LIST OF PMSC RISK ASSESSMENTS

Risk Assessment	Risk Assessment	Review at
Number	Name	PMSC Liaison Meeting
POTLL PMSC RA 01-01	POTLL - Non Tidal Arrival and Sailing	19/04/2020
POTLL PMSC RA 02-01	POTLL - Tidal arriving and Sailing	19/04/2020
POTLL PMSC RA 03-01	POT11L - Tidal Arriving and Sailing	19/04/2020
POTLL PMSC RA 04-01	POTLL- Non tidal Bunkering Operations	19/04/2020
POTLL PMSC RA 05-01	POTLL - Tidal Bunkering Operations	19/04/2020
POTLL PMSC RA 06-01	POT11L - Tidal Bunkering operation	19/04/2020
POTLL PMSC RA 07-01	POTLL - Non tidal Marine Pollution	19/04/2020
POTLL PMSC RA 08-01	POTLL and POT11L - Tidal Marine pollution	19/04/2020
POTLL PMSC RA 09-01	POTLL Non tidal Diving Operation	19/04/2020
POTLL PMSC RA 10-01	POTLL and POT11 - Tidal Diving Operations	19/04/2020
POTLL PMSC RA 11-01	POTLL - Non tidal towage operations	19/04/2020
POTLL PMSC RA 12-01	POTLL - Tidal Towage Operations	19/04/2020
POTLL PMSC RA 13-01	POT11L - tidal Towage operations	19/04/2020

Red indicates last Reviewed

PMSC RISK ASSESSMENT - RISK RANKING

Rank	HazardID	Hazard What can go wrong (Event leading to a consequence)	Hazard Scoring
1	POTLL PMSC RA 02-01 1.2 Contact	Contact	7.37
2	POTLL PMSC RA 03-01 1.2 Contact	Contact	7.37
3	POTLL PMSC RA 05-01 1.4 Fire/Explosion	Fire/Explosion	5.625
4	POTLL PMSC RA 06-01 1.4 Fire Explosion	Fire/Explosion	5.625
5	POTLL PMSC RA 02-01 1.3 Grounding	Grounding	5.5
e	POTLL PMSC RA 03-01 1.3 Grounding	Grounding	5.5
7	POTLL PMSC RA 11-01 1.3 Contact	Contact	5.5
8	POTLL PMSC RA 01-01 1.1 Collision/Allision	Collision/ allision	5.375
9	POTLL PMSC RA 12-01 1.1 Capsiz/Flooding	Capsize/Flooding	5.375
(POTLL PMSC RA 12-01 1.2 Fire	Fire	5.38
11	POTLL PMSC RA 01-01 1.2 Contact	Contact	5.25
12	POTLL PMSC RA 12-01 1.3 Contact	Contact	5.25
	POTLL PMSC RA 05-01 1.2 Contact	Contact	5.125
14		Contact	5.125
15	POTLL PMSC RA 12-01 1.4 Collision	Collision	5.125
16	POTLL PMSC RA 04-01 1.2 Contact	Contact	4.75
	POTLL PMSC RA 04-01 1.3 Loss of Containment (Oil Product)	Loss of Containment (Oil Product)	4.75
	POTLL PMSC RA 04-01 1.4 Fire/Explosion	Fire/Explosion	4.75
19		Loss of containment (Oil Product)	4.625
20		Loss of containment (Oil Product)	4.625
21		Contact	4.625
22	POTLL PMSC RA 01-01 1.4 sinking/capsize	Sinking/Capsize	4.5
	POTLL PMSC RA 03-01 1.6 Loss of Containment (Oil Products)	Loss of Containment (Oil Proiducts)	4.5
24		Collision with bunker and reciveing vessel	4.5
25	POTLL PMSC RA 06-01 1.1 Collision with bunker and receiving vessel	Collision with bunker and receiving vessel	4.5

²⁶ POTLL PMSC RA 11-01 1.2 Fire	Fire	4.5
27 POTLL PMSC RA 12-01 1.6 Man overboard/personal injury	Man Overboard/Personal Injury	4.5
²⁸ POTLL PMSC RA 04-01 1.1 Collision with bunker and receiving vessel	Collision with bunker and receiving vessel	4.375
²⁹ POTLL PMSC RA 11-01 1.1 Capsiz/Flooding	Capsize/Flooding	4.25
³⁰ POTLL PMSC RA 01-01 1.3 Grounding	Grounding	4.125
³¹ POTLL PMSC RA 02-01 1.5 Fire/Explosion	Fire/Explosion	4.125
³² POTLL PMSC RA 02-01 1.6 Loss of Containment(Oil Products)	Loss of containment (Oil Products)	4.125
³³ POTLL PMSC RA 03-01 1.5 Fire/Explosion	Fire/Explosion	4.125
³⁴ POTLL PMSC RA 02-01 1.1 Collision/Allision	Collision/Allision	4
35 POTLL PMSC RA 02-01 1.4 Sinking/Capsize	Sinking/Capsize	4
³⁶ POTLL PMSC RA 03-01 1.1 Collision Allision	Collision/ Allsion	4
³⁷ POTLL PMSC RA 03-01 1.4 Sinking/Capsize	Sinking/Capsize	4
³⁸ POTLL PMSC RA 13-01 1.6 Man overboard	Man overboard	4
³⁹ POTLL PMSC RA 07-01 1.1 Loss of containment (Oil Product)	Loss of containment (Oil product)	3.88
⁴⁰ POTLL PMSC RA 08-01 1.1 Loss of Containment(Oil product)	Loss of Containment (Oil product)	3.875
⁴¹ POTLL PMSC RA 01-01 1.5 Fire/Explosion	Fire/Explosion	3.75
⁴² POTLL PMSC RA 09-01 1.2 Contact/Collision	Contact/Collision	3.75
43 POTLL PMSC RA 12-01 1.5 Grounding	Grounding	3.75
44 POTLL PMSC RA 10-01 1.2 Contact/Collision	Contact/Collision	3.625
⁴⁵ POTLL PMSC RA 09-01 1.1 Swamping/ Turbulance/ Interaction	Swamping/Turbulance/Interaction	3.5
⁴⁶ POTLL PMSC RA 11-01 1.4 Collision	Collision	3.5
47 POTLL PMSC RA 13-01 1.1 Capsize/Flooding	Capsize/ Flooding	3.5
⁴⁸ POTLL PMSC RA 13-01 1.4 Collision	Collision	3.5
⁴⁹ POTLL PMSC RA 01-01 1.6 loss of containment (oil products)	Loss of Containment (Oil Product)	3.375
⁵⁰ POTLL PMSC RA 10-01 1.1 Swamping/Turbulance/Interaction	Swamping/Turbulance/Interaction	3.375
⁵¹ POTLL PMSC RA 13-01 1.2 Fire	Fire	3.375
⁵² POTLL PMSC RA 11-01 1.6 Man overboard/personal injury	Man overboard/personal injury	3
⁵³ POTLL PMSC RA 11-01 1.5 Grounding	Grounding	2.625
⁵⁴ POTLL PMSC RA 13-01 1,5 Grounding	Grounding	2.5

Risk Assessment Scoring Matrix

LIKELIHOOD

- 1 = Extremely unlikely (More than 100 years) 2 = Remote (10 99 years)
- 3 = Reasonably likely (1 9 years)
- 4 = Likely (Once per Year)
- 5 = Frequent (More than once per year)

CONSEQUENCE

PEOPLE:

- 1 = None
- 2 = Minor, single slight Injury
- 3 = Slight, multiple moderate or single major injury 4 = Serious, multiple major injuries or single fatality
- 5 = Major, more than 1 fatality

- PROPERTY:
- 1 = negligible < £2000
- 2 = Minor > £2000
- $3 = Moderate > \pounds20,000$
- 4 =Serious, > £200,000 5 = major, > £2,000,000

ENVIRONMENT:

- 1 = localised spill < £2000,
- 2 = Minor spill Tier 1 local response,
- 3 = Moderate spill, Tier 2 some outside assistance
- 4 = Moderate spill, Tier 2 greater outside assistance
- 5 = Major spill, Tier 3 national response

BUSINESS:

- 1 = Negligible impact < £2000 2 = Minor impact > £2000
 - 3 = Moderate impact > £20,000, bad local publicity, short term reduction of activity. 4 = Serious Impact, >£200,000, bad widespread publicity, temporary Port Facility
 - shutdown.
 - 5 = Major impact, > £2,000,000, Port facility Closes for more than 1-2 days.

