HyNet North West

ENVIRONMENTAL STATEMENT (VOLUME III)

Appendix 13-2 – ES Risk Record (Clean)

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

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

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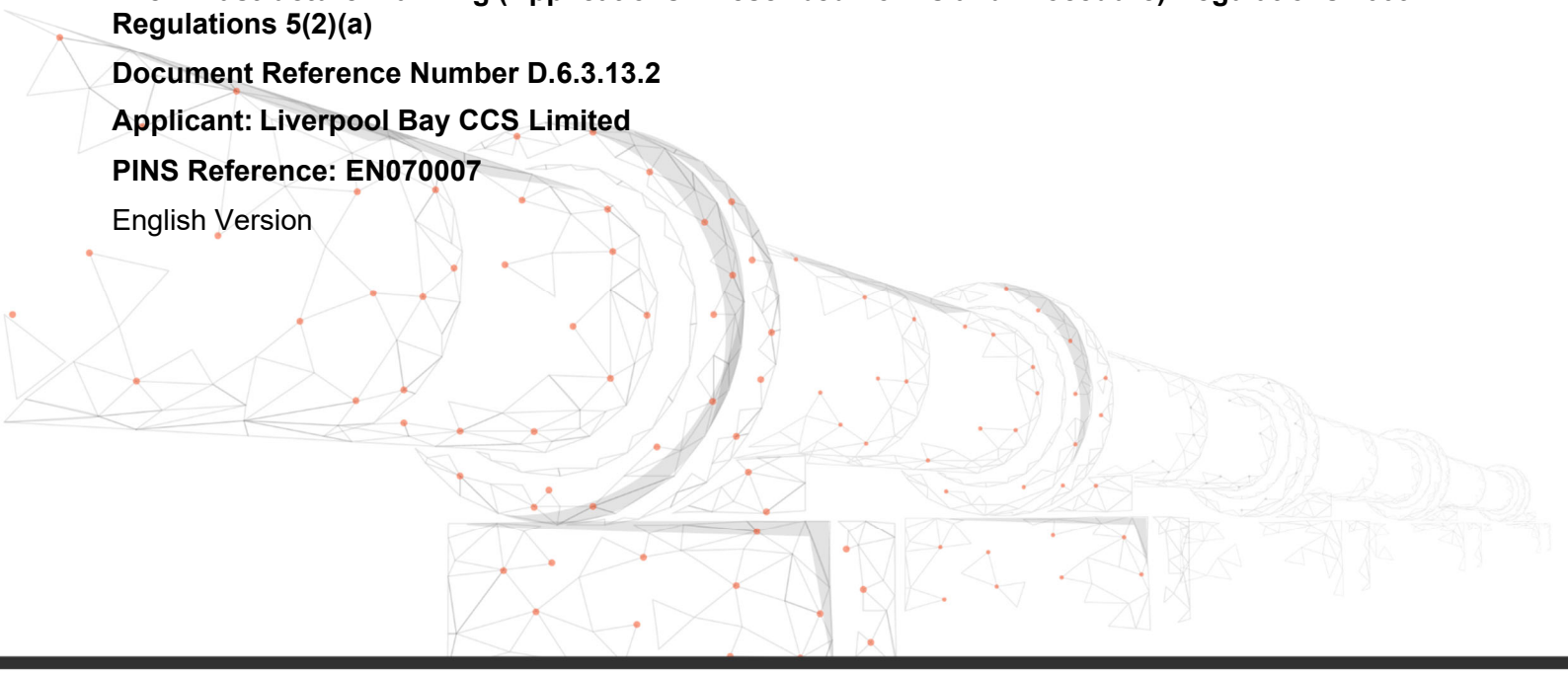

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APPENDIX 13-2 – RISK RECORD FOR SCREENED IN MAJOR EVENTS

The Long List in **Appendix 13-1 Major Accidents and Disasters Long List (Volume III)**, presents all of the MA&D Event categories and types which have been considered as part of the assessment. Those MA&D types which could not be scoped out have been further assessed, the output of which is presented in **Table 1** below. **Table 1** is a record of all potential MA&D events considered as part of the Environmental Statement (ES) assessment process.

