Cory Environmental Holdings Limited

CORY DECARBONISATION PROJECT

Preliminary Accident Prevention and Management Plan

APMP 001
AUGUST 2025

PUBLIC

Cory Environmental Holdings Limited

CORY DECARBONISATION PROJECT

Preliminary Accident Prevention and Management Plan

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. UK0042614.2444

OUR REF. NO. APMP 001

DATE: AUGUST 2025

WSP

8 First Street
Manchester
M15 4RP

Phone: +44 161 200 5000

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Original	First Draft	Second Draft	Final
Date	07/08/25	19/08/2025	25/08/2025	29/08/2025
Prepared by	Conor Lyons	Conor Lyons	Conor Lyons	Conor Lyons
Signature				Digitally signed by Lyons, Conor (GBCL133640) DN: cn=Lyons, Conor (GBCL133640), ou=Active, email=Conor.Lyons@wsp.com Date: 2025.09.29 13:24:47 +01'00'
Checked by	Matt Derbyshire	Matt Derbyshire	Matt Derbyshire	Matt Derbyshire
Signature				
Authorised by	Stuart Clayton	Stuart Clayton	Stuart Clayton	Stuart Clayton
Signature				
Report number	001	001	001	001
File reference	UK0042614.2444 Preliminary APMP	UK0042614.2444 Preliminary APMP	UK0042614.2444 Preliminary APMP	UK0042614.2444 Preliminary APMP

Environment Agency Version History

Version	Comment	Author	Date
V 0.1	Original	WSP	01/08/2025

CONTENTS

1 INTRODUCTION

Cory Environmental Holdings Limited (referred to throughout as 'Cory' or 'the Applicant') is applying to the Environment Agency (EA) under The Environmental Permitting (England and Wales) Regulations 2016 (Environmental Permitting Regulations) for an Environmental Permit (EP) to operate a Carbon Capture Facility (CCF), this preliminary Accident Prevention and Management Plan (APMP) (which will be part of the Environmental Management System (EMS)) has been written to support the environmental permit application.

1.1 PROJECT DESCRIPTION

The CCF will be constructed on land immediately adjacent to Cory's existing Riverside Resource Recovery Facility (Riverside 1) and the soon to be operational Riverside Energy Park (Riverside 2), within the London Borough of Bexley and would serve the operation of both Riverside 1 and Riverside 2.

The CCF will comprise the following:

- Carbon Capture Plant(s), each comprising:
  - Flue Gas Pre-Treatment;
  - Absorber Column(s) and Stack(s);
  - Back Pressure Turbine and Generator;
  - Solvent Regeneration System;
  - Rich Solvent/Lean Solvent Heat Exchanger; and
  - Solvent Storage.
- CO_2 Processing Plant, each comprising:
  - Compression;
  - Dehydration;
  - Liquefaction; and
  - CO_2 Vents.
- LCO_2 Buffer Storage Area comprising:
  - Temporary Storage; and
  - Boil Off Gas Processing.
- LCO_2 Pipelines;
- Flue gas Supply Ductwork;
- Supporting Plant, comprising:
  - Cooling System;
  - Chemical Storage and Distribution Handling Facilities; and
  - Effluent Treatment Plant.

- Amenities and other buildings, comprising:
    - Gatehouse;
    - Control Room;
    - Welfare Facilities; and
    - Stores and Workshop.

1.2 OBJECTIVE

This preliminary APMP provides the outline contingency plans in the event that an emergency event occurs onsite at the CCF.

This preliminary APMP serves as an initial framework detailing a series of emergency procedures that will form part of a comprehensive training package for operational personnel. Training is scheduled to begin around six months prior to operation commencing, ensuring thorough preparation in emergency preparedness and response.

This preliminary APMP is developed in line with the Riverside Campus's emergency management strategy. It is designed to complement the Accident Prevention and Management Plans (APMP) and procedures of Riverside 1 and Riverside 2 (once operational).

This preliminary APMP has been developed in line with the Outline Emergency Preparedness & Response Plan (Outline EPRP) developed pursuant to the Development Consent Order (DCO)[1] and incorporates key principles from the following guidance:

- Environment Agency Guidance: Develop a management system: environmental permits[2]
- Environment Agency Guidance: Fire prevention plans: environmental permits[3];
- Environment Agency Guidance: Prepare your business for flooding[4]; and
- Emergency Preparedness: Chapter 5 of Civil Contingencies Act Enhancement Programme[5].

This preliminary APMP serves as an initial framework for managing potential emergencies during the operation of the CCF and includes the procedures, actions and measures associated with the CCF that would be undertaken to prepare for and respond to:

- A flood event;
- A fire/explosion/hazardous gas incident;
- A contamination or pollution event; and
- A terrorism or other substantial threat to security (TOSTS) incident

[1] Outline Emergency Preparedness and Response Plan: 7.11
[2] Develop a management system: environmental permits - GOV.UK
[3] Fire prevention plans: environmental permits - GOV.UK
[4] Business flood plan checklists - GOV.UK
[5] Emergency_Preparedness_chapter5_amends_21112011.pdf

This preliminary APMP is intended to be dynamic and responsive, designed to be updated and expanded as new information arises, throughout the design and construction phases.

This preliminary APMP is structured with the foresight to accommodate evolving CCF needs and to ensure comprehensive emergency management strategies are in place.

This document is to be used along with the CCF Environmental Risk Assessment (ERA), which is included in Appendix B of the Environmental Permit Application: Technical Supporting Document. The ERA aims to:

a. Identify potential risks that the proposed activities may present to the environment;
b. Screen out those that are insignificant and do not require detailed assessment;
c. Identify potentially significant risk, where appropriate;
d. Choose the right control measures, where appropriate; and
e. Report the findings of the assessment.

The ERA has been developed to consider the requirements of the Environment Agency web guidance Risk assessments for your environmental permit - GOV.UK.

1.3 EMERGENCY CONTACTS

Prior to commissioning of the CCF, a full list of emergency contacts will be made available and included in the full APMP. This will include the Plant/Site Manager, as well as Cory's Head Office. As the CCF is currently in the design stage, personnel cannot be attributed to roles, therefore we have identified responsibilities according to role profile.

