



Please provide the following information regarding your potential project or expansion.

**SECTION 1 – PROJECT AND CONTACT INFORMATION**

PROJECT NAME: \_\_\_\_\_ TAX ID: \_\_\_\_\_  
 COMPANY NAME: \_\_\_\_\_ CONTACT TITLE: \_\_\_\_\_  
 BILLING ADDRESS: \_\_\_\_\_ EMAIL ADDRESS: \_\_\_\_\_  
 CONTACT NAME: \_\_\_\_\_  
 TELEPHONE NUMBER: \_\_\_\_\_

**LOCATION OF PROJECT**

Street address or intersection of cross-streets, city and county. If in undeveloped territory without streets, section range Township, or GPS latitude/longitude coordinates:

**ANTICIPATED START DATE, END DATE AND EXPECTED DURATION OF YOUR PROJECT IN YEARS**

START DATE: \_\_\_\_\_ END DATE: \_\_\_\_\_ EXPECTED DURATION IN YEARS: \_\_\_\_\_

**FORECASTED OPERATING PROFILE**

24 hours/day, 7 days/week  8 hours/day, 5 days/week  
 Other, please specify your forecasted working hours and days \_\_\_\_\_

Is there seasonal operation?  Yes  No

If yes, please explain: \_\_\_\_\_

**FORECASTED MAXIMUM FLOW**

<u>Flow Rate</u> (Scf/h)	<u>Daily Volume</u> (Scf)
_____	_____

How does it vary over time on a daily or seasonal or ambient condition or other basis hour or hours? \_\_\_\_\_

**FORECASTED MINIMUM FLOW**

<u>Flow Rate</u> (Scf/h)	<u>Daily Volume</u> (Scf)
_____	_____

How does it vary over time on a daily or seasonal or ambient condition or other basis hour or hours? \_\_\_\_\_

**PRESSURE REQUIREMENTS OR LIMITATIONS FOR YOUR FACILITY AND/OR EQUIPMENT**

Requirements or limitations in pounds-per-square-inch gauge (psig): \_\_\_\_\_

Explain the basis for the limitation: \_\_\_\_\_

**SOURCE OF BIOGAS SUPPLY**

Landfill (non-Hazardous)  Dairy  Water/Sewage Treatment Plants  Other (Explain Below)

Additional Comments: \_\_\_\_\_

## SECTION 2 – ANTICIPATED GAS QUALITY

Please provide the list of gas constituents and compositions of the gas prior to gas-processing (raw gas) and after gas-processing (Rule No. 22 Biomethane Gas), if available. Analysis should include all applicable gas quality parameters in Rule No. 22.

Analysis Date:				
<b>List of Gas Constituents</b>				
Gas Constituent Name	Units	Limits	Expected Composition in Raw Gas	Expected Composition in Processed Gas
Methane	mole %			
Ethane	mole %			
Propane	mole %			
i-Butane	mole %			
n-Butane	mole %			
i-Pentane	mole %			
n-Pentane	mole %			
Hexane +	mole %			
Oxygen	mole %	0.2%		
Nitrogen	mole %	3%		
Carbon Dioxide	mole %	2%		
Total Inert Compounds	mole %	4%		
Energy Content <sup>(1)</sup>	BTU/scf	970 to 1150		
Wobbe Number	-	≥ 1280		
Temperature	degrees F	40 to 120		
Hydrocarbon Dew Point	degrees F	20		
Water	lbs/MMscf	7		
Total Sulfur <sup>(2)</sup>	grains Si/100scf (ppmv)	5 (85)		

### **Carcinogenic**

Arsenic	mg/m <sup>3</sup> (ppmv)	0.48 (0.15)		
p-Dichlorobenzenes	mg/m <sup>3</sup> (ppmv)	140 (24)		
Ethylbenzene	mg/m <sup>3</sup> (ppmv)	650 (150)		
n-Nitroso-di-n-propylamine	mg/m <sup>3</sup> (ppmv)	0.81 (0.15)		
Vinyl Chloride	mg/m <sup>3</sup> (ppmv)	21 (8.3)		