Table 1 – ES Risk Record

Risk Record Entry Number	MA&D Event Category	MA&D Event Type	Section of DCO Proposed Development	Hazard Description	Applicable Stages (Construction, Operation, Maintenance)*	Risk Description	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	Mitigation	Could this constitute a major accident or disaster?	Justification	Is this ALARP with existing mitigation?	Clarification
1	Malicious Attacks	Fire and/or explosion or release of harmful gas	Route wide	Unexploded ordnance	C	During ground investigation or construction encountering UXO.	Presence of unexploded ordnance	Ground Conditions Report. CDM Register. UXO Risk Assessment.	Fire and/or explosion affects neighbouring property and/or those people in the immediate area.			X	X	X							A desk based UXO assessment has been commissioned for the Newbuild Infrastructure Boundary and identified no significant sources of Unexploded Ordnance (UXO) hazard. Provide possible procedures, protocols and training required during the construction phase.	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.

2	**Risk Record Entry Number**
Utilities failure	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Presence of underground services/utilities - gas, electricity.	**Hazard Description**
C	**Applicable Stages (Construction, Operation, Maintenance)***
Striking of underground services/utilities	**Risk Description**
Presence of existing utilities within the DCO Proposed Development area which are nearby to residential receptors.	**Hazard Sources and/or Pathways**
CDM register. Construction Phase H&S plan. Hazard studies carried out at detailed design stage. Method Statements.	**Documentation in which the event is/will be addressed**
Fire and/or explosion affects neighbouring property and/or members of the public.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
X	**Biodiversity**
X	**Cultural Heritage**
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
Mitigation	
Location of utilities is obtained from the statutory undertakers and how the DCO Proposed Development will affect the utilities is discussed and any diversions required are highlighted. This information is then used in the detailed design of the DCO Proposed Development. Positive identification of all the utilities prior to starting work on site. Further work required to identify and design utility diversions, prior to construction phase.	
Y	**Could this constitute a major accident or disaster?**
Could cause loss of life or permanent injury to multiple members of the public; or significant structural property damage.	**Justification**
Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

3	**Risk Record Entry Number**
Utilities failure	**MA&D Event Category**
Harm to people	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Over-Head HV power lines cross the route of the DCO Proposed Development.	**Hazard Description**
C	**Applicable Stages (Construction, Operation, Maintenance)***
Inadvertent contact with HV power transmission cables.	**Risk Description**
HV electricity	**Hazard Sources and/or Pathways**
CDM register. Hazard studies carried out at detailed design stage. Construction Phase H&S Plan. Method Statements.	**Documentation in which the event is/will be addressed**
Death and/or injury to construction workers.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
Mitigation HV overhead power lines do not need to be diverted. However, there is a potential need to provide protection measures during construction phase.	
N	**Could this constitute a major accident or disaster?**
Justification 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	**Is this ALARP with existing mitigation?**
Not identified as a potential major accident/disaster event.	**Clarification**

4	**Risk Record Entry Number**
Utilities failure	**MA&D Event Category**
Harm to people	**MA&D Event Type**
Route Wide	**Section of DCO Proposed Development**
Historical Wayleave records are inconsistent in the position of actual presence of utilities crossing the DCO Proposed Development boundary.	**Hazard Description**
C	**Applicable Stages (Construction, Operation, Maintenance)***
Striking of underground services/utilities	**Risk Description**
Presence of existing utilities within the DCO Proposed Development area which are nearby to residential receptors.	**Hazard Sources and/or Pathways**
CDM register. Hazard studies carried out at detailed design stage. Construction Phase H&S Plan. Method Statements.	**Documentation in which the event is/will be addressed**
Death and/or injury to construction workers.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
X	**Biodiversity**
X	**Cultural Heritage**
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
1) Seek clarification from utility owners of the presence and location of all utilities. 2) Review of existing records/condition surveys. 3) Additional surveys being undertaken by specialist contractor. 4) Undertake appropriate levels of utility searches accordance with BSI – PAS 128:2022	**Mitigation**
N	**Could this constitute a major accident or disaster?**
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.	**Justification**
N/A	**Is this ALARP with existing mitigation?**
Not identified as a potential major accident/disaster event.	**Clarification**

