



ControlDraw Demonstration A Safety Shutdown System Model Print and Review Report

Thanks to Horizon Consulting for the original documents
<http://www.horizonconsultants.com>

Note - only selected portions of the model are in this PDF

Demonstration

Table of Contents

Section	Page
Cover	1
Table of Contents	2
List of Included Diagrams	3
Diagrams	5
1 - Plant Overview	5
2 - Boiler Overview	6
4 - Boiler Startup Sequence	7
12 - ESD01	8
20 - ESD09	9
26 - ESD1 Fault Tree	10
30 - Boiler Equipment Damage	11
31 - Boiler Event Trees	12
32 - Copy of Safire ESD1 Fault Tree	13
33 - Hardware Concept	14
34 - IO List connected to model	15
35 - Original Cause and Effect	16
36 - SIL Results	17
Data Reports:	18
Safety Control Functions	18
Alarm Set points	19
Control System IOList	20

Demonstration

Project : Horizon Demo Model

List of Included Diagrams

Diagram	Objs	Class	Vers	Lastauthor	Date
1 Plant Overview	27	Process Cell	107	Francis Lovering	23-Jan-05
2 Boiler Overview	68	Unit	108	Francis Lovering	23-Jan-05
4 Boiler Startup Sequence	22	Phase	107	Francis Lovering	23-Jan-05
12 ESD01	6	Safety Control Function	122	Francis Lovering	08-Feb-05
20 ESD09	3	Safety Control Function	96	Francis Lovering	23-Jan-05
26 ESD1 Fault Tree	25	Control Module	121	Francis Lovering	03-Feb-05
30 Boiler Equipment Damage	12	Document Reference	103	Francis Lovering	23-Jan-05
31 Boiler Event Trees	25	Document Reference	103	Francis Lovering	23-Jan-05
32 Copy of Safire ESD1 Fault Tree	2	None	111	Francis Lovering	23-Jan-05
33 Hardware Concept	15	None	109	Francis Lovering	23-Jan-05
34 IO List connected to model	1	None	108	Francis Lovering	23-Jan-05
35 Original Cause and Effect	2	None	119	Francis Lovering	01-Feb-05
36 SIL Results	2	None	97	Francis Lovering	23-Jan-05

Demonstration

Demonstration

Diagram 1 - Plant Overview

Diagram Version: 107

Class: Process Cell

Diagram 1 of 36 PageID: 7

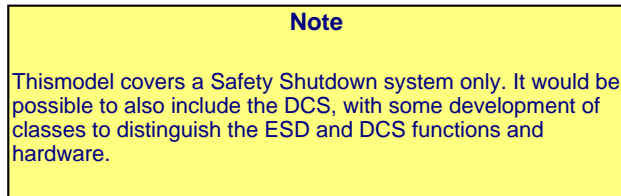
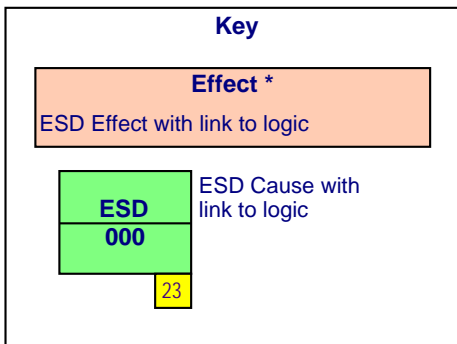
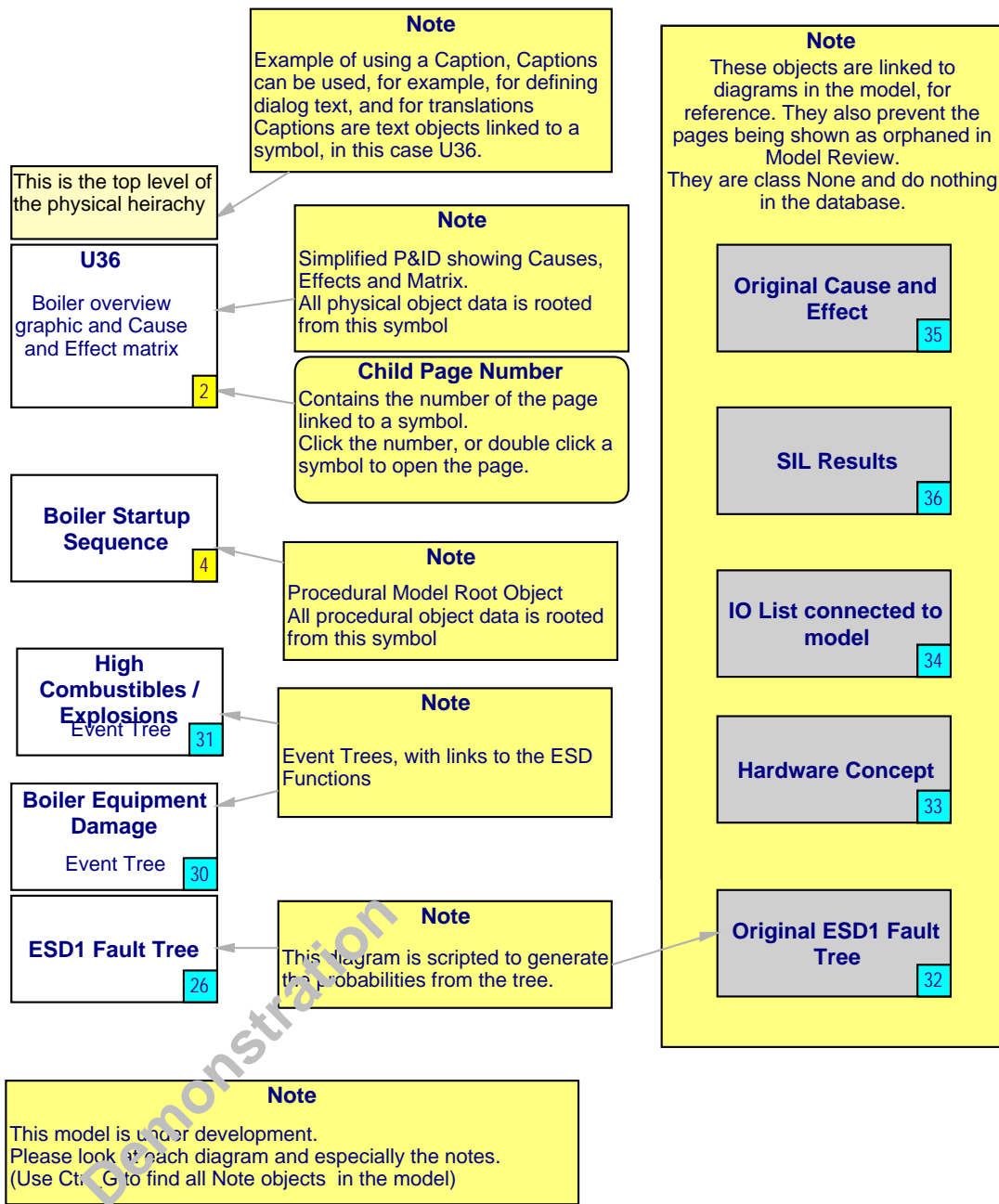


