

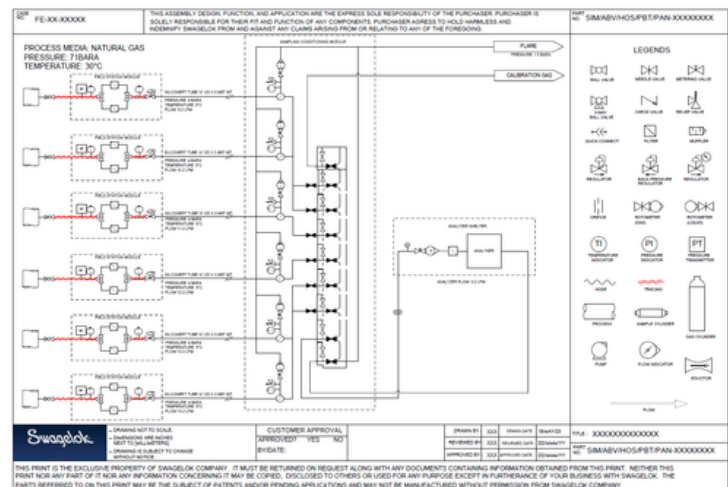
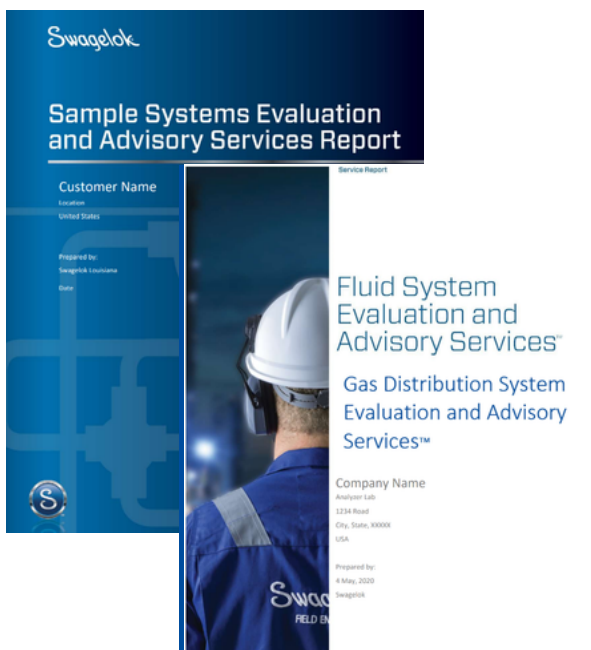


Meet Your Connection
to Reliable Results

Evaluation & Advisory Reports

When you partner with Swagelok for Evaluation and Advisory Reports—whether for Sample System Advisory, Grab Sampling Systems, or Gas Distribution Systems—you gain a clear, comprehensive understanding of how your systems are performing in demanding conditions. Our evaluations give you detailed insights into design concerns, component wear, operational risks, and opportunities to strengthen safety, efficiency, and sample quality.

We provide expert field assessments and practical, actionable recommendations, to help you reduce leaks, increase system reliability, support regulatory compliance, and protect both your personnel and your production. Using our proprietary mobile inspection application, we can provide you with the data you need to make informed decisions that safeguard uptime, maintain product quality, and keep your operation running safely and efficiently.