### **Non-Carcinogenic**

Antimony	mg/m <sup>3</sup> (ppmv)	30 (6.1)		
Copper	mg/m <sup>3</sup> (ppmv)	3 (1.2)		
Hydrogen Sulfide	grains/100scf (ppmv)	0.25 (4)		
Lead	mg/m <sup>3</sup> (ppmv)	3.8 (0.44)		
Methacrolein	mg/m <sup>3</sup> (ppmv)	53 (18)		
Mercaptans <sup>(3)</sup>	ppmv	(610)		
Toluene	mg/m <sup>3</sup> (ppmv)	45,000 (12,000)		

### **Pipeline Integrity Protective Constituents**

Siloxanes	mg Si/m <sup>3</sup>	0.3		
Ammonia	mole %	0.0025%		
Hydrogen	mole %	0.1%		
Mercury	mg/m <sup>3</sup>	0.08		
Biologicals <sup>(4)</sup>	count/scf	4 x 10 <sup>4</sup>		

(1) California Limit shown. Arizona and Nevada limit is not less than 900 BTU/scf.

(2) This includes COS and CS<sub>2</sub>, hydrogen sulfide, mercaptans, and mono di and poly sulfides.

(3) Speciated, e.g., methyl mercaptans, ethyl mercaptans, butyl mercaptans, propyl mercaptans.

(4) APB: Acid-producing Bacteria, SRB: Sulfate-reducing Bacteria, IOB: Iron-oxidizing Bacteria.

**SECTION 3 – BIOGAS SURVEY**

Please complete this section if a gas quality specification deviation is being required.

What is the source of the biogas? \_\_\_\_\_  
What is the composition of the source (solids/liquids)? \_\_\_\_\_

Does the biogas contain any hazardous substances at concentration levels which would prevent or unduly impact the merchantability of the treated biogas (Biomethane), be injurious to Southwest Gas facilities, or which would present a health and/or safety hazard to Southwest Gas employees, customers, and/or the public?

Yes (explain below)       No

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What pesticides are used at the facility? \_\_\_\_\_  
What chemicals are used or in contact from collecting, moving and processing of the waste? \_\_\_\_\_

Is any part of the biogas coming from another site?  Yes     No

If yes, please complete a Biogas Survey for each site.

If yes, list each site and the flow rates (or percentage) of the total at this meter.

\_\_\_\_\_  
\_\_\_\_\_

Briefly describe the digestion process, or attach a copy of the process flow diagram or schematic drawing showing the flow path of the biogas generating equipment with the operating conditions (pressure in psig, temperature in degrees Fahrenheit, flow rate in MScf/hour or day).

\_\_\_\_\_  
\_\_\_\_\_

What chemicals or treatments are added to this process? \_\_\_\_\_

What process prevents bacteria and pathogens from entering the sales gas stream?

\_\_\_\_\_  
\_\_\_\_\_

Briefly describe your biogas treatment and biogas processing, or attach a copy of your process flow diagram or schematic drawing showing the flow path of the biogas through processing equipment.

\_\_\_\_\_  
\_\_\_\_\_

What process is used to remove CO<sub>2</sub> and/or H<sub>2</sub>S, Sulfur? \_\_\_\_\_  
What process is used to reduce the water content? \_\_\_\_\_  
What is the process to reduce hydrocarbon dewpoint? \_\_\_\_\_  
What process is used to reduce siloxanes? \_\_\_\_\_  
What other solvents, solids and processes are being used on the biogas stream? \_\_\_\_\_  
What process is used to prevent solid/liquid carryover into the biogas stream? \_\_\_\_\_

Have there been any contaminants measured in the biogas air/emission, solid and liquid stream at the facility?

Yes  No If yes, please list results and the test frequency.

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What parameters or monitoring equipment are used to control the biogas quality limits?

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Please list the treatment chemicals used in digestion, gathering pipelines or processing equipment, identify their purposes, and attach MSDS sheets if available.

Chemical	Manufacturer	MSDS Attached?	Purpose	Where & How Added?
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		

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For more information please contact us at: [KeyAccountManagement@swgas.com](mailto:KeyAccountManagement@swgas.com)