1.4 CONTACT INFORMATION FOR THE PUBLIC

A notice board will be clearly displayed at or near the CCF entrance informing the public about the Site. This will include:

- The permit holders name (Cory Environmental Holdings Limited);
- Emergency contact information including a contact's name and phone number;
- A statement that the site is permitted by the EA;
- The permit number; and
- Environment Agency telephone number (03708 506506) and the incident hotline (0800 807060) or any other numbers that the EA subsequently request in writing.

Contact information is also available online at: https://corydecarbonisation.co.uk/get-in-touch/.

1.5 SUBSTANCES STORED ON SITE

The following substances will be stored on site:

- Amine Solvent

- Sodium Hydroxide (20wt%[6])
- Anti-foam
- Ammonia/Propane Refrigerant
- Diesel
- Citric Acid
- Nitrogen
- Sodium Bisulphate
- Sulphuric Acid
- Sodium Hypochlorite
- Antiscalent
- Molecular Sieve
- Silica Gel
- Activated Carbon
- Carbon Dioxide (liquified) (LCO_2)
- Reclaimer Waste
- Sludge Arising from the Effluent Treatment Plant
- Amine contaminated wastewater
- Lubricant Oils
- Desiccant Wastes from Dehydration
- General Wastes and Recyclable Materials
- Small Scale Cleaning and Maintenance Substances

[6] A solution where 20% of the total weight of the solution is comprised of sodium.

2 EMERGENCY PREPAREDNESS

2.1 ACCESS TO THE FULL APMP

Once operational, the following documentation and processes will be maintained and made readily accessible to ensure swift and effective response in case of emergencies:

- Health and safety documentation, such as material data sheets, related to chemicals and materials stored on Site;
- Manufacturer instructions and information for emergency equipment and other equipment essential for implementing emergency preparedness and response;
- Emergency plans and procedures of the other Riverside Campus facilities, ensuring a consistent implementation framework and coherent communication across all facilities;
- Emergency routes will be developed, signed and planned along with muster points;
- Location of emergency alarm points will be communicated, planned, installed and tested as per design requirements and manufacturer's instructions;
- Site personnel and visitor registers; and
- Site layout plans indicating the location of hazardous areas.

It is proposed that this documentation will be readily available to all operational personnel in the Control Room and Gatehouse. The full APMP will be prepared prior to the commencement of commissioning in substantial accordance with this document and will be an integral component to the EMS for the CCF.

2.2 PERSONNEL TRAINING AND SITE INDUCTION

Personnel induction programmes will be tailored to specific job roles and locations, encompassing training on the CCF's management system procedures, including emergency and response procedures.

In addition, all visitors, and any Contractor(s), will receive comprehensive information and training on emergency and response procedures as part of site induction.

2.3 ENGAGEMENT WITH EMERGENCY SERVICES

Critical information, including the full APMP, key contact numbers, and details on emergency control features (e.g. the location of shut-off valves, hydrants etc.), will be shared with local emergency services.

2.4 EMERGENCY MANAGEMENT SYSTEM

A robust emergency management system will be developed, focusing on risks specific to the CCF, such as CO_2 and LCO_2 handling and storage.

The system will feature detailed emergency procedures, risk assessments, and response strategies tailored to address potential scenarios applicable to the CCF operations.

2.5 HAZARDOUS MATERIALS MANAGEMENT

2.5.1 RISK ASSESSMENT AND MITIGATION

Robust measures will be implemented to mitigate the risk of environmental contamination, and the risk of pollution has been assessed as part of the ERA.

2.5.2 WASTE MANAGEMENT MEASURES

Waste management has been assessed as part of the early design of the CCF. A comprehensive Wastes and Residues Management Plan will be developed for the CCF, aiming to minimise waste generation, optimise onsite waste storage, and facilitate efficient transfer to offsite specialised treatment facilities.

2.5.3 WATER QUALITY AND CONTAINMENT RELEASE PREVENTION STRATEGIES

2.5.3.1 Spill/Leak Management

Procedures will be established to promptly address spills and leaks of chemicals, including measures to prevent leakage from Site vehicles and vessels. This protocol will encompass immediate response actions and long-term mitigation strategies. Specific consideration will be given to potential contamination events in the River Thames during the operation of the CCF.

The risk of spills/leaks has been assessed as part of the ERA and is considered Not Significant due to:

- appropriate design standards being be followed;
- regular maintenance and monitoring of storage vessels and associated infrastructure; and
- staff will have a high level of training and competency.

Refuelling and maintenance for vessels and Site machinery will be confined to designated areas with impermeable surfaces and advanced drainage systems, designed to prevent any chemical escape and / or runoff.

Drip trays will be strategically placed under leak-prone equipment like generators and diesel pumps, with spill kits available across the Site and on vessels, ensuring rapid response capabilities for spill incidents.

Hydrocarbon interceptors are installed in high-risk areas, such as parking, unloading, and refuelling zones, to filter out oils from surface water runoff.

To further mitigate the risk of accidental fuel leaks, a stringent schedule of regular inspections and maintenance for vessels will be implemented. The focus will be on fuel systems and storage areas to ensure integrity and leak prevention.

2.5.3.2 Chemicals Risk Assessment

COSHH (Control of Substances Hazardous to Health) and material data sheets will be systematically maintained and stored in locations where the materials or substances are stored, handled, or distributed, ensuring any person exposed to the hazardous substance can quickly and easy access the vital safety information. Additional measures such as training and work procedures

will be developed prior to the operational phase, to ensure hazardous substances are adequately controlled and in compliance with the COSHH Regulations 2002[7].

2.5.3.3 Site Infrastructure, Drainage and Bunding

As part of the design of the CCF, new drainage networks and essential services, aligning with environmental and regulatory requirements will be installed. These will be refined as part of the detailed design.

This strategy is integral to the CCF's commitment to preventing release of chemicals into the environment. Areas with the highest risk of pollution to the environment will be contained by means of bunding in accordance with the Guidance for Pollution Prevention (GPP)[8] documents (where the surface water within these areas is only released once testing has proven it is suitable for discharge). An isolation system (with monitoring) would be applied to all attenuation tanks preventing any inappropriate discharge into the surface water drainage network.