5	**Risk Record Entry Number**
Utilities failure	**MA&D Event Category**
Loss of power	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Presence of underground services/utilities -sewers, gas, electricity, potable water, telecoms/data and surface/storm water drainage.	**Hazard Description**
C	**Applicable Stages (Construction, Operation, Maintenance)***
Striking of underground services/utilities	**Risk Description**
Presence of electricity cables along route (route crossings)	**Hazard Sources and/or Pathways**
CDM register. Hazard studies carried out at detailed design stage. Construction Phase H&S Plan. Method statements.	**Documentation in which the event is/will be addressed**
Loss of power affects neighbouring property and/or members of the public.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
Mitigation	
Location of utilities is obtained from the statutory undertakers and how the DCO Proposed Development will affect the utilities is discussed and any diversions required are highlighted. This information is then used in the detailed design of the DCO Proposed Development. Positive identification of all the utilities prior to starting work on site. Further work required to identify and design utility diversions, prior to construction phase.	
N	**Could this constitute a major accident or disaster?**
Justification	
Unlikely to cause community wide power outage or damage to infrastructure which could cause a MA&D.	
N/A	**Is this ALARP with existing mitigation?**
Not identified as a potential major accident/disaster event.	**Clarification**

6	**Risk Record Entry Number**
Pollution accident	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Loss of containment event involving an AGI and/or pipeline and/or block valve.	**Hazard Description**
O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Large scale release of CO_2 resulting from a loss of containment event involving an AGI and/or pipeline and/or block valve.	**Risk Description**
Pipeline/AGI/ BVS containing CO_2, air dispersion of CO_2 gas cloud.	**Hazard Sources and/or Pathways**
Dedicated studies undertaken to assess the likelihood and consequences of a large CO_2 release. HAZID studies during FEED and detailed design.	**Documentation in which the event is/will be addressed**
CO_2 toxicity and fogging hazard affects neighbouring properties and/or those people in the immediate area.	**Reasonable worst consequence if event did occur and receptor(s)**
X	**Air Quality**
X	**Climate**
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
Mitigation	
Continuous monitoring of pressure and flow. On detection of a potential leak, the Carbon Dioxide Pipeline will be shut down and isolated to minimise the volume of CO_2 released. The Newbuild Carbon Dioxide Pipeline will be constructed to appropriate design standards. Management systems will be in place for preventative maintenance including pipeline inspection and integrity checks.	
Y	**Could this constitute a major accident or disaster?**
Justification	
Could cause loss of life or permanent injury which requires ongoing disability support.	
Y	**Is this ALARP with existing mitigation?**
Clarification	
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	

Risk Record Entry Number	7	8
MA&D Event Category	Industrial and urban accidents	Industrial and urban accidents
MA&D Event Type	Fire and/or explosion or release of harmful gas	Fire and/or explosion or release of harmful gas
Section of DCO Proposed Development	Stanlow AGI	Stanlow AGI
Hazard Description	Fire and/or explosion at the Stanlow Refinery Plant.	Fire and/or explosion at the Stanlow Refinery Plant.
Applicable Stages (Construction, Operation, Maintenance)*	O, M	C
Risk Description	Damage to AGI equipment which could potentially lead to a loss of containment of CO_2 for a limited period of time.	Exposure of construction staff to a release from Stanlow Refinery Plant.
Hazard Sources and/or Pathways	AGI containing CO_2, air dispersion of CO_2 gas cloud.	Release from Stanlow Refinery Plant dispersing through the air.
Documentation in which the event is/will be addressed	Dedicated studies undertaken to assess the likelihood and consequences of a large CO_2 release. HAZID studies during FEED and detailed design. AGI Emergency Plan.	Stanlow Refinery Plant Off-site emergency plan. Construction phase Emergency Plan.
Reasonable worst consequence if event did occur and receptor(s)	CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area.	Harm to small number of construction workers.
Air Quality	X	
Climate	X	
People and Communities	X	X
Biodiversity		
Cultural Heritage		
Geology and Soils		
Landscape and Visual		
Noise and Vibration		
Transport		
Material Resources		
Road Drainage and the Water Environment		
Mitigation	Stanlow Refinery Plant site emergency plan to control/contain the initiating event to prevent/reduce the risk of spread to the AGI. Interface management procedures between the undertaker and Stanlow Refinery Plant. Leak detection and emergency shutdown system installed on the CO_2 transmission system.	Stanlow Refinery Plant site emergency plan to control/contain the event to prevent/reduce the risk to construction personnel.
Could this constitute a major accident or disaster?	Y	N
Justification	Could cause loss of life or permanent injury which requires ongoing disability support.	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.
Is this ALARP with existing mitigation?	Y	N/A
Clarification	Considered to be ALARP if all mitigation measures outlined are correctly implemented.	Not identified as a potential major accident/disaster event.

