BRIGHTMARK
REIMAGINE WASTE

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San Francisco, CA 94111
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To: Scott Rukke - Chief, Pipeline Safety
From: Gerrud Wallaert - Chief Operation Officer of RNG
Date: 1/20/2023
Re: 2022 Biogas Standard Inspection – Augean RNG (Insp. No. 8415)

Dear Mr. Rukke,

Thank you for contacting me with the findings from the Washington Utilities and Transportation Commission audit that took place October 11th and October 12th of 2022. I have discussed these finding with my team and believe that the steps we are taking to get back into compliance will satisfy any concerns you may have. Please see these responses below, and if you have any questions, comments, or concerns feel free to reach out to me directly at 650-420-7847.

1. **§192.201 – Required Capacity of Pressure Relieving and Limiting Stations**

    a. Augean RNG currently does not have calculations verified by an engineering firm which support that our pressure limiting stations comply with CFR 192.201(a)(2)(i). After learning of this oversight Augean RNG utilized the Brightmark Manager, Pipeline O&M, to perform an initial analysis of the overpressure protection equipment to determine if the equipment is sufficiently sized to handle a failure. The initial analysis provided by this employee is attached below.

    This analysis shows that both the monitor valve, and the relief valve, have the capacity to manage a complete failure of the regulator valve. Additionally, the system is set up to handle multiple total failures of regulator equipment. After performing this initial analysis, Augean RNG is confident that this system would be able to handle a regulator failure without exceeding MAOP plus allowable buildup.

    To ensure complete compliance with CFR 192.201(a)(2)(i) and to provide an additional system check, Augean RNG will contract with a 3rd party engineering company to perform a more detailed analysis of the station to confirm the initial findings. The confirmation will be completed by May 1st, 2023.

2. **§192.615 – Emergency Plans**

    a. Augean RNG was not able to find any documentation showing that an employee or third-party representative met with emergency and public officials in the area during the 2021 calendar year. Knowing how critical these interactions with emergency officials are, Augean RNG sent the Brightmark Manager, Pipeline O&M to Washington the week of December 26th, 2022, to meet with officials from the three emergency departments in the area: Yakima County Sherriff,

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Yakima County Fire District 5, and Yakima County Emergency Management. The sign-in sheets for those meetings are attached below.

Augean RNG will continue to meet with these departments on a regular basis, per the O&M plan. Additionally, more frequent meetings and trainings have been offered to these departments, as well as the direct contact information for the Brightmark Manager, Pipeline O&M.

3. §192.619 – Public Awareness

a. Augean RNG was unable to confirm that Public Awareness Materials had been developed and distributed in English, or any other languages during 2021 calendar year. Like many pipeline companies, Augean RNG relies on third party companies to manage their public awareness campaigns and it appears that this relationship was never fully developed. Augean RNG has identified and closed that gap and was able to confirm that all public awareness documentation was sent out prior to the end of the 2022 calendar year.

   In an effort to ensure that our public awareness mailers are reaching the intended audience, Augean RNG will accelerate the frequency of delivery for 2023 to deliver print materials to all stakeholder audiences regardless of frequency commitments in the Public Awareness Plan.

Having identified a gap in pipeline experience earlier this year, Brightmark brought on additional resources in mid-2022 to help ensure that the operations, maintenance, and regulatory reporting of all pipeline facilities across our portfolio, including Augean RNG, meets the high standard of excellence expected of us. I'm confident that by taking these steps we can demonstrate Augean RNG's commitment to public safety and compliance with all local, state, and federal regulations. We look forward to growing our relationship with the Washington Utility and Transportation Commission and are excited to prove our commitment to public safety.

Sincerely,
Gerrud Wallaert
Gerrud Wallaert
Chief Operation Officer of RNG

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Augean Overpressure Protection Calculation Worksheet
Jonathan Nekvinda – Brightmark Manager, Pipeline O&M

The Augean regulator station, located along Dekker Rd near the intersection of Van Belle Rd in Yakima County, Washington, is a dual run station with an inlet maximum allowable operating pressure (MAOP) of 850psig and an outlet MAOP of 125psig. This station utilizes a worker/monitor system for its primary overpressure protection (OPP), with a full capacity relief valve as a secondary OPP system. While the MAOP is 125psig, the normal operating pressure at this station is 55psig.