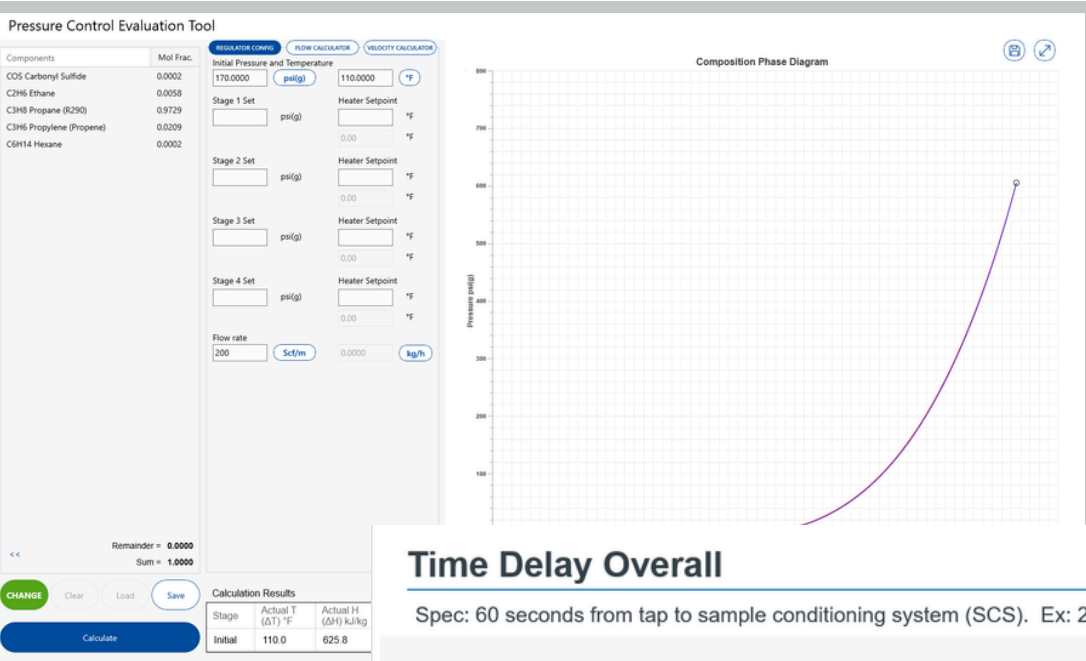
Customized P&ID's for optimized sample systems.

Sample System Management & Advisory

Accurate, timely process data is essential for maintaining product quality, optimizing production, and protecting assets in oil and gas operations. Our Sample System Management Evaluation & Advisory Report provides you with a thorough review of your online analyzer sample stations to ensure they perform reliably under demanding conditions. Our engineers evaluate flow paths, component performance, installation practices, and operator interfaces to uncover issues that may compromise sample integrity or slow turnaround time. You receive clear, actionable recommendations that help reduce unplanned downtime, improve analytical accuracy, and support safer field operations. What your report will include:

- Comprehensive assessment of sample system layout and flow characteristics
- Identification of corrosion, wear, and environmental risks
- Photo-documented findings from field inspections
- Recommendations for optimized components and design upgrades for harsh conditions
- Prioritized action plan to enhance reliability, minimize sampling errors, and improve safety
- Time delay calculations to ensure fresh & representative samples
- Phase diagram analysis with bubble point and dew point identification to avoid condensation/ bubbling

Example: Sample Station Report with Findings and Recommendations

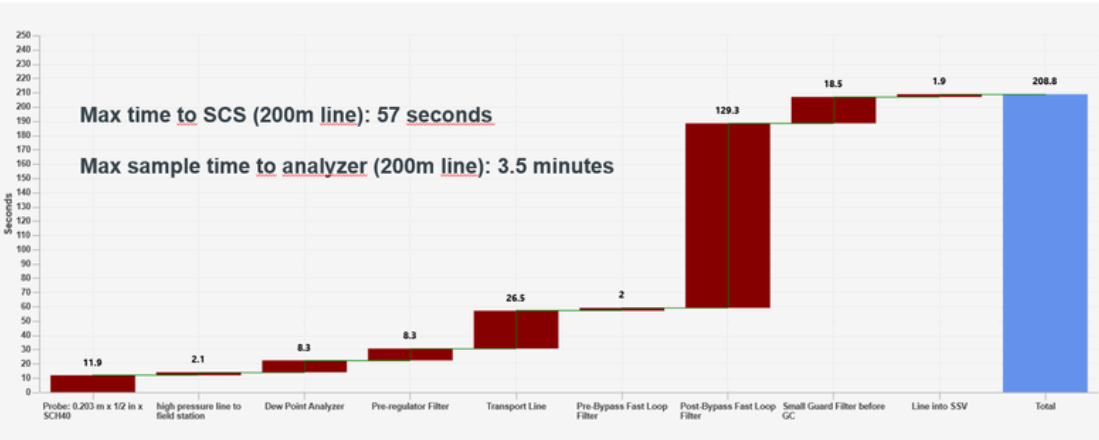


Phase composition diagram provides the complete composition of a sample.

