

EXECUTIVE SUMMARY

Customer power station has contracted Swagelok to conduct a hose advisory on the Closed Cooling Water network to identify hoses technology, length and end connection. The purpose of this report is to establish a summary of all fitted hoses and also to provide suggestions of change.

A total of 49 hoses were inspected and suggestions for areas of improvement have been identified: selecting the correct technology based on media and system parameters, making proper hose routing practices more consistent. Hoses were found in some cases to be too long for the application, twisted, non optimal selection of proper connection to handle pressure and media, slight corrosion issues and non optimal materials of construction.


We also attached the product investigation report for the Boiler House Safety Valve and Emergency Relief Valves network hoses in which all of them presented issues.


SURVEY GOALS

Based on the discussions with Customer 1 / Customer 2 before, during and after the hose review, the following goals were established for this Swagelok Hose Advisory Services Session:

- Identify areas for improvement in the current installations
- Establish a hose standardisation across the network
- Identify hoses with clamps as priority to change
- Notify hoses without internal SAP code
- Mapping for preventative maintenance purposes
- Provide suggestion of installation: routing of hoses, support to be added, gap to be created, connecting tubing to be re-worked.
- Check for leakage (on hoses or connected equipment)

SUMMARY OF TAGGED HOSES

Registration		Conditions or Design of use	Potential displacement			Actual fitted hose					Surrounding of Hose attachment (pipetubef tapered bloc.)						
Customer Identifiant Number	Swagelok Tag		Plant Location	Temp. C	Media	Pressure (+ units)	Application Dynamic/Static	Mvt of displacement (axis X,Y,Z)	Mvt from Hot or Cold Pos.	Stroke (mm)	ID Size (mm)	Type of Hose (Std. or visual)		End 1	End 2	Length (mm)	End1
10LBC11AA191	Y132030	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1520	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=60mm ; Y=60mm ; Z=1310mm
10LBC56A2004	Y132031	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1415	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=145mm ; Z=1325mm
10LBC11AA192	Y132032	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1520	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=60mm ; Y=60mm ; Z=1335mm
10LBC56A2005	Y132033	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1415	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=145mm ; Z=1330mm
10LBC11AA193	Y132034	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1520	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=60mm ; Y=60mm ; Z=1355mm
10LBC56A2006	Y132035	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) North Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1505	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=145mm ; Z=1350mm
10LBC12AA191	Y132036	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1510	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=125mm ; Z=1375mm
10LBC64A2004	Y132037	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1530	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=85mm ; Z=1495mm
10LBC12AA192	Y132038	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1510	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1380mm
10LBC64A2005	Y132039	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1530	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=105mm ; Z=1460mm
10LBC12AA193	Y132040	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1510	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=25mm ; Z=1365mm
10LBC64A2006	Y132041	Steam Valve Exhaust and Drain System - Boiler House Level 6 (FL 33900) South Side	115	Water / Steam	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1530	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=110mm ; Z=1470mm
10LCL54A2001	Y132042	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Male 3/4" BSPT	1700 (Est.)	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=220mm ; Z=1500mm
10LCL54A2003	Y132043	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1400 (Est.)	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=625mm ; Y=130mm ; Z=1210mm
UNKNOWN	Y132044	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side - Pneumatic Valve	40	Air	6 bar	Static	None	None	None	1/2" - 13mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Male 1/2" NPT	S/S Male 1/2" BSPT - 3Pcs Barrel Union	980	S/S Male 1/2" NPT (Grey Pipe prior Ball Valve)	Brass Fem. 1/2" NPT (Electro actuated Valve)	X=625mm ; Y=60mm ; Z=135mm
10LCL54A2002	Y132045	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1750 (Est.)	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=220mm ; Z=1570mm
10LCL54A2004	Y132046	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1450 (Est.)	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=525mm ; Y=1300mm ; Z=1250mm
UNKNOWN	Y132047	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side - Pneumatic Valve	40	Air	6 bar	Static	None	None	None	1/2" - 13mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Male 1/2" NPT	S/S Fem. 1/2" BSPT - 3Pcs Barrel Union	1640	S/S Male 1/2" NPT (Grey Pipe prior Ball Valve)	Brass Fem. 1/2" NPT (Electro actuated Valve)	X=610 ; Y=0 ; Z=90mm
10LCL53A2001	Y132048	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1650 (Est.)	Steel Male 1" BSPT (Corroded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1600mm
10LCL53A2002	Y132049	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1600 (Est.)	Steel Male 2" BSPT (Corroded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1530mm
10LCL52A2001	Y132050	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1540	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1550mm
10LCL52A2005	Y132051	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL52A2004	Y132052	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL52A2002	Y132053	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1540	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1550mm
10LCL52A2007	Y132054	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL52A2006	Y132055	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL52A2003	Y132056	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1530	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1550mm

