Appendix A - Risk assessment to identify critical equipment

Task	Risk assessment to identify critical equipment
Date	
Next review date	

Team composition

RA Assessment Score

Above 8	**CRITICAL**
=8(Emergency equipment/LSA/FFA/ECDIS)	**CRITICAL**
0 - 8	**NON-CRITICAL**

Hazardous Situation	**Potential accident**	**Consequences**	**Associated system failure**	**Failure consequence/ Severity (HSE)**		**Likelihood of Failure (Individual element: "0" or "1" / Max. Total: 4)**										**Final Assessment (Consequence X Likelihood)**	**Categorization**
						1. Redundancy		**2.Continous use**		**3.System reliability**		**4. Existing Controls/Critical Spares**		**Total score**			
				Does failure cause immediate harm, Yes=4, No=1		**Yes=0 / No=2**	**score**	**Yes =1 No=0**	**score**	**High = 0 Low=1**	**score**	**Adequate=0 Inadequate= 1**	**score**	**(Sum : 1 to 4)**			
Loss of power	Collision, allision, grounding, explosion, fire and flooding	Environmental pollution, Harm to people, Loss of property	Generator engines	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Emergency generator & switchboard	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS **Spare starter motor**	0	2		**8**	**Critical**
			Switchboards	Yes	4	Yes	0	Yes	1	High	0	Adequate/ Routine PMS	0	1		**4**	Non-critical
			Fuel supply system	Yes	4	Yes	0	Yes	1	High	0	Adequate/Duplicate pump, leak alarm system	0	1		**4**	Non-critical
			Power management system	Yes	4	Yes	0	Yes	1	High	0	Adequate/ Routine PMS	0	1		**4**	Non-critical
Loss of propulsion	Collision, allision, grounding, explosion, fire and flooding	Environmental pollution, Harm to people, Loss of property	Main engine	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS **Critical spare parts as Mespas**	0	2		**8**	**Critical**
			Fuel supply system	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS **Critical spare parts as per Mespas**	0	2		**8**	**Critical**
			Engine control system	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Start air system	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Boiler	Yes	4	Yes	0	Yes	1	High	0	Adequate/ Routine PMS	0	1		**4**	Non-critical
			Stern tube cooling/lubrication	Yes	4	Yes	0	Yes	1	High	0	Adequate/ Routine PMS	0	1		**4**	Non-critical
Loss of steering	Collision, allision, grounding, explosion, fire and flooding	Environmental pollution, Harm to people, Loss of property	Steering gear	Yes	4	No	2	Yes	1	High	0	Adequate/ Routine PMS	0	3		**12**	**Critical**
			Hydraulic system	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Helm/Autopilot	Yes	4	Yes	0	No	0	High	0	Adequate/Manual/Local contro	0	0		**0**	Non-critical

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Hazardous Situation	**Potential accident**	**Consequences**	**Associated system failure**	**Failure consequence/ Severity (HSE)**		**Likelihood of Failure (Individual element: "0" or "1" / Max. Total: 4)**								**Total score**	**Final Assessment (Consequence X Likelihood)**	**Categorization**
						1. Redundancy		**2.Continous use**		**3.System reliability**		**4. Existing Controls/Critical Spares**				
				Does failure cause immediate harm, Yes=4, No=1		**Yes=0 / No=2**	**score**	**Yes =1 No=0**	**score**	**High = 0 Low=1**	**score**	**Adequate=0 Inadequate= 1**	**score**	**(Sum : 1 to 4)**		
Navigational and communication equipment failure	Collision, allision, grounding, explosion, fire and flooding	Environmental pollution, Harm to people, Loss of property	ECDIS as primary navigation system (Both ECDIS failure)	Yes	4	Yes	0	Yes	1	High	0	Inadequate / no take me home device or charts	1	2	**8**	**Critical**
			Radar	No	1	Yes	0	Yes	1	High	0	Adequate / 2nd Radar	0	1	**1**	Non-critical
			GPS	No	1	Yes	0	Yes	1	High	0	Adequate / 2nd GPS	0	1	**1**	Non-critical
			Gyro	No	1	Yes	0	Yes	1	High	0	Adequate/ Annual service / Use Magnetic compass	0	1	**1**	Non-critical
			Speed log	No	1	Yes	0	Yes	1	High	0	Adequate / Use GPS speed	0	1	**1**	Non-critical
			Navtex	No	1	Yes	0	Yes	1	High	0	Adequate/ Nav warning - Chartworld, Warrnig by internet	0	1	**1**	Non-critical
			Echo Sounder	No	1	No	2	No	0	High	0	Adequate/Manual soundings by Hand lead line	0	2	**2**	Non-critical
			Fog horn	No	1	No	2	No	0	High	0	Adequate/Two horns fwd and aft	0	2	**2**	Non-critical
			Navigation lights	No	1	No	2	No	0	High	0	Adequate/2nd light provided	0	2	**2**	Non-critical
			AIS	No	1	No	2	Yes	1	High	0	Adequate/Annual performace & routine check	0	3	**3**	Non-critical
			BNWAS	No	1	No	2	No	0	High	0	Adequate/Routine test/ Maintain double watch	0	2	**2**	Non-critical
			VDR	No	1	No	2	Yes	1	High	0	Adequate/Annual performace & routine check	0	3	**3**	Non-critical
			Ship Security Alert system	No	1	No	2	Yes	1	High	0	Adequate/Routine test/ Low voltage alert, use other means of communication	0	3	**3**	Non-critical
			VHF Radio	No	1	Yes	0	Yes	1	High	0	Adequate/Annual survey, daily/weekly tests	0	1	**1**	Non-critical
			MF/HF Radio	No	1	Yes	0	Yes	1	High	0	Adequate/Annual survey, daily/weekly tests	0	1	**1**	Non-critical
			GMDSS battery (EG back up)	No	1	Yes	0	Yes	1	High	0	Adequate/Annual/monthly/ weekly/daily checks	0	1	**1**	Non-critical