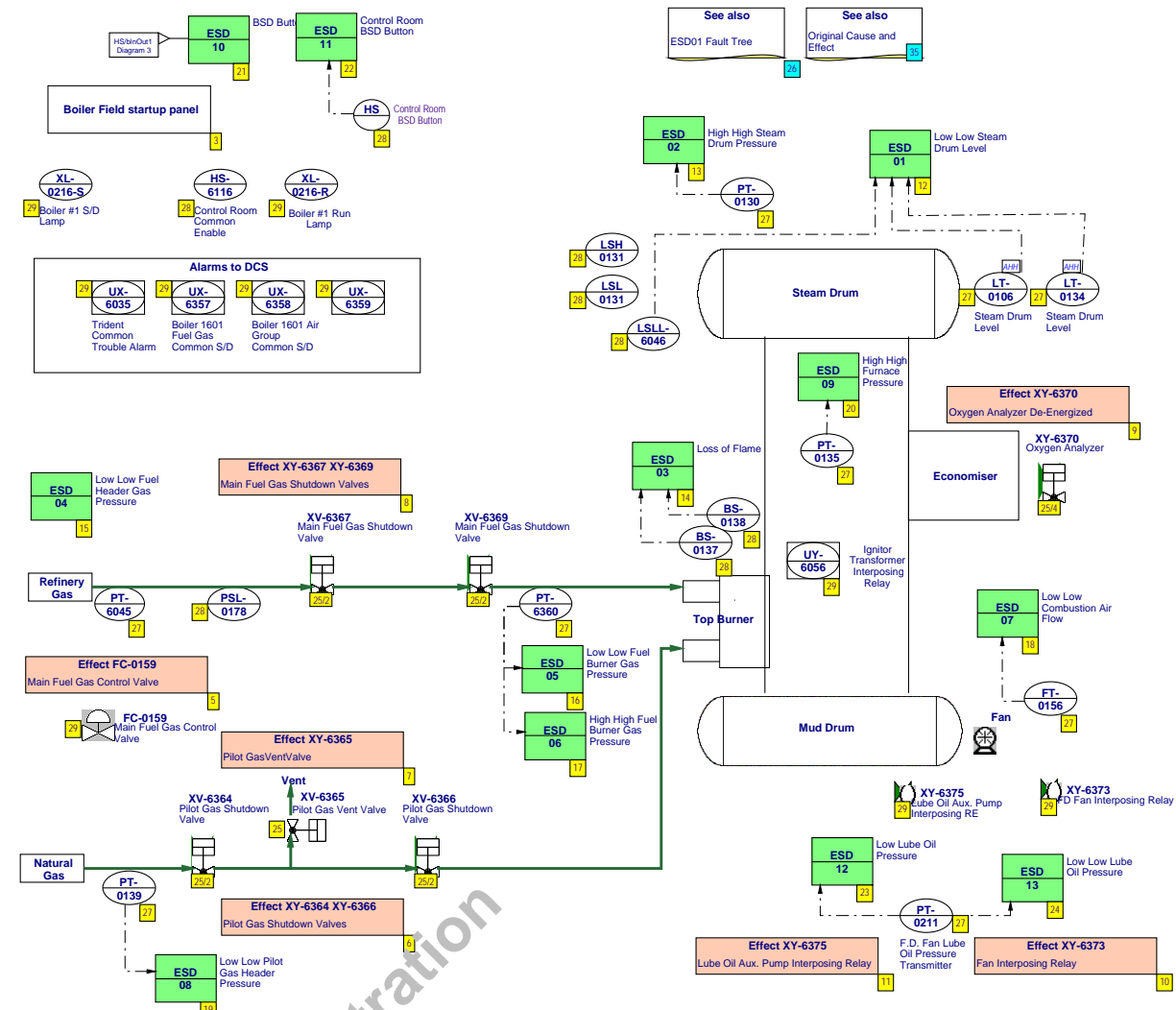
Diagram 2 - Boiler Overview

Diagram Version: 108

Class: Unit

Diagram 2 of 36 PageID: 27

Note
This diagram could be simplified by sub division into equipment modules, however as the process is fairly simple this has not been done.



Cause/Effect	Description	See page
Effect FC-0159	Main Fuel Gas Control Valve	5
Effect XY-6364 XY-6366	Pilot Gas Shutdown Valves	6
Effect XY-6365	Pilot Gas Vent Valve	7
Effect XY-6367 XY-6369	Main Fuel Gas Shutdown Valves	8
Effect XY-6370	Oxygen Analyzer De-Energized	9
Effect XY-6373	Fan Interposing Relay	10
Effect XY-6375	Lube Oil Aux. Pump Interposing Relay	11
ESD01	Low Low Steam Drum Level	12
ESD02	High High Steam Drum Pressure	13
ESD03	Loss of Flame	14
ESD04	Low Low Fuel Header Gas Pressure	15
ESD05	Low Low Fuel Burner Gas Pressure	16
ESD06	High High Fuel Burner Gas Pressure	17
ESD07	Low Low Combustion Air Flow	18
ESD08	Low Low Pilot Gas Header Pressure	19
ESD09	High High Furnace Pressure	20
ESD10	BSD Button	21
ESD11	Control Room BSD Button	22
ESD12	Low Lube Oil Pressure	23
ESD13	Low Low Lube Oil Pressure	24

Overall Cause and Effect Matrix

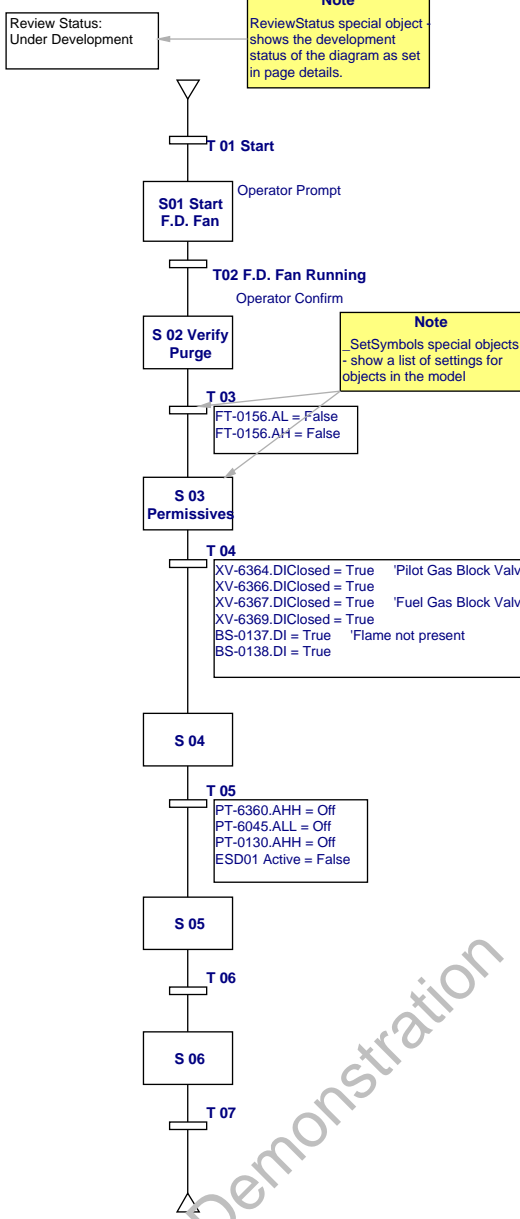
	Effect XY-6367 XY-6369	Effect FC-0159	Effect XY-6364 XY-6366	Effect XY-6365	Effect XY-6370	Effect XY-6375	Effect XY-6373	Notes
ESD01	Closed	5%	Closed	Open	De-Energized			Cause is combined into one memory discrete value
ESD02	Closed	5%	Closed	Open	De-Energized			This is then used in all related effects
ESD03	Closed	5%	Closed	Open	De-Energized			The memory discrete is named ESD# Active
ESD04	Closed	5%			De-Energized			
ESD05	Closed	5%			De-Energized			
ESD06	Closed	5%			De-Energized			
ESD07	Closed	5%			De-Energized			
ESD08	Closed	5%			De-Energized			
ESD09	Closed	5%			De-Energized			
ESD10	Closed	5%			De-Energized			
ESD11	Closed	5%			De-Energized			
ESD12	Closed	5%			De-Energized	Start		
ESD13	Closed	X	Closed	Open	De-Energized	Start	Stop	

