

Appendix 3: DOMINO EFFECT MATRIX

Legend:

	Potential domino effect but limited to the closest equipment/facility where the emergency is situated
	Potential domino effect to adjacent equipment/facility, but operated by same operator
	Potential domino effect to adjacent equipment/facility, operated by other operator

Impacted Facilities/Equipment →			Enemalta														Delmimara 4 Power Plant				Regasification Plant				Jetty Platform	FSU
Initiating Scenario ↓	Consequence	Reference	Administrative building	Workshop	Delimara 1 facilities	Central control room	Delimara 2B facilities	Delimara 2A facilities	Delimara 2A local control room	Delimara 3 facilities	Fuel oil tanks area	Diesel tanks area	Buffer tanks area	Centrifuges rooms	Fuel pump house control room	Oil tanker at quay	CCGT main facilities	CCGT electrical and control building	CCGT workshop	CCGT administrative building	Regasification unit	BOG compressors shelter	NVCC	Regasification control room & offices	Jetty central platform	Floating Storage Unit
FSU cargo tanks, Large leak, 250 mm	Jet fire	FS-011-250-JF																							x	x
	Pool fire	FS-011-250-PF																							x	x
FSU cargo tanks, Large leak, 500 mm	Pool fire	FS-011-500-PF																							x	x
FSU cargo tanks, Large leak, 1000 mm	Pool fire	FS-011-1000-PF																							x	x
LNG liquid header, Small leak, Ship-to-ship transfer	Jet fire	FS-021-10-JF																								x
	Pool fire	FS-021-10-PF																								x
LNG liquid header, Medium leak, Ship-to-ship transfer	Jet fire	FS-021-50-JF																							x	x
	Pool fire	FS-021-50-PF																								x
LNG liquid header, Full bore rupture, Ship-to-ship transfer	Jet fire	FS-021-FBR-JF																							x	x
	Pool fire	FS-021-FBR-PF																							x	x
LNG liquid header, Small leak, Transfer between tanks	Jet fire	FS-022-10-JF																								x
	Pool fire	FS-022-10-PF																								x
LNG liquid header, Medium leak, Transfer between tanks	Jet fire	FS-022-50-JF																							x	x
	Pool fire	FS-022-50-PF																								x
LNG liquid header, Full bore rupture.	Jet fire	FS-022-FBR-JF																							x	x

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Transfer between tanks	Pool fire	FS-022-FBR-PF																							x	x
LNG spray header, Small leak	Jet fire	FS-031-10-JF																								x
	Pool fire	FS-031-10-PF																								x
LNG spray header, Full bore rupture	Jet fire	FS-031-FBR-JF																								x
	Pool fire	FS-031-FBR-PF																								x
LNG new liquid line, Small leak	Jet fire	FS-041-10-JF																								x
	Pool fire	FS-041-10-PF																							x	x
LNG new liquid line, Medium leak	Jet fire	FS-041-50-JF																							x	x
	Pool fire	FS-041-50-PF																							x	x
LNG new liquid line, Full bore rupture	Jet fire	FS-041-FBR-JF																							x	x
	Pool fire	FS-041-FBR-PF																							x	x
LNG loading hoses, Full bore rupture, Ship-to-ship transfer	Jet fire	FS-051-FBR-JF																							x	x
	Pool fire	FS-051-FBR-PF																							x	x
LNG unloading arm, Full bore rupture	Jet fire	FS-061-FBR-JF																							x	x
	Pool fire	FS-061-FBR-PF																							x	x
Vapour header, Medium leak, Normal operation	Jet fire	FS-071-50-JF																								x
Vapour header, Full bore rupture, Normal operation	Jet fire	FS-071-FBR-JF																							x	x
Vapour header, Medium leak, Ship-to-ship transfer	Jet fire	FS-072-50-JF																								x

