

Gas Distribution System Evaluation and Advisory Services™

[COMPANY NAME]

[ADDRESS 1]

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[CITY], [STATE] [POSTAL CODE]

[COUNTRY]

Prepared by: [FIRST NAME LAST NAME]

[XX MONTH 20XX]

Swagelok [LOCATION OR BUSINESS NAME]

Swagelok
FIELD ENGINEER

SWAGELOK® GAS DISTRIBUTION SYSTEM EVALUATION AND ADVISORY SERVICES

Swagelok Gas Distribution System Evaluation and Advisory Services is a service program offered by Swagelok and its global distributor network in which we use our industry expertise in fluid system design to help improve performance at your facilities.

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EVALUATION TEAM

Swagelok® Gas Distribution Advisory Service Team	Swagelok Distributor Team	Customer Facility Team
[FIRST NAME LAST NAME] [TITLE] [CONTACT]	[FIRST NAME LAST NAME] [TITLE] [CONTACT]	[FIRST NAME LAST NAME] [TITLE] [CONTACT]
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Their cooperation and contributions are gratefully acknowledged.



EXECUTIVE SUMMARY

This section summarizes the background, goals, process and findings and recommendations of the Swagelok Gas Distribution System

BACKGROUND

Swagelok Gas Distribution System Evaluation and Advisory Services evaluated this area.

- *List all areas evaluated*

GOALS

(Include quick summary of goals for evaluation) See the [SURVEY GOALS](#) section of this report for more detail.

PROCESS

The Gas Distribution System Evaluation and Advisory Services team met with *(customer)* to discuss the survey goals. This report includes comments and suggestions for improving the existing system design. *Include any unique process steps taken for this particular evaluation.*

KEY FINDINGS AND RECOMMENDATIONS

The review identified area for improvement:

- *Key Finding #1*
- *Key Finding #2*
- *Key Finding #3*
- *Recommendation #1*
- *Recommendation #2*
- *Recommendation #3*

INTRODUCTION

On *DAY OF WEEK, MONTH DAY* of 20XX, a Gas Distribution System Evaluation and Advisory Services was performed for *(Customer) (Location)* at the *(System Name or Names)*. The Swagelok team met with *(customer)* and they guided the team to ensure safety and to provide answers for site questions as needed.

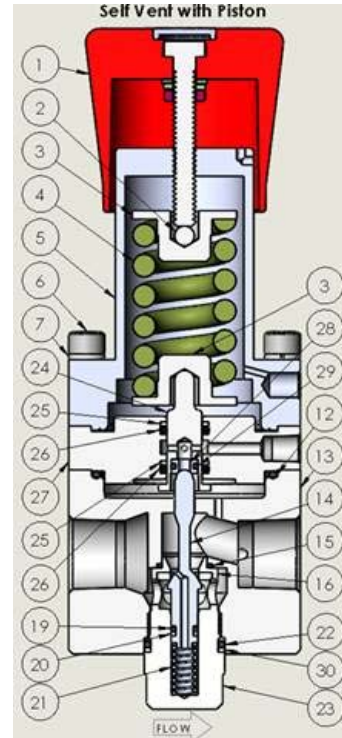
SURVEY PROCESS

The following evaluation process was established by *(Customer Contact)* and the Swagelok Gas Distribution System Evaluation and Advisory Services team:

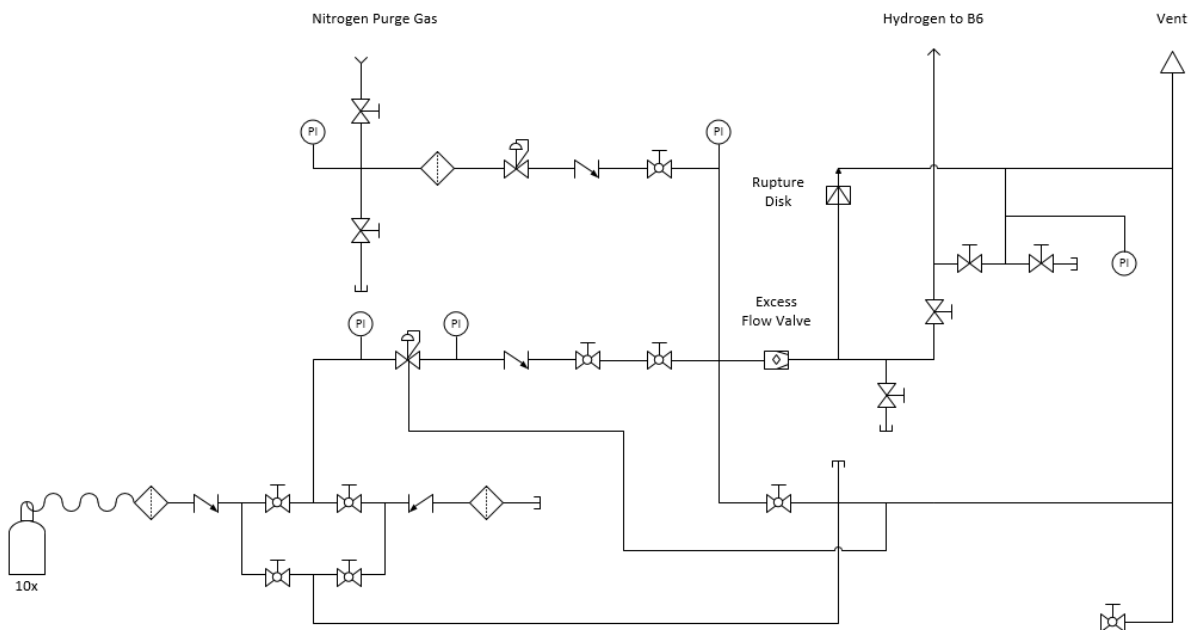
1. *List all system specific goals*
2. Record observations
3. Evaluate observation based on SEQF:
 - Safety
 - Environmental
 - Quality
 - Functionality
4. Create a final report that covers the following:
 - Observations
 - Evaluation of each observation
 - Recommendation for Improvement for each observation.
 - SEQF
 - Priority of implementation
 - Benefits of improving the system:
 - Reliability
 - Safety
 - Performance improvements

FINDINGS AND RECOMMENDATIONS

Hydrogen Gas Distribution System (From Bulk Gas Supply)



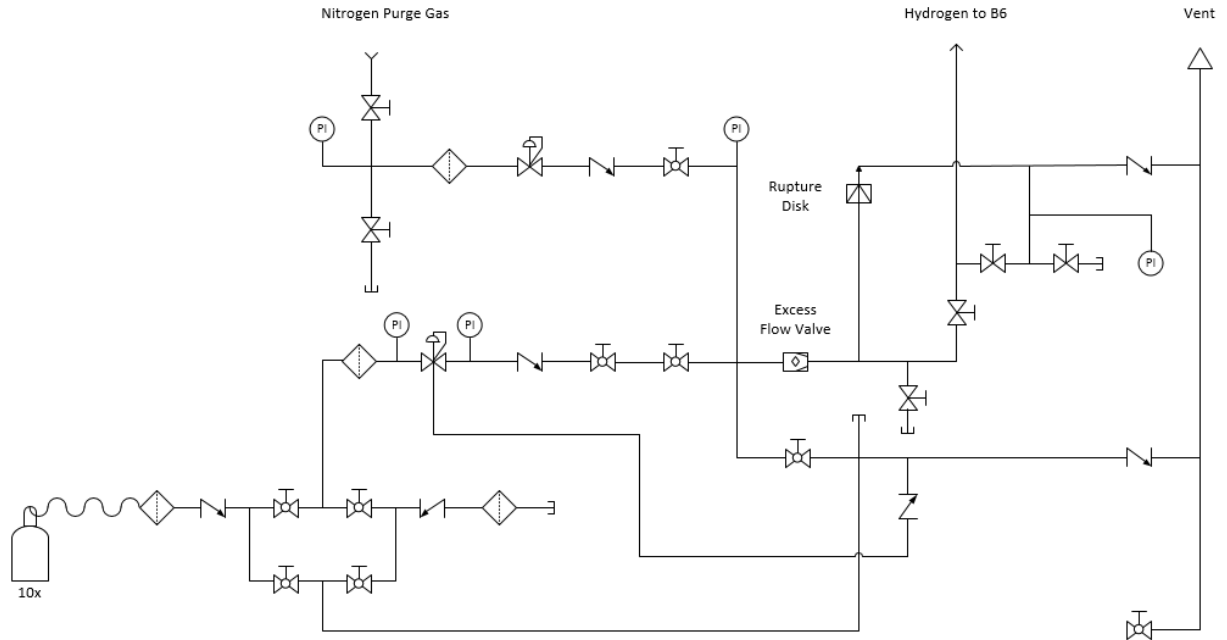
Schematic of Existing System (Including Legend)