Diagram 4 - Boiler Startup Sequence

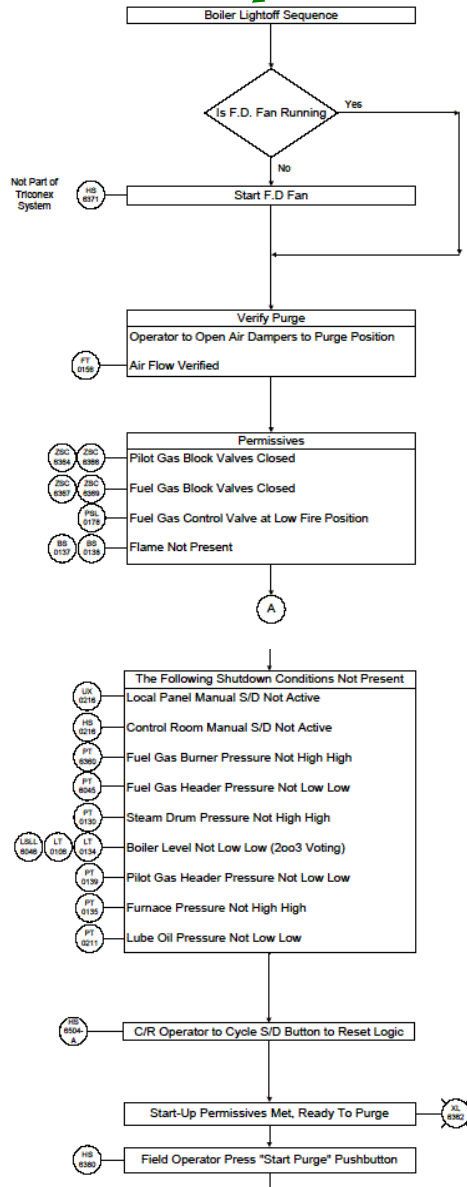
Diagram Version: 107 Class: Phase Diagram 4 of 36 PageID: 21

Note
 This diagram is under development. The Flowchart is not complete, but at present shows how the model can represent the flowchart using Special '_SetSymbols' objects. These link the text in the steps to the objects in the model. This ensures that object references are correct, and that tagname changes propagate.

The Flowchart has been converted to a Sequential Function Chart



Startup Sequence.pdf
 (Source files reference object)
 The flowchart is an image from the Horizon Visio-Boiler Startup Sequence.pdf file. It will be deleted, leaving just this document reference when the sequence in the model is approved.



