills located at refineries (refer to Section 98.340(a) and (b)). To avoid needless documentation and work on typically very small sources of GHGs, we

believe that SWMUs and non-hazardous landfills located at refineries should be excluded under Section 98.340(b).

Response: In general, we expect that wastes generated at petroleum refineries will contain organic material that will generate methane when disposed of in a landfill. Therefore, we do not provide a blanket exemption for landfills at petroleum refineries. For more information in industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble and §98.460.

Commenter Name: Karin Ritter

Commenter Affiliation: American Petroleum Institute (API)

Document Control Number: EPA-HQ-OAR-2008-0508-0679.1

Comment Excerpt Number: 210

Comment: §98.340. EPA's language defining landfills is very general and could potentially pull in sources at the refineries – inactive, non-public areas where spent materials were buried. API will attempt to offer an amended definition. GHG emissions from these operations are extremely small, and do not justify the monitoring, reporting, and QA burden.

Response: For more information on the definition of industrial waste landfills, please see the response to comment EPA-HQ-OAR-2008-0508-0423.2, excerpt number 34. For information on the industrial waste landfills covered by TT of the final rule, please see Section II.F of the preamble.

Commenter Name: Renae Schmidt

Commenter Affiliation: CITGO Petroleum Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0726.1

Comment Excerpt Number: 19

Comment: CITGO does agree that the following process categories should be considered for reporting: 1. Combustion Sources, 2. Cat Cracker Coking Burning, 3. Hydrogen Plants, 4. Sulfur Plants. CITGO strongly believes that the following sources should be excluded from ongoing recalculation, monitoring and reporting: 1. Catalytic reforming units, 2. Asphalt blowing, 3. Fugitive emissions, 4. Storage tanks, 5. Loading operations, 6. Delayed coking operations, 7. Process vents below an established threshold (at least 1% contributor to overall site GHG emissions), 8. Landfills, 9. Wastewater treatment, 10. Flares.

Response: With regard to coverage of petroleum refineries under the final rule, please see the response to comment document for Subpart Y – Petroleum Refineries. For more information on the industrial waste landfills covered by subpart TT, please see Section II.F of the preamble. With regard to the facility types covered by subpart II- Industrial Wastewater Treatment, please see Section II.E of the preamble.

Commenter Name: Craig Holt Segall
Commenter Affiliation: Sierra Club
Document Control Number: EPA-HQ-OAR-2008-0508-0635
Comment Excerpt Number: 99

Comment: EPA’s proposal requires reporting from open and closed municipal solid waste landfills and industrial landfills, such as food processing, pulp and paper, and ethanol production facilities, meeting or exceeding the applicable thresholds. The rule excludes hazardous waste and construction and demolition landfills “as they are not considered significant sources of GHG emissions.” We are concerned that EPA may be **overlooking an important source of methane emissions by excluding construction and demolition** landfills as it seems possible that these landfills receive organic materials such as wood or yard waste that could degrade in an anaerobic environment. Accordingly, we request EPA provide information on the waste composition of construction and demolition landfills to explain more fully the basis for its decision to categorically exempt these sources from GHG reporting requirements.

Response: Dedicated construction and demolition debris landfills are expected to generate limited quantities of methane. Although construction and demolition debris wastes likely contain some wood, most of the waste is inert materials. We note that yard waste is specifically included in the definition of “municipal solid waste” so that a landfill that accepts both yard wastes and construction and demolition debris would be subject to the MSW landfill (Subpart HH) reporting requirements provided it exceeds the 25,000 tCO₂e reporting threshold. The final rule only excludes dedicated construction and demolition debris landfills. These landfills are not expected to exceed the 25,000 tCO₂e facility reporting threshold, but could incur significant costs characterizing the waste composition (i.e., wood content) of the waste in the landfill. Due to the limited emissions from dedicated construction and demolition debris landfills and considering the burden associated with a potential reporting requirement for these landfills, we maintain the proposed exemption for dedicated construction and demolition debris landfills.

Commenter Name: Sean M, O’Keefe
Commenter Affiliation: Hawaiian Commercial and Sugar Company (HC&S)
Document Control Number: EPA-HQ-OAR-2008-0508-1138.1
Comment Excerpt Number: 13

Comment: As a food processing facility, the HC&S Puunene Sugar Mill would be required under the proposed rule to report GHG emissions from on-site stationary combustion, on-site landfills, and on-site wastewater treatment. Subpart HH of the proposed rule describes requirements applicable to the landfill source category, which includes “industrial landfills (including, but not limited to, landfills located at food processing, pulp and paper, and ethanol production facilities)”. Because the proposed rule does not define the term “industrial landfill”, it implies that any landfill located at a food processing plant is an “industrial landfill” that is subject to Subpart HH requirements. The proposed rule should include in Section HH a definition of industrial waste landfill and should exclude from the landfill source category any on-site landfill, including at food processing, pulp and paper, and ethanol production facilities, that does not receive industrial waste or municipal solid waste likely to generate methane

emissions through the decomposition of organic matter. Landfills exclusively used to dispose of inert materials such as bricks, concrete, rocks, cured asphalt, and ash, and landfills used to dispose of soil, rocks, and similar materials, should be specifically excluded from the source category because they will not generate significant emissions of methane. Rather than receiving food and other industrial wastes, sugar mill landfills are used exclusively for the disposal of mud, rocks, soil and other extraneous field materials that are carried into the mill with the harvested sugarcane crop. When sugarcane is harvested, the cane is pushed into windrows using large “rakes” (specially modified bulldozers) and is then transferred into trucks using cranes equipped with grabs. As a result, significant quantities of soil and rocks become intermingled with the tangled cane stalks and are hauled to the sugar mill with the cane. Once at the mill, the cane is washed prior to milling to remove adhered soil and other extraneous material; these materials are separated from the cane in the cane cleaner and are typically hauled to a “mud dump” located in close proximity to the mill for disposal (in some cases these materials may be hauled back to the fields). These disposal sites are classified by the Hawaii Department of Health as “agricultural waste landfills” and are prohibited from accepting industrial or municipal solid waste of any kind. The vast majority of the material disposed in these agricultural waste landfills is soil and rocks from the field; although some crop residue (e.g., cane leaves and stalks) may also be present, it comprises a very small percentage of the waste disposed. Due to the very limited amount of organic matter disposed of in sugar mill landfills, emissions of significant amounts of methane from these landfills is unlikely. Agricultural waste landfills associated with sugar mills should therefore be excluded from the landfill source category under the proposed Subpart HH.

Response: While we did clarify the applicability of the final rule to industrial waste landfills, there will be instances where landfills with limited organic content will still have to report. In this specific example, the sugar cane field material landfills may qualify for the soil exclusion as “rocks and/or soil from excavation and construction and similar activities.” However, if the “other extraneous field materials” include sugar cane leaves and other organic material produced specifically as a result of the industrial activity, this material would not be solely rocks and/or soil from excavation-like activities and would not be exempt under this specific exclusion. Depending on the composition and amount of “other extraneous field materials” in the waste stream, it may be possible to demonstrate that the waste steam is below the 0.5 wt% volatile solids threshold provided in the final rule. However, as agricultural soils often have high organic content due to the use of compost material, it is likely that this landfill will have to report under the final rule provided the landfill design capacity exceeds 300,000 Mg.

Commenter Name: Myron Hafele

Commenter Affiliation: Kohler Co.

Document Control Number: EPA-HQ-OAR-2008-0508-0761.1

Comment Excerpt Number: 8

Comment: Kohler Co. requests that the landfill source category definition be modified to exclude industrial landfills that do not accept organic wastes which may decompose and generate GHG emissions. Our specific concern relates to landfills that are part of facilities that must report due to fuel combustion, but accept only waste materials from operations such as vitreous

manufacturing (i.e. pottery cull, gypsum, clays) and foundries (i.e. green sand, resin sand, refractory, slag). These waste materials are similar to construction and demolition waste in that they will not decompose to generate GHG. It is our position that these type landfills should be excluded from the source category, rather than having the facility go through the reporting effort only to enter zero emissions.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Juanita M. Bursley

Commenter Affiliation: GrafTech International Holdings Inc. Company (GrafTech)

Document Control Number: EPA-HQ-OAR-2008-0508-0686.1

Comment Excerpt Number: 28

Comment: GrafTech agrees with EPA that both hazardous waste landfills and construction and demolition landfills should not be included in the landfills source category. However, GrafTech also believes that EPA should do further research to provide some additional criteria to better define industrial landfills by source categories that generate significant quantities of GHGs, for the purpose of reducing the burden on the regulated community.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Chris Greissing

Commenter Affiliation: Industrial Minerals Association - North America (IMA-NA)

Document Control Number: EPA-HQ-OAR-2008-0508-0705.1

Comment Excerpt Number: 23

Comment: The source category for Landfills should not include landfills at inorganic chemical manufacturing facilities and mine sites where landfilled material contains only trivial amounts of organic matter. Making the change suggested above in the source category definition would make Subpart HH consistent with Subpart II Wastewater Treatment which addresses only pulp and paper mills, food processing plants, ethanol production plants, petrochemical facilities, and petroleum refining facilities. IMA-NA would like to request that §98.340 (b) be modified as follows: “This source category does not include hazardous waste landfills, inorganic chemical manufacturing facilities, mine sites, and construction and demolition landfills.”

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Karin Ritter
Commenter Affiliation: American Petroleum Institute (API)
Document Control Number: EPA-HQ-OAR-2008-0508-0679.1
Comment Excerpt Number: 209

Comment: EPA requests comment “on the exclusion of land application units.” (p. 16558) API comments: API supports the exclusion of land application units from the reporting rule subpart HH. In addition, API requests exclusion of inactive industrial landfills that were never open to the public, such as exist at some refineries. Greenhouse gas emissions from these operations are extremely small, and do not justify the monitoring, reporting, and QA burden.

Response: Land application units are not subject to this rule (see definition of landfill in §98.6). For more information on the industrial waste landfills covered by subpart TT of the final rule, please see Section II.F of the preamble.

Commenter Name: Jeff A. Myrom
Commenter Affiliation: MidAmerican Energy Holdings Company
Document Control Number: EPA-HQ-OAR-2008-0508-0581.1
Comment Excerpt Number: 44

Comment: MidAmerican agrees that land application units should be excluded from the rule. Furthermore, other types of landfills beyond hazardous waste landfills and construction and demolition debris landfills should be excluded. For example, coal combustion residue monofills produce no CH₄, since they have no putrescible material, and should be excluded. Other types of industrial monofills also have no or negligible CH₄ emissions, such as geothermal filter cake landfills and waste rock landfills at coal mines. Thus, EPA's proposed definition of a landfill should exclude any landfill that does not accept putrescible material for disposal.

Response: Land application units are not subject to this rule (see definition of landfill in §98.6). EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble.