Registration		Conditions or Design of use	Potential displacement				Actual fitted hose					Surrounding of Hose attachment (pipetubetapered bloc.)					
Customer Identifier Number	Swagelok Tag		Plant Location	Temp. C	Media	Pressure (+ units)	Application Dynamic/Static	Mvt of displacement (axis X,Y,Z)	Mvt from Hot or Cold Pos.	Stroke (mm)	ID Size (mm)	Type of Hose (Std. or visual)	End 1		End 2	Length (mm)	End1
10LCL52A2009	Y132057	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL52A2008	Y132058	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=60mm ; Z=1540mm
10LCL51A2003	Y132059	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1580	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	Could also be 10LCL51A2004 as the pipe are joined - Y=1540mm
10LCL51A2001	Y132060	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1560	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1520mm
10LCL51A2005	Y132061	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1580	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	Could also be 10LCL51A2006 as the pipe are joined - Y=1540mm
10LCL51A2002	Y132062	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) North Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1560	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1520mm
10LCL62A2002	Y132063	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1540	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	
10LCL62A2004	Y132064	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1480 (Est.)	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=1350mm ; Y=100mm ; Z=300mm
UNKNDJWN	Y132065	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side - Pneumatic Valve	40	Air	6 bar	Static	None	None	None	1/2" - 13mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Male 1/2" NPT	S/S Male 1/2" BSPT - 3Pcs Barrel Union	720	S/S Male 1/2" NPT (Grey Pipe prior Ball Valve)	Brass Fem. 1/2" NPT (Electro actuated Valve)	X=420mm ; Y=360mm ; Z=370mm
10LCL62A2001	Y132066	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1540	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=1500mm ; Y=20mm ; Z=50mm
10LCL62A2003	Y132067	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1550	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=1500mm ; Y=270mm ; Z=0
10LCL63A2001	Y132068	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1500	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=0 ; Y=0 ; Z=1400mm
10LCL63A2002	Y132069	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	2" - 51mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 2" BSPT - 3Pcs Barrel Union	S/S Fem. 2" BSPT - 3Pcs Barrel Union	1500	Steel Male 2" BSPT (Claded Pipe)	Steel Male 2" BSPT (Claded Pipe)	X=25mm ; Y=0 ; Z=1400mm
10LCL61A2001	Y132070	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1560	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=50mm ; Y=70mm ; Z=1495mm
10LCL61A2004	Y132071	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1540	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=50mm ; Y=130mm ; Z=1510mm
10LCL61A2005	Y132072	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1540	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=50mm ; Y=130mm ; Z=1510mm
10LCL61A2002	Y132073	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1560	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=50mm ; Y=70mm ; Z=1495mm
10LCL61A2006	Y132074	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1540	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=50mm ; Y=130mm ; Z=1510mm
10LCL61A2007	Y132075	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1540	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=50mm ; Y=130mm ; Z=1510mm
10LCL61A2003	Y132076	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	3/4" - 20mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	S/S Fem. 3/4" BSPT - 3Pcs Barrel Union	1540	Steel Male 3/4" BSPT (Claded Pipe)	Steel Male 3/4" BSPT (Claded Pipe)	X=0 ; Y=120mm ; Z=1490mm
10LCL61A2008	Y132077	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1550	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=100mm ; Y=120mm ; Z=1510mm
10LCL61A2009	Y132078	Steam Valve Exhaust and Drain System - Boiler House Level 11 (FL "59300) South Side	115	Superheated Steam / Water	70 kPa	Static	None	None	None	1" - 25mm	S/S Metallic Corrugated - 1 S/S Braid Reinforced	S/S Fem. 1" BSPT - 3Pcs Barrel Union	S/S Fem. 1" BSPT - 3Pcs Barrel Union	1530	Steel Male 1" BSPT (Claded Pipe)	Steel Male 1" BSPT (Claded Pipe)	X=80mm ; Y=110mm ; Z=1510mm

FINDINGS

The following pages will further explain the findings the Swagelok team has uncovered, based on best practices, international standards (Appendix C) and experience.

The first page reports the hose specifications as it's currently installed and the second page illustrates how to apply corrective action on the hoses and the surrounding elements.

The combination is made so operator or technicians can understand the situation and also follow this as a guide when proceeding changes.