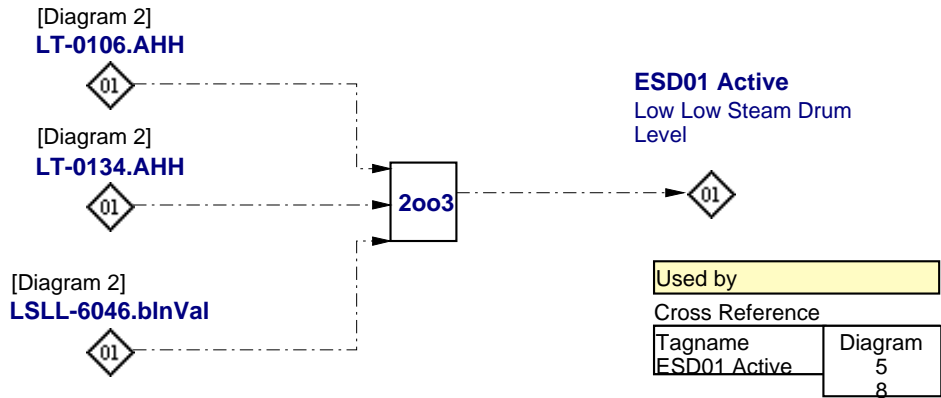
Demonstration

Description for Diagram 12 - ESD01

Low Low Steam Drum Level

Diagram 12 - ESD01

Diagram Version: 122 Class: Safety Control Function Diagram 12 of 36 PageID: 17



Demonstration

Description for Diagram 20 - ESD09

High High Furnace Pressure

Diagram 20 - ESD09

Diagram Version: 96 Class: Safety Control Function Diagram 20 of 36 PageID: 23



Used by

Cross Reference

Tagname	Diagram
ESD09 Active	5
	8

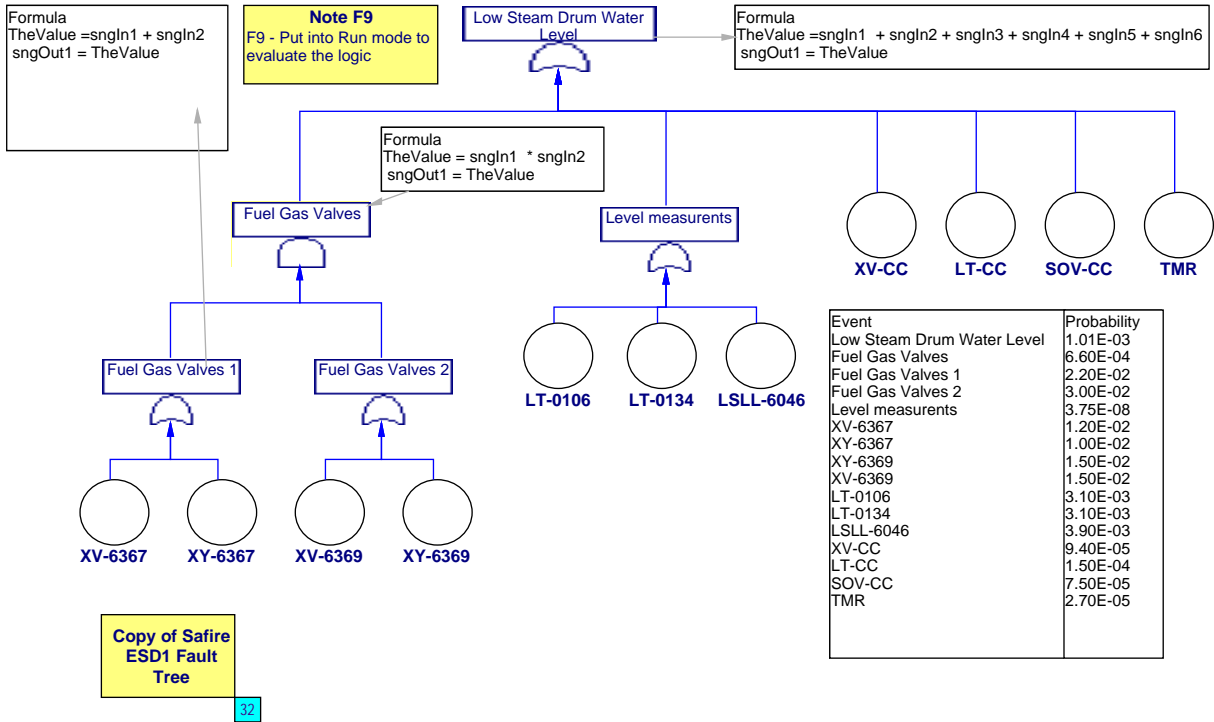
Demonstration

Description for Diagram 26 - ESD1 Fault Tree

Low Low Steam Drum Level

Diagram 26 - ESD1 Fault Tree

Diagram Version: 121 Class: Control Module Diagram 26 of 36 PageID: 15



Note F9 to Run Calculations!

This diagram is scripted to generate the probabilities from the tree. It does not use the recursive logic that systems such as Safire deploys (although this is a possible development - ControlDraw is full of recursive functions) Instead simple formulae are used for each 'gate'. And's produce the product of the inputs, Or's Add them. This is programmed into the object dynamics.

Event	Formula
Low Steam Drum Water Level	TheValue =sngIn1 + sngIn2 + sngIn3 + sngIn4 + sngIn5 + sngIn6 : sngOut1 = TheValue
Fuel Gas Valves	TheValue =sngIn1 * sngIn2 : sngOut1 = TheValue
Fuel Gas Valves 1	TheValue =sngIn1 + sngIn2 : sngOut1 = TheValue
Fuel Gas Valves 2	TheValue =sngIn1 + sngIn2 : sngOut1 = TheValue
Level measurements	TheValue = sngIn1 * sngIn2 * sngIn3 : sngOut1 = TheValue
XV-6367	sngOut1 = TheValue
XY-6367	sngOut1 = TheValue
XY-6369	sngOut1 = TheValue
XV-6369	sngOut1 = TheValue
LT-0106	sngOut1 = TheValue
LT-0134	sngOut1 = TheValue
LSLL-6046	sngOut1 = TheValue
XV-CC	sngOut1 = TheValue
LT-CC	sngOut1 = TheValue
SOV-CC	sngOut1 = TheValue
TMR	sngOut1 = TheValue

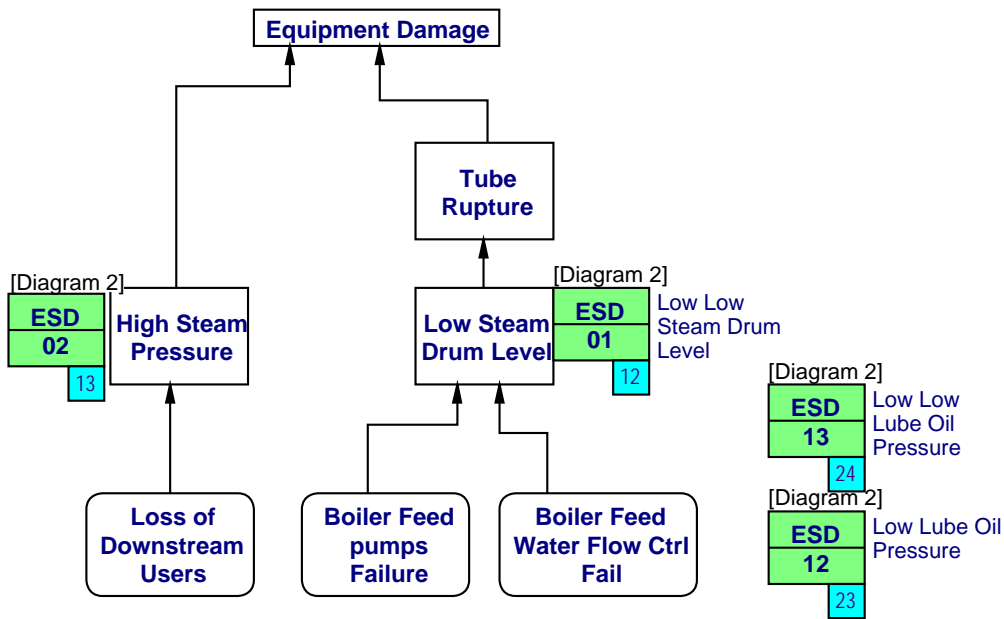
Developments could link this M...

Diagram 30 - Boiler Equipment Damage

Diagram Version: 103

Class: Document Reference

Diagram 30 of 36 PageID: 24



Note

This diagram is shows how an Event Tree can be drawn and linked to the relevant diagrams. The links are jumps because the diagram is informative rather than being data generating. An alternative structure could be used where this type of diagram is actually a data generating parent however at present this model is not structured that way.

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Diagram 31 - Boiler Event Trees