9	**Risk Record Entry Number**
Industrial and urban accidents	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Ince AGI	**Section of DCO Proposed Development**
Loss of containment of ammonia from CF Fertiliser Plant.	**Hazard Description**
C, O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Exposure to a toxic gas cloud dispersing from CF Fertiliser Plant.	**Risk Description**
Toxic gas cloud from CF Fertiliser Plant dispersing through the air.	**Hazard Sources and/or Pathways**
CF Fertiliser Plant Off-site emergency plan. AGI Emergency Plan.	**Documentation in which the event is/will be addressed**
Harm to small number of construction/maintenance workers.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
Mitigation CF Fertiliser Plant site/off-site emergency plan to control/contain the initiating event to prevent/reduce the risk of spread to the AGI. AGI site emergency plan. Interface management procedures between the undertaker and CF Fertilisers.	
N	**Could this constitute a major accident or disaster?**
Justification 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	**Is this ALARP with existing mitigation?**
Not identified as a potential major accident/disaster event.	**Clarification**

10	**Risk Record Entry Number**
Industrial and urban accidents	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Ince AGI	**Section of DCO Proposed Development**
Explosion at CF Fertiliser Plant.	**Hazard Description**
O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Damage to AGI equipment which could potentially lead to a loss of containment of CO_2 for a limited period of time.	**Risk Description**
AGI containing CO_2, air dispersion of CO_2 gas cloud.	**Hazard Sources and/or Pathways**
Dedicated studies undertaken to assess the likelihood and consequences of a large CO_2 release. HAZID studies during FEED and detailed design. AGI Emergency Plan.	**Documentation in which the event is/will be addressed**
CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area.	**Reasonable worst consequence if event did occur and receptor(s)**
X	**Air Quality**
X	**Climate**
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
CF Fertiliser Plant site/off-site emergency plan to control/contain the initiating event to prevent/reduce the risk of spread to the AGI. Interface management procedures between the undertaker and CF Fertilisers. Leak detection and emergency shutdown system installed on the CO_2 transmission system.	**Mitigation**
Y	**Could this constitute a major accident or disaster?**
Could cause loss of life or permanent injury which requires ongoing disability support.	**Justification**
Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

11	**Risk Record Entry Number**
Hydrology	**MA&D Event Category**
Harm to people	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Impact from construction activities alongside watercourses and flood zone 3.	**Hazard Description**
C	**Applicable Stages (Construction, Operation, Maintenance)***
The DCO Proposed Development crosses Flood Zone 3 and a very limited extent of Flood Zone 2. The three BVSs along the Stanlow AGI to Flint AGI Pipeline are all within Flood Zone 1.	**Risk Description**
Flooding Excavations	**Hazard Sources and/or Pathways**
CDM register. Construction Phase H&S Plan. Method statements. CEMP.	**Documentation in which the event is/will be addressed**
Harm to small number of construction workers.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
X	**Road Drainage and the Water Environment**

Mitigation	Where possible, storage of materials or Construction Compounds would not be located within the active fluvial and tidal floodplain. Construction material would be controlled near watercourses. At trenched crossings of watercourses, there would be a control of flows to avoid an increase of flood risk. There would be temporary drainage solutions to control runoff and protect surface water drainage patterns. Potential groundwater flooding in excavations would be controlled. Emergency planning procedures for construction workers would be implemented in case of risk of flooding, as appropriate.
Could this constitute a major accident or disaster?	N
Justification	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.
Is this ALARP with existing mitigation?	N/A
Clarification	Not identified as a potential major accident/disaster event.