Commenter Name: Matthew Frank
Commenter Affiliation: Wisconsin Department of Natural Resources
Document Control Number: EPA-HQ-OAR-2008-0508-1062.1
Comment Excerpt Number: 22

Comment: An industrial landfill may be located on the same property as an industrial wastewater treatment plant that serves the facility that generates the wastewater, but is not in the contiguous geographical space as the facility itself. The rule should be clear about having to calculate and report methane generation by the industrial landfill in this scenario.

Response: Industrial waste landfills that receive waste from an offsite facility are subject to the rule provided they have facility-wide emissions of listed GHG emission sources of 25,000 t CO₂e or more.

Commenter Name: Matthew Frank

Commenter Affiliation: Wisconsin Department of Natural Resources

Document Control Number: EPA-HQ-OAR-2008-0508-1062.1

Comment Excerpt Number: 21

Comment: The Department recommends that industrial landfills be subject to the reporting rule whether or not they occupy the same property as the facility generating the landfilled waste.

Response: Please see response to comment EPA-HQ-OAR-2008-0508-1062.1, excerpt number 22.

2. REPORTING THRESHOLD

Commenter Name: Jeffrey L. Clark

Commenter Affiliation: Environmental Coordinator, Teck Alaska Incorporated

Document Control Number: EPA-HQ-OAR-2008-0508-0142

Comment Excerpt Number: 3

Comment: I am opposed to the concept of “all in” proposed in these rules. If a facility emits more than 25,000 tpy in any of the categories they should report on only the category that meets the threshold. They should be exempt from all of the other minor sources just as any other facility would be that did not break the 25,000 tpy threshold. As one can see in Table VIII-2. Threshold Cost-Effectiveness Analysis, the cost of reporting the major source would be \$0.03/metric ton whereas the cost of reporting the additional minor sources would be \$0.11/metric ton, over three times as much. Why should any facility be required to make complicated calculation on sources that are otherwise normally estimated? At a minimum, the EPA should consider De minimis quantities for facilities that meet the major source reporting threshold for their minor GHG sources. Use the old 80/20 rule. The landfill rules in particular could be burdensome to facilities that meet the reporting threshold in a category other than landfills but operate a small landfill on their facility. Calculations of the GHG emissions from the landfill could be more cumbersome than the calculations from the primary qualifying source.

Response: For information of industrial waste landfills covered by subpart TT including provisions that exclude landfills with a design capacity of 300,000 Mg or less, please see Section II.F of the preamble. With regard to de minimus reporting, please see the preamble signed on September 22, 2009 (74 FR 56260).

Commenter Name: Traylor Champion
Commenter Affiliation: Georgia-Pacific, LLC (GP)
Document Control Number: EPA-HQ-OAR-2008-0508-0380.1
Comment Excerpt Number: 3

Comment: GP believes a de minimis exclusion based on a percentage of emissions should be included in the rule. [FR 16473 (Preamble)] EPA has chosen not to include a de minimis exemption level that would allow for exclusion of emissions under a certain percentage of total emissions to reduce the overall reporting burden to facilities. EPA states its program addresses the potential burden of reporting emission for smaller sources by first establishing reporting thresholds under which no reporting is required and second by requiring emissions to be reported only for those sources where calculation methods are provided in the rule. While GP agrees with EPA that reporting of emissions should only be required for those sources with specified methods in the rule with accepted precision and accuracy, there is still a burden to reporters for various trivial emission sources. For the pulp and paper industry, these trivial sources could include landfills, wastewater treatment plants, emissions from infrequent or insignificant uses of certain fuels (including used oil in relation to other fossil fuels), emissions from makeup chemical usage, as well as the small contributions of CH₄ and N₂O emissions from the combustion of biomass fuels. Collectively, emissions from these activities (and probably others) likely represent less than 5% of emissions from a pulp and paper mill but disproportionately increase the monitoring, reporting, and recordkeeping burden to the mills. As such, GP requests inclusion of a de minimis level of 5% of facility emissions. A facility would specify the emissions and sources that are deemed de minimis in the first year of reporting by providing the calculations for that year and continue to report those sources as de minimis in future years without the need to provide calculations unless a change in operations alters the de minimis exemption for any particular source.

Response: Based on the available information, pulp and paper landfills significantly contribute to the nationwide quantity of methane generated from industrial waste landfills. As such, we find that it is important to include reporting requirements for these landfills even if they are co-located at facilities that have other significant GHG emission sources. We have limited the applicability of the industrial waste landfill reporting requirements to landfills with a design capacity greater than or equal to 300,000 Mg so that very small landfills co-located at industrial landfills that have other significant GHG emission sources would not be required to report. For more information regarding the additional applicability provisions included in the final rule, please see Section II.F of the preamble and §98.460. With regard to de minimus reporting, please see Section II.K of the preamble signed on September 22, 2009 (specifically, see 74 FR 56278).

Commenter Name: Rhea Hale
Commenter Affiliation: American Forest & Paper Association (AF&PA)
Document Control Number: EPA-HQ-OAR-2008-0508-0909.1
Comment Excerpt Number: 28

Comment: In addition to EPA's identification of specific sources for reporting, there should be an aggregate de minimis exclusion of 5% for a facility. If any of the EPA named sources that are required to report within a facility fall below the de minimis level, the entity/facility should not be required to report those emissions. In aggregate, combined emissions from such sources can not exceed the de minimis level. Examples of such sources for the pulp and paper industry would likely be landfills and wastewater treatment systems. As NCASI analysis indicates, these combined emissions represent less than 3% of the industry's fossil fuel based emissions. The administrative burden of reporting emissions below such a threshold is not warranted.

Response: For information of industrial waste landfills covered by subpart TT including provisions that exclude landfills with a design capacity of 300,000 Mg or less, please see Section II.F of the preamble. With regard to de minimus reporting, please see Section II.K of the preamble signed on September 22, 2009 (74 FR 56260).

Commenter Name: Renae Schmidt

Commenter Affiliation: CITGO Petroleum Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0726.1

Comment Excerpt Number: 1

Comment: CITGO supports reasonable GHG reporting consistent with the statutory limitations granting EPA the authority to undertake this inventory. However, CITGO believes that reasonable monitoring, calculation, and reporting "cutoffs" should be applied to emission sources at a facility level. Without rational "cutoffs", grossly disproportionate and unnecessary burdens (monitoring, calculations, record keeping, and reporting) will ensue with no benefits. For example, as the rule is currently drafted as applied to petroleum refining operations, 70 percent or more of the overall program burden will be expended for much less than 1% of the total GHG emissions to be reported. Consistent with the authority and its principles the GHG reporting rule should focus on significant GHG sources and emissions only. CITGO also believes that the level of monitoring, quality control, record keeping, and reporting should be reflective of the amount of GHG contribution from a facility or source.

Response: We have significantly revised the applicability requirements for industrial waste landfills to focus on those that have significant potential for generating and emitting methane. We see no reason to further refine the applicability based on the magnitude of other GHG emission sources that may be co-located at the facility as compared with that of the industrial waste landfill. Please see also Section II.F of the preamble for additional information regarding the applicability requirements in the final rule.

Commenter Name: Renae Schmidt

Commenter Affiliation: CITGO Petroleum Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0726.1

Comment Excerpt Number: 26

Comment: It is CITGO's position that the reporting de minimis should be applied for any landfill within a refinery.

Response: With regard to de minimis reporting, please see Section II.K of the preamble signed on September 22, 2009 (74 FR 56260).

Commenter Name: Traylor Champion

Commenter Affiliation: Georgia-Pacific, LLC (GP)

Document Control Number: EPA-HQ-OAR-2008-0508-0380.1

Comment Excerpt Number: 34

Comment: GP's pulp and paper mill landfills contribute less than 1% of mill greenhouse gas emissions, which is typical of the industry. EPA should eliminate the requirement for pulp and paper mill industrial landfills to report emissions because their contribution is minimal.

Response: With regard to the comparative magnitude of emissions for various sources at a facility, please see response to comment EPA-HQ-OAR-2008-0508-0726.1, excerpt number 1.

Commenter Name: Mark Dopp

Commenter Affiliation: American Meat Institute (AMI)

Document Control Number: EPA-HQ-OAR-2008-0508-0440.1

Comment Excerpt Number: 7

Comment: Within the meat-processing source category, EPA identified emissions from stationary combustion units, onsite landfills, and onsite wastewater treatment systems as the key emission sources these facilities should consider when determining if reporting thresholds are exceeded (74 Fed. Reg. 16631). Stationary fuel combustion sources are common to the meat industry, primarily boilers for heating water for scalding and other carcass preparation, USDA-required carcass, equipment and facility cleaning and decontamination, steam production, and process heaters for further processing of retail meat products and byproduct rendering. However, onsite landfills at meat processing facilities are rare.

Response: If the meat processing facility does not have an on-site landfill, the provisions of subpart TT are not relevant to the facility. In the event that the wastes generated by the meat processing facility are disposed of in an off-site (commercial) industrial waste landfill, the off-site industrial waste landfill would be required to report under this final rule provided the industrial waste landfill facility (including other sources at the off-site facility) exceeds the 25,000 tCO₂e reporting threshold and meets the other applicability requirements in §98.460. The contribution of the landfill's emissions to the facility reporting threshold must be calculated based on its methane generation adjusted for soil oxidation (as proposed). If the only listed GHG emissions source at the offsite facility is the industrial waste landfill, the 25,000 tCO₂e reporting threshold is expected to be the primary applicability trigger for the off-site facility.

Commenter Name: Robert Garfield
Commenter Affiliation: American Frozen Food Institute (AFFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0402.1
Comment Excerpt Number: 1

Comment: AFFI respectfully recommends that for those GHG source categories contributing less than 0.5% to nationwide GHG emissions, EPA require reporting only from facilities in the source category that would otherwise qualify as a major source under Title V of the Clean Air Act. The bases for our recommendation are set forth in more detail below. The GHG Reporting Rule identifies food processing as a source category that emits GHGs from landfill operations, wastewater treatment systems, and stationary fuel combustion and for which EPA has set a facility-wide GHG reporting threshold of 25,000 MT CO₂e /yr. EPA has estimated total GHG emissions from this source category (excluding stationary fuel combustion) of some 10.9 MMT CO₂ which equals 0.152% of total 2007 nationwide CO₂e emissions. Including a proportionate share of stationary fuel combustion GHG emissions [footnote: That is, 0.152% of total estimated stationary fuel combustion emissions of 410 MMT CO₂e, see 74 Fed. Reg. at 16,482, or 0.63 MMT CO₂e.] in the food processing source category yields total estimated emissions of 11.53 MMT CO₂e, or 0.161% of total 2007 CO₂e emissions—an undeniably insignificant contribution to overall emissions.

Response: As explained in the response to comment EPA-HQ-OAR-2008-0508-0490.1 excerpt 8 in volume 1 of Response to Comment in the October 2009 Final Rule, EPA is not excluding source categories from reporting based on the specific percent of nationwide GHG emissions contributed by the source category as a whole.

