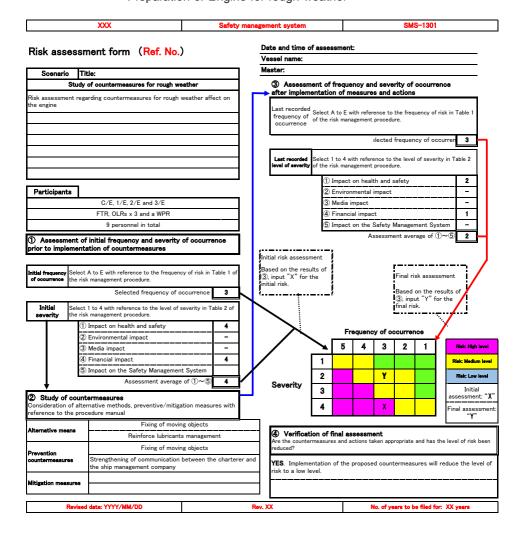
Attachment 10 Risk assessment examples Pre-work risk assessment table: Preparation of Engine 2 for rough weather

JM-0.	Organization Pre-work risk assessment table (Reference No.)	nce No.)						Safety mana	Safely management system						Reference No	No.				
æ ≀	Specific 1 : Rough weather navigation countermeasures	rtermeasure		(Deck - E	(Deck · Englise · Catering)	(Bullet)		Date and	Date and time of assessment :	1 April 2021 to MM	21 to MM	8			ı	Work category		: Routine work		
- L	Participar :							Place an	Piace and name of work :						ı			: Non-routine work	tine work	
0	Possible hazards and rick assessment			Causally (h)	(4)		ĺ	2 Prevention/mit	Prevention/mitigation measures and post-measure risk assessment	riek assess	ŀ	Causadiu (h.)	J	L	Comp Comp	© Company assessment	1			
<u>a</u> ∞	Possible hazard (because of~, by doing~, (causing specific trouble))		Frequency of occurrence (a)	Accident Involving people	Other	Risk (a×b)	Risk	hevention/mitigation measures	ion measures	Frequencia	Frequency of Accident occurrence involving people	lent Other	Risk (a×b)	Risk b) level	Frequency of occurrence (a)	4.5 m	Other	Risk (a×b)	Risk level	Measures adopted
								s. Essential measures)												
	Fuel consumption increases due to increased navigation distance caused by give-way manoeumes, real time in fuel shortages.	euvres,	(ç	:	a. Physical countermeasures	aures)			 					ļ			
<u>:</u> Ω	000000000000000000000000000000000000000		ŋ		4	Ŋ	I.	. Administrative countermeasures 10B is to be constantly	e. Administrative countermeasures) 10B is to be constantly monitored.		m	-	m	_	ო		-	ო	٦	0
÷	Haard FuelOll							d. Use of personal protective equipment)	active equipment)											
							, .	a. Essential measures) Switch off the po used.	a, Essential measureal Switch off the power supply so that the lift cannot be used.		-	-	-	H	-		-	1	П	0
<u>c</u> ± a	Fallure to morm crew not to use the litts, following the triggering of safety devices caused by hull agitation led to crew being confirmed.	WING	-		0	0	=	a. Physical countermeasures)	aures)								ļ 			
,					ı	ı		a. Administrative countermeatures.	armeasures)											
÷	Hazard Lifts							d. Use of personal protective equipment)	active equipment.)								ļ 			ļ
								s. Essential measures)												