The risk of flooding has been assessed as part of the ERA, and the risk of flooding from the River Thames is considered to be Not Significant. As part of the detailed design, drainage will be further considered to ensure that the proposed surface water drainage system is not affected by fluvial flooding and that it is designed to work independently from the fluvial flood compensation storage areas that are developed.

2.6 SITE SECURITY

2.6.1 PREVENTING ARSON OR VANDALISM

Cory will implement lighting that follows relevant legislation and guidance requirements, aiming to balance minimising light intrusions, sky glow and glare, while enhancing security measures against potential arson attacks or vandalism.

In order to ensure a secure site boundary and prevent trespassing, arson and vandalism, the CCF will also implement security measures as appropriate. These measures will include closed-circuit television (CCTV) systems and secure fencing.

2.7 EMERGENCY RESPONSE TEAM

2.7.1 EMERGENCY RESPONSE TEAM (ERT) STRUCTURE AND ALIGNMENT

The full APMP will be aligned to the Riverside 1 and Riverside 2 (once operational) APMPs, ensuring consistent management across all facilities. The ERT is anticipated to mirror Riverside 1's organisational framework, with the same roles and titles in the ERT.

The names and contact details of personnel appointed to designated roles within the ERT will be included in the full APMP.

[7] The Control of Substances Hazardous to Health Regulations 2002
[8] Guidance for Pollution Prevention (GPP) documents | NetRegs | Environmental guidance for your business in Northern Ireland & Scotland

Comprehensive responsibilities and specific duties of the ERT will be thoroughly outlined in the full APMP, tailored to the risks and emergency protocols of the CCF.

Additional duties of the ERT, especially those pertinent to distinct emergency incidents such as fires, will be detailed in respective emergency documentation developed by the Applicant, including a Fire Evacuation Plan.

3 ROLES AND RESPONSIBILITIES

3.1 SITE/PLANT MANAGER

The Site/Plant manager will have overall responsibility for the entire plant and compliance with the operating permit. They must be fully conversant with all compliance obligations and make sure that all services are completed as required, as per the integrated Management System. Meeting these requirements may be undertaken by the Site/Plant Manager themselves or delegated to other employees or support functions. The site manager will have extensive experience relevant to their responsibilities. The Site/Plant Manager will have ultimate authority and oversight of the implementation of the final and approved full APMP and related procedures.

3.2 DEPUTY MANAGER

In the event the Site/Plant Manager is unavailable, responsibility will pass to the Operations/Shift Manager. If the Operations/Shift Manager is also absent, the Engineering or Maintenance Manager will assume the Deputy Manager role. The Deputy Manager, when acting in place of the Plant Manager, will be responsible for the overall control and management of the Site, including implementing emergency response procedures. Additionally, the Deputy Manager will be tasked with organising, recording, and evaluating training drills and sessions to effectively prepare for and manage foreseeable emergency incidents.

3.3 INCIDENT CONTROLLER

Typically, an appointment and experienced Shift Team Leader, this person coordinates the actions of personnel during an incident. Their focus includes:

- Ensuring the safety of operational personnel;
- Minimising environmental pollution release; and
- Maintaining plant safety within the Site.

3.4 OTHER SHIFT TEAM LEADERS

Other Shift Team Leaders play a crucial role in maintaining effective communication, especially with personnel engaged in lone working, and in supporting the Incident Controller during emergencies. Their responsibilities include:

- Assisting in the implementation of emergency procedures; and
- Reporting and manging incident responses in the Control Room.

3.5 EHS MANAGER

The Environmental Health and Safety manager would be responsible for the development and management of the EMS, for the monitoring of authorised releases and for interaction with the EA.

3.6 MAINTENANCE MANAGER

The Maintenance Manager would be responsible for the management of maintenance activities, for maintenance planning and for ensuring that the CCF continues to operate in accordance with its design.

3.7 FIRE SAFETY MANAGER

The Fire Safety Manager is responsible specifically on fire risks and preventing fire occurrences and maintaining a fire-safe environment. This role involves regularly reviewing fire safety measures and fire response procedures, which will be set out as part of the full APMP.

3.8 PROCESS ENGINEER

A designated individual knowledgeable in COSHH and other health, safety, and environmental matters. They assist in determining responses to hazardous material incidents, including fire, explosion, chemical, biological, or radiological events.

3.9 SHIFT OPERATIONS PERSONNEL

Shift operations personnel are responsible for immediate reporting of potential emergency situations to the Control Room. Operations personnel shall play key role in initiating the emergency response.

3.10 ALL PERSONNEL (EMPLOYEES AND CONTRACT STAFF)

It is the duty of every individual working at the CCF to report incidents that could lead to an emergency to the Control Room.

4 INITIAL EMERGENCY ACTIONS

4.1 EVACUATION STRATEGY DETERMINATION

In the event of an emergency, the Incident Controller will promptly establish the safest and most effective evacuation strategy, taking into account the specific nature of the emergency, the hazard's location, personnel distribution, and the accessibility of escape routes and muster points. The strategy, including designated evacuation paths and assembly areas, will be rapidly communicated to all Site personnel through established communication channels.

4.2 GUIDANCE DOCUMENTS

The Incident Controller will use developed ‘Incident Control Action Sheets’ as primary guides for various emergency scenarios specific to the CCF. These Action Sheets will offer step-by-step response procedures tailored to the unique risks associated with the facility. Their format and design will align with the existing site management systems, procedures and documents employed at Riverside 1, which is regulated under EPR/BK0825IU by the Environment Agency.

4.3 VISIBILITY AND ACCESSIBILITY

To ensure easy identification, the Incident Controller will wear a marked high-visibility vest and stay accessible for emergency services.

4.4 EMERGENCY SERVICES COMMUNICATION

Sole authority to contact emergency services is vested in the Incident Controller to prevent call duplication.

4.5 ALARM RESPONSE

Upon fire alarm activation, the Incident Controller ensures prompt opening of all vehicle gates.