Commenter Name: Andrew C. Lawrence
Commenter Affiliation: Department of Energy (DOE)
Document Control Number: EPA-HQ-OAR-2008-0508-0612.1
Comment Excerpt Number: 11

Comment: Additionally, in 98.2(a)(1), municipal landfills only need to report if onsite CH₄ emissions are greater than 25,000 metric tons of CO₂e; however, in 98.2(a)(2), there is no threshold provided for industrial landfills. As discussed previously, GHG emissions from an industrial landfill may be insignificant compared to the GHG emissions from stationary fuel combustion, but there is no applicability threshold for determining whether these insignificant CO₂e emissions must be reported.

Response: There is a 25,000 metric tons of CO₂e facility threshold for facilities with industrial waste landfills. We do expect, however, that the facility-wide threshold may be exceeded by sources other than the industrial waste landfill. Therefore, we revised the applicability requirements for industrial waste landfills to focus on those landfills that have the most significant potential for generating and emitting methane. For additional information, please see Section II.F of the preamble, §98.460, and the response to comment EPA-HQ-OAR-2008-0508-0726.1, excerpt number 1.

Commenter Name: Vince Brisini
Commenter Affiliation: RRI Energy Inc. (RRI)
Document Control Number: EPA-HQ-OAR-2008-0508-0618.1
Comment Excerpt Number: 5

Comment: In § 98.340, U.S. EPA proposes to require the reporting of GHG emissions from industrial landfills that meet or exceed certain thresholds. In this section U.S. EPA also states that food processing facilities, pulp and paper facilities, and ethanol production facilities are examples of the types of facilities that could have industrial landfills subject to reporting requirements, and is consistent in noting onsite industrial landfills as GHG emission sources in the applicable subparts for these industries. It is appropriate that landfills from these sources are included in U.S. EPA's mandatory reporting requirements because--as noted in the proposed rule—these industries are responsible for the majority of methane emissions from onsite industrial landfills. However, although U.S. EPA consistently identified the aforementioned industries as having GHG emission sources from onsite landfills, it did not specify that other industrial sectors were excluded from assessing emissions from onsite landfills. U.S. EPA should not require industrial facilities other than those in the food processing, pulp and paper and ethanol production industries to monitor and report GHG emissions from onsite landfills. It is important to make this distinction, because the significant burden associated with monitoring methane emissions from lesser emitting landfills at other types of facilities, such as EGUs, is not justified by the insignificant methane emissions from those landfills. With respect to GHG emissions from industrial wastewater treatment, U.S. EPA indicates in the preamble to the rule that the pulp and paper, food processing, ethanol production, and petroleum refining industries are examples of the types of industries that may have GHG emissions from onsite wastewater treatment systems. However, the language in the preamble is reasonably unclear in indicating which, if any, additional industries are included or excluded under this requirement. Again, as the industries noted in the preamble represent the largest emitters of GHGs from wastewater treatment, U.S. EPA should clarify that this list of sources is not merely an example, but is instead a complete listing of the industries required to report GHG emissions from onsite wastewater treatment systems.

Response: EPA has revised the provisions for which industrial waste landfills are covered by subpart TT, for more information, please see Section II.F of the preamble.

Commenter Name: Marcelle Shoop
Commenter Affiliation: Rio Tinto Services, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0636.1
Comment Excerpt Number: 11

Comment: EPA recognizes in the preamble that "[t]he majority of the CH₄ emissions from on-site industrial landfills occur at pulp and paper facilities and food processing facilities." (74 Fed. Reg. at 16557). We believe there are many industrial landfills that do not receive significant quantities of organic content and therefore would not emit substantial levels of GHG emissions. For example, the estimated emissions from each of the two small landfills discussed above

would be only approximately 4450 metric tons CO₂e per year. We therefore encourage EPA to specify a 25,000 metric tons CO₂e per year threshold for industrial landfills in subsection 98.2(a)(2)(xv), (the same as for municipal solid waste landfills in subsection 98.2(a)(1)(xix) and in subpart HH. EPA should make clear that industrial landfills with emissions below the threshold are not subject to reporting requirements under subpart HH or pursuant to 98.2(a)(1) or (2).⁴

Response: EPA has revised the provisions for which industrial waste landfills are covered by subpart TT, for more information, please see Section II.F of the preamble and §98.460.

Commenter Name: Juanita M. Bursley

Commenter Affiliation: GrafTech International Holdings Inc. Company (GrafTech)

Document Control Number: EPA-HQ-OAR-2008-0508-0686.1

Comment Excerpt Number: 29

Comment: GrafTech is very concerned that, as proposed, this rule will be nearly as burdensome on facilities that do not have to report, as on those that must report in that virtually every industrial facility will be required to collect data and perform relatively complex calculations, and very burdensome modeling if it has an industrial landfill, in strict accordance with the prescribed emissions estimating procedures, just to determine if it is subject to this rule. In many cases, the owner or operator will just be documenting that the estimated GHG emissions from the facility do not exceed the reporting threshold. Collection of historical disposal data on all past wastes at all industrial landfills will be particularly difficult in many cases and will likely be inherently imprecise because of missing records due to the fact that landfill operators or owners were not required by permits or past regulations to maintain such detailed waste records. Furthermore, the modeling process to estimate methane emissions is particularly onerous, even with accurate input data, and will have to be contracted in most cases to professional environmental consulting firms rather than calculated by in-house resources using relatively simple formulas. Therefore, GrafTech has recommended that EPA provide simpler source category thresholds to determine applicability, like the one provided for stationary fuel combustion units, to reduce the burden on the majority of facilities making applicability determinations. For facilities that have fuel combustion units and operate an on-site industrial landfill (but, that either fall under no other GHG source categories or have negligible GHG emissions from those operations), the conservative 30 mmBtu/hr. aggregate maximum rated heat input capacity threshold cannot be used to determine if the facility is subject to the reporting requirements.

Response: EPA has significantly revised the applicability of the industrial waste landfill reporting requirements to focus the rule on those industrial waste landfills that contribute most significantly to the nationwide emissions from industrial waste landfills (see Section II.F of the preamble). Additionally, the final rule provides industrial waste landfills that are subject to the rule several specific and simple approaches for developing the historical values for waste quantities and DOC values as requested by the commenter. We acknowledge the difficulties associated with obtaining historical data for landfills that have been closed for many years. We considered their contribution to the total nationwide emissions from industrial waste landfills and

the unlikelihood that any GHG policy analysis would include these older, closed landfills. Based on our review and consideration of these factors, we have limited the applicability of the rule to industrial waste landfills that received waste on or after January 1, 1980.

Commenter Name: Donald R. Schregardus

Commenter Affiliation: Department of the Navy, Department of Defense (DoD)

Document Control Number: EPA-HQ-OAR-2008-0508-0381.1

Comment Excerpt Number: 1

Comment: Subpart HH for landfills does not clearly specify the reporting thresholds that are described in the preamble and Technical Support Documents. The preamble and Technical Support Document for this source category state that the threshold for reporting emissions from municipal solid waste landfills is a generation threshold of 25,000 metric tons CO₂ equivalent (CO₂e) in an effort to capture a significant fraction of the emissions produced by sources in this category without an undue reporting burden on small sources. However, Subpart HH not only expands the areas covered to include industrial landfills, but also requires reporting of GHG from all landfills otherwise subject to the rule, regardless of size. We recommend to EPA to modify the following paragraph in the rule language: § 98.341 Reporting threshold. You must report GHG emissions under this subpart if your facility contains a municipal landfill that generates CH₄ in amounts equivalent to 25,000 metric tons CO₂e or more per year or an industrial landfill and the facility meets the requirements of § 98.2 (a)(1) or (2).

Response: In the final rule, we clarify that the appropriate reporting thresholds for industrial waste landfills is found in §98.2 (a)(2).

Commenter Name: Kyle Pitsor

Commenter Affiliation: National Electrical Manufacturers Association (NEMA)

Document Control Number: EPA-HQ-OAR-2008-0508-0621.1

Comment Excerpt Number: 28

Comment: The NEMA Carbon/Manufactured Graphite EHS Committee knows that there are certain industrial sectors that, because of the nature of the byproduct materials generated and disposed in a permitted on-site landfill facility, do not generate any or only insignificant quantities of methane gas. In many cases, the methane gas generation is likely less than typical hazardous waste landfills and construction and demolition landfills, which can contain significant quantities of wastes that decay/decompose. Regardless, under the proposed rule, owners or operators of industrial landfills that do not contain significant quantities of wastes that decay/ decompose, i.e., have negligible concentrations of degradable organic carbon, such as typical carbon and graphite manufacturing byproducts, would still have to go through the arduous procedures to quantify and classify wastes disposed for every year of past operation, and model for methane emissions to determine applicability. Furthermore, Table HH-1 of Subpart HH –Emissions Factors, Oxidation Factors and Methods of the Proposed Rule does not include a default value for these types of inert or inorganic wastes. As a minimum, a facility should be able to model with user defined values for DOC and k, rather than using the DOC and k values

currently listed for food processing and pulp and paper, which will significantly over-estimate the methane gas emissions. Therefore, the NEMA Carbon/Manufactured Graphite EHS Committee believes that owners or operators of such industrial landfills containing wastes with negligible concentrations of degradable organic carbon should not be burdened with the requirements to model to determine applicability, and then measure every load of waste disposed and model their methane gas emissions on an annual basis, just to be able to document every year that they do not exceed the reporting threshold.

Response: EPA has revised the provisions of subpart TT to exclude coverage of those industrial waste landfills that receive only inert waste, since these landfills contribute little, if any methane emissions. For more information, please see Section II.F of the preamble. Modeling requirements will apply only to facilities that have landfill wastes with volatile solids concentration greater than 0.5 weight percent (on a dry basis) and with design capacities over 300,000 Mg. Additionally, we have provided a simple methodology to estimate DOC values for individual waste streams. A facility may choose to determine a site-specific (more precisely a waste stream-specific) DOC value or use the default. We know of no easy way in which to determine site-specific values for k nor has any been provided. Default values of k are provided for general industrial waste based on the climate (wet, dry, or moderate). Thus, while the user may not be able to alter the default k value, they can determine site-specific DOC values.