General System Information:

The regulator station feeds a distribution system which is majority High Density Polyurethane (HDPE) with minimal amounts of above ground steel. The steel piping is 2" and 4" ASTM A106 Grade B pipe, with a specified minimum yield strength (SMYS) of 35,000psi, an outside diameter of 2.375" and 4.5", and a wall thickness of 0.218" and 0.237" respectively. By using a design factor of 0.5, we get a hoop stress at 125psig of **2%** and **3.3%** of SMYS for the 2" pipe and 4" pipe, respectively. Because the hoop stress is well under 75% of SMYS, the MAOP plus buildup allowed on this system is 137.5psig.

There are four regulators on this station, two workers and two monitors, all are Mooney Flowgrid 2"x1" single port regulators with series 20 pilots, ANSI 600 bodies, and a 35% trim. The system is designed as a lead/lag system, so if one run cannot keep up and the pressure drops the second run can begin flowing to provide adequate capacity. The relief valve is located after the runs and is a Mooney Flowgrid 1" single port regulator with a series 20 pilot, 1" NPT body, and a 100% trim, set up as a relief valve.

Currently the regulators are set to regulate, and not exceed 60psig. In order to confirm the OPP capacities of this station, the calculations will be done assuming current conditions and a hypothetical condition where the system is running as close to MAOP as possible. Additionally, while it is standard to only consider one point of failure when calculating OPP, since there are redundant OPP systems on this station dual failure will need to be assumed in certain cases in order to adequately calculate all OPP devices. Other assumptions are listed below:

- Inlet pressure from Williams Pipeline is at the MAOP of 850psig
- PSIA at the site is 14.7psi
- Specific Gravity of the gas is 0.60
- System Load = 25.5 mscfh

The main run has the working regulator set at 55psig, and the monitor at 60psig. The secondary run as the working regulator set at 50psig, and the monitor regulator set at 55psig. Below is a rough diagram of the system setup. Please note that the diagram is for demonstrative purposes only and that items may be installed differently, such as the sensing lines, then they appear in the drawing.

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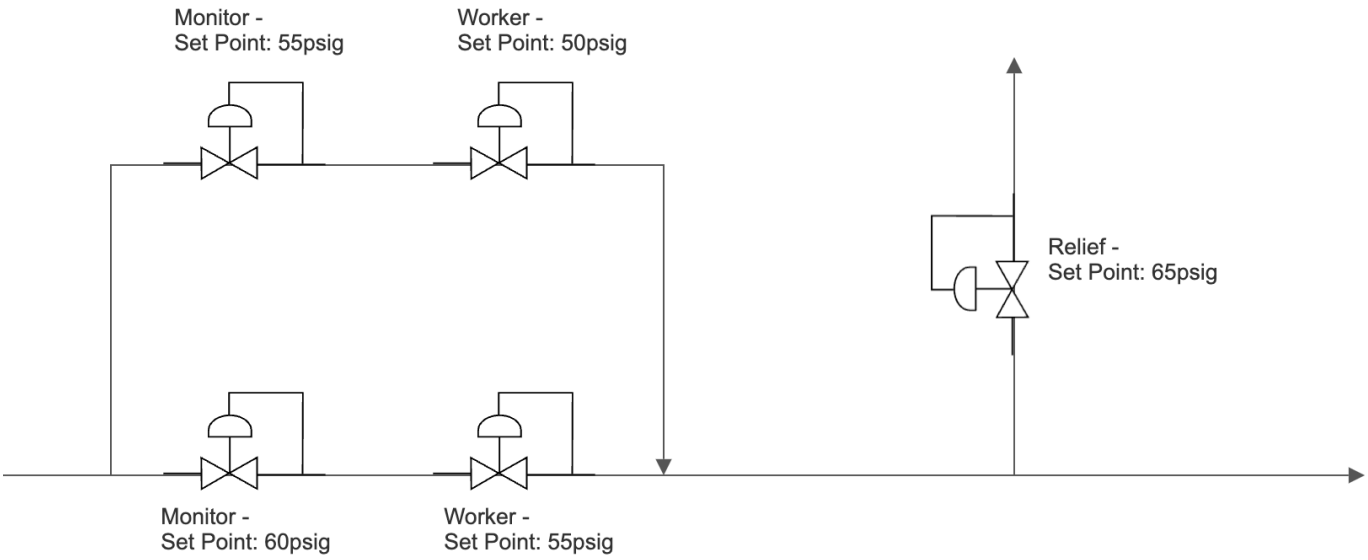

Regulator Values:

- All Workers/Monitors:
  - Size: 2”x1”
  - Trim: 35%
  - C_V: 5.4
  - C_1: 26
  - C_g:144
- Relief Valve:
  - Size: 1”
  - Trim: 100%
  - Buildup: 1.0psig
  - C_V: 13.2
  - C_1: 34
  - C_g: 450

Sizing Worker/Monitor:

The inlet pressure to the station has an MAOP of 850psig and isn’t expected to operate below 574psig per the basis of design. The outlet pressure could be set anywhere between 50psig and 125psig, with 55psig being the current set point. We can use the critical flow equation, $(P_1-P_2)/P_1$, to confirm that the use of the simplified gas sizing equation, $Q= P_1 \times C_g \times 1.29$, is appropriate.