4.6 INTER-FACILITY COORDINATION

Coordination with Riverside 1 and 2 regarding any evacuation or impact is managed by the Incident Controller.

4.7 HANDLING FALSE ALARMS

The Incident Controller is responsible for managing false alarm procedures and ensuring completion of evacuation protocols.

4.8 DAMAGE CONTAINMENT

Actions to minimise damage to infrastructure, equipment and then environment are undertaken, adhering to operational procedures and strict Personal Protective Equipment (PPE) usage.

4.9 DECISION-MAKING COMMUNICATION

The Plant Manager or nominated deputy is informed for decision-making and crisis communication.

4.10 INCIDENT RECORDING

Detailed recording of each incident is a responsibility of the Incident Controller.

4.11 ALL PERSONNEL AND VISITOR ACTIONS

4.11.1 EVACUATION PROCEDURE

In the case of an emergency, all staff members, encompassing administrative, maintenance, and other personnel, must promptly evacuate using the nearest emergency exit and proceed directly to the assigned muster point. All staff must adhere to the directives issued by the Incident Controller through the designated communication channels.

4.11.2 VISITOR SAFETY

Visitors will be escorted to the exit and muster point by their sponsors or guides.

4.11.3 ALTERNATIVE SAFETY MEASURES:

In specific emergencies (e.g. chemical spillage), alternative safety measures like sheltering in place may be implemented.

5 FIRE/EXPLOSION/HAZARDOUS GAS INCIDENT

5.1 FIRE/EXPLOSION/HAZARDOUS GAS INCIDENT RISK ASSESSMENT

The ERA assesses fire risk as Not Significant. Fire and explosion risks for the CCF are associated with the operational plant, processes and infrastructure. These include:

- Handling and storage of amine-based solvents and carbon capture processes;
- Risks of unconfined vapor explosions leading to structural damage and potential injuries;
- Potential for significant environmental damage from major fires, driven by airborne combustion products; and
- Large-scale release of CO_2 from various sources, posing toxicity, asphyxiation and fogging hazards.

5.1.1 RISKS ASSOCIATED WITH HANDLING LARGE QUANTITIES OF CO2

Handling large quantities of CO_2 requires careful management to prevent adverse effects on human health and the environment. If CO_2 leaks, this can contaminate the soil and water sources, which can result in the acidification of water bodies or disrupt marine life, this has been addressed as part of the ERA and the preventative measures are outlined below in Section 5.2.8, as well as in the ERA. The Health and Safety Executive[9] recognise that CO_2 is a significant hazard in high concentrations. At room temperature and atmospheric pressure CO_2 is a colourless and odourless gas and, because of this, people are unable to see it or smell it at elevated concentrations. As the concentration of CO_2 in air rises it can cause headaches, dizziness, confusion and loss of consciousness. Since CO_2 is heavier than air, fatalities from asphyxiation have occurred when, at high concentrations, it has entered confined spaces such as tanks, sumps or cellars and displaced oxygen. It is also possible for CO_2 to accumulate in trenches or depressions outside following leaks and this is more likely to occur following a pressurised release where the released CO_2 is colder than the surrounding air.

The risks associated with CO_2 have been assessed by the ERA and are considered not significant, and will be further assessed as part of Stage 3 of this staged application which will include CO_2 venting assessment. It is proposed that a venting management plan will be written for the site through the setting of a pre-operational condition which will be presented and considered as part of Stage 3 of this staged application.

[9] General hazards of Carbon Dioxide - HSE

5.2 PREVENTION AND MITIGATION FOR FIRE/EXPLOSION/HAZARDOUS GAS INCIDENTS

5.2.1 MANAGING COMMON CAUSES OF FIRE

5.2.1.1 Heat and Spark Prevention Design

A comprehensive review in line with the Dangerous Substances and Explosive Atmospheres Regulations[10] would be completed during the detailed design phase of the CCF and documented in the final APMP, which will be developed following detailed design of the CCF. This review will identify potential risk areas, which will be clearly marked on plans that will be included in the full APMP.

5.2.1.2 Operational Procedures

The development of the APMP will include appropriate measures to reduce the risk of fire throughout the CCF.

The EMS will include Maintenance procedures that include defined responsibilities for maintaining records of all maintenance activities and any actions taken in response to issues encountered.

5.2.2 SITE INSPECTIONS AND MAINTENANCE CHECKS

Regular inspections will be performed covering all operational areas as part of the standard operating procedures. Inspection records will be kept in the Control Room, with a minimum requirement of inspection main operational areas each operating shift and issuing maintenance work instructions for any concerns identified.

5.2.2.1 Ignition Sources

Regular safety inspections will be conducted on vehicles and electrical equipment to identify and rectify any electrical faults. Fire extinguishers and dust filters will be standard equipment on all mobile plant to enhance fire safety measures.

5.2.2.2 Hot Exhausts and Engine Parts

Personnel will be trained to inspect plant and machinery for potential fire hazards, such as the accumulation of dust on hot engine parts, with a particular focus on exhausts.

Plant and equipment will be checked for cleanliness and proper functioning at the start and end of each shift to mitigate the risk of fire.

5.2.3 NO SMOKING POLICY

A no smoking policy will be adopted and implemented throughout the CCF.

[10] The Dangerous Substances and Explosive Atmospheres Regulations 2002

5.2.4 ELECTRICAL SAFETY AND MAINTENANCE

5.2.4.1 Electrical Safety and Compliance

All electrical systems will be designed, installed, and maintained in accordance with the relevant British Standards to mitigate risks of electrical faults. Only certified electricians will be involved in these processes, incorporating additional safety measures such as supplementary bonding/earthing where necessary.

5.2.4.2 Certification and Oversight of Electrical Installations

Professional certification of all electrical installations will be ensured by qualified individuals or bodies, confirming compliance with safety and operational standards.

5.2.4.3 Preventative Maintenance and Equipment Checks

A comprehensive maintenance and testing programme will be implemented for all electrical equipment, including routine inspections and Portable Appliance Testing, to prevent electrical faults and reduce fire risks. This will be incorporated into the EMS and be undertaken in accordance with the relevant UK legislation.