Diagram Version: 103

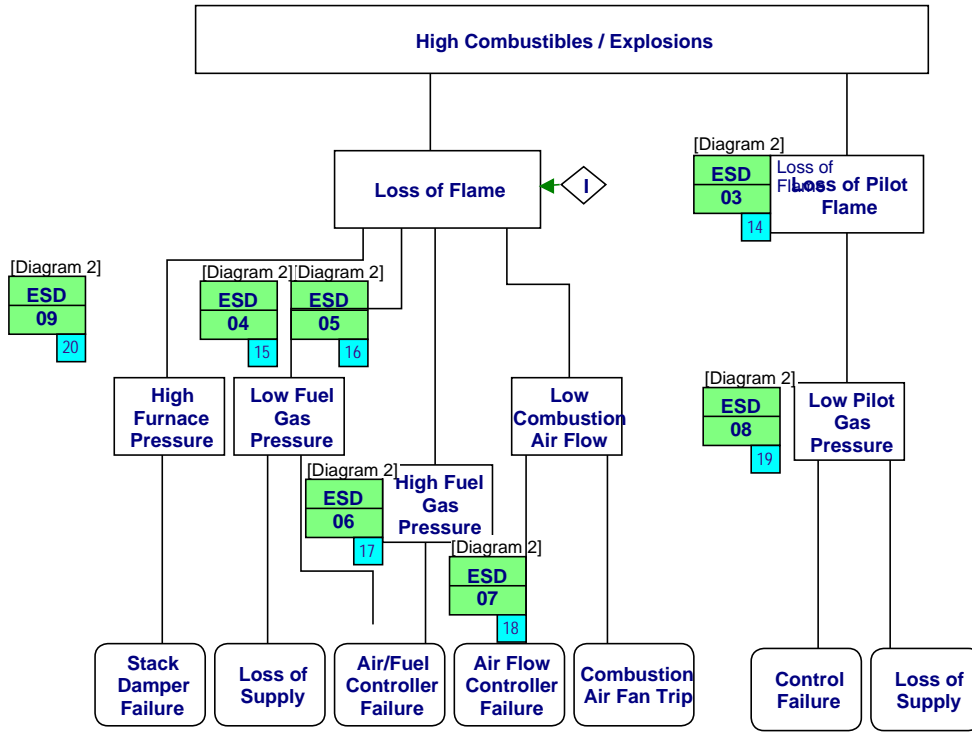
Class: Document Reference

Diagram 31 of 36 PageID: 4

Note

This diagram shows how an Event Tree can be drawn and linked to the relevant diagrams. The links are jumps because the diagram is informative rather than being data generating. An alternative structure could be used where this type of diagram is actually a data generating parent however at present this model is not structured that way.

SIS Blue number links to the relevant Cause diagram
Interlock

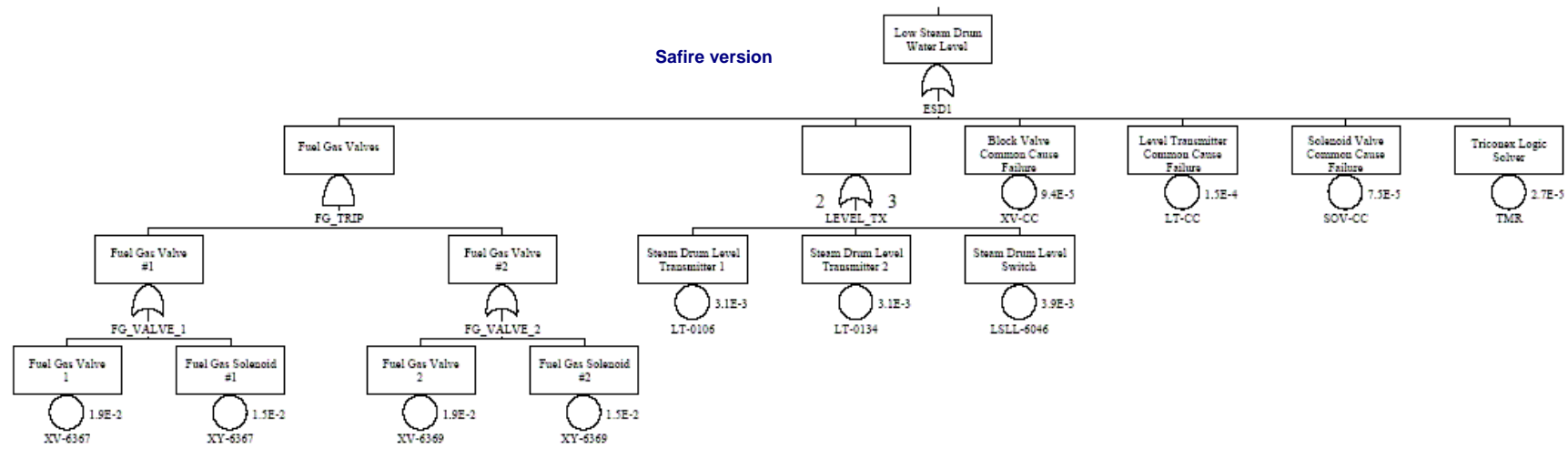


Demonstration

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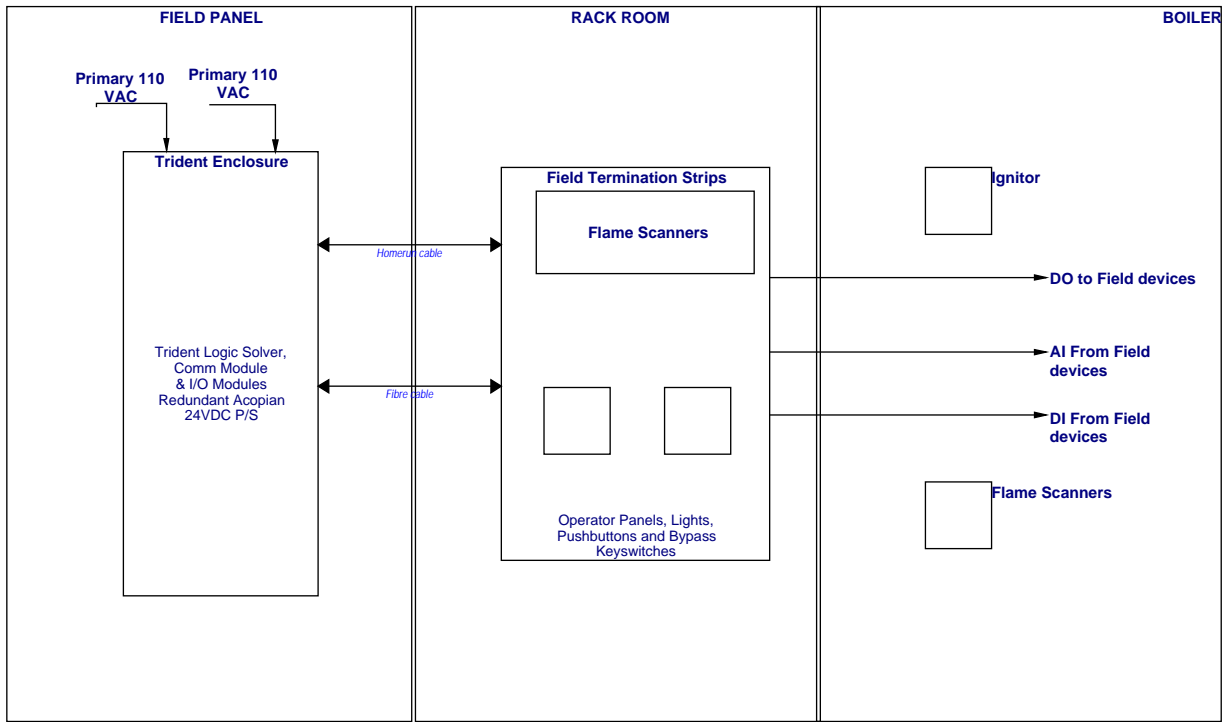
Diagram 32 - Copy of Safire ESD1 Fault Tree