Commenter Name: Kyle Pitsor

Commenter Affiliation: National Electrical Manufacturers Association (NEMA)

Document Control Number: EPA-HQ-OAR-2008-0508-0621.1

Comment Excerpt Number: 27

Comment: The NEMA Carbon/Manufactured Graphite EHS Committee is very concerned that, as proposed, this rule will be nearly as burdensome on facilities that do not have to report, as on those that must report in that virtually every industrial facility will be required to collect data and perform relatively complex calculations, and very burdensome modeling if it has an industrial landfill, in strict accordance with the prescribed emissions estimating procedures, just to determine if it is subject to this rule. In many cases, the owner or operator will just be documenting that the estimated GHG emissions from the facility do not exceed the reporting threshold. Collection of historical disposal data on all past wastes at all industrial landfills will be particularly difficult in many cases and will likely be inherently imprecise because of missing records due to the fact that landfill operators or owners were not required by permits or past regulations to maintain such detailed waste records. Furthermore, the modeling process to estimate methane emissions is particularly onerous, even with accurate input data, and will have to be contracted in most cases to professional environmental consulting firms rather than calculated by in-house resources using relatively simple formulas. Therefore, the NEMA Carbon/Manufactured Graphite EHS Committee has recommended that EPA provide simpler source category thresholds to determine applicability, like the one provided for stationary fuel combustion units, to reduce the burden on the majority of facilities making applicability determinations. For facilities that have fuel combustion units and operate an on-site industrial landfill (but, that either fall under no other GHG source categories or have negligible GHG emissions from those operations), the conservative 30 mmBtu/hr. aggregate maximum rated heat

input capacity threshold cannot be used to determine if the facility is subject to the reporting requirements.

Response: For information on changes made to the final rule to help reduce burden on reporting facilities, please see the response to EPA-HQ-OAR-2008-0508-0686.1, excerpt 29.

Commenter Name: Phillip McNeely

Commenter Affiliation: City of Phoenix, AZ

Document Control Number: EPA-HQ-OAR-2008-0508-0374.1

Comment Excerpt Number: 13

Comment: Recommend that the rule include screening criteria for old closed landfills where there is inadequate data to accurately estimate GHG emissions. Many older landfills do not have adequate records to accurately estimate emissions. For landfills that ceased operations before modern regulatory programs, data is often not available because record keeping was not required. In addition, ownership has often changed and the current owners have no knowledge of the operation of the landfill. In the absence of information, the site owner may be faced with significant expenditures for site investigation to demonstrate the site is not subject to the proposed rule. A screening tool would help alleviate this issue. For these landfills, EPA should develop screening criteria that could be used to identify those that are a likely to have emissions below the reporting threshold. For example, the proposed rule allows that stationary fuel combustion sources with less than 30 million BTU would generally fall below the threshold of 25,000 tons of CO₂e per year. Similar guidance for old closed landfills would be very helpful.

Response: For information on changes made to the final rule to help reduce burden on reporting facilities, please see the response to EPA-HQ-OAR-2008-0508-0686.1, excerpt 29.

3. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

Commenter Name: Keith Overcash

Commenter Affiliation: North Carolina Division of Air Quality (NCDAQ)

Document Control Number: EPA-HQ-OAR-2008-0508-0588

Comment Excerpt Number: 16

Comment: Given our experiences conducting workshops on GHG emissions reporting to facilities in our state, we recognize the need for tools to assist potential reporters in determining applicability. These tools should utilize basic readily available information and be user friendly. For combustion, for example, the tool can use type and quantity of fuels used. A screening approach for landfills that use volume of waste processed, and for waste water treatment operations that use volume of wastewater would also be very useful.

Response: EPA has developed a screening applicability tool for MSW landfills and expects to develop a similar tool for industrial waste landfills. Additionally, EPA is developing an electronic reporting system to assist in performing the detailed landfill calculations for modeled methane generation. These tools will assist industrial waste landfill owners and operators in determining applicability and in performing the necessary calculations if they are required to report.

Commenter Name: Andrew C. Lawrence

Commenter Affiliation: Department of Energy (DOE)

Document Control Number: EPA-HQ-OAR-2008-0508-0612.1

Comment Excerpt Number: 10

Comment: Regarding Subpart HH, as stated in a previous comment, it is the understanding of DOE that if the facility exceeds the 25,000 metric tons of CO₂e, the facility would be required to report CO₂e emissions from any source category listed in any of the Subparts. For example, a DOE site operates a closed landfill which accepted wastes that could generate methane. A landfill closure plan was approved by EPA, without the requirement to employ a methane collection system. If this landfill is required to report, DOE recommends using the IPCC First Order Decay Model referenced in the preamble to the rule for calculating methane emissions from this source. DOE requests the EPA publish additional guidance within the rule or separately, as part of the IPCC model, on using this model for closed landfills.

Response: If the landfill meets the applicability requirements in either subpart HH (if it received MSW waste) or subpart TT and the facility exceeds the 25,000 metric tons of CO₂e, the emissions from the landfill must be reported. Tools have been (and continue to be) developed to assist reporters in performing the calculations required by subparts HH and TT as described in the preceding response (EPA-HQ-OAR-2008-0508-0588 excerpt number 16).

Commenter Name: Rhea Hale

Commenter Affiliation: American Forest & Paper Association (AF&PA)

Document Control Number: EPA-HQ-OAR-2008-0508-0909.1

Comment Excerpt Number: 12

Comment: Based on the following discussion, AF&PA requests that facilities be able to use the WRI/WBCSD GHG Calculation Tool, and default parameters recommended therein, for estimating methane emissions from industry landfills, rather than using the formulas and parameters in the EPA rule. NCASI has assembled data and completed several studies that improve estimates of methane emissions from pulp and paper mill landfills. These data and studies are summarized in the attached NCASI Special Report No. 08-05. Pages 13 and 14 of that report present descriptions of the methods used by NCASI (which are analogous to the IPCC methods used by EPA in the national inventory) to estimate methane emissions from pulp and paper mill landfills. [See DCN: EPA-HQ-OAR-2008-0508-0909.2 for attachment] The report indicates that, in 2005, the methane emissions from all forest products facility landfills in the U.S. were estimated to be 2.2 Tg CO₂ eq. per year. (See Table 2.10 in NCASI Special Report

No. 08-05.) Although the report does not show the emissions for pulp and paper mills separate from wood products facilities, the pulp and paper mill portion of the 2.2 Tg CO₂ eq. per year was 1.2 Tg CO₂ eq. per year. NCASI Special Report No. 08-05 also estimated that total direct emissions due to fuel combustion at U.S. pulp and paper mills was 57.7 Tg CO₂ eq. in 2004. Accordingly, 1.2 Tg CO₂ eq from landfills comprise less than two percent of the industry's fuel combustion-related emissions. NCASI compared CH₄ emission estimates using methods in the WRI/WBCSD GHG Protocol GHG Calculation Tool, the "bulk waste" method recommended by the IPCC, and the method proposed by EPA in this rule for a hypothetical industry landfill receiving 20,000 dry tonnes of wastewater treatment plant residuals (30% solids) annually from 1950 through 1999. EPA's proposed default values for k and Lo were used in the calculations for illustrative purposes. The results were almost identical – all ranging within 15 tonnes of CH₄ (215 tonnes CO₂ eq.) in 1999 – with the WRI/WBCSD GHG Protocol GHG Calculation Tool methods yielding estimates approximately 0.33% higher than the other two methods. For consistency purposes, we recommend that the industry be allowed to continue to calculate these emissions using the WRI/WBCSD GHG Protocol GHG Calculation Tool. Two important differences do exist however between the WRI/WBCSD GHG Protocol GHG Calculation Tool and the method proposed by EPA. First, we believe that the default DOC weight fraction for pulp and paper (0.2, "wet basis") listed in proposed Table HH-1 is too high. WWTP residuals are the main organic-carbon containing material landfilled at pulp and paper industry landfills (NCASI 1999). NCASI has developed limited total organic carbon data for a number of industry WWTP residuals, and obtained values for WWTP residuals landfilled by different pulp and paper mills. These data are summarized below. [See DCN: EPA-HQ-OAR-2008-0508-0909.1 for table showing each "residual", its "solids fraction", "TOC fraction dry basis", and "TOC fraction wet basis"] The data presented in the table are distinct from but in close agreement with data published by Mabee and Roy (2003) indicating an average TOC fraction of 0.310 (dry basis) for six WWTP residuals. Considering that TOC may overstate DOC, and that WWTP residuals are commonly co-disposed with other materials containing little or no organic carbon (e.g., ash), it is clear that a DOC of 0.2 on a wet basis is too high. The default value for Lo in the WRI/WBCSD GHG Protocol GHG Calculation Tool is 100 m³ CH₄/dry tonne. This is equivalent to a default DOC of about 0.2 tonnes CH₄/dry tonne of residuals or 0.06 tonnes CH₄/wet tonne assuming the residuals have 30% solids content. The proposed default value of 0.06/year for the methane generation rate constant, k, for pulp and paper mill landfills is also probably too high. To our knowledge no scientific investigation of k for pulp and paper mill landfills has ever been completed. However, anecdotal information suggests that the rate of gas generation at such landfills is usually lower than at municipal solid waste (MSW) landfills. EPA's default k for MSW landfills in AP-42 is 0.04/year. The default value in the WRI/WBCSD GHG Protocol GHG Calculation Tool is 0.03/year. As noted earlier, AF&PA suggests that the WRI/WBCSD GHG Protocol GHG Calculation Tool be allowed for use in calculating landfill methane emissions. This tool, including the default values for Lo and k, has been peer reviewed and its use is widespread within the industry. [Footnote: WRI and WBCSD organized the peer review process which included evaluation by experts from the pulp and paper industry, the American Petroleum Institute (API), and the Center for Energy Efficiency (CENef) in Russia, in addition to detailed review by WRI and WBCSD staff.] The foregoing discussion supports use of the default values for Lo and k in the tool, but site-specific values should be allowed if they are known.

Response: We reviewed the information on the NCASI report and do not see any significant discrepancies between the NCASI model “Method 3” and the calculations required in the final rule. Tracking differences in waste disposal quantities over the years is important for accurate methane generation estimates. The default value for L_0 is essentially equivalent to the default DOC value for pulp and paper waste of 0.20. While the nomenclature is somewhat different, these terms are interchangeable given the defaults for the other factors (F and DOC_f). There is a slight discrepancy in the k value. NCASI recommends 0.03 yr^{-1} , whereas the proposed rule provided a recommended default of 0.06 yr^{-1} . After review of the available information we have revised the suggested default values for pulp and paper waste in the final rule. While a range of values is provided to account for wet and dry climates, the primary default k-value for pulp and paper wastes is 0.03 yr^{-1} as recommended by NCASI. To ensure the calculations for all industrial waste landfills are performed in the same manner, the appropriate data will need to be reported as specified in §98.466. While facilities may use the WRI/WBCSD GHG Protocol GHG Calculation Tool for their preliminary calculations, the emissions reported under subpart TT must use the calculation methods required in the rule. EPA is developing a data reporting tool that will assist in performing the necessary calculations to determine the methane generation rate and emissions from the industrial waste landfill.

Commenter Name: Stephen E. Woock
Commenter Affiliation: Weyerhaeuser Company
Document Control Number: EPA-HQ-OAR-2008-0508-0451.1
Comment Excerpt Number: 4

Comment: We direct EPA's attention to use of forest product industry information and alternatives for the landfill (Subpart HH) methodologies.

