

**Guidance on Biogas Quality and RIN
Generation when Biogas is Injected into
a Commercial Pipeline for use in Pro-
ducing Renewable CNG or LNG under
the Renewable Fuel Standard Program**

Guidance on Biogas Quality and RIN Generation when Biogas is Injected into a Commercial Pipeline for use in Producing Renewable CNG or LNG under the Renewable Fuel Standard Program

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INTRODUCTION

This document provides EPA's interpretation of biogas quality and RIN generation requirements that apply to renewable fuel production pathways involving the injection into a commercial pipeline of biogas for use in producing renewable compressed natural gas (CNG) or renewable liquefied natural gas (LNG). This document also discusses related registration, recordkeeping and Quality Assurance Plans (QAPs) requirements that apply to the biogas-to-renewable CNG/LNG pathways.

In 40 CFR §80.1401, EPA has defined renewable CNG and renewable LNG as biogas or biogas derived "pipeline quality gas" that is compressed or liquefied for transportation purposes. As EPA explained in the preamble to the Pathways II rule, 79 Fed. Reg. 42128, 42138 (July 18, 2014), biogas may in some instances be compressed or liquefied on site and used for transportation purposes. In such cases it need not necessarily be cleaned to pipeline quality. However, where biogas is injected into a commercial pipeline, with the intent that it be withdrawn downstream for use in producing CNG or LNG, it must be cleaned to "pipeline quality." EPA has not previously explained its interpretation of the term "pipeline quality gas" in the definitions of renewable CNG and renewable LNG.

BACKGROUND

Biogas produced from landfills or digesters can be treated to remove inert gases (e.g., nitrogen and carbon dioxide) and other contaminants (e.g., hydrogen sulfides, total sulfur and siloxanes) to varying levels before it is injected into a commercial distribution pipeline. In addition to such treatment, we understand that it is common practice for biogas producers to blend biogas after treatment with some amount of non-renewable natural gas or propane to increase the heat content (BTU) before injecting the blend into a commercial natural gas distribution pipeline. In situations with inadequate treatment, the biogas after treatment may not be suitable for introduction into the pipeline for certain parameters until it is blended with the non-renewable gas. The ratio of renewable biogas to non-renewable natural gas or propane and frequency of blending depends on the quality of the biogas after it has been treated.

In establishing the requirement that biogas injected into commercial distribution pipelines be of "pipeline quality," and in interpreting the term, we have taken into consideration the potential that low quality biogas, and low quality biogas blended with non-renewable gas could potentially impact the overall natural gas quality in the pipeline. This could lead to further concerns downstream with respect to fuel quality, air quality and vehicle/engines operability and emission controls.

In clarifying our interpretation of RIN generation requirements in a situation where renewable biogas is comingled with non-renewable pipeline gas, we seek to ensure that RINs reflect only the renewable component of any transportation fuel, consistent with the objectives and structure

of the RFS program. EPA intends to further address these and other biogas-related issues in a future rulemaking.

INTERPRETATION

Meaning of “Pipeline Quality”

The definitions of renewable CNG and LNG require that the renewable biogas stream injected into a pipeline be of “pipeline quality.” EPA interprets this requirement to mean that the contaminants (i.e., any components other than hydrocarbon and some inert gases) in the raw biogas have been removed to pipeline quality specifications prior to any blending with non-renewable fuel streams. The result is that only the heat content and inert components are the remaining parameters in which blending with non-renewable natural gas or propane can be used to achieve pipeline quality.

Registration for Biogas to CNG/LNG Pathways using Commercial Pipelines

Any party registering under the RFS program to produce renewable CNG or LNG from biogas injected into a commercial pipeline will need to describe the technologies being used to treat biogas to pipeline quality prior to blending with non-renewable fuel streams, and will also need to demonstrate that this technology is successful by submitting:

1. Certificate of analysis (COA) from an independent lab for a representative sample of the raw biogas produced at the digester or landfill;
2. COA from an independent lab for a representative sample of the “cleaned up” biogas after treatment;
3. COA from an independent lab for a representative sample of the biogas after blending with non-renewable gas (if the biogas is blended with non-renewable gas prior to injection into a pipeline);
4. Specifications for the commercial distribution pipeline into which pipeline quality biogas will be injected;
5. Summary table with the results of the three COAs and the pipeline specifications (converted to the same units); and
6. Documentation of any waiver provided by the commercial distribution pipeline for any parameter of the biogas that does not meet the pipeline specifications, if applicable.