Diagram Version: 111 Class: None Diagram 32 of 36 PageID: 19



Fault Tree : ESD1 Case : CURRENT
 Mincut Upper Bound : 1.492E-003

Cut No.	% Total	% Cut Sets	Prob/Freq.	CURRENT CUT SETS
1	23.0	23.0	3.4E-004	XV-6367, XV-6369
2	41.4	18.4	2.8E-004	XV-6367, XY-6369
3	59.9	18.4	2.8E-004	XV-6369, XY-6367
4	74.6	14.8	2.2E-004	XY-6367, XY-6369
5	84.7	10.1	1.5E-004	LT-CC
6	91.0	6.3	9.4E-005	XV-CC
7	96.0	5.0	7.5E-005	SOV-CC
8	97.8	1.8	2.7E-005	TMR
9	98.6	0.8	1.2E-005	LSSL-6046, LT-0106
10	99.4	0.8	1.2E-005	LSSL-6046, LT-0134
11	100.0	0.7	9.6E-006	LT-0106, LT-0134



Demonstration

Project : Horizon Demo Model

Diagram 34 - IO List connected to model

Diagram Version: 108 Class: None Diagram 34 of 36 PageID: 18

This shows the original IO List from Horizon linked to the IO generated by the model. It is not yet fully resolved.					
Tag	Description	R-S-P	Type	Page	Usertext
36-XY-6365	Pilot Gas Vent Valve Solenoid	01.03.03	DO		
36-UX-0216	Local Panel Manual S/D Switch	01.02.03	DI		
36-HS-0216	Control Room Boiler #1Manual S/D Switch	01.02.01	DI		
36-XY-6364	Pilot Gas Header Shutdown Valve Solenoid	01.03.02	DO		
36-ZSC-6364	Pilot Gas Header Shutdown Valve Closed	01.02.18	DI		
36-ZSC-6365	Pilot Gas Vent Valve Closed	01.02.19	DI		
36-ZSO-6365	Pilot Gas Vent Valve Open	01.02.23	DI		
36-XY-6366	Pilot Gas Burner Shutdown Valve Solenoid	01.03.04	DO		
36-ZSC-6366	Pilot Gas Burner Shutdown Valve Closed	01.02.20	DI		
36-ZSC-6367	Main Fuel Gas Header Shutdown Valve Closed	01.02.21	DI		
36-ZSC-6369	Main Fuel Gas Burner Shutdown Valve Closed	01.02.22	DI		
36-BS-0137	Pilot Flame Scanner Burner Switch	01.02.14	DI	2	Pilot Flame Scanner Burner Switch
36-BS-0138	Main Flame Scanner Burner Switch	01.02.15	DI	2	Main Flame Scanner Burner Switch
36-FT-0156	Combustion Air Flow Transmitter	01.01.01	AI	2	
36-HS-0130	Steam Drum Pressure Bypass Switch	01.02.10	DI	3	Strm Drum Pressure Bypass
36-HS-0135	Furnace Pressure Bypass Switch	01.02.11	DI	3	Furnace Pressure Bypass
36-HS-0156	Combustion Air Flow Bypass Switch	01.02.12	DI	3	Combustion Air Flow Bypass
36-HS-6039	Flame Scanner Bypass Switch	01.02.13	DI	3	Flame Scanner Bypass
36-HS-6041	Pilot Gas Header Pressure Bypass Switch	01.02.06	DI	3	Pilot Gas Header Pressure Bypass Switch
36-HS-6045	Fuel Gas Header Pressure Bypass Switch	01.02.07	DI	3	Fuel Gas Hdr Press Bypass
36-HS-6056	Start Burner	01.02.04	DI	3	Start Burner
36-HS-6116	Control Room Common Enable	01.02.02	DI	2	Control Room Common Enable
36-HS-6360	Fuel Gas Burner Pressure Bypass Switch	01.02.08	DI	3	Fuel Gas Burner Press Bypass
36-HS-6361	Boiler Level Bypass Switch	01.02.09	DI	3	Boiler Lev Bypass
36-HS-6380	Start Purge	01.02.05	DI	3	Start Purge
36-LSSL-6046	Boiler Level	01.02.16	DI	26	
	Boiler Level	01.02.16	DI	2	Low Low Steam Drum Level
36-LT-0106	Boiler Level	01.01.02	AI	26	
	Boiler Level	01.01.02	AI	2	Steam Drum Level
36-LT-0134	Boiler Level	01.01.03	AI	26	
	Boiler Level	01.01.03	AI	2	Steam Drum Level
36-PSL-0178	Main Fuel Gas Control Valve at Low Fire Position	01.02.17	DI	2	
36-PT-0130	Steam Drum Pressure	01.01.07	AI	2	Steam Drum Pressure
36-PT-0135	Furnace Pressure Transmitter	01.01.08	AI	2	
36-PT-0139	Pilot Gas Header Pressure	01.01.04	AI	2	
36-PT-0211	F.D. Fan Lube Oil Pressure Transmitter	01.01.09	AI	2	F.D. Fan Lube Oil Pressure Transmitter
36-UX-6035	Trident Common Trouble Alarm	01.04.25	Relay	2	Trident Common Trouble Alarm
36-UX-6357	Boiler 36-1601 Fuel Gas Common S/D	01.04.26	Relay	2	Boiler 1601 Fuel Gas Common S/D
36-UX-6358	Boiler 36-1601 Air Group Common S/D	01.04.27	Relay	2	Boiler 1601 Air Group Common S/D
36-UX-6359	Boiler 36-1601 Boiler Process Group Common S/D	01.04.28	Relay	2	Boiler 1601 Boiler Process Group Common S/D
36-UY-6056	Ignitor Transformer Interposing Relay	01.03.01	DO	2	Ignitor Transformer Interposing Relay
36-XL-0002	Purging Lamp	01.04.04	Relay	3	Purging Lamp
36-XL-0137	Pilot Flame Lamp	01.04.07	Relay	3	Pilot Flame Lamp
36-XL-0138	Main Flame Lamp	01.04.08	Relay	3	Main Flame Lamp
36-XL-0216-R	Boiler #1 Run Lamp	01.04.01	Relay	2	Boiler #1 Run Lamp
36-XL-0216-S	Boiler #1 S/D Lamp	01.04.02	Relay	2	Boiler #1 S/D Lamp
36-XL-6056	Ignitor Lamp	01.04.06	Relay	3	Ignitor Lamp
36-XL-6362	Purge Permissives Met Lamp	01.04.03	Relay	3	Purge Permissives Met Lamp
36-XL-6363	Burner Permissives Met Lamp	01.04.05	Relay	3	Burner Permissives Met Lamp
36-XY-6367	Main Fuel Gas Header Shutdown Valve Solenoid	01.03.05	DO	26	
36-XY-6369	Main Fuel Gas Burner Shutdown Valve Solenoid	01.03.06	DO	26	
36-XY-6370	Oxygen Analyzer Interposing Relay	01.03.07	DO	2	Oxygen Analyzer
36-XY-6373	F.D. Fan S/D Interposing Relay	01.03.09	DO	2	FD Fan Interposing Relay

