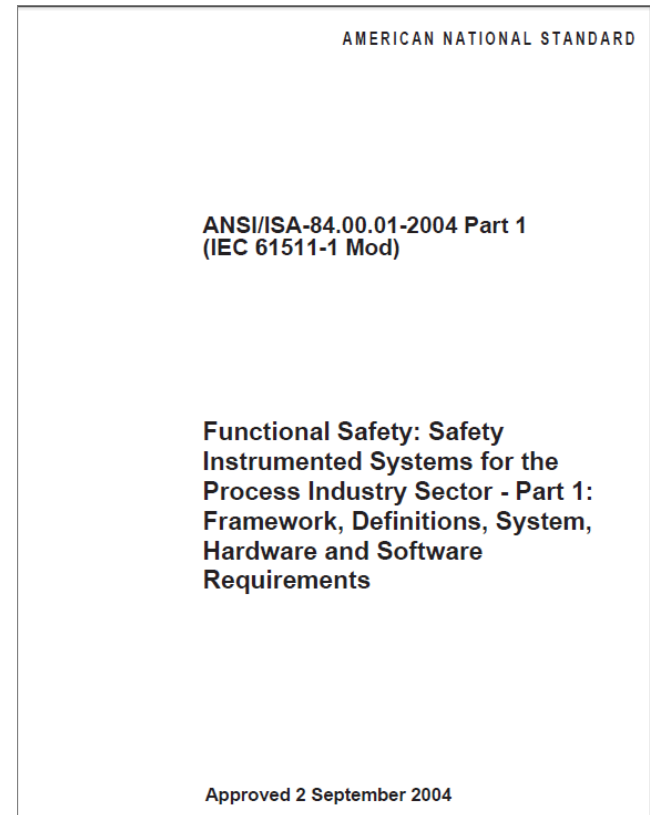


# Houston SPI LTUF Safety Presentation

Documenting Safety Instrumented Systems in  
SmartPlant Instrumentation

# Standard for Safety Instrumented Systems

- International Electrotechnical Commission (IEC) developed IEC61511 Functional safety - Safety instrumented systems for the process industry sector in 1998
- ISA S84 committee adopted the IEC61511 standard in 2004 creating ANSI/ISA-84.00.01-2004
- These standards called for Safety Instrumented Systems to be designed to automatically respond to potentially dangerous process conditions and take preprogrammed action to mitigate or avoid a dangerous condition



# Standard for Safety Instrumented Systems

- Documenting SIS in SPI 2016 requires defining User Defined Fields and Tables for Safety Data
- Additional Index Data for SIS Systems:
  - Unique Tag Identifiers for SIS Instrument Devices
  - Special SIS Notes for Operations
  - Instrument System Identifiers
  - UPS Power Requirements
  - Certification Requirements
  - Maintenance Cycles
  - Interlock Numbers
  - SIS SIL Ratings



# Standard for Safety Instrumented Systems

- Documenting SIS in SPI 2016 requires defining User Defined Fields and Tables for Safety Data
- Additional Spec Sheet Data for SIS:
  - Safety Integrity Level Ratings
  - Testing Requirements
  - Certifications and Approvals
  - Redundancy or Conditioning Requirements
  - Special Notes for Design Engineering
  - Partial Stroke Testing Requirements (for Valves)
  - Cross references to Safety Documents