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Vapour header, Full bore rupture, Ship-to-ship transfer	Jet fire	FS-072-FBR-JF																							X	X
BOG loading hose, Full bore rupture, Ship-to-ship transfer	Jet fire	FS-081-FBR-JF																								X
BOG unloading hoses, Full bore rupture	Jet fire	FS-091-FBR-JF																							X	X
LNG pipeline, Small leak, Jetty	Jet fire	E2-011-10-JF																					X		X	X
LNG pipeline, Medium leak, Jetty	Jet fire	E2-011-50-JF																			X	X	X	X	X	X
LNG pipeline, Full bore rupture, Jetty	Jet fire	E2-011-FBR-JF																			X		X		X	X
	Pool fire	E2-011-FBR-PF																			X		X		X	X
BOG pipeline, Medium leak, Jetty, Normal operation	Jet fire	E2-021-50-JF																							X	X
BOG pipeline, Full bore rupture, Jetty, Normal operation	Jet fire	E2-021-FBR-JF																			X	X	X		X	X
BOG pipeline, Medium leak, Jetty, Ship-to-ship transfer	Jet fire	E2-022-50-JF																							X	X
BOG pipeline, Full bore rupture, Jetty, Ship-to-ship transfer	Jet fire	E2-022-FBR-JF																			X	X	X		X	X
LNG pipeline, Small leak, Onshore	Vapour cloud explosion	E2-031-10-VCE																			X	X				
	Jet fire	E2-031-10-JF																			X	X	X			
LNG pipeline, Medium leak, Onshore	Vapour cloud explosion	E2-031-50-VCE																			X	X		X		
	Jet fire	E2-031-50-JF																			X	X	X	X		

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LNG pipeline, Full bore rupture, Onshore	Vapour cloud explosion	E2-031-FBR-VCE																			x	x		x		
	Jet fire	E2-031-FBR-JF																			x	x	x			
	Pool fire	E2-031-FBR-PF																			x	x	x			
BOG pipeline, Medium leak, Onshore, Normal operation	Jet fire	E2-041-50-JF																			x	x				
BOG pipeline, Full bore rupture, Onshore, Normal operation	Vapour cloud explosion	E2-041-FBR-VCE																			x	x				
	Jet fire	E2-041-FBR-JF																			x	x	x	x		
BOG pipeline, Medium leak, Onshore, Ship-to-ship transfer	Jet fire	E2-042-50-JF																			x	x				
BOG pipeline, Full bore rupture, Onshore, Ship-to-ship transfer	Vapour cloud explosion	E2-042-FBR-VCE																			x	x				
	Jet fire	E2-042-FBR-JF																			x	x	x	x		
LNG suction drum, Catastrophic rupture, Overpressure	Vapour cloud explosion	E2-051-CR-VCE																			x	x		x		
	Pool fire	E2-051-CR-PF																			x	x				
	Bursting	E2-051-CR-B																			x					
HP LNG pumps suction line, Small leak	Vapour cloud explosion	E2-061-10-VCE																			x	x				
	Jet fire	E2-061-10-JF																			x	x				
	Pool fire	E2-061-10-PF																			x					
HP LNG pumps suction line, Medium leak	Vapour cloud explosion	E2-061-50-VCE																			x	x		x		
	Jet fire	E2-061-50-JF										x									x	x	x	x		
	Pool fire	E2-061-50-PF																			x					

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HP LNG pumps suction line, Full bore rupture	Vapour cloud explosion	E2-061-FBR-VCE																			x	x		x		
	Jet fire	E2-061-FBR-JF										x									x	x	x	x		
	Pool fire	E2-061-FBR-PF																			x	x	x	x		
HP LNG pumps discharge line, Small leak	Vapour cloud explosion	E2-071-10-VCE																			x	x				
	Jet fire	E2-071-10-JF																			x	x	x	x		
	Pool fire	E2-071-10-PF																			x					
HP LNG pumps discharge line, Medium leak	Vapour cloud explosion	E2-071-50-VCE																			x	x		x		
	Jet fire	E2-071-50-JF										x									x	x	x	x		
	Pool fire	E2-071-50-PF																			x					
HP LNG pumps discharge line, Full bore rupture	Vapour cloud explosion	E2-071-FBR-VCE																			x	x		x		
	Jet fire	E2-071-FBR-JF																			x	x	x	x		
	Pool fire	E2-071-FBR-PF																			x	x	x	x		
LNG small scale pumps suction line, Small leak	Vapour cloud explosion	E2-081-10-VCE																			x	x				
	Jet fire	E2-081-10-JF																			x	x				
	Pool fire	E2-081-10-PF																			x					
LNG small scale pumps suction line, Medium leak	Vapour cloud explosion	E2-081-50-VCE																			x	x		x		
	Jet fire	E2-081-50-JF										x									x	x	x	x		
	Pool fire	E2-081-50-PF																			x					
LNG small scale pumps suction line, Full bore rupture	Vapour cloud explosion	E2-081-FBR-VCE																			x	x		x		
	Jet fire	E2-081-FBR-JF										x									x	x	x	x		
	Pool fire	E2-081-FBR-PF																			x	x	x	x		