Response: With regard to the use of forest product industry information in the final rule, please see response EPA-HQ-OAR-2008-0508-0909.1 excerpt number 12.

Commenter Name: Traylor Champion
Commenter Affiliation: Georgia-Pacific, LLC (GP)
Document Control Number: EPA-HQ-OAR-2008-0508-0380.1
Comment Excerpt Number: 36

Comment: GP supports AF&PA's comment on landfills. AF&PA is providing a study conducted by NCASI on landfill emissions and has pointed out important differences between existing calculation tools and methods and EPA's provided method in the reporting rule. Notably, differences exist in the default parameters of DOC and k provided by EPA that should be resolved.

Response: With regard to the use of forest product industry information in the final rule, please see response EPA-HQ-OAR-2008-0508-0909.1 excerpt number 12.

Commenter Name: Rhea Hale

Commenter Affiliation: American Forest & Paper Association (AF&PA)

Document Control Number: EPA-HQ-OAR-2008-0508-0909.1

Comment Excerpt Number: 15

Comment: The forest products industry does not typically collect gases from its landfills and consequently does not continuously monitor flow and composition in gas collection systems. The industry quite often does not produce enough gas to even flare it. Therefore, instead, we suggest that the formulas found in the WRI/WBCSD GHG Protocol GHG Calculation Tool also be an available option used to calculate emissions from these types of systems.

Response: With regard to the use of forest product industry information in the final rule, please see response EPA-HQ-OAR-2008-0508-0909.1 excerpt number 12.

4. DETAILED GHG EMISSION CALCULATION PROCEDURES/EQUATIONS IN THE RULE

Commenter Name: Lorraine Krupa Gershman

Commenter Affiliation: American Chemistry Council (ACC)

Document Control Number: EPA-HQ-OAR-2008-0508-0423.2

Comment Excerpt Number: 144

Comment: The factors in Table HH-1 listed under the heading “Waste model – bulk waste option” are not sufficiently diverse to support the wide range of materials that have been placed into industrial landfills. For example, a landfill containing waste polymer plastic would not be represented by a DOC of 0.2028, since polymer plastic cannot be biologically degraded. This further supports our position that EPA should limit industrial landfills subject to reporting to those at pulp and paper, and food processing facilities.

Response: We have provided additional default DOC values for inert wastes and for other general industrial wastes. The default DOC value for inert wastes, which includes plastics, is zero. An industrial waste landfill that only receives inert waste materials is not required to report GHG emissions under subpart TT. For more information on the industrial waste landfills covered in subpart TT of the final rule, please see Section II.F of the preamble and §98.460.

Commenter Name: Juanita M. Bursley

Commenter Affiliation: GrafTech International Holdings Inc. Company (GrafTech)

Document Control Number: EPA-HQ-OAR-2008-0508-0686.1

Comment Excerpt Number: 30

Comment: GrafTech knows that there are certain industrial sectors that, because of the nature of the byproduct materials generated and disposed in a permitted on-site landfill facility, do not generate any or only insignificant quantities of methane gas. In many cases, the methane gas

generation is likely less than typical hazardous waste landfills and construction and demolition landfills, which can contain significant quantities of wastes that decay/decompose. Regardless, under the proposed rule, owners or operators of industrial landfills that do not contain significant quantities of wastes that decay/ decompose, i.e., have negligible concentrations of degradable organic carbon, such as typical carbon and graphite manufacturing byproducts, would still have to go through the arduous procedures to quantify and classify wastes disposed for every year of past operation, and model for methane emissions to determine applicability. Furthermore, Table HH-1 of Subpart HH – Emissions Factors, Oxidation Factors and Methods of the Proposed Rule does not include a default value for these types of inert or inorganic wastes. As a minimum, a facility should be able to model with user defined values for DOC and k, rather than using the DOC and k values currently listed for food processing and pulp and paper, which will significantly over-estimate the methane gas emissions. Therefore, GrafTech believes that owners or operators of such industrial landfills containing wastes with negligible concentrations of degradable organic carbon should not be burdened with the requirements to model to determine applicability, and then measure every load of waste disposed and model their methane gas emissions on an annual basis, just to be able to document every year that they do not exceed the reporting threshold.

Response: For information on the industrial waste landfills covered and the alternatives for determining DOC values provided in subpart TT of the final rule, please see the response to comment EPA-HQ-OAR-0508-0621.1, excerpt 28.

Commenter Name: Michael E. Van Brunt

Commenter Affiliation: Covanta Energy Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0548.1

Comment Excerpt Number: 12

Comment: The soil oxidation default of 10% noted in Equations HH-6 and HH-8 is appropriate; however, landfills should not be permitted to substitute other soil oxidation factors given the tremendous uncertainty in current research and industry positions. We expect that this was the EPA’s intention, but it should be clearly stated to prevent confusion or misinterpretation. Soil oxidation is subject to significant uncertainty depending on LFG constituent, soil type, moisture, cover imperfections, etc. Oxidation by certain landfill covers observed in controlled laboratory or limited scale field studies may not simulate cover conditions and fugitive LFG escape pathways present in large scale open or closed landfills. At this time the state-of knowledge appears insufficient to resolve this potential bias and is another indication of the difficulty estimating landfill emissions. As it relates to soil oxidation, the SWICS position paper referenced earlier asserts that microorganisms present in landfill cover materials effectively oxidize fugitive methane before being released through landfill surfaces and proposes an oxidation range of 22-55% depending on soil type. The data used in SWICS’ analysis are based on controlled column tests and small-scale field studies. These test conditions do not account for the large emission variability caused by landfill gas channeling through fissures, cracks, and other cover imperfections that occur at operating landfills. To account for this variability IPCC uses an oxidation factor of 10%. The following explains IPCC’s concern over soil oxidation uncertainty, a concern that is not addressed by the SWICS paper: “Oxidation factor (OX): The oxidation

factor is very uncertain because it is difficult to measure, varies considerably with the thickness and nature of the cover material, atmospheric conditions, and climate, the flux of the methane, and the escape of methane through cracks/fissures in the cover material. Field and laboratory studies which determine oxidation of CH₄ only through uniform and homogeneous soil layers may lead to overestimation of oxidation in landfill cover soils.” The EPA also recognized the contribution of cracks in its Technical Support Document. stating “a significant fraction of the landfill gas releases may be focused in very limited areas where larger fissures in the surface soil exist.” Given these significant testing limitations as well as the plethora of field variables that can affect soil oxidation (waste type, cover material type and thickness, climate, daily and seasonal variability, and landfill O&M practices) the limited database does not justify SWICS’ proposed soil oxidation values. Consequently, the EPA default of 10% should be mandatory. The one exception would be if the landfill submitted direct methane emission monitoring data using OTM-10, since the direct emissions as measured via OTM-10 would already account for soil oxidation.

Response: EPA thanks the commenter for their input. We agree and require that a fixed value of 10 percent be used as the oxidation factor for the final rule.

Commenter Name: Chris Greissing

Commenter Affiliation: Industrial Minerals Association - North America (IMA-NA)

Document Control Number: EPA-HQ-OAR-2008-0508-0705.1

Comment Excerpt Number: 24

Comment: If reporting of GHG emissions from industrial landfills is not limited to the food processing, pulp and paper, and ethanol production facilities, then EPA should amend Table HH-1 and provide specific factors that are relevant to the regulated industry. Calculations for industrial landfills may be done using material-specific waste quantity data or bulk waste data and various factors are referenced in Table HH-1. For the material-specific model for industrial landfills the only factors provided are for food processing and pulp and paper facilities. We do not believe that these factors are appropriate for industrial landfills associated with soda ash production and that it is highly likely that their use will significantly overestimate the methane emissions from these facilities. Similarly, the degradable organic carbon fraction value used in the bulk waste model will also overestimate methane emissions for soda ash plant landfills.

Response: EPA has provided a simple methodology to estimate DOC values for individual waste streams. A facility may choose to determine a site-specific (more precisely a waste stream-specific) DOC value or use the default. We know of no easy way in which to determine site-specific values for k. Default values of k are provided for general industrial waste based on the climate (wet, dry, or moderate). Thus, while the user may not be able to alter the default k value, they can determine site-specific DOC values.

Commenter Name: Traylor Champion

Commenter Affiliation: Georgia-Pacific, LLC (GP)

Document Control Number: EPA-HQ-OAR-2008-0508-0380.1

Comment Excerpt Number: 35

Comment: The current requirement of direct mass measurement of waste entering the landfill with industrial scales with a manufacturer's stated accuracy of $\pm 2\%$ is overly burdensome and costly due to the minimal contribution of industrial landfill greenhouse gas emissions to overall facility emissions. In the pulp and paper industry, all waste is generated on-site. There is no financial transaction taking place for waste entering the landfill and, therefore, no need to accurately weight the material. There are also materials that are conveyed and sluiced to solid waste disposal areas that could not be monitored across truck scales. It is a common practice to use company records such as truck counts and product yield data to determine the approximate amount of waste disposed of in on-site industrial landfills rather than conducting direct mass measurements of the waste or trucks. Therefore, to comply with the current proposed requirement, facilities would have to install costly industrial scales with a high degree of accuracy. This potential cost is unnecessary given the minimal contribution of industrial landfill emissions to total facility emissions. In addition, there is often a large portion of landfilled waste at pulp and paper mill industrial landfills that is inert and will not generate CH_4 , such as boiler ashes. GP interprets the current calculation methodology to allow for conducting material-specific calculations for the waste categories for which DOC and k parameters are provided in Table HH-1 for those years in which material-specific waste quantities are measured. Presumably, if there exists no DOC and k parameters in Table HH-1 for a given waste category, such as boiler ashes, reporters would assume they are zero and no CH_4 is generated from that waste. This assumption would more accurately calculate CH_4 emissions from a landfill by excluding quantities of inert wastes rather than assuming all wastes generate CH_4 . However, as discussed above, it is not common to measure waste disposed of in industrial landfills at all, much less by type; therefore, it is unclear if pulp and paper mills could use this methodology without specific measurements of each waste type, or mills should use the generic DOC and k parameters provided under the "Industrial Waste Landfills – Pulp and Paper" category with the full quantity of waste disposed of in the landfill in a given year. Pulp and paper mills are able to estimate the type and quantity of wastes disposed of in a year through use of company records and process parameters. GP recommends EPA specifically allow industrial landfills to use company records to determine the quantity and type of wastes disposed of in a given year, and to exclude the portion of waste that is inert and will not generate CH_4 .