<u>8≅0</u> ✓	Overbad coeration of the main engine, surging and lading of the sucerdrager (turbocharger) were not considered, so the main engine tribbed.	g and e not	ო		m	0	Σ	. Physical countermeasures) Exchange information on the main engine (b. Physial conternsaura) Exchange information with the Master, check the bad on the main engine and slow down if neossany.		m	N	Ø	Σ	М		α	9	Σ	0
							,,,	a. Administrative countermeasures.)	ermesures)	-		<u> </u>								
į ė	Haard Supercharger (turbocharger)							d. Use of personal protective equipment)	active equipment)			ļ					ļ			
H								s. Essential measures)												
0	logging of the fuel system strainers due to hu	Ę						s. Piysiosi countermeasures	sures.)											
<u>طة</u> 00	aglation caused by rough weather, resulting in tripping of the main engine or generator.	c	4		Ŋ	8	Ŧ	Aministrative countermeasures) Trequent strainer switch Seing exposed to rough Cugh weather.	s. Aministrates continues in Procuent states expenses in Procuent states exceed to rough weather and manocurities in ough weather.	!	4	2	00	≥	4		Ø	ω	Σ	0
	Haand Fuel system strainers							d. Use of personal protective equipment)	košve equipment.)								ļ			
1	Total (1~8)	1~8	23	7	23	82	X		Total (1∼8)	a	25 4	. 10	34	X	K)	4	10	34	X	X
	Risk level prior to No.	No. Avg.	29	3.5	298	8 10.3	X		Risk level prior to No.	+	9 3	7 14	988	X	9 2.8	ω (7	98	X	X
	Level (See the criteria)	criteria)	ო	4	ო	12	I		Level (See the criteria)		3	2	9	Σ	ო	7	N	9	Σ	X
	Risk level change H ⇒ M	_	The risk as	ssessment	The risk assessment was carried out as described above.	d out as d	scribed	above.	As a result of the risk assessment, we herewith confirm that safe work is possible.	nent, we he	rewith confil	m that saf	e work is p	ossible.	As asse	As assessed as above, it is our hope that countermeasures	ive, it is ou	· hope that	counterne	asures
ment po	ant possible?] (Yes) No risk after implementing countermeasures must be less			:		:	٠								pe imple	mented.				
or eq		1	Signature	of the per	Signature of the person responsible for the operation:	sible for th	e operati	::	Master's signature :					Affiliat	Affiliation and full name :	name :				
	Level assessed :		LL 1~2 (Very low)	rry low)			_	3 (Low)	M 4~9 (Meduim)	eduim)	£	± 0 0 1	10~15 (High)	_	壬		16~20 (Very high)	2		

