

ENVIRONMENTAL STATEMENT: 6.3 APPENDIX 20-2: ES RISK RECORD

ECARBONISATION

Cory Decarbonisation Project

PINS Reference: EN010128

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Revision A

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) - Regulation 5(2)(a)



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Table 1: Risk Record for Screening MA&D Events1

APPENDIX 20-2: ES RISK RECORD

RISK RECORD FOR SCREENED IN MA&D EVENTS

 Table 1 is a record of all potential MA&D events considered as part of the EIA.
 1.1.1.

It should be noted that the column entitled "Risk Event Type" presents both the major event type and the high level risk event which have been combined to assist the reader. 1.1.2.

Table 1: Risk Record for Screening MA&D Events

Risk Record Entry Number	MA&D Category Risk Event Type	Section of Proposed Scheme Hazard Description	Operatio	(and identifies whether the MA&D event is from an external or internal influencing factor)	Hazard sources and/or pathways	Documentation in which the event is/will be addressed	Reasonable worst consequence if event did occur and receptor(s)	Air Quality	Climate	People and Communities Biodiversity	Cultural Heritage	Geology and Soils	Noise and Vibration Transport	Material Resources	Road Drainage and the Water Environment	Additional Mitigation
Co	onstru	ction														
1	rological weather	Flooding of the River Thames / other	the			Appendix 11-2: Flood Risk Assessment (Volume 3),	Nuisance only as construction works would			x					c	-lood defences along the

	Hydrolog	reme we	Thames / other surface water features.		the construction site (external influencing factor).	defences which inundates the	Assessment (Volume 3), Outline CoCP (Document Reference 7.4) and the Construction Phase H&S Plan (required by the Outline CoCP (Document Reference 7.4)).	as construction works would have to be temporarily suspended.		defences along the River Thame
2	Hydrologica	Extreme	Flooding of onsite surface water features.	С	Flooding of the construction site (internal	the construction	Appendix 11-2: Flood Risk Assessment (Volume 3), Outline CoCP (Document Reference 7.4) and the	Nuisance only as construction works would have to be		No stockpile no hazardou materials an /or site cabin

	Could this constitute a major accident or	Justification	Is this ALARP with existing mitigation?	Clarification
nes.	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction workers.	N/ A	Not identified as a potential major accident /disaster event.
iles, ous and oins,	N	The reasonable worst consequence of this event does not meet the criteria	N/ A	Not identified as a potential major accident

influencing	Construction Phase H&S Plan temporarily	plant and
factor).	(required by the Outline CoCP suspended. (Document Reference 7.4)).	equipment will be placed in
		the
		Construction
		Laydown Areas, which
		are shown to
		be at risk of
		flooding from
		the Marsh
		Dykes for the
		1 in 100-year
		event.
		The Principal
		Contractor will
		sign up to the Environment
		Agency flood
		warning
		service to
		receive up to
		date flood
		information
		and warnings
		The potential
		increase in
		flood risk as a result of the
		loss of water
		features will
		be offset
		through
		providing
		storage for the
		rainfall which
		currently ponds on the
		Site or is
		stored in the
		watercourses
		through the

	of a major accident.	/disaster
will	The only potential	event.
า	receptors of harm	
	are construction	
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								temporary drainage strategy prio to the implementation n of the permanent drainage strategy.
								Sensitive equipment w be raised above the design flood level plus freeboard.
								The surface material of construction compounds will be permeable se as to allow rainwater to percolate to ground, with suitably bunded locations identified as storage area for any hazardous, polluting materials or chemicals to prevent the risk of pollution.