Evaluation Table

System Location	Observation	Evaluation	Recommended Action	SEQF	Rating (1-5)	Relative Value	Cost to Implement
Primary control	Threaded vent port is plugged. Threaded connection shown on #5 component within cut-away diagram	Plugging this port can lead to performance issues if pressure builds within the spring cap either via temperature change or piston seal leakage. A change from the local	Remove plug from leak detection port.	Safety	4	▲▲▲▲	\$
Primary control	Self-vent transport line does not have a check valve.	Lack of check valve on the self-vent transport line can result in back flow containing contamination from purge activities. The poppet could potentially open exposing the inlet side of the regulator to contamination.	Add check valve to self-vent transport line.	Quality	3	▲▲	\$\$
Vent System	Check valves are present but not on vent flare transport lines.	Lack of check valves on other standard vent transport lines can result in back flow containing contamination or the incorrect system fluid.	Add check valves to standard vent transport lines.	Quality	2	▲	\$
Source	Filtration is present but not directly upstream of the pressure regulator.	Lack of filtration directly upstream of the pressure regulator can result in contamination causing seat leakage.	Add filtration directly upstream of the pressure regulator.	Quality	4	▲▲▲	\$\$
Primary Control	Spring loaded regulator being used to deliver bulk gas	Spring loaded regulators can exhibit unacceptable droop (downstream pressure drops) performance.	Install a dome loaded regulator for better droop performance. (See Flow Curves)	Function	3	▲▲▲▲	\$\$\$

Schematic of Improved System (Including Legend)



Rating Scale

To facilitate system improvements, each system addressed in the report includes a rating for Safety, Environmental, Quality, and Function (S, E, Q, F). The scale for each category is detailed below:

Rating	Disposition
1	No action required.
2	Action suggested at next maintenance interval.
3	Action required at next maintenance interval.
4	Urgent action required to rectify the issue (<1 month).
5	Immediate action required to rectify the Issue.

S - Safety: A low grade or higher number (2-5) represents a risk to personnel.

E - Environmental protection: A low grade or higher number (2-5) represents risk of pollution.

Q - Quality: A low grade or higher number (2-5) represents a sample that, to a degree, is less representative of the process it is intended to reflect.

F - Functionality: A low grade or higher number (2-5) represents the hardware of sample station design that does not lead to or encourage simple operation or consistent usage.

As a general recommendation, the installation of a sample panel should provide features essential to improved operator safety, environmental protection, quality (sample integrity - representative of process), and operator functionality.

Improvement Roadmap

To facilitate system improvements, a table which includes the observation, evaluation, action, estimated cost to implement, relative value of the change, and impact to the system. Below is the scale associated with each item on a roadmap:

COST TO IMPLEMENT		RELATIVE VALUE	
\$	< \$1,000	▲	Low
\$\$	< \$5,000	▲▲	
\$\$\$	< \$25,000	▲▲▲	Medium
\$\$\$\$	< \$50,000	▲▲▲▲	
\$\$\$\$\$	> \$50,000	▲▲▲▲▲	High

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

The Swagelok logo is written in a blue, cursive-style font. The word "Swagelok" is followed by a registered trademark symbol (®).

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