# Renewable Fuels Standard Regulation (RFS2) Registration Compliance Guidelines Engineering Review

United States
Environmental Protection
Agency

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Compliance and Innovative Strategies Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

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## I. Purpose

All renewable fuel producers, domestic or foreign, are required to conduct an engineering review, and submit a report as part of their registration requirements pursuant to 40 CFR § 80.1450.[1] The purpose of the engineering review is for a licensed professional engineer (PE) who also qualifies as an independent third party (referenced herein as "independent PE") to evaluate and confirm the accuracy of the information the renewable fuel producer is required to report to EPA as part of their registration. EPA will review the independent PE's report to assist the Agency in evaluating compliance with the registration requirements. EPA has received an influx of requests to provide guidance for the engineering review and report. In response to these requests, EPA has drafted these compliance guidelines to help clarify the requirements of the engineering review and to provide a suggested format for the report.

Regulated parties may use these guidelines to aid in achieving compliance with the RFS2 program regulations. However, these guidelines do not in any way alter the requirements of those regulations. While the guidance provided in these guidelines reflect the Agency's general plans for implementation of the regulations at this time, some of the guidance may change as additional information becomes available, or as the Agency further considers certain issues. These compliance guidelines do not establish or change legal rights or obligations. They do not establish binding rules or requirements and are not fully determinative of the issues addressed. Agency decisions in any particular case will be made applying the law and regulations on the basis of specific facts and actual action.

These guidelines were drafted primarily based on the RFS2 regulations published on March 26, 2010 (at 75 Fed. Reg. 14670), that will become effective on July 1, 2010. However, on April 30, 2010, the EPA Administrator signed a direct final rule to amend these regulations (the "technical amendments"). These amendments can be viewed at http://www.epa.gov/otaq/fuels/renewablefuels/regulations.htm, and will be published in the Federal Register. The technical amendments will be effective on July 1, 2010, thereby supplanting the corresponding RFS2 regulations, unless adverse public comment is received with respect to the amendments. EPA issued the technical amendments as a direct final rulemaking because it does not anticipate adverse comment on them. Therefore, EPA has drafted this guidance document to reflect the changes made by the technical amendments, since we anticipate they will be effective on July 1, 2010 and supplant the corresponding RFS2 regulations they amend. However, if adverse comment is received on any technical amendment during the comment period set forth in the direct final rule, EPA will issue a Federal Register Notice withdrawing that technical amendment from the direct final rule, and will consider the adverse comment(s) before issuing a new final rule. In the event of such a withdrawal, the un-amended rule that was part of the RFS2 rulemaking that was published on March 26, 2010 will become effective on July 1, 2010, and will remain in effect pending the new final rule. EPA notes throughout this document instances where the guidance is based on a technical amendment.

[1] EPA's technical amendments, described in paragraph three of this document, also requires registration of foreign ethanol producers who produce ethanol for use in transportation fuel, heating oil or jet fuel, but who do not add denaturant to their product.

## II. Compliance Guidelines

### a. Independent PE's Review and Verifications

The independent PE must review and evaluate the accuracy of all information the renewable fuel producer submitted to EPA as part of their registration requirements pursuant to 40 CFR § 80.1450. The independent PE's verifications should be based upon a site visit and review of all relevant documents. As clarified in the Q/As posted on the RFS website (http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfs2-aq.htm), the site visit to the renewable fuel facility should be performed by a professional licensed engineer. Based on the site visit and review of all relevant information, the independent PE should describe how he or she evaluated the accuracy of the information, state whether he or she agrees with the information, and identify any exceptions between his or her findings and the registration information submitted by the renewable fuel producer to EPA pursuant to 40 CFR § 80.1450(b)(2).

The independent PE should also verify the information (or note exceptions to) in the process heat fuel supply plan,[2] which should be submitted by the renewable fuel producer as a supplemental plan with their registration. In addition, for a producer who uses separated food waste, separated yard waste or separated municipal solid waste (MSW) as feedstock for producing renewable fuel, the independent PE should review and verify (or note exceptions to) the information in the applicable supplemental separation plan(s) required to be submitted by the renewable fuel producer as part of their registration. The requirements for the separated yard waste, separated food waste, and separated MSW plans[3] are stipulated in 40 CFR §80.1450(b)(vii)(A), (vii)(B) and (viii), respectively. All supporting documents used by the independent PE to conduct the engineering review should be included in or attached as appendices to the report.