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c Industrial and urban accidents	Fire and / or explosion or release of harmful gas	Proposed Jetty	Unexploded ordnance.	С	During construction encountering UXO (internal influencing factor).	unexploded	Reference 7.4) , CDM Register and UXO Risk Assessment	Fire and/or explosion affects those people in the immediate area.		X	×					A desk-bas UXO assessmen has been commission for the Proposed Scheme. Prior to the ground investigatio detailed UX assessmen shall be undertaken accordance with CIRIA guidelines. If required, following th completion the UXO assessmen procedures protocols at training will provided pr to construct works commencin This requiremen will be included in Outline Co (Document
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ased	Ν	The reasonable worst consequence	N/ A	Not identified as a potential
ent		of this event does not meet the criteria		major accident
oned		of a major accident.		/disaster event.
		The likely potential receptors of harm		event.
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4	Transport accider	Collapse / damage to structures	Damage to the Proposed Jetty.	C Marine vessel containing construction materials collides with the Proposed Jetty or other jetties within the Site (internal influencing factor).	approaching the Proposec Jetty or other jetties within the Site.	Outline CoCP (Document Reference 7.4), Construction Phase H&S Plan (required by the Outline CoCP (Document Reference 7.4)) and Appendix 19-1: Preliminary Navigational Risk Assessment (Volume 3).		X		X	Communication n of information relating to construction made to other river users. Proposed exclusion zone during the construction phase. Proposed speed reductions for passing vessels during

catio n on ther S.	Y	Could cause loss of life or permanent injury which requires ongoing disability support.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
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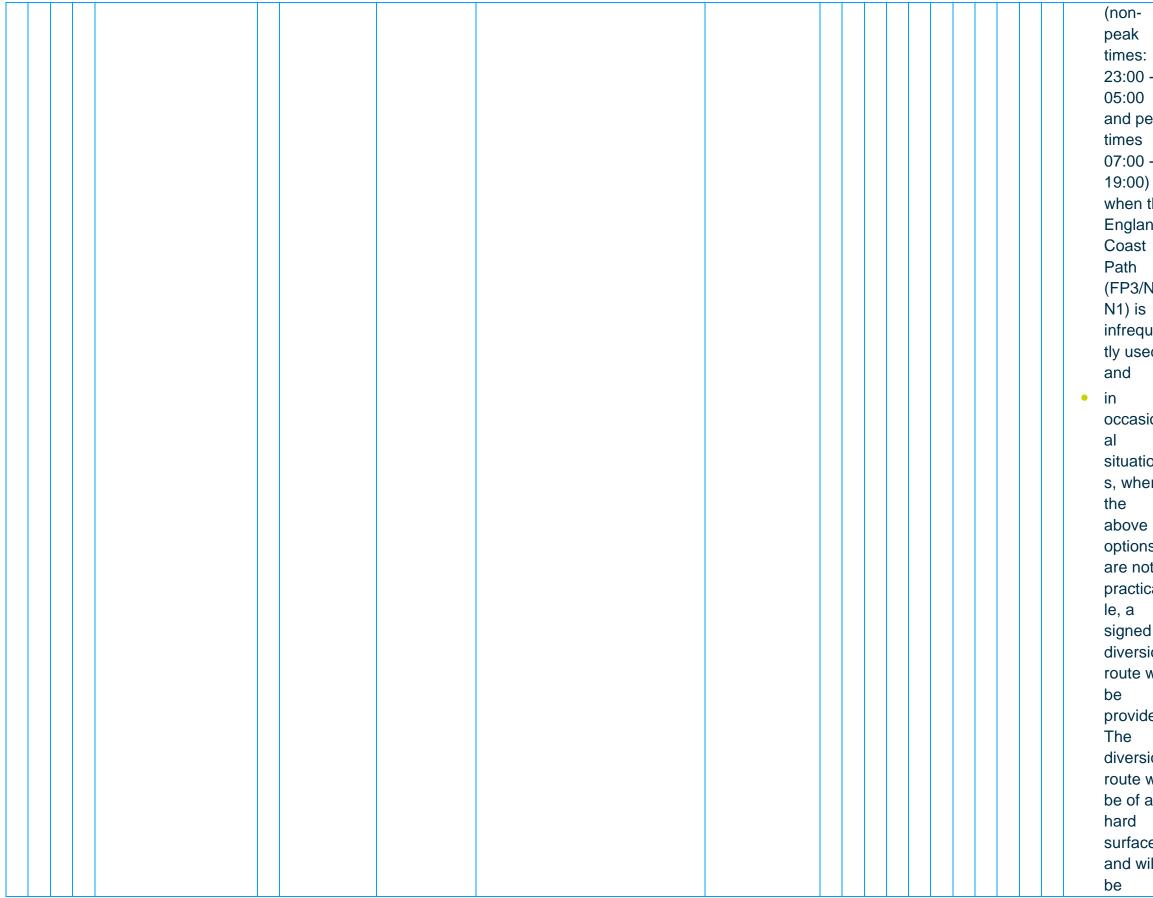
											conditions during the construction phase.			
Engineering accidents and	detence	Flooding of the River Thames.	the construction site (external influencing factor).		2: Flood Risk Assessment (Volume 3) and the Construction Phase H&S Plan	Nuisance only as construction works would have to be temporarily suspended.		×		X	Flood defences along the River Thames. Flood defences inspected and maintained.	N The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction workers.	A	Not identified as a potential major accident /disaster event.
Engineering accidents a	or release of ha	Presence of underground services/utilities - sewers, gas, electricity, potable water, telecoms/data and surface/storm water drainage.	underground services/utilit ies (external	U U		explosion affects	x	K X			Initial risk assessment for utilities has been carried out on available information. Construction area will be swept with a cable avoidance tool (CAT) prior to breaking ground.	Y Could cause loss of life or permanent injury; or significant structural property damage.		Considered to be ALARP if all mitigation measures outlined are correctly implemented.
d f	rm to peo	Overhead construction activities associated with the Access Trestle for the Proposed Jetty will be undertaken across the England Coast Path (FP3/NCN1).	Access Trestle onto the England	-	Outline CoCP (Document Reference 7.4) and the Construction Phase H&S Plan (required by the Outline CoCP (Document Reference 7.4)).	Death and/or injury to members of the public.		X			Wherever practicable the England Coast Path (FP3/NCN1) will remain open. During specific construction activities for the Proposed Jetty limited	•	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.