GENERAL	1	Tag Number	Equipment Number	LV -0530006			
	2	Service		LP CND5 FRM P053-0001A/B			
	3	Line Number	P&ID Number	3-CL-053-0077-A021-06-H	L2CC-053-25-P-0016		
	4	Area Classification		CLASS 1, DIV 2, GROUPS B, C and D			
	5	Ambient Temperature	Min.	Max.	10 °F	92.9 °F	
	6	Allowable Sound Pressure Level	dBA		85		
	7	Tightness Requirements			ANSI IV (standard)		
	8	Available Air Supply Pressure	Min.	Max.	60 psi-g	80 psi-g	
	9	Power Failure Position			Close		
	10						
PIPE LINE	11	Line Size and Schedule	Inlet	Outlet	3 in STD	3 in STD	
	12	Pipe Material			PLAIN CARBON STEEL		
	13	Pipe Insulation			Heat Conservation Insulation		
	14	Process Fluid			LP Condensate		
PROCESS CONDITIONS	15	Upstream Condition			Liquid		
	16	Diff. Press / Shut Off DP	Critical Pressure		180 psi	3208.2 psi-a	
	17		Units	@ Max. Flow	@ Norm. Flow	@ Min. Flow	
	18	Flow Rate			82500 b/h	82500 b/h	
	19	Inlet Pressure			127.9 psig	127.9 psig	
	20	Pressure Drop			24.38 psi	74.2 psi	
	21	Inlet Temperature			212 °F	212 °F	
	22	Inlet Density			59.85 lb/ft³	59.85 lb/ft³	
	23	Inlet Compressibility Factor			---	---	
	24	Inlet Viscosity			0.282 cP	0.282 cP	
25	Inlet Specific Heats Ratio			---	---		
26	Inlet Vapor Pressure			14.7 psia	14.7 psia		
27							
CALCULATED RESULTS	28	Flow Coefficient Cv			---	34.9	
	29	Travel			85.82 %	66.95 %	
	30	SPL @			50 dBA	62 dBA	
BODY AND TRIM	31	MFR	Model	FISHER	GX		
	32	Body Type		Single Seat Globe			
	33	Body Size	Trim Size	2 in	46 mm		
	34	Rated Cv	Characteris	43.7	EQUAL %		
	35	End Connec	Rating	RF Flg	150#		
	36	Body Material			WCC STEEL		
	37	Bonnet Type	Material	Std -Clamped	WCC STEEL		
	38	Flow Direction			UP		
	39	Flow Action To			FLOW TO OPEN		
	40	Lubricator	Isolat. Valve	No	No		
41	Guiding	No. of Ports	Port	1			
42	Trim Type			Metal to Metal/Unbalanced			
43	Rated Travel			20 mm			
44	Plug Seal Disk Material			CF3M SST			
45	Seat Material			CF3M SST			
46	Cage	Stem Material		S31603 SST			
47	Gasket Material			Laminated Graphite			
48	Packing Material			Live Load PTFE			
49	MFR	Model	FISHER	GX			
50	Type	Area	SPRING & DIAPHRAGM				
51	Size		225 (ATO)				
52	Air Failure Valve		CLOSE				
53	Handwheel Location		NONE				
54	Bench Range						
55							
ACTUATOR	56	MFR	Model	FISHER	DVC6200-AD		
	57	Signal	Inlet	Outlet	4-20 mA	0-55 psig	
	58	Increase Signal Valve			OPEN		
	59	Cam Characteristic			LINEAR		
	60	Bypass	Gauges	No	YES		
	61						
	62	MFR	Model				
	63	Type					
	64	When De-Energ. Valve					
	65						
66	MFR	Model					
67	Type						
68	Contacts / Rating						
69	Switching Position						
70							
71	MFR	Model	FISHER	67CFR			
72	Set Pressure		60 psig				
73	Filter	Gauge	YES	NO			
74							
75	Hydro. Pressure		YES				
76	Leakage		ANSI FCI 70-2				
77							
78	Vendor		EMERSON				
79	Manufacturer		FISHER				
80	Model		2'-GX-225 (ATO)				
81	Purchase Order Num		L2CC-7M-0007-FLD-01				
82	Test Category		CRITICALITY LEVEL 4				
83	Serial Number						
Notes: See Notes Page							
REV 202-06							
INSTRUMENT SPECIFICATION							
Control Valve							
CWP: 0533000X71A							
Sheet --- of ---							
Code: 202 Dwg. No.: OS-LV05300006 Rev: 2							