

**SOUTHERN CALIFORNIA GAS COMPANY (SOCALGAS)
SIERRA CLUB-SCG-05
WOODY BIOMASS PILOT PROJECT APPLICATION (A.25-10-008)
DATE REQUESTED: February 25, 2026
RESPONSE DUE: March 11, 2026**

QUESTION 5-1:

In SoCalGas's response 2-2 to Sierra Club's Second Data Request, SoCalGas states "[y]es, methane leakage detection would be conducted in accordance with SoCalGas's most current gas standard for leakage survey. Because the nature of the gas standard is subject to change, and the leak detection technologies will be referenced within the standard itself, we cannot definitively state which technologies will be utilized at this point. Frequency of monitoring will be based on location, material type, and operating pressure."

QUESTION 5-1a:

Please provide SoCalGas's "most current gas standards for leakage survey."

RESPONSE 5-1a: (SCG)

This response and the attachments contain confidential information provided pursuant to PUC Section 583, D.21-09-020 and GO 66-D (Revision (Rev.) 2)

[REDACTED]

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QUESTION 5-1b:

What is the “material type” referenced?

RESPONSE 5-1b: (SCG)

Material type generally refers to “Non-State-of-the-Art Pipe” and “State-of-the-Art Plastic Pipe”, see Section 3 of Gas Standard 223.0100.

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QUESTION 5-1c:

What is the “operating pressure” referenced?

RESPONSE 5-1c: (SCG)

Operating pressure generally refers to the pressures as provided in Section 4.1 of Gas Standard 223.0100.

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QUESTION 5-1d:

What is the “location” or locations referenced?

RESPONSE 5-1d: (SCG)

Location generally refers to the location of the pipe/facilities as provided in Sections 4.1 and 4.2 of Gas Standard 223.0100.

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QUESTION 5-2:

In SoCalGas's response 2-3 to Sierra Club's Second Data Request, SoCalGas states that "[f]or indoor and confined facilities, gas detectors will be installed that would immediately detect leakages from equipment to the building and trigger an immediate shutdown to assess and correct the leakage issue. For outdoor piping and equipment, daily leak checks will be performed using portable gas detection equipment. For each leakage event, the total leakage amount will be estimated based on size and duration of the leakage."

QUESTION 5-2a:

What is the make and model type of the "gas detectors" referenced?

RESPONSE 5-2a: (WBF)

The specific make and model of the gas detectors for the proposed project will be selected following CPUC approval of the application.

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QUESTION 5-2b:

What is the make and model type of the “portable gas detection equipment” referenced?

RESPONSE 5-2b: (WBF)

The specific make and model of the portable gas detection equipment for the proposed project will be selected following CPUC approval of the application.

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QUESTION 5-3:

In SoCalGas's response 2-6 to Sierra Club's Second Data Request, SoCalGas states that "[c]ommerciably available gas analyzers will be utilized to measure the direct carbon dioxide and criteria pollutant emissions from the facility. WBF uses commercial flue gas analyzers from Horiba and Testo and industry standard procedures at its current facilities."

QUESTION 5-3a:

What are the make and model of the Horiba gas analyzers?

RESPONSE 5-3a: (WBF)

The specific make and model of the gas analyzers for the proposed project will be selected following CPUC approval of the application. For the gas analyzers used at other WBF facilities, the model of the Horiba gas analyzer is Horiba PG 250 Portable Gas Analyzer.

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QUESTION 5-3b:

What are the make and model of Testo gas analyzers?

RESPONSE 5-3b: (WBF)

The specific make and model of the gas analyzers for the proposed project will be selected following CPUC approval of the application. For the gas analyzers used at other WBF facilities, the model of the Testo gas analyzer is Testo 300-LL-C-KIT Flue Gas Analyzer Kit with NOx Sensor.

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QUESTION 5-3c:

What are the “industry standard procedures” referenced?

RESPONSE 5-3c: (WBF)

An example of industry standard procedures is the guidance of USEPA for good practices in stack testing can be found at <https://www.epa.gov/compliance/clean-air-act-national-stack-testing-guidance>, which includes recommended use, for example, of EPA Methods 1, 2, 3A, 7E, 10 for procedures for gas analyzers, setup of sampling lines, and measurement of flow rates.