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							suitable for all users.		
Со	nstruc	ction and Operation							
	accidents and failu Harm to peo	1 services and M by	vehiclesReference 7.4) including the Construction Phase H&S Plan	X		X	Access and maintenance strategy to be developed. Include adequate space provisions to satisfy clearance requirements.		V Not identified as a potential major accident /disaster event.
9	n Acc o stru	using the shipping O, Proposed Channel loses control M Jetty. And collides with the Proposed Jetty.	Third party vessels using the shipping channel.A hazard and operability study (HAZOP).Outline CoCP (Document Reference 7.4) and the Construction Phase H&S Plan (required by the Outline CoCP (Document Reference 7.4)).Appendix 19-1: Preliminary Navigational Risk Assessment (Volume 3).Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the Mitigation Schedule	X			Navigational risk assessment of existing operations has been undertaken, considering all river traffic. Engagement with port authorities. Physical separation of the Proposed Jetty from	worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm	V Not identified A as a potential major accident /disaster event.



				Appendix Assessme Outline EF Reference	t Reference 7.8), 11-2: Flood Risk ent (Volume 3), the PRP (Document 7.11) that will be m a Site Emergency		shipping channel.
	Carbon Capture Flooding of the River Thames/ other surface water features.	O, Flood M the C Capt Facil initia crash shuto (exte influe facto	Carbon of flood ture defence ity which ting inundat n the Car down Capture ernal Facility encing	prepared p s Scheme co in accordant es Mitigation bon (Document Appendix Assessme Outline EF Reference used to for Plan, and O	Al EMP that will be rior to the Proposed ommencing operation ince with the Schedule at Reference 7.8), 11-2: Flood Risk ent (Volume 3), the PRP (Document 7.11) that will be m a Site Emergency Dutline Drainage Document 7.2).		Flood defences along the River Thame Critical equipment and buildings will be raised as required to mitigate against flooding. There will be new drainage system within the Site which will be designed suc that the rate surface wate run-off leavin the Site and entering the adjacent watercourse network is limited to the in 100 year greenfield rat of 35.3 l/s.