5.2.5 GAS BOTTLES AND OTHER FLAMMABLE ITEM STORAGE

Any gas cylinders will be stored in facilities specifically designed for the inventory, incorporating appropriate separation distances from other stored materials and process plant, traffic routes and occupied buildings, and adequate ventilation and impervious surfaces, as per regulatory requirements.

Any facilities used for the storage of gas cylinders would be kept locked/secured. The location of gas cylinder storage and other flammable items would be subject to detailed design.

A plan showing the location of gas storage facilities would be included in the full APMP.

A system for the regular inspection of gas storage facilities would be developed as part of the operating and maintenance procedures and the Site inspection regime.

5.2.6 WASTE AND FACILITY MANAGEMENT

A key development of the CCF will be robust and integrated waste disposal and housekeeping strategies to minimise fire risks. The strategies are designed to ensure efficient management of operational waste, aligning with environmental requirements, while proactively addressing fire hazards associated with waste accumulation and treatment at the Site.

5.2.6.1 Hot and Dry Weather Monitoring

In response to increased fire risks during hot weather, all loose waste will be securely stored within the main building to prevent overheating. Additional inspections and monitoring will be implemented during these periods to ensure safety.

5.2.6.2 Operational Waste Generation and Management

The CCF will produce operational waste, including reclaimer waste, desiccants, recyclable materials, and general waste, with management practices designed to have minimal impact on local waste infrastructure.

The waste production is projected to minimally impact local waste systems, with ongoing monitoring and adaptive management as key operational practices.

The Waste and Residues Management Plan (referred to as the Operational Waste Management Plan in the Environmental Statement) will adhere to the Waste Hierarchy where practicable and follow any protocol set out in the EMS.

5.2.6.3 Sustainable Waste Practices

Sustainable practices will be adopted, including maximising recycled content in procurement and minimising surplus, to reduce waste-associated fire risks. Supplier takeback schemes will be promoted.

5.2.6.4 Waste Recovery and Disposal

Most waste will be treated offsite for reuse, reducing on-site risks, such as fire, from waste accumulation.

Hazardous waste such as reclaimer waste, will be handled with specialised procedures to ensure safe transport to designated treatment facilities, mitigating fire and environmental risks.

5.2.7 EFFLUENT TREATMENT AND CCF MANAGEMENT

Effluent treatment processes will involve neutralisation and recycling methods.

The CCF will manage small amounts of reclaimer waste, with temporary onsite storage and subsequent environmentally compliant offsite disposal.

5.2.7.1 Waste Monitoring

Regular monitoring of operational waste tonnages will inform strategies for waste reduction and fire risk minimisation.

A comprehensive Waste and Residues Management Plan will address all aspects of waste handling, including reuse, recycling, disposal, and associated fire risks.

5.2.7.2 Preventing Build-up of Loose Combustible Waste, Dust and Fluff

The design of the CCF will incorporate systems to minimise dust accumulation formation, focusing on areas like the Flue Gas Pre-Treatment area, Absorber Column(s), Solvent Regeneration System, and CO_2 Vents.

Measures such as enclosed processing areas with air extraction and filtration systems, will be implemented to control dust and fluff, particularly in the Solvent Storage and LCO_2 Buffer Storage Area.

Regular maintenance checks, as outlined in the operating manuals, will ensure the efficiency of dust control systems.

Routine inspections will be conducted across the CCF. Any identified build-up of combustible waste, dust, or fluff will be promptly addressed through cleaning, particularly around hot surfaces and in areas prone to dust accumulation.

The risk of fugitive emissions from dust has been assessed as part of the ERA and is considered to be Not Significant.

An Emissions Management Plan for dust is not considered necessary, as the CCF is not associated with any processes that may produce fugitive dust emissions.

5.2.8 DETECTION SYSTEMS

The specific fire detection systems, including smoke, heat, flame, and gas detectors (CO_2), will be selected during the detailed design phase of the CCF. As part of the EMS, the APMP will be further reviewed and developed following completion of the detailed design. These systems will align with the diverse requirements of different areas within the facility, ensuring comprehensive coverage and quick response capabilities.

All fire detection systems will adhere to stringent certification standards, overseen by UKAS-accredited third-party certification scheme, ensuring their reliability and effectiveness in detecting potential fire emergencies.

The CCF will incorporate an automatic fire/gas detection system, segmented into zones for precise location identification. Each zone will have dedicated circuits for detectors and manual call points, connected to a central control panel, likely in the Control Room.

Regular maintenance and testing of these systems will be conducted in compliance with relevant British Standards, such as BS 5839-1:2017[11].

Fire/gas detection arrangements will be formulated in consultation with fire risk insurers and the local fire service, ensuring that the systems meet or exceed all required safety standards.

A plan showing the chosen fire detection systems for the different areas of the CCF, depending on the suitability of each detection type for each process area, would be included in the full APMP.

Suitable automated control systems will be installed to provide early detection systems and alarms for warning of CO_2 release. This will allow personnel to move to a safe location and distance to avoid harm. Cory will implement continuous monitoring of pressure and flow across the CCF to detect potential leak. Upon detection of a leak, the above ground pipelines will be shutdown and isolated to minimise the volume of CO_2 volume being released.

5.2.9 EMBEDDED DESIGN, MITIGATION AND ENHANCEMENT MEASURES

Cory has committed to embed design, mitigation and enhancement measures to the CCF. These measures will include:

- Programme of hazard studies of the CCF to produce an inherently safe design and to ensure residual risks are managed to ALARP;
- Environmental, Health and Safety Management Systems;
- CDM Health and Safety Plan;
- Supplier management environmental, health & safety standards (e.g. Construction Skills Certification Scheme);

[11] British Standards Institution. (2017). 'BS 5839-1:2017 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises'.

- Risk management systems.

5.3 CONTAINMENT OF FIRE, EXPLOSIONS AND HAZARDOUS GAS

5.3.1 SEPARATION DISTANCES

5.3.1.1 Plant and Equipment

There will be adequate spacing between buildings and storage areas to prevent fire spreading.

Any waste will be stored with a separation distance of at least 6m away from any plant and equipment that could act as a potential ignition source.