### b. Engineering Report

There is no requirement for the independent PE to fill out any specific forms or follow any specific format for the engineering report. However, the engineering report and all supporting documentation, including data, diagrams, permits, etc. must be submitted in English. Also, for ease of review and consistency purposes, EPA recommends the independent PE summarize and submit his or her verifications for the engineering review in a report format, which could include for example, a title page, a table of contents, numbered pages, numbered

[2] The process heat fuel supply plan is currently referred to as the fuel supply plan in 40 CFR § 80.1450(b)(3). EPA's technical amendments, described in paragraph 3 of this document, amends the regulations to rename the fuel supply plan to "process heat fuel supply plan," move the plan requirements from §80.1450(b)(3) to §80.1450(b)(1)(iv) and revise some of the plan requirements.

[3] EPA is drafting compliance guidelines for the separated MSW plan that will be posted on the RFS website in the near future.

sections, section titles and subtitles, a reference page, appendices, etc. The independent PE should separate out any information that the renewable fuel producer asserts is confidential (and any statements of the independent PE that is related to that information) into a section in the report that is clearly labeled as "Confidential Business Information (CBI)." The engineering report could include, but need not necessarily be limited to, the following sections:

Section 1: Executive Summary
Section 2: Professional Licensed Engineer Qualifications
Section 3: Third Party Independence
Section 4: Verifications, Exceptions or Discrepancies
Section 5: Confidential Business Information (CBI)
Section 6: Conclusion
Appendices

### i. Executive Summary

The executive summary should be a brief summary that could include, but is not necessarily limited to, identification of the renewable fuel producer, identification of the independent PE, the type fuel produced from the production facility, whether the facility is domestic or foreign, identification of sections(s) of the engineering report that is deemed by the renewable fuel producer as confidential business information (CBI), and significant verifications, including any significant exceptions between the independent PE's engineering review and the registration information that was submitted by the renewable fuel producer to EPA.

### ii. Professional Licensed Engineer Documentation

The RFS2 regulations require that the independent PE provide EPA with "documentation of his or her qualifications." EPA interprets this section to include documentation of both technical expertise, and the independence requirements in 40 CFR 80.1450(b)(2)(ii). The independent PE should provide documentation of his or her professional engineer's license as issued by an appropriate state agency in the United States (or foreign equivalent), including a copy of license, the license number and a statement stating that the professional engineer is not disbarred, suspended, or proposed for suspension or disbarment to the Government-wide Debarment and Suspension regulations, 40 CFR part 32, or the Debarment, Suspension and Ineligibility provisions of subpart 9.4.

In addition, the independent PE should provide documentation of his or her work experience in the chemical engineering field, (which can be experience related to renewable fuel production). The independent PE can document his or her work experience in a descriptive summary paragraph, or in a resume format as an appendix to the engineering report.

### iii. Third Party Independence

To qualify as an independent third party, the professional engineer conducting the engineering review cannot be operated by the renewable fuel producer or any subsidiary or employee of the renewable fuel producer. The professional engineer must be free of "any interest" in the fuel producer's business, and equally, the renewable fuel producer must be free of any interest in the professional engineer's business. Examples of the types of interest that would disqualify a professional engineer from conducting the engineering reviews would be significant ownership of stock in the company, being an employee or director of the company, having an arrangement or negotiating for future employment with the company, or having a substantial professional interest in the outcome of the engineering review.

The professional engineer should consider, in accordance with their professional license, professional code of ethics and any internal vetting process within his or her company, whether he or she has the quality of independence that is appropriate to conduct the engineering review. If the professional engineer deems him or herself qualified as an independent third party based on those considerations, then the professional engineer should also evaluate the specific regulatory requirements for independence in 40 CFR §80.1450(b)(2)(ii). Documentation with respect to satisfying those requirements could include statements in the engineering report that:

- The third party is not operated by the renewable fuel producer or any subsidiary or employee of the renewable fuel producer.
- The third party is free of any interest in the renewable fuel producer's business.
- The renewable fuel producer is free of all interest in the third party's business.

### iv. Verifications, Exceptions or Discrepancies

The independent PE should review and evaluate the accuracy of all the registration information the renewable fuel producer is required to submit to EPA for registration. The independent PE should identify each registration requirement separately in the engineering report and either provide verification of the accuracy of the information submitted by the renewable fuel producer to EPA to fulfill the registration requirement or identify any exceptions or discrepancies between the information obtained by the independent PE through the site visit or otherwise and the information the renewable fuel producer submitted to EPA for registration.

The renewable fuel producer is required to submit all the information stipulated in 40 CFR Section 80.1450(b) as part of their registration requirement. EPA is requesting the independent PE to review, verify (or note exceptions to) the producer's submitted registration information in a narrative format in the engineering report as suggested below.