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QUESTION 5-3d:

What are the “standard procedures” in use at the WBF facilities where bio-SNG is currently generated?

RESPONSE 5-3d: (WBF)

Bio-SNG is currently not being generated at any WBF facility.

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QUESTION 5-4:

In SoCalGas's response 2-7 to Sierra Club's Second Data Request, SoCalGas states that, "[t]he facility can document energy consumption associated with compression activities and apply relevant emission factors to accurately estimate resulting emissions impact. Similarly, the number of transportation miles can be tracked, and an appropriate trucking emission factor applied to determine transport-related emissions."

QUESTION 5-4a:

What are the "relevant emissions factors" referenced?

RESPONSE 5-4a: (WBF)

Relevant emissions factors would be based on the best available data for the grid power consumed by the facility at the time of the compression activities.

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QUESTION 5-4b:

What is the “appropriate trucking emissions factor” referenced?

RESPONSE 5-4b: (WBF)

The manufacturer of the heavy-duty vehicle utilized for transport of biomass or Bio-SNG is required by USEPA to provide the estimated emissions per mile for the vehicle, and this can be used for the appropriate trucking emissions factor.

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QUESTION 5-5:

In SoCalGas's response 2-10 to Sierra Club's Second Data Request, SoCalGas states that, "[t]he volatile organic compounds from West Biofuels facilities have been quantified using EPA Method 25A which measures total hydrocarbons using a flame ionization detector."

QUESTION 5-5a:

At which West Biofuels facilities have the VOCs been quantified?

RESPONSE 5-5a: (WBF)

The VOCs have been quantified at the following facilities:

1. Rice Hull Facility, Williams, CA – EPA Method 18
2. Hat Creek Bioenergy Facility, Burney, CA – EPA Method 25A/18

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QUESTION 5-5b:

How many times and over what time period(s) has such quantification occurred for each of the tested West Biofuels facilities?

RESPONSE 5-5b: (WBF)

1. Rice Hull Facility – Source Test 2022 - EPA Method 18 - 3 x 60 mins
2. Hat Creek Facility – Source Test 2025 – EPA Method 25A/18 - 3 x 30 mins

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QUESTION 5-5c:

Please provide all test reports generated from such quantification at each of the test facilities.

RESPONSE 5-5c: (WBF)

SoCalGas objects to this question on the grounds that the cited test report data is not relevant to the proposed pilot project and is not reasonably calculated to lead to the discovery of admissible evidence. These reports are irrelevant to the proposed pilot project because they used reciprocating bed technology instead of a fluidized bed and combusted syngas instead of producing Bio-SNG. Methods 25A and 18 are referenced because it is expected the air district would require the same or similar methods to be used to monitor VOC's for a source test at the proposed pilot project.

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QUESTION 5-6:

In SoCalGas's response 2-13(b) to Sierra Club's Second Data Request, SoCalGas states that, "[a]t the Woodland Biomass Research Center, the syngas produced by the FICFB gasifier has been tested in a pilot system for producing Bio-SNG."

QUESTION 5-6a:

How many days has the Woodland Biomass Research Center facility produced syngas in 2024 and 2025?

RESPONSE 5-6a: (WBF)

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2024 –

2025 –

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QUESTION 5-6b:

For the days on which the Woodland Biomass Research Center has operated and produced syngas in 2024 and 2025, please provide the daily production values of the generated syngas.

RESPONSE 5-6b: (WBF)

Daily volumes are not available.

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QUESTION 5-6c:

What volume of syngas has been “tested” at the Woodland Biomass Research Center?

RESPONSE 5-6c: (WBF)

The volume of syngas “tested” has not been quantified.

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QUESTION 5-6d:

What methods were used to “test” the syngas?

RESPONSE 5-6d: (WBF)

Syngas was tested at the Woodland Biomass Research Center under a number of operating conditions by varying temperature, pressure, hydrogen to carbon ratio, and residence time to determine best performance for the methanation catalyst.

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QUESTION 5-6e:

Please describe the “pilot system” referenced.

RESPONSE 5-6e: (WBF)

The fluidized bed methanation reactor test system is an automated, integrated unit consisting of gas-generation, gas-cleaning, and methanation reaction subsystems. This test system has been used to test multiple methanation catalysts under a number of operating parameters including pressure, temperature, fluidization rate, space velocity, syngas composition, steam addition, etc.