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				Does failure cause immediate harm, Yes=4, No=1		**Yes=0 / No=2**	**score**	**Yes =1 No=0**	**score**	**High = 0 Low=1**	**score**	**Adequate=0 Inadequate= 1**	**score**	**(Sum : 1 to 4)**			
Anchoring /mooring equipment failure	Collision, allision	Harm to environment, people and property	Anchor and windlass	Yes	4	Yes	0	No	0	High	0	Adequate / Spares brake pads	0	0		**0**	Non-critical
			Mooring winch	No	1	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Hydraulic system	No	1	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**2**	Non-critical
			Mooring lines	No	1	Yes	0	No	0	High	0	dequate / Routine PMS, spare	0	0		**0**	Non-critical
Failure of fire fighting equipment	Fire/Explosion	Harm to environment, people and property	Emergency Fire pump	Yes	4	No	2	No	0	High	0	Adequate / Weekly test **Impeller bearing and mechanical seal, priming pump seal kit**	0	2		**8**	**Critical**
			Fire and GS pumps	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Fire detection system	No	1	No	2	No	0	High	0	dequate / Routine PMS, spare	0	2		**2**	Non-critical
			Portable Fire Extinguishers	No	1	Yes	0	Yes	1	High	0	Adequiate / Weekly/Monthly/ Yearly checks	0	1		**1**	Non-critical
			Fixed CO2 system	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**
			Fixed CO2 system for cargo holds	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**
			Quick closing valves	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**
			Hyper mist system	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			SCBA and Fireman outfit	Yes	4	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Fire line and valves	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**
			Fire hose/hydrants/nozzles	No	1	Yes	0	No	0	High	0	Adequate/ Routine PMS	0	0		**0**	Non-critical
			Fire flaps and dampers	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**
			General alarm	Yes	4	No	2	No	0	High	0	Adequate/ Routine PMS	0	2		**8**	**Critical**

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				Does failure cause immediate harm, Yes=4, No=1		**Yes=0 / No=2**	**score**	**Yes =1 No=0**	**score**	**High = 0 Low=1**	**score**	**Adequate=0 Inadequate= 1**	**score**	**(Sum : 1 to 4)**		
Failure of life saving equipment	Loss of Life	Harm to people	Lifeboats & launching device	Yes	4	No	2	No	0	High	0	Adequiate / Weekly/Monthly/ Yearly checks	0	2	**8**	**Critical**
			Life rafts & launching device	No	1	Yes	0	No	0	High	0	Adequiate / Weekly/Monthly/ Yearly checks	0	0	**0**	Non-critical
			Rescue boat & launching device	No	1	No	2	No	0	High	0	Adequiate / Weekly/Monthly/ Yearly checks	0	2	**2**	Non-critical
Other equipment failure	Flooding, pollution, water ingress, stability iisues	Harm to environment, people and property	OWS	No	1	No	2	No	0	High	0	Adequate / PMS/Retain on board	0	2	**2**	Non-critical
			Emegency bilge suction	Yes	4	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			Crankcase oil mist detector	No	1	No	2	Yes	1	High	0	Adequate/Routine PMS	0	3	**3**	Non-critical
			Emergency air compressor	Yes	4	No	2	No	0	High	0	Adequate/Routine PMS **Suction/discharge Lamela valve, spare piston rings/gaskets and seals**	0	2	**8**	**Critical**
			F.O. purifier	No	1	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			L.O. purifier	No	1	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			Incinerator	No	1	No	2	No	0	High	0	Adequate/Routine PMS	0	2	**2**	Non-critical
			Sewage treatment system	Yes	4	No	2	No	0	High	0	Adequate / PMS/Retain on board	0	2	**8**	Non-critical
			Engine room bilge alarm system	Yes	4	Yes	0	Yes	1	High	0	Adequate / Routine test/Duplicate bilge alarm in the compartment	0	1	**4**	Non-critical
			Hatch covers	Yes	4	No	2	No	0	High	0	Adequate/Routine PMS	0	2	**8**	Non-critical
			Cargo cranes	No	1	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			Cargo hold bilge alarms	No	1	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			Cargo hold bilge system	No	1	No	2	No	0	Low	1	Adequate/Routine PMS	0	3	**3**	Non-critical
			Ballast system	No	1	Yes	0	No	0	High	0	Adequate/Routine PMS	0	0	**0**	Non-critical
			E/R gantry crane	No	1	No	2	No	0	High	0	Adequate/Routine PMS	0	2	**2**	Non-critical