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- If $(P_1-P_2)/P_1 > 0.64$ then critical flow = ((850 +14.7) - (125+14.7)) / (850+14.7) = **0.84 = Critical Flow**

- If $(P_1-P_2)/P_1 > 0.64$ then critical flow = ((574 +14.7) - (125+14.7)) / (574+14.7) = **0.76 = Critical Flow**

Knowing we can use the simplified gas sizing equation; we can determine that all four (4) of the workers and monitors will have the same capacity, regardless of the set point. The calculated capacity of a regulator is below and, because OPP is the main concern, is calculated using the maximum allowable operating pressure of the supplier. This confirms that each of the monitor regulators are sufficiently sized to handle the full inlet pressure and the estimated load of 25.5 mscfh in the event of a complete failure of the worker regulator. This is true both when the system is operating at 60psig or, assuming the set points are appropriate, at 125psig.

- $Q = P_1 \times C_g \times 1.29$ = (850+14.7) x 144 x 1.29 = 160,000 scfh = **160 mscfh**

Sizing Relief Valve:

Since the relief valve will be set between 60psig and 125psig, the purple spring will be used to consider the build-up to maximum capacity. For this spring, the buildup is 1.0psig. Using the simplified gas sizing equation, we want to confirm that this relief valve can relieve the full capacity of both regulator runs. The total relief capacity must be over **320 mscfh**.

- $Q = P_1 \times C_g \times 1.29$ = (850+14.7) x 450 x 1.29 = 502,000 scfh = **502 mscfh**

Knowing that the capacity of the relief valve is 502 mscfh it is confirmed that the relief valve is appropriately sized to handle the full capacity. Additionally, since the buildup to maximum capacity with the purple spring is 1.0psig, if we adjusted this relief valve in accordance with the current design up to MAOP, the hypothetical set point would be 130psig, with a maximum downstream pressure of 131psig. This would be well below the MAOP plus allowable buildup on the system.

Currently, with the relief valve set at 65psig the maximum pressure the downstream system would see in the event of all four regulators failing would be 66psig, well below the MAOP plus allowable buildup.

Conclusion:

This station has been designed to withstand multiple failures and still maintain a safe downstream pressure. The monitor valves are appropriately sized to ensure that any failure of the worker valve does not disrupt operations. Additionally, the relief valve has more than enough capacity to ensure that in the unlikely event of all four regulator valves failing the relief valve would be able to vent the excess gas to atmosphere.

AUGEAN RNG	Public Awareness Program	
	Public Awareness Meeting Log	PAGE NUMBER N/A
		LAST REVEWED 12/5/2022

Face-to-Face Meeting Log

Date	12/28/22	Company Name	Augean RNG
Time	10:00 am	Pipeline Name	Augean

Description

Location	Yakima County Fire - [redacted]
Topics Discussed	Line locations, emergency response, properties of gas, available resources

Attendees

Name	Representing (Fire, Police, etc.)	
George Saenz	Yakima County Fire	
Trevor Oswalt	YCFD5	
Anthony Oaks	YCFD5 187	
Jonathan Nekvinda	Augean RNG	

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Face-to-Face Meeting Log

Date	12/28/22	Company Name	Augean RNG
Time	9:30 am	Pipeline Name	Augean

Description

Location	Sheriff's Office
Topics Discussed	Line locations, emergency response, properties of gas, available resources

Attendees

Name	Representing (Fire, Police, etc.)	
(509) 788-0781 Lt. Robert Tucker	Yakima Co. Sheriff	
Jonathan Nekvinda	Augean RNG	

Face-to-Face Meeting Log

Date	12/28/22	**Company Name**	Augean RNG
Time	1:00 pm	**Pipeline Name**	Augean

Description

Location	Yakima Valley Emergency Management
Topics Discussed	Line locations, emergency response, properties of gas, available resources

Attendees

Name	Representing (Fire, Police, etc.)	
Andrew Bigelow	YVEM	
Mike McMullen	YVEM	
Nicole Parpart	yVEm	
Jonathan Nekvinda	Augean RNG	