Response: We agree that facilities may use company records to determine the quantity and type of wastes in a facility's landfill. For more information, please see Section II.F of the preamble. In addition, we have specifically included a default DOC value of zero for inert materials in Table TT-1. Inert materials are specifically described as any waste materials (such as glass, cement, and fly ash) that are specifically listed in §98.460(b)(3) paragraphs (i) through (xi) of the final rule. For all other waste materials, either the default values for "general industrial waste" (or the default values for industry specific wastes, if applicable) must be used or the facility must determine a waste stream-specific DOC value following the methods provided in the final rule. As such, there should no longer be an "unlisted" waste stream. There are waste streams for

which the default DOC value of zero is provided. However, if the waste stream is not one of the listed “inert” wastes, then a non-zero default or site-specific DOC value must be used.

Commenter Name: Stephen E. Woock

Commenter Affiliation: Weyerhaeuser Company

Document Control Number: EPA-HQ-OAR-2008-0508-0451.1

Comment Excerpt Number: 19

Comment: Weyerhaeuser does not agree with using direct measurement to quantify the waste entering the landfill. In Subpart HH Landfills at §98.343 (a)(4) EPA proposes to require direct measurement of the waste entering the landfill. However, elsewhere (e.g. Subpart A, §98.33 “Calculating GHG Emissions”) the quantification of solid fuels is obtained from company records. Weyerhaeuser believes the quantification of comparable materials should be consistently applied within this proposed rule, if it can be done so on a technically sound basis. Given that the quantification of the solid fuels can be done to the level of requisite accuracy using company records, then this same methodology should be technically sufficient, and thus allowed, to quantify solid waste entering the landfill. In short, if the accuracy of using company records is appropriate for solid fuel usage, then it should also be appropriate for solid waste entering a landfill.

Response: We agree that facilities may use company records to determine the quantity and type of wastes in a facility’s landfill. For more information, please see Section II.F of the preamble.

Commenter Name: Gary Moore

Commenter Affiliation: Pensacola Plant of Ascend Performance Materials LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0366.1

Comment Excerpt Number: 16

Comment: Reliable production records are available going back 20 – 25 years not the fifty years needed for the proposed method of methane calculation. The lack of past land disposal records and production records as well as the reduction in biodegradable content through burning invalidate the proposed method if estimating methane emissions. In general, onsite industrial landfills are relatively small in size. Additionally, EPA has acknowledged that the bulk of methane emissions from industrial landfills come from Pulp and Paper, Food Processing or Ethanol Production industries. We propose that EPA exempt industrial landfills not in the identified industries that have been closed for 20 years or more.

Response: EPA has revised the applicability provisions for industrial waste landfills in subpart TT, please see Section II.F of the preamble.

Commenter Name: Lorraine Krupa Gershman
Commenter Affiliation: American Chemistry Council (ACC)
Document Control Number: EPA-HQ-OAR-2008-0508-0423.2
Comment Excerpt Number: 143

Comment: The requirement in §98.343 (a)(1) to start calculations 50 years prior to the year being reported must be flexible. Records of waste deposited in industrial landfills may not exist prior to when these landfills became regulated.

Response: EPA has provided alternative methods for determining historical waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

Commenter Name: Marcelle Shoop
Commenter Affiliation: Rio Tinto Services, Inc.
Document Control Number: EPA-HQ-OAR-2008-0508-0636.1
Comment Excerpt Number: 12

Comment: At a minimum, EPA should not require industrial landfills with emissions less than this threshold to determine waste quantities by direct mass measurement using industrial scales. Rather, EPA should allow reporters to use any measurement method specified in an applicable permit or any reasonable estimation method that is adequately documented.

Response: EPA has provided alternative methods for determining waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

Commenter Name: William Paraskevas
Commenter Affiliation: Andrews Engineering
Document Control Number: EPA-HQ-OAR-2008-0508-0342
Comment Excerpt Number: 2

Comment: This comment pertains to a part of the instructions for the GHG emission calculation methodology for landfills under 40 CFR 98.343(a)(3). This paragraph states that “For years prior to reporting for which waste disposal quantities are not readily available for MSW landfills, W_x shall be estimated using the estimated population served by the landfill in each year...”. Basing waste disposal quantities on the estimated population served may not be the most accurate method for determining waste quantities; particularly in areas that are or have been served by more than one landfill. Over the course of time, landfills may enter or depart the market; hauling companies that supply the landfills may vary their geographic coverage, acquire or be acquired by other firms or go out of business. Trying to estimate the population served by a particular landfill under these conditions would be tedious at best and most likely impossible. We recommend that alternate approaches be allowed for estimating waste disposal quantities when actual year-to-year waste receipts are not known. One such approach is to estimate waste disposal quantities based on waste volume and density. Topographic maps of landfills are generally available and can be used to calculate total volumes of waste in landfills. These

volumes can be converted to mass figures based on waste densities. The latter can be extrapolated from site data from years in which volume and mass were measured or can be taken from general industry average values from the technical literature. Once the total mass between topographic mappings is calculated, it can be apportioned over the years that the landfill operated in that timeframe. This approach has been used under the New Source Performance Standard (NSPS) rules (40 CFR Part 60, Subpart WWW) for calculating design capacity and non-methane organic compound (NMOC) emission rates.

Response: EPA has provided alternative methods for determining historical waste quantities and DOC for industrial waste landfills in subpart TT of the final rule. In §98.463(a)(2)(ii)(C), a method to calculate an average annual waste disposal quantity using estimates of the total quantity of waste in the landfill is provided. We consider the provision in §98.463(a)(2)(ii)(C) to allow estimation of waste quantities as outlined by the commenter. However, for years when waste quantities can be extrapolated from production or processing rates, the processing rate method must be used to determine historical waste disposal quantities, as this will yield a more accurate estimate.

Commenter Name: Matthew Frank

Commenter Affiliation: Wisconsin Department of Natural Resources

Document Control Number: EPA-HQ-OAR-2008-0508-1062.1

Comment Excerpt Number: 30

Comment: Default parameters for bulk waste are probably sufficiently accurate for use by most MSW landfills and our recommendation is to allow MSW and industrial landfill owners to use the bulk parameters as a default.

Response: We appreciate the support of the bulk waste parameters and the final rule allows for their use for industrial waste landfills.

Commenter Name: Robert Rouse

Commenter Affiliation: The Dow Chemical Company

Document Control Number: EPA-HQ-OAR-2008-0508-0533.1

Comment Excerpt Number: 39

Comment: Estimating the amount of waste sent to an industrial landfill should allow other estimation methods and not require the use of industrial scales. Section 98.343(a)(4) requires that industrial landfills use industrial scales for determining the amount of wastes entering the landfill. Many landfills determine waste loads based on volume rather than weight. There are good estimating and sampling methods available that will provide similar accuracy. This requirement would require these facilities to install scales at or near their landfill. This additional accuracy and expense associated with the purchase, installation and operation of an industrial scale is not needed due to other uncertainties in the calculation methods, such as variability in waste composition, assumption that the Waste Disposal factor (WDF) has stayed constant over a long period of time (potentially 50 years), other uncertainties with determining historical

disposal, and the use of standard factors given in Table HH-1. Even though EPA presented data showing that emissions from MSW landfills are significantly higher than those from industrial landfills, they are only proposing to require the use of scales at industrial landfills and allowing MSW landfills to use other records and very general household waste disposal factors (Table HH-2). The expected level of accuracy should be similar for both MSW and industrial landfills. Dow recommends that section 98.343(a) be revised to eliminate the requirement for the use of industrial scales at industrial landfills and allow the use of other records such as those mentioned for MSW landfills. The rule should allow for the use of typical waste disposal records and other testing on parameters such as density and chemical analysis.

Response: EPA has provided alternative methods for determining waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

Commenter Name: John Piotrowski

Commenter Affiliation: Packaging Corporation of America (PCA)

Document Control Number: EPA-HQ-OAR-2008-0508-1029.1

Comment Excerpt Number: 6

Comment: The waste disposal measurement and tracking requirements associated with this Subpart involve a disproportionate level of effort and expense for the quality and quantity of CO₂ emission data generated. Industrial landfills are typically designed to operate as "dry tombs" compared to municipal solid waste (MSW) facilities that feature leachate recirculation to enhance anaerobic decomposition and effect accelerated waste stabilization. Our company's on-site landfills receive a combination of boiler ash, construction debris, non-repulpable resinated paper waste, dregs, sand/grit and miscellaneous trash. On a dry tonnage basis, the inorganic fraction of these combined waste streams represents the lion's share of the total mass. Also, the moisture content of each of these waste streams can vary considerably; consequently, accurately establishing the dry mass of any of these materials is difficult and subject to considerable variation. Requiring the installation of dedicated scales to track waste tonnages is an unnecessary expenditure. Due to the configuration of our facilities, the industrial scale requirement found at §98.343(a)(4) will necessitate capital expenditures for new scales with additional costs for operation and maintenance. These elaborate tracking and weighing requirements are standard practices at MSW landfills due to tipping fee considerations. However, requiring this same practice at industrial landfills is unwarranted. We believe that periodic calibration of the trucks hauling landfill waste to determine the weight to volume ratio of various waste streams provides a practical measurement for industrial landfills. The waste placement calculation is simplified to the equation: Truck bed volume x number of truckloads x waste weight per unit of volume = net weight landfilled. We have determined that landfill emissions are dwarfed by the stationary and process source emissions at our facilities. For example, using the NCASI GHG calculator tool, direct and indirect GHG landfill emissions (i.e., CO₂e) represent less than 0.5% of a facility total, an amount that, in our opinion, represents background noise in the context of facility-wide GHG emission totals. Frankly, if substantial amounts of methane were generated at our captive landfills, we would collect and burn it as a fuel. As it is, we find that our landfills produce so little methane that even flaring the landfill gas would be problematic. The amount of staff labor and capital cost required to comply with the provisions proposed in Subpart HH is exceedingly

high when compared to facility GHG emissions on either an absolute or proportional basis. We strongly urge the Agency to simplify the proposed tracking and recordkeeping requirements and allow industrial landfills to utilize existing work practices in combination NCASI's GHG calculator tool to report landfill GHG emissions.

Response: EPA has provided alternative methods for determining current and historical waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

5. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: Rhea Hale

Commenter Affiliation: American Forest & Paper Association (AF&PA)

Document Control Number: EPA-HQ-OAR-2008-0508-0909.1

Comment Excerpt Number: 13

Comment: AF&PA objects to the requirement to weigh truckloads entering landfills, let alone to 2% accuracy. This requirement appears to be written for MSW landfills and it is not common practice for captive industrial landfills to physically weigh inputs. Instead we recommend that estimation methods outlined in the proposal to calculate previous years' data be applied in future years as well. To require physical measurement of each load in reporting years is overly burdensome, costly and does not significantly enhance the accuracy of emissions estimates. A facility should, however, have the option to amend these calculations to reflect site specific circumstances and deposition rates.