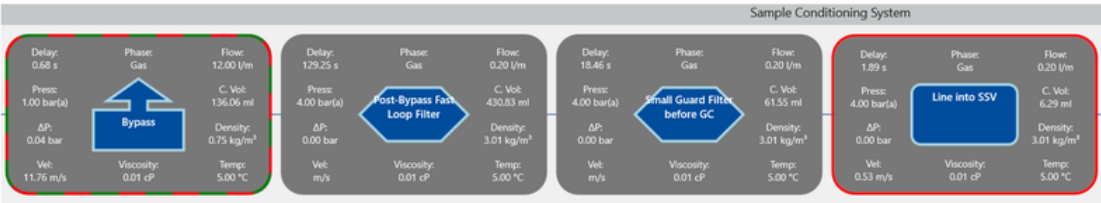
Swagelok

Time Delay Overall

Spec: 60 seconds from tap to sample conditioning system (SCS). Ex: 200m line, bypass at 13 L/min



Time delay across each component of your sample system.



Flow rate, pressure drop, velocity, and time delay across each component of the sample system.

Grab Sampling Evaluation & Advisory

Reliable grab sampling is critical for validating process conditions, meeting regulatory requirements, and protecting product quality. Our Grab Sampling Systems Evaluation & Advisory Report helps you ensure samples are collected safely and consistently—even in high-pressure, high-volatility environments. Our experts assess panel design, containment methods, operator procedures, and the overall usability of your systems to highlight risks that may cause sample degradation, exposure hazards, or quality inconsistencies. With targeted recommendations, you can standardize equipment, improve workforce efficiency, and strengthen compliance. What your report will include:

- Evaluation of sampling panel design, containment methods, and pressure management
- Review of operator workflow to improve safety and ergonomics
- Identification of leak risks, exposure points, and sample integrity issues
- Recommendations for standardized panels built for volatile and hazardous service
- A Step-by-step roadmap to improve sampling quality, repeatability, and worker protection

Example: Grab Sampling System Report with Summary, Findings and Recommendations

Sample System Survey Report

SURVEY FINDINGS

Grab Sample Systems are the primary way a process sample is captured for laboratory analysis. Without proper grab sample system design and maintenance, capturing, handling, and analyzing the samples becomes more difficult and the analysis suspect. The intent of this report is to assess the design and performance of those systems. By surveying 23 of the sample systems, the Swagelok Field Engineering and Application Engineering Teams will help customer to recognize potential improvements.

Ratings for each performance category.

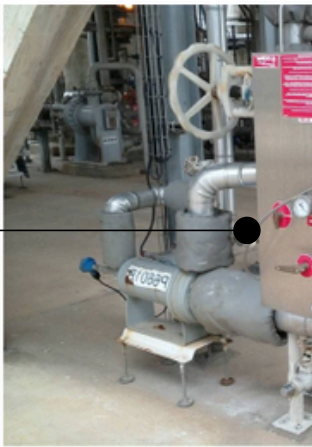
RATING SCALE

To facilitate system improvements, each system is rated on a scale of 1 to 5 based on Safety, Environmental, Quality, and Function. The

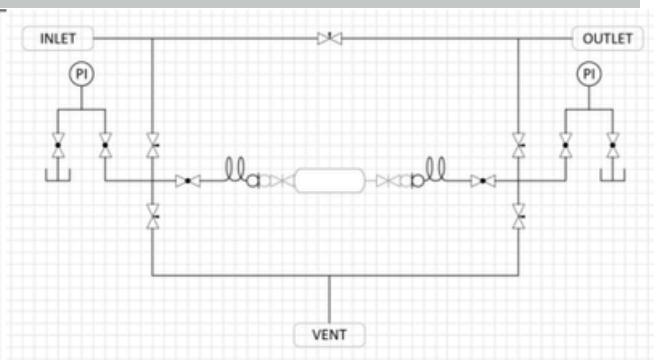
Rating	
1	No action required
2	Action suggested
3	Action required
4	Urgent action required
5	Immediate action required