12	**Risk Record Entry Number**
Hydrology	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Flooding	**Hazard Description**
O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Erosion of support below pipeline leading to pipeline failure.	**Risk Description**
Flooding	**Hazard Sources and/or Pathways**
Flood Risk Assessment. Emergency plan.	**Documentation in which the event is/will be addressed**
CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area.	**Reasonable worst consequence if event did occur and receptor(s)**
	Air Quality
	Climate
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
X	**Road Drainage and the Water Environment**

Geotechnical ground investigation informing the design of the Newbuild Carbon Dioxide Pipeline and the underlying support structure beneath the Newbuild Carbon Dioxide Pipeline. Continuous monitoring of pressure and flow. On detection of a potential leak, the Carbon Dioxide Pipeline will be shut down and isolated to minimise the volume of CO_2 released. The Newbuild Carbon Dioxide Pipeline will be constructed to appropriate design standards. Management systems will be in place for preventative maintenance including pipeline inspection and integrity checks.	**Mitigation**
Y	**Could this constitute a major accident or disaster?**
Could cause loss of life or permanent injury which requires ongoing disability support.	**Justification**
Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

15	14	13	Risk Record Entry Number
Industrial and urban accidents	Industrial and urban accidents	Hydrology	**MA&D Event Category**
Harm to people	Harm to people	Extreme weather (flood)	**MA&D Event Type**
Rock Bank BVS	Ince AGI, Stanlow AGI	Ince AGI, Stanlow AGI, Northop Hall AGI, Flint AGI and BVS: Rock Bank, Mollington and Aston Hill	**Section of DCO Proposed Development**
CLH Pipeline System (CLH-PS) Limited with fuel storage and distribution	Installing electrical connections (e.g.	Flooding of AGI or BVS.	**Hazard Description**
O, M	C	O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Fire and/or explosion at fuel storage facility impacts the Rock Bank BVS resulting in a loss of containment event at the BVS and	Electrocution risk to personnel	Risk to personnel	**Risk Description**
BVS containing CO_2, air dispersion of CO_2 gas cloud.	Electricity	Flooding	**Hazard Sources and/or Pathways**
Dedicated studies undertaken to assess the likelihood and consequences of a large CO_2 release. HAZID studies during FEED and	CDM register. Construction Phase H&S Plan.	Flood Risk Assessment. Emergency plan.	**Documentation in which the event is/will be addressed**
CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area	Death and/or injury to construction workers and/or	Minor flood damage to equipment.	**Reasonable worst consequence if event did occur and receptor(s)**
X			**Air Quality**
X			**Climate**
X	X		**People and Communities**
			Biodiversity
			Cultural Heritage
			Geology and Soils
			Landscape and Visual
			Noise and Vibration
			Transport
			Material Resources
X			**Road Drainage and the Water Environment**
Mitigation			
An Outline Surface Water Drainage Strategy has been produced for the DCO Proposed Development which includes drainage design for the AGIs and BVSs. Flood risk at AGIs and BVSs would be managed for operation and maintenance, through design such as raising finished floor levels, and appropriate procedures e.g., development of suitable emergency procedure.	Guidance provided by National Grid to be adhered to.	CLH Pipeline System site/off-site emergency plan to control/contain the initiating event to prevent/reduce the risk of spread to the BVS. Leak detection and emergency shutdown system installed on the CO_2 transmission system.	
Could this constitute a major accident or disaster?			
N	N	Y	
Justification			
The reasonable worst consequence of this event does not meet the criteria of a major accident. Nuisance only.	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 and National Grid staff.	Could cause loss of life or permanent injury which requires ongoing disability support.	
Is this ALARP with existing mitigation?			
N/A	N/A	Y	
Clarification			
Not identified as a potential major accident/disaster event.	Not identified as a potential major accident/ disaster event.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.	