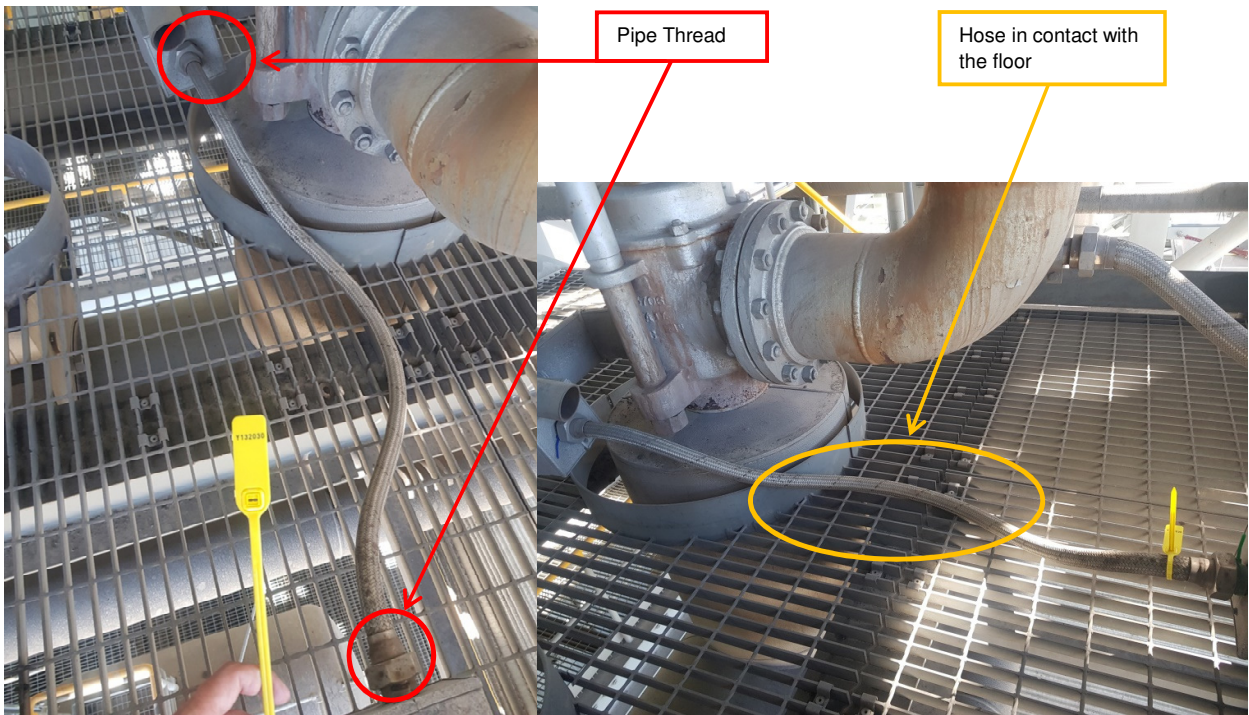
Issues have been recorded in 2 categories based on our pre-meeting conversation:

- Category 1:
 - Hoses those are too short.
 - Hoses those are long on steam exhaust line
 - Hoses those are twisted
 - Hoses that are fitted with pipe thread on steam exhaust line
 - Observed leakage

- Category 2:
 - Hoses those are fitted with pipe thread connection on condensate line.
 - Hoses those are too long on condensate line

Issue Tag ID : Y132030 **Category : 1**

Plant Area:	Boiler House Level 6 – North Side	Hose ID Size:	1" – 25mm
Customer Tag ID:	10LBC11AA191	Type of Hose:	S/S Metallic Corrugated - 1 S/S Braid Reinforced
Location:	Steam Valve Exhaust and Drain System (FL 33900)	Connection type:	Pipe Fitting
Part Description:	1" Hose Eq. Welded end S/S Fem. 1" BSPT 3 Pcs Barrel Union Both Ends		
Process Fluid:	Steam Exhaust	Length of Hose:	1520mm
Pressure:	0.07 bar	Manufacturer:	UNKNOWN
Temperature:	115 C	Part Number:	*
Issue:	Hose is too long	Equiv Swagelok Part:	
Description:	The hose length is in contact with the floor, risking damage of the braid		
Other Findings:	The hose has 3 piece barrel unions for end connections, this technology is not optimal to convey steam, the seat does not offer a reliable sealing surface. This also increases the number of pipe thread connections, prone to leakage. The outlet from the valve is 1/2" NPT for 1" Hose.		
Possible Solution:	Replace hose with appropriate length and size with Swagelok leak free connection; replace the tubing from the safety valve outlet port.		