1. List the types of renewable fuel that are identified in the renewable fuel producer's registration, and either verify or identify exceptions to the list of fuels actually produced at the facility, the fuels the renewable fuel producer intends to produce, and the fuels the facility is capable of producing without significant modifications. Verify that the facility is capable of producing all renewable fuels listed by the renewable fuel producer without

significant modifications, or identify any exceptions. Examples of typical types of renewable fuels include ethanol, biodiesel, naphtha, biogas, jet fuel, heating oil, etc.

2. For each renewable fuel the facility is capable of utilizing without signification modification to the existing facility, list all of the feedstocks and either verify or indicate exceptions with the feedstock information submitted by the renewable fuel producer. For example, Table 1 in 40 CFR Section 80.1426(f)(1) identifies typical feedstocks used to produce renewable fuel, such as corn starch, starches from crop residue and annual cover crops, soybean oil, oil from annual cover crops, algal oil, biogenic waste oils/fats/greases, non-food grade corn oil, sugarcane, cellulosic biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual cover crops, switchgrass, miscanthus, cellulosic components of separated food waste, cellulosic components of separated MSW, non-cellulosic portions of separated food waste, etc.[4]

3. For each renewable fuel the facility is capable of utilizing without signification modification to the existing facility, describe the facility's renewable fuel production process, which could include a diagram of the overall process train, and a description of each stage in the process train, including, but is not necessarily limited to, major and minor ancillary equipment, process heat fuel, collection and treatment of waste streams, etc. The facility's production process train may be diagramed as a simple drawing with blocks and arrows. Detailed drawings such as blue prints or piping and instrumentation diagrams (P&IDs) do not need to be submitted in the engineering report. Verify (or note any exceptions to) the information is consistent with registration information submitted to EPA by the renewable fuel producer.

   For example, a process train for a corn ethanol production facility may include a dry milling process. In a typical dry mill process, the corn is first screened to remove any unwanted debris, and then the kernel is grounded into coarse flour referred to a "meal" in a hammer mill. The meal is then cooked to prepare the starch for fermentation, and from there the fermented mash is pumped into a multi-column distillation process, where additional heat is added, and the columns utilize the differences in the boiling points of ethanol and water to boil off and separate the ethanol, resulting in hydrous ethanol (ethanol with 5 percent water by volume). The stillage, the residue from the distillation process, is pumped out from the bottom of the columns into centrifuges. The hydrous ethanol is dehydrated as it is passed through a molecular sieve to remove the excess water, resulting in an anhydrous ethanol. Denaturant is added to the ethanol to make it unfit for human consumption, and it is placed into storage. The co-products from this process are carbon dioxide, stillage and distillers grains with solubles (DGS). The carbon dioxide is purified through scrubbers and sold to the food processing industry for use in carbonated beverages or flash-freezing applications. The DGS can be sold as wet (WDGS) or dried (DGS) to agricultural market as animal feed. The independent PE's narrative description of the production process for a dry mill corn ethanol plant should include at least the level of detail of this paragraph.

[4] Certain entries to Table 1 in 40 CFR §80.1426 were changed in EPA's technical amendments, as described in paragraph 3 of this document, such as entries for crop residue, tree residue and pre-commercial thinnings, etc.

As another example, a process train for biogas such as landfill gas includes a gas collection system (gas wells, trenches, header, etc.) to collect the landfill gas, then the landfill gas is passed through a clean-up system, which may consist of a chiller, gas-to-gas heat exchanger, silica media or scrubber, etc. to remove impurities in the landfill gas stream such as hydrogen sulfide, silica compounds, water, organic sulfur, halogen compounds, solid components, etc. A purified gas stream leaves the clean-up system, which can be injected into a pipeline for use downstream or can be processed further into a transportation fuel. The gas may be compressed at high pressures to produce compressed natural gas (CNG), or condensed into a liquid by cooling it to produce liquefied natural gas (LNG) or the gas may be sent directly to a gas turbine to produce renewable electricity. Each step in such a process chain should be described in the independent PE's narrative.

Other examples of typical processes used in renewable fuel production include trans-esterfication to produce biodiesel, hydroheating to produce renewable diesel, Fischer-Tropsch to produce cellulosic naphtha, etc. Each process would employ a number of steps, which should be diagrammed and discussed in the same level of detail as the above examples.