17	16	Risk Record Entry Number
Industrial and urban accidents	Industrial and urban accidents	**MA&D Event Category**
Ground collapse	Spillage or longer term seepage of pollutants into ground/watercourse	**MA&D Event Type**
Route wide	Route wide	**Section of DCO Proposed Development**
Presence of unrecorded mine workings.	Loss of containment from a MAH pipeline.	**Hazard Description**
C, O, M	C	**Applicable Stages (Construction, Operation, Maintenance)***
Collapse of mine workings.	Damage to a third party MAH pipeline.	**Risk Description**
Historical mine workings.	Construction work associated with the CO_2 pipeline in close proximity to third party MAH pipelines.	**Hazard Sources and/or Pathways**
Ground Conditions Report. CDM Register. Mining Risk Assessment.	CDM register. Construction Phase H&S Plan. Pipeline operators safety report.	**Documentation in which the event is/will be addressed**
Death and/or injury to construction/maintenance workers.	Contamination of ground and/or water supply.	**Reasonable worst consequence if event did occur and receptor(s)**
		Air Quality
		Climate
X		**People and Communities**
X		**Biodiversity**
		Cultural Heritage
X		**Geology and Soils**
		Landscape and Visual
		Noise and Vibration
		Transport
		Material Resources
X		**Road Drainage and the Water Environment**
1) Seek clarification from pipeline owners of the presence and location of pipelines. 2) undertake appropriate levels of utility searches in accordance with BSI - PAS 128:2022. 3) The pipelines should have been designed and constructed in accordance with British Standard 8010 – Code of Practice for Pipelines (BS 8010) and the Pipelines Act 1962. 4) Close coordination and cooperation between all parties involved.	**Mitigation**
Y	**Could this constitute a major accident or disaster?**
Could cause permanent or long-lasting damage to environmental receptor(s) that cannot be restored through minor clean-up and restoration efforts.	**Justification**
Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**
Shallow coal mining related stability issues to be assessed and addressed in line with best practice guidance (CIRIA C758D Abandoned Mine Workings Manual) that is accepted by the Coal Authority.	
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.	

18	**Risk Record Entry Number**
Industrial and urban accidents	**MA&D Event Category**
Fire and/or explosion or release of harmful gas	**MA&D Event Type**
Route wide	**Section of DCO Proposed Development**
Loss of containment from Carbon Dioxide Pipeline.	**Hazard Description**
O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Large scale release of CO_2 resulting from a loss of containment event involving the CO2 pipeline.	**Risk Description**
Intrusive work by 3rd parties e.g. farmers, construction works.	**Hazard Sources and/or Pathways**
Dedicated studies undertaken to assess the likelihood and consequences of a large CO_2 release. HAZID studies during FEED and detailed design. Carbon Dioxide Pipeline Emergency Plan.	**Documentation in which the event is/will be addressed**
CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area.	**Reasonable worst consequence if event did occur and receptor(s)**
X	**Air Quality**
X	**Climate**
X	**People and Communities**
	Biodiversity
	Cultural Heritage
	Geology and Soils
	Landscape and Visual
	Noise and Vibration
	Transport
	Material Resources
	Road Drainage and the Water Environment
The Carbon Dioxide Pipeline system will be: - Fitted with a leak detection and emergency shut down system. - Buried below ground. - Provided with enhanced wall thickness at identified risk areas. - Provided with corrosion / cathodic protection systems (coating damage). - Operated, Maintained and Inspected (Piggable) to ensure continued integrity and in compliance with relevant codes, standards and regulations. - Provided with additional protection at key crossings e.g. motorways. - Provided with pipeline tape markers and pipeline surface markers.	**Mitigation**
Y	**Could this constitute a major accident or disaster?**
Could cause loss of life or permanent injury which requires ongoing disability support.	**Justification**
Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