Attachment 11 Risk assessment examples Risk assessment form: Preparation of Engine for rough weather



Attachment 12 Risk assessment examples Pre-work risk assessment table:

Preparation of O ce 1 for rough weather

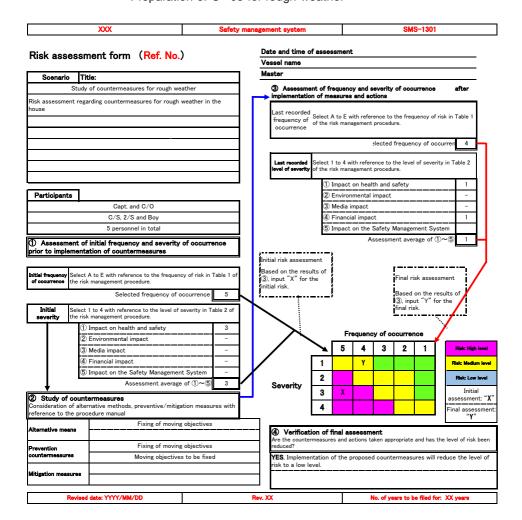
	Constitution														Attao	Attachment 12	ر ا ا	C _{at}	(Catering	7
Š	Pra-work risk assassment table (Bafarance No	nce No						The literature of the literatu	07 B10 M					2	el elice no.					
:	Specific 1 : Rough weather navigation countermessures	untermeasures	3	(Deck - Engine - Catering)	the - Cat			Date and time of assessment:		1 April 2021 to MM	0 M					Work category	Ÿ.	: Routine work	(B)	
	Participar :					,		Place and name of work:	f work :									: Non-routine work	ine work	u
	T Possible hazards and risk assessment							@ Prevention/mitigation me	Prevention/miligation measures and post-measure risk asset	essment				_	Ф Сомрану взеев	y assessment				
	Possible hazard (because of \sim , by doing \sim , (causing specific trouble))		Frequency of occurrence	Severity (b) Accident involving Of people	b) Other	Risk (axb)	Risk le vel	Prevention/mitigation measures	98	Frequency of occurrence (a)	Acci	Severty (b) dent Other ode	Risk (a×b)	Risk level	Frequency of occurrence (a)	Accident Ot Description Ot Description	b) Other	Risk (a×b)	Risk level	Measures adopted
				ļ				(a. Essential measures)												
	By forgetting to turn off the cooking apparatus, a fire was not say by moving not jards falling	.us, a fire						B. Physical countermeasures) Fixing of moving objects		ß		-	Ŋ	Σ	D		-	D.	Σ	0
-			ω		4	20	Ī	(c. Administrative countermeasures) Always turn off cooking rough weather.	(e. Administrative countermeatures) Always turn off cooking apparatus after use, not just in rough weather.	7		-	Ø	_	2		-	2	_	0
	(Huard) Cooking apparatus and moving objects							(d. Use of personal protective equipment)	ment											
				L				(a. Essenial measures)												
	Doors of lockers installed in common areas (a.g. mess						(b. Physical countermeasures)												
Ø	to the in the advantage of the state of the		4	4		16	Ŧ	C. Administrative countermeasureal Locker clooms are to be ck weather. Doors that are it room, are to always have lashed.	is Administrate contemesteral. Looker doors are to be obsect, not just in rough weather. Doors that are left coorn such as in the mess room are to always have a door stop applied and be lighted.	4	-		4	Σ	4	-		4	Σ	0
	(Heard) Doors							(d. Use of personal protective equipment)	тепі											
				l				(a. Essenial measures)												
0	Carelessly holding plate in each hand while serving, and falling over due to hull agitation, resulting in burns or injury.		_	o		5]	(b. Physical countermeasures)												
י			t	ז		7		(c. Administrative countermeasures) Make it a habit to keep on	a. Administrative countermeasures) Wake it a habit to keep one hand free at all times.	4	-		4	Σ	4	-		4	Σ	0
	(Meand) Hot plates							(d. Use of personal protective equipment)	mentl											
	The floor in the mess room was wet and a co	No.						(a. Essential measures) (b. Physical countermeasures)												
4	member shoped and fell. Injured sustained		4	m		12	I	(c. Administrative countermeaured) Keepo floor surfaces dry, r	a. Administrative countemeasures). Keepo floor surfaces dry, not just in rough weather.	4	-		4	Σ	4	-		4	Σ	0
	(Heard) Wet floors							(d. Use of personal protective equipment)	mentů											
	Total (1~4 only)	C.	17	10	4	90	X		Total (1~4 only)	19	3	2	19	X	19	3	2	19	X	X
	Risk level prior to No.	1			t 0.4	15.0	X	100	Countermeasure (Avg.) Avg.	0,	ω <u>0</u>	2 O.	 	X	0 0 0	10	70.	3.80 0.80	X	X
	Level (See the criteria)		2	4	4	20	Ξ		Level (See the criteria)	4	-	-	4		4	-	-	4		\langle
Final assess ment	Risk level change St ("Work" Ves No	₽ P	risk ass	The risk assessment was carried out as described above.	as carrie	d out as c	lescribed		As a result of the risk assessment, we herewith confirm that safe work is possible.	herewith c	confirm tha	t safe worl	ldissod si)		As assess counterme	As assessed as above, it is our hope that countermeasures be implemented.	, it is our h nplemented	nope that		
The ri	enting co	Sign	nature of	Signature of the person responsible for the operation:	respons	ible for ti	e operati	1	Master's signature :					Affiliation	Affiliation and full name :	ame :				
	Level assessed: LL 1~2 (Very low)	 7	/2 (Ven	r low)			_	L 3 (Low)	M 4~9 (Meduim)		Ŧ	10~15 (High)	(High		壬	16~20 (Very high)	Very high)			
Ш	Date revised : DD/MM/20Y	M/20YY			П			Rev. No. XX					No.	of years to	No. of years to be filed for: X year	or: X years				