OVERALL RISK

	5	5	10	15	20	25
	4	4	8	12	16	20
Likelihood	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
			С	onsequen	ce	

Red indicates last Reviewed

AMBER Hazards with risk factors within these bands (6 - 10) are termed "consider". These lower risk factors are considered acceptable, but still need careful monitoring to ensure that everything has been done to reduce the consequences and likelihood.

GREEN The lower numbers(5 and below) in the matrix are considered "low-risk", but should still be monitored to ensure that controls remain effective.

POTLL Controls - In Dock and River Berths Marine Department Scheduling **Marine Department Mooring Reviews Bunker Checklist/Procedures** Marine Department Dock Patrols POTLL UKC POTLL NtMs and PNtMs **POTLL Emergency Procedures POTLL Port Information and Marine Guidelines** POTLL Weather forecasting **POTLL Wind Parameters POTLL Fog Procedures POTLL Surveys** POTLL Dredging program **Dock Byelaws POTLL Mooring Manual POTLL Permit to Manouevre** POTLL OPRC **POTLL Tier 2 Responders** Lock Gates POTEMPLA **POTLL Ruling Depths** POTLL CCTV POTLL Ebb Tide Procedure **POT11L Byelaws** POT11L and PLA MOU POTLL Tier 2 responder **Bridge simulation Reports** T2 Nav Risk Assessment

PLA Controls - River Berths and Tidal lock Arr/Dep

PLA Pilotage Directions PLA VTS Service PLA Hydrographic Surveys PLA Tidal Information PLA Ship Towage Code of Practice PLA Craft Towage Code of Practice PLA Byelaws and General Directions PLA NtMs PLA Tosca

External Controls

Ship towage



			INSERT TITLE										
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	(Mo	red at level ost Lik Overa	(ely)			(Wor	leve st Cre	t Resi I edible all Ris	;)
				Likelihood	People	Property	Environment	Business	Likelihood	People	Property	Environment	Business
1.1													
1.2													
1.3													
1.4													
1.5													
			Risk Ranking										

	Port of Tilbury - Non Tidal Arrival and Sailing														
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris		cored at level Most Lik Overa	ely)			(Worst	evel	ble)	al	Risk Score	
				Likelihood	People		Environment	Business	Likelihood	People	Property	Bueinaee	DUSINESS	Hazard	Most Likely/Worst Credible Scenarios
1.1	Collision / Allision	Technical Failure Bridge Team Error Environmental Conditions	POTLL Permit to Manoeuvre POTLL Dermit Advisors POTLL Marine Department scheduling POTLL PNTMs and NTMs POTLL Ruling Depths POTLL Kaling Guidelines and Port Information POTLL Weather forecasting POTLL Kestricted Visibility procedures POTLL Restricted Visibility procedures POTLL Restricted Emergency plans POTL Active Emergency plans POTL Active Text Potential POTL Potential POTL Potential POTL Text 2 Responders PLA Ship towage Code of Practice Ship Towage	3	3	8 6	3	3	2	6	8	5 4	8	5.375	Most Likely - Contact between ship departing in dock berth and Corys tug. No injuries, light/superficial damage to one or both vessels. No interception to port trade.
1.2	Contact	Technical Failure Bridgo Taam Error Environmental Conditions Quayeide Obstruction	POTL. Permit to Manouvre POTL. Bernith Advisors POTL. Marine Department scheduling POTL. PNTMs and NTMs POTL. Ruling depths POTL. Kaling Guidelines and Port Information POTL. Water Guidelines and Port Information POTL. Kestincted Vis.bitly Plocudures POTL. Restincted Vis.bitly Plocudures POTL. Composition Plans POTL. Composition Plans	4	4	8	4	4	2	4	6		8	5.25	Most Likely - Light contact with quayside during approach/departure from berth, superficial damage is scutting to panwork and concrete. no damage and no interception to port hade
1.3	Grounding	Collision Contact Grounding Technical Failure Human Eror Environmental Conditions	POTLL Surveys POTLL Derding program POTLL Permit to Manoeuvre POTL Raine Depts POTL Marine Department scheduling POTL Marine Guidelines and Pot Information POTL Water forecasting POTL water forecasting POTL UKC POTEMLA POTEMLA POTEMLA POTEMLA PLA Ship towage Code of Practice Ship Towage	3	3	8 3	3	6	2	2	4		8	4.125	Most Likely: Vessel touches bottom while manouvring for berth, vessel does not take to goung, engines push through the mud and vessel continues to destination with no intemption. Worst Credible: Vessel takes to ground en route to berth, cannot refloat and requires increase in dock level and tug assistance. Potential intemption to port trade.
1.4	Sinking / Capsize	Collision Contact Grounding Technical Failure Failure of Vessel Stability Human Error Environmental Conditions	POTLL Marine Department Scheduling POTLL Berthing Advisors POTLL weather forecasting POTLL Weather forecasting POTLL Nestricted visibility procedures POTLL Profile and NMs POTLL Marine Guidelines and Port Information POTLL Marine Guidelines and Port Information POTLL Marine Guidelines and Port Information POTLL Marine emergency procedures POTL LUKG POTL LVKS POTL LUKG POTL LUKG POTL PUKE POTL PUKE POTL PUKE	2	2	2 4	4	2	2	2	8	5 4	8	45	Most Likely: Small boatmens vessel ewamped by wash or environemntal conditions leading to loss of stability and capuize. No injuries, vesse remains bouyant and is littled onto quayaide, sheen on the water due to fuel elocaping from breathers, no response needed. Worst Credible: Machinery deficiency cause vessel to take on water, bige pumps overwhelmed by volume and vessel continues to take on water. Vessel stranded in dock, requiring tug assistance to move.
1.5	Fire / Explosion	Cotilision Contact Grounding Human Error Technical Failure Loss of Containment	POTL. Learning Advisors POTLL Earning Advisors POTLL. Marine Department Scheduling POTLL. Washer forecasting POTLL. Washer forecasting POTLL. Washer forecasting POTLL. Washer forecasting POTLL. Restricted Visibility Procodures POTLL PNMS and NMS POTLL PNMS and NMS POTLL Harine Guidelines and Pot Information POTL Lemergency procedures POTL Lemergency procedures POTLUL oPRC POTLU L OPRC POTL I Z Responders PLA Ship towage Code of Practice Ship towage	2	2	2 6	4	2	1	4	4	3	5	3.75	Most Likely: Small engine room fire due to malfunctioning equipment, fire contained and extinguished using on board FFE. No injuries, very monor damsage Worst Credible: Large engine room fire due to malfunctioning equipment, beyond on board FFE capability. Fire fighting tugs required and delays to ahipping caused.
1.6	Loss of Containment (Oil Products)	Collision Grounding Human Error Technic Jealiure Technic Jepaking Sisking Explosion Environmental Conditions	Marine Department scheduling POTL. Berthing Advisors POTL. Berthing procedure and checklist POTL. Surveys POTL. Dredging program POTL. Medging program POTL. Dredging program POTL. Dredging program POTL. Dredging program POTL. Dredging program POTL. Dredging program POTL Construction POTL Dredging program POTL Dredging program POTL Dredging Code of Practice Ship Towage	2	2	2	2	2	1	4	5	5 5	5	3.375	Most Likely: Loss of small amount of fuel during on board bunkering operations, le mobile generator. Split fuest contained on deck. Worst Circlible: Collision holes fuel tank resulting in large quality of heavy fuel of discharged into the dock. Tier 2 response and interuption to Port business.



