



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

DECARBONISATION

Cory Decarbonisation Project

PINS Reference: EN010128

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Revision A

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APPENDIX 20-2: ES RISK RECORD

RISK RECORD FOR SCREENED IN MA&D EVENTS

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

1.1.2. 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.

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	Applicable Phases (Construction, Operation, Maintenance)	Risk Description (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	Landscape and Visual	Noise and Vibration	Transport	Material Resources	Road Drainage and the Water Environment	Additional Mitigation	Could this constitute a major accident or	Justification	Is this ALARP with existing mitigation?	Clarification	
Construction																										
1	Hydrological	Extreme weather	Carbon Capture Facility	Flooding of the River Thames / other surface water features.	C	Flooding of the construction site (external influencing factor).	Overtopping of flood defences which inundates the construction site.	Appendix 11-2: Flood Risk 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)).	Nuisance only as construction works would have to be temporarily suspended.			X								X	Flood defences along the River Thames.	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.	
2	Hydrological	Extreme	Carbon	Flooding of onsite surface water features.	C	Flooding of the construction site (internal)	Inundation of the construction site.	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											X	No stockpiles, no hazardous materials and /or site cabins,	N	The reasonable worst consequence of this event does not meet the criteria	N/A	Not identified as a potential major accident	

3	Industrial and urban accidents Fire and / or explosion or release of harmful gas	Proposed Jetty Unexploded ordnance.	C During construction encountering UXO (internal influencing factor).	Presence of unexploded ordnance.	Outline CoCP (Document Reference 7.4) , CDM Register and UXO Risk Assessment (required by the Outline CoCP (Document Reference 7.4)).	Fire and/or explosion affects those people in the immediate area.			X	X	X							A desk-based UXO assessment has been commissioned for the Proposed Scheme. Prior to the ground investigation a detailed UXO assessment shall be undertaken in accordance with CIRIA guidelines. If required, following the completion of the UXO assessment, procedures, protocols and training will be provided prior to construction works commencing. This requirement will be included in the Outline CoCP (Document Reference 7.4) .	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The likely potential receptors of harm are construction workers.	N/A	Not identified as a potential major accident /disaster event.
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4	Transport accidents Collapse / damage to structures Proposed Jetty	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).	Incorrect vessel manoeuvre when approaching the Proposed 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).	Damage to the marine vessel/jetty/other vessel potentially causing fatalities/ harm to people.		X						X	<p>Communication of information relating to construction made to other river users.</p> <p>Proposed exclusion zone during the construction phase.</p> <p>Proposed speed reductions for passing vessels during the construction phase.</p> <p>A safety vessel will be present when construction activities for the Proposed Jetty are underway.</p> <p>Standby tug to be present on site throughout the construction phase.</p> <p>Operational restrictions associated with river and weather</p>	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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													suitable for all users.									
Construction and Operation																						
8	Engineering accidents and failures	Harm to people	Carbon Capture Facility	Maintenance of Carbon Capture Plant 1 services and equipment in proximity to construction routes and area related to Carbon Capture Plant 2 (worst case scenario).	C, O, M	Maintenance staff struck by construction vehicle (internal influencing factor).	Construction vehicles moving around site.	<p>Outline CoCP (Document Reference 7.4) including the Construction Phase H&S Plan and Site Workplace Vehicle Risk Assessment (which will be required by the Outline CoCP (Document Reference 7.4)).</p> <p>Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the Mitigation Schedule (Document Reference 7.8), Appendix 11-2: Flood Risk Assessment (Volume 3), the Outline EPRP (Document Reference 7.11) that will be used to form a Site Emergency Plan.</p>	Death and/or injury to maintenance workers.		X						X	Access and maintenance strategy to be developed. Include adequate space provisions to satisfy clearance requirements.	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/maintenance workers.	N/A	Not identified as a potential major accident /disaster event.
9	Industrial and Urban Accidents	Collapse / damage to structures	Proposed Jetty	Third party vessel using the shipping channel loses control and collides with the Proposed Jetty.	C, O, M	Damage to Proposed Jetty.	Third party vessels using the shipping channel.	<p>A hazard and operability study (HAZOP).</p> <p>Outline CoCP (Document Reference 7.4) and the Construction Phase H&S Plan (required by the Outline CoCP (Document Reference 7.4)).</p> <p>Appendix 19-1: Preliminary Navigational Risk Assessment (Volume 3).</p> <p>Operational EMP that will be prepared prior to the Proposed Scheme commencing operation in accordance with the Mitigation Schedule</p>	Potential death and/or injury to workers.		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	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/maintenance workers.	N/A	Not identified as a potential major accident /disaster event.

