Detection and Control Measures (DC)

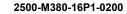
SCE Description DC-01	- PRESSURE RELIEF	PERFORMANCE STANDARDS	SCE Custodian	TOPSIDES PROCESS			
SAFETY CRITICAL ELEMENT	Pressure Relief						
OBJECTIVE(S)		o a loss of containment that leads to a MAE from equipment and piping in upset conditions (e.g. by controlled disposal through pressure relieving devices.					
SCOPE / BOUNDARY LIMIT	flammable substances identif associated with air, water, n pressure relieving devices sp - Associated double check valve - Locking system for manual is	SCE: ing devices (rupture discs, relief valves), i.e. I ied (e.g. mono-ethylene glycol, helifuel, metha itrogen, cooling/heating medium, non-flammab ecifically identified from HAZOP, where the fin es considered when sizing the identified pressur solation valves on the inlet or outlet (where pr are covered under PR-10 Gas Blanketing.	anol / ethanol) leading to MAE ; le chemical injection and lubrica al consequence could be MAE. e relieving devices (if applicable)	excluding relieving devices tion oil but including			
SYSTEM DESCRIPTION	[To be filled in when developing pr	oject specific EATS and OATS]					
RELEVANT MAH	MAH-01a(T): Hydrocarbons risers MAH-01b(S): Hydrocarbons risers MAH-01b(T): Hydrocarbons risers MAH-02a(T): Hydrocarbon production MAH-02b: Hydrocarbon production MAH-03a: Fuel gas supplies / Loss MAH-05a: Toxic gas / Loss of conta MAH-06a: Non-process flammable	on / Loss of containment in turret / Loss of containment in production module to of containment in open areas outside productio	n modules				
INTERDEPENDENCY							
S	CE	Relationship					
- PR-08 (Hydrocarbon Containment – - DC-02 (Flare System)	- PR-08 (Hydrocarbon Containment – Process/Utilities) - DC-02 (Flare System)		 Process relief protects topside containment system from overpressure Pressure is relieved to the flare system. 				

Takehiko 2020/07/15

Approved: Tsubokawa

Sagishima Yuka 2020/07/15

Prepared:



UNCONTROLLED WHEN PRINTED



Statement

DC-01 - PRESSURE RELIEF

Criteria No.

M

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SCE Description

FUNCTIONAL SPECIFICATION

TOPSIDES

PROCESS

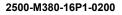
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PERFORMANCE STANDARDS	SCE	Custodian		TOF PR(
		Applica	ble Verifica	ition Phas	е
Criteria	D	Р	С	Cm	
Pressure relief system shall be provided as a protection to prevent overpressure where pressure could rise above the design pressure of the system.	\checkmark	\checkmark		~	
Where multiple pressure relief devices are fitted on a system which includes additional device as spare, the manual isolation valves installed in connection with pressure relieving devices (PSV, rupture disc or depressurization					

Protect against over-pressurisation	DC-01-01	Pressure relief system shall be provided as a protection to prevent overpressure where pressure could rise above the design pressure of the system.	\checkmark	\checkmark		\checkmark	
Protect against over-pressurization /Availability - manual valves - LO/LC	DC-01-02	Where multiple pressure relief devices are fitted on a system which includes additional device as spare, the manual isolation valves installed in connection with pressure relieving devices (PSV, rupture disc or depressurization valve) shall be locked open/ closed as appropriate. Manual isolation valves installed between the protected system and a non-spared relieving device(s) shall be locked open.	V		V		
Relief operation and disposal	DC-01-03	Pressure relief valves in hydrocarbon gas service are to discharge to one or more closed relief headers for atmospheric discharge at flare. Refer to DC-02 Flare System.					
Relief operation and disposal - free draining & PSV sizing	DC-01-04	All pressure relieving device inlet lines shall be free draining to source, have no pockets, and pipe size shall not be less than the pressure relieving device inlet size. Relief valve discharge lines connected to a closed system shall enter the top of the header, as far as practicable.	V		V		

AVAILABILITY / RELIABILITY SPECIFICATION				Applical	ole Verificatio	on Phase	
Statement	Criteria No.	Criteria	D	Р	С	Cm	0
No availability / reliability criteria identified.	No availability / reliability criteria identified.						

SURVIVABILITY SPECIFICATION				Applicat	ole Verificatio	on Phase	
Statement	Criteria No.	Criteria	D	Р	С	Cm	0
No survivability criteria identified.							





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SCE Description DC-04 -	EMERGENCY SHUTDOWN SYSTEM	PERFORMANCE STANDARDS	SCE Custodian	I&C					
SAFETY CRITICAL ELEMENT	Emergency Shutdown System								
OBJECTIVE(S)	DBJECTIVE(S) To prevent process conditions exceeding design limits resulting in loss of containment that leads to a MAE, and to limit the potential for escalation of hazardous event by initiating executive actions for shutdown, isolation and blowdown.								
SCOPE / BOUNDARY LIMIT	 where final consequence is equipment), shutdown valv Cargo and helifuel pumps Note: Only hydrocarbon riser iso SDVs with 2 solenoids (ord) 	D RI/O cabinets, ESD pushbuttons, pushbutton consols a MAE (shutdown valves with actuators and transmitte ves to avoid HC migration to non-hazardous spaces sp	ers and associated signal cablin ecifically identified from HAZOP. Assor isolation valves are called D	g, breakers of electrical					
SYSTEM DESCRIPTION	[To be filled in when developing	project specific EATS and OATS]							



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SCE Description	DC-04 - EMERGENCY SHUTDOWN SYSTEM	PERFORMANCE STANDARDS	SCE Cu	stodian		I&C	
SCE Description	DC-04 - EMERGENCY SHUTDOWN SYSTEM	PERFORMANCE STANDARDS	SC	E Custodian		I&C	
FUNCTIONAL SPECIFICA	ATION			Applicabl	e Verificatio	on Phase	
Statement	Criteria No.	Criteria	D	Р	С	Cm	0
ESD system	DC-04-01	The ESD system shall, upon confirmed detection from the F&G System or manual activation via ESD pushbutton, undertake the appropriate automatic executive actions to prevent, control or mitigate hazards in accordance with the Safety Shutdown Block Diagram.	V			V	
Fail safe	DC-04-02	Emergency shutdown system (including ESD/PSD RI/O cabinets) shall be fail-safe or line monitored and provided with self-diagnostics. Shutdown valves shall fail closed on loss of signal/power.		V		√	
ESD valve position indi	cation DC-04-03	Emergency Shutdown Valves open/close position indicator shall be provided in the CCR and locally.		√		√	
Loading of SIS controll	ers DC-04-04	SSDS controllers shall have maximum load of 60% during the final engineering/design phases of the project. <i>Performance Standard applicability for project to be</i> <i>checked and accordingly update it as per project</i> <i>specifications.</i>		√		V	
ESD valve closure time	DC-04-15	ESD valves shall meet the following valve closure times: Less than 8": 15 seconds 8" and more: 2 sec / inch or maximum 45 seconds <i>Performance Standard applicability for project to be checked and accordingly update it as per project specifications.</i>		V		V	



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