	Po	rt of Tilbury - Tidal A	Arrival / Sailing - PLA Waters to River Be	rths	and	Loc	:k							
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	(Mos	ed at F level st Like Overal	ely)			k scored at Residual level (Worst Credible)		sk Score		
				Likelihood	People	Property	Ervironment	Business	Likelihood	People	Property	Business	Hazard Ri	Most Likely/Worst Credible Scenarios
1.1	Collision	Technical Failure Bridge Team Eror Environmental Conditions	POTL Narine Department scheduling POTL PNTMs and NTMs POTL Varine Guidelines and Port Information POTL warine forecasting POTL Warine emergency plans PLA Pitolago Directions PLA VirS service PLA recreational User Guide PLA netware and General Directions PLA Systeware Code of Practice Ship Towage Bridge Simulation	3	3	6	3	3	1	5	4	4 4	4	Most Likey - Collision between LCT vessel manouvring toffrom berth at slow speed and a reoreational vessel from West Thurtock Yacht Club Worst Credible - Collision between LCT vessel manouvring off berth and a specified tanker bound for the Navigator terminal resulting in serious damage to one or both vessels above and below the waterline
1.2	Contact	Technical Failure Bridge Team Error Environmental Conditions Failure of Alds to Navigation Quayside Obstruction	POTLL Natine Department scheduling POTLL Natine and NTMs POTLL Warine Guidelines and Port Information POTLL warents forecasting POTLL warents forecasting POTLL warents forecasting PLA Pickage Directions PLA NTS service PLA norestational User Guide PLA recreational User Guide PLA ship towage Code of Practice Ship Towage Bridge Simulation	4	4	8	4	4	2	10	8	6 10	6.75	Most Likely - Low speed low energy contact between LCT feeder vessel and quayside resulting in scutting scraping of the concrete. No injuries, no disruption to Port. Worst Credible - Contact with LCT gantry crane during arrival/departure resulting in bes of crane, bes of tile and substantial dmagae to vessel and berth.
1.3	Srounding	Technical Failure Bridge Team Error Environmental Conditions Surveying Omission Failure of Aids to Navigation	POTLL Conservency program POTLL Conservency POTLL Marine Department scheduling POTLL Marine Department scheduling POTLL POTLL ware and MMs POTLL Warine Guidelines and Port information POTLL unergency plans POTLL unergency plans POTLL unergency plans POTL UCC PLA VTS Service PLA VTS Service PLA Sing toregis Code of Practice Ship Towage Bridge Simulation	3	3	6	3	6	2	4	8	6 8	5.5	Most likely - Grounding on soft mud while departing Tilbury Grain Inner terminal on the flood tide, refloated on the rising tide. No damage to vessel, no injury and no interuption to port trade Worst Credible - Grounding during ArrivalDeparture from LCT on fail ing tide, vessel cannot refloat, benths blocked for at least one tide. Substantial disruption to terminal, potential diamage to grounded vessel, no hjurites.
1.4	Sinking Capsize	Collision Contact Grounding Tachnical Failure Failure of Vessel Stability Human Error Environmental Conditions	POTLL Marine Department Scheduling POTLL weather forecasting POTLL PNtNs and NMS POTLL Marine Guidelines and Pot information POTLL mergency procedures PLA VTS service PLA VTS envice PLA Ship Towage code of practice Ship Towage Bridge Smulation	2	2	6	4	2	1	5	5	4 4	4	Small craft swamped during mooring activities resulting in sinking of craft Loss of stability during cargo operations resulting in sinking, potential for serious injuryfloss of life loss of operational berth, pollution, closure of Tilbury Dock
1.5	Fire/Explosion	Collision Contact Grounding Human Error Technical Faitre Loss of Containment	POTLL Marine Department Scheduling POTL, weather forecasting POTL, PNIKs and NMS POTL, PNIKs and NMS POTL, Marine Guidelines and Port information POTL, mengemency procedures PLA VTS service PLA VTS service PLA NIMS PLA pleage directions PLA NMS PLA Systems and General Directions Ship Towage Bridge Simulation	3	3	6	3	3	1	5	5	4 4	4.125	Most Likely: small fire on board due to hot works, extinguised by crew. Minor dmagae to vessel paint work, no injuries, no disruption to the Port. Worst Credible: Engine room fire caused my machinery malfunction, beyond crews capability to extinguish on vessel containing class 1 or 7 hazardous cargo. Multiple injuries to crew, substantial damage to vessel and disruption to the Port.
1.6	.cos of containment (Oil products)	Callision Grounding Human Error Contact Technical Faiure Sinking / Capsizing Firør / Explosion Erwironmental Conditions	Marine Department scheduling POTLL Bunkering procedure and checklist POTLL dredging program POTLL dredging program POTLL Marine Guidelines and Port Information POTLL Emergency plans POTL Test Schedulines and Port Information POTL Trait 2: responder POTL Trait 2: responder PLA VTS service PLA VTS service PLA Ship towage code of practice PLA Miss PLA byle towage Bridge Simulation	4	4	4	4	4	1	5	5 !	5 5	4.125	Most Likely: Loss of small amount of fuel during pn board bunkering operations, ie mobile generator. Split fuest contained on deck. Worst Credible: Collision holes fuel tank resulting in large quality of heavy fuel oil discharged into the Thames. Ter 2 response and interuption to Port business.