ACTION: Repair needed (tube routing and labeling).			
P6601 LPG, MMA 15.5 barg @ 78 F			
Safety	Enviro	Quality	Functional
3	1	3	2

Existing grab sample station.



Optimized grab sample station.



- FINDINGS**
- 1. Fill through hose.
 - 2. Dead leg from gauge on inlet.
 - 3. No visible standard operating procedures (SOP).
 - 4. No valve or inlet/outlet labels.
 - 5. Horizontal cylinder.
 - 6. Open ended connections.
 - 7. No indication of probe.
 - 8. No outage tube.
- RECOMMENDATIONS**
- 1. Fill the cylinder from the bottom using a hard-plumbed bulkhead quick connect, and a hose at the top outlet of the cylinder.
 - 2. Eliminate gauge on the inlet.

Gas Distribution Evaluation & Advisory

Consistent, contaminant-free gas delivery is vital for analytical equipment, process control, emissions monitoring, and plant safety systems across oil and gas operations. Swagelok's Gas Distribution Systems Evaluation & Advisory Report provides a complete assessment of your gas delivery infrastructure—from cylinder or bulk source to point of use. Our specialists analyze regulator performance, pressure control, component condition, and potential leak or contamination points to help you maintain stable operations and protect high-value equipment.

- End-to-end evaluation of source panels, distribution lines, and points of use
- Pressure and flow analysis to identify instability, restrictions, or regulator issues
- Leak detection and documentation of system risks in classified or hazardous areas
- Recommendations for regulator upgrades, panel redesign, or improved routing
- Prioritized plan to improve gas quality, reduce losses, and increase system reliability

Example: Gas Distribution System Report with Summary, Findings and Recommendations

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.

- Analyzer Lab

GOALS

Examine gas sources and gas distribution systems, identify issues that may lead to optimized gas management and recommend improvements if appropriate.

PROCESS

The Gas Distribution System Evaluation and Advisory Services team met with *Customer Name* to discuss the survey goals. This report includes comments and suggestions for improving the existing system design.

KEY FINDINGS AND RECOMMENDATIONS

The review identified area for improvement:

- Many bottle gas sources have single stage regulators for pressure reduction. Pressure control will vary with Supply Pressure Effect
- Critical gas sources fitted with auto-changeover systems are not placarded standard operating procedure (SOP). Use of auto changeover does not op consumption by designating main-reserve SOP
- Helium services have been modified organically and, notwithstanding reduction use of helium, system is overcomplicated.
- Always use two-stage bottle regulators to maintain gas pressure
- Auto-changeover systems should be based on a Main-Reserve System to consumption.
- Seek refresher training on auto-changeover systems

Issue Tag ID : 1		Category :
Plant Area:		Part Material :
Customer Tag ID:		Connection Type :
Location:	Area 1: Outside left	Connection Size :
GPS Location:		1/2 in
Part Description:	No longer in use. No regulator connected.	
Process Fluid:	Hydrogen	Type of Part :
Pressure:	bar	Misc
Temperature:	C	Manufacturer :
Issue:		Part Number :
Description:		Equiv Swagelok Part :
Other Findings:		reg1
Possible Solution:		
Ultrasound dB:	n/a	
Ultrasound ID:	n/a	





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Customer Review

"I am putting together a report that can be used to show the payback of our recent K-56 upgrades. I am committed to optimizing CITGO as a whole and providing better service to CITGO operations. I believe that you, Trey, and Swagelok are going to help us get there. I am going to get the right people together in a room that can benefit the most from Swagelok's ingenuity and resources."