es.	Ν	The potential receptors of harm are staff working at the Proposed Scheme.	N/ A	Not identified as a potential major accident /disaster event.
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11	Hydrological	Carbor	Flooding of onsite surface water features.	O,Flooding of the Carbon Capture Facility initiating crash shutdown (internal influencing factor).	prepared prior to the Proposed Scheme commencing operation	the Carbon Capture Facility.		<ul> <li>Critical equipment and building will be raise as required mitigate against flooding.</li> <li>There will b new drainag system with the Site whi will be designed su that the rate surface wat run-off leavi the Site and entering the adjacent watercourse network is limited to th in 100 year greenfield ra of 35.3 l/s.</li> <li>Surface wat storage will provided by</li> </ul>

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gs ed I to	Ν	The only potential receptors of harm are staff working at the Proposed Scheme.	Not identified as a potential major accident /disaster event.
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												below ground tanked system with capacity to cater for a 1 in 100 year plus climate change (+40% increase in rainfall intensity) event.
12	Industrial and u	יובי	Major release of solvent (e.g. amines) on the Carbon Capture Facility.	OM	, Unconfined vapour explosion on the Carbon Capture Facility (internal influencing factor) initiating a major event on the adjacent COMAH installation.	-	Outline EPRP (Document Reference 7.11), the HAZOP, Site Emergency Plan, Explosion protection documentation and hazardous area classification zoning and maps (required by the Outline EPRP (Document Reference 7.11)).	damage and	X	X		As part of the final design hazardous area classification will take place and control measures implemented to manage ignition risks to ALARP. There is a current firewater system in place onsite which will be extended to contain and mitigate fires on the Carbon Capture Facility to minimise the risk of spread to the adjacen COMAH installation.

round system pacity for a 1 ear nate (+40% e in				
of the sign ous ation place trol es ented oge risks RP. a	Y	The potential receptors of harm are staff working at the Proposed Scheme and the users of PRoW.	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
r in hsite ill be d to and fires Carbon to e the pread djacent I				

											FP2, which is located within the Site, will be permanently diverted.
13	Industrial and urban accidents	Fire and / or explosion or release of harmful gas Carbon Capture Facility	Waste product containing solvents.	Major fire in the waste storage area of the Carbon Capture Facility (internal influencing factor) initiating a major event on the adjacent COMAH installation.	fire from waste	Outline EPRP (Document Reference 7.11), the HAZOP, Fire strategy, Fire safety management plan, Major Accident Prevention Plan (MAPP), Site Emergency Plan (all of which is required by the Outline EPRP (Document Reference 7.11)).	Contained fire within the waste storage area with limited smoke/combus tion products drifting offsite.	x	X		As part of the final design hazardous area classification will take place and control measures implemented to manage ignition risks to ALARP. Appropriate segregation of waste materials will be implemented in accordance with H&S lega requirements and Environmenta Permit conditions. There is a current firewater system in place onsite which will be extended to contain and mitigate fires on the Carbo Capture

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n ce d s	Ν	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are staff working at the Proposed Scheme.	N/ A	Not identified as a potential major accident /disaster event.
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14	Industrial and u	Fire and / or explosion or release of harmful gas Carbon Capture Facility	Lack of firewater capacity.	Μ	-	Uncontained fire.	Accident Prevention Plan (MAPP), Site Emergency Plan (required by the <b>Outline EPRP</b> (Document Reference 7.11)).	Fire contained within the site with drift of airborne combustion products offsite. Additional fire fighting capacity would be provided by the Fire Service and therefore it is unlikely that the fire would spread off Site.	x	x	Facility to minimise the risk of spread to the adjacent COMAH installation. There is a current firewater system in place onsite which is being extended to contain and mitigate fires on the Carbon Capture Facility to minimise the risk of spread to the adjacent COMAH installation. The Carbon Capture Facility will have a	Y Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
15	ndustrial and urban accider	Fire and / or explosion or release Carbon Capture Facility	LCO ₂ above ground pipeline.	M	Large scale release of CO ₂ resulting from a loss of containment event involving a pipeline and/or storage tank		to assess the likelihood and consequences of a large CO ₂ release, as part of detailed	CO ₂ toxicity and fogging hazard affects neighbouring properties and/or those people in the immediate area (including users of public rights of way	X X	X	dedicated firewater tank. Continuous monitoring of pressure and flow. On detection of a potential leak, the above ground pipelines will be shut down and isolated to minimise the	life or permanent injury which requires ongoing disability support.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.