Response: See EPA has provided alternative methods for determining waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

Commenter Name: Stephen E. Woock

Commenter Affiliation: Weyerhaeuser Company

Document Control Number: EPA-HQ-OAR-2008-0508-0451.1

Comment Excerpt Number: 20

Comment: At §98.343 (a)(4) EPA proposes to specify the direct measurement of the waste entering a landfill by using a device with a manufacturer's stated accuracy of $\pm 2\%$. Weyerhaeuser does not agree with specifying by rule an accuracy level to track the material entering the landfill. The level of accuracy for measuring any material, whether it is fuel usage or waste entering a landfill, should be consistent within this proposed rule. In Subpart A at §98.34 (b) "Monitoring and QA/QC Requirements", the owner/operator is directed to document the procedures used to ensure the accuracy of the estimates of fuel usage. In addition, the estimated accuracy is to be recorded and the technical basis for these estimates provided. In sum, the accuracy for measuring fuel usage is determined using documented procedures and a sound technical basis. Typically these will be based on the manufacturer's specified accuracy

guarantees. In comparison, specifying a device accuracy value (e.g. $\pm 2\%$) is first inconsistent with Subpart A's monitoring and QA/QC requirements, and secondly, it disregards (and will likely be in conflict with) the a manufacturer's actual accuracy guarantees.

Response: EPA has provided alternative methods for determining current and historical waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble.

Commenter Name: Marcelle Shoop

Commenter Affiliation: Rio Tinto Services, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-0636.1

Comment Excerpt Number: 9

Comment: The proposed rule suggests that an entity that is required to report emissions because it falls within one or more of the listed source categories must also report emissions for other source categories regardless of thresholds. EPA recognized that in some cases this means that a reporting entity would need to report on minor emissions from sources, but concluded it need not adopt the use of de minimis reporting thresholds in part "because [although] some facilities subject to the rule could still have some relatively small sources, the proposal includes simplified emissions estimation methods for smaller sources, where appropriate." (74 Fed. Reg. at 16473). However, EPA did not provide simplified estimation methods for all relevant sources - in particular there is no simplified estimation methodology for industrial landfills under Subpart HH that does not require the use of precise scales. As described below, this potential oversight presents significant financial and reporting burdens not justified to determine very small levels of emissions. The HH calculation methodologies for industrial landfills specify that the quantity of waste disposed in reporting years must be determined by "direct mass measurement of waste entering the landfill using industrial scales with a manufacturer's stated accuracy of ± 2 percent" 98.343(a)(4). This methodology assumes all industrial landfills are of a size to justify the use of scales (or even highly accurate scales) for mass determinations. Several Rio Tinto facilities would be subject to the reporting rule pursuant to Subpart F, aluminum production, or pursuant to Subpart A because they have emissions greater than the 25,000 metric tons CO₂e threshold from stationary combustion sources. As noted above, pursuant to 98.2(a)(1) or (2), such facilities also would be required to report emissions from industrial landfills, regardless how minor those emissions may be. Many permitted on site "industrial" landfills typically receive very small levels of organic waste or in some cases are located in desert or arid locations where anaerobic activity is low. Given the nature of these small industrial landfills, there may be no scales onsite to determine the amount of waste disposed. Rather, the quantity of waste is estimated in accordance with permits or other needs and appropriate methodologies. Where scales might be accessible they might not meet the proposed rule requirements or it might be costly to utilize for every load.

Response: EPA has provided alternative methods for determining current and historical waste quantities in subpart TT of the final rule. For more information, please see Section II.F of the preamble. In addition, we have provided a more detailed definition of applicability in §98.460

that excludes from the reporting requirements landfills that are smaller (design capacity less than 300,000 Mg), accept only inert wastes, or have been closed for more than thirty years.

Commenter Name: Michael E. Van Brunt

Commenter Affiliation: Covanta Energy Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0548.1

Comment Excerpt Number: 7

Comment: The U.S. EPA should require all landfills generating more than 100,000 metric tons of CO₂ emissions per year to use representative annual source testing performed in accordance with EPA Method OTM-10, Optical Remote Sensing for Emission Characterization from Non-point Sources. According to the Proposed Rule Technical Support Document for the Landfill Sector, the 100,000 metric ton threshold would apply to only 13% of active and closed landfills, but would represent approximately 55% of the greenhouse gas emissions from landfills. An approach requiring direct measurement for GHG reporting for landfills above a certain threshold is consistent with the Proposed Rule's provisions for stationary combustion sources, where only sources with maximum rated heat input capacities less than 250 mmBtu / hr are permitted to use simpler emissions calculation methods. Optical Remote Sensing (ORS), performed in accordance with OTM-10, is a viable method to measure CH₄ emissions from area sources such as landfills. The landfill industry has provided a significant quantity of results from ORS in support of its comments on the draft revisions to AP-42 for landfills. Furthermore, ORS testing at landfills has been the subject of a cooperative research agreement (CRADA) between the EPA and Waste Management. If the landfill industry deems this data appropriate to develop emission factors, it should be appropriate for inventory purposes. The industry's submittal of ORS data for EPA's consideration during the revision of AP-42 is a strong endorsement of the method's use in developing greenhouse gas inventories. Finally, the ORS data submitted in support of a GHG emissions reporting requirement will be more representative by design than the data provided to support the industry's position on emission factors. In order to provide a representative result, landfill operators must complete direct measurement of methane emissions using ORS for each operating stage present at the landfill site. In typical landfill operations, there are often as many as five distinct stages, each exhibiting different landfill gas collection efficiencies: Stage 1 – Period after initial placement of waste in an operating cell with no gas collection system in place. According to federal New Source Performance Standards (NSPS), this period may extend for up to five years from the date of first placement of waste in a landfill cell. Stage 2 – An interim gas collection system is installed for the active cell. Stage 3 – Final gas collection system is installed for previously active cell; however, an impermeable cap may or may not be in place, and the side(s) of the cell adjacent to other operating cell(s) is (are) not closed and are a pathway for horizontal LFG migration and escape. Stage 4 – Entire landfill or discrete landfill phase is closed with permanent cap. Gas collection system is in place and assumed to be fully operational. Impermeable cap and landfill gas collection system are assumed to be properly maintained. Stage 5 – Landfill gas collection system turned off. In addition, some stages may need to be subdivided based on construction or operational differences. For example, if a landfill has two distinct phases both with permanent caps and closure (Stage 4), one with a clay cap and the other with a synthetic cap, direct measurement of methane emissions using ORS should be completed for both phases separately. Measurements should be required at least quarterly to manage seasonal

variations. The EPA should develop a robust methodology, in consultation with landfill operators and technology experts, for use of ORS in compliance with GHG reporting requirements. A tiered approach to direct GHG emissions reporting will help mitigate the expense to smaller landfill operators such as municipalities, while ensuring proper direct measurement for larger sources. Given the generally low costs of landfilling, annual source testing in accordance with OTM-10 is unlikely to represent a significant additional cost burden to landfill waste management.

Response: Optical remote sensing tests generally cost from \$60,000 (for open path FTIR) to \$200,000 or more (for differential adsorption LIDAR or “DIAL” studies) and produce only a snap-shot of the emissions (typically over a few hours or days) that may not accurately reflect the annual average emissions rate due to temperature fluctuations, rainfall events, and other variables. Even though we recognize the uncertainties associated with the final reporting requirements, these uncertainties do not justify the high costs currently associated with the use of optical remote sensing methods that will also produce uncertain estimates because they provide only a snap-shot of the emissions at a single point in time. We are however, very interested in these remote sensing methods and believe that they are likely to be applicable for sources such as landfills as these technologies continue to advance and become more reasonably priced.

6. DATA REPORTING REQUIREMENTS

Commenter Name: Rhea Hale

Commenter Affiliation: American Forest & Paper Association (AF&PA)

Document Control Number: EPA-HQ-OAR-2008-0508-0909.1

Comment Excerpt Number: 14

Comment: The data reporting requirements in Section 98.346 again appear geared toward MSW landfills. Much of this data either doesn't exist or does not appear to be required to estimate GHG emissions. Specifically, it is recommended that the provisions in 98.346 that are not explicitly required to estimate emissions be deleted. AF&PA at a minimum believes these include paragraphs c,d,l,m,v,w,x, and y.

Response: In the final rule, EPA has separated the requirements for MSW landfills and industrial landfills. Similar to the final reporting requirements for MSW landfills, the reporting requirements in the final rule for industrial landfills are much more detailed and specify all of the data elements required in order to do all of the necessary calculations. In addition to those data elements needed for the calculations, there are some reporting elements, such as landfill design capacity, that have been used as applicability thresholds for various rules, such as the NSPS for MSW landfills. These data elements, although not needed for the inventory calculation, are important for the purposes of future policy analysis. As the purpose of this reporting rule is to gather information needed to make informed policy decisions, these data elements are deemed to be critical. Several of the parameters that the commenter requested be deleted are pertinent only to landfills with gas collection systems. These parameters are used to assess the collection efficiency of the landfill gas collection system and the final rule specifies that these data

elements are only required to be reported when gas collection systems are present. Although not common at industrial landfills, if such a landfill does have a gas collection system, these data elements must be reported. We have reviewed the reporting requirements in the final rule and have concluded that each of the required reporting elements is necessary for either data verification/validation or for future policy analysis.

Commenter Name: Robbie LaBorde

Commenter Affiliation: CLECO Corporation (CLECO)

Document Control Number: EPA-HQ-OAR-2008-0508-1566

Comment Excerpt Number: 8

Comment: Subpart HH includes landfills as a source category and in 98.340 states that the category includes industrial landfills including but not limited to food processing, pulp and paper mills and ethanol production. 98.341 states one must report emissions if a facility contains a landfill and meets the eligibility requirements of either 98.2(a)(1) or (2). 98.343 describes how to calculate the green house gas emissions and makes reference to table HH-1 for parameters to be used in the equations. 98.346 describes the reporting requirements which includes the reporting of the fractions of the various materials in a landfill. However, the Subpart does not describe how to proceed if the landfill does not contain material described in Table HH-1. The Subpart does not indicate if the Data Reporting Requirements of 98.346 are to be followed if green house gas emissions are insignificant due to types of materials in landfill or if green house gas emissions cannot be calculated due to a lack of applicable parameters in Table HH-1. For instance, if the landfill contents are a mixture of bottom ash and fly ash from a coal-fired boiler, the Subpart does not indicate how to proceed.

Response: With regard to additional defaults for Table TT-1, please see response to comment EPA-HQ-OAR-2008-0508-0380.1, excerpt number 35. Data reporting is not required for landfills that only manage inert waste materials (i.e., materials that do not generate methane emissions) as these landfills are excluded from the reporting requirements. For more information, please see Section II.F of the preamble.