20	19	Risk Record Entry Number
Pollution accidents	Industrial and urban accidents	**MA&D Event Category**
Land pollution accident	Ground collapse	**MA&D Event Type**
Hollywell Road (slurry tank)	Route wide	**Section of DCO Proposed Development**
Loss of containment from the slurry tank.	Presence of unrecorded mine/quarry workings.	**Hazard Description**
C	O, M	**Applicable Stages (Construction, Operation, Maintenance)***
Damage to the slurry tank.	Collapse of mine/quarry workings damaging the CO_2 pipeline or BVS resulting in a loss of containment event.	**Risk Description**
Construction work associated with the CO_2 pipeline in close proximity to the slurry tank.	Historical mine/mineral extraction workings	**Hazard Sources and/or Pathways**
CDM register Construction phase health and safety plan	Coal Mining Risk Assessment. Ground Conditions Report.	**Documentation in which the event is/will be addressed**
Contamination of ground and/or water supply	CO_2 toxicity and fogging hazard affects neighbouring property and/or those people in the immediate area.	**Reasonable worst consequence if event did occur and receptor(s)**
	X	**Air Quality**
	X	**Climate**
	X	**People and Communities**
		Biodiversity
		Cultural Heritage
X		**Geology and Soils**
		Landscape and Visual
		Noise and Vibration
		Transport
		Material Resources
X		**Road Drainage and the Water Environment**
1) Close coordination and cooperation between all parties involved. 2) Identification of potential risks in the CDM risk register with appropriate mitigation measures defined. 3) An exclusion zone will be designated around the slurry tank and an appropriate safety barrier/fence installed to prevent accidental damage to the tank during construction works. 4) Construction traffic management plan. 5) Construction phase emergency plan.	Shallow coal mining related stability issues to be assessed and addressed in line with best practice guidance (CIRIA C758D Abandoned Mine Workings Manual) that is accepted by the Coal Authority. Leak detection and emergency shutdown system installed on the CO_2 transmission system.	**Mitigation**
Y		**Could this constitute a major accident or disaster?**
Could cause permanent or long-lasting damage to environmental receptor(s) that cannot be restored through minor clean-up and restoration efforts.	Could cause loss of life or permanent injury which requires ongoing disability support.	**Justification**
Y		**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

22	21	Risk Record Entry Number
Industrial and urban accidents	Pollution accidents	**MA&D Event Category**
Fire	Water pollution accident	**MA&D Event Type**
Hollywell Road (slurry tank)	Hollywell Road (slurry tank)	**Section of DCO Proposed Development**
Damage during construction activities/decommissioning and/or removal of the slurry tank.	Loss of containment from the slurry tank.	**Hazard Description**
C	C	**Applicable Stages (Construction, Operation, Maintenance)***
Release of methane gas	Damage to the slurry tank.	**Risk Description**
Presence of methane gas in the slurry tank	Construction work associated with the CO_2 pipeline in close proximity to the slurry tank.	**Hazard Sources and/or Pathways**
CDM register. Construction Phase H&S Plan.	CDM register Construction phase health and safety plan	**Documentation in which the event is/will be addressed**
Fire and/or explosion affects neighbouring property and/or members of the public.	Contamination of Wepre Brook	**Reasonable worst consequence if event did occur and receptor(s)**
X		**Air Quality**
X		**Climate**
X		**People and Communities**
X	X	**Biodiversity**
		Cultural Heritage
X		**Geology and Soils**
		Landscape and Visual
		Noise and Vibration
		Transport
		Material Resources
X		**Road Drainage and the Water Environment**
1) Identification of potential risks in the CDM risk register with appropriate mitigation measures defined. 2) Implement a safe system of work (including risk assessment and method statement). 3) Construction phase emergency plan.	1) Close coordination and cooperation between all parties involved. 2) Identification of potential risks in the CDM risk register with appropriate mitigation measures defined. 3) An exclusion zone will be designated around the slurry tank and an appropriate safety barrier/fence installed to prevent accidental damage to the tank during construction works. 4) Construction traffic management plan. 5) Construction phase emergency plan.	**Mitigation**
Y	Y	**Could this constitute a major accident or disaster?**
Could cause loss of life or permanent injury to multiple members of the public; or significant structural property damage.	Could cause permanent or long-lasting damage to environmental receptor(s) that cannot be restored through minor clean-up and restoration efforts.	**Justification**
Y	Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