Attachment 13 Risk assessment examples Pre-work risk assessment table:

Preparation of O ce 2 for rough weather

L	or least of the second			Ì								Bafar	Befarence No.				
Pre	Pre-work risk assessment table (Reference No.)				(,		/:	\	
	Specific work to be carried out: Rough weather navigation county Participar :		eurel (Deck - Engine - Cate(Ing)	gme - Cat			Date and time of assessment: 1 April 2 Place and name of work:	1 April 2021 to MM	8				•	Work ceregory : Routine work : Non-routine w		: Non-routine work	. ¥
	(3) Possible hazards and risk assessment					8	2 Prevention/militarition measures and post-measure risk sessement	Yesment				0	© Company sase	seesment			
	Possible hazard (because of ∼, by doing∼, (causing	Frequency of occurrence		(P)	Risk	Risk	Prevention/mitigation measures	Frequency of occurrence	Severity		Risk	Risk Francis	Frequency of	Severity (Risk	Risk	Measures
L	((armo ii armode		people	ome	÷	T)	Essental massures)	(e)		omer	(ava)		(g)	people Other	(ava)	+	
	The mess table was not prepared for rough weather					<u>19</u>	Prysical countemeasures)										
ω	8 8	m	N		φ	<u>∑</u>	is Administrative containneaureal As a recognitement for rough weather. Use wet sheets and other materials to prepare tables for rough weether.	т	-		m	_	ო	-	m	_	0
	(Hacard) Hot dishes	1				2)	il. Use of personal protective equipment)										
						5	Essential measures)										
9	Because moving objects (including drains in the mess) were not fixed, orew members were hit by moving objects and injured.	U Ta	c		Ç	<u> </u>	. Physical countermeasures)										
			٧		2	8 F	. Administrative countermeasures). The securing of all moving objects	ഗ	-		ഗ	Σ	വ	-	ഗ	Σ	0
	(Hazard) Moving objects	ı				E.	L. Use of personal protective equipment.)										
						5	Essential mossures)										
1	Pantry was not tidy, provisions are scattered and some unusable.	_		7	,	e e	Prysical countermeasures)										
_		4		-	4	<u> </u>	. Administrative countermeasures) legular ticly-up	2		-	0	Ⅎ	0	-	N	님	0
	(Hazard) Provisions					3	al Use of personal protective equipment)										
							Essential mostures) Province from informations										
00						<u> </u>	Administrative countemeasures										
	(Hazard)	1				(B)	d. Use of personal protective equipment)							-			
J	Total (1~8)	59	14	2	8	X	Total (1~8)	29	D.	ო	29	X	59	5	59	X	X
	Risk level prior to No.	7 4.1	288	25	11,4	X	Risk level after No.	ω ^(S)	501	ω 0 <u>.</u>	3,6	X	3,6	1.0 1.0	ω (9)	X	X
	Level (See the criteria)	2	ဇာ	ო	15	I	Level (See the criteria)	4	-	-	4	Σ	4	-	4	Z	M
Final assess ment	Risk level change	The risk &	The risk assessment was carried out as described above.	was carried	out as de:	scribed a	bove. As a result of the risk assessment, we herewith confirm that safe work is possible.	herewith co	infirm that	safe work i	s possible.		assessed	As assessed as above, it is our hope that countermeasures be implemented.	our hope th ented.	at	
The n	nenting countermeasures mu	Signature	Signature of the person responsible for the operation:	on responsi	ble for the	operation	n: Master's signature :				- 1	(fillation a	Affiliation and full name:	: e:			
	Level assessed: LL 1~2 (Very low)	1~2 ⟨٧	ery low)			ار 3	3 (Low) M 4~9 (Medium)		I	H 10~15 (High)	High High		Ŧ	HH 16∼20 (Very high)	(6		
L	Date revised : DD/MM/20YY			ľ			Rev. No. XX				No. o	f years to b	years to be filed for:	X years			
]																	