Incompatible substances will be stored separately to prevent accidental fires or explosions due to chemical interactions.

Additionally, buffer zones will be established around critical infrastructures such as gas storage and electrical units, to further reduce the risk of fire escalation.

5.3.1.2 Public Rights of Way

Appropriate clearance will be created between the public right of way and the LCO_2 Buffer Storage Area through the footpath diversion authorised through the DCO. This diversion route will be agreed with London Borough of Bexley Council.

5.3.2 FIRE WALLS, WINDOWS AND BARRIERS

Fire-rated doors, barriers, and windows will be integral to the CCF design, and installed in accordance with Building Regulations. These fire-resistant features will be strategically placed to contain fires within designated compartments, thereby preventing spread across the CCF.

The specifications of fire walls, doors, windows, and related materials will be determined during the detailed design phase and documented in an APMP, which will be developed following completion of the detailed design. This process will involve assessments of material suitability and risk evaluations specific to each area of the CCF, ensuring optimal fire protection and containment.

5.3.3 EMERGENCY VENTILATION SHUTDOWN

Automated systems will be in place for immediate ventilation shutdown in case of fire or inadvertent gas release, aiding in the containment of fire, smoke, or harmful gases.

Critical areas like control rooms will be equipped with positive air pressure systems, designed to prevent the entry of smoke or toxic gases.

5.4 EMERGENCY RESPONSE FOR FIRE, EXPLOSIONS AND HAZARDOUS GAS INCIDENTS

5.4.1 FIREFIGHTING TECHNIQUES

The CCF will incorporate a range of firefighting techniques to effectively control and extinguish fires.

The selection of specific firefighting methods, including early detection systems, automatic sprinklers, manual deluge systems, and fire cannons, will be finalised during the detailed design phase and incorporated in the APMP.

The final selection and detailed specifications of these systems will be presented in the full APMP, ensuring a clear and actionable framework is set out for the operation phase.

An active firefighting strategy will be in place as part of the full APMP, prioritising safety and minimising risks. The strategy will involve immediate engagement in fire suppression activities upon detection.

5.4.2 FIREFIGHTING RESOURCES AND EQUIPMENT

Key firefighting resources to be provided include:

- mobile plant equipment, designated for moving waste and managing Site conditions during a fire;
- fixed firewater hose reels and manual alarm activation points, accessible to trained Site operatives;
- a consistent and reliable water supply dedicated to firefighting needs; and
- adequate financial backing to support the infrastructure necessary for effective firefighting and emergency response.

5.4.3 MANUAL FIRE SUPPRESSION

Portable fire extinguishers, tested and inspected regularly, will be accessible throughout the CCF.

Hose reels connected to a fire hydrant system, including dry risers, will be strategically placed, particularly near higher-risk areas such as waste storage.

The exact locations of fire extinguishers and hose reels will be determined based on risk assessments during detailed design, in consultation with insurers and the local fire service.

5.4.4 AUTOMATIC FIRE SUPPRESSION

During the detailed design phase of the CCF, an automatic fire suppression system will be specified, with decisions made in consultation with fire safety experts, insurance advisors, and relevant authorities to ensure the most effective and compliant solution. The final specifications will be detailed and finalised for inclusion in the full APMP.

The system will be customised for high-risk areas such as the CCF, with a focus on addressing the specific fire hazards present in chemical processing and storage areas.

The system will integrate quick-response features with the fire alarm system, ensuring immediate activation and coordinated response during fire incidents. Details of the system's operation and response protocols will be finalised and presented in the full APMP.

5.4.5 CONTINGENCY

If the CCF is not able to undertake the carbon capture process due to an unplanned incident or outage forcing a full shutdown, the flue gas would be diverted to Riverside 1 and Riverside 2 for emission through the existing stacks.

If there was a significant fire requiring a full shut-down of the CCF, the facility would not restart operations until the relevant regulatory authorities (Fire Service, Health and Safety Executive, EA, etc.) as well as the fire insurers, advised that it was safe to do so.

5.4.6 FIRE EVACUATION PLAN

A detailed Fire Evacuation Plan will be developed for the CCF before the completion of the construction phase. This plan will be based on a comprehensive Fire Risk Assessment of the Site, aligned with the full APMP and tailored to address specific risks associated with fire, explosion, and hazardous gas release.

The development process will involve consultations with fire safety specialists, ensuring that the plan meets applicable regulatory and industry standards and is effective in managing fire-related emergencies.

The Fire Evacuation Plan for the CCF will be developed based on the Site's Fire Risk Assessment, with evacuation routes and muster points strategically chosen based on fire/explosion/hazardous gas release risks and impacts throughout the Site.

Multiple muster points will be established with alternative options to accommodate different emergency situations. These points will be strategically chosen based on risk assessments of potential fire impacts.

Designated fire wardens within the ERT will be responsible for guiding personnel during evacuations and ensuring all personnel are accounted for at muster points.

The plan will include regular training and drills to ensure all personnel are familiar with the fire evacuation procedures and the use of fire-fighting equipment.

The Fire Evacuation Plan will be continuously reviewed and updated to reflect any changes in the facility's layout, processes, or risk profile, maintaining its effectiveness and relevance.

6 FLOOD EMERGENCY

6.1 FLOOD PREPARATION AND PLANNING

6.1.1 FLOOD RISK ASSESSMENT

The EA's Flood Map for Planning shows that the area of the CCF is located within Flood Zone 3, with areas designated as Functional Floodplain (Flood Zone 3b). The EA has confirmed that the CCF and its surroundings are protected up to the present day 1 in 1,000-year event by the flood defences located along the banks of the River Thames. The flood defences will also be maintained by riparian landowners to keep pace with Climate Change and therefore maintain the standard of protection as flood levels rise in the River Thames.

There is however residual risk associated with a breach of the River Thames Flood Defences. A breach of the existing flood defences is considered unlikely to happen as they are regularly inspected by the EA. The risk of flooding is further considered in the ERA. In addition, the detailed design of the CCF will consider additional measures to ensure that the risk from flooding to the CCF has been reduced as far as reasonably practicable.