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QUESTION 5-6f:

How do the “reciprocating grate systems” referenced produce methane form woody biomass? Is combustion used in the process?

RESPONSE 5-6f: (WBF)

SoCalGas objects to this question as not relevant and not reasonably calculated to lead to the discovery of admissible evidence because reciprocating grate systems are not being proposed for the pilot project.

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QUESTION 5-7:

In SoCalGas's response 2-13(c) to Sierra Club's Second Data Request, SoCalGas states that, "[i]n 2025, syngas (which includes some methane) was generated by all three facilities during gasification and the syngas was subsequently utilized in synthesis experiments at the research center and for power production at the other two facilities."

QUESTION 5-7a:

What are the "synthesis experiments" referenced?

RESPONSE 5-7a: (WBF)

The Woodland facility made the biomass-based syngas in 2023 and 2024, but not 2025. However, the stored syngas from prior years was used for experiments in 2025 with a test system to make diesel fuel precursors using Fischer-Tropsch synthesis in a project conducted in collaboration with the National Renewable Energy Laboratory with funding from the US Department of Energy.

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QUESTION 5-7b

What volumes of syngas were produced at the Rice Hull and Hat Creek facilities?

RESPONSE 5-7b: (WBF)

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Rice Hull – [REDACTED]

Hat Creek – [REDACTED]

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QUESTION 5-8:

In SoCalGas's response 2-14(b) to Sierra Club's Second Data Request, SoCalGas refers Sierra Club to "Table 2" as a response to the question of "what emissions will be emitted from the "exhaust?".

QUESTION 5-8a:

Where does Table 2 specify exhaust emissions, as separate from other facility emissions?

RESPONSE 5-8a: (WBF)

The exhaust emissions are the "Bio-SNG plant direct emissions" in Table 2.

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QUESTION 5-8b:

If Table 2 does not specify exhaust emissions, please list the pollutants that will be emitted from the exhaust and the annual volumes of those pollutants.

RESPONSE 5-8b: (WBF)

See Response to Question 5-8a.

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QUESTION 5-9:

In SoCalGas's response 2-14(a) to Sierra Club's Second Data Request, SoCalGas states that "[t]he emergency flare is used if the methanation plant becomes unavailable to take the syngas from the gasifier while the FICFB plant performs a safe controlled shut down. The flare is an enclosed thermal oxidizer and the exhaust will consist of syngas combustion products including excess air, carbon dioxide and water vapor. Emission factors for criteria pollutants from this type of flare will be estimated by the supplier during the procurement process. Since the hours of use are expected to be very low for this device (<0.5% of total), it is not expected to make a significant contribution to the facility emissions."

QUESTION 5-9a:

Please provide the specifications for the "thermal oxidizer" referenced.

RESPONSE 5-9a: (WBF)

The specific make and model of the thermal oxidizer for the proposed project will be selected following CPUC approval of this application.

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QUESTION 5-9b:

Please provide the specifications for the flare stack, including height and diameter.

RESPONSE 5-9b: (WBF)

The specific make and model of the flare stack for the proposed project will be selected following CPUC approval of the application.

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QUESTION 5-9c:

What other emissions will occur from the flare besides air, carbon dioxide and water vapor?

RESPONSE 5-9c: (WBF)

The specific make and model of the flare for the proposed project will be selected following CPUC approval of the application. Criteria pollutant emissions from this type of flare will be estimated by the supplier during the procurement process.

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QUESTION 5-9d:

Will the flare emit air toxics such as benzene, formaldehyde, hexane, and others toxic air pollutants?

RESPONSE 5-9d: (WBF)

The purpose of the thermal oxidizer is to eliminate these compounds and other VOC's if present in the syngas prior to venting the gas. The air district will evaluate if air toxics are a concern for the project in their analysis and approval of the facility permit to construct.

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QUESTION 5-9e:

Will the flare stack have monitoring ports for continuous monitoring of pollutants?

RESPONSE 5-9e: (WBF)

The air district is unlikely to require continuous emissions monitoring because the flare is used only rarely. However, ports are typically added to the stack to conduct a source test if required and gas flow to the flare is continuously monitored and recorded to determine the total flare usage.

