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# Gas Quality Tariff Technical Conference

January 31, 2017

# Risks

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- Health risks from long term exposure
- System integrity
- Customer appliance integrity

# Siloxanes



# Risks

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- Long Term Health Risks
- System integrity
- Customer appliance integrity
- Cost Subsidization

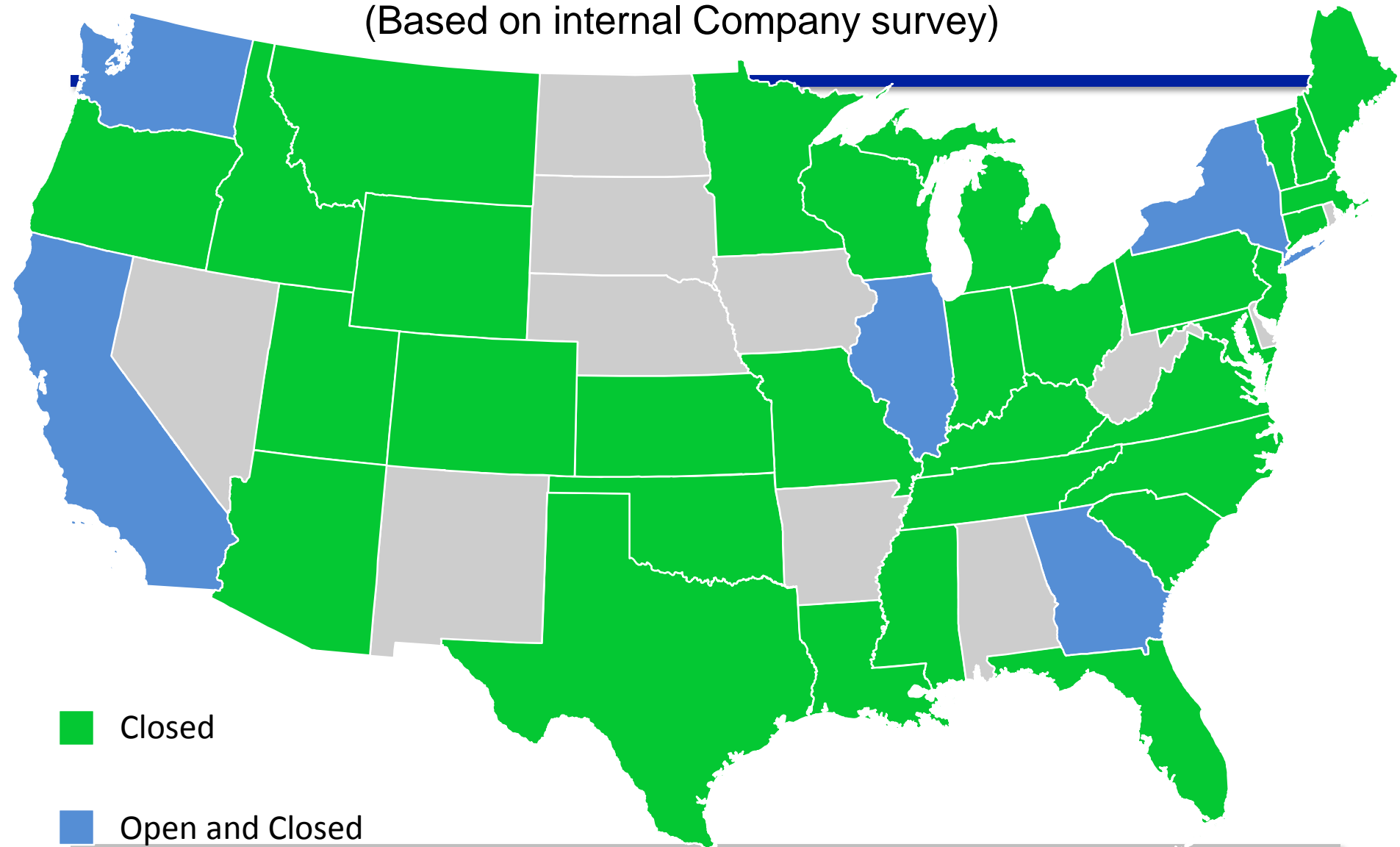
# Research

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- Peer survey

# Biogas in United States

(Based on internal Company survey)



■ Closed

■ Open and Closed

# Research

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- Peer survey
- Hired ETA (Energy Technology Advancement) Partners
- Industrial customer survey

# Risk Mitigation

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- Requirement for High Pressure



## Page 7-12 (Requirements)

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#2 - The Biomethane can be ***delivered*** into Questar Gas' existing ***high-pressure system*** at a point with sufficient flows and pressures ***to enable blending*** sufficient to ensure proper dilution of constituents;

# Risk Mitigation

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- Requirement for High Pressure
- Tariff provisions on cost