19	Engineering accidents and failures	Flood defence failure	Carbon Capture Facility	Flooding of the River Thames.	O, M	Flooding of the Carbon Capture Facility initiating crash shutdown (external influencing factor).	Failure of flood defences which leads to inundation of the Carbon Capture Facility.	Outline EPRP (Document Reference 7.11), Appendix 11-2: Flood Risk Assessment (Volume 3); and the Outline Drainage Strategy (Document Reference 7.2).	Controlled shutdown of the Carbon Capture Facility.				X									X	<p>Flood defences along the River Thames. Flood defences inspected and maintained</p> <p>There will be a new drainage system within the Site which will be designed such that the rate of surface water run-off leaving the Site and entering the adjacent watercourse network is limited to the 1 in 100 year greenfield rate of 35.3 l/s.</p> <p>Surface water storage will be provided by a below ground tanked system with capacity to cater for a 1 in 100 year plus climate change (+40% increase in rainfall intensity) event.</p>	N	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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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).	Loss of containment of hazardous materials/waste.	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) .	Localised contamination of the soil.			X	X		X				X	Hazardous materials/wastes will be stored in appropriate containers. The storage area will be provided with secondary containment (i.e. bunded/concrete hardstanding).	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.
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).	Loss of containment of hazardous materials/waste.	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) .	Localised contamination of surface water features.			X	X		X				X	Hazardous materials/wastes will be stored in appropriate containers. The storage area will be provided with secondary containment (i.e. bunded/concrete hardstanding).	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.
22	Engineering accidents and failures	Fire and / or explosion or release of	Carbon Capture Facility	Commissioning of the refrigeration plant (part of the LCO ₂ liquification plant).	O, M	Loss of containment of ammonia or propane during the first fill of the refrigeration plant (closed loop system).	Loss of 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 Mitigation Schedule (Document Reference 7.8) and the Outline EPRP (Document Reference 7.11) .	Potential death and/or injury to workers.	X		X							Trained and competent operators will be undertaking commissioning activities. Method statement and risk assessment for handling	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/maintenance workers.	N/A	Not identified as a potential major accident/disaster event.	

26	Pollution accidents	Harm to ecological receptors	Carbon Capture Facility	Delivery/storage of solvent (e.g. amines).	O, M	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) .	Localised contamination of the soil/surface water features.				X	X						X			Y						Y
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27	Pollution accidents	Harm to ecological receptors	Carbon Capture Facility	Leakage of solvent (e.g. amines) during unloading from road tanker to storage tank.	O, M	Loss of containment of solvent into the soil/ groundwater / surface water features.	Loss of containment of solvent during road tanker unloading.	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) .	Localised contamination of the soil/surface water features				X		X							X	<p>Road tanker offloading in a bunded area.</p> <p>Trained and competent operators will be present during unloading.</p> <p>Solvent offloading procedures will be in place.</p> <p>Interlocked offloading valve to prevent road tanker offloading unless the connection is correct.</p> <p>Fail-closed valve on solvent offloading line to minimise any leakages from the pipework.</p>	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.
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28	Pollution accidents	Harm to ecological receptors	Carbon Capture Facility	Overfilling of fresh solvent storage tank.	O, M	Loss of containment of solvent into the soil/ groundwater / surface water features.	Loss of containment of solvent during road tanker unloading.	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) .	Localised contamination of the soil / surface water features.			X	X						X	Trained 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.	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.
29	Pollution accidents	Harm to ecological receptors	Carbon Capture Facility	Leakage of waste solvent during road tanker loading.	O, M	Loss of containment of waste solvent into the soil/ groundwater / surface water features.	Loss of containment of waste solvent during road tanker loading.	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) .	Localised contamination of the soil/surface water features.			X	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.	Y	Considered to be ALARP if all mitigation measures outlined are correctly implemented.

35	Industrial and Urban Accidents Fire and / or explosion or release of harmful gas	Proposed Jetty Explosion on third party vessel (carrying flammable/explosive cargo) using the shipping channel.	O, M 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)).	Potential death and / or injury to workers.	X	X	X	X								Physical separation of the Proposed Jetty from shipping channel. Port of London Authority will consider risk associated with all marine traffic. Provision of firewater system on the Proposed Jetty.	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/maintenance workers.	N/A	Not identified as a potential major accident/disaster event.
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- * Applicable phases:
- C = Construction
 - O = Operation
 - M = Maintenance



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