					(internal influencing factor).			and open spaces).							volume of CO released. The storage tanks and pipeline will be constructed to appropriate design standards. Management systems will be in place for preventative maintenance including storage tank and pipeline inspection and integrity checks.
16	Industrial and urban accider	Fire and / or explosion or release of harmful gas	Proposed		Large scale release of CO ₂ resulting from a loss of containment event involving a pipeline and/or connection to the marine vessel (internal influencing factor).	containing LCO ₂ , air dispersion of	Dedicated studies undertaken to assess the likelihood and consequences of a large CO ₂ release. HAZID studies as part of the detailed design of the Proposed Scheme.	CO ₂ toxicity and fogging hazard affects neighbouring properties and/or those people in the immediate area.	X	x	x				Continuous monitoring of pressure and flow. On detection of a potential leak, the pipeline will be shut down and isolated to minimise the volume of CO released. The pipeline will be constructed to appropriate design standards. Management systems will be in place for

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of id a ak,	Y	Could cause loss of life or permanent injury which requires ongoing disability support.	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
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											preventative maintenance including pipeline inspection and integrity checks.		
17		Carbon (		-	Uncontained fire.	Outline EPRP (Document Reference 7.11), the HAZOP, Fire strategy, Fire safety management plan, MAPP, Site Emergency Plan (required by the Outline EPRP (Document Reference 7.11)).	combustion	X	X		There is a current firewater system in place onsite which will be extended to contain and mitigate fires on the Carbon Capture Facility. The Carbon Capture Facility will have a dedicated firewater tank.	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
18	S d	Jetty (vess	Loss of containment O, event from the marine M vessel.	CO ₂ resulting	marine vessel containing LCO ₂ .	Outline EPRP (Document Reference 7.11), the HAZOP, MAPP and Site Emergency Plan (which is required by the Outline EPRP (Document Reference 7.11)). Appendix 19-1: Preliminary Navigational Risk Assessment (Volume 3).	CO ₂ toxicity and fogging hazard affects neighbouring properties and/or those people in the immediate area.	х	X X		The marine vessel will be designed and built in accordance with international technical and safety regulations.	Could cause loss of life or permanent injury which requires ongoing disability support.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.

rainfall intensity)
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20	Pollution accidents	Harm to ecological receptors	Chemical Storage and Distribution	Storage of hazardous raw materials/waste.	O, M	Loss of containment of hazardous materials/ waste into the soil/ groundwater (internal influencing factor).	containment of hazardous materials/ waste.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).			x	X	X		· · · · · · · · · · · · · · · · · · ·	Hazardous materials/ wastes will b stored in appropriate containers. The storage area will be provided with secondary containment (i.e. bunded/ concrete hardstanding
21	Pollution accidents	Harm to ecological receptors	Chemical Storage and Distribution	Storage of hazardous raw materials/waste.	O, M	Loss of containment of hazardous materials/ waste into surface water features (internal influencing factor).	containment of hazardous materials/ waste.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).	Localised contamination of surface water features.		X	X	X			Hazardous materials/ wastes will b stored in appropriate containers. The storage area will be provided with secondary containment (i.e. bunded/ concrete hardstanding
22	Engineering accidents and failures	explosion c	Carbon Capture	liquification plant).	O, M	Loss of containment of ammonia or propane during the first fill of the refrigeration plant (closed loop system).	containment of hazardous materials.	<b>Operational EMP</b> that will be prepared prior to the Proposed Scheme commencing operation in accordance with the relevant measures set out in the <b>Mitigation Schedule</b> ( <b>Document Reference 7.8</b> ) and the <b>Outline EPRP</b> ( <b>Document Reference 7.11</b> ).		X	X					Trained and competent operators wi be undertaking commissioni g activities. Method statement ar risk assessment for handling

s I be e ge e vith ent ed/ ing).	Y	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
s I be e  ge e vith nt ed/ ing).	Y	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Υ	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
nd will onin s. and nt	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction/mainten ance workers.	N/ A	Not identified as a potential major accident/disa ster event.