# Page 7-11 (Additional Facilities)

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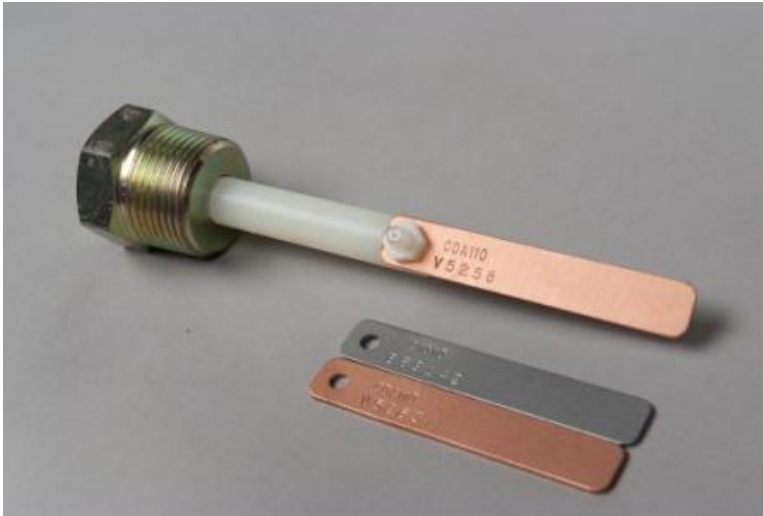
- **Applicants** seeking to deliver Biomethane for transportation on Questar Gas' system **shall bear all actual costs** for engineering and construction or modification of any facilities that Questar Gas deems, in its sole discretion, to be necessary, appropriate or convenient. Such facilities may include, but are not limited to, taps, valves, piping, measuring equipment, gas sampling equipment, odorizing equipment, pressure regulation equipment, land rights, permits, communication equipment, software programming, and scheduling systems. All such equipment shall be and remain the property of Questar Gas. **Applicant shall enter into agreement(s) with Questar Gas addressing such engineering, construction, modification and payment.**

# Risk Mitigation

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- Requirement for High Pressure
- Tariff provisions on cost
- Automatic Shut Off Valves
- Corrosion Coupons

# Corrosion Coupon



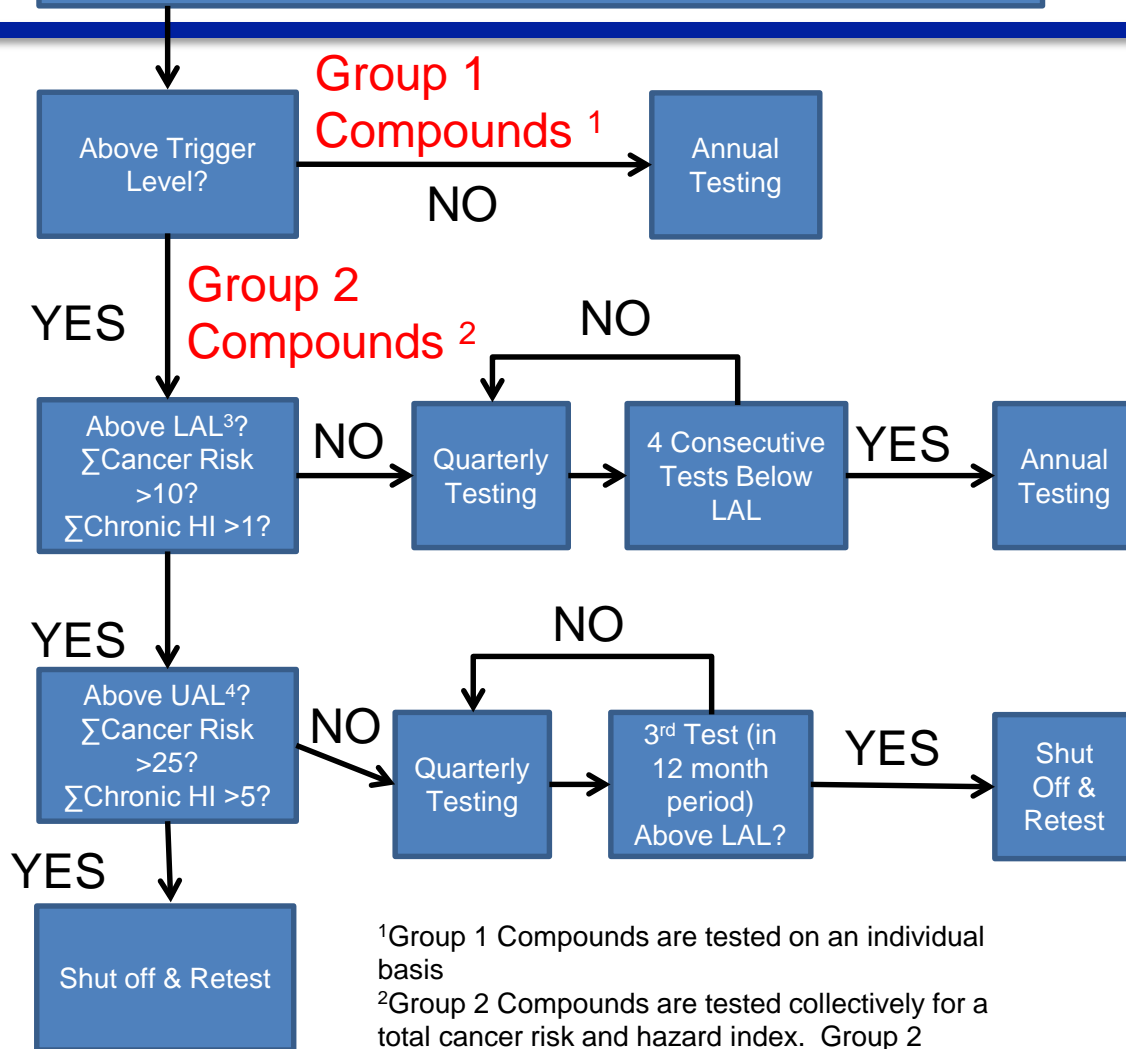
1018 Carbon Steel

# Risk Mitigation

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- Requirement for High Pressure
- Tariff provisions on cost
- Automatic Shut Off Valves
- Corrosion Coupons
- Testing Requirements

# Test of Constituents of Concern in Biomethane



<sup>1</sup>Group 1 Compounds are tested on an individual basis

<sup>2</sup>Group 2 Compounds are tested collectively for a total cancer risk and hazard index. Group 2 compounds can move to Group 1 after 4 consecutive tests below the trigger level.

<sup>3</sup>Lower Action Level

<sup>4</sup>Upper Action Level