6.1.2 FLOOD WARNING

6.1.2.1 Flood Trigger Levels

Three trigger levels shall be established for a potential flood event at the Site. These levels are consistent with the EA's Guidance "Flood alerts and warning: What they are and what to do"[12] The three trigger levels, each indicating increasing severity and requiring specific responses, are detailed below:

- Flood alert – flooding is possible.
- Flood warning – flooding is expected.
- Severe flood warning – flooding could be a risk to life and significant disruption to communities.

6.1.2.2 Flood Warning and Response Assessment

The EA will issue flood warnings with lead times tailored to the Site's location, based on the most current hydrological data and predictive models.

Once the CCF is operational, these lead times will be refined and provided in real-time with flood warning notifications.

6.1.2.3 Flood Forecasting

The CCF will have systems in place to receive and act upon these warnings promptly, ensuring maximum preparedness for any flood events.

[12] Flood alerts and warnings: what they are and what to do - GOV.UK

The CCF will register online with the EA[13] to receive flood warnings for the Site, ensuring prompt alerts through phone, email, or text when flooding is anticipated.

A designated member of the ERT will be on-call at all times, responsible for carrying the Emergency Phone and acting as the primary recipient for flood warnings issued by the EA.

6.1.2.4 Environmental Management System and Emergency Planning

The EMS will integrate key elements of flood preparedness. Regular briefings for the Emergency Response Team will ensure readiness for flood events.

6.1.2.5 Stakeholder Communication and Coordination

A register of key stakeholders, including nearby facilities like the Great Breach Pumping Station, will be maintained for effective communication and collaboration during flood events.

6.1.2.6 Liaison with Local Authorities and Emergency Services

Effective communication and coordination with local authorities and emergency services will be detailed in the full APMP.

Emergency contacts for the CCF will be displayed in prominent locations at the CCF.

Protocols, extending from the existing systems at the Riverside Campus, will be established for sharing information, resources, and support with these entities. This collaboration shall ensure a unified response to flood events, leveraging the expertise and resources of multiple agencies for an efficient and effective response.

6.1.2.7 Evacuation Procedures and Routes

Evacuation procedures and routes for the CCF will be developed based on the layout of the Site and its proximity to flood risk areas. These procedures will include designated evacuation routes, safe assembly points, and protocols for a safe and orderly evacuation.

Clear signage and access to evacuation maps will be maintained at all times, and evacuation routes will be kept unobstructed to facilitate quick egress in the event of a flood.

6.1.2.8 Training and Drills

Flood response training and emergency procedures will extend from the existing protocols at the Riverside 1 and Riverside 2, ensuring consistency and effectiveness across all operations at the Riverside Campus.

Regular drills will simulate various flood scenarios, ensuring that evacuation procedures and flood response actions are effective.

6.1.2.9 Safe Refuge

The CCF will include designated safe refuge areas that are strategically located at higher elevations within the Site or at secured offsite locations. The full APMP will detail these locations, along with

[13] Sign up for flood warnings - GOV.UK

information on signage, evacuation plans, and other relevant safety measures to ensure that all personnel are well-informed and prepared for emergency situations, with clear guidance on accessing safe refuge.

These areas will be equipped with necessary supplies, emergency kits, and communication tools to ensure the safety and wellbeing of all personnel during a flood event.

The safe refuge areas will be evaluated for their accessibility and capacity to accommodate all personnel, with considerations for any necessary special accommodations. Regular assessments will be conducted to ensure these refuges remain suitable and well-equipped for emergency situations.

6.1.2.10 Drainage and Pollution Control

The operational Site will implement a comprehensive surface water drainage system, specifically designed to manage runoff efficiently and mitigate flood risks. This system is aligned with the strategic approach to handle the increased rainfall intensity and the potential rise in water levels associated with the River Thames, ensuring resilience against climate change impacts.

To safeguard the River Thames and adjacent watercourses from contamination, silt control measures will be rigorously applied, especially during periods of heavy rainfall. These measures are essential to prevent sediment and other contaminants from entering the Thames, thus protecting its water quality and biodiversity.

Strict guidelines will be followed for chemical storage, ensuring all chemicals are securely contained and stored at a safe distance from any drainage connections and/or ditches to prevent environmental contamination. Storage areas will be strategically placed at a safe distance from any drainage routes to prevent any risk of environmental contamination.

A dedicated programme for the regular inspection and maintenance of drainage systems will be established to ensure they remain clear of blockages and function effectively. Regular monitoring and upkeep of the drainage infrastructure will play a critical role in maintaining environmental safety and compliance, ensuring that the system's design accommodates the unique hydrological dynamics of the Thames region and the impacts of climate change on expected flood profiles.

6.2 FLOOD EMERGENCY RESPONSE

6.2.1 FLOOD TRIGGERED ACTION RESPONSE PLAN

6.2.1.1 Level 1 – Flood Alert

Trigger and Timing: Issued by the EA when flooding is possible, typically between 2 hours to 2 days in advance.

Plant Manager's Role

- Begins tracking weather information frequently.
- Monitors drainage ditches and river levels and conducts inspections of low-lying areas.
- Ensures waste containers/septic tanks in low-lying areas are emptied.
- Informs the ERT about the Flood Alert and subsequent actions.

6.2.1.2 Level 2 – Flood Warning

Trigger and Timing: Issued by the EA when water levels are rising, and more rain is expected. The lead time for these warnings can vary between 30 minutes to one day, based on the specific flood risk characteristics.

Plant Manager's Role

On receipt of a Flood Warning, the Plant Manager initiates the following actions. If the Plant Manager, based on field observations, deems the risk of flooding imminent, these actions are initiated regardless of an official Flood Warning:

- prioritise the relocation of all non-essential equipment containing hydrocarbons or chemicals to higher ground; and
- ensure the ERT is prepared for potential Site evacuation.

ERT Actions:

- move remaining essential equipment containing hydrocarbons or chemicals to higher ground or secure within bunding;
- relocate any critical equipment from lower levels of cabins or vulnerable areas; and
- position sandbags strategically around emergency generators and other critical infrastructure to mitigate water ingress.