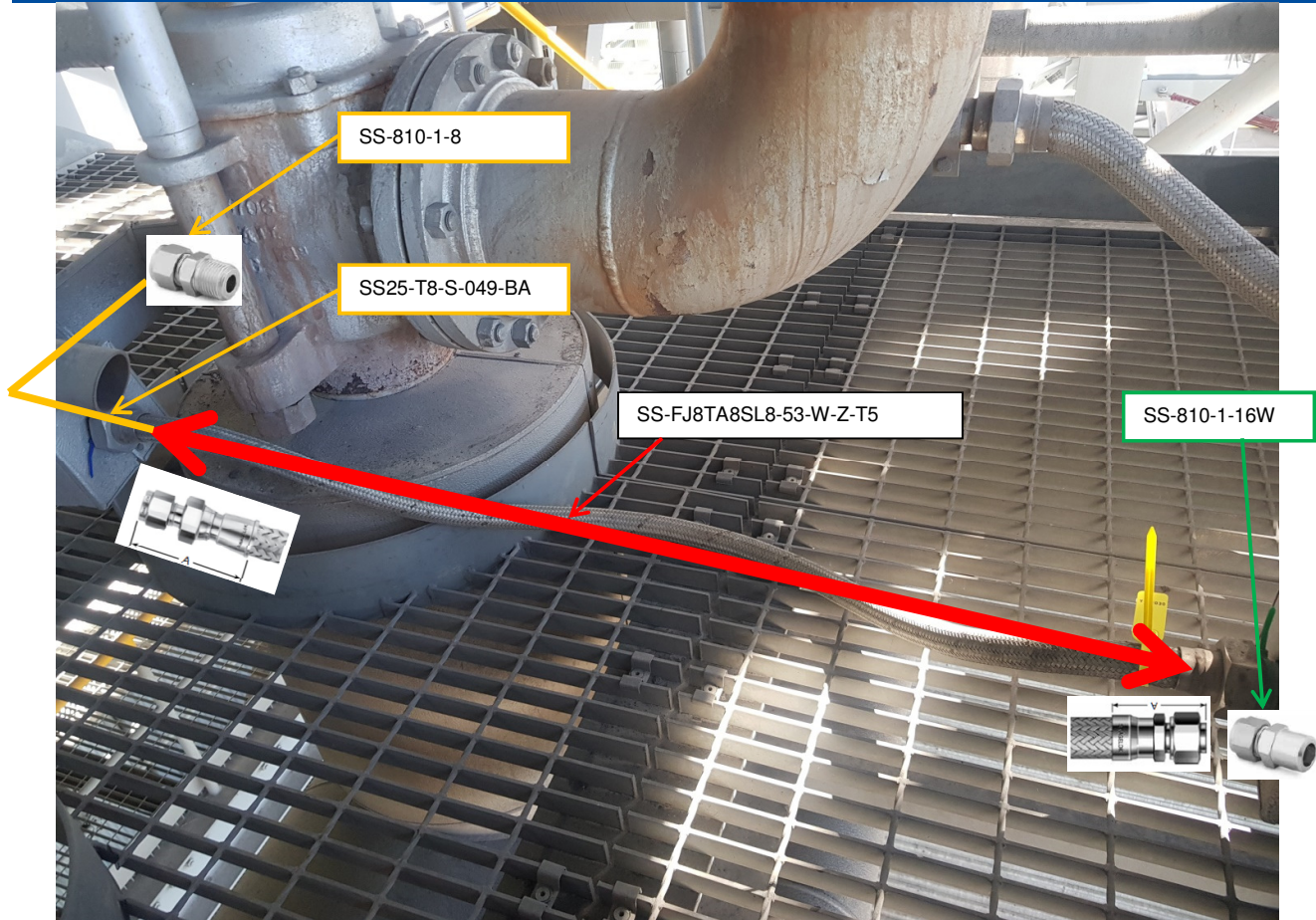


IMPORTANT: Always depressurize the system before working on, disassembling or assembling a fluid system. Safe Product Selection: When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

NOTE: Where the Part Number is followed by " * ", it should be confirmed before placing an order.

Issue Tag ID : Y132030

Category : 1



Suggested Solution:

Reinstall the tubing from scratch under the cladding from the safety valve and the welding an adaptor onto the collecting drain pipe will present safer installation as Swagelok leak free connection will ensure a safer convey. The number of pipe thread connection eliminated will be 5-6.

IMPORTANT: Always depressurize the system before working on, disassembling or assembling a fluid system. Safe Product Selection: 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.

NOTE: Where the Part Number is followed by " * ", it should be confirmed before placing an order.