

Risk Management Summary

1000 Generic Process Industry

	A	B	C	D	E	F	G	H
1	#	Risk	Consequences (\$/yr) = Est. Loss / MTBF	Mitigation Applied	Standard(s) Applied	Skill Set / PERA Level		
2			FACILITIES			ACS	OT	IT
3		Equipment failure or misoperation causing explosion and shutdown	\$1,000,000	Emergency Shutdown System	ISO 62511	X		
4		Failure of high speed turbines	\$20,000,000	Remote Monitoring by Supplier	ISO 27001		X	
5		Chlorine system overpressure causing release of toxic gas cloud	Failure tolerant control system	Safety Instrumented Systems (SIS/SIL)	ISA 84	X		
6								
7								
8			PEOPLE			ACS	OT	IT
9		Injury or death of personnel from toxic gas	\$3,000,000	Personal Protective Equipment & training	OSHA 29 CFR 1910 IEC 61990	X		
10		Injury or death of personnel from fire or explosion	\$3,000,000	Intrinsically Safe Instrumentation & Actuators	NFPA ISO 14224	X		
11								
12								
13			SYSTEMS			ACS	OT	IT
14		Ransomware in IT systems and computers	\$1,000,000	Web-safe Anti-virus	ISO 27001			X
15		Loss of Interstate Pipeline SCADA HMI for over 15 minutes	\$500,000	Segregation of SCADA networks, plus ISA 108 Configuration Management, plus badge readers and door sensors	ISO 15704 ISA 108 ISO 27001 A.11 ISO 21542	X	X	X

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16		Cyber attack on emergency power generators	\$20,000,000	Approved control devices and systems to Security Level SL4	IEC/ISA 62443	X		
17								