24	23	Risk Record Entry Number
Pollution accidents	Pollution accidents	**MA&D Event Category**
Water pollution accidents	Land pollution accidents	**MA&D Event Type**
Hollywell Road (slurry tank)	Hollywell Road (slurry tank)	**Section of DCO Proposed Development**
Loss of containment from the slurry tank during decommissioning.	Loss of containment from the slurry tank during decommissioning.	**Hazard Description**
C	C	**Applicable Stages (Construction, Operation, Maintenance)***
Release of slurry resulting from decommissioning/demolition of the slurry tank.	Release of slurry resulting from decommissioning/demolition of the slurry tank.	**Risk Description**
Presence of slurry in the tank.	Presence of slurry in the tank.	**Hazard Sources and/or Pathways**
CDM register. Construction Phase H&S Plan	CDM register. Construction Phase H&S Plan	**Documentation in which the event is/will be addressed**
Contamination of Wepre Brook	Contamination of ground and/or water supply	**Reasonable worst consequence if event did occur and receptor(s)**
		Air Quality
		Climate
		People and Communities
X		**Biodiversity**
		Cultural Heritage
X		**Geology and Soils**
		Landscape and Visual
		Noise and Vibration
		Transport
		Material Resources
X		**Road Drainage and the Water Environment**
Mitigation		
1) Identification of potential risks in the CDM risk register with appropriate mitigation measures defined. 2) Implement a safe system of work (including risk assessment and method statement). 3) Construction phase emergency plan.		
X	Y	**Could this constitute a major accident or disaster?**
1) Identification of potential risks in the CDM risk register with appropriate mitigation measures defined. 2) Implement a safe system of work (including risk assessment and method statement). 3) Construction phase emergency plan.	Could cause permanent or long-lasting damage to environmental receptor(s) that cannot be restored through minor clean-up and restoration efforts.	**Justification**
Y	Y	**Is this ALARP with existing mitigation?**
Considered to be ALARP if all mitigation measures outlined are correctly implemented.	Considered to be ALARP if all mitigation measures outlined are correctly implemented.	**Clarification**

Risk Record Entry Number	25
MA&D Event Category	Hydrology
MA&D Event Type	Water pollution accidents
Section of DCO Proposed Development	Wood Farm Centralised Compound and River Dee Centralised Compound
Hazard Description	Impact from construction activities within the floodplain.
Applicable Stages (Construction, Operation, Maintenance)*	C
Risk Description	Presence of Centralised Compounds in the floodplain of the Tidal River Dee
Hazard Sources and/or Pathways	Flooding.
Documentation in which the event is/will be addressed	CDM register. Flood Risk Assessment Emergency Plan. CEMP.
Reasonable worst consequence if event did occur and receptor(s)	Contamination of the River Dee.
Air Quality	
Climate	
People and Communities	
Biodiversity	X
Cultural Heritage	
Geology and Soils	X
Landscape and Visual	
Noise and Vibration	
Transport	
Material Resources	
Road Drainage and the Water Environment	X
Mitigation	The Centralised Compounds will be provided with hardstanding. Where possible, minimise volume and duration of stored materials within the active fluvial and tidal floodplain. Construction material would be controlled near watercourses. At trenched crossings of watercourses, there would be a control of flows to avoid an increase of flood risk. There would be temporary drainage solutions to control runoff and protect surface water drainage patterns. Liquid materials will be provided with secondary containment.
Could this constitute a major accident or disaster?	Y
Justification	Could cause permanent or long-lasting damage to environmental receptor(s) that cannot be restored through minor clean-up and restoration efforts.
Is this ALARP with existing mitigation?	Y
Clarification	Considered to be ALARP if all mitigation measures outlined are correctly implemented.

*Applicable Stages (C=Construction, O=Operational, M=Maintenance)