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QUESTION 5-9f:

What is the basis for statement that the device will only be used for less than .5% of hours?

RESPONSE 5-9f: (WBF)

WBF estimates the flare will be used for a maximum of 10 minutes for an initial startup or emergency shutdown of the methanation system. In the first year, which includes commissioning, WBF anticipates up to 120 startups and shutdowns which is the basis for less than 0.5% of hours. After the facility is commissioned, WBF only anticipates approximately 8 to 10 startups/shutdowns annually.

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QUESTION 5-10:

In SoCalGas’s response 2-14 to Sierra Club’s Second Data Request, SoCalGas states that, “CO2 in the flue stream will also be captured, labeled ‘exhaust’ in Lane 2 of the Process Flow Diagram. There are supplier technologies being considered that separate the CO2 from this stream including adsorption and filtration.”

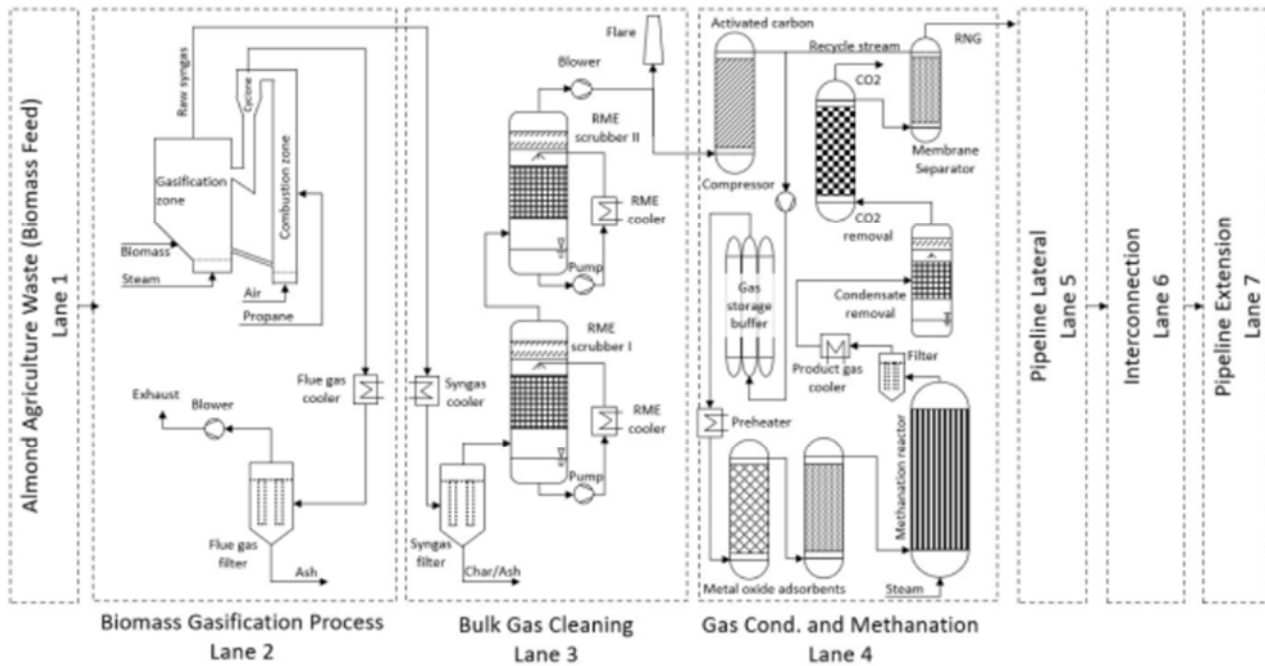
QUESTION 5-10a:

What “supplier technologies” are being considered?

RESPONSE 5-10a: (WBF)

Adsorption and filtration are the technologies being considered.

WBF Process Flow Diagram (Submitted for Cal Advocates DR-01 Question 4)



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QUESTION 5-10b:

Provide the composition and quality of exhaust gas that will remain after CO2 separation.

RESPONSE 5-10b: (WBF)

The composition of the exhaust gas will primarily consist of nitrogen, oxygen, water vapor, and carbon dioxide, along with the criteria pollutants as provided in “Bio-SNG plant direct emissions” from Table 2 of Lucas/Summers Testimony.