Attachment 14 Risk assessment examples Risk assessment form: Preparation of O ce for rough weather



Attachment 15

	Who	Master	Master	Master	Master	Master	Master	Master	Master
Vessel A Quay collision accident Accident timeline	Actual actions taken	At 2,350m before the quay (30L), engine half speed to neutral operation. Speed of 9.4 knots and switched from automatic to manual rudder	The Master intended to use the joystick device to control the VecTwin Rudder system to manoeuvre the ship to the shore, and switch the rudder control to remote control. D.Slow Ahead	However. he did not realise that the rudder switch was stuck in the non-follow-up position and moved to the port side of the bridge in front of the remote control stand. He believed that it had switched to remote rudder control by only operating the one lever.	Distance to the quay was approximately four times the length of the vessel	At 100m before the quay, he thought he had thosed the loysitok backwards and made a sternway manceuvre, but in fact it was in neutral (hover).	He was too preoccupied with the distance to the guay that he did not look at the rudder angle indicator on the VecTwin rudders to notice that the rudders were heading sternway.	As the speed to fetch headway was not decreasing, he tried to make sternway by increasing engine speed (not effective as it was in neutral (hover) and anchored.	Collided with the quay at almost a right angle, maintaining a speed of 4.3 knots
y collision acc	Distance from Speed the quay (Ship length ratio)	9,4 kts 2,350 m (30 L)		9,0 kts 1,160 m (15 L)	317 m (4 L)		100 m (1 L)		Om (O L)
A Qua	peedS	9.4 kts		9.0 kts	5.0 kts		3.1 kts		4.3 kts
/essel	Time	11:55		12:00	12:06		12:08		12:09
•	Standard docking procedures	Engine in neutral position	D.Slow Ahead Used VecTwin rudders for	sternway and headway		D.Slow Ahead	He made a sternway manoeuvre.	Turned using bow thruster and joystick	
	Crew arrangement	Bridge Master • C/E	C/Off • Bsn • Sailer	2/AE•3/Off	1/AE				
	Crew	Bridge	Fore	Aft	Eng. Room				

Attachment 16 Vessel A Quay collision accident Maritime Accident Summary of Related Facts

Vessel A Quay collision accident
Maritime Accident Summary of Related Facts

					Direct	cause		
Reference No.		Ide	entified problems f	rom survey findings	Unsafe behaviour	Unsafe conditions	Accident cause evaluation	Re-examination necessity
	Date	Time	Caused by	Check facts and problem areas	Jr	ช		
1	XX November	12:00	Master	The Master intended to turn the rudder control switch to remote control but did not verify that this had indeed been done.	0	Δ	2	
2	XX November	12:00	Master	He did not realise that the rudder switch was stuck in the non-follow-up position (not switching to remote rudder) and moved to the port side of the bridge in front of the control stand.	0		3	
3	XX November	12:08	Master	He was too preoccupied with the distance to the quay that he did not look at the rudder angle indicator on the VecTwin rudders to notice that the rudders were heading sternway.	0		1	
4	XX November	12:08	Master	As the speed to fetch headway was not decreasing, he tried to make sternway by increasing engine speed (not effective as it was in neutral (hover) and anchored.	0		4	
5	xxxx	xxxx	Companies	Operating procedures for important equipment had not been incorporated into Safety Management Code (SMS).		0	5	
<u></u>								

Accident cause assessment: Prioritized according to the scale of the cause

Attachment 17 Maritime Accident Accident Cause (Unsafe behaviour): Vessel A Quay collision accident