Commenter Name: Rasma I. Zvaners

Commenter Affiliation: American Bakers Association (ABA)

Document Control Number: EPA-HQ-OAR-2008-0508-0497.1

Comment Excerpt Number: 14

Comment: EPA's proposed Mandatory Greenhouse Gases Reporting Rule is scheduled to start monitoring requirements on January 1, 2010 – merely 6 months away – with the first report due on March 31, 2011. ABA is concerned about the limited time frame for implementing this program at a smaller facility. The appropriations language mandating EPA's proposal was signed in December 2007 and EPA was to propose the rule by September 2008. The proposed rule was published in the Federal Register on April 10, 2009, 6 months after the deadline. If included as part of the mandatory reporting regime, small and large businesses will need additional time to implement a program at their facilities, to hire engineers and consultants, and to find the extra

operating funds necessary to comply with another EPA program. For example, at some larger bakeries there may be the need to engineering assessments, vendor selection and budget approvals. In some cases these activities need at least an additional 15 month lead time. In particular, many sources in the baking sector are anticipated to be below the reporting threshold; however, even facilities that are not required to report will need to calculate their emissions (with the attendant costs and diversion of resources) in order to determine that they are not covered. Many small businesses will not be able to complete this assessment by 2010, and bakeries in particular may have emissions that are difficult to quantify such as CO₂ emissions from the baking process. EPA should extend the first monitoring year to 2011. In the alternative, EPA should consider allowing those sources that would be reporting greenhouse gas emissions for the first time additional time to meet the requirements and submit their first report. Alternatively, reporting of 2010 emissions could be considered “transitional” with incomplete reporting accepted. For example, a facility may be allowed to report only emissions of CO₂ in 2010, instead of the full suite of greenhouse gas emissions. Some larger facilities that are impacted by the proposed rule may be in a position to begin monitoring requirements at a faster pace than medium and small entities.

Response: See the response to this comment in Volume 5 of the Response to Comment of the October 2009 Final Rule. With regard to the timing of the reporting requirements for industrial waste landfills, reports by those facilities covered by subpart TT will need to be submitted in March of 2012 for emissions starting in January 2011, which is one year later than originally proposed.

Commenter Name: Stephen E. Woock

Commenter Affiliation: Weyerhaeuser Company

Document Control Number: EPA-HQ-OAR-2008-0508-0451.1

Comment Excerpt Number: 16

Comment: Weyerhaeuser’s experience reporting through the Climate Disclosure Project and other activities suggest new reporting programs of this scale have extensive learning curves, and in this case, where EPA is proposing for the Forest Product Industry and others that facilities implement many novel methodologies and equipment, we expect an even longer lead time is necessary and warranted. However EPA is proposing in most categories a data collection start date of January 1, 2010, less than a year following rule proposal. We strongly suggest this date be modified. Many facilities will not be ready to initiate sampling and information/data collection per the proposed methodology by EPA’s proposed start date of January 1, 2010, especially if the more complex methodologies and those requiring added sampling equipment and personnel training are adopted. Additional calibrated solid fuel metering devices may need to be purchased and installed. For example, if a CEMS for monitoring CO₂ emissions from combustion sources or a new truck scale for weighing materials transported to a landfill is required, the acquisition of capital, procurement, and installation of the project and the related QA/QC of the equipment and development of procedures and personnel training, will require many months to well over a year to complete. This is especially problematic where capital is tight –which is universally the case as a result of the recent recession. The need for capital planning for this rule, which typically takes place a year before capital is allocated, could not

have been foreseen. EPA provides for some temporary data collection approaches in the event of equipment not being ready; however, we believe this will be an inefficient approach and believe instead data collection and reporting under the rule should not commence until ample time to implement all methodologies is given to reporters. Assuming a final rule is issued by mid-December 2009, Weyerhaeuser proposes starting data collections in January 2011, with initial reporting in 2012. In the event EPA is unable to accommodate a change from the 2010 start they proposed, we believe the Agency should explicitly provide a three-year phase-in of enforcement so that industry can prepare the data collection equipment and conduct shake-downs of their new data gathering/reporting systems with confidence they will not suffer enforcement consequences due to an inability to meet EPA's unusually short implementation schedule and the stringent certification requirements EPA proposes in the rule.

Response: Please see the response to this comment in Volume 5 of the Response to Comment of the October 2009 Final Rule. For information on the timing of the reporting requirements for industrial waste landfills, please see the response to comment EPA-HQ-OAR-0508-0497.1, excerpt 14.

7. COST DATA

Commenter Name: Marcelle Shoop

Commenter Affiliation: Rio Tinto Services, Inc.

Document Control Number: EPA-HQ-OAR-2008-0508-0636.1

Comment Excerpt Number: 10

Comment: In the absence of a de minimis exception or simplified methodology, costs of complying with the rule are substantially disproportionate to the low level of emissions that would be reported. One Rio Tinto facility estimated the potential costs to comply with this requirement. For two small landfills (approximately 5,000 short tons of waste/year) the capital cost of installing scales could be as much as \$50,000 each for a total cost of \$100,000, with operating and driver time resulting in an estimated annualized cost of over \$23,000. Other lower cost volume estimation approaches might include the use of on-board truck weighing systems or the reliance on spot checks on scales at nearby locations, with estimated annualized costs of \$3,500 or \$1,875 respectively. These costs are substantially higher than the capital and O&M costs EPA estimated for Subpart HH Landfills in the Regulatory Impact Analysis (RIA). See Table 4-61 of the RIA (estimating annualized capital costs of \$175 and annualized O&M Costs of \$467).

Response: We considered the costs for industrial waste landfills based on the comments received and noting that many industrial waste landfills will be co-located at facilities required to report under other subparts. We revised the cost analysis to evaluate potential regulatory options specifically for industrial waste landfills. As a result of these analyses, we have significantly revised some of the rule requirements, particularly with respect to the applicability of the industrial waste landfill reporting requirements. The final rule is focused on those landfills that are expected to be significant emission sources by exempting industrial waste landfills that only

manage inert materials. Additionally, the requirement for directly measuring waste quantity mass using industrial scales has been changed and other options for determining waste quantities are now allowed. We consider that the revised costs accurately assess the impacts of the final rule for industrial waste landfills and that the final reporting requirements are appropriate and justified considering these costs.

Commenter Name: Sam Chamberlain

Commenter Affiliation: Murphy Oil Corporation

Document Control Number: EPA-HQ-OAR-2008-0508-0625

Comment Excerpt Number: 16

Comment: EPA presents its summary cost analysis data in the preamble with further details in the accompanying regulatory impact assessment (RIA) report. Based on these documents EPA expects the cost for this rule (2006\$) to be \$168MM and falling to \$134MM from the second year on, with 95% of the cost to be borne by the affected industry. When attempting to analyze the cost impact on a given industry sector or facility, the numbers are a bit misleading. EPA is presenting cost data for each of the subparts separately but fails to consider the overall burden per facility in view of the fact that most industry facilities are subject to more than one subpart and could be subject to more than the combined compliance burden if additional staff would be required to ensure compliance with the full gamut of provisions. A few examples, from Table VIII-1 of the preamble, can be used for demonstration: a. General Stationary Fuel Combustion accounts for 6% of downstream emissions, but its first year total annualized costs would amount to 17% of the total share. b. Oil and natural gas systems account for 3% downstream emissions but its first year total annualized costs are estimated to be 19% of the total share. c. Petroleum refineries are estimated to account for 5% of the downstream emissions with an estimate that their total annualized cost is 2% of overall costs. This figure does account for the cost of reporting for the stationary combustion units, or for electricity generation from cogeneration systems, which many refineries have installed to increase their energy efficiency and reduce the intensity of GHG emissions. On top of that refineries would also have to bear the cost of reporting under the landfill and wastewater provisions. d. The development and implementation of a Quality Assurance Performance Plan (QAPP) required by this regulation goes far beyond the level of sophisticated quality plans refineries and other operations use today. Additionally, EPA's estimate for the cost per facility is probably low in particular when it comes to addressing fugitive emissions, since the total cost does not reflect data for the cost of inspections and maintenance. Please note: Table VIII exhibits Petroleum Refineries twice, once showing an average cost per facility at \$19K and the second time at \$24K. We have been conducting our own internal GHG inventory worldwide. Our annual average costs equate to about \$250,000 per year. This includes consultant costs (\$150,000) and an estimated one man-year of effort (\$100,000). For our USA facilities, including both upstream and downstream operations, this would equate to about \$187,500 (75% of total costs) per year for conducting the GHG inventory. Based on EPA's unrealistic estimates of cost per facility, Murphy's practical estimates are almost by a factor of three or four higher than the EPA data (the average costs per refinery are about \$62,500 for two refineries in the USA and relatively the same costs for our USA upstream emissions inventory efforts). The EPA should go slowly in its efforts to implement such a complex and costly burden to industry, especially to those who have not conducted such an

inventory in the past. These costs do not include the additional costs to comply with the onerous QAPP plan, operations and maintenance, etc.

Response: We recognize that some facilities will be subject to numerous subparts. For certain types of facilities, such as petroleum refineries, we considered the costs for all of the GHG emission sources located at the facility when evaluating the impacts of the reporting requirements under subpart Y. We also significantly revised these cost estimates when finalizing the reporting requirements under subpart Y (see comment and response starting at 74 FR 56325). Additionally, the economic impact analysis did consider the burden of the all of the reporting requirements for a particular facility, including the fact that petroleum refineries would likely report under subparts C, Y, and MM and possibly subpart X. However, it is reasonable to evaluate monitoring and reporting requirements separately for each subpart. If each subpart's requirements are cost-effective considering only the emission reported under that subpart, then the combined compliance burden is also cost-effective as it can be no less cost effective than the least cost-effective requirement. Furthermore, combining the overall costs and reported emissions across several subparts may mask requirements that are not cost-effective for a given subpart. The cost analysis for industrial landfills did not consider the co-location of industrial landfills at sources that exceed the 25,000 tCO₂e reporting threshold due to other sources; it only considered costs for industrial landfills for which the emissions from the industrial landfill itself exceeded the 25,000 tCO₂e reporting threshold. As such, we significantly underestimated the burden associated with reporting requirements for small landfills or landfills containing only inert materials, but that were co-located at an industrial facility whose emissions from other GHG sources exceeded the 25,000 tCO₂e reporting threshold. In the revised cost analysis, we assume that all of the industrial landfills are co-located at an industrial facility whose emissions from other GHG sources exceeded the 25,000 tCO₂e reporting threshold. While this assumption may over-estimate the cost impacts of the industrial landfill rule, it provides a much clearer impact of rule on industrial facilities. Thus, while we did not consider the cumulative costs of Part 98's reporting requirements to the industrial facility, we did more carefully consider the likelihood that the industrial facility may already exceed the reporting threshold as we developed the costs for reporting GHG emissions from industrial waste landfills in subpart TT of the final rule. In doing so, we identified reasonable applicability thresholds to target reporting for industrial waste landfills that produce methane and to ensure the costs associated with the reporting requirements in subpart TT are reasonable in and of themselves as well as when considering the overall facility burden.