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LNG small scale pumps discharge line, Small leak	Vapour cloud explosion	E2-091-10-VCE																			x	x				
	Jet fire	E2-091-10-JF																			x	x	x	x		
	Pool fire	E2-091-10-PF																			x					
LNG small scale pumps discharge line, Medium leak	Vapour cloud explosion	E2-091-50-VCE																			x	x				
	Jet fire	E2-091-50-JF																			x	x	x	x		
	Pool fire	E2-091-50-PF																			x					
LNG small scale pumps discharge line, Full bore rupture	Vapour cloud explosion	E2-091-FBR-VCE																			x	x		x		
	Jet fire	E2-091-FBR-JF																			x	x		x		
	Pool fire	E2-091-FBR-PF																			x	x		x		
IFV (shell side), Catastrophic rupture, Overpressure	Vapour cloud explosion	E2-101-CR-VCE																			x	x		x		
	Bursting	E2-101-CR-B																			x					
IFV (shell side), BLEVE	BLEVE blast	E2-102-CR-BB																			x					
LNG suction drum head line, Full bore rupture	Vapour cloud explosion	E2-111-FBR-VCE																			x					
	Jet fire	E2-111-FBR-JF																			x	x				
BOG compressors discharge line, Small leak, Normal operation	Jet fire	E2-121-10-JF																			x	x				
BOG compressors discharge line, Medium leak, Normal operation	Vapour cloud explosion	E2-121-50-VCE																			x	x				
	Jet fire	E2-121-50-JF																			x	x		x		
BOG compressors discharge line, Full	Vapour cloud explosion	E2-121-FBR-VCE																			x	x				

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bore rupture, Normal operation	Jet fire	E2-121-FBR-JF																			x	x		x		
BOG compressors discharge line, Small leak, Ship-to-ship transfer	Jet fire	E2-122-10-JF																			x	x				
BOG compressors discharge line, Medium leak, Ship-to-ship transfer	Vapour cloud explosion	E2-122-50-VCE																			x	x				
	Jet fire	E2-122-50-JF																			x	x		x		
BOG compressors discharge line, Full bore rupture, Ship-to-ship transfer	Vapour cloud explosion	E2-122-FBR-VCE																			x	x				
	Jet fire	E2-122-FBR-JF																			x	x		x		
NG pipeline from RGU to GRS (tie-in), Small leak	Jet fire	E2-131-10-JF																			x	x		x		
NG pipeline from RGU to GRS (tie-in), Medium leak	Jet fire	E2-131-50-JF										x	x	x	x						x	x	x	x		
NG pipeline from RGU to GRS (tie-in), Full bore rupture	Jet fire	E2-131-FBR-JF									x	x	x	x	x						x	x	x	x		
NG pipeline to CCGT GRS, Small leak	Jet fire	E2-141-10-JF						x	x					x			x									
NG pipeline to CCGT GRS, Medium leak	Jet fire	E2-141-50-JF			x			x	x						x	x	x									
NG pipeline to CCGT GRS, Full bore rupture	Jet fire	E2-141-FBR-JF			x	x		x	x				x	x	x	x										
NG equipment at CCGT GRS, Small leak	Jet fire	E2-151-10-JF															x									

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NG equipment at CCGT GRS, Medium leak	Vapour cloud explosion	E2-151-50-VCE															x									
	Jet fire	E2-151-50-JF	x	x												x	x	x	x							
NG equipment at CCGT GRS, Full bore rupture	Vapour cloud explosion	E2-151-FBR-VCE															x									
	Jet fire	E2-151-FBR-JF	x	x												x	x	x	x							
NG pipeline to Delimara 3 GRS, Small leak	Jet fire	E2-161-10-JF												x												
NG pipeline to Delimara 3 GRS, Medium leak	Jet fire	E2-161-50-JF											x	x	x											
NG pipeline to Delimara 3 GRS, Full bore rupture	Jet fire	E2-161-FBR-JF											x	x	x											
NG equipment at Delimara 3 GRS, Full bore rupture	Jet fire	E2-171-FBR-JF												x	x											
NVCC, Loss of flame	Vapour cloud explosion	E2-181-00-VCE																								