Debuguing to our imageness of the process of the						Æ	s					ğ	Machine	Media	\$	Management	l
Discharacies (appear animagement) Lack of discharacies (appear animagement) Lack of discharacies (appear animagement) Lack of discharacies (appear animagement) Discharacies (appear animag				Human fact	or (The vess	l, shipown(er and ship	management	company)			Mechanical as mach working a being ou		Media connecting dan with Machinery		otors and organizat	Ş
I load-quarks president flyeror arrangement of processors of the control flyeror arrangement of flyeror arrangement of the control flyeror arrangement of th	Cause (Unsafe behaviour)	ą.	sychological		2 Emotion		1	1-1 Inadequate knowledge		4-3 Poor wor	Management of health an working environment	Mainly on	the vessel	The vessel, shipowner and ship management company	1	Shipowner and ship management compan	d ship mpam
Why calls in control for the	write down a direct cause which was sighted based on the fiers. The first the rest cause using the first the rest cause using the first the rest cause using the first the rest cause the rest cause the rest cause the rest cause the Man (Human chief terms of the first the Man (Human chief the rest of the first the rest cause of each in the 4M Chastification List.	Unconscious acts Personal problems Habituation behaviour Forgetful	Cut corners Mental shortcuts	Habituation phenomenon Mistakes and perceptual illusion	Alcohol, medicine or disease Lack of sleep Fatigue	① Desire and willingness ⑤ Ageing	Commitment (responsible intervention) Communication	Mistakes regarding work procedure/ forgetfulness Lack of a sense of urgency and awareness Work content not understood or misunderstood	Not enough training Unaccustomed to work, inexperienced, inadequate skills	Covers up or tolerates dishonest work Intentionally dishonest regarding work, and breaks the rules. Not "ready" to work	Health check not implemented prior to working	arratusement. 2 Defective protection against hazards 1 Design flaw in the machinery	6 Lack of machinery and facility maintenance, etc. 5 Lack of standardization	4 Inadequate working space 3 Inappropriate work method 2 Work preparedness/inadequate working conditions	5 Inadequate layout arrangement 4 Lack of education and training 3 Inadequate safety management planning 2 Inadequate/incomplete regulations and procedure manual 1 Inadequate management/organization		6 Inadequate supervision of his/her subordinates 5 Inadequate layout arrangement
Why defining the design of control of the control o	He did not confirm the change :		·	. -		ļ					ļ	<u> </u>		. - -			
Why define rost mouse the deeper decided Color C	Why did he not check?			0	0	<u> </u>	_	0	<i>\</i>				0		000	000	1
	ne danger	Π						-					-				L
Make the deficient resides that the value of the control and the following the followi	switching?		 	 		 -	-				-						1
Matter With with all designs and large of the part of														 			
Was alto not chear?	Master. While he did not realise that the rudder switch was stuck in the non-follow-up position and moved to the port sed of the bridge in front of the control stand.											<u> </u>		<u> </u>			<u> </u>
Make the three thr	Why did he not check?	0 0	0	ļ	0			0	<u></u>				0				
	,																
		- - -									<u>i i </u>			1			
To the following by the statement of the	Master: He did not check the rudder angle indicator which showed that the rudders were heading sternway.																
The today of the control of the cont	Why did he not check?	0	0	0	<u> </u>		L	0		-		ļ	<u> </u>	<u> </u>		 	<u> </u>
He tried to rake a terminy by the end of the contraction of the contra																	
Montair the livel to make starrows by Montair the social or make starrows by Montair the social or make starrows by Montair the social or make starrows the social or make		1.1.		 - - - -		 - -		##				##		777			11
Why get has not recorded the sudder O O O O O O O O O O O O O O O O O O O	Master. He tried to make sternway by increasing engine speed.		‡	<u> </u>	 			ļ	 			ļ	ļ	ļ			1
Orogeny There is no procedure manual Audiblia. Why was a procedure manual for a contraction of the contract			0 0		0	ļ			\wedge				0	 			1
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With was a procedure menual for transfer or constitution of constitution of constitution or co							-						<u>. -</u>				1
	Why was a procedure manual for					<u> </u>	-						0		A	0 0	
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				-	_							-					1