6.2.1.3 Level 3 – Sever Flood Warning

Trigger and Timing: Indicates that severe flooding is expected, requiring immediate precautions.

Plant Manager's Role:

- activates the site's Emergency Alarm;
- coordinates with ERT to ensure the safe evacuation of all personnel from the Site; and
- isolates electricity and water supplies to mitigate risks during the flood.

6.2.2 POST-FLOOD ACTIONS

After the flood recedes, the Plant Manager shall mark high water lines for documentation and survey them to record the maximum flooding condition.

Use collected information for public education, financial assistance justification, and future flood infrastructure planning.

7 TERRORISM OR OTHER SUBSTANTIAL THREAT TO SECURITY

7.1 TERRORISM OR OTHER SUBSTANTIAL THREAT TO SECURITY RISK OVERVIEW

The CCF acknowledges the risk of terrorism or other substantial threats to security. This section outlines the fundamental measures for effectively managing these risks, ensuring the safety of personnel and the integrity of the CCF.

Further detailed response actions for terrorism or other substantial threat to security (TOSTS) will be developed before prior to operation of the CCF.

7.2 HANDLING TERRORIST ACTIONS (ACTUAL OR THREATENED)

Upon receiving credible information regarding a terrorist threat, immediate action includes contacting law enforcement authorities.

The management team will follow police instructions diligently.

In case of a bomb threat or similar emergency, a specific procedure will be activated, focusing on gathering key information while ensuring the safety of all personnel. This includes recording information such as:

- Caller details: Gender, age estimate, voice characteristics, accent, and mannerisms.
- Threat details: Timeframe, location of the threat, type of threat (explosive, incendiary), and any specific demands or grievances.
- Caller's knowledge: How the caller obtained information about the threat.

Decisions regarding Site evacuation, communication with emergency services, and restricting certain communications (like VHF radios) will be made in accordance with established protocols and law enforcement guidance.

The Plant Manager or their deputy will be promptly informed and will prepare evacuation as per the confirmed evacuation procedure and relevant ‘Incident Control Action Sheets’ developed for the CCF.

7.3 RESPONDING TO INTRUDERS ONSITE

Immediate police notification is the first step in response to an intruder on site.

All personnel will be instructed to avoid personal risk.

Efforts will be made to limit the intruder's access to sensitive areas and to monitor their activities using security systems.

Collaboration with law enforcement for search procedures and managing the situation will be a priority.

The Plant Manager or their deputy will be informed to activate the necessary response as per the full APMP.

To enhance response capabilities against potential intruders, the Site will deploy advanced CCTV systems mounted at height on poles throughout the site. This elevated positioning ensures

comprehensive surveillance coverage, aiding in the early detection and assessment of security threats. Integrated pole top luminaires and bollard type lighting will illuminate key areas, improving visibility for both CCTV operation and security personnel, thereby optimising the CCF's readiness to effectively manage intruder incidents.

7.4 RECOVERY AND REVIEW POST-INCIDENT

After an incident, a comprehensive review will be conducted to assess the response and identify areas for improvement.

This review will inform future modifications to the full APMP to enhance readiness for similar incidents.

8 EMERGENCY RECOVERY AND REVIEW

8.1 OVERVIEW

The primary focus during an emergency is the effective response led by the ERT, temporarily sidelining normal business operations.

Recovery considerations begin immediately upon the start of an incident, aiming to lessen operational impacts and shorten the incident duration.

8.2 TRANSITION FROM EMERGENCY RESPONSE TO RECOVERY

The transition from active emergency response to recovery is a delicate process. The Plant Manager, in collaboration with the Incident Controller and the ERT will determine the end of emergency response activities.

This decision is made when the emergency is contained, immediate effects have been addressed, and there is no expectation of escalation.

8.3 REGULATORY REPORTING AND MEDIA COMMUNICATION

Certain emergencies must be reported to the appropriate regulatory authorities, considering the type of emergency and its impacts.

The types of authorities and communication protocols for reporting will be established in the full APMP before operation of the CCF.

Communication with the media is restricted to authorised personnel only, with all media inquiries directed to nominated personnel which will be detailed in the final communication plans for the CCF.

8.4 INCIDENT REPORTING

The notification, investigation, and reporting of accident and emergency incidents shall comply with the Applicant's incident reporting and investigation procedures. An Accident Recording Form will be developed prior to commissioning of the CCF. This will record details of the cause of the accident, as well as any remedial action taken.

8.5 EMERGENCY INCIDENT REVIEW AND DEBRIEF

Each emergency incident will undergo a comprehensive investigation aimed at identifying the root causes, in accordance with incident investigation procedures developed for the CCF.

Operational debriefs will form a key component of the review process, providing an opportunity to share findings and lessons learned with all relevant personnel.

The review process will critically evaluate the effectiveness of existing risk assessments, emergency arrangements, and health, safety, and environmental documentation. This evaluation aims to identify areas requiring improvement to enhance overall safety and preparedness.

9 PLAN REVISION AND ADMINISTRATION

Ownership and Development: The full APMP, to be developed in alignment with this document, will be under the ownership of the Operator of the Site. This comprehensive plan will be established prior to the initiation of operations within the CCF.

Plan Status and Accessibility: The full APMP will be a controlled document. The master copy, authorised by the designated manager, must be continuously accessible on a secure, internal platform. As a living document, the full APMP requires regular updates and revisions to reflect operational changes.

Revision and Correction Process: Any identified need for changes or corrections should be communicated to the responsible emergency services team. This continuous feedback loop ensures the full APMP remains current and effective.

Review and Update Cycle: The full APMP, alongside all Site emergency procedures and related documents, will undergo a review at least every three years or as dictated by legislative changes or operational requirements. Additionally, reviews will follow emergency training drills, actual emergency events, or on an annual basis to guarantee ongoing effectiveness.

Distribution and Amendment Control: The responsibility for distributing the plan and controlling its amendments rests with the Plant Manager or their nominated deputy. This includes ensuring that revisions are reflected in training and operational procedures.

Controlled Documentation: This Plan and all supporting documents are to be maintained as controlled documents within the organisation's document management system.

8 First Street
Manchester
M15 4RP

wsp.com

PUBLIC