Demonstration

Project : Horizon Demo Model

Diagram 35 - Original Cause and Effect

Diagram Version: 119 Class: None Diagram 35 of 36 PageID: 14



CAUSE & EFFECT MATRIX

UNIT/EQUIPMENT NO.
Boiler #1

TAG NO.	TYPE	SAFE STATE	OUTPUT	EFFECT	PROCESS SAFE RESPONSE TIME
XY-6367 XY-6369	D.O.	FC	Main Fuel Gas Shutdown Valves	Closed	
FC-0159	DCS	N/A	Main Fuel Gas Control Valve	5%	
XY-6364 XY-6366	D.O.	FC	Pilot Gas Shutdown Valves	Closed	
XY-6365	D.O.	FO	Pilot Gas Vent Valve	Open	
XY-6370	D.O.	Off	Oxygen Analyzer	De-Energized	
XY-6375	D.O.	Off	Lube Oil Aux. Pump Interposing Relay	Start	
XY-6373	D.O.	Off	FD Fan Interposing Relay	Stop	

TAG NO.	TYPE	SAFE STATE	OUTPUT	EFFECT	PROCESS SAFE RESPONSE TIME
XY-6367 XY-6369	D.O.	FC	Main Fuel Gas Shutdown Valves	Closed	
FC-0159	DCS	N/A	Main Fuel Gas Control Valve	5%	
XY-6364 XY-6366	D.O.	FC	Pilot Gas Shutdown Valves	Closed	
XY-6365	D.O.	FO	Pilot Gas Vent Valve	Open	
XY-6370	D.O.	Off	Oxygen Analyzer	De-Energized	
XY-6375	D.O.	Off	Lube Oil Aux. Pump Interposing Relay	Start	
XY-6373	D.O.	Off	FD Fan Interposing Relay	Stop	

Note
Here the original Cause and Effect chart has been pasted in as a picture. ControlDraw does Cause and Effect charts via a collection of objects and links and a matrix, as shown on the process overview diagram

2

PROCESS DEVIATION	TYPE	LOGIC	TAG NO.	TD	TRIP SETPOINT	MAINT. BYPASS	OPERATING RANGE/LIMIT	Notes								
								1	2	3	4	5	6	7		
1 Low Low Steam Drum Level	D.I.		L3LL-0046	x sec	0 - 100 %		0 - 100 %									
	A.I.	2003	LT-0106	x sec	0 - 30 "w.c.	HS-4361	0 - 30 "w.c.	1	X	C	X	X	X			
	A.I.		LT-0134	x sec	0 - 5.8" w.c.		0 - 30 "w.c.									
2 High High Steam Drum Pressure	A.I.	1001	PT-0130	x sec	0 - 1000 psi	HS-0130	700 psi	2	X	C	X	X	X			
3 Loss of Flame	D.I.	2002	BS-0131 BS-0132	x sec	-	HS-0039	-	3	X	C	X	X	X			
4 Low Low Fuel Header Gas Pressure	A.I.	1001	PT-0040	x sec	0 - 75 psig	HS-0045	10 psig	4	X	C			X			
5 Low Low Fuel Burner Gas Pressure	A.I.	1001	PT-0360	x sec	10 psig	HS-0360	0 - 30 psig	5	X	C			X			
6 High High Fuel Burner Gas Pressure	A.I.	1001	PT-0360	x sec	28 psig	HS-0360	0 - 30 psig	6	X	C			X			
7 Low Low Combustion Air Flow	A.I.	1001	FT-0156	x sec		HS-0156		7	X	C	X	X	X			
8 Low Low Pilot Gas Header Pressure	A.I.	1001	PT-0139	x sec	0 - 10 psig	HS-0041	0 psig	8	X	C	X	X	X			
9 High High Furnace Pressure	A.I.	1001	PT-0135	x sec	-5 - 15 "w.c.	HS-0135		9	X	C	X	X	X			
10 ESD Button	D.I.	1001	UX-0216	-	-	-	-	10	X	C	X	X	X			
11 Control Room ESD Button	D.I.	2002	HS-0216 (Note 1)	-	-	-	-	11	X	C	X	X	X			
12 Low Lube Oil Pressure	A.I.	1001	PT-0211	x sec	0 - 25 psig	-	8 psig	12						X		
13 Low Low Lube Oil Pressure	A.I.	1001	PT-0211	x sec	0 - 25 psig	-	3 psig	13	X	X	X	X	X	X	X	X

Project : Horizon Demo Model

Diagram 36 - SIL Results

Diagram Version: 97 Class: None Diagram 36 of 36 PageID: 6

Original pasted in for reference

esdstuff

PFD	HRF	Safety Function	PFD	HRF	Calc SIL	Req SIL
ESD1		Low Low Steam Drum Level	1.49-E-03	670	2	0
ESD2		High High Steam Drum Pressure Pressure	1.76-E-02	60	1	1
ESD3-1		Low Low Fuel Gas Pressure	1.58E-03 635	635	2	2
ESD3-2		High High Fuel Gas Pressure	1.58E-03 635	635	2	1
ESD3-3		Low Low Pilot Gas Pressure	1.58E-03 635	635	2	2
ESD3-4		Loss of Combustion Air	1.88E-03 532	532	2	2
ESD3-5		High High Furnace Pressure	1.58E-03 635	635	2	2

Table from this model for class Safety Control Function (data not

Real tag	PFD	HRF	Calc SIL	Rec SIL	Usertext
U36.ESD01	1.49E-03		2	2	Low Low Steam Drum Level
U36.ESD02	1.76E-02		2	2	High High Steam Drum Pressure
U36.ESD05	1.58E-03		2	2	Low Low Fuel Burner Gas Pressure
U36.ESD06	1.58E-03		2	2	High High Fuel Burner Gas Pressure
U36.ESD08	1.58E-03		2	2	Low Low Pilot Gas Header Pressure
U36.ESD09	1.58E-03		2	2	High High Furnace Pressure
U36.Effect XY-6367 XY-6369					Main Fuel Gas Shutdown Valves
U36.Effect FC-0159					Main Fuel Gas Control Valve
U36.Effect XY-6364 XY-6366					Pilot Gas Shutdown Valves
U36.Effect XY-6365					Pilot GasVentValve
U36.Effect XY-6370					Oxygen Analyzer De-Energized
U36.Effect XY-6375					Lube Oil Aux. Pump Interposing Relay
U36.Effect XY-6373					Fan Interposing Relay
U36.ESD03	1.58E-03		2	2	Loss of Flame
U36.ESD04	1.58E-03		2	2	Low Low Fuel Header Gas Pressure
U36.ESD10	1.58E-03		2	2	BSD Button
U36.ESD11	1.58E-03		2	2	Control Room BSD Button
U36.ESD12	1.58E-03		2	2	Low Lube Oil Pressure
U36.ESD13	1.58E-03		2	2	Low Low Lube Oil Pressure