4. For each renewable fuel the facility is capable of utilizing without signification modification to the existing facility, list the types of co-products produced and verify or indicate any exceptions to the list of co-products submitted by the producer to EPA during registration. Examples of typical co-products produced from renewable fuel production include dried distiller's grain (DDGS), carbon dioxide, industrial alcohols, oils, nutraceutical oils, carotenoids, etc.

5. List the types of process heat fuels used at the facility and verify or identify exceptions with the information provided to EPA by the renewable fuel producer. In addition, the independent PE should review and verify or indicate exceptions with respect to the process heat fuel supply plan that was submitted to EPA by the renewable fuel producer (please refer to footnote #2 in this document). The process heat fuel supply as modified in the technical amendments, includes the following requirements[5] for producers:

   For all process heat fuel, provide each type of process heat fuel used at the facility, such as natural gas, biogas, renewable electricity, coal, etc. and provide the name and address of the company supplying each process heat fuel to the renewable fuel facility.

   For biogas used for process heat[6], provide the locations from which biogas was produced or extracted, the name of suppliers of all biogas the producer purchase for use as process heat at the facility and an affidavit from the biogas supplier stating its intent to supply biogas to the renewable fuel producer, and the quantity and energy content of the biogas that it intends to provide to the renewable fuel producer.

[6] The requirements related to biogas used for process heat were moved from 40 CFR Section 80.1450(b)(3) in the March 26, 2010 RFS2 rule to 40 CFR 1450(b)(1)(iv)(B) in the technical amendments.

6. If applicable, the independent PE should review the information in the supplemental plans submitted to EPA by the renewable fuel producers for registration, such as the separated yard waste plan, the separated food waste plan or the separated MSW plan and identify, if possible, any exceptions that can be verified during the site visit and the required record review. The required information to be included in these supplemental plans are stipulated in 40 CFR §80.1450(b)(vii)(A), (vii)(B) and (viii), respectively (please refer to footnote #3 of this document for the separated MSW plan).

7. Review all permits submitted by the renewable fuel producer to EPA that support the facility's baseline volume and verify, or indicate any exceptions, that all permits specified in 80.1450(b)(1)(v)[7] have been submitted. For facilities claiming the exemption described in 80.1403(c) these are all air permits issued by EPA, state, local air pollution agencies or foreign governmental agencies that govern the construction and/or operation of the renewable fuel facility that were issued or revised no later than December 19, 2007. For facilities claiming the exemption in 80.1403(d) the permits must be those issued or revised no later than December 31, 2009. For other facilities copies of the most recent applicable permits that govern the construction and/or operation of the facility must be submitted.

8. Review the content of the permits described in paragraph 6, above, to determine whether one or more of them specify a maximum volume output of renewable fuel production for the facility, and state the results of this review. If no maximum volume output is specified in the appropriate permits for the facility type, review documents submitted to EPA by the renewable fuel producer to demonstrate the facility's actual peak capacity as defined in 80.1401[8], and verify, or indicate any exceptions, that all documents necessary to demonstrate actual peak capacity have been submitted.

9. For facilities claiming the exemption described in 80.1403(c) or (d), the independent PE should review the evidence submitted by the renewable fuel producer to EPA during registration demonstrating the date that construction commenced (as defined in 40 CFR §80.1403(a)(4)), including contracts with construction and other companies related to construction of the facility and all applicable air permits issued by EPA, a state, local air pollution control agencies, or foreign governmental agencies that governed the construction and/or operation of the renewable fuel facility during construction and when first operated. The independent PE should verify, or identify any exceptions, that all required information has been provided to EPA.

[7] Pursuant to 40 CFR §80.1450(v) of the technical amendment, all renewable fuel facilities must provide documentation to establish their baseline volume. Grandfathered facilities will still required to submit documentation to verify their baseline volume (reported as permitted capacity or actual capacity) and the date of construction commencement as defined in 40 CFR §80.1403(a)(4).

[8] The definition of "actual peak capacity" was moved in the technical amends from 40 CFR §80.1403(a)(3) to 40 CFR §80.1401.

### v. Confidential Business Information (CBI)

Any information the renewable fuel producer asserts is CBI should be included and discussed in this section. References to information to this section may be made from other sections in the report.

### vi. Conclusion

This section should include any conclusions made by the independent PE for the engineering review. It may also include any supplemental explanation, qualifications, description, data, etc. that may not have been included elsewhere in the engineering report, but which the independent PE believes may be relevant or helpful to EPA's analysis of the renewable fuel production facility.