The COAs must report major and minor gas components (e.g., methane, carbon dioxide, nitrogen, oxygen, heating value, relative density, moisture, and any other available data related to the gas components), hydrocarbon analysis, and trace gas components (e.g., hydrogen sulfide, total sulfur, total organic silicon/siloxanes, moisture, etc.), plus any additional parameters for which the pipeline being used has specifications. The pipeline specifications must contain information on all parameters regulated by the pipeline (e.g., hydrogen sulfide, total sulfur, carbon dioxide, oxygen, nitrogen, heating content, moisture, and any other available data related

to the gas components. EPA also requests submission of a summary table with the results of three COAs and the pipeline specifications (converted to the same units) to help with review and comparison. EPA will take under consideration a party's request to submit an alternative analysis in lieu of the COAs. The alternative analysis must provide information that is equivalent to that provided in the COAs, and demonstrate that the treated biogas will meet all parameters required by the commercial pipeline specification.

Parties currently registered for a biogas-to-renewable CNG/LNG pathway using a commercial pipeline will need to follow the protocols described above during a 3-year registration update. The professional engineer conducting an engineering review for an initial registration or a 3-year update will need to verify through a site visit that the biogas treatment technology described in registration materials is in place and will review the COAs and pipeline specifications to verify that biogas is being treated to pipeline quality before blending with non-renewable fuel.

RIN Generation for Biogas to CNG/LNG Pathways

RIN generation must be based on the BTU of the pipeline quality biogas after treatment and prior to any blending with non-renewable fuel or injection into a pipeline. The producer must be able to demonstrate, through contracts or affidavits, a path of the treated volume (in BTUs) prior to blending with non-renewable to downstream CNG/LNG plants, and ultimately for use as transportation fuel. The EPA would consider RINs to be improperly generated if parties used the BTU of the blended gas mixture (renewable biogas and non-renewable gas) or if the parties used the BTU of the gas withdrawn from the pipeline or of the renewable fuel (e.g., CNG or LNG) after it is compressed or liquefied for transportation use.

In order to properly measure the BTU of the biogas after treatment for RIN generation purposes, parties should use in-line gas chromatography (GC) meters that provide continuous readings. RIN generators may develop a sampling protocol that would properly measure the BTU of the biogas after treatment as an alternative to continuous metering. The sampling protocol must be submitted as part of the registration submission and is subject to EPA's review.

Ongoing Responsibility for Successful Treatment

Since use of only "pipeline quality" biogas is permitted for biogas-to-renewable CNG/LNG pathways involving a commercial pipeline, use of inadequately treated biogas would represent a failure to adhere to an approved pathway specification. In addition, if the biogas treatment described at registration and successfully demonstrated through submission of COAs is not followed on an ongoing basis, producers would be engaging in the prohibited act of introducing into commerce a renewable fuel produced from a feedstock or through a process that is not described in the person's registration information. See 40 CFR §80.1460(a)(5).

Recordkeeping

The regulations at 40 CFR §80.1454 require that registration documents (including the COAs, pipeline specifications, and RIN generation protocol described in this document) be kept for five years from the date they were created, except that records related to transactions involving RINs shall be kept for five years from the date of the RIN transaction.

Biogas Quality Assurance Plans

Third-party QAP auditors should ensure that QAP plans for the upcoming annual renewal due October 31, 2016 incorporate proper verification that producers are utilizing the biogas treatment technology described at registration, and demonstrated to be successful through submitted COAs, for all RINs generated for biogas-to-CNG/LNG pathways involving a commercial pipeline. The QAP auditors should also verify that proper BTU metering or sampling in accordance with a protocol submitted at registration is followed. As more information become available to EPA, we will work with QAP providers to help update their QAP plans accordingly.