Demonstration

Project : Horizon Demo Model

Data Report: Safety Control Functions

ObjectTag	page	PageID	Page Tag	RealTag	External Tag	Logic	PFD	HRF	Calc SIL	Rec SIL
ESD	2	27	ESD01	U36.ESD01			0.00149		2	2
ESD	2	27	ESD02	U36.ESD02			0.0176		2	2
ESD	2	27	ESD05	U36.ESD05			0.00158		2	2
ESD	2	27	ESD06	U36.ESD06			0.00158		2	2
ESD	2	27	ESD08	U36.ESD08			0.00158		2	2
ESD	2	27	ESD09	U36.ESD09			0.00158		2	2
Effect XY-XY-	2	27	Effect XY-6367 XY-6369	U36.Effect XY-6367 XY-6369						
Effect FC-	2	27	Effect FC-0159	U36.Effect FC-0159						
Effect XY-XY-	2	27	Effect XY-6364 XY-6366	U36.Effect XY-6364 XY-6366						
Effect XY-	2	27	Effect XY-6365	U36.Effect XY-6365						
Effect XY-	2	27	Effect XY-6370	U36.Effect XY-6370						
Effect XY-	2	27	Effect XY-6375	U36.Effect XY-6375						
Effect XY-	2	27	Effect XY-6373	U36.Effect XY-6373						
ESD	2	27	ESD03	U36.ESD03			0.00158		2	2
ESD	2	27	ESD04	U36.ESD04			0.00158		2	2
ESD	2	27	ESD10	U36.ESD10			0.00158		2	2
ESD	2	27	ESD11	U36.ESD11			0.00158		2	2
ESD	2	27	ESD12	U36.ESD12			0.00158		2	2
ESD	2	27	ESD13	U36.ESD13			0.00158		2	2
ESD	2	27	ESD07	U36.ESD07			0.00158		2	2

Demonstration

Project : Horizon Demo Model

Data Report: Alarm Set points

RealTag	Caption	Point	SP	ScaleMin	ScaleMax	EngUnits	Message
U36.FT-0156		AH	9999999	0	100		
U36.FT-0156		AHH	9999999	0	100		
U36.FT-0156		AL	0	0	100		
U36.FT-0156		ALL	0	0	100		
U36.LT-0106		AH	9999999	0	100		
U36.LT-0106		AHH	9999999	0	100		
U36.LT-0106		AL	0	0	100		
U36.LT-0106		ALL	0	0	100		
U36.LT-0134		AH	9999999	0	100		
U36.LT-0134		AHH	9999999	0	100		
U36.LT-0134		AL	0	0	100		
U36.LT-0134		ALL	0	0	100		
U36.PT-0130		AH	9999999	0	100		
U36.PT-0130		AHH	9999999	0	100		
U36.PT-0130		AL	0	0	100		
U36.PT-0130		ALL	0	0	100		
U36.PT-0135		AH	9999999	0	100		
U36.PT-0135		AHH	9999999	0	100		
U36.PT-0135		AL	0	0	100		
U36.PT-0135		ALL	0	0	100		
U36.PT-0139		AH	9999999	0	100		
U36.PT-0139		AHH	9999999	0	100		
U36.PT-0139		AL	0	0	100		
U36.PT-0139		ALL	0	0	100		
U36.PT-0211		AH	9999999	0	100		
U36.PT-0211		AHH	9999999	0	100		
U36.PT-0211		AL	0	0	100		
U36.PT-0211		ALL	0	0	100		
U36.PT-6045		AH	9999999	0	100		
U36.PT-6045		AHH	9999999	0	100		
U36.PT-6045		AL	0	0	100		
U36.PT-6045		ALL	0	0	100		
U36.PT-6360		AH	9999999	0	100		
U36.PT-6360		AHH	9999999	0	100		
U36.PT-6360		AL	0	0	100		
U36.PT-6360		ALL	0	0	100		

Demonstration

Project : Horizon Demo Model

Data Report: Control System IOList

ObjectTag	page	RealTag	IO Type	Node	Card	Channel
csDO	29	U36.UX-6035.DO				
csDO	29	U36.UY-6056.DO				
csDO	29	U36.UX-6357.DO				
csDO	29	U36.UX-6358.DO				
csDO	29	U36.UX-6359.DO				
csDO	29	U36.XL-0216-R.DO				
csDO	29	U36.XL-0216-S.DO				
csDI	28	U36.LSLL-6046.DI				
csAI	27	U36.LT-0106.AI		01	01	02
csAI	27	U36.LT-0134.AI		01	01	
csAI	27	U36.PT-0130.AI		01	01	
csDI	28	U36.BS-0138.DI				
csDI	28	U36.BS-0137.DI				
csDI	28	U36.HS-6116.DI				
csAI	27	U36.PT-6045.AI		01	01	
csAI	27	U36.PT-6360.AI		01	01	
csAI	27	U36.FT-0156.AI		01	01	
csAI	27	U36.PT-0139.AI		01	01	
csAI	27	U36.PT-0135.AI		01	01	
csAI	27	U36.PT-0211.AI		01	01	
csDOSov	25	U36.XV-6367.DOSov				
csDIClosed	25	U36.XV-6367.DIClosed				
csDOSov	25	U36.XV-6369.DOSov				
csDIClosed	25	U36.XV-6369.DIClosed				
csDO	29	U36.FC-0159.DO				
csDOSov	25	U36.XV-6366.DOSov				
csDIClosed	25	U36.XV-6366.DIClosed				
csDOSov	25	U36.XV-6364.DOSov				
csDIClosed	25	U36.XV-6364.DIClosed				
csDOSov	25	U36.XV-6365.DOSov				
csDIClosed	25	U36.XV-6365.DIClosed				
csDIOpen	25	U36.XV-6365.DIOpen				
csDOSov	25	U36.XY-6370.DOSov				
csDI	28	U36.PSL-0178.DI				
csDO	29	U36.Boiler Field startup panel.XL-0092.DO				
csDO	29	U36.Boiler Field startup panel.XL-0137.DO				
csDI	28	U36.Boiler Field startup panel.HS-0130.DI				
csDO	29	U36.Boiler Field startup panel.XL-0138.DO				
csDI	28	U36.Boiler Field startup panel.HS-0135.DI				
csDO	29	U36.Boiler Field startup panel.XL-6056.DO				
csDI	28	U36.Boiler Field startup panel.HS-0156.DI				
csDO	29	U36.Boiler Field startup panel.XL-6362.DO				
csDO	29	U36.Boiler Field startup panel.XL-6363.DO				
csDI	28	U36.Boiler Field startup panel.HS-6039.DI				
csDI	28	U36.Boiler Field startup panel.HS-6041.DI				

Project : Horizon Demo Model

ObjectTag	page	RealTag	IO Type	Node	Card	Channel
csDI	28	U36.Boiler Field startup panel.HS-6045.DI				
csDI	28	U36.Boiler Field startup panel.HS-6056.DI				
csDI	28	U36.Boiler Field startup panel.HS-6360.DI				
csDI	28	U36.Boiler Field startup panel.HS-6361.DI				
csDI	28	U36.Boiler Field startup panel.HS.DI				
csDI	28	U36.Boiler Field startup panel.HS-6380.DI				
csDI	28	U36.LSL0131.DI				
csDI	28	U36.LSH0131.DI				
csDI	28	U36.HS.DI				
csDO	29	U36.XY-6375.DO				
csDO	29	U36.XY-6373.DO				

Demonstration