										and use of hazardous materials during commissionin g.			
2	Engineering accidents and	or explos	Failure of refrigeration plant due to lack of maintenance.	Loss of containment of ammonia and/or propane.	containment of hazardous materials.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the relevant measures set out in the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).		X		Equipment will N be constructed to appropriate design standards. Planned preventative maintenance of equipment.	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction/mainten ance workers.	A	Not identified as a potential major accident/disa ster event.
2	Pollution accidents	Harm to ecological receptors	wastewater treatment plant.	alsonargea	contaminate d water into the foul sewer.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the relevant measures set out in the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).	Thames Water	X	X	The onsite wastewater treatment plant will be fitted with a shut off valve to contain effluent in the event of plant failure.YIf necessary, wastewater will be pumped out and removed by road tanker for treatment off-site.YPrior to discharge to the Thames Water wastewater treatmentY	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.		Considered to be ALARP if all mitigation measures outlined are correctly implemented.

														plant, effluer will be tested for a defined set of parameters which will be determined part of the Environmen Permit.
2	Engineering accidents and failures	Harm to people	Carbon Capture Facility	installation/ damage to/ corrosion of ductwork.	O, M	Release of hot flue gas.	Release of hot gases.	Outline EPRP (Document Reference 7.11).	Death and/or injury to maintenance workers.	X	х	X		The flue gas ductwork will be construct to appropria design standards. Managemen systems will be in place f preventative maintenance including inspection a integrity
														checks. Ductwork wi be elevated.
														Ductwork wi be fitted with expansion joints.
														System will operate at near atmospheric pressure.

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as vill cted ate ent ll for re ce	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction/mainten ance workers.	Not identified as a potential major accident/disa ster event.
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92 Pollution accidents Harm to ecological receptors Carbon Capture Facility	Delivery/storage of solvent (e.g. amines).	D, Loss of Containment of solvent into the soil/ groundwater / surface water features.	Loss of containment of solvent from storage tanks, Capture Plant vessel, pipework or associated equipment.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the Mitigation Schedule (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).			X	X The Carbon Capture Facility will be constructed appropriate design standards. Management systems will be in place for preventative maintenance including inspection and integrity checks. The Carbon Capture Plan will be situat above concrete hardstanding and the storage tank will be located in a bunded area designed to contain 110% of the storage tank inventory.	environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts. and and and and and and and and and an	Y Considered to be ALARP if all mitigation measures outlined are correctly implemented.
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<b>22</b> Pollution accidents	Harm to ecological receptors	Leakage of solvent (e.g. amines) during unloading from road tanker to storage tank.	of solvent	Loss of containment of solvent l/ during road er tanker unloading.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).	X	X	offloading in a bunded area. Trained and competent operators will be present during unloading.	Y Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Y Considered to be ALARP if all mitigation measures outlined are correctly implemented.
								Solvent offloading procedures will be in place.		
								Interlocked offloading valve to prevent road tanker		
								offloading unless the connection is correct. Fail-closed		
								valve on solvent offloading line to minimise		
								any leakages from the pipework.		



88 Pollution accidents Harm to ecological receptors	Overfilling of fresh solvent storage tank.	Loss of containment of solvent into the soil/ groundwater / surface water features.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).	Localised contamination of the soil / surface water features.			XTrained and competent operators will be present during unloading.Solvent offloading procedures.Level indication and alarm on solvent storage tank.The storage tanks will be located in a bunded area designed to contain 110% of the storage tank inventory.	Y Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
6 Pollution accidents Harm to ecological receptors	Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Carbon Ca	Loss of Loss of containment of waste of waste solvent into the soil/ during road groundwater features.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).		X	<	X Trained and competent operators will be present during loading. Solvent loading procedures. Interlocked loading valve and road tanker loading performed within bunded area. Fail-closed valve on	Y Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.