FORTH PORTS LIMITED

ORTH	PORTS	LIMITED
Risk	Assess	ment

		Port of Tilbur	ry 2 - Arrival and Sailing PLA waters to Be	erth											
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	(Me	ored ar level ost Lil	l kely)		Ris	(Wo	ored a leve rst Cr Over	ł edible	e)	Risk Score	
				Likelihood	People	Property	Environment	Business	Likelihood	People	Property	Environment	Business	Hazard R	Most Likely/Worst Credible Scenarios
1.1	Collision / Allision	Technica Palure Brody Tean Eror Environmental Conditions	POTL Event to Manouvre POTL Berning Advaces POTL Berning Advaces POTL Berning Advaces POTL Marting Experime POTL Martine Expension POTL PotL Martine Expension POTL PotL Martine Expension POTL Proceedings POTL Proceedings POTL Proceedings POTL Proceedings POTL PotL Martine Expension POTL POT	3	3	6	3	З	1	5	4	4	4	4	Most Likely - Collision between vessel manouvring off horth and a specified tasker bound for the Worst Crosble - Collision between vessel manouvring off horth and a specified tasker bound for the Nangalar lammal resulting in serice. durings to one or both vessels adove and below the walarithe
1.2	Contact	Technical Palante Bioliga Teaan Error Environmental Conditions Quayside Obstruction	POTL Brent to Manouvere POTL Brent by Advances POTL Marine Department scheduling POTL Marine Department scheduling POTL POTL Marine Guideline and Port Information POTL Marine and Waihity Procudures POTL Marine and Waihity Port POTL Cert POTL Port Port POTL Cert POTL Rest Potl	5	5	10	5	5	2	10	8	6	10	7.375	Most Likely - Low geed low energy: contact between vessel and guayside resulting in scuffing scraping of the concretes. No njuries, no disciplion to Pert. Worst Cineble - Contact with shoresis infrastructuree during similalitiganture resulting in loss of the anticipanture, box of the and subdistrial diregals to rescel and both.
1.3	Grounding	Collision Contact Grounding Technical Failure Human Error Environmental Conditions	POTL Develop POTL Develop POTL Permit to Manceure POTL Permit to Manceure POTL Ruling Department Schuling POTL Marrie Department Schuling Potter POTL Marrie Development POTL Development POTL Development POTL Potlopment Potlopme	3	3	6	3	6	2	4	8	6	8	5.5	Must likely - Grounding on soft mud while departing Tibury Gain Inver terminal on the floot kide, reflected on the fraing kide. No damage to vessel, no rijery and no interruption to port trade
1.4	Sinking / Capalze	Collision Constant Generating Technical Failure Failure of Vessel Stability Human Error Environmental Conditions	POTL I Marine Department Scheduling POTL I Marine Department Scheduling POTL Scheduling Advances POTL Provide and Pot Information POTL Provide and MMs POTL Marrie Guidelines and Pot Information POTL Provide and MMs POTL Marrie Guidelines and Pot Information POTL Schwarz, Bornaul POTL Schwarz, Bornaul POTL Schwarz, Bornaul POTL Provide Potter POTL Provide Potter POTL Provide Advances Potter POTL Provide Potter POTL Provide Potter POTL Registromation Potter Pott	2	2	6	4	2	1	5	5	4	4	4	Small craft swamped during mooring activities resulting in sinking of craft Loss of stability during cargo operations resulting in sinking potential for serious injuryless of life loss of operational banh, pollution, closure of the banh.
	Sinking / Capsize	Collision Contect Grounding Technical Failure Failure of Vessel Stability Hanma Error Environmental Conditions	Advice Department scheduling POTL Elswares procedure and checklist POTL Surveys POTL dregging program POTL dregging program POTL dregging program POTL Brender program POTL Brender Pott POTL Brender POTL Brender POTL Brender POTL Brender POTL Brender POTL Brender POTL Brender PA Nosa PLA VTS service PLA Nosa PLA NS service PLA Stage directions PLA Stage directions Ship Towage Bridge Simulation Tz Newgational Risk Assessment	з	3	6	3	3	1	5	5	4	4	4.125	Most Likely: small fire on board due is hot works, estinguised by crew. Minor draugue to vessel paint work, no inguites, no deseption to the Port. Worst Chedde, Equipe moon fire caused my machinery mathecidos, beyond crews capability to entropich the sequer moon fire caused my machinery mathecidos, beyond crews capability to entropich the sequer moon fire caused my machinery mathecidos, beyond crews capability to entropich the sequer moon fire caused my machinery mathecidos, beyond crews capability to entropich the sequer moon fire caused my machinery mathecidos, beyond crews capability to entropic to vessel and damption to the Port.
1.5	Loss of containment (Ol products)	Collision Grounding Human Error Contact Contact Contact Parleng Parls Exploited First Exploited First Exploited Environmental Conditions	Native Department scheduling POTL Eurikering procedure and checklist POTL Surveys POTL drivering program POTL Harrie Guidelines and POt Information POTL Harrie Guidelines and POt Information POTL Potto Potto POTL Program POTL Potto Personder POTL Potto Personder PA Totosa PA Thotasa directions PA A Misa and Ceneral Directions Ship Torage Directions PA Registional Risk Assessment	4	4	4	4	4	1	5	5	5	5	45	Merci lakey: Loss of small amount of fast during ps board burkening operations, is exoble generator. Spit fast contained on dock. Woord Chudlek: Colloion holes fast bark resulting in large quality of heavy fast of docharged into the Therea. The 2 response and rescription is Port burkers.



		Port of 1	Filbury - Non Tidal Bunkering Operations	5									1	
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ri	Risk scored at Residual level (Most Likely) Overall Risk		Risk so (Wo	lev orst C		le)	Score			
				Likelihood			Business		Likelihood		Ŧ	1	Hazard Risk	Most Likely/Worst Credible Scenarios
1.1	Collision with bunker vessel and receiving vessel	Technical Failure Bridge Team Error Environmental Conditions	POTLL Permit to Manouevre Marine Department scheduling POTLL Bunker procedure and checklist POTLL weather parameters POTLL weather forecasting POTLL Mike and PNtMs POTLL tug requirements POTLL Mooring manual POTLL Emergency plans POTLL Emergency plans POTLL Demergency plans POTLL OPRC Plan POTLL Tier 2 responders Lock gates POTLL Berthing Advisors PLA Ship Towage Code of Practice Ship Towage	3	3		3 3	8	2 4	8			4.375	Most Likely: Low speed collision between bunker vessel and reciving vessel, no damage to either vessel. Worst credible: Collision caused by equipment failure, medium speed medium engercy collision resulting in damage and hole above the waterline in recieving vessel.
1.2	Contact	Technical Failure Bridge Team Error Environmental Conditions Mooring Failure	POTLL Permit to Manouevre POTLL Permit to Manouevre POTLL Bunker procedure and checklist POTLL weather parameters POTLL weather forecasting POTLL NMS and PNMS POTLL trequirements POTLL furequirements POTLL Emergency exercises POTLL Derregency exercises POTL Derregency exercises	3	3	3	3 3		2 4	6	8	8	4.75	Most Likely: parted mooring line leads to low energy contact with quay during bunkering operations. Bunkers ceased while vessel resecured. No damage. Worst credible: contact with shoreside infrastructure due to failed mooring lines, bunker hose disconnected before fuel shut off leading to in dock pollution and tier 2 response.
1.3	Loss of Conrainment (Oil Products)	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Permit to Manouevre Marine Department scheduling and traffic organisation POTLL Bunker procedure and checklist POTLL weather prameters POTLL weather processing POTLL NuMa and PNtMS POTLL Mooring manual POTLL Emergency plans POTLL Emergency exercises POTLL OPRC Plan POTLL Tier 2 responders Lock gates POTLL Berthing Advisors PLA Ship Towage Code of Practice Ship Towage	3	3	3	3 3		2 4	6	8	8	4.75	Most likely: failed fitting on bunker hose resulting in small loss of prdiuct on deck, scuppers closed, on deck clean up only, no pollution in dock. Worst Credible: Due to communication errors hose disconnected imediately before pumping begins. Volume of oil product lost in dock requiring tier 2 response.
1.4	Fire/Explosion	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Permit to Manouevre POTLL Marine Department scheduling POTLL Bunker procedure and checklist POTLL weather parameters POTLL weather forecasting POTLL NMS and PNtMs POTLL Moring manual POTLL Emergency plans POTLL Emergency exercises POTLL OPRC Plan POTLL Tier 2 responders Lock gates POTLL Berthing Advisors PLA Ship Towage Code of Practice Ship Towage	3	3	3	3 3		2 4	6	8	8	4.75	Most likely: small fire on board unconnected to bunkering operation. Fire isolated and dealt with by crew. No dmage, no injuries. Worst credible: fire/explosion caused by malfunctioning equipment leading to injuries on crew on board and loss of oil into dock requiring tier 2 response



		Port o	f Tilbury - Tidal Bunkering Operations											
Ref.	Hazard	Causes Controls		Ris	sk sco	ored at level		dual	Risk		ed at R level	lesidual		
	What can go wrong (Event leading to a consequence)			-	-	ost Lil	kely) all Ris	·	(t Credi overall		k Score	
				Likelihood	People	Property	Environment	Business	Likelihood			Business	Hazard Risk	Most Likely/Worst Credible Scenarios
1.1	Collision with bunker vessel and receiving vessel	Technical Failure Bridge Team Error Environmental Conditions	POTLL Marine Department scheduling POTLL Bunker procedure and checklist POTLL weather parameters POTLL weather forecasting POTLL tays and PNIMs POTLL tay requirements POTLL Uproving manual POTLL DPRC Plan POTLL DPRC Plan POTLL Log responder POTIL Logics POTLL DPRC Plan POTLL DPRC Plan POTLL DPRS restrict POTL To service POTIL Logics POTIL byelaws PLA VTS service PLA VTS services PLA Stip towage code of practice Ship Towage Bridge Simulation	3	3	3	3	3	2	4	8 1	6 6	45	Most Likely: Low energy low speed collision between small bunker barge and receiving vessel while manoeuvring alongside leading to very minor damage to one or both vessels, no pollution and no injury Worst credible: Medium energy medium speed collision between bunker barge and recieving vessel caused by equipment malfunction leading to damage at or above the waterfine and holoed fuel tank needing tier 2 response.
1.2	Contact	Technical Failure Bridge Team Error Environmental Conditions Mooring Failure	Marine Department scheduling POTLL Bunker procedure and checklist POTLL weather forecasting POTLL NIMs and PNIMs POTLL transmission POTLL Moving manual POT1L MOU POT1L NUM POT1L MOU POT1L UPRC Plan POTLL OPRC Plan POTLL OPRC Plan POTL OPRC Plan POTL VTS service PLA Pilotage Directions PLA Ship towage code of practice Ship Towage Bridge Simulation	3	3	6	3	3	2	4	6	8 8	5.125	Most Likely: arted mooring line leads to low energy contact with quay during bunkering operations. Bunkers ceased while vessel resecured. No damage. Worst Credible: contact with shoreside infrastructure during bunkering operations due to failed mooring lines, bunker hose disconnected before fuel shut off leading to in dock pollution and tier 2 response.
1.3	Loss of Conrainment (Oil Products)	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Permit to Manouevre POTLL Marine Department scheduling POTLL Marine Department scheduling POTLL weather poradree and checklist POTLL weather forecasting POTLL Was and PNIMS POTLL Mooring manual POT1L MoU POT11 L byelaws POTLL Marine Department Emergency plans POTLL OPRC Plan POTLL OPRC Plan POTLL OPRC Plan POTLL OPRC Plan POTLL Prosponders PLA Pilotage Directions PLA Ship towage code of practice Ship Towage Bridge Simulation	3	3	6	3	3	2	4	2	8 8	4.625	Most likely: failed fitting on bunker hose resulting in small loss of product on deck, scuppers closed, on deck clean up only, no pollution in dock. Worst Credible: Due to communication errors hose disconnected imediately before pumping begins. Volume of all product lost over the side requiring tier 2 response.
1.4	Fire/Explosion	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Marine Department scheduling POTLL Bunker procedure and checklist POTLL weather parameters POTLL weather forecasting POTLL NMS and PNIMS POTLL Noring manual POT1L Noring manual POT1L Department Emergency plans POTLL Department Emergency plans POTLL OPRC Plan POTLL Ter Zesponders PLA PTS service PLA Ship towage code of practice Ship Towage Bridge Simulation	3	3	6	3	3	2	6	8	8 8	5.625	Most likely: small fire on board unconnected to bunkering operation. Fire isolated and dealt with by crew. No dmage, no injuries. Worst credible: fire/explosion caused by malfunctioning equipment leading to injuries on crew on board and loss of oil into dock requiring tier 2 response



		Port of	f Tilbury 2 - Tidal Bunkering Operation	5										
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	Risk scored at Residual level (Most Likely) Overall Risk		Ris	(Wo	level rst Cre	t Resid I edible) all Risk		Risk Score		
				Likelihood	People	Property	Environment Business	Likelihood	People	Property	Environment	Business	Hazard	Most Likely/Worst Credible Scenarios
1.1	Collision with bunker vessel and receiving vessel	Technical Failure Bridge Team Error Environmental Conditions	POTLL Marine Department scheduling POT11L Byelaws POT11L and PLA MOU POTLL Bunker procedure and checklist POTLL weather parameters POTLL Wather processing POTLL Was and PNMs POTLL tug requirements POTLL Mooring manual POTLL Mooring manual POTLL OPRC Plan POTLL OPRC Plan POTLL OPRC Plan	3	3	3	3 3	2	4	8	6	6	4.5	Most Likely: Low energy low speed collision between small bunker barge and receiving vessel while manoeuvring alongside leading to very minor damage to one or both vessels, no pollution and no injury Worst credible: Medium energy medium speed collision between bunker barge and recieving vessel caused by equipment malfunction leading to damage at or above the waterline and holoed fuel tank needing lier 2 response.
			PLA Pilotage Directions PLA VTS service PLA ship towage code of practice Ship Towage Bridge Simulation T2 Navigational Risk Assessment											carnage at or adove the waternine and holded rule tank needing ber z tesponse.
1.2	Contact	Technical Failure Bridge Team Error Environmental Conditions Mooring Failure	Marine Department scheduling POT11L and PLA MOU POT1L Bunker procedure and checklist POTLL Bunker parameters POTLL weather forareasting POTLL weather foraceasting POTLL NIMs and PNIMs POTLL tug requirements											Most Likely: arted mooring line leads to low energy contact with quay during bunkering operations. Bunkers ceased while vessel resecured. No damage.
			POTLL Mooring manual POTLL Marine Department Emergency plans POTLL OPRC Plan POTLL Ter 2 responders PLA Pilotage Directions PLA ViTS service PLA ship towage code of practice Ship Towage Bridge Simulation T2 Navigational Risk Assessment	3	3	6	3 3	2	4	6	8	8	5.125	Worst Credible: contact with shoreside infrastructure during bunkering operations due to failed mooring lines, bunker hose disconnected before fuel shut off feading to in dock pollution and tier 2 response.
1.3	Loss of Conrainment (Oil Products)	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Marine Department scheduling POT11L Byelaws POT11L and PLA MOU POTLL Ruling Depths POTLL Bunker procedure and checklist POTLL Bunker processing POTLL weather forecasting POTLL weather forecasting POTLL Weather forecasting POTLL Weather forecasting POTLL Weather forecasting POTLL Was and PNtMs											Most likely: failed fitting on bunker hose resulting in small loss of prdiuct on deck, scuppers closed, on deck clean up only, no pollution in dock.
			POTLL Marine Department Emergency plans POTLL OPRC Plan POTLL Tier 2 responders PLA Pilotage Directions PLA VTS service PLA ship towage code of practice Ship Towage Bridge Simulation T2 Navigational Risk Assessment	3	3	6	3 3	2	4	2	8	8	4.625	Worst Credible: Due to communication errors hose disconnected imediately before pumping begins. Volume of oil product lost over the side requiring ter 2 response.
1.4	Fire/Explosion	Technical Failure Human Error Collision Grounding Mooring Failure Sinking Fie/Expolsion Contact	POTLL Marine Department scheduling POTLL Bunker procedure and checklist POT11L Byleaws POT11L and PLA MOU POTLL Ruling Depths POTLL weather forecasting POTLL weather forecasting POTLL NMS and PNMS POTLL Mooring manual POTLL Mooring manual	3	3	6	3 3	2	-	8	8	8	5.625	Most likely: small fire on board unconnected to bunkering operation. Fire isolated and dealt with by crew. No dmage, no injuries.
			POTLL ORC Plan POTLL OPC Plan POTLL Ter 2 responders PLA Pilotage Directions PLA VIS service PLA ship towage code of practice Ship Towage Bridge Simulation T2 Navigational Risk Assessment					2		Ū				Worst credible: firelexplosion caused by malfunctioning equipment leading to injuries on crew on board and loss of oil into dock requiring tier 2 response



		Port of T	ilbury Enclosed Dock Marine Pollution											_
Re	What can go wrong	Causes How can it go wrong	Controls Preventative & Reactive	Ris		leve	at Resi el ikely)	dual			red at R level st Credi		core	
	(Event leading to a consequence)		(What action & how frequent)			Over	rall Ris	sk			Overall	Risk	Risk S	
				Likelihood	People	Property	Environment	Business	Likelihood	People	Property Environment	Business	Hazard	Most Likely/Worst Credible Scenarios
	.1 Loss of Containment (oil product)	Collision Contact Grounding Poor Decision Making Technical Failure	POTLL Marine Department scheduling POTLL Bunkering procedure and checklist POTLL Survey and Dredging program POTLL Marine Guidelines and Port information POTLL Marine Department Emergency plans POTLL OPRC POTLL OPRC POTLL URING Depth document POTLL UKC POTLL Tier 2 responder Lock GatesPOTLL Berthing Advisors PLA Ship Towage Code of Practice Ship Towage	3	3	3	6	3	1	1	5 5	5	3.875	Most Likely: Small spill on deck during bunker operations, all product contained on deck and dealt with by the vessel. No injuries, no pollution response, No disruption to the Port Worst credible: Collision between manouevring vessel and moored vessel punctures a fuel tank resulting in substantial release of fuel into the dock. Tier 2 response required. Substantial disruption to the Port.



		Port of Tilbury	and Tilbury 2 River Berths - Marine Pollu	utior	วท										
Ref.	Hazard What can go wrong	Causes How can it go wrong	Controls Preventative & Reactive	Ris		ored at level ost Lik		dual		k scored at Resid level (Worst Credible)		evel		core	
	(Event leading to a consequence)		(What action & how frequent)			Overa	all Ris	sk		C	Overal	verall Risk		Risk Sc	
				Likelihood	People	Property	Environment	Business	Likelihood	People	Property	Environment	Business	Hazard	Most Likely/Worst Credible Scenarios
1.1		Technical Failure	POTLL Marine Department scheduling POTLL Bunkering procedure and checklist POTLL Survey and Dredging program POTLL Marine Guidelines and Port Information POTLL Department Emergency plans POTLL OPRC POTLL Ruling Depths POTLL Tier 2 responder PLAVPOT11L MOU PLA Pilotage Directions PLAVTS Service PLAVB Service PLA Byelaws and General Directions PLA Hydrographic service POTLL Berthing Advisors PLA Ship Towage Code of Practice Ship Towage Bridge Simulation T2 Navigational Risk Assessment	3	3	3	6	3	1	1	5	5	5		Most Likely: Small spill on deck during bunker operations, all product contained on deck and dealt with by the vessel. No injuries, no pollution response, No disruption to the Port Worst credible: Collision between manouevring vessel and moored vessel punctures a fuel tank resulting in substantial release of fuel into the dock. Tier 2 response required. Substantial disruption to the Port.



		Port of	Tilbury - Non Tidal Diving Operations	tions											
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	isk scored at Residual level (Most Likely) Overall Risk		Risk scored at Residual level (Worst Credible)					k Score			
				Likelihood	People		Environment		Likelihood		-	-	Business	Hazard Risk Sc.	Most Likely/Worst Credible Scenarios
1.1			Forth Ports Dive Procedure (Permit) Marine Department scheduling Exclusion Zones Speed Restrictions POTLL Notice to Mariners POTLL Marine Guidelines and Port Information Dive Supervisor Local Monitoring	3		3			1				ng 5	3.5	Most Likely: Diving operations interupted due to wash from passing/manouevring traffic. No damage to equipment, diving ops continue Worst Credible: Sever injury caused to diver due to wash from passing/manouevring traffic. Rescue oepration requireed, disruption to Port
1.2		Proximity and/or Speed of Passing Traffic	Forth Ports Dive Procedure (Permit) Established Communications Marine department scheduling Exclusion Zones POTLL Marine Guidelines and Port Information POTLL Notice to Mariners	2	6	4	2	2	1	5	4	2 :	5	3.75	Most likely: Vessel manourving for berth has a low speed low energy collision with a dive vessel. Minor injury, minor damage to dive vessel, dive operation delayed, no disruption to Port. Worst Credible: Vessel manouevring for berth has a high energy collision with dive vessel. multiple injuries on board dive boat and to diver, rescue operation, damage to dive boat and disruption to Port.



	Ports of Tilbury and Tilbury 2 - Tidal Diving Operations														
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)			isk scored at Residual level (Most Likely)					level	Resid		Score	
	(,		(Overall R					c	Overall Risk			Risk	
				Likelihood	People	Property	Environment	Business	Likelihood	People	Property	Environment	Business	Hazard	Most Likely/Worst Credible Scenarios
1.1	Swamping / turbulence / interaction	Proximity and/or speed of Passing Traffic	Forth Ports Dive Procedure (Permit) Marine Department scheduling POTLL Notice to Mariners POTLL Marine Guidelines and Port Information PLA VTS Service PLA byelaws and General Directions PLA Notice to Mariners PIA Dive Permit Pla Pilotage Directions PLA Exclusion Zones PLA Speed Restrictions Bridge Simulation T2 Navigational Risk Assessment Bridge Simulation	3	3	3	3	3	1	4	3	3	5	3.375	Most Likely: Diving operations interupted due to wash from passing/manouevring traffic. No damage to equipment, diving ops continue Worst Credible: Sever injury caused to diver due to wash from passing/manouevring traffic. Rescue oepration requireed, disruption to Port
1.2	Contact / Collision	Proximity and/or Speed of Passing Traffic	Forth Ports Dive Procedure (Permit) Marine department scheduling POTLL Marine Guidelines and Port Information POTLL Notice to Mariners PLA VTS Service PLA Notice to Mariners PLA Diver Permit PLA Pilotage Directions PLA Speed Restrictions Bridge Simulation T2 Navigational Risk Assessment	3	3	3	3	3	1	4	4	4	5	3.625	Most likely: Vessel manourving for berth has a low speed low energy collision with a dive vessel. Minor injury, minor damage to dive vessel, dive operation delayed, no disruption to Port. Worst Credible: Vessel manouevring for berth has a high energy collision with dive vessel. multiple injuries on board dive boat and to diver, rescue operation, damage to dive boat and disruption to Port.



	Port of Tilbury - Non tidal Towage Operations]	
Ref.	Hazard	Causes	Controls	Controls Risk scored at Residual Risk scored		red at level	Residual							
	What can go wrong (Event leading to a consequence)	How can it go wrong	Preventative & Reactive (What action & how frequent)	_	(N	lost Lil	kely)		(Wor	st Cre	dible) II Risk	k Score	
				Likelihood	People		Ħ		Likelihood	People	Property	Business	Hazard Risk	Most Likely/Worst Credible Scenarios
1.1	Capsizing / Flooding	Girting Loss of Stability Grounding Technical Failure Human Error Environmental Conditions Tuq Positioning Speed	Marine Department Scheduling POTLL Permit to Manouevre POTLL Notice to Mariners POTLL Permanent Notice to Mariners POTLL Energency Plans POTLL Weather Forecasting POTLL Weather Forecasting POTLL Weather parameters PLA Ship Towage Code of Practice PLA Craft Towage Code of Practice PLA Craft Towage Code of Practive Ship Towage POTLL Berthing Advisors	3	3	6	3	3	1	5	5	4 5	425	Most Likely: Mechanical failure, is stern gland, causes vessels engine room to flood and a loss of stability. Bilge pumps are adequate and able to keep vessel afloat until repairs are made. Ni injurieds, minor damage o the tug, potential delay to vessel berthing/unberthing Worst Credible: Large deep drafter vessel causes tug girting due to sudden movement away from the tug, capsize, tier 1 pollution, salvage operation on the tug, potential loss of life
1.2	Fire	Loss of Containment Grounding Technical Failure Human Error Environmental Conditions	Marine Department Scheduling POTLL Permit to Manouevre POTLL Notice to Mariners POTLL Permanent Notice to Mariners POTLL Energency Plans POTLL OPRC POTLL Weather Forecasting POTLL Weather Forecasting POTL Weather parameters PLA Ship Towage Code of Practice PLA Craft Towage Code of Practive Ship Towage Code of Practive	2	4	4	2	6	1	5	5	5 5	4.5	Most Likely: Small fire due to quipement failure, dealt with by onboard FFE. No injuries, very minor damage, no impact on the Port. Worst Credible: Large engine room fire, cannot be dealt with by on board FFE, major damage to vessel, single major injury, disruption to port services.
1.3	Contact	Technical Failure Loss of Tow / Towline Failure Bridge Team Error Environmental Conditions Change to Shore Infrastructure / Obstruction on the Quay Floating Debris Tug Positioning	Marine Department scheduling POTLL Permit to Manouevre POTLL Notice to Mariners POTLL Permanent Notice to Mariners	4	4	8	4	4	2	4	8	4 8	5.5	Most Likely: Light contact made with quay during towage operations. Minor/superficial damage to tug, no damage to quayside, towage operation continues, no disruption tto Port. Worst Credible: bTow line parts during towage operation leading to heavy contact with quayside. Damage to tug, significant concerte damage to quayside, towgage operations aborrted, minor disruption to the Port
1.4	Collision	Technical Failure Loss of Tow / Towline Failure Bridge Team Error Environmental Conditions	Marine Department scheduling POTLL Permit to Manouevre POTLL Notice to Mariners POTLL Permanent Notice to Mariners POTLL Derk POTLL Versther Forecasting POTLL Weather parameters PLA Ship Towage Code of Practice PLA Craft Towage Code of Practice Ship Towage POTLL Berthing Advisors	3	3	3	3	3	1	4	5	2 5	3.5	Most Likaly: Minor collision between tug and towed vessel, superficial damage to one or both vessels. No injuies, towage operation continues, no disruption to the Port. Worst Credible: Tug undertaking towage operations has a midhigh energy impact with another manoueving vessel causing significant damage to one or both vessles, multiple minor or single major injury. Disription to Port,.
	Grounding	Technical Failure Bridge Team Error Environmental Conditions	Marine Department Scheduling Byelaws & General Directions Emergency Plans Weather Forecasting / Tidal Predications Marine Guidelines & Port Information Towage Guidelines Notice to Mariners PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice Ship Towage POTL Berthing Advisors	2	2	2	2	2	1	1	4	4 4	2.625	Most Likely: tug goes aground manourving vessel near berth, clears obstruction with engines and continues manouvre. No damage, no injuries, no disruptiopn to the Port. Worst Credible: Tug and deep drafter vessel take to ground during unberthing, cannot rfloat without assistance. No injuries, delays and cancelled arrivals, moderate disruption to the Port
1.5	Man Overboard / Personal Injury	Human Error Technical Failure Enviromental Conditions	POTLL LSA POTLL weather forecasting POTLL Wind parameters POTLL Restricted visibility procedures PLA Ship Towage Code of Practice PLA Craft Towage Code of Practice Ship Towage POTLL Berthing Advisors	3	3	3	3	3	1	5	1	1 5	3	Most Likely: Worst Credible:

_	Risk Assessment															
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	of Tilbury - Tidal Towage Operations Controls Preventative & Reactive (What action & how frequent)	Ris	(M	lev Iost L	at Re el _ikely erall R)			le Vorst	d at F evel Cred verall	ible)		Risk Score	
				Likelihood	People	Property	Environment	Rushass	1 that the cond		People	r operty	Environment	Business	Hazard F	Most Likely/Worst Credible Scenarios
1.1	Capsizing / Flooding	Griting Loss of Stability Grounding Technical Falue Environmental Conditions Tug Positioning Speed	Marine Department Scheduling POTLL Notice to Marines POTL Permanent Notice to Marines POTL Permanent Notice to Marines POTL Derrich Marines POTL OPRC POTL Musice Code of Potlog POTL Usether parameters POTL Vestifier Personating POTL Usether parameters PLA Sha Towage Code of Practice PLA Potlage Directions PLA Total Information PLA Stage Simulation PLA Stage	3	3	6	. 3	3	3	2	8	6	6	8	5.375	Men Liday Marketicaffaline, is stern gland cases venada ergine norm to flood and a loss of stability. Bigg purpose an andiques and allo to keep vasael alloat until repars are made. Ni repredit, mixer demage o the log potential delay to vessel bening urbening. West Conduct and a stability of the stability of t
1.2	Fire	Loss of Containment Occounding Technical Failure Human Error Environmental Conditions	Native Department scheduling POTLL Notice Nations POTL Enregency Plans POTL OPRC POTL OPRC POTL OPRC POTL OPRC PALS PLAS hip Towage Code of Practice PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Playage Precisions PLA Hydrographic surveys PLA Hydrographic surveys PLA Total Information PLA Total Information PLA Ship Company Code Code Code PLA Ship Code Code Code Code Code PLA Ship Code Code Code Code Code Code Code Code Code Code Code PLA Ship Code	з	3	6	3	10	3 :	2	6	8	6	8	5.375	Most Likely. Small fire due to quipement failure, dealt with by onboard FFE. No injuries, very micor damage, no impact on the Post. Worst Creditive Large engine moon fire on board nursies ship horhed at Titlory Landing Stage, names be dealt with by on board FFE, major damage to vessel, angle major injury, damption to Post.
1.3	Contact	Technical Failure Loss of Tow / Towine Failure Biologis Team Error Biologis Team Error Change to Schore Infrastructure O Detruction on the Quay Floating Debris Tug Positioning	Marine Department Scheduling POTL Notice to Mariners POTL Partment Note to Mariners POTL Permanent Note to Mariners POTL Permanent Note to Mariners POTL Permanent Processing POTL Veather Forecasting POTL Veather Forecasting PLA Schi Towage Code of Practice PLA Schi Towage Code of Planters Schi Towage Code of Planters S	4	4	4	. 4	4	4	2	4	8	6	8	5.25	Merci Lhaly Light contact mode with quay during transpe operations. Minorituperficial duringe to tug, no damage to quayside, transpe operation continues, no derrighten the Port. Worst Cinsible: biTow line parts during transpe operation leading to heavy contact with quayside. Damage to tug significant concente damage to quayside, truggage operations aborried, minor damage to the Port.
1.4	Collision	Technice Failure Lisse of Your / Towine Failure Bridge Team Eiror Environmental Conditions	Native Department Cohodung POTLL Notice O Mariners POTL Permanent Notice to Mariners POTL Marine Caldenia and Por Information POTL Is Imregency Plans POTL Washer parameters POTL Washer parameters PLA Ship Towage Code of Practice PLA Marine Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Marine Code Code Code Code Code Code Code Cod	3	з	6	3		3 :	22	8	8	2	8	5.125	Wort Likely Minor cellsion hensen tug and treed vessel, superificial damage to one or forth vessels. No injues, towage operation contrasts, no deruption to the Port. Worst Chedible: Tug undertaking towage operations has a midhigh energy impact with another manoawing vessel causing significant damage to one or both vessels, multiple minor or single major injury. Dissiption to Port.
1.5	Grounding	Technica Falues Biologa Tean Error Environmental Conditions	Nativis Organization Charling POTLL Horizo Nationers POTL Permanent Notice to Mariners POTL Permanent Notice to Mariners POTL Bernigency Plans POTL Marine Concessing POTL Weather Generating POTL Weather Generating POTL Veather Generating POTL PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Plackage Directions PLA Plackage Directions PLA Total Information PLA Total Information PLA Ship Code General Directions Bridge Simulation	3	3	3	3	3	8 3	2	2	6 :	2	8	3.75	Next Likely by gets aground manouning vesad mar barth, clean obstruction with engines and continues manounts. No damage, no injures, no damption to the Port. Woost Cinedule: Trug and deep dufter vesal take to ground during urberthing, cannot rihoat without assistance. No injuries, delays and cancelled animals, moderate disciption to the Port
1.6	Man Overboard / Personal Injury	Human Error Technical Failure Erwiromental Conditions	POTLL LSA POTLL Verd parameters POTLL Wind parameters PLA Shing Towage Code of Practice PLA Crait Towage Code of Practice PLA Crait Towage Code of Practice PLA Tota Towage Code of Practice PLA Tota Towage Code of Practice PLA Tota Tota Code Code Code PLA Tota Tota Code Code Code PLA Tota Tota Code Code Code PLA Tota Information PLA Tota Information PLA Motice oi Mannean Directions Ship Towage Bridge Simulation	3	3	3	3	3	5	2 .	10	2	2	10	45	Woart Likely- Minor hand repay whitet working lines. Minitor first and administered on boand. No disruption to the Port Woart Cinebles: Crew member on tug struuck by parted tow line, likely failably, Sevene disruption to the port.

			KISK ASSESSMEIN												
		Port of Tilbury 2 - Tidal Towage Operations											1		
Ref.	Hazard What can go wrong (Event leading to a consequence)	Causes How can it go wrong	Controls Preventative & Reactive (What action & how frequent)	Ris	level		(Wor	leve st Cre	t Resi I edible all Ris)	Hazard Risk Score				
				Likelihood	People	Property	Environment	Business	Likelihood	People	P roperty	Environment	Business	Hazard	Most Likely/Worst Credible Scenarios
1.1	Capetizing / Flooding	Girting Less of Stability Grounding Technical Forein Environmental Conditions Tug Positioning Speed	Marine Department scheduling POTL Notice to Mariners POTL Permanert Notice to Mariners POTL Marine Department Cheregency Plans POTL Wather Department Cheregency Plans POTL Wather Departments PUTL And Towage Code of Practice PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Ship Towage Code of Practice PLA Notas Service PLA Notas Plant Code Code Code PLA Notas Plant Code Code Code Code PLA Notas Plant Code Code Code Code PLA Notas Plant Code Code Code Code Code PLA Notas Plant Code Code Code Code Code PLA Notas Plant Code Code Code Code Code Code Code PLA Notas Plant Code Code Code Code Code Code Code Code	2	2	4	4	2	1	3	4	4	5	3.5	Nost Likely Mechanical failure, in stem gland, crusses vessels engine noom to flood and a loss of stability. Bigs pumps are adequate and able to keep vessel allocat until repairs are made. No injuries, minor damage o the lug, posterial delay to vessel able to the symplectic stability of the symplectic stability. Worst Credible: Ship causes lug girling due to straight line speed inbound for T2, lug captore, ter 1 poliudio, salvage operation on the lug, potential loss of life, major disruption to the terminal.
1.2	Fire	Loss of Containment Grounding Technical Faure Hume End Environmental Conditions	Marine Department scheduling POTLL Byelaws & General Directions POTLL More Department Emergency Plans POTL Washber Forecasting POTL Washber Forecasting POTL Morice to Mariners POTL Morice Directions PLA Ship Towage Code of Practice PLA Photographic surveys PLA Thidal information PLA Notice to Marineral Directions Ship Towage	2	2	4	2	2	1	4	4	4	5	3.375	Most Likely: Small for due to quipement failure, dealt with by onboard FFE. No injuries, very minor damage, no impact on the Port. Worst Credible: Large engine room fire on board curuise ship berthed at Tilbury Landrig Stage, cannot be dealt with by on board FFE, major damage to vessel, angle major injury, damption to Port.
1.3	Contact	Technical Failure Loss of Tow/Towine Failure Bridge Team Error Environmental Conditions Change Ge Shore Infrastructure Oceans Carlon on the Quay Tug Positioning	Marino Department scheduling Byelmav & General Directions Emergency Plans Washer Forcessing / Tdal Predications Marino Guidelines & Port Information Torage Out-Biellines PLA Ship Towage Code of Practice PLA Chird Towage Code of Practice PLA Philosog Directions PLA VIST Service PLA Hydrographic surveys PLA Hydrographic surveys PLA Hydrographic surveys PLA Abito toi Minniers PLA Debalava and General Directons Ship Towage Bridge Simulation T2 Navigational Risk Assessment	3	3	6	3	3	2	4	8	2	8	4.625	Most Lieby: Light contact made with dophin during lowage operations. Minortuperical damage to tup, no damage to quayide, lowage operation continues, no discription to Port. Mont Contible: Most line parts during treage operation leading to heavy contact with quayide. Damage to tup, significant concerts damage to quayide, towagge operations aborrhed, minor dauption to the Port.
1.4	Collision	Technical Failure Loss of Tow / Towine Failure Bidigs Team Enter Environmental Conditions	MArine Department scheduling POTLE mengency Plans POTLE Internet Processing POTLE Vestatie Processing PLA Schult Processing Code of Practice PLA Schult Towage Code of Practice PLA Crait Towage Code of Practice PLA Schult Practice PLA Schult Practice PLA Tiss Information PLA Tiss Information PLA Tiss Information PLA Tiss Information PLA Beylaws and General Directions Bridge Simulation T2 Navigational Risk Assessment	2	2	6	2	2	1	4	5	2	5	3.5	Most Llaky. Micor collision between hug and fowed vessel, superficial damage to one or both vessels. No injuides, towage operation continues, no daruption to the Port. Worst Credible: Tug undertaking towage operations has a mid/high energy impact with another manouvring vessel causing significant damage to one or both vessles, multiple minor or single major injury. Disreption to Port_
1.5	Grounding	Technical Failure Bidge Team Eron Environmental Conditions	Marina Department Scheduling POTLL Energency Plant POTL Warther Forecasting POTL Warther Guidelines & Port Information POTL Marine Guidelines & Port Information POTL Notice to Mariners PLA Ship Towage Code of Practice PLA Hong and Encircles PLA Hong and Encircles PLA Mark Code Code Code Code PLA Ship Towage Bridge Simulation T2 Navigational Risk Assessment	2	2	2	2	2	1	1	4	2	5	25	Most Likely, fug goes aground manouning vessel near beth, chears obstruction with engines and continues manours. No damage, no hjuries, no disruptiops to the Port. Worst Credible: Tug and deep defler vessel take to ground during unberthing, cannot iffoat without assistance. No injuries, delays and cancelled annuls, moderate disruption to the Port
1.6	Man Overboard / Personal Injury	Human Error Technical Failure Environmental Conditions	POTLL LSA POTLL weather forecasting POTL Wird parameters POL Wird parameters POL A Wird parameters POL A Bin Foreigne Code of Practice PLA Fort Torouge Code of Practice PLA Craft Torouge Code of Practice PLA Total and Code Code of Practice PLA Total information PLA Total information PLA Total service PLA bysices and Content Directions Bridge Simulation T2 Nwigational Risk Assessment	з	6	6	3	3	1	5	2	2	5	4	Nost Likely. More hand injury whilst working lines. Minbor first aid administered on board. No desception to the Port Worst Credible: Crew member on tug struuch by parted tow line, likely lately. Severe desception to the port.

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