

Project: Refinery Expansion	Rev.1 by JB
SIL VERIFICATION - LIST OF PRODUCTS	

		FAILURE RATES (FITS)								
Description	Vendor	Fail-High	Fail-Low	Fail-Detected	SD	SU	DD	DU	Type	SC
DEVICES OF SENSOR SUBSYSTEM										
3051 Pressure Transmitter (Coplanar Absolute)	Emerson	29	28	222	0	94	0	41	B	3
3051 Pressure Transmitter (Coplanar Differential)	Emerson	24	27	207	0	84	0	32	B	3
YTA710 Temperature Transmitter	Yokogawa	65	65	626	0	34	0	48	B	3
1199 Remote Seal, High Trip, normal service	Rosemount	0	0	0	0	0	0	46	A	3
Generic clean process connection		0	0	0	0	0	0	0	A	
IS Isolator AI/AI	P+F	28,5	143	0	0	0	0	45	A	2
Generic RTD 2/3 wires		600	1000	0	0	0	0	400	A	3
Absolute Pressure Switch series M, B, A, D, PC, PX	Ettore Cella	0	0	0	0	128	0	203	A	3
X2200 Flame Detector, 4-20 mA output	Det-Tronics	10	121	746	0	67	0	73	B	2
DEVICES OF FINAL ELEMENTS										
Floating Ball Valve, C series, Full Stroke, Clean Service	Mogas				0	0	0	442	A	3
Actuator VL series, spring cylinder, Air-to-Retract	Flowserve				0	286	0	199	A	3
Solenoid series 327, De-energize to trip	ASCO				0	516	0	188	A	3
DO interface, Solenoid Driver	P+F				0	114	0	0	A	3
MODULES OF GENERIC SIL-3 PLC										
CPU					7430	75	2370	125	B	3
Power Supply					2250	0	250	0	B	3
AI module					990	10	900	100	B	3
AI channel					48	3	48	3	B	3
DI module					570	30	380	20	B	3
DI channel					124	7	67	4	B	3
DO module - output low					760	40	190	10	B	3
DO channel - output low					139	1	57	3	B	3
DO module - output high					760	40	190	10	B	3
DO channel - output high					277	3	114	6	B	3