										solvent loading line.		
Pollution accidents Harm to ecological receptors	bon Captu		containment con of waste of w solvent into solv the soil/ duri groundwater tank	ntainment waste vent ring road ker ding.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> ( <b>Document Reference 7.8</b> ) and the <b>Outline EPRP</b> ( <b>Document Reference 7.11</b> ).			X	X	X Trained and competent operators will be present during loading. Solvent loading procedures. Road tanker loading performed within bunded area.	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Y Considered to be ALARP if all mitigation measures outlined are correctly implemented.
Pollution accidents Harm to ecological recentors	chemicals) during unloading from road	O, M	containment con of hazardous of h materials che into the soil/ duri groundwater tanl	ntainment nazardous emicals ring road iker oading.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).	Localised contamination of the soil/surface water features.		X		<ul> <li>X The storage tanks and associated pipework will be constructed to appropriate design standards.</li> <li>Management systems will be in place for preventative maintenance including inspection and integrity checks.</li> <li>Trained and competent operators will be present during unloading.</li> </ul>	Could cause permanent or long- lasting damage to environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Y Considered to be ALARP if all mitigation measures outlined are correctly implemented.



								Chemicals offloading procedures. Interlocked offloading valve and roa tanker offloading performed within bunded area. Fail closed valve on chemical offloading line		
32	Chemical Storage and Distribution Handling Facilities	Loss of L containment c of hazardous o materials c into the soil/ d groundwater ta / surface u water features.	containment of hazardous chemicals during road anker unloading.	Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the <b>Mitigation Schedule</b> (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11).		X	X	<ul> <li>X Trained and competent operators will be present during unloading.</li> <li>Chemicals offloading procedures.</li> <li>Level indication and alarm on chemical storage tank with overpressure protection where required.</li> <li>The storage tanks will be located in a bunded area designed to contain 110%</li> </ul>	environmental receptor(s) that cannot be restored through minor clean- up and restoration efforts.	Y Considered to be ALARP if all mitigation measures outlined are correctly implemented.



										of the storage tank inventory.			
Industrial and Urban Accidents	Proposed	[•] Fire on CO₂ vessel.	O, Fire damages Proposed Jetty structure and topside facilities.	Uncontained fire.	Outline EPRP (Document Reference 7.11), the HAZOP, MAPP, fire strategy, fire safety management plan and Site Emergency Plan (required by the Outline EPRP (Document Reference 7.11)).	Fire contained within CO ₂ vessel and Proposed Jetty with drift of airborne combustion products off- site. Potential death and/or injury to workers.	X	X X	X	Vessel emergency procedures (disconnect from the Proposed Jetty). Provision of firewater system on the Proposed Jetty. Vessel will be equipped with fire-fighting system. Tugs will be equipped with fire monitors.		A a	Not identified as a potential major accident/disa ster event.
Industrial and Urban Accidents		[•] Fire on tug (third party and Cory).	O, Fire M damages Proposed Jetty structure and topside facilities.	fire.	Outline EPRP (Document Reference 7.11), the HAZOP, MAPP, fire strategy, fire safety management plan and Site Emergency Plan (required by the Outline EPRP (Document Reference 7.11)).	Fire contained within tug and Proposed Jetty with drift of airborne combustion products offsite. Potential death and/or injury to workers.	X	X X	×	Tug emergency procedures. Provision of firewater system on the Proposed Jetty. Tugs will be equipped with fire fighting system.		A a	Not identified as a potential major accident/disa ster event.



-	Industrial and Urban Accide	mtul sed I	1) '		, Fire damages Proposed Jetty structure and topside facilities.		Outline EPRP (Document Reference 7.11), the HAZOP, MAPP, fire strategy, fire safety management plan and Site Emergency Plan (required by the Outline EPRP (Document Reference 7.11)).	Potential death and / or injury to workers.	x	x	×	×								Physical separation of the Propose Jetty from shipping channel. Port of Lond Authority wi consider risk associated with all mari traffic. Provision of firewater system on th Proposed Jetty.
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* Applicable phases:

- C = Construction
- O = Operation
- M = Maintenance

of ed don ill sk ine f	Ν	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction/mainten ance workers.	N/ A	Not identified as a potential major accident/disa ster event.



# DECARBONISATION

10 Dominion Street Floor 5 Moorgate, London EC2M 2EF Contact Tel: 020 7417 5200 Email: enquiries@corygroup.co.uk **corygroup.co.uk**