



SOUTHWEST GAS CORPORATION

January 28, 2013

Ms. Jing Luo, Ph.D., P.E.
Civil Engineering Manager
Pima County Regional Wastewater Reclamation Department
201 North Stone Avenue, 3rd Floor
Tucson, AZ 85701-11207

Dear Ms. Luo:

Thank you for your interest in delivering pipeline-quality biomethane gas into the nearby natural gas distribution system owned and operated by Southwest Gas Corporation (Southwest). Southwest is the state regulated utility that serves customers throughout Arizona including the Tucson area. I hope that the information contained in this letter is helpful to you as you develop this project.

It is my understanding that the Pima County Regional Wastewater Reclamation Department (PCRWRD) will issue a request for proposals for a Facility Operator that will build, own, and operate a biogas processing facility. The facility would produce pipeline-quality biomethane gas and would meet all conditions necessary to inject the biomethane gas into Southwest's distribution system.

Subject to at least the following conditions and the successful negotiation of all necessary agreements, Southwest is willing to accept the biomethane gas into its high pressure distribution system.

- **Gas Quality** - The biomethane gas will be required to meet all of the specific gas quality requirements as provided by Southwest. (Draft requirements are attached)
- **Hourly Flow Rate** - The biomethane gas shall be supplied to Southwest at an hourly flow rate of no less than [to be determined at a later time] cubic feet per hour (cfh) nor more than 39,000 cfh.
- **Pressure Requirement** - The biomethane gas would be injected into Southwest's high pressure distribution system. This system currently operates at a maximum operating pressure (MOP) of 350 pounds per square inch gauge (psig). However, it is possible that the MOP of this system may be increased to no more than 650 psig in the future. The biomethane gas must be supplied to Southwest at a pressure no less than twenty (20) psig greater than the MOP of the system.
- **Interconnect Facilities** - Southwest shall be compensated for the actual design, materials, and installation costs of its natural gas facilities required between the custody transfer point (the point at which the customer-owned piping ends and Southwest-owned piping begins) and Southwest's high pressure injection point. These interconnect facilities will also include odorization facilities such that Southwest will be able to odorize the biomethane gas as necessary.
- **Gas Monitoring** - PCRWRD or its Facility Operator shall install, own, operate and maintain a chromatograph and other necessary equipment to measure the composition of the biomethane gas and the contaminate levels as described in the attachment. An electronic signal meeting Southwest's specifications shall be provided from all gas quality measuring

equipment. Southwest, at its option, may install a remote control shut-off valve that could be closed if the gas quality does not meet its specifications.

- **Operating and Maintenance Costs** - Recovery of Southwest's ongoing operating and maintenance costs related to the Interconnect Facilities will be included in the financial arrangements between the parties.
- **Marketing of the Biogas** –
 - **Southwest Gas Corporation** –Southwest will make gas supply purchases pursuant to the terms and conditions of a separately negotiated North American Standards Board (NAESB) agreement, Special Provisions, and Transaction Confirmation(s) thereunder, between Southwest and PCRWRD, the Facility Operator, or their agent, at a price no greater than the incremental price of Southwest's other gas supply alternatives.
 - **Transportation Service** – Southwest offers a transportation service that allows certain eligible customers to purchase gas supplies from third-party suppliers, such as PCRWRD, and transport those supplies through Southwest's distribution system to the customers' facilities. It is possible that not all of the customers that are eligible for this transportation service in Arizona would be able to receive gas supplies from PCRWRD at the interconnection between the PCRWRD facilities and Southwest's distribution system. PCRWRD or its agent should consult with Southwest prior to entering into any gas sales agreements.
- **Easement** - Southwest will require easement(s) for all of its natural gas facilities to be located on PCRWRD property.

Please contact me at (520) 794-6438 or by email at andy.rhea@swgas.com if you have any questions or need any further information. I look forward to working with you on this project.

Sincerely,



Andy Rhea
Supervisor, Key Account Management

Encl: Alternate Natural Gas Composition Specifications – Preliminary Version

**Southwest Gas Corporation
Alternate Natural Gas Composition Specification**

The following are required specifications for alternate natural gas composition to meet Southwest Gas Corporation (Southwest) tariff, billing, safety and operational requirements:

1. Minimum energy content 967 BTU/cu. ft (Arizona).; must be within 2% of the prevailing system BTU value or development of a new BTU zone must be considered; must be within 4% of historical averages to be compatible with existing customer appliances.
2. Wobbe number:

$$\text{Wobbe number} = \frac{\text{BTU} / \text{scf}}{\sqrt{\text{SG}}}$$

scf = standard cubic foot of natural gas
SG = specific gravity with respect to air

Maximum Wobbe number = 1385

Minimum Wobbe number = 1280

3. Maximum sulfur content .25 grain per 100 cu. ft. or 4 ppm hydrogen sulfide, 20 grains per 100 cu ft or 380 ppm total sulfur
4. Maximum inert content 4% total
 - Maximum 0.2% oxygen
 - Maximum 3% nitrogen
 - Maximum 2% CO₂
5. Temperature range 40° F to 120° F
6. Maximum hydrocarbon dew point 20° F
7. Maximum water dew point -39° F; Maximum water content 7 lbs per 1,000,000 cubic feet (1 MMcf) of gas
8. Minimum odorization level - natural gas detectable at 0.8% natural gas in air mixture
9. The gas must contain measurable levels of C₆+ hydrocarbons

10. The potential for other corrosive, abrasive, hazardous, or toxic natural gas components must be investigated. Public and employee safety and environmental concerns will be addressed.
11. The potential for natural gas component detrimental to the steel or plastic pipe and fittings must be addressed.
12. The Soloxane must be removed to a level of non-detection.
13. All other contaminants that are harmful to the natural gas system must be removed.

The following are activities required of the alternate natural gas provider:

1. Install, operate and maintain compression required to bring the alternate natural gas to a pressure that allows the injection into the Southwest distribution system.
2. Install, operate and maintain a chromatograph and other equipment necessary to measure for the composition and contaminants described above.
3. Fund the installation of Southwest facilities required to facilitate the injection of alternate natural gas into the Southwest distribution system. This includes but may not be limited to a measurement facility, telemetry, odorization and a pipeline.