## c. Reporting Requirements

Most renewable fuel producers are required to submit all required information for registration, including copies of applicable permits, engineering review and the applicable supplemental plans, etc. to EPA by July 1, 2010, or 60 days prior to the generation of RINs, whichever date comes later. (The timing rules for facilities claiming grandfathered status are somewhat different, and are discussed blow.) Renewable fuel producers may submit required registration elements all at once or incrementally over time, providing only that all requirements are fulfilled by the applicable deadline. For example, producers may choose to submit the applicable supplemental plans (i.e. process heat fuel supply plan, the separated yard waste plan, the separated food waste plan and the separated MSW plan)[9] prior to submitting the engineering review; or they may submit the applicable supplemental plans with their engineering review.

The required submission dates are somewhat different for facilities claiming an exemption under 80.1403(c) or (d). Such facilities that wish to generate RINs in the short term must comply with all registration requirements (including submission of supplemental plans and permits) by July 1, 2010, or 60 days prior to generating RINs, whichever date is later except for the engineering review. The technical amendments, in section 80.1450(b)(2)(vi), clarify EPA's original intent, as expressed in the preamble to the RFS2 rule, to extend the deadline for the engineering review for grandfathered facilities generating RINs in 2010 to December 31, 2010. EPA wishes to further clarify, however, that pursuant to 40 CFR 80.1450(f), facilities that may wish to assert a claim for an exemption under 80.1403(c) or (d), and which will not generate RINs in 2010, are not required to submit an engineering review or any component of their registration materials to EPA until 60 days prior to generating RINs or July 1, 2013, whichever date is later.

Every three calendar years from the date of initial registration, the renewable fuel producer is required to submit an updated engineering review to EPA pursuant to 40 CFR §80.1450(d)(3).

[9] The renewable fuel producer should provide, in a timely manner, all information required to be submitted for registration pursuant to 40 CFR §80.1450, including applicable supplemental plans, to the independent PE, who will be conducting their engineering review.

If in the meantime, a renewable fuel producer makes changes to their facility that will qualify their renewable fuel for a renewable fuel category, or D code, that is not reflected in the original registration information that they submitted to EPA, then an updated engineering review must be submitted to EPA at least 60 days prior to producing a new type of renewable fuel pursuant to 40 CFR §80.1450(d)(1).

The renewable fuel producer should submit one paper copy of the engineering report that is signed by the independent PE. If possible, EPA requests the producer also provide one electronic copy (e.g. compact disc (CD) in a read-only format) with their paper copy of the engineering report.

### d. Recordkeeping Requirements

The independent PE must retain all records pertaining to the engineering review, verification and report for a period of five years from the date of creation and must provide EPA with such records upon request pursuant to Section 80.1450(b)(2)(iii).

The renewable fuel producer must retain for five years all documents required for registration under 80.1450, including information on fuels and products, feedstocks, facility production processes, process changes, capacity, energy sources and independent PE's engineering review, pursuant to Sections 80.1450(b)(2)(iv) and 80.1454(b)(6).

## III. EPA's Review and Approval

The renewable fuel producer is required to submit the engineering review as part of their registration requirement. The engineering review will be accepted once they are submitted to EPA, and will be deemed in pending status, waiting for approval from EPA. EPA will review the engineering review, request supplemental information, if necessary, and will make a determination if the engineering review is approved or not approved. Once all required registration information is submitted by renewable fuel producer and accepted by EPA through CDX, the producer will be able to start using their EMTS account to manage their RINs transactions. The producer can continue to use their EMTS account while EPA is in the process of reviewing their engineering review. EPA may suspend a producer's EMTS account if the producer fails to promptly correct any deficiencies identified by the Agency in its review of the engineering report. EPA may take enforcement action if the engineering review fails to comply with the regulations.

EPA advises renewable fuel producers to not submit engineering reviews that do not at least contain the information required in Section 80.1450. Similarly, EPA advises renewable fuel producers not to submit superfluous information such as large printouts of years of data on production volumes. Whenever possible, summarized data with brief descriptions of its applicability and the source of the data is sufficient. An engineering report that is lacking significant information may be rejected without further review by EPA and may require a resubmittal of the entire engineering report. EPA's approval of the engineering review will be

based on our assumption that the information submitted by the renewable fuel producer and the information verified by the independent PE are true and accurate. Thus, EPA's approval does not suggest that EPA has verified the factual content of the engineering report or the registration submissions.

While there is no deadline for EPA to approve the engineering review after it has been received by EPA, we will strive to review them in a timely, but thorough manner. EPA anticipates a high volume of engineering reviews to be submitted on or near July 1, 2010. EPA encourages producers to submit their engineering reviews as early as possible to